G. PULLA REDDY COLLEGE OF PHARMACY

Mehdipatnam, Hyderabad- 500028

Affiliated to Osmania University; Approved by PCI; Accredited by NAAC;

Phone: 8297511177; E-mail : gprcphyd@gmail.com; Website : www.gprcp.ac.in;

ABSTRACT BOOK

One Day Seminar on

"INNOVATIONS IN PHARMACEUTICAL RESEARCH-2024

ORAL & POSTER PRESENTATIONS"

21st December 2024

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VISION

G. Pulla Reddy College of Pharmacy envisages to become the centre of excellence for research in Pharmacy. It aims to contribute significantly to drug development and drug discovery.

MISSION

G.Pulla Reddy College of Pharmacy aims to be on forefront in imparting the disciplined and quality Pharmacy education. The Graduate & Post-graduate students shall be groomed as responsible & highly acclaimed professionals in the Pharmaceutical Arena.

COURSES OFFERED

B. Pharm

M. Pharm - Pharmaceutical Chemistry
Pharmaceutics
Pharmacology
Pharmaceutical Analysis
Pharmaceutical Regulatory Affairs

Pharm. D

TGEAPCET CODE: GPRP

TGPGECET CODE: GPRP1

G. PULLA REDDY COLLEGE OF PHARMACY

ONE DAY SEMINAR ON

INNOVATIONS IN PHARMACEUTICAL RESEARCH-2024

ORAL AND POSTER PRESENTATIONS 21ST DECEMBER 2024

PROGRAM SCHEDULE

9.00 am--10.00 am	**Registration**
10.15 am—11.00 am	**Inauguration** **Welcome Address:** Dr. B Madhava Reddy, Principal, GPRCP. **Keynote Speech: Guest of Honour** **Prof. K. JANARDHAN REDDY**, Former Principal, Osmania University College of Science, Former Executive Council Member, Osmania University, Hyderabad
11.00 am--11.45 am	**Lecture I:** Pharmacology of neurotransmitter transport: A journey through membranes and macromolecules. **Dr. ARAVIND PENMATSA**, PhD, FNASc Associate Professor, Molecular Biophysics Unit, Indian Institute of Science, Bangalore
11.45 am—12.00 noon	**Tea Break**
12.00 noon--12.45 pm	**Lecture II: G. PULLA REDDY MEMORIAL ORATION LECTURE** Innovations in the Pharma and Biopharma Industries: Role of Academy-Industry Interactions **Dr. PALLU REDDANNA**, Professor Emeritus, School of Life Sciences, University of Hyderabad, Vice President- Agri Biotech Foundation.
12.45 pm--1.00 pm	**Question & Answer Session**
1.00 pm--2.00 pm	**Lunch Break**
2.00 pm--4.00 pm	**Oral & Poster Presentations**
4.00 pm--05.00 pm	**Valedictory Function** **Prizes & Certificates Presentation**

❖ **ALUMNI MEET (12.00 noon—3.00 pm)**

ONE DAY SEMINAR ON

INNOVATIONS IN PHARMACEUTICAL RESEARCH-2024

ORAL AND POSTER PRESENTATIONS 21ST DECEMBER 2024

SPEAKER PROFILE

Dr. Aravind Penmatsa, PhD, FNASc
Associate Professor,
DBT-Wellcome Trust India Alliance Senior Fellow &
EMBO Global Investigator,
Molecular Biophysics Unit,
Indian Institute of Science,
Bangalore

Mr. Aravind Penmatsa, the awardee of Vigyan Yuva-Shanti Swarup Bhatnagar 2024**,** an alumnus of GPRCP, is working as an Associate Professor at the prestigious Indian Institute of Science, in Molecular Biophysics Unit. He pursued his PhD in *structural biology and biophysics of ion-binding proteins*, at the Centre for Cellular and Molecular Biology, Hyderabad. He did his Postdoctoral Research, as an American Heart Association Fellow, at the Gouaux lab in Vollum Institute of Oregan Health and Science University, Oregan. There he studied the mechanisms and pharmacology of neurotransmitter uptake system involved in dopamine transport in neurons. After which, he returned to India and setup his lab at the Molecular Biophysics Unit, Indian Institute of Science in 2015. At this unit, his group, studies the transport mechanisms of neurotransmitters like noradrenaline and GABA and their transport inhibition by pain and antiepileptic medications. His group also studies antiporters involved in multi-drug efflux and develops novel strategies for using single domain antibodies to determine the structures of integral membrane transporters to study their mechanisms and functional roles. Mr. Aravind is a senior fellow of the DBT-Wellcome Trust India Alliance, an EMBO Global Investigator and a fellow of the National Academy of Sciences, India.

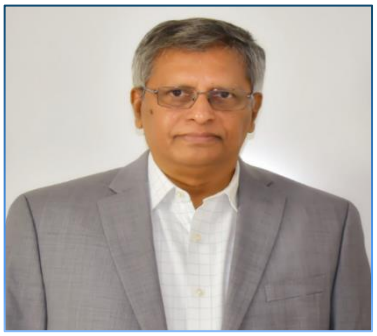
ONE DAY SEMINAR ON

INNOVATIONS IN PHARMACEUTICAL RESEARCH-2024

ORAL AND POSTER PRESENTATIONS- 21ST DECEMBER 2024

SPEAKER PROFILE

G PULLA REDDY MEMORIAL ORATION LECTURE



Dr. Reddanna Pallu,
Emeritus Professor,
School of Life Sciences, University of Hyderabad,
Executive President,
Federation of Asian Biotech Associations (FABA),
Vice President of Agri Biotech Foundation.

Dr. Reddanna, is an Emeritus Professor in the School of Life Sciences, University of Hyderabad. He has over 35 years research career in the field of inflammation and cancer. He has guided 41 PhD students and published around 200 papers with citations over 11,000 and an H index of 55. He served as the founder director of the National Institute of Animal Biotechnology (NIAB) and the Dean, School of Life Sciences. He played a key role as the founder Director of ASPIRE, a section 8 company, in promoting innovation, entrepreneurship and startup ecosystem in the University. He is currently the Executive President of the Federation of Asian Biotech Associations (FABA), a non-profit organization that promotes academy and industry interactions, career guidance, skill development activities, and startup ecosystem.

He was the recipient of the Rockefeller Foundation Biotechnology Career and the Royan International Foundation Awards. He also received the "Outstanding Contribution Award (Pharma)" from the Chemtech Foundation and the "Outstanding Scientist Award for the Benefit of Industry" from the Federation of Andhra Pradesh Chamber of Commerce and Industry (FAPCCI). Currently he is serving as one of the Directors of the Genome Foundation and as the Vice President of Agri Biotech Foundation.

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INNOVATIONS IN PHARMACEUTICAL RESEARCH-2024

ORAL AND POSTER PRESENTATIONS

21ST DECEMBER 2024

ORGANIZING COMMITTEE

Chief Patron: Sri. P. Subba Reddy, Chairman, GPRCP					
Convener: Dr. B. Madhava Reddy, Principal, GPRCP					
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Saheli Ghosh					S. Apoorva

CONTENTS

ORAL PRESENTATIONS

PCU-OP-001

UNLOCKING THE POTENTIAL OF VITAMIN E TPGS: INNOVATIONS IN DRUG FORMULATION AND DELIVERY SYSTEMS

A. Greeshma Sahithi , K.Ramyasri, M.Vijayalaxmi.
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Vitamin E TPGS (d-α-tocopheryl polyethylene glycol succinate) has emerged as a versatile excipient with multifaceted applications in drug formulation and delivery. Its unique amphiphilic structure enables it to function as a solubilizer, emulsifier, and absorption enhancer, addressing critical challenges in drug development, particularly for poorly water-soluble compounds. Recent advancements highlight TPGS's role in enhancing oral bioavailability, stabilizing nanoparticles, and facilitating controlled drug release in various delivery systems, including micelles, liposomes, and polymeric nanoparticles. Furthermore, its intrinsic antioxidant and P-glycoprotein inhibition properties provide added therapeutic benefits, including overcoming multidrug resistance in cancer therapy and improving the stability of sensitive drugs. This presentation will delve into the emerging trends in TPGS-based formulations, emphasizing its applications in targeted drug delivery, combination therapy, and innovative dosage forms such as 3D-printed pharmaceuticals. Challenges, including regulatory considerations and optimization of formulation parameters, will also be discussed. By exploring the latest research and breakthroughs, this session aims to underscore the transformative potential of TPGS in advancing pharmaceutical development and patient care.

Keywords: Vitamin E, polymeric nanoparticles, combination therapy, absorption enhancer, poorly water-soluble compounds.

PCU-OP-002

BREAKING BARRIERS: INNOVATIVE PEPTIDE DELIVERY STRATEGIES FOR TARGETED MIGRAINE THERAPY

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Migraines are a complex and debilitating neurological disorder affecting millions worldwide. Despite significant advancements in understanding their pathophysiology, effective treatments with minimal side effects remain

limited. Peptide-based therapeutics have emerged as a promising approach due to their high specificity and ability to modulate key biological pathways, such as the calcitonin gene-related peptide (CGRP) system, which is pivotal in migraine pathogenesis. However, delivering peptides to the brain poses significant challenges, primarily due to their instability and limited ability to cross the blood-brain barrier (BBB). Recent innovations in peptide delivery strategies, including nanotechnology-based carriers, BBB-modulating peptides, and intranasal delivery systems, offer novel solutions to these challenges. These approaches enhance peptide stability, improve BBB permeability, and enable targeted delivery to neural tissues, potentially revolutionizing migraine management. Preclinical and clinical studies have shown promising results, demonstrating significant reductions in migraine frequency and severity with these advanced delivery systems. This presentation will delve into the latest advancements in brain-targeted peptide delivery for migraine therapy. It will highlight emerging technologies, explore their mechanisms of action, and discuss their translational potential in clinical settings. This innovative approach represents a paradigm shift in migraine treatment, offering hope for improved outcomes and better quality of life for patients.

Keywords: Peptide therapeutics, Migraine treatment, Brain-targeted drug delivery, Calcitonin gene-related peptide (CGRP), Intranasal delivery, Translational medicine.

PCU-OP-004

ENHANCEMENT OF SOLUBILITY FOR POORLY WATER SOLUBLE DRUGS USING β-CYCLODEXTRIN INCLUSION COMPLEXATION

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The present study aimed to develop cyclodextrin inclusion complexes of BCS class II drugs namely fosamprenavir and trimethoprim. Both the drugs have poor water solubility which reduces the bioavailability of the drug. The primary goal of this study was to combine cyclodextrin with fosamprenavir and trimethoprim to increase its solubility and rate of dissolution.

Different complexes were prepared through the physical mixture, kneading, and solvent evaporation methods. All complexes were evaluated for saturation solubility, drug content, and dissolution rate. Increase in the drug: β-cyclodextrin ratio from 1:1 to 1:3 increased the solubility and dissolution rate of the drug. Further increase in ratio to 1:5 did not significantly increase the solubility and dissolution rate. The characteristic analysis such as the phase solubility study, Differential scanning calorimetry (DSC), and Fourier transform infrared spectroscopy (FTIR) supported the formation of such complexes. Based on the results, 1:3 ratio of was optimized. The results of this investigation indicate solvent evaporation method can be successfully employed to enhance the solubility and dissolution of fosamprenavir and trimethoprim.

Keywords: Cyclodextrin, BCS, Fosamprenavir, Trimethoprim, Solvent Evaporation Method.

PCU-OP-005

FORMULATION AND EVALUATION OF FAST DISSOLVING TABLET OF CLONAZEPAM

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In this study, quick-dissolving Clonazepam pills were produced by the Sublimation method to increase patient compliance. The goal of this project is to create Clonazepam pills that dissolve quickly so that the medication can be quickly absorbed and start working to cure epilepsy. The compatibility of drugs and excipients is evaluated by FTIR research. I developed eight formulations with different amounts of super disintegrates. In this present work we use parameters. These pills drug content, weight disparity, toughness, friability, moistening time, and in-vitro fragmentation time were all evaluated. It was found that the drug's concentration ranged from 90.58 to 97.60%.In vitro drug release was reported to be 98.15% for a duration of 60 minutes. It was found that the wetting time, which is a crucial benchmark for figuring out how likely it is for disintegrates to inflate in the presence of a small amount of water, was between 5.22 mins. Tablets from batch F5, which contained SSG, demonstrated superior in-vitro degeneration time and medication release in comparison to other formulations. For quick dissolving clonazepam SSG is the proper ingredient. In this work we used the sublimation process. Tablet dispersion required super disintegration.

Keywords: Clonazepam, super disintegrants, FTIR studies, Sublimation method, in-vitro drug release studies, Drug release kinetics.

PCU-OP-006

INFLUENCE OF ARTIFICIAL INTELLIGENCE IN MODERN PHARMACEUTICAL FORMULATION AND DRUG DEVELOPMENT

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Modern pharmaceutical discovery and formulation have been completely transformed by artificial intelligence. Researchers can now more accurately and efficiently optimize medication design, develop formulations, and streamline clinical trials with the aid of AI. Drug development might be a time consuming process, however, with the help of AI this can be significantly reduced. The main advantages of AI in pharmaceutical formulation are its capacity to analyze vast amount of data and spot patterns and connections that human researchers would miss. Diverse techniques and technologies such as AAN, fuzzy logic, neuro- fuzzy logic, and genetic algorithms are employed for data analysis, with ANN being the most prevalent and widely utilized. Artificial intelligence facilities the identification of New pharmacological targets and the development of more effective medications.AI can be employed in pharmaceutical formulations by forecasting the solubility, stability, and bioavailability of drug candidates, hence enhancing the probability of success clinical trials. Artificial intelligence is a powerful tool for pharmaceutical discovery and formulation that enables researchers to examine large amounts of data, improve drug formulations and speed clinical trials.Experts predict that as technology advances, AI will play a bigger role in drug research, allowing for quicker, more effective, and more efficient treatment for various diseases.

Keywords: Artificial intelligence, pharmaceutical formulation, Nano medicine, Drug development.

PCU-OP-007

ADVANCED THIRD-GENERATION SOLID DISPERSIONS: A BREAKTHROUGH IN BIOENHANCEMENT FOR POORLY SOLUBLE DRUGS.

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The limitations of poor aqueous solubility and low bioavailability remain significant barriers in drug development, particularly for modern therapeutic agents. Advanced third-generation solid dispersions represent a transformative approach to overcoming these challenges. This novel strategy combines innovative polymer technologies and stabilizers to enhance solubility, stability, and dissolution rates of poorly soluble drugs. This presentation delves into the mechanisms, formulation techniques, and applications of third-generation solid dispersions. Case studies illustrating improved pharmacokinetic profiles and clinical outcomes are discussed, along with future directions in bioenhancement research. By advancing drug delivery systems, these solid dispersions offer a promising solution to improve therapeutic efficacy and patient outcomes.

Keywords: Third-Generation Solid Dispersions, Bioenhancement, Drug Solubility, Bioavailability, Drug Delivery Systems, Pharmacokinetics, Polymer Technologies.

PCU-OP-008

NEEDLESS INSULIN INJECTIONS

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Needleless insulin injection technology represents a groundbreaking advancement in diabetes management, offering a pain-free and effective alternative to traditional needle-based insulin delivery methods. This technology primarily relies on jet injectors or microneedles to administer insulin through the skin without the use of a syringe.

By using high-pressure systems or dissolvable patches, insulin is delivered into the subcutaneous tissue efficiently and safely. The innovation addresses key challenges faced by patients, including needle phobia, pain, and the risk of infections, which often lead to poor adherence to prescribed insulin regimens. Needleless systems improve patient comfort and compliance, particularly in children and individuals apprehensive about needles. Additionally, they offer a sterile and precise method of insulin administration, reducing complications associated with improper injections.However, needleless insulin delivery is not without its challenges. High costs, technical limitations, and the need for device calibration may hinder widespread adoption. Moreover, research is ongoing to optimize these systems for better efficacy and affordability.Future developments hold promise for making needleless insulin delivery more accessible and adaptable, with potential applications beyond diabetes care. As the technology evolves, it may significantly enhance the quality of life for diabetic patients worldwide. This presentation explores the science, benefits, limitations, and future potential of needleless insulin injections, shedding light on their transformative role in modern healthcare.

Keywords: Microneedles, insulin, needleless, injections, calibration

PCU-OP-009

TARGETING PRETERM LABOR: MYOMETRIUM-SELECTIVE LIPOSOMES FOR CONTROLLED DRUG DELIVERY

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Preterm labor remains a significant global health challenge, leading to high neonatal morbidity and mortality. Despite various efforts, effective and targeted therapeutic strategies for its prevention are limited. Myometrium-targeted drug delivery, particularly through liposomes, presents an innovative approach to address this issue. Liposomes, as nanocarriers, offer several advantages, including biocompatibility, controlled release, and the ability to encapsulate both hydrophobic and hydrophilic drugs. Targeting the myometrium (the muscular layer of the uterus) directly with these liposomes could allow for localized, controlled delivery of therapeutics that modulate uterine contractions and prevent preterm labor, while minimizing systemic side effects. This presentation will focus on the development and application of myometrium-targeted liposomes for the prevention of preterm

labor. It will explore the formulation strategies for designing these liposomes, incorporating targeting ligands such as specific antibodies or peptides that bind to receptors on myometrial cells. Additionally, the role of encapsulated agents, including tocolytics and anti-inflammatory drugs, will be discussed in terms of their efficacy in reducing uterine contractions and inflammation, both key contributors to preterm labor. The presentation will also highlight in vitro and in vivo studies demonstrating the effectiveness of these formulations, along with challenges in optimizing liposome targeting and ensuring therapeutic efficacy. This targeted approach represents a promising solution for improving maternal and neonatal outcomes by offering a more efficient and localized treatment for preterm labor.

Keywords: Myometrium-targeted liposomes, Preterm labor prevention, Nanocarriers, Tocolytics, Maternal health, Neonatal outcomes.

PCU-OP-010

3D PRINTING TECHNOLOGY –AN INNOVATIVE APPROACH FOR TAILORED TREATMENT

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Three-dimensional computer aided technology used for fabrication of tailor-made drug formulations, medical devices, anatomical models, tissue engineering & regenerative medicine, engineered tissue models, dentistry with one – size-fits-all-model. Despite its creation in 1970, 3D printing was not widely recognised. But over the past decade, its popularity in the industry increased tremendously due to introduction of first Food and Drug Administration (FDA) approved 3D printed drug product (Spritam®) into the market. The immense focus was not only on the biomedical field but also pharmaceutical industry due to potential advantages and customization of medicine with adjusted dose for individuals, on–demand manufacturing. The use of 3D printing involves 7 different techniques like Stereolithography (SLA), Digital Light Processing (DLP), Fused Deposition Modelling (FDM), Selective Layer Sintering (SLS), Electronic Beam Melting (EBM), Laminated Object Manufacturing (LOM). This abstract elucidates the manufacturing and characterization of 3D printing technology in pharmaceutical industry, the development trend; and reporting on the commercialization direction in

different countries of 3D-printed drugs, their development history, and the breakthrough results achieved, driving the innovation of drug development models. As an emerging technology, the registration and filing path for 3D-printed preparations is unique, while intellectual property rights, drug regulations, and other policies or regulations are still breaking new ground. It is believed that with continuous efforts, the future of the 3D-printed drug industry is promising and will certainly promote drug preparation technology that is intelligent and personalized.

Keywords: 3D printing, SLA, DLP, FDM, SLS, EBM, LOM, Intellectual property rights, Drug regulations.

PCU-OP-011

MICRO/NANOROBOT: A PROMISING TARGETED DRUG DELIVERY SYSTEM

Y. Karan

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Accurate drug delivery remains a significant challenge in pharmaceutical research due to inefficiencies in targeting specific tissues or organs. Nano carrier-based drug delivery systems offer promising solutions by enhancing drug solubility and targeting. Still, their effectiveness is limited by factors such as the mononuclear phagocyte system and glomerular filtration. Active targeting methods, such as attaching ligands to nanoparticles, have shown limited success in improving drug accumulation, particularly in tumors. Recent advances in micro/nanorobots, which can autonomously navigate to target sites, provide a potential solution by offering more precise drug delivery. However, challenges remain in optimizing these systems. Various propulsion methods are being explored for micro/nanorobots, including magnetic field-driven, electric field-driven, light-driven, and ultrasound-powered systems. Magnetic field-driven robots, such as helical swimmers and surface walkers, have shown promise but face concerns regarding metal toxicity and in vivo safety. Electric field-driven robots, often using a combination of electric and light energy, also present potential but are limited by issues such as penetration and metal component safety. Light-driven robots can catalyse chemical reactions for propulsion but are restricted by limited tissue penetration, particularly from UV light. Near-infrared (NIR) light shows promise as a safer alternative, though research remains primarily in vitro. Ultrasound-powered nanorobots, with excellent biocompatibility, also show potential for drug delivery, though challenges like ultrasound-induced oxidative stress limit their broader use. Additionally, self-propelling

nanorobots powered by biocompatible fuels, such as magnesium, glucose, and urea, offer promising solutions but face issues like movement control and fuel depletion. Overall, further research is needed to optimize these systems for successful clinical applications.

Keywords: Nano carrier, mononuclear phagocyte system, nanoparticles, Nanorobots, Near infrared, biocompatibility, ligands, tumors, glomerular filtration, propulsion, Oxidative stress, Drug solubility.

PCU-OP-013

BILAYERED TABLETS: A REVIEW OF FORMULATION, MANUFACTURING AND EVALUATION

K.Divya Lakshmi, R.Anusha
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Bi-layer tablet is a new era for successful development of controlled release formulation along with various features to provide successful drug delivery. Bilayer layer tablets have been consist of two layers which is slow release and immediate release layer. As well as improved beneficial technology to overcome the shortcoming of the single layer tablets. The preparations of bilayer tablet were needs due to separate incompatible active pharmaceutical ingredient (APIs) for each other. Bilayer tablets material involves both the compressibility and consolidation. The bilayer tablets preparing by using different techniques such as OROS® push pulls Technology, L- OROSTM Technology, EN SO TROL Technology. Various types of bilayer tablet press currently available in the market, various approaches used in bilayer tablet system, characterization as well as evaluation of the bilayer tablet system. Bi-layer tablet is suitable for sequential release of two drugs in combination, separate two incompatible substances and also for sustained release tablet in which one layer is immediate release as initial dose and second layer is maintenance dose.

Keywords: Bilayer tablets, Sustained release, OROS® push pulls Technology.

PCU-OP-014

PULMONARY DRUG DELIVERY: AN INNOVATIVE APPROACH

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Pulmonary drug delivery (PDD) has emerged as a promising approach for administering a wide range of therapeutic agents directly to the lungs, offering several advantages over traditional routes such as oral or intravenous administration.The pulmonary route allows for rapid onset of action, enhanced bioavailability, and non-invasive delivery, making it particularly beneficial for treating respiratory conditions such as asthma, chronic obstructive pulmonary disease (COPD), and cystic fibrosis. Despite its potential, pulmonary drug delivery faces several challenges. These include the complexities of drug formulation, ensuring stable aerosolization, overcoming mucociliary clearance, and achieving targeted delivery to specific regions of the lungs. Furthermore, the variability in pulmonary anatomy and breathing patterns among patients can affect the efficiency and consistency of drug deposition in the lungs. Recent innovations in PDD have focused on improving drug formulations and delivery devices. Advances in nanoparticle-based carriers, such as liposomes, solid lipid nanoparticles, and polymeric nanoparticles, have shown promise in enhancing drug stability, reducing side effects, and improving targeted delivery to the lungs. These carriers can also facilitate the delivery of larger, biologically active molecules, such as proteins and peptides, that were previously difficult to administer via the pulmonary route. Research is also ongoing into the delivery of systemic drugs via inhalation, including insulin and oxytocin, which are traditionally administered through injections. Studies are exploring the potential for inhalable insulin formulations to provide a non-invasive alternative for diabetes management, while pulmonary delivery of oxytocin holds promise for more controlled and effective labour induction or postpartum haemorrhage management.

Keywords: COPD, Liposomes, Nanoparticle, Targeted delivery, Peptides

PCU-OP-015

BLOOD REJUVENATION : AESTHETIC AND COSMETIC SURGERY

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An effective and current model shift in plastic and reconstructive surgery applications is made possible by the efficient use of stem cell therapies and applications utilized for the repair and regeneration of the same or other tissues and organs. In the last seven to ten years, stem cell-assisted therapies

have become a widely preferred method due to their ability to self-renew and multi-potential differentiation.According to the findings of the studies, adult mesenchymal stem cells provide the ideal stem cell population for practical regenerative medicine, even though the use of embryonic stem cells or induced pluripotent stem cells is very important in clinical studies. Stem cell blood rejuvenation is a cosmetic procedure that can help restore the skin's natural functions and reduce the appearance of wrinkles, fine lines and age spots. The procedure involves extracting stem cells from the patient's blood or fat tissues and injecting them into the skin. Blood rejuvenation through stem cells can improve the skin texture , tone and elasticity. It can also help the skin regenerate and heal by increasing vascularity and collagen and elastin fiber synthesis. Stem cell therapy is an emerging field in plastic surgery that leverages the regenerative capabilities of stem cells to repair and rejuvenate tissues. This innovative approach has garnered significant attention due to its potential to enhance healing processes, improve aesthetic outcomes and address a variety of conditions that affect the skin and underlying tissues. Platelet rich plasma is combined with stem cells before injection into the target area. PRP role is to support cell proliferation an dpromote healing in the treated tissues. These procedures have had many advancements and are being used by many in the cosmetic industry.

Keywords: Blood rejuvenation, stem cell therapy, cosmetic procedures.

PCU-OP-016

FORMULATION & EVALUATION OF INNOVATIVE NANOEMULSION FOR IMPROVED THERAPEUTIC OUTCOMES

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This study aims to formulate and evaluate an innovative nanoemulsion of Metformin for enhanced therapeutic outcomes in type 2 Diabetes Mellitus. The Self Nano emulsifying drug delivery system(SNEDDS) a novel drug delivery system for enhancement of water solubility of poorly water-soluble drugs .The primary objective was to develop a nano-emulsion based drug delivery system to overcome these limitations and improve the drug`s pharmacokinetic profile .It is isotropic mixture of oil, surfactant ,co-surfactant molecules and co-solvent molecule .The stability studies confirmed no significant changes in kinetic parameters over 3 months .In-vitro release studies showed a significantly higher dissolution rate of Metformin from the nano emulsion compared to other formulation. The cumulative drug release from the nano-emulsion reached 94.5% within 60 mins whereas conventional

formulation released in same period. Further this studies are warranted to evaluate pharmacokinetic parameters & clinical efficacy.

Keywords: Metformin, Nanoemulsion, Solubility enhancement, bioavailabi--lity, stability, pharmacokinetic parameters.

PCU-OP-017

NANO INNOVATIONS: TRANSFORMING DRUG DELIVERY AND THERAPEUTICS

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Nano medicine is a branch of medicine that uses nanotechnology to diagnose, treat, and prevent diseases. Nanotechnology is at the forefront of medical innovation, revolutionizing drug delivery and therapeutic strategies. This presentation explores the principles, advantages, and applications of nanotechnology in healthcare. Nano carriers including liposomes, polymeric nanoparticles, dendrimers, and nanocrystals, offer targeted drug delivery, improved bioavailability, and controlled release. The integration of nanotechnology in treating cancer, neurological disorders, metabolic diseases, cardiovascular diseases, and infectious diseases has demonstrated significant potential to enhance therapeutic efficacy while minimizing side effects. Despite its transformative benefits, challenges such as biocompatibility, scalability, and regulatory hurdles remain. Future innovations, such as stimuli-responsive Nano carriers, gene delivery systems, and bioinspired nanoparticles, promise to redefine drug delivery systems further. This presentation aims to highlight the cutting-edge advancements and future prospects of nanotechnology, emphasizing its role in shaping the future of medicine.

Keywords: Nanoparticles, Nanomedicine, Nanotechnology, Dendrimers, Liposomes, Targeted drug delivery, Precision medicine

PCU-OP-018

PREPARATION OF ALLIUM CEPA PEEL EXTRACT-MEDIATE SILVER NANOPARTICLES : A HAIR DYE FORMULATION

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The burgeoning field of nanotechnology has ushered in innovative Novel drug delivery systems (NDDS) that enhance the efficacy, safety, and patient compliance of pharmaceutical treatments. This study explores the synthesis and application of silver nanoparticles (AgNPs) using green chemistry approaches, specifically leveraging plant extracts as reducing agents. AgNPs, known for their unique physical and chemical properties, including antimicrobial capabilities, offer significant potential in modern drug delivery. This study investigates the potential of using Allium cepa peel waste for the green synthesis of silver nanoparticles. This study also revealed the resultant formation of silver nanoparticles through microscopy and UV spectroscopy, which were further analyzed by Scanning Electron Microscopy. This green synthesis method not only aligns with environmentally friendly practices but also provides a cost-effective and scalable approach to nanoparticle production. We formulated a hair dye incorporating these AgNPs and evaluated its physicochemical parameters, demonstrating enhanced performance compared to control formulations without nanoparticles. This work underscores the promise of green-synthesized nanoparticles in developing advanced drug delivery systems, offering insights into future applications in anticancer and antimicrobial treatments. Our findings advocate for the broader adoption of sustainable nanotechnology in pharmaceutical sciences, potentially revolutionizing the treatment landscape with safer and more effective therapeutic options.

Keywords: Nanotechnology, Silver Nanoparticles, Green Synthesis, Allium cepa, UV spectroscopy, Scanning Electron Microscopy.

PCU-OP-019

DRUG DELIVERY FROM NOSE TO HEART: AN INNOVATIVE APPROACH

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The intranasal administration of drugs has long been used for the topical treatment of various nasal disorders but many features of the intranasal mucosa also make it useful for delivery of systemically active agents and this emerged intranasal administration as a novel approach for rapid systemic absorption, with potential applicability in the management of acute cardiovascular events. This study explores the evolution of IN cardiovascular pharmacotherapy, emphasizing its potential in achieving systemic effects and

bypassing the first-pass metabolism associated with oral administration. The extensive vascularization of nasal mucosa and a porous endothelial basement membrane facilitate efficient drug absorption into the bloodstream. The Intranasal route ensures a critical swift onset of action, which allows self-administration in at-home settings. A small number of clinical trials have revealed promising results, emphasizing the superiority of Intranasal drug delivery in terms of bioavailability and onset of action. For instance, Etripamil nasal spray,exemplifies its therapeutic potential in the treatment of spontaneous supraventricular tachycardia,and is still under further investigation. Recently in a clinical trial, researchers explored a new nasal spray form of bumetanide in healthy adults. They compared its absorption and ability to reduce swelling to those of oral and intravenous bumetanide among 68 adults who did not have heart failure or risk factors for heart failure at the time of enrollment.If these are successful it could provide a rapid, convenient and effective alternative route offering benefits for patient care and outcomes

Keywords: Intranasal administration, Nasal spary, Cardiovascular disease, Etripamil, Bumetanide.

PCU-OP-020

CHRONOTHERAPY: ADVANCING TIME-SYNCHRONIZED DRUG DELIVERY FOR OPTIMIZED DISEASE MANAGEMENT

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Human biological processes are regulated by circadian rhythms, influencing the emergence of chronotherapy—a drug delivery approach synchronized with these rhythms. Chronotherapy aligns drug administration with the biological cycles of specific diseases to optimize efficacy and minimize side effects. This method, often implemented through pulsatile drug delivery systems, releases drugs after a predefined lag phase to coincide with peak disease activity. Diseases such as hypertension, asthma, diabetes, peptic ulcers, and cardiovascular conditions exhibit circadian variations, necessitating time-programmed drug delivery systems. Chronotherapeutic formulations deliver medications in bursts during periods of heightened disease manifestation, enhancing therapeutic impact while reducing adverse effects. Advances in chronomodulated drug delivery include time-controlled systems, stimuli-

induced systems (responsive to pH, temperature, or chemical triggers), and externally regulated systems using magnetic, ultrasonic, or electric forces. These innovative systems employ materials like hydrophilic polymers, biodegradable plugs, and rate-controlling membranes to achieve precision timing. Current technologies such as OROS®, DIFFUCAPS®, and CODAS® provide delayed or site-specific drug release, improving patient outcomes in diseases with circadian fluctuations. For example, antihypertensives administered at night ensure optimal morning plasma levels, while evening doses of cholesterol-lowering agents target nocturnal cholesterol synthesis. Chronotherapeutics bridges biological rhythms and pharmacological treatment, fostering advancements in drug scheduling for chronic diseases. Although significant progress has been made, ongoing research into circadian rhythm-based drug systems promises broader therapeutic applications, positioning chronotherapy as a cornerstone in personalized medicine.

Keywords: Chronotherapy, Pulsatile Drug Delivery, Circadian Rhythm, Chronomodulated Systems, Chronopharmaceuticals.

PCU-OP-021

ORAL INSULIN: THE FUTURE OF INSULIN THERAPY AND DIABETES MANAGEMENT

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Insulin therapy is essential for regulating blood sugar levels. Conventional subcutaneous injection is prone to psychological stress, local tissue damage and severe blood glucose fluctuations, and thus the development of oral insulin technology has become an alternative therapy. Oral insulin represents a revolutionary approach to diabetes care, aiming to enhance patient adherence while providing a more physiological insulin delivery that mimics natural secretion through the hepatic portal system. Despite its potential, the development of oral insulin faces significant challenges, including degradation by gastrointestinal enzymes, poor absorption across the intestinal barrier, and variability in bioavailability due to first-pass metabolism. Recent advancements in pharmaceutical technology have paved the way for promising breakthroughs. Nanoparticle-based delivery systems and liposomes offer protection against enzymatic degradation and facilitate intestinal absorption. Permeation enhancers, pH-sensitive coatings, and mucoadhesive formulations further improve stability and bioavailability.

Clinical trials, such as those evaluating Oramed Pharmaceuticals' ORMD-0801, have demonstrated encouraging results, with significant reductions in HbA1c levels and minimal adverse effects. Additionally, smart delivery systems and glucose-responsive formulations are being explored to achieve precise and efficient insulin release.

Keywords: oral insulin, insulin therapy, patient compliance, oral drug delivery.

PCU -OP-022

A REVIEW ON FOLATE MODIFIED NANOCARRIER – A BREAKTHROUGH IN CANCER TREATMENT

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The limitations of conventional drug delivery systems, such as the uncontrolled release of drugs, have driven the development of nanotechnology-based drug delivery systems. Among these advancements are targeted nanocarriers, which utilize intelligent nanoparticles modified with targeting ligands to ensure precise drug delivery to specific locations at optimal times, thereby minimizing drug doses and reducing side effects. Folate, as a targeting ligand, is particularly effective due to its affinity for folate receptors that are overexpressed on cancer cells. This attribute has demonstrated significant potential in cancer diagnosis and treatment. This review explores recent progress in the application of folate-conjugated nanoparticles for cancer management, emphasizing their efficacy, toxicity, and biocompatibility.

Keywords – Folate receptors, cancer cells, folate conjugated nanoparticles.

PCU-OP-023

PREPARATION AND EVALUATION OF SUSTAINED RELEASE GEMCITABINE MICROSPHERES

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The present investigation was aimed at developing PLGA loaded Gemcitabine microspheres by a double emulsion solvent evaporation technique which would have sustained release of the drug.

The Poly (Lactide-Co-Glycolide) (PLGA) microspheres containing Gemcitabine as a drug and evaluate the various physicochemical characteristics of the formulations, namely morphology, particle size, FTIR, Gemcitabine encapsulation efficiency and in-vitro Gemcitabine release profile. Gemcitabine-loaded microspheres were prepared by double emulsion solvent evaporation method with different Gemcitabine, PLGA ratios and at different speeds of homogenization keeping the amount of Gemcitabine constant in all the formulations and different amount of salt(NaCl) concentrations. Accelerated stability testing was performed with the optimized formulations for a period of 2 months. The mean particle size and encapsulation efficiency of the microspheres were found to be decreased as the speed of homogenization increased and the encapsulation efficiency was increased with increase in salt concentration. The in vitro release study showed a slow and steady release pattern of Gemcitabine. Thus, a sustained release formulation of Gemcitabine loaded PLGA microspheres were developed.

Keywords: Poly (Lactide-Co-Glycolide) (PLGA); Double emulsion; Sodium Chloride; Homogenization.

COL-OP-001

A COMPARATIVE STUDY ON EVALUATION OF OUTCOMES IN OSTEOARTHRITIS PATIENTS RECEIVING INTRA-ARTICULAR STEROID VERSUS INTRA-ARTICULAR HYALURONIC ACID

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Osteoarthritis (OA) is the most prevalent arthropathy, characterized by progressive degeneration of articular cartilage and subchondral bone. This prospective, observational study, conducted over six months at the Orthopaedics Department of Princess Esra Hospital, evaluated the efficacy of two intra-articular treatments in 70 patients with OA. Patients were divided into two groups: Group A received corticosteroid injections (1 ml Triamcinolone Acetonide [40 mg/ml] + 1 ml Lignocaine [2%]), and Group B received hyaluronic acid (HA) injections (6 ml [48 mg] Sodium Hyaluronate). Data were analyzed using Microsoft Excel and SPSS v26.Statistical analysis revealed significant differences in WOMAC ($F = 41.043$, $p = 0.000$) and pain scores ($F = 50.450$, $p = 0.000$) between the groups, with HA demonstrating superior efficacy. Group B reported lower WOMAC (50.14 vs. 58.23) and pain scores (5.91 vs. 7.25), as well as improved quality of life ($F = 39.367$, $p = 0.000$), with males showing better outcomes. The findings underscore HA's superior safety and efficacy over corticosteroids for OA management, with sustained benefits observed during the three-month follow-up.
This study establishes intra-articular HA as a more effective and safer alternative to corticosteroids for OA treatment in India. By reducing pain and enhancing patient outcomes, this research addresses a critical gap in OA management and provides valuable insights for optimizing clinical practice.

Key words: Osteoarthritis, Hyaluronic Acid, Triamcinolone Acetonide, Pain Management, Quality of Life.

COL-OP-002

FIBROADENOMA: A COMMON BENIGN TUMOR

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Fibroadenoma is a common benign (non-cancerous) breast tumor, typically present as a painless, unilateral, mobile, and well circumscribed mass in young women. It is most often seen between the age of 14-30 and varies between 2-5 cm. Histopathologically, fibroadenoma are characterized by a biphasic proliferation of epithelial and stromal tissue. The cause of fibroadenoma is the hormonal influence, particularly estrogen, is believed to play a significant role in its development and recent years, dietary and stress is also responsible for the fibroadenoma . Fibroadenomas are typically diagnosed through clinical examination, imaging techniques such as ultrasound, mammography, and confirmed by biopsy. Most fibroadenomas requires no treatment and are managed with regular monitoring unless they cause significant discomfort, grow rapidly, or present atypical features suggestive of malignancy. The treatment options for fibroadenoma including surgical excision, cryoablation , depending on the tumor's size ,symptoms, and patient preference . In adult women a benign triple test is a prerequisite for conservative treatment. Accurate diagnosis and appropriate management are essential to alleviate patient anxiety and prevent unnecessary interventions.

Keywords: fibroadenoma , benign breast tumor, estrogen influence ,mammography, surgical excision, cryoablation ,breast health.

COL-OP-003

RECENT DEVELOPMENT IN THE DIAGNOSIS, TREATMENT AND MANAGEMENT OF CARDIOVASCULAR DISEASES THROUGH ARTIFICIAL INTELLIGENCE AND OTHER INNOVATIVE APPROACHES

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This article reviews technological advances and global trends in the diagnosis, treatment, and monitoring of cardiovascular diseases. Digital health technologies are rapidly changing the practice of medicine and redefining healthcare approaches. The new wave of these digital advances that are making their way into clinical practice—including image and signal processing or advanced diagnostic imaging; artificial intelligence (AI) and big data; telemedicine; and new wearable devices—is revolutionising the field of cardiology by improving diagnostic accuracy, optimising treatment, and

enabling more efficient and personalised monitoring of cardiovascular patients. This systematic review provides an update on recent developments in the field of CVDs, including the use of artificial intelligence (AI) in diagnosis and management, advances in genetic testing and precision medicine, the role of telemedicine and remote monitoring technologies, novel therapies such as gene therapy and cell therapy. Advances in genetic testing and precision medicine have enabled personalized treatment of CVDs, with pharmacogenomic approaches helping to identify the most effective medications for individual patients. The article highlights the potential of novel biomarkers such as galectin-3, microRNAs, and extracellular vesicles for improving the accuracy of CVD diagnosis and predicting disease progression. The potential of novel biomarkers such as glycated hemoglobin, high-sensitivity troponin, and lipoprotein for early detection and risk prediction of CVDs.

Key words: AI, cardiovascular diseases

COL-OP-004

BRAIN PENETRANT SMALL MOLECULE FOR THE TREATMENT OF GLIOBLASTOMA

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The novel method increased survival rates and provided insight into a possible treatment option for brain cancer patients in humans by successfully delivering anti-cancer medications across the blood-brain barrier in mice. Getting therapeutic drugs past the blood-brain barrier, a system of blood arteries and tissue composed of closely spaced cells that shields the brain from dangerous chemicals, is one of the difficulties in treating brain cancer. The blood-brain barrier does its job almost too effectively when it comes to anti-cancer medications. A particular kind of peptide—a sequence of amino acids joined by chemical bonds—that possesses the innate capacity to pass through membranes and enter tissues was the focus of the study. They added fluorine molecules to the peptide and changed it by forming a staple between the amino acids in the sequence, which strengthened and stabilized it. This design has been demonstrated to enhance the peptide's ability to pass the blood-brain barrier by the collaborative research team. This new technology

allowed us to test drugs against brain cancer that previously hadn't been used against glioblastoma because they hadn't been able to cross the blood-brain barrier. The study results showed that cell death due to the enhanced, macrocyclic cell-penetrating peptide M13 was observed mainly in tumor cells, and not in healthy regions of the brain. This is the first time that researchers have demonstrated how to use this modified peptide delivery system to get cancer drugs into the brain in the context of disease.

Key words: anticancer, glioblastoma, peptide delivery system

COL-OP-005

CAR -T CELL THERAPY IN HEMATOLOGIC MALIGNANCIES : SUCCESS AND FUTURE DIRECTIONS

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CAR-T Cell Therapy (Chimeric Antigen Receptor T-cell Therapy)is an innovative and powerful for certain hematologic malignancies ,particularly those that are resistant to other therapies .It represents a breakthrough in cancer immunotherapy offering hope for many patients with previously untreatable blood cancers.This is a synthetic receptor that is engineered to allow T-cell to recognize a specific protein or antigen present on the surface of the cancer cells .These receptors are typically designed to recognise proteins like CD19(commonly targeted in B-cell malignancies)or BCMA(targeted in multiple myeloma).Once the T-cells are modified ,they can identify and attack cancer cells .This therapy is particularly effective for certain types of blood cancers like leukemia,lymphoma ,multiple myeloma.

Key words : Chimeric ,leukemia,lymphoma,multiple myeloma

COL-OP-006

THE HUMAN MICROBIOME

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The human microbiome, comprising trillions of microorganisms living within and on our bodies, plays a crucial role in our health and disease. Recent advances in sequencing technologies and bioinformatics have enabled the characterization of the human microbiome, revealing its relationships with the host immune system, metabolism, and brain function. This delve into the complex world of the human microbiome, exploring its composition, functions, and interactions with the host. We will discuss the latest research on the role of the microbiome in various diseases, including cancer, inflammatory bowel disease, and mental health disorders. Furthermore, we will examine the therapeutic potential of microbiome-based interventions, including probiotics, prebiotics, and fecal microbiota transplantation. This aims to provide a comprehensive understanding of the human microbiome and its implications for human health and disease.

Keywords: human microbiome, gut microbiome, probiotics, prebiotics, fecal microbiota transplantation, cancer, inflammatory bowel disease, mental health disorders.

COL-OP-007

EVALUATION OF PROTECTIVE EFFECT OF *LIMONIA ACIDISSIMA* ON DIABETIC CARDIOPATHY IN STREPTOZOTOCIN- INDUCED DIABETIC RATS

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Diabetic cardiomyopathy (DC) has become one of the serious complications in diabetic cases. In this study, we aimed to explore the *Limonia acidissima* protective effect against diabetes-induced cardiac injury in experimental rats. *Methods*. Rats were divided in control and streptozotocin-induced diabetic rats which were subdivided into diabetic controls, and two test groups (200 and 400 mg/kg) standard group Metformin 10mg/kg and the nondiabetic group received vehicle 1ml/kg. All treatments were given for 6 weeks. *Limonia acidissima* effects on cardiac diagnostic markers, heart lipid peroxidation, protein carbonylation, antioxidant system, and changes of the heart mitochondrial mass and biogenesis were measured. *Results*. Diabetes induction prompted CK-MB, LDH levels in serum, cardiac catalase, and superoxide dismutase activity, as well as cardiac TBARs and

carbonylated protein. *Limonia acidissima* administration (400 m/kg) attenuated CK-MB and LDH levels. Also, 200 mg/kg of *Limonia acidissima* reduced cardiac TBARs and carbonylated protein in diabetic rats.
Conclusions. *Limonia acidissima* treatment showed protective effects on diabetic cardiomyopathy in rats by reducing lipid peroxidation. The possible mechanisms could be related to antioxidant activity of this phenols. *Limonia acidissima* might play a role of a protective factor in cardiac challenges in diabetes.

Keywords Diabetic cardiomyopathy Metformin *Limonia acidissima* CK-MB, streptozotocin

COL-OP-008

LAPAROSCOPIC SPLENECTOMY FOR PRIMARY IMMUNE THROMBOCYTOPENIA: CURRENT STATUS AND CHALLENGES

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Laparoscopic Splenectomy [LS] is the Gold standard surgical treatment for Primary Immune Thrombocytopenia [ITP]. It's a minimally invasive procedure that's considered safe and effective, with a low complication rate and a total remission rate of 70 to 90%. Primary Immune Thrombocytopenia is an immune-mediated disorder affecting both adults and children, characterized by bleeding complications and lower platelet counts. Corticosteroid's are the first -line therapy for ITP, but only 20%-40% of cases achieve a stable response. Splenectomy is the main therapy for patients failing to respond to corticosteroids for decades, and about two-third of patients achieve a long -lasting response. Although new drugs are developed as second line therapies in recent years, splenectomy is better choice with less cost and more efficacy. Laparoscopic splenectomy for ITP proves to be a safe technique associated with lower morbidity and faster recovery and similar hematological response when compared to traditional open splenectomy. The great challenge facing the doctors is to identify a reliable biomarker for predicting long-term outcome. In the Latest studies, it showed that Preoperative Heptoglobin in serum may be a favorable predictor for the long-term response in splenectomy in ITP. In the pharmaceutical research, it used in disease modelling and drug

development, pharmacokinetics and pharmacodynamics, regenerative medicine and tissue engineering.

Keywords: Laparoscopic splenectomy, Corticosteriods , Open splenectomy, hematological response ,Predictor, Biomarker, Immune thrombocytopenia.

COL-OP-009

PSYCHEDELIC ASSISTED PSYCHOTHERAPY

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Psychedelic-assisted psychotherapy (PAP) is an emerging therapeutic approach that integrates psychedelic substances, such as psilocybin, MDMA, LSD and ketamine, with traditional psychotherapeutic techniques to address various mental health conditions. Compared with current treatments for depression, psychedelic-assisted psychotherapy has a more direct impact on brain activity, which can result in profound insights and promote introspection, emotional release, and cognitive shifts. In the presentation I will explore the growing body of research supporting the efficacy of PAP in treating conditions like depression, PTSD, anxiety, and substance use disorders. Clinical results so far have shown safety and efficacy, even for “treatment resistant” conditions. The PAP model also has important consequences for the diagnostics including adversities, trauma, and the therapeutic potential of some non-ordinary states of consciousness. And will highlight key clinical trials, and different proposed theories of mechanisms by which psychedelics may facilitate profound emotional and psychological healing. Additionally, the presentation will address the safety protocols and considerations, and challenges surrounding the integration of psychedelics in clinical practice and the potential for future applications and the role of emerging research in shaping the field of mental health treatment, with a focus on bridging scientific evidence with real-world clinical practice. The long-term effectiveness of psychedelic-assisted psychotherapy and its potential to outperform existing medications for PTSD and treatment-resistant depression can only be determined through more trials and subsequent observational studies.

Keywords: Psychedelic-assisted psychotherapy, psychotherapeutic techniques

COL-OP-010

ORGAN CHIPS FOR REGENERATIVE PHARMACOLOGY

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Organ-on-chip technology has emerged as a transformative platform that allow human cells to perform complex organ-level functions in vitro by recreating multi-cellular and multi-tissue structures and applying in vivo-like biomechanical cues. This is acheived by integrating microfluidics, biomaterials, and living cells.Using organs and tissues on a chip also greatly reduces the need for animal testing. These chips serve as valuable tools for studying tissue regeneration, offering insights into cellular behavior, matrix remodeling, and intercellular signaling under controlled conditions. Their potential applications span drug discovery, toxicity testing, and regenerative medicine, enabling precise modeling of tissue repair mechanisms. In addition to accelerating drug research and testing procedures, this development has enormous potential for personalized medicine. The ability to establish organ-specific microenvironments allows for the customization of regeneration techniques to meet each patient's unique needs, resulting in more effective and targeted treatments. It will revolutionize current precision medicine by using the patient's own tissues. Research on tumors and cancer also stands to benefit significantly. While organ-on-chip technology holds great promise for advancing drug discovery, disease research, and personalized medicine, several challenges must be overcome before it can achieve widespread adoption. With continued investment and innovation, organ-on-chip systems could play transformative role in future healthcare solutions. We anticipate that the development of organ-on-a-chip technology will revolutionize the studies on biology and medicine by providing new understanding of mechanisms of diseases and insights into clinical therapeutics.

Keywords: Organ-on-chip technology, tissue regeneration, drug discovery, toxicity testing, and regenerative medicine

COL-OP-011

REPURPOSING OLD DRUGS TO NEW CURES

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Drug repurposing, or drug repositioning, is a promising strategy that involves discovering new therapeutic uses for existing, approved medications. This approach offers several advantages over traditional drug development, including reduced time, lower costs, and a more predictable safety profile, as the pharmacokinetics and toxicology of these drugs are already well

understood. Repurposing old drugs to treat new diseases has gained significant attention in recent years, particularly in the context of global health crises, such as the COVID-19 pandemic, where drugs like remdesivir and dexamethasone were repurposed to treat viral infections. This strategy has also shown potential in oncology, with drugs such as metformin being explored for cancer treatment due to their anti-proliferative effects. In addition to infectious diseases and cancer, drug repurposing is being investigated for neurodegenerative disorders, cardiovascular diseases, and rare genetic conditions, offering hope for conditions with limited treatment options. Emerging technologies like artificial intelligence (AI) and high-throughput screening are further enhancing the repurposing process by rapidly identifying potential new uses for old drugs. However, challenges remain, including regulatory hurdles, intellectual property issues, and the need for extensive clinical validation Overall, drug repurposing holds significant promise in modern medicine, enabling quicker access to effective treatments for various diseases, improving patient outcomes, and providing a cost-effective alternative to traditional drug development. As the field progresses, it may lead to the discovery of numerous new therapies for conditions that currently have few treatment options.

Keywords: Drug repurposing, modern medicine

COL-OP-012

PROTECTIVE ROLE OF ANDROGRAPHOLIDE AGAINST CERULEIN-INDUCED ACUTE PANCREATITIS IN C57BL/6 MICE BY MODULATION OF NF-ĸB/NRF-2 SIGNALING PATHWAY

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Andrographolide is a natural diterpenoid lactone compound; the principal constituent of Andrographis paniculata plant, shown to possess various therapeutic actions. Acute pancreatitis (AP) is the leading acute disease with increasing hospitalization daily and the unavailability of a specific therapy. Cerulein-induced AP is the most common and often used experimental model of pancreatitis. The study was planned to evaluate the protective effect of andrographolide in vivo against cerulein- induced AP in male C57BL/6 mice and in vitro lipopolysaccharide (LPS) induced injury in Raw 264.7 macrophages. Andrographolide at the dose of 10 mg/kg had significantly (P<0.01 and P<0.001) attenuated cerulein-induced pancreatic permeability, infiltration of inflammatory cells, pancreatic edema, pancreas index, pancreatitis evoked enzymes (amylase, lipase, ALT and AST) and expression of proinflammatory cytokines (IL-1β, IL-6, and TNF-α) as well as oxidative tissue markers (TBARS and nitrite), myeloperoxidase (MPO) and Lactate dehydrogrenase(LDH). Also, it increased the activity of catalase, glutathione (GSH), superoxide dismutase (SOD), glutathione peroxidase (GPx), level of IL-10 and the level of PON-1. The transcription of IL β, NFkB, Nrf2, TNF-α and IL-10 was analyzed via reverse transcription polymerase chain reaction (RT-PCR) in mouse pancreatic tissues revealed up regualed Nrf2 ,IL-10 and down regulated NFkB,COX-2,TNF-α. Further, In-vitro studies showed that andrographolide treatment significantly reduced nitrite and TNF-α release from the LPS stimulated macrophages and increased the levels of IL-10, exploring potent anti-inflammatory effects. The immunohistochemical expression of NF-κB, TNF- α, and COX-2 were significantly (P< 0.001) ameliorated by andrographolide with the substantial reverted histopathology of the pancreas. This potent protective activity of andrographolide against cerulein-induced inflammation and oxidative stress, possibly by inhibiting the NF-κB cascade due to the anti inflammatory and anti-oxidative potential of andrographolide.

Keywords: Andrographolide, pancreatitis. NF kB, Oxidative stress

COL-OP-013

PANCREATIC TRANSPLANTS AND INSULIN DEPENDENCY: A LIFE-CHANGING TREATMENT FOR TYPE 1 DIABETES

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Pancreatic transplantation has revolutionized the management of Type 1 diabetes for patients who suffer from severe glycemic instability or diabetes-related complications, such as hypoglycemia unawareness and end-stage renal disease. This surgical intervention replaces a non-functioning pancreas with a healthy donor organ, restoring endogenous insulin production and eliminating the need for exogenous insulin in many cases. Often performed as simultaneous pancreas-kidney transplantation (SPK) in patients with concurrent renal failure, it provides dual benefits of glucose regulation and kidney function restoration. This presentation explores the indications, benefits, and limitations of pancreas transplantation, alongside insights into the surgical procedure and post-transplant management, including the lifelong immunosuppressive therapy required to prevent graft rejection. Despite the risks of surgery and side effects of immunosuppressant's, recipients experience significant improvements in metabolic control, quality of life, and reductions in diabetes-related complications. Advancements in organ preservation, islet cell transplantation, and immune modulation are poised to further enhance outcomes and address challenges like donor shortages. As research progresses, pancreatic transplantation continues to hold promise as a life-changing solution for Type 1 diabetes patients who meet the criteria for this innovative therapy.

Keywords: Pancreatic transplantation, Type 1 diabetes, Simultaneous pancreas-kidney transplantation (SPK), Immunosuppressive therapy, Islet cell transplantation.

COL-OP-014

THE MICROBIOME'S INFLUENCE ON THE BRAIN: A NEW FRONTIER IN NEUROSCIENCE

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The gut microbiota has gained increasing attention for its role in regulating various physiological processes, including its influence on the central nervous system (CNS). Understanding the link between gut microbiota and CNS disorders is crucial as research reveals significant interactions that may offer novel therapeutic targets for conditions such as Alzheimer's disease, Parkinson's disease, and multiple sclerosis. The gut-brain axis, a bidirectional communication system involving neural, immune, and hormonal pathways, mediates the interaction between the gut microbiota and brain function. Dysbiosis, an imbalance in gut microbiota composition, has been associated with the onset and progression of several CNS disorders, and emerging evidence suggests it may serve as a potential diagnostic biomarker for these conditions. Recent research has focused on microbiome-based therapeutic strategies aimed at restoring a healthy gut microbiota composition to alleviate the symptoms of CNS disorders. Probiotics, prebiotics, synbiotics, and fecal microbiota transplantation (FMT) are gaining recognition as potential treatments for conditions like Alzheimer's and Parkinson's disease. Additionally, dietary modifications and emerging therapies, such as phage therapy, are also being explored as promising interventions. Challenges in translating microbiome findings into clinical practice include individual variability and the need for personalized approaches. Future directions focus on microbiome-based diagnostics and treatments that combine microbiome modulation with traditional therapies, emphasizing interdisciplinary collaboration to advance the field for CNS disorders.

Key words: Gut microbiota, CNS disorders, gut brain axis

COL-OP-015

NAFITHROMYCIN VS. STANDARD REGIMENS: A NEW FRONTIER IN COMBATTING CAP IN INDIA

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Community-acquired pneumonia (CAP) remains a significant public health concern in India, with a high incidence and mortality rate, particularly among vulnerable populations such as children and the elderly. Streptococcus pneumoniae, a leading cause of CAP, has shown increasing resistance to conventional therapies, necessitating the development of novel antibiotics. Nafithromycin, a next-generation lactone ketolide, emerges as a promising alternative with its potent activity against resistant pathogens, including macrolide-resistant S. pneumoniae and atypical bacteria such as Chlamydia pneumoniae. Nafithromycin exhibits several advantages over standard regimens like azithromycin and moxifloxacin. In vitro studies demonstrate a narrow MIC90 range of 0.03–0.06 mg/L against S. pneumoniae, compared to azithromycin's MIC90 of >1 mg/L in macrolide-resistant strains. Clinical trials revealed comparable or superior efficacy, with nafithromycin achieving a clinical response rate of up to 91.9% in CAP patients, compared to 87% for moxifloxacin. Furthermore, nafithromycin shows enhanced pharmacokinetics, including high concentrations in alveolar macrophages and epithelial lining fluid, ensuring effective delivery to infection sites. Unlike fluoroquinolones, nafithromycin demonstrates a safer hepatic profile and fewer systemic adverse events, addressing safety concerns associated with traditional antibiotics.The drug's ability to overcome resistance mechanisms, including erm(B) and mef(A/E) genes, positions it as a potential game-changer in managing CAP in India, where macrolide resistance exceeds 60%. With its high efficacy, favorable safety profile, and potential for a three-day oral regimen, nafithromycin represents a revolutionary advancement in CAP treatment, offering a streamlined, effective, and patient-friendly therapeutic option.

Keywords: Community-acquired pneumonia (CAP); Nafithromycin; Lactone ketolide; Emerging antibiotics; Respiratory infections; Drug resistance.

COL-OP-016

A HOLISTIC APPROACH TO AUTISM: NUTRITION AND TECHNOLOGY

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A complicated neurodevelopmental disorder, autism spectrum disorder (ASD) is impacted by nutritional, environmental, and genetic variables. New research shows how nutrition can help manage ASD, especially when it comes to individualized nutritional interventions. Vital minerals including zinc, vitamin D, and omega-3 fatty acids are important for immune system function, neurotransmitter balance, and brain development. They may also be able to lessen the symptoms of ASD. The value of customized treatments is further highlighted by cultural customs such as the Indian traditional diet, which uses ghee, turmeric, and Ayurvedic medications to reduce inflammation. In people with ASD, dietary therapies like casein-free, gluten-free, ketogenic, and specialized carbohydrate diets have shown varying degrees of efficacy in enhancing behavior, gut health, and general well-being. Three main processes have been found to link nutrition to outcomes associated to autism: inflammation, oxidative stress, and the gut-brain connection. Personalized nutrition regimens are now possible thanks to AI-driven technologies that use data to efficiently monitor progress and optimize treatment. In order to create worldwide solutions for autism treatment, this study emphasizes the necessity of combining local customs, artificial intelligence (AI), and evidence-based dietary practices. To investigate the long-term impacts of nutritional therapy and open the door to better ASD care, collaborative research is crucial. We can improve the quality of life for people with autism and their families by emphasizing individualized and culturally inclusive approaches, giving them hope for a more inclusive future.

Keywords: ASD, Nutrition, Technology

COL-OP-017

ORGANS-ON-CHIPS: APPLICATIONS AND CHALLENGES IN PHARMACEUTICAL RESEARCH

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Organ-on-a-Chip (OoC) technology is a remarkable innovation that mimics the behavior of human organs on a micro-scale platform. These chips, built by combining materials science, cell biology, and engineering, provide a realistic environment to study the structure and function of organs. Examples include models like Lung-on-a-Chip, Liver-on-a-Chip, and Kidney-on-a-Chip, which offer advanced tools for pharmaceutical research.This technology has transformed how we approach drug testing, disease modeling, and toxicity studies. It has the potential to significantly lower the need for animal research while providing more precise understandings of human biology. The future of OoC is exciting, especially with advancements like multi-organ systems, or "Body-on-a-Chip" models, which can simulate complex interactions between organs. These advancements have the potential to transform diagnosis and treatment approaches, increasing the effectiveness and accessibility of customized medicine.However, challenges such as high production costs, technical complexity, and regulatory uncertainties remain obstacles to widespread adoption. To overcome these problems, faster production procedures and automated fabrication techniques can lower prices, while the introduction of cost-effective materials such as polymers can make OoC more accessible. Technical challenges can be managed through interdisciplinary cooperation, which promote innovation in chip design and standardize procedures. Regulatory concerns can be reduced by providing clear rules and encouraging collaboration between developers and regulatory bodies, so assuring safety and compliance.

Keywords: Organ-on-a-Chip (OoC) technology, advanced tools, drug testing.

COL-OP-018

APPLICATIONS OF ZEBRAFISH IN PRECLINICAL DRUG DISCOVERY

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The zebrafish (*Danio rerio*) has emerged as a powerful model organism in preclinical drug discovery due to its unique combination of genetic similarity to humans, cost-effectiveness, and suitability for high-throughput screening. Sharing approximately 70% of its genes with humans, the zebrafish model enables the study of disease mechanisms and drug effects in a whole-organism context. The transparency of zebrafish embryos and larvae allows

real-time visualization of physiological and pathological processes, facilitating the evaluation of drug efficacy and toxicity at cellular and systemic levels. Zebrafish offer an efficient platform for the initial stages of drug screening, especially for cardiovascular, neurodegenerative, and cancer-related conditions. High fecundity and rapid development enable large-scale compound screening with significant statistical power. In toxicology studies, zebrafish provide valuable insights into the safety profiles of drug candidates, reducing the reliance on mammalian models and lowering overall research costs. Their conserved metabolic pathways ensure relevance to human pharmacokinetics. Moreover, behavioral assays in zebrafish facilitate the investigation of neuroactive compounds, offering a unique advantage in neuropsychiatric drug discovery. Despite these advantages, challenges such as scaling findings to higher organisms and addressing differences in immune and metabolic systems remain. Nonetheless, zebrafish have firmly established them as a cornerstone in preclinical drug discovery, bridging the gap between in vitro studies and mammalian models while accelerating the drug development pipeline..In this presentation, we will explore various zebrafish disease models, including those for Parkinson's disease, Alzheimer's disease, epilepsy, cardiovascular diseases, and inflammatory conditions, which have been established at the G. Pulla Reddy College of Pharmacy zebrafish facility.

Keywords: Zebrafish models, Preclinical Drug Discovery, Toxicology, Behavioural assays, Neuroactive compounds.

COL-OP-019

THE TRUTH ABOUT STATINS

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Statins are the most widely prescribed, cholesterol-lowering drugs in the world. Despite the expiration of their patents, revenue for statins is expected to rise, with total sales on track to reach an estimated US$1 trillion by 2024. A bitter dispute has erupted among doctors over suggestions that statins should be prescribed to millions of healthy people at low risk of heart disease. There are concerns that the benefits have been exaggerated and the risks have been underplayed. Also, the raw data on the efficacy and safety of statins are being kept secret and have not been subjected to scrutiny by other scientists.

This lack of transparency has led to an erosion of public confidence. Doctors and patients are being misled about the true benefits and harms of statins, and it is now a matter of urgency that the raw data from the clinical trials are released.

Keywords: CTT collaboration; cardiovascular disease; cholesterol; data transparency; statins.

COL-OP-020

STEM CELL THERAPY

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Over the past 10 years, we have become involved in a new research effort and an increasing scientific interest in the field of stem cell-based therapy. We are therefore able to describe different areas in which stem cell research can be applied and developed in gynecology and obstetrics. I) Hematopoietic stem cells have been used to set up therapeutic strategies for the treatment of gynecological solid tumors such as ovarian cancer. In this context different autologous or allogeneic transplantation approaches have been proposed and clinically investigated. II) Umbilical cord blood, which was often considered a waste material of the delivery, actually represents a precious source of stem cells that can be used for cell-based treatments of malignancies and inherited diseases. III) A feto-maternal cell traffic has recently been demonstrated through the placental barrier during pregnancy. This cellular exchange also includes stem cells from the fetus, which can generate microchimerisms in the mother and contribute to tissue repair mechanisms in different maternal organs. IV) Stem cells can be used for prenatal transplantation to treat different severe congenital diseases of the fetus. Nevertheless, several problems need to be solved to achieve an efficient in utero stem cell transplantation. Recent reports have pointed out the importance of timing in prenatal stem cell transplantation procedures and have shown the advantage of an early stem cell injection. An ultrasound-guided intracelomic approach could allow this possibility.

Keywords: stem cell therapy, Therapeutic strategies

PAQ-OP-001

DEVELOPMENT AND VALIDATION OF RP-HPLC METHOD FOR ANALYTICAL EVALUATION OF GEMIGLIPTIN IN PHARMACEUTICAL DOSAGE FORM

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A Rapid and Precise Reverse Phase High Performance Liquid Chromatographic method has been developed for the validated of Gemigliptin, in its pure form as well as in dosage form. Chromatography was carried out on a Apollo C18 (4.6 x 250mm, 5µm) column using a mixture of Methanol and HPLC water (65:35 v/v) as the mobile phase at a flow rate of 1.0ml/min, the detection was carried out at 230nm. The retention time of the Gemigliptin was 3.3 ±0.02min respectively. The method produce linear responses in the concentration range of 5- 25µg/ml of Gemigliptin. The method precision for the determination of assay was below 2.0% RSD. The method is useful in the quality control of bulk and pharmaceutical formulations.

Keywords: RP-HPLC, Gemigliptin, Quality control

PAQ-OP-002

SOURCES AND MITIGATION STRATEGIES OF NITROSAMINE IMPURITIES IN PHARMACEUTICALS

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Nitrosamines are a class of chemical compounds known to be potent carcinogens, raising significant health concerns when present as impurities in pharmaceuticals. The presence of N-nitroso compounds, particularly N-nitrosamines, in pharmaceutical products has raised global safety concerns due to their significant genotoxic and mutagenic effects. Nitrosamine impurities, even in trace amounts, are highly toxic and mutagenic, capable of damaging DNA, and subsequently increase the risk of cancer incidence.

Regulatory authorities have identified nitrosamine impurities in various active pharmaceutical ingredients (APIs) and other approved medications leading to the abrupt recall of drugs like sartans (valsartan), ranitidine (zantac), nizatidine, metformin, and varenicline due to unacceptable levels of nitrosamine impurities. This abstract explores the sources and mitigation strategies employed by the pharmaceutical company according to the USFDA guidelines.

Keywords: Nitrosamine impurities, mitigation strategies, mutagenic effects

PAQ-OP-003

SPECTROPHOTOMETRIC QUANTIFICATION OF METHYLPHENIDATE HCL IN BULK AND DOSAGE FORMS

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A simple, rapid, accurate and economical method has been developed for the estimation of Methylphenidate HCl by using UV Spectrophotometry. Methylphenidate HCl shown absorptive point at 257.4 nm. The linearity of the method was found to be in the range of 20-60 µg /ml of Methylphenidate HCl and correlation coefficient is 1. In Accuracy the percentage recovery ranged from 98.61% to 100.46%. The precision RSD% of Methylphenidate HCl for intraday is 1.81% and Inter-Day is 1.8%. The limit of detection of was found to be 12.13 µg/ml and limit of quantification was 40.45 µg/ml The Robustness RSD% for different wavelength is 2.93% and different concentration is 1.527% .The Ruggedness RSD% of different analysts is 3.125%, 1.82% and different equipment is 2.27% .Hence, the method can be applied for routine quality control of the drugs.

Keywords: Methylphenidate HCl, Spectrophotometric Quantification

PAQ-OP-004

FIRST DERIVATIVE SYNCHRONOUS SPECTROFLUORIMETRY

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This review article deals with the principles and the applications of advanced fluorimetric technique that is the First Derivative Synchronous Spectrofluorimetry (FDS) and its advantages over conventional spectrofluorimetry. Fluorescence is the most common and useful type of photoluminescence in the analytical chemistry. In conventional fluorimetric methods, a high sensitivity and selectivity are generally expected but problems of selectivity are seen in multi- component analysis because of the overlapping of spectra. The combination of derivative and synchronous fluorescence spectroscopy improves the selectivity, spectral discrimination and decreases the effects of background matrices. Synchronous fluorescence spectroscopy techniquesare classified according to different scanning modes of monochromators into constant wavelength difference, variety angle, and constant energy difference. The main advantages are selectivity, economic, simplicity and rapidity. This method has wide applications in clinical and multi-component analysis.

Keywords: First Derivative Synchronous Spectrofluorimetry (FDS), monochromators

PAQ-OP-005

QUANTITATIVE ANALYSIS OF IRBESARTAN IN PHARMACEUTICAL FORMULATION USING MBTH REAGENT

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A novel, simple, sensitive, and efficient method has been established for the quantification of Irbesartan in bulk and pharmaceutical formulations utilizing

the MBTH reagent. The objective of this analytical validation approach is to substantiate its efficacy by laboratory trials, demonstrating that the method satisfies the requisite minimal requirements for laboratory application. 3-methyl-2-benzothiazoline hydrazone interacts with the secondary amine group of irbesartan in the presence of the oxidising agent Cerric ammonium sulphate. The resultant blue chromogen, when analysed spectrophotometrically in the visible spectrum (400-800nm), exhibits a peak absorbance at 656 nm. This approach can be effectively utilised for quantifying drug content in pharmaceutical formulations. The analysis results have been statistically confirmed. A coefficient of determination (r^2) of 0.999 indicated adherence to Beer-Lambert's law across the concentration range of 2 to10 µg/mL. The Limit of quantification and Limit of detection limits were determined to be 1.2 µg/mL and 0.39 µg/mL, respectively.

Key Words: Irbesartan, Spectrophotometrically, MBTH reagent, Validation.

PAQ-OP-006

SPECTROPHOTOMETRIC QUANTIFICATION OF BICTEGRAVIR USING CHROMOGENIC AGENTS IN BULK AND PHARMACEUTICAL DOSAGE FORMS

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A simple, precise, and accurate UV spectrophotometric method was developed and validated for the estimation of Bictegravir in tablet dosage forms. The method utilized methanol as a solvent, with λmax values determined to be 330 nm and 760 nm for reactions with the chromogenic reagents 2,4-dinitrophenylhydrazine (2,4-DNPH) and potassium ferrocyanide, respectively. Linearity was established within the concentration ranges of 10–25 µg/ml for 2,4-DNPH and 1–5 µg/ml for potassium ferrocyanide, both exhibiting R^2 values of 0.999.The method demonstrated excellent precision, with low inter-day and intra-day % RSD values, and high accuracy, with assay values of 99.68% and 99.64% for the

respective reagents. Furthermore, the approach was found to be cost-effective and suitable for routine analysis, requiring only simple reagents and avoiding the need for sophisticated instrumentation. Validation was conducted in accordance with ICH guidelines, confirming the method's reliability and reproducibility for estimating Bictegravir in pharmaceutical formulations.

Keywords: Bictegravir, UV spectrophotometric method,

PAQ-OP-007

ANALYSIS OF BIOACTIVE COMPOUNDS IN METHANOL EXTRACT OF *GLOBBA WINITII* RHIZOME USING GC-MS

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The objective of this study was to determine the bioactive compounds from the methanolic extract of *Globba Winitii* rhizome and evaluate its biological activity by GC-MS analysis. The chemical constituents in this methanolic extract were subjected to the Perkin-Elmer Gas Chromatography - Mass Spectrometric analysis. Fifteen bioactive chemical compounds have been identified in the plant extract. This identification was based on the peak area, retention time, molecular weight and molecular formula. In this investigation the compounds like Cyclohexane, 1-Ethenyl – 1 – Methyl - 2, 4 – bis (1 – Methylethenyl) - 2, 4 - diisopropenyl -1- Methyl - 1 - Vinylcyclohexane, 5 – Oxatricyclo - [8.2.0.0 (4,6)] -Dodecane, KW3 Aus Epiglobulol, Bicyclo [5.3.0] nonane, 1,4 – Dimethyl - 3 - (2 - Methyl – 1- Propenyl 1- Cycloheptene, 10,12-Hexa decadien -1- ol, 9,12,15 - Octadecatrienoic acid, Androstan-17- one, 3 – ethyl - 3- hydroxyl - (5α) - 3- Ethyl - 3 - hydroxyandrostan - 17- one, n - Hexadecanoic acid, Doconexent cis - 4, 7, 10, 13, 16, 19 - Docosahexanoic acid and Azuleno [4,5 b] furan – 2 (3H) – one were predominantly found in the *Globba Winitii* rhizome extract.

Keywords: *Globba Winitii*, Bioactive compounds, GC-MS analysis

PCH-OP-001

PHARMAFUSION:WHERE AI MEETS CARE

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Artificial intelligence (AI) is transforming the pharmacy landscape, enhancing patient care, and streamlining pharmaceutical services. AI-powered systems can analyze vast amounts of data, identify patterns, and make predictions, enabling pharmacists to make informed decisions. Applications of AI in pharmacy include:

- Medication therapy management and optimization
- Predictive modeling for disease diagnosis and prevention
- Personalized medicine and pharmacogenomics
- Automated dispensing and inventory management
- Patient counseling and education

AI-driven solutions can improve medication adherence, reduce adverse drug reactions, and enhance patient outcomes. However, challenges such as data quality, interoperability, and regulatory frameworks must be addressed to ensure seamless integration of AI in pharmacy practice. As AI continues to evolve, pharmacists must stay abreast of these developments to provide high-quality patient care.

Keywords: Artificial intelligence, pharmacy, health-care technology, personalized medicine

PCH-OP-002

DEUTERATED DRUG DEVELOPMENT: A REVOLUTIONARY APPROACH TO DRUG EFFICACY AND STABILITY

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Deuterated drug innovation is emerging as a powerful strategy in pharmaceutical research, offering enhanced stability and improved pharmacokinetics for drug molecules. By replacing hydrogen atoms with deuterium, a stable isotope, drugs exhibit slower metabolism and longer half-lives, allowing for less frequent dosing without compromising therapeutic efficacy. This approach has been particularly beneficial in treating diseases

like Huntington's chorea, with drugs like Deutetrabenazin demonstrating more stable metabolite levels and extended duration of action. The growing adoption of deuteration is also being driven by its application in personalized medicine, where precision in drug metabolism is critical for optimizing patient outcomes. Notably, pharmaceutical companies such as Teva Pharmaceuticals, Bristol-Myers Squibb, and Concert Pharmaceuticals are actively exploring deuterated compounds to improve drug performance, as seen with their investigational treatments for conditions like alopecia areata and schizophrenia. As deuterated drug synthesis continues to gain momentum, its potential to address unmet medical needs across diverse therapeutic areas becomes increasingly apparent, positioning it as a key innovation in the future of drug development.

Keywords: Deuterated drugs, Pharmaceutical Research, enhanced stability, improved pharmacokinetics, Deutetrabenazin , stable metabolite levels.

PCH-OP-003

GOLD AND SILVER-CATALYZED CYCLIZATION OF N-PROPARGYL N-SULFONYL AMINO THIOLS FOR THE SYNTHESIS OF 3,4-DIHYDRO-2H-1,4-THIAZINE IN SOLID-PHASE PEPTIDE SYNTHESIS

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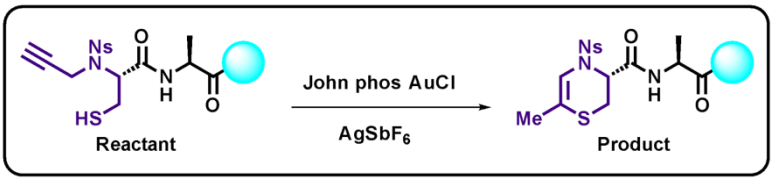
3, 4-Dihydro-2H-1, 4-Thiazine is sulfur containing heterocyclic compound. Thiazines are significant heterocyclic compounds recognized for their wide-ranging biological activities and roles in medicinal chemistry. This research focuses on the synthesis of new Thiazine derivatives, examining their structural features and reactivity. We employed various synthetic methods to create substituted thiazines, followed by thorough characterization using NMR and mass spectrometry techniques. Biological assessments of the compounds demonstrated notable anti-hypertensive, anti-convulsant and anticancer effects, highlighting their potential as candidates for drug development. Furthermore, we explored how different substituents affect the pharmacological profiles of these heterocycles, contributing to a better understanding of structure-activity relationships. This study emphasizes the versatility of oxazines in developing therapeutic agents and sets the stage for further investigations into their medicinal properties.

Here, we have established a methodology yielding 3, 4-dihydro-2H-1, 4-Thiazine by cyclization of N-propargyl N-sulfonyl amino thiols using combination of gold & silver as a catalyst at ambient temperature in solid

phase peptide synthesis (SPPS) to introduce the oxazine heterocyclic ring into short peptides containing cysteine. Notably, rink amide resin supported the on-resin formation of 3, 4-dihydro-2H-1, 4-Thiazine, thus offering a versatile method for late-stage modification of peptides.

Keywords: oxazine, SPPS, Total Organic Synthesis, NMR, HR-MS, HPLC.



PCH-OP-004

LEAD IDENTIFICATION THROUGH INSILICO STUDIES- MOLECULAR DOCKING AND PHARMACOPHORE STUDIES

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To optimize and identify the lead compound to target Acetyl cholinesterase against Alzheimer's disease [AD].AD is a neurodegenerative disorder, characterized by progressive impairment of memory and cognitive functions. Acetyl cholinesterase enzyme inhibition is employed as a promising approach for Alzheimer's disease treatment. Many FDA approved drugs such as Rivastigmine and Donepezil are unable to cure the disease progression completely. The present study was devised to explore the potential bioactive phytochemicals of Beta vulgaris as alternative therapeutic agents. Phytochemicals were screened for docking against acetyl cholinesterase enzyme and docking complexes were graded (MOE SOFTWARE). Docking pattern between enzyme and each phytochemical was analyzed to determine the ligand binding sites. Sixteen selected phytochemicals of B.vulgaris and donepezil (standard drug) were docked against acetyl cholinesterase enzyme. Based on hydrogen bonding interaction, minimum free energy the phytochemical is selected and preferred for generation of pharmacophoric model. Three compounds betanin, myricetin and folic acid exhibited minimum binding energy in range of -22 kcal/mole to -16 kcal/mole in comparison to reference drug donepezil (-17 kcal/mole). To evaluate conformational dynamics of protein-ligand complexes molecular dynamic

stimulation was done to find out Root Mean square deviation (RMSD) and Root Mean square fluctuation (RMSF). These peaks calculate the area of protein where residues fluctuate maximum. This study provides the framework for synthetic modification of phytochemicals, de novo development of structural derivatives and in vivo pharmacological activities of betanin, myricetin.

Keywords: Molecular docking, pharmacophore model

COG-OP-001

COMPARATIVE REVIEW WRITING OF GENUS POGOSTEMON AND GENUS GLOBBA

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Pogostemon and Globba were widely distributed medicinal Genus. Varied chemical classification, pharmacological indication has been reported by literature. The present study is about the structure of chemicals present, pharmacological indication and various studies performed by different researchers is given. This review study might be helpful for the future research for the understanding and development of formulations by the utilization of secondary metabolites identified by the above Genus.The analysis highlights the diverse uses of these genera in horticulture, landscaping, and traditional medicine. It encourages botanists, horticulturists, and conservationists to collaborate in the ongoing efforts to document, conserve, and sustainably the diversity within Genus Pogostemon and Genus Globba.

Keywords: Pogostemon, Globba, Secondary metabolites, chemical class

COG-OP-002

A STUDY OF UROLITHIATIC ACTIVITY OF THE HERBAL PLANT BRYOPHYLLUM PINNATUM UPON ITS UROLITHIATIC ACTION

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Bryophyllum pinnatum has been widely used as traditional medication to treat kidney stones i.e. Urolithiasis. The plant is found naturally throughout the country. Bryophyllum pinnatum, also known as Parnabeeja. The plant is enriched with a diverse range of active therapeutic constituents which are responsible for various significant pharmacological effects. Medicinal herbs have been utilised for centuries because they are safer, more effective, and culturally acceptable and have less adverse effects than manufactured medications. Kidney stones and urinary calculi affects a huge percentage of

the population nowadays. Drinking fresh leaf juice of bryophyllum pinnatum can dissolve stones that are less than 10mm in diameter. The leaf extract contains anti-urolithiasis therapy and prevent the formation of calcium oxalate crystals and renal calculi. The antioxidant property in the bryophyllum pinnatum helps to reduce the oxidative stress, which is linked to kidney stone development. It also has a diuretic effect and this may help clear out minerals and other components which contributes to kidney stone formation and thus, leads to increase in urine output.

Keywords: Bryophyllum pinnatum, Urolithiasis, Parnabeeja, Diuretic effect,

COG-OP-003

ANTICOAGULATION ACTIVITY OF POLYHERBS

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Hemostasis is the process of formation of clots within the walls of damaged blood vessels. To prevent abnormal bleeding and to maintain intravascular blood in a fluid state, in this study we aimed to evaluate the possible anticoagulant effect of aqueous extracts of pineapple, turmeric, cinnamon and grape seed. The aqueous extracts of pineapple, turmeric, cinnamon and grape seed were tested for in vitro prothrombin time (PT) test. The in vitro anticoagulant effects examined by using plasma, collected from blood samples of normal individuals by measuring PT. Ethylene diamine tetraacetic acid (EDTA) and saline in distilled water were used as a negative and positive control, respectively. The extract plasma was subjected to anticoagulation activity and was compared with EDTA-plasma and saline plasma. The observed prolonged prothrombin activity could be due to the presence of certain phytochemical constituents in the crude extract.

Keywords: Hemostasis, anticoagulant, EDTA, prothrombin

COG-OP-004

AYURVEDA IN THE TREATMENT OF DEPRESSION

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Major Depressive disorder (MDD) is a chronic, episodic disorder which manifests with disturbance in mood, interest, cognition and vegetative symptoms. It has major impact on the quality of life of the patients, by affecting their physical, mental, personal, social, and spiritual wellbeing. Vishada and avasada represents minor depressive episodes and MDD can be equated to Kaphaja Unmada. Patient presented with sadness, worthlessness, helplessness, death wishes, disturbed sleep and was diagnosed with MDD. Ayurveda diagnosis was Kaphaja Unmada involving kapha dominant vata and tama dosha. Mental examination revealed derangement of mana (mind), buddhi (intellect), smruti (memory), bhakti (desire), sheela (temperament), chesta (psychomotor activity) and achara (conduct) components. Management could be planned with integrative treatment comprising of Yukti vypasharaya (pharmacological), Satwawajaya (counselling) and daiwivyapashraya (spiritual-based techniques). Management with snehapana (internal oleation), virechana (gut cleansing), sarvanga abhyanga (massage of whole body with medicated oil) followed by bashpa sweda (steam therapy to whole body), shirodhara (dripping of medicated oil on fore head), shiropichu (transcranial drug administration by placing cotton pad dipped in medicated oil), katibasti (holding of medicated oil in well-prepared from dough), satwavajaya chikitsa, and daiwi vyapashraya chikitsa. The Ayurvedic integrative management showed efficacy in management of MDD.

Keywords: Depressive disorder, vishada, avasada, kapha, vata, tama dosha

COG-OP-005

FORMULATION AND EVALUATION OF NOVEL HERBAL ANTI-DANDRUFF SHAMPOO WITH POMEGRANATE PEEL EXTRACT

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Dandruff is a scalp disorder common to human population. Many of the studies shows that the presence of Malassezia species cause dandruff but according to recent studies it is proved that bacteria has a larger role in causing dandruff, it is also revealed that bacteria had a stronger relationship with the severity of dandruff than fungi. Herbal shampoo consists of natural composition that avoids harsh chemicals making it gentle on the scalp and hair. The goal of this study is to formulate a herbal shampoo with pomegranate peel extract. Pomegranate peel extract is selected for its well-known antimicrobial properties on Staphylococcus epidermidis which is also proven to be a causative agent of dandruff. Based on UV Spectra Punicalagin, Punicalin, Ellagic acid were detected which have antibacterial property against the said bacteria, while flaxseed gel was chosen as a base for its shear thinning and thickening effects. The formulation process is focused on optimizing the concentration of the pomegranate peel extract, in this study we made three different formulations with increasing concentrations of Pomegranate Peel Extract (PPE), F1, F2, F3. Various parameters like physical parameters, foaming studies, cleaning action, wetting time, surface tension, percentage solid content are evaluated. The shampoo's anti-bacterial activity was evaluated, the Minimum Inhibitory Concentration (MIC) was measured and compared with Clindamycin as standard using the agar well diffusion method. 200ul of the shampoo was found to have better zone of inhibition than Clindamycin 32mg/ml.The F-3 was found to have had lesser wetting time and better detergency compared to F-1 and 2. The solid content was 22.85 which was higher than F1 and F2 but is within the specifications. It decreased the surface tension better than F1 and F2. The pH was under acceptable range according to the skin pH.

Keywords: Pomegranate peel, Flax seed, Anti-dandruff, Staphylococcus epidermidis, Ellagitannins, Vetiver roots

COG-OP-006

EVALUATION OF ANTIHELMINTHIC ACTIVITY OF

ROSA LINCOLN PETALS

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Our present study aims to evaluate the anti-helminthic activity of ethanolic extract of *ROSA LINCOLN* petals belonging to the family Rosaceae was selected for the study. The determination of phytochemical constituents is important for crude drugs. The phytochemical analysis of ethanolic extract showed the presence of quinones, saponins, triterpenoids, flavonoids, phenols, glycosides, tannins, and small amounts of sugars. The earthworms are divided into 5 groups. Ethanolic extract was diluted to different concentrations such as 10 mg/ml, 20 mg/ml, and 30 mg/ml with 5% DMSO [dimethyl sulfoxide]. Albendazole is used as a standard drug for comparative studies. Rosa Lincoln showed dose-increased anti-helminthic activity.

Keywords: *ROSA LINCOLN*, phytochemical, anti-helminthic

PRA-OP-001

BIOSIMILARS: EXPANDING OPTIONS FOR INFLAMMATORY DISEASE TREATMENT

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Biosimilars are emerging as a pivotal development in the treatment landscape for inflammatory diseases such as rheumatoid arthritis, inflammatory bowel disease, and psoriasis. These biologic products are highly similar to already approved reference biologics, with no clinically meaningful differences in safety, efficacy, or quality. Their introduction has expanded therapeutic options for patients while addressing the economic burden associated with biologic treatments. This review explores the role of biosimilars in improving accessibility to advanced therapies, reducing healthcare costs, and fostering innovation in the pharmaceutical industry. Challenges such as regulatory pathways, market acceptance, and the need for healthcare provider and patient education are also discussed. Ultimately, biosimilars represent a transformative shift in inflammatory disease management, offering promising avenues for more equitable and sustainable healthcare.

Keywords: Biosimilars, Inflammatory disease, sustainable healthcare

PRA-OP-002

CE CERTIFICATION FOR MEDICAL DEVICES IN EUROPEAN UNION

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CE Certification is a pivotal regulatory requirement for medical devices intended for the European Union (EU) market, ensuring that products meet stringent safety, health, and environmental protection standards. Governed primarily by the Medical Device Regulation (MDR 2017/745) and the In Vitro Diagnostic Medical Device Regulation (IVDR 2017/746). The CE mark signifies that a device meets the EU's standards for safety, performance, and

quality, ensuring its suitability for patient use.The certification process includes risk-based device classification (Class I, IIa, IIb, & III), preparation of technical documentation, clinical evaluations, and conformity assessment procedures. High-risk devices typically require evaluation by a Notified Body, an independent organization responsible for verifying compliance. Post-market surveillance and vigilance activities are also integral to maintaining certification and ensuring long-term safety and efficacy. Achieving CE Certification provides manufacturers with access to the EU market, strengthens product credibility, and supports compliance with international standards. Despite its benefits, the process can be complex and resource-intensive, requiring manufacturers to stay updated on regulatory developments. Successfully navigating the CE Certification process is vital for delivering safe and reliable medical devices to the European market.

Keywords: CE Certification, Medical Devices, European Union, conformity assessment, Notified Body, Technical Documentation, post market surveillance.

PRA-OP-003

LABELLING REQUIREMENTS FOR COSMETICS, COMPARISON IN US, EU, ASEAN

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Cosmetic labelling requirements varies significantly by area, affecting businesses' market access and compliance. In the United States, the FDA requires clear ingredient lists and validated claims. The ASEAN region adheres to the ASEAN Cosmetic Directive, which focuses on ingredient labelling and safety assessments. The European Union maintains severe rules under Cosmetics Regulation (EC) No 1223/2009, which mandates complete ingredient disclosure and a Product Information File (PIF) that documents safety and efficacy. This explores the complexity of cosmetic labelling in these regions, highlighting the importance of correct labelling for consumer safety and product integrity. It also emphasizes the PIF's importance in ASEAN and EU frameworks as critical tools for maintaining

compliance and encouraging consumer trust, providing insights for businesses operating in the global cosmetics environment

Keywords: Product Information File (PIF), information panel, amendments, metric system, imperial system

PRA-OP-004

MoCRA GUIDELINES FOR COSMETICS IN USA

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The Modernization of Cosmetics Regulation Act of 2022 (MoCRA) marks a historic milestone in U.S. cosmetic regulation, representing the most significant reform since the Federal Food, Drug, and Cosmetic Act of 1938. MoCRA introduces critical updates to ensure product safety, enhance transparency, and align with global standards. Key provisions include mandatory facility registration and product listing, safety substantiation, adverse event reporting, and the establishment of Good Manufacturing Practices (GMPs). The act also strengthens the FDA's authority, enabling mandatory recalls and access to safety records during inspections.

MoCRA's implementation emphasizes consumer protection while introducing compliance challenges for the cosmetic industry, such as updated labeling requirements, fragrance allergen disclosures, and enhanced safety documentation. This landmark legislation not only improves public trust in cosmetic safety but also harmonizes U.S. regulations with global standards, fostering innovation and competitiveness in the evolving cosmetic marketplace.

Keywords: Modernization of Cosmetics Regulation Act (MoCRA), U.S cosmetic regulations, Federal Food, Drug, and Cosmetic Act (FDCA), Good Manufacturing Practices (GMPs).

PRA-OP-005

UPDATES FOR MEDICAL DEVICE REGULATIONS IN EUROPEAN UNION

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Devices intended for internal or external use in the diagnosis, treatment, mitigation or prevention of disease or disorder in human beings or animals known as medical device. Medical device directive is a purpose of harmonized standard is a technical specification (European standard or harmonization document) adopted, on a mandate from the Commission, by either or both of these bodies in accordance with Council Directive 83/189/EEC of 28 March 1983 laying down a procedure for the provision of information in the field of technical standards and regulations and pursuant to the above mentioned general guidelines whereas with regard to possible amendment of the harmonized standards the Commission should be assisted by the Committee set up pursuant to directive. The significant change as medical devices directives were replaced with the MDR EU (2017/785) on 5 April 2017 has introduced to enhance patient safety, improve device traceability, and address emerging challenges such as the rise of software-based devices and the need for more rigorous post-market surveillance. As the medical device landscape grows more complex, the European Union remains focused on improving patient safety while facilitating innovation and access to new technologies with stringent protocols to make successful healthcare system in all aspects established all equal standards making reliable and transparent. In the European Union for making demonstration and application for all standards in the medical field as CE marking, clinical trials, UDI system, EUDAMED and notified bodies of MDR. These are the main domains for making market authorization.

Keywords: MDD, MDR, CE marking, UDI system, EUDAMED.

PRA-OP-006

FROM OLD TO NEW: TRANSFORMING DRUG DEVELOPMENT THROUGH REPURPOSING

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Drug repurposing, the process of identifying new therapeutic uses for existing drugs, has emerged as a cost-effective and time-efficient strategy in drug discovery. Recent advances in computational biology, AI-driven screening, and high-throughput technologies have accelerated the identification of novel indications, addressing unmet clinical needs. This presentation explores current methodologies, breakthrough applications, and the future potential of drug repurposing in transforming healthcare.

Keywords: Drug repurposing, unmet medical needs, AI driven tools.

PRA-OP-007

BIOSIMILARS

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Biosimilars are biologic medical products that are identical copy's of original products that are manufactured by a different company. Today the global biosimilars market which is valued roughly at USD 23.96 billion in 2023 projected to grow to USD 240 billion in world by 2030. Biosimilars hold tremendous growth potential within India especially with expiry of patents of many biopharmaceutical substances within this coming decade. this presentation aims to give a brief review of present and future trends of biosimilar market along with a review of regulatory framework established by India and other key regulators for regulation of biosimilars .This presentation also aims to compare the advantages and therapeutic efficacy of biosimilars with other drugs present in the market

Keywords: biosimilars, regulatory framework, therapeutic efficacy, biopharmaceutical substances

PRA-OP-008

REGULATIONS FOR IMPORT, MANUFACTURING AND SALE OF NUTRACEUTICALS PRODUCTS IN INDIA

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The regulation of nutraceuticals in India is governed primarily by the Food Safety and Standards Authority of India (FSSAI) under the Food Safety and Standards Act (FSSA) of 2006. Nutraceuticals, a blend of "nutrition" and "pharmaceuticals," encompass dietary supplements, functional foods, and herbal products that provide health benefits beyond basic nutrition. This regulatory framework ensures the manufacture, storage, sale, distribution, and import of safe and quality nutraceutical products in India. To operate a nutraceutical business, companies must adhere to the Food Safety and Standards (FSS) Regulations of 2011, which require obtaining appropriate licenses based on turnover basic registration for small-scale businesses, state licenses for medium-scale, and central licenses for large-scale operations. Additionally, FSSAI has standardized the ingredients permissible in nutraceuticals, detailed across Schedules I to VIII, which include vitamins, minerals, amino acids, probiotics, prebiotics, and plant-based ingredients. Imported nutraceuticals must comply with stringent safety and labeling regulations. Misbranded or unsafe products are prohibited. Manufacturers must follow FSSAI's approval processes for site registration, provide detailed documentation, and implement food safety management plans. Consumers benefit from regulated, high-quality products, while businesses must ensure compliance to avoid penalties. These comprehensive regulations promote the availability of safe, effective, and high-quality nutraceuticals in India.

Key words: Nutraceuticals, FSSAI, Probiotics, Prebiotics, Stringent safety, Misbranded.

PRA-OP-009

THE TeGenaro INCIDENT: A CAUTIONARY TALE IN CLINICAL TRIAL SAFETY

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The Tegenero incident occurred in March 2006 during a Phase 1 clinical trial at Northwick Park Hospital in London, where the experimental monoclonal antibody TGN1412 was tested on healthy volunteers. TGN1412 was designed to target the CD28 receptor on T-cells, aiming to modulate immune responses for treating autoimmune diseases and cancers. However, within hours of the first dose, all six participants suffered severe, life-threatening reactions, including cytokine storm, a rapid, uncontrolled immune response that led to multi organ failure. Symptoms included fever, low blood pressure, and organ damage. Despite preclinical testing in animals, where TGN1412 showed no significant toxicity, the drug triggered an unexpected and devastating immune reaction in humans. The incident led to permanent disabilities for some participants, with others experiencing long-term health issues. Investigations revealed that the dose given to the volunteers was much higher than that used in animal studies, and the drug's effects on human immune systems had not been adequately predicted. The Tegenero incident highlighted serious risks in early-phase clinical trials and led to significant changes in clinical testing protocols, Stricter regulations for dose escalation, better safety monitoring of participants during early-stage trials. The Tegenero incident remains one of the most notorious cases of clinical trial failure in modern history.

Keywords: pre clinical testing, importance of dosing, cytokine strome

PHP-OP-001

A THERAPEUTIC APPROACH TO ANTIBIOTICS AT THE TRAUMA CENTER AND MAJOR BURNS

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Antibiotic therapy is a cornerstone in the management of infections in trauma and burn patients, given their heightened vulnerability due to extensive tissue damage, immune suppression, and invasive procedures. This study examines a structured therapeutic approach to antibiotic use in trauma centers and for patients with major burns, emphasizing the balance between effective infection control and the prevention of antimicrobial resistance. The approach involves timely assessment of infection risks, the judicious selection of empirical antibiotics based on local microbiological patterns, and a shift to targeted therapy guided by culture and sensitivity results. Key considerations include the prevention of surgical site infections, management of burn wound sepsis, and addressing ventilator-associated and bloodstream infections common in this population. Prophylactic antibiotics are evaluated for their role, timing, and duration to maximize benefits while minimizing unnecessary exposure. Additionally, the study underscores the need for multidisciplinary collaboration involving surgeons, infectious disease specialists, and pharmacists to ensure optimal dosing, monitor patient response, and address potential adverse effects. The emergence of multidrug-resistant organisms in these settings necessitates adherence to antibiotic stewardship principles. Through evidence-based practices, this therapeutic approach aims to improve clinical outcomes, shorten hospital stays, and reduce the burden of antibiotic resistance. The findings offer a framework for trauma and burn care providers to enhance infection control strategies and patient care in high-risk settings.

Keywords: Antibiotic Therapy, Trauma, Surgical Site Infections, Wound Sepsis, Antibiotic Stewardship Principles.

PHP-OP-002

CONCEPT AND REVIEW FOR LUNG AND PROSTATE CANCER

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Prostate cancer lung metastasis represents a clinical conundrum due to its implications for its advanced disease progression and the complexities introduced in treatment planning. Prostate cancer, a common malignancy in males, can metastasize to various sites such as bone, brain, liver, and less commonly, the lungs. Detecting pulmonary metastases can be identified with both diagnostic and therapeutic difficulties .Identifying patients with this condition can be crucial in order to gain a deeper comprehension of the diseases pathogenesis. By examining the diagnostic modalities utilized in identifying this metastasis, including advanced imaging techniques and histopathological analysis and this review aims to provide insights into the diagnostic landscape and challenges associated with accurately characterizing lung metastatic lesions in prostate cancer patients.

Keywords: Prostate Cancer, Lung Metastasis, Histopathological Analysis.

PHP-OP-003

CONCEPT AND REVIEW FOR BREAST AND CERVICAL CANCER

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Breast cancer and cervical cancer are the most common forms of cancer in women worldwide, cancer screening tests are an important tool to combat cancer related morbidity and mortality .breast cancer is the most common type of cancer in Indian women. It is type of cancer in which abnormal breast cells grow out of control and form tumors. If left unchecked, the tumors and spread throughout the body. It begins inside the milk ducts. Cervical cancer second most cancer in Indian women .It is caused by a persistent infection with the human papillomavirus. Cervical cancer often

doesn't cause symptoms until it begins to spread. Cervical cancer that begins in the cervix, the part of the uterus or womb that opens into the vagina. together breast and cervical cancer account for approximately 40% of all type of cancers. It can be treated by medication, surgical, laser techniques like argon laser light, novilase laser therapy.

Keywords: Breast and Cervical Cancer, Tumors, Morbidity, Mortality.

PHP-OP-004

A STUDY DEALING WITH A BRIEF DISCUSSION ON CERVICAL AND BONE CANCER DISORDERS

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Cervical and bone cancers pose significant health challenges, each characterized by unique causes, symptoms, and difficulties in treatment. Cervical cancer, primarily associated with human papillomavirus (HPV) infection, ranks among the most prevalent cancers affecting women globally. Preventative strategies such as HPV vaccination and regular Pap smear screenings have proven effective in lowering the incidence of this disease. Notable risk factors include engaging in sexual activity at a young age, having multiple sexual partners, and being immunocompromised. Improvements in diagnostic techniques, including HPV DNA testing, have enhanced early detection rates and improved treatment outcomes through surgical procedures, radiation therapy, and chemotherapy. Bone cancer, which includes primary tumors such as osteosarcoma, Ewing's sarcoma, and chondrosarcoma, as well as secondary metastatic bone tumors, presents distinct challenges in terms of diagnosis and treatment. Although primary bone cancers are infrequent, they mostly impact younger patients and typically necessitate intensive treatment therapies, such as surgical intervention, chemotherapy, and radiation therapy. In contrast, metastatic bone cancers, often arising from primary cancers of the breast, prostate, or lung, are more common among older individuals. Symptoms like pain, fractures, and skeletal instability are common complications, highlighting the crucial need for prompt treatment. This research emphasizes the continuous progress in treatment options, including immunotherapy,

targeted therapies, and less invasive surgical methods, which have demonstrated the potential to enhance both survival rates and the quality of life for patients. Furthermore, it highlights the essential importance of patient education, lifestyle changes, and fair access to both preventive and therapeutic solutions in tackling these illnesses. By combining clinical insights with contemporary research, this study provides a clear overview of cervical and bone cancers, to motivate further investigation and innovation in combating these diseases.

Keywords: Chondrosarcoma, Osteosarcoma, Ewings Sarcoma, HPV, Pap Smear Screening, Cervical Cancer, Bone Cancer.

PHP-OP-005

EXPLORING THE OUTCOMES OF VILDAGLIPTIN-METFORMIN VS GLIMEPIRIDE -METFORMIN IN TYPE 2 DIABETES MELLITUS PATIENTS IN TERTIARY CARE TEACHING HOSPITAL

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This study was aimed to compare the efficacy and safety of vildagliptin-metformin vs glimepiride-metformin for patients with type 2 diabetes mellitus patients. Evaluate prognosis in group 1 (V-M) with group 2 (G-M) for effectiveness and safety Observing the effectiveness of drugs(V-M)and (G-M) in patients.Improving the quality of life.A single center prospective observational study was conducted for 6 months in the general medicine department at Maheshwara medical college and hospital.A total 68 patients are recruited for the study and divided into two groups, in group 1 (vildagliptin -metformin) there are 34 patients and group 2 (glimepiride -metformin)there are 34 patients .To compare groups according to efficacy, glycated hemoglobin (HbA1C), fasting blood sugar levels (FBS), and post lunch blood sugar levels (plbs) measures are used as primary and secondary endpoints. Weight gain, hypoglycemia, and indigestion, hyperglycemia side effects are taken into account in terms of safety. The levels of HbA1C, FBS, and PLBS at baseline and final follow-up differ by 0.50%, 30 mg/dl and 34mg/dl in group 1 (V-M), and by 0.26%, 14 mg/dl, and 16 mg/dl in group 2 (GM), respectively. Group 1 (VM) experienced 40 ADRs related to hypo glycemia, weight gain, indigestion, hyper glycemia

while Group 2 (G-M) experienced 66 ADRs. It is evident that the combination of vildagliptin -metformin, as opposed to glimepiride-metformin treatment, resulted in superior blood glucose control. Treatment with vildagliptin -metformin does not seem to be linked to as many adverse drug reactions.Conclusion that the vildagliptin-metformin regimen is superior to glimepiride -metformin regimen in terms of safety and efficacy.

Keywords: Vildagliptin, Glimipride, Diabetes, Adverse Effects.

PHP-OP-006

ADVANCEMENTS IN BREAST CANCER TREATMENT

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Breast cancer is one of the most common cancers worldwide and second leading cause of death in women. Therapy has progressed substantially over the past years with a reduction in therapy intensity, both for loco-regional and systemic therapy. The primary objective of targeted therapy is to inhibit a specific target/molecule that supports tumor progression. Ak strain transforming, cyclin-dependent kinases, poly(ADP-ribose) polymerase, and different growth factors have emerged as potential therapeutic targets for specific breast cancer subtypes. In triple-negative and HER2-positive early breast cancer, neoadjuvant therapy has become a commonly used option. In metastatic breast cancer, therapy goals are prolongation of survival and maintaining quality of life. Advances in endocrine therapies and combinations, as well as targeting of HER2, and the promise of newer targeted therapies make the prospect of long-term disease control in metastatic breast cancer an increasing reality. Few targeted drugs are undergoing clinical trials and some have achieved the FDA approval as monotherapy or in combinations with other drugs. However, the targeted drugs have yet to achieve therapeutic promise against triple-negative breast cancer (TNBC). Different immunotherapeutic modalities including immune-checkpoint blockade, vaccination, and adoptive cell transfer have been extensively studied in the clinical setting of breast cancer, especially in TNBC patients. The FDA has already approved some immune-checkpoint blockers in combination with chemotherapeutic drugs to treat TNBC. This review provides an overview of clinical developments and recent
advancements in targeted therapies and immunotherapies for breast cancer treatment.

Keywords: Breast Cancer, Targeted Therapies, Immunotherapy, Immune Check Point Inhibitors.

PHP-OP-007

THE EVOLVING LANDSCAPE OF WEIGHT LOSS MEDICATION: WHAT'S NEW AND WHAT'S NEXT

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Prescription medications to treat overweight and obesity work in different ways. Current anti-obesity drugs act through several potential mechanisms including increase energy expenditure, appetite suppression, inhibition of digestive enzymes, or interference in the absorption, at the level of the intestinal tract, of fat or sugar from food. Medications don't replace physical activity or healthy eating habits as a way to lose weight.Here are some other anti-obesity medications and the years they were approved by the FDA:Phentermine-topiramate (Qsymia): Approved in 2012Bupropion-naltrexone (Contrave): Approved in 2014Liraglutide 3.0mg (Saxenda): Approved in 2014Gelesis100 (Plenity): Approved in 2019Semaglutide (Wegovy): Approved in 2021Tirzepatide (Zepbound): Approved in 2023Another approved drug, setmelanotide (IMCIVREE), is limited to people who have been diagnosed with one of four specific rare genetic disorders, which must be confirmed by genetic testing.The oral semaglutide tablet, sold under the brand name Rybelsus, was launched in India in January 2022. It is approved for weight reduction and diabetes treatment.The weight loss drug Tirzepatide, marketed as Mounjaro and Zepbound in the US, based pharmaceutical company that makes the drug, plans to launch it in India in 2025Tirzepatide, the active ingredient in Zepbound, was approved by the FDA in November 2023 for chronic weight management in adults: Tirzepatide Approved for adults with obesity (BMI of 30 kg/m2 or greater) or overweight (BMI of 27 kg/m2 or greater) with at least one weight-related condition. It's also approved for adults with type 2 diabetes to improve blood sugar.

Keywords: Antiobesity Drugs, Tirzepatide, Diabetes

PHP-OP-008

CLINICAL-PHARMACIST LED SURVEILLANCE OF LOCAL ANTIBIOTIC SUSCEPTIBILITY DATA IN DEVELOPMENT OF ANTIBIOGRAM

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Antmicrobialresistance jeopardizes sufficient healthcare delivery for infectio us diseases. Antibiograms, alongside a patient's clinical history, allow clinicians and pharmacists to choose the most effective empirical treatments before cultures are obtained.Our aim is to create an antibiogram for a tertiary care hospital. It is a retrospective cross-sectional study where using a data collected on culture and sensitivity test reports by samples from urine, stool, sputum, blood and cerebrospinal fluid (CSF) were considered. Data on routine culture and sensitivity were retrieved and analysed. We screened for patients who are advised for Culture sensitivity and Gram staining tests for 345 patients out of which 270 patients had positive culture tests, in all 270 pathogenic organisms were isolated. Gram –negative isolates were about 81% of total bacterial species. Escherichia coli, Staphylococcus spp. Klebsiella Spp. were the most isolated pathogens. Most of the bacterial isolatesshowedhighresistancetoamoxicillin/clavulanicacid,piperacillin/Tazobactam,Ceftriaxone,cefuroximeaxetil,Trimethoprim/Sulfamethoxazole,Cefoperazone/Sulbactam.The isolates from the various samples were not susceptible to most of the antibiotics used in the study. Our study reveals that the resistance patterns for isolates such as Escherichia coli and Klebsiella spp. to some antibiotics on the WHO 'Watch' and 'Reserve' list. Using antibiogram with local susceptibility patterns would optimize antibiotic use and preserve their efficacy.

Keywords: Antibiograms, Antibiotic Susceptibility, Klebsiella Spp.

PHP-OP-009

POLYUNSATURATED FATTY ACIDS AS THERAPEUTIC MODULATORS: GBA BALANCE RESTORATION IN INFLAMMATORY BOWEL DISEASE MANAGEMENT THROUGH PRECISION NUTRITION'

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The gut-brain axis(GBA)plays a pivotal role in human health and wellness by orchestrating complex bidirectional regulation and influencing numerous

critical processes within the body. Inflammatory bowel disease(IBD) is a lifelong disease that occurs when the body's immune system attacks healthy bowel cells, causing inflammation and damage. Studies exploring the involvement of diet in IBD patients have uncovered a significant impact of dietary preferences and *food* behaviour both on neural functions and IBD progression.The interrelation between gut microbiodata. diet and metabolism represents a finely balanced equilibrium that not only plays an essential role in the overall health in IBD patients but also *in* brain physiology, influencing behavior and mental health. Polyunsaturated fatty acids(PLTAs) have most well defined regulator• role,Omega-3 PUFAs, such as eicosapentaenoic acid (EPA) and docosahexaenoic acid (DHA)exhibit potent anti-inflammatory and immunomodulatoty effects, while omega-6 PUFAs, particularly arachidonic acid derivatives, are implicated *in* pro-inflammmatory pathways. Epidemiological studies indicate that a high dietary omega-6 to omeza-3 ratio may increase IBD risk and exacerbate disease activity, whereas omeza-3 supplementation has Shona promise in mitigating inflammation and promoting remission.Mechanistic insights reveal that PLTAs influence the gut microbiome, epithelial barrier integrity, and cytokine production,underscoring their multifaceted role in IBD.PLTA supplements can benefit GBA in IBD and understanding the involved regulator• pathways appearing to be a promising direction *for* the therapeutic implication in IBD.

Keywords: Microbiodata, Poly Unsaturated Fatty Acids.

PHP-OP-010

INNOVATIONS TO REDUCE HYPORESPONSIVENESS OF ERYTHROPOIETIN STIMULATING AGENTS IN PATIENTS WITH CKD

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ESA hypo responsiveness is commonly observed in patients with anemia secondary to chronic kidney disease. ESA hypo responsiveness is defined as having decrease in hemoglobin concentration from baseline after the first month of the treatment of chronic kidney disease. Because of it's a

complexity, there's a global consequence on how we should treat ESA hypo responsiveness. This review presents a comprehensive review of the most up

to date literature on the innovations regarding treating the ESA hypo responsiveness that is HIF prolyl hydroxylase inhibitors. HIF-PHIs may improve the treatment of renal anemia. Phase III clinical trials of HIF-PHIs in patients with anemia and dialysis-dependent CKD have shown their efficacy and safety in both non-dialysis and dialysis patients.

Keywords: Anemia, Erythropoietin, Hemodialysis.

PHP-OP-011

LIQUID BIOPSY AND REAL-TIME MONITORING- A GLOBAL PHARMACEUTICAL TREND

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The pharmaceutical industry is witnessing a significant shift towards personalized medicine, driven by advancements in liquid biopsy and real-time monitoring technologies. Liquid biopsy, a non-invasive diagnostic test, enables the detection of cancer biomarkers in blood or other bodily fluids. Real-time monitoring, using wearable devices or point-of-care tests, allows for continuous tracking of patient health status. This presentation will explore the current state of liquid biopsy and real-time monitoring, their applications in cancer diagnosis and treatment, and the global pharmaceutical trends driving their adoption. We will also discuss the benefits, challenges, and future directions of these innovative technologies. Additionally, we discuss the role of real-time monitoring in optimizing treatment strategies and improving patient outcomes.Furthermore, we examine the challenges and limitations associated with liquid biopsy, such as sensitivity, specificity, and standardization issues. To overcome these obstacles, ongoing research and technological advancements are crucial.In conclusion, liquid biopsy, coupled with real-time monitoring, holds immense potential to transform cancer care. By enabling personalized treatment approaches and facilitating early intervention, this innovative technology is poised to significantly impact the future of oncology

Keywords: Liquid Biopsy, Real-Time Monitoring, Personalized Medicine, Cancer Diagnosis and Treatment, Pharmaceutical Trends

PHP-OP-012

ROLE OF CLINICAL PHARMACIST IN REDUCING HYPERTENSION RELATED COMPLICATIONS

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Hypertension is a serious medical condition that significantly increases the risk of heart, brain, kidney and other diseases. According to WHO, an estimated 1.4 billion people worldwide have high blood pressure, but just 14% have it under control. Clinical pharmacists play a pivotal and multifaceted role in the management of hypertension and its associated comorbidities. Hypertension, as a major risk factor for cardiovascular diseases, stroke, kidney failure, and other chronic health conditions, requires a comprehensive and integrated approach for effective management. Clinical pharmacists are essential in managing hypertension and preventing the complications associated with it. Their ability to optimize pharmacotherapy, educate patients, and collaborate with other healthcare providers significantly enhances patient outcomes. By leveraging their expertise, we can improve hypertension control, reduce the prevalence of comorbidities, and promote long-term health and well-being for individuals at risk of hypertension and its associated diseases. Looking to the future, expanding the role of clinical pharmacists, particularly in primary care settings, will further improve hypertension management. Pharmacists should be more actively involved in preventive care and chronic disease management programs, allowing for more widespread access to their expertise. Moreover, raising public awareness about the critical role pharmacist's play in managing hypertension and its comorbidities will foster greater utilization of their services, ultimately benefiting patient health on a larger scale.

Keywords-Hypertension, Clinical Pharmacist, Stroke, Cardiovascular Diseases.

PHP-OP-013

ADVANCING RENAL THERAPY: THE ROLE OF SILICONE BIOREACTORS IN BIO-ARTIFICIAL KIDNEY DEVELOPMENT

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The bio-artificial kidney represents a promising innovation in the field of renal replacement therapies, offering a potential solution for patients suffering from end-stage renal disease (ESRD). Unlike traditional dialysis, which relies on external machines to filter blood, the bio-artificial kidney integrates biological components with synthetic membranes, mimicking the natural functions of a healthy kidney. This device combines a hemofilter, containing living renal cells, with advanced filtration technology to improve toxin removal, electrolyte balance, and fluid regulation. In this presentation, we will explore the underlying technologies, current research, and clinical advancements surrounding bio-artificial kidneys. Key challenges in scalability, biocompatibility, and long-term effectiveness will also be discussed, alongside the future potential of personalized medicine and organ regeneration. The bio-artificial kidney holds the promise of offering more efficient, patient-friendly alternatives to current renal therapies, potentially transforming the landscape of kidney disease management.

Keywords: ESRD, Bio-Artificial Kidney, Hemofilter, Synthetic Membrane.

PHP-OP-014

AI-DRIVEN DRUG DISCOVERY AND PERSONALIZED MEDICINE

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The integration of artificial intelligence (AI) into drug discovery and personalized medicine has revolutionized healthcare, offering unprecedented speed, precision, and efficiency in identifying therapeutic solutions. AI technologies, including machine learning, natural language processing, and deep learning, enable the rapid analysis of complex

biological data, such as genomics, proteomics, and metabolomics. These tools have accelerated drug discovery by predicting drug-target interactions, optimizing chemical synthesis, and identifying novel drug candidates, significantly reducing development timelines and costs.In parallel, AI facilitates personalized medicine by analyzing patient-specific data to predict disease progression, tailor treatments, and optimize drug dosages based on individual genetic and environmental factors. This approach enhances treatment efficacy and minimizes adverse effects, ushering in a new era of precision healthcare. Despite its transformative potential, AI-driven drug discovery and personalized medicine face challenges, including data privacy concerns, regulatory complexities, and the need for robust validation processes. Addressing these challenges through interdisciplinary collaboration and ethical frameworks will be pivotal for the widespread adoption of AI in healthcare. This paper explores the advancements, applications, and future prospects of AI in drug discovery and personalized medicine, highlighting its role in shaping a more targeted and efficient healthcare paradigm.

Keywords: Artificial Intelligence, Drug Discovery, Personalized Medicine.

PHP-OP-015

LIQUID BIOPSY: A GAME-CHANGER IN CANCER THERAPY.

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Liquid biopsy, a non-invasive diagnostic and monitoring tool, is used in oncology. It analyzes circulating components like circulating tumor cells (CTCs), cell-free DNA (cfDNA), and circulating tumor DNA (ctDNA) present in bodily fluids like blood. This acts as a surrogate for tissue biopsy. In cancer treatment, liquid biopsy offers several merits: Early intervention: Liquid biopsy promotes early diagnosis of cancer by detecting tumor derived biomarkers. Real-time oversight: It permits continuous tracking of tumor progression and therapeutic response. Personalized therapy: Liquid biopsy aids in detecting genetic mutations or biomarkers that guide targeted therapies. Minimal residual disease (MRD) detection: It detects residual

cancer cells post-treatment, helping in recurrence analysis. Treatment resistance: Liquid biopsy identifies emerging mutations, unveiling mechanisms of drug resistance. As research evolves, liquid biopsy is likely to become a vital tool in fighting cancer, enhancing diagnosis, treatment, and patient outcomes.

Keywords: Liquid biopsy, oncology, CTCs, cfDNA, ctDNA.

PHP-OP-016

ILLUMINATING NEURODEGENERATION: ADVANCING PET IMAGING WITH NOVEL RADIOTRACERS

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PET imaging uses a radioactive drug (tracer) that binds to specific proteins or sugars, where it accumulates in areas of the body with high levels of chemical activity, such as tumors or inflamed tissues, indicating disease. As the tracer decays, it emits positrons. When a positron meets an electron, they undergo an annihilation reaction, releasing energy in the form of gamma rays. The PET scanner detects the gamma rays emitted during the annihilation reaction and uses it to reconstruct detailed images of the body's internal structure and functions. A multidisciplinary consortium of radiology and chemistry researchers, led by PENN Medicine, are testing radiotracers they identified that illuminate alpha-synuclein or 4 R tau proteins on PET scans. Researchers are working to develop innovative tracers for parkinson's disease and several other diseases that are characterized as 'proteinopathies' which occur when certain proteins 'misfold', and aggregate on the brain. The project aims to develop two different radiotracers: one that will bind to a protein in the brain known as alpha-Syn for the imaging of PARKINSON'S and ,multiple system atrophy, and the other that will bind to the protein 4R tau for imaging front temporal degeneration and progressive supra-nuclear palsy. The development of novel radiotracers is revolutionizing PET imaging, enabling researchers to visualize and understand complex biological processes with unprecedented precision. By designing and optimizing these innovative radiotracers, pharmacists can help enable the non-invasive visualization of complex biological processes, leading to improved diagnosis, treatment and monitoring of various diseases. As experts in drug development and delivery, pharmacists are instrumental in ensuring the safe and effective use of these radiotracers, ultimately enhancing patient care and outcomes.

Keywords: Radioactive Drug, Alpha-Synuclein, 4R Tau Proteins, Parkinson's,Non Invasive Visualization

PHP-OP-017

DIGITAL HEALTH AND EXTENDED REALITY

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The rapid integration of technology in healthcare has led to groundbreaking advancements in patient care, treatment, and medical training. Digital health, encompassing telemedicine, wearable devices, and artificial intelligence, has revolutionized the way health services are delivered and accessed. Extended Reality (XR), which includes Virtual Reality (VR), Augmented Reality (AR), and Mixed Reality (MR), is further enhancing this transformation by creating immersive and interactive healthcare experiences.This presentation explores the convergence of digital health and XR, highlighting their applications in remote monitoring, surgical training, patient education, mental health therapy, and physical rehabilitation. The synergy between these technologies promises improved healthcare accessibility, efficiency, and personalization. However, challenges such as high costs, data security, and regulatory constraints must be addressed to unlock their full potential. As healthcare systems worldwide evolve, the combination of digital health and XR offers a pathway to a future where technology empowers better health outcomes, patient satisfaction, and medical innovations. This presentation aims to provide a comprehensive overview of the current trends, benefits, challenges, and future directions of these transformative technologies.

Keywords: Extended Reality, Digital Health, Virtual Reality.

PHP-OP-018

DIABETES TYPE 1.5

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Type 1.5 diabetes,also known as Latent Autoimmune Diabetes in Adults (LADA), is a form of diabetes that shares characteristics of both Type 1 and Type 2 diabetes. It's sometimes referred to as a "hybrid" or "slow-progressing Type 1 diabetes." It typically develops in adults, usually after the age of 30. Unlike Type 1 diabetes, where insulin dependence develops rapidly, individuals with LADA experience a slower progression and may not need insulin therapy immediately. It is often initially misdiagnosed as Type 2 diabetes due to its adult onset and slower progression. It is diagnosed with the presence of autoantibodies (such as GAD antibodies) commonly associated with Type 1 diabetes. Its symptoms include Frequent urination, Increased thirst, Unexplained weight loss, Fatigue, Blurred vision. Future developments in the understanding, diagnosis, and treatment of Type 1.5 diabetes are promising and includes, improved Diagnosis and Classification, Personalized Medicine, Immunotherapy (Beta Cell Preservation), Regenerative Medicine, lifestyle and preventive medicine etc.

Keywords: Type 1.5 Diabetes, Auto Antibodies, Insulin Dependence.

PHP-OP-019

UNVEILING CLINICAL INSIGHTS: A PROSPECTIVE OBSERVATIONAL STUDY ON INTERRELATION OF HEART FAILURE, RENAL INSUFFICIENCY AND PATIENT RELATED OUTCOMES

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The interrelation of Heart failure, renal insufficiency and patient related outcomes and their survival score based on the condition of the patient and

the medications prescribed using Seattle Heart Failure Model.A hospital based Prospective observational study was carried out for a period of 6 months. A total of 142 patients with Heart Failure were enrolled for the study. The study included all Heart Failure patients with Preserved, Mild-reduced & Reduced Ejection Fraction, Age > 18 years, Patient of either gender, Patient with other co-morbidities. The study excludes patients with transplantation, tumors, Minors < 18 years, Patient on dialysis, pregnant women, and Breast feeding women. We have collected and interpreted the data from a prospective observational study of 142 patients with Heart Failure based on their ejection fraction, serum creatinine, and estimated the GFR and evaluated the stages of kidney disease and calculated the survival score using SHFM Scale and have assessed all the parameters that showed the interrelation of heart failure and renal insufficiency in the patients. This study evaluates the interrelation of heart failure and renal insufficiency, and other patient related outcomes. The analysis revealed a male pre-dominance and a majority were in the age group of 40-50 years. Heart Failure with reduced Ejection Fraction (HFrEF) was most common type of heart failure. When the interrelation of heart failure and renal insufficiency was interpreted, then most of the heart failure patients falls under the Stage 3 of Kidney Disease with GFR ranging between 59-29 ml/min/1.73m.

Keywords: Heart Failure, Renal Sufficiency.

PHP-OP-020

PHARMACOTHERAPY OF ANXIETY DISORDERS: CURRENT AND EMERGING TREATMENT OPTIONS

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Anxiety is now the leading mental health problem around the world, and the incidence of anxiety is still rising, especially among youth. Increasing numbers of children and adolescents are being diagnosed with the disorder. While there continues to be expansive research in posttraumatic stress disorder (PTSD), depression and schizophrenia, there is a relative dearth of novel medications under investigation for anxiety disorders. This review's first aim is to summarize current pharmacological treatments Second one Posttraumatic stress disorder and obsessive-compulsive disorder are

excluded from this review. Overall, the progression of current and future psychopharmacology research in anxiety disorders suggests that there needs to be further expansion in research of these novel pathways and larger-scale studies of promising agents with positive results from smaller trials. It's important to be aware that many different kinds of treatments are available, and people with anxiety disorders tend to have very good responses to those treatments.

Keywords: Posttraumatic Stress Disorder, Depression, Schizophrenia, Obsessive-Compulsive Disorder.

PHP-OP-021

EXPLORING THE SILENT SURGE: PREVALENCE OF HYPERTENSION STRESS AND INSOMNIA AMONG YOUNG ADULTS

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Hypertension, stress and insomnia remains under explored conditions among young adults. These conditions are often termed as silent killers because they don't show any symptoms but pose significant risks to long-term health and well-being. The aim of the study is to determine the prevalence of Hypertension, stress and insomnia among young adults, provide personalized counseling sessions and monitor the progress TA longitudinal study was conducted in a community setting. The study sample consisted of adults aged 18-39 from different socio-economic backgrounds. Data was recorded based on a proforma. Stress and sleep patterns were assessed using validated questionnaires. Personalized counseling sessions were conducted for the participants with abnormal findings. Follow-up sessions were scheduled to monitor progress, adjust counseling strategies as needed, and provide ongoing support. Blood Pressure: Initially, 11.6% had hypertension, 20% had prehypertension. Uncontrolled cases reduced significantly after follow-ups (prehypertensive: 15 to 6; hypertensive: 16 to 7).Sleep Quality: Poor sleep dropped from 162 to 95 by the second follow-upStress: Moderate to high stress cases decreased from 165 to 66 by the end of the study. The findings indicate a significant rise in hypertension, stress, and insomnia among young adults, driven by factors such as high

academic and work pressures, digital media consumption, and financial instability. The study underscores the necessity for comprehensive public health strategies and individualized intervention programs to mitigate these issues and promote healthier lifestyles.

Keywords: Hypertension, Stress, Insomnia.

PHP-OP-022

STRATEGIES TO OVERCOME RESISTANCE IN CANCER THERAPIES

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Emergence of resistance is a major factor limiting the efficacy of molecularly targeted anticancer drugs. Understanding the specific mutations, or other genetic or cellular changes, that confer drug resistance can help in the development of therapeutic strategies with improved efficacies. Here, we outline recent progress in understanding chemical type -specific mechanisms of resistance and present chemical strategies, such as designing drugs with distinct binding modes or using proteolysis targeting chimeras, to overcome resistance. We also discuss how targeting multiple binding sites with bifunctional inhibitors or identifying collateral sensitivity profiles can be exploited to limit the emergence of resistance. Finally, we highlight how incorporating analyses of resistance early in drug development can help with the design and evaluation of therapeutics that can have long-term benefits for patients.

Keywords – Resistance, Mutations, Inhibitors.

MIS-OP-001

COMBATTING SUBSTANDARD AND FALSIFIED MEDICINES IN FORMAL AND INFORMAL MARKETS

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The prevalence of substandard and falsified/ counterfeit (SF) medicines poses a significant threat to global public health, particularly in low- and middle-income countries where regulatory oversight may be limited. These medicines contribute to treatment failures, antimicrobial resistance, and preventable deaths, undermining public trust in healthcare systems. Both formal and informal markets are vulnerable to the circulation of SF medicines, necessitating coordinated strategies to address this pervasive issue. This presentation explores the multifaceted approaches to combating SF medicines, emphasizing the importance of strengthening regulatory frameworks, enhancing quality assurance systems, and leveraging technological innovations such as blockchain, mobile-based verification, and advanced analytical tools for medicine authentication. Collaborative efforts between governments, pharmaceutical manufacturers, healthcare providers, and international organizations are crucial in mitigating the risks posed by SF medicines. Additionally, the role of public awareness campaigns and capacity building in empowering communities to recognize and report counterfeit products will be discussed. A comparative analysis of successful interventions in different regions highlights best practices and scalable solutions for safeguarding medicine quality in both formal and informal markets. This session aims to provide actionable insights and foster dialogue among stakeholders to enhance the availability of safe and effective medicines worldwide.

Keywords: substandard, falsified/ counterfeit, blockchain, healthcare providers, public awareness, formal and informal markets

MIS-OP-002

CURRENT TRENDS OF INTELLIGENT, SMART PACKAGINGS IN NEW MEDICAL APPLICATIONS

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The pharmaceutical packaging market is constantly advancing, new packaging for drugs and medical products are characterized by modern design and new features. Smart packaging helps in real-time tracking of the shipment, the ability to check the location of the shipments helps with invoicing reordering and improving the product handling processes. Incorporating features into packaging improves the business and user experience, access to information of products storage, reconstitution, administration, disposal after use]. Futuristically sensors enabled packaging can also help in checking the stock level availability and adjust the production and supply accordingly.

Keywords: medical packaging, recycling, packaging materials

MIS-OP-003

ACUTE ENCEPHALITIS SYNDROME DUE TO CHANDIPURA VIRUS

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Acute Encephalitis Syndrome (AES) is a complex neurological disorder characterized by acute-onset fever, altered mental status, and seizures. Among the various pathogens causing AES, Chandipura virus (CHPV), a member of the Rhabdoviridae family, has emerged as a significant public health concern in India. First isolated in 1965, CHPV is an arbovirus primarily transmitted through sandflies (Phlebotomus species). CHPV-associated AES typically presents with a rapid onset of fever, headache, and altered mental status, often progressing to seizures, coma, and death. The disease is particularly severe in children, with a high mortality rate. While there is no specific treatment for CHPV infection, supportive care, including management of fever, seizures, and respiratory distress, is crucial. The epidemiology of CHPV-associated AES is complex, with outbreaks occurring

sporadically in different regions of India. The exact factors contributing to these outbreaks are not fully understood, but environmental factors, such as rainfall and temperature, may play a role. Prevention of CHPV infection relies on vector control measures, such as insecticide spraying and personal protective measures, like using insect repellents and wearing long sleeves and pants. Further research is needed to develop effective vaccines and antiviral therapies for CHPV infection.

Keywords: Chandipura virus (CHPV), Respiratory distress, Altered mental status, Acute Encephalitis Syndrome (AES).

MIS-OP-004

REGENERATIVE MEDICINE: IT'S FUTURE IN MODERN MEDICAL SCIENCE

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Organ and tissue loss through disease and injury motivate the development of therapies that can regenerate tissues and decrease reliance on transplantations. Regenerative medicine, an interdisciplinary field that applies engineering and life science principles to promote regeneration, can potentially restore diseased and injured tissues and whole organs. Since the inception of the field several decades ago, a number of regenerative medicine therapies, including those designed for wound healing and orthopaedics applications, have received Food and Drug Administration (FDA) approval and are now commercially available. These therapies and other regenerative medicine approaches currently being studied in preclinical and clinical settings will be covered in this review. Specifically, developments in fabricating sophisticated grafts and tissue mimics and technologies for integrating grafts with host vasculature will be discussed. Enhancing the intrinsic regenerative capacity of the host by altering its environment, whether with cell injections or immune modulation, will be addressed, as well as methods for exploiting recently developed cell sources. Finally, we propose directions for current and future regenerative immune modulation.

Keywords: Regenerative medicine, Immune modulation & Intrinsic regenerative capacity.

MIS-OP-005

NEW CONCEPTS IN NUTRACEUTICALS AS ALTERNATIVE FOR PHARMACEUTICALS

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Nutraceuticals are products, which other than nutrition are also used as medicine. A nutraceutical product may be defined as a substance, which has physiological benefit or provides protection against chronic disease. Nutraceuticals may be used to improve health, delay the aging process, prevent chronic diseases, increase life expectancy, or support the structure or function of the body. Nowadays, Nutraceuticals have received considerable interest due to potential nutritional, safety and therapeutic effects. Recent studies have shown promising results for these compounds in various complications. In the present review much effort has been devoted to present new concepts about Nutraceuticals based on their diseases modifying indications. Emphasis has been made to present herbal nutraceuticals effective on hard curative disorders related to oxidative stress including allergy, Alzheimer, cardiovascular, cancer, diabetes, eye, immune, inflammatory and Parkinson's diseases as well as obesity. The recently published papers about different aspects of nutraceuticals as alternative for pharmaceuticals were searched using scientific sites such as Medline, PubMed, and Google Scholar. The used terms included nutraceutical and allergy, Alzheimer, cardiovascular, cancer, diabetes, eye, immune, inflammatory or Parkinson.

Keywords: Antioxidants, disease modifiers, herbal nutraceuticals, nutraceutical products, nutraceuticals, oxidative stress.

MIS-OP-006

THE ROLE AND IMPACT OF TELEPHARMACY AND DIGITAL HEALTH INTERVENTIONS ON MODERN HEALTHCARE SYSTEMS

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Digital health interventions (DHI) and telepharmacy have transformed the landscape of healthcare delivery, providing significant advancements in

patient care and medication management. Telepharmacy, a subset of telemedicine, leverages technology to facilitate remote pharmaceutical services, enhancing access and efficiency, particularly in underserved areas. This paper explores the benefits and challenges associated with telepharmacy and digital health interventions, examining their impact on healthcare professionals and patients. The analysis is based on a comprehensive review of current literature, policy documents, and official publications. Key findings indicate that while telepharmacy offers numerous advantages such as improved medication adherence and reduced medication errors, it also raises critical issues related to regulatory, legal, and ethical standards. The paper concludes by identifying future trends and opportunities for research and practice in telepharmacy and digital health interventions, emphasizing the need for robust frameworks to ensure their effective and safe implementation.

Keywords: Telepharmacy, Digital Health Interventions, Medication Management, Chronic Disease Management, Healthcare Technology and Patient Care.

MIS-OP-007

ARTIFICIAL INTELLIGENCE IN PHARMACOVIGILANCE

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Pharmacovigilance (PV) is a data-driven process to identify medicine safety issues at the earliest by processing suspected adverse event (AE) reports and extraction of health data. The PV case processing cycle starts with data collection, data entry, initial checking completeness and validity, coding, medical assessment for causality, expectedness, severity, and seriousness, subsequently submitting report, quality checking followed by data storage and maintenance. This requires a workforce and technical expertise and therefore, is expensive and time-consuming. There has been exponential growth in the number of suspected AE reports in the PV database due to smart collection and reporting of individual case safety reports, widening the base by increased awareness and participation by health-care professionals and patients. Artificial intelligence (AI) in health care has been very impressive in specialties that rely heavily on the interpretation of medical images. There has been a growing interest to adopt AI tools to complement and automate the PV process. The advanced technology can certainly

complement the routine, repetitive, manual task of case processing, and boost efficiency; however, its implementation across the PV lifecycle and practical impact raises several questions and challenges. Full automation of PV system needs to consider two aspects – people and processes. What is important is to emphasize and ensure that AI brings more benefits to PV rather than challenges.

Keywords: Pharmacovigilance, Adverse event, Artificial intelligence.

MIS-OP-008

REVOLUTIONIZING MAFLD MANAGEMENT: THE ROLE OF ARTIFICIAL INTELLIGENCE IN DIAGNOSIS, PROGNOSIS, AND PRECISION THERAPY

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The integration of artificial intelligence (AI) into the study and management of metabolic-associated fatty liver disease (MAFLD) offers transformative potential in addressing the growing global burden of this complex disorder. Leveraging AI-driven tools, including machine learning (ML) and deep learning (DL) algorithms, has enabled significant advancements in early diagnosis, risk stratification, treatment personalization, and disease monitoring. AI-based imaging analysis, utilizing modalities such as ultrasound, MRI, and CT, has enhanced the accuracy of detecting hepatic steatosis, fibrosis, and inflammation while reducing reliance on invasive liver biopsies. Additionally, predictive models trained on clinical, genetic, and metabolic data are proving valuable in identifying at-risk individuals and forecasting disease progression. AI-driven tools also play a critical role in drug discovery by accelerating the identification of novel therapeutic targets and optimizing clinical trial designs. This presentation will explore the current applications of AI in MAFLD, including non-invasive diagnostic methods, precision medicine approaches, and health informatics strategies for population-level disease management. Key challenges, such as data standardization, algorithm interpretability, and ethical considerations, will also be discussed. By bridging the gap between computational innovation and clinical practice, AI holds the promise to revolutionize the diagnosis and management of MAFLD, improving outcomes for patients worldwide.

Key words: Artificial Intelligence (AI), hepatic steatosis, fatty liver disease, treatment personalization, disease monitoring.

MIS-OP-009

RECENT ADVANCES IN PHARMACEUTICAL SCIENCES TOWARDS A HEALTHY LIFE

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Pharmaceutical sciences play a vital role in improving global health by driving innovations in drug discovery, development, and delivery. Recent advancements in this field have revolutionized healthcare, offering novel solutions for the prevention, diagnosis, and treatment of diseases. Key breakthroughs include the development of precision medicine, biologics, and advanced drug delivery systems, such as nanoparticles and microneedles, which enhance therapeutic efficacy and patient compliance. The integration of artificial intelligence and machine learning into drug research has accelerated the discovery process, while advancements in pharmacogenomics have enabled personalized treatment approaches. This review highlights these recent developments and their impact on achieving healthier lives. Challenges such as regulatory hurdles, affordability, and equitable access are also addressed. As pharmaceutical sciences continue to evolve, they promise to further bridge the gap between cutting-edge research and improved patient outcomes, fostering a healthier and more sustainable future.

Keywords: Pharmaceutical sciences, global health, regulatory hurdles, pharmacogenomics.

MIS-OP-010

THE CURRENT SCENARIO FOR TOMATO FLU

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Tomato flu, a recently identified viral infection, primarily targets young children. It is characterized by the development of tomato-shaped red blisters all over the body on the skin, apart from skin it also appears on hands, foot, and mouth, often accompanied by fever, fatigue, and body aches. The virus responsible for tomato flu remains unidentified, but it is believed to be related to Hand, Foot, and Mouth Disease. Originated in

Kerala, India, tomato flu has since spread to neighbouring states. While most cases are mild and self-limiting, resolves within 7-10 days, the infection has raised concerns due to its rapid spread and potential for more severe complications. Currently, there is no specific treatment or vaccine for tomato flu. However, efforts are underway to better understand the virus, its mode of transmission (because of unhygienic transport mode 0, and potential prevention and treatment strategies. Lessons learned from the COVID-19 pandemic are being applied to manage tomato flu outbreaks, including the repurposing of existing medications like non-antiviral and flu vaccines.

Keywords: Tomato flu, viral infection, Hand, Foot, and Mouth Disease, children, fever, rash.

MIS-OP-011

PIONEERING PHARMACEUTICAL INNOVATIONS: ADDRESSING THE GRAND CHALLENGES OF GLOBAL HEALTHCARE

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The pharmaceutical industry is at a crossroads, balancing groundbreaking advancements with complex global challenges. This presentation explores the grand challenges shaping the future of pharmaceutical innovations. Key topics include combating antimicrobial resistance, advancing personalized medicine, and ensuring equitable access to life-saving treatments. Emphasis is placed on leveraging emerging technologies such as artificial intelligence to streamline drug discovery, reduce development timelines, and enhance precision in treatment. Sustainability emerges as a critical focus, addressing the environmental impact of pharmaceutical production and advocating for greener practices. The COVID-19 pandemic highlighted the importance of rapid response mechanisms for emerging infectious diseases, underscoring the need for robust global health systems and international collaboration. Ethical considerations also take centre stage, particularly in clinical trials, resource allocation, and navigating the boundaries of cutting-edge technologies like gene editing. Through interdisciplinary collaboration and proactive regulatory adaptation, the pharmaceutical industry has the potential to transform healthcare systems worldwide. This session aims to inspire dialogue and innovative strategies to address these challenges, fostering an equitable, sustainable, and resilient future for global healthcare

Keywords: Pharmaceutical innovation, global healthcare, antimicrobial resistance, AI in medicine, personalized treatments, ethical challenges.

MIS-OP-012

MICROARRAYS: REVOLUTIONIZING GENOMIC AND TRANSCRIPTOMIC

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Microarrays are powerful tools in modern biological research, allowing for the simultaneous analysis of thousands of genes or other nucleic acid sequences. These tiny devices consist of a solid surface, often a glass slide, onto which thousands of unique DNA probes are attached in a grid-like pattern. Each probe represents a specific gene or genomic region. In a typical microarray experiment, fluorescently labelled target DNA or RNA molecules are hybridized to the probes on the array. The intensity of the fluorescence signal at each probe location reflects the abundance of the corresponding sequence in the sample. By scanning the array with a laser, researchers can generate a digital image that reveals the expression levels of numerous genes or genetic variants.

Keywords: Microarrays, Genes, fluorescently labelled

MIS-OP-013

THE NEW KIDS ON THE BLOCK: EMERGING OBESOGENS

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The current obesity epidemic is calling for action in the determination of contributing factors. Although social and life-style factors have been traditionally associated with metabolic disruption, a subset of endocrine-disrupting chemicals (EDCs), called obesogens are garnering increasing attention for their ability to promote adipose tissue differentiation and accumulation. For some chemicals, such as tributyltin, there is conclusive evidence regarding their ability to promote adipogenesis and their mechanism of action. In recent years, the list of chemicals that exert obesogenic potential is increasing. In this chapter, we review current knowledge of the most recent developments in the field of emerging

obesogens with a specific focus on food additives, surfactants, sunscreens for many of which the mechanism of action remains unclear. We also review new evidence relative to the obesogenic potential of environmentally relevant chemical mixtures and point to potential therapeutic approaches to minimize the detrimental effects of obesogens. We conclude by discussing the available tools to investigate new obesogenic chemicals, strategies to maximize reproducibility in adipogenic studies, and future directions that will help propel the field forward.

Keywords: Adipose tissue, adipogenesis, endocrine disrupting chemicals, emerging, food activities

MIS-OP-014

XENOTRANSPLANTATION

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Xenotransplantation is a breakthrough medicinal technology that is an attempt to change the lives of millions of people. The process of organ transplantation from one species to other species is called xenotransplantation. Xenotransplantation is also called as allotransplantation. The cells or tissues used in this process are called as xenografts or xenotransplants. Animals like chimpanzees, pigs and baboons are mostly used. The organs are taken from species like pigs and various gene edits are done using CRISPR technologies and then transplanted. In this process many complications like infections, rejections, hyperacute rejection, delayed xenograft rejection, chronic rejection were faced. Like if heart of pig is transplanted, then that person can survive more than 900 days and if kidney, person can survive more than 400 days. Both primates and non-primates are used for trails. By xenotransplantation we can increase availability of organs, reduced brain deaths and reduced infections in organ transplantation.

Keywords: Xenotransplantation, CRISPR technologies, transplantation

MIS-OP-015

SILVER NANOPARTICLES: SYNTHESIS AND CHARACTERIZATION

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Silver nanoparticles (AgNPs) have garnered significant attention in various fields due to their unique physicochemical properties, including high surface area, tunable size, and strong antimicrobial activity. These properties make AgNPs ideal candidates for applications in medicine, environmental remediation, electronics, and catalysis. In medicine, AgNPs are widely used for wound healing, drug delivery, and diagnostic imaging due to their ability to interact with biological systems, facilitating efficient cellular uptake and controlled release of therapeutic agents. The antimicrobial properties of AgNPs are particularly valuable in combating infections, as they can disrupt bacterial cell membranes and interfere with cellular processes, making them effective against a broad spectrum of pathogens. In the field of environmental science, AgNPs are used for water purification and as sensors for detecting pollutants, leveraging their ability to adsorb and degrade contaminants. Additionally, AgNPs have shown promise in catalysis, where their high surface-to-volume ratio enhances catalytic efficiency, particularly in reactions like hydrogenation and oxidation. Synthesis of AgNPs can be achieved through chemical, physical, and green methods, with green synthesis emerging as a more sustainable and eco-friendly approach, often utilizing plant extracts or microorganisms. Despite their numerous advantages, concerns regarding the potential toxicity of AgNPs to humans and the environment necessitate careful evaluation of their safety and long-term effects. Ongoing research aims to optimize the synthesis, functionalization, and application of AgNPs while addressing safety concerns, thus expanding their potential in diverse technological and biomedical applications.

Keywords: Silver nanoparticles, Synthesis methods, Evaluations, Applications.

MIS-OP-016

THERANOSTIC RADIOPHARMACEUTICALS IN NUCLEAR MEDICINE

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Theranostic radiopharmaceuticals represent a groundbreaking innovation in nuclear medicine, seamlessly integrating diagnostic and therapeutic capabilities into a single molecular platform. These agents use radionuclides to enable precise imaging of disease sites while delivering targeted radiotherapy, offering unparalleled specificity and minimizing damage to healthy tissues. This dual functionality has been particularly transformative in oncology, where theranostic radiopharmaceuticals aid in the accurate diagnosis, staging, and treatment of various cancers, including neuroendocrine tumors and prostate cancer. The approach tailors interventions to individual patients, embodying the principles of precision medicine. Recent advancements in molecular targeting agents, such as peptides, monoclonal antibodies, and small molecules, have expanded the versatility of theranostics, extending their applications to non-cancerous diseases like inflammatory and cardiovascular conditions. The development of novel radionuclides, advanced radiochemistry techniques, and hybrid imaging technologies such as PET/CT and SPECT/CT has further enhanced the efficacy and safety of these agents. This review explores the evolving landscape of theranostic radiopharmaceuticals, highlighting key clinical and preclinical advancements, innovative targeting strategies, and the role of multidisciplinary collaborations in their development. Despite their promise, challenges persist, including complex production logistics, regulatory hurdles, high costs, and ensuring equitable patient access to these therapies. Future directions focus on refining delivery mechanisms, identifying new biomarkers, and expanding their therapeutic scope to additional diseases. As theranostic radiopharmaceuticals continue to advance, they are poised to revolutionize personalized medicine, improving outcomes and quality of life for patients worldwide.

Keywords: Theranostic radiopharmaceuticals, neuroendocrine tumors, hybrid imaging technologies.

MIS-OP-017

REVOLUTION IN NANOMEDICINE

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Nanomedical diagnostics and the therapeutics offer the opportunity to modulate immune function in specific ways that exploit the properties of nanoscale. Major factors driving the development of novel nanomedical agents include the possibility of reaching high local concentrations of a drug due to large surface area of nanoparticles, the ability of such particles to penetrate into cells and cross body barriers and the possibility of multiple functionalization's. The latter aspect may include both reputing and diagnostics in intense. Nanoparticles may soon be used to transport diagnostic and therapeutic drugs to targeted sites not normally accessible, thereby improving treatment and reducing costs.
Although many nanotherapeutic and nanodiagnostic agents are in use and have the potential to improve health care, many barriers have impeded the development and availability of these products. Despite these impediments, it is expected that nanomaterials will become an integral part of mainstream medicine.

Keywords: Diagnosis, nanoparticles, treatment, nanotherapeutic, standardization

MIS-OP-018

STEM CELLS: HOPE FOR THE INCURABLE

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Stem cells: Hope for the incurable Stem cells are unique cells in the body with the remarkable ability to transform into various cell types. Unlike regular cells with fixed roles, stem cells are like blank slates, ready to become whatever the body needs. Stem cells can be collected from various sources.Embryonic stem cells are derived from early embryos, while adult stem cells are found in tissues like bone marrow and fat. Umbilical cord blood, collected after birth, is a rich source of stem cells. Amniotic fluid, obtained during pregnancy, is another potential source. Stem cell therapy

has the potential to treat over 80 diseases, including some of the most challenging and life-threatening conditions like Parkinson's, heart disease, diabetes, and spinal cord injuries. For blood cancers such as leukaemia, stem cell transplants have been life-saving. This therapy can also restore vision in blind people by regenerating damaged retinal cells, particularly in conditions like macular degeneration. Stem cell therapy continues to provide new hope for those suffering from conditions once deemed incurable. In conclusion, stem cell therapy is transforming medicine, with over 80 diseases treated. With over 30,000 successful bone marrow transplants, stem cells are also showing promise in growing replacement organs, paving the way for ground breaking advancements in healthcare.

Keywords: Stem Cells, Embryonic Stem Cells, Adult Stem Cells, Umbilical Cord Blood, Stem Cell Therapy, Regeneration.

MIS-OP-019

AI-AUGMENTED BIOPHARMACEUTICAL DEVELOPMENT CHALLENGES AND OPPORTUNITIES

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The integration of artificial intelligence (AI) in biopharmaceutical development is revolutionizing drug discovery, design, and manufacturing processes. This presentation explores the transformative potential of AI in accelerating the identification of therapeutic targets, optimizing molecular structures, and predicting drug interactions. By leveraging machine learning algorithms and big data analytics, AI enables unprecedented precision and efficiency in biopharmaceutical research, significantly reducing the time and cost associated with traditional approaches. However, the journey toward full-scale AI implementation is not without challenges. Issues such as data quality, interoperability, algorithm transparency, and regulatory compliance present critical hurdles.This discussion highlights emerging solutions, including advanced data curation methods, federated learning models, and collaborative frameworks that bridge the gap between innovation and practical application. Case studies of successful AI applications in biologics, gene therapies, and vaccine development will underscore its potential to address complex therapeutic needs. This presentation aims to provide a comprehensive overview of the current landscape, foster dialogue on overcoming barriers, and inspire collaboration across academia, industry,

and regulatory bodies to harness AI's full potential in biopharmaceutical development.

Keywords: Artificial intelligence, machine learning, biologics, data analytics, regulatory challenges, pharmaceutical innovation.

MIS-OP-020

FETAL MICROCHIMERISM AND BEYOND: A NEW PLAYER IN REGENERATIVE MEDICINE

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FETAL MICROCHIMERISM can occur naturally during pregnancy, refers to the presence of fetal cells in the maternal tissues persisting long after pregnancy. In the context of pharmaceutical research, it has been found to play a significant role in various diseases, including autoimmune disorders and cancer. Fetal Microchimerism is in the current research areas like Fetal cell trafficking and homing, Fetal cell differentiation and function. Fetal Microchimeric Cells (FMCs)are the low levels of fetal cells in the maternal circulation are the potent contributors to maternal wound healing. Research has shown that FMCs play a role in protecting against Breast cancer. This case study aimed to investigate the association between FMCs and breast cancer in the parous women.It is exploring in the research areas for its potential in the development of various therapeutic applications in Regenerative Medicine, Autoimmune disease management, Cancer, Wound healing and Tissue engineering, Gene therapy and stem cell research. Regenerative Medicine, with potential applications in: Tissue repair and regeneration, cell-based therapies, Disease modelling and Therapy. Fetal Microchimerism revolutionizes our understanding of maternal-fetal interactions, offering innovative novel therapeutics for regenerative medicine and disease management. Fetal microchimerism exploring novel therapies in pharmaceutical research like fetal cell transplantation, fetal cell based immune therapy and gene therapy.

Keywords: Fetal microchimerism, Regenerative medicine, Fetal Microchimeric Cells (FMCs), Breast cancer, Parous women, Wound healing, Tissue repair and regeneration.

MIS-OP-021

OZEMPIC: INNOVATION OR CONTROVERSY

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Ozempic (semaglutide) is a glucagon-like peptide-1 (GLP) receptor agonist originally developed for the treatment of type 2 diabetes. In recent years, it has gained widespread attention for its effectiveness in promoting weight loss, leading to off-label use for obesity management, even in individuals without diabetes. This expanded use has sparked significant controversy, as healthcare professionals, regulatory bodies and patients debate the drug's safety, efficacy, and ethical implications. Proponents highlight Ozempic's potential to address the global obesity epidemic and its ability to improve glycaemic control in diabetic patients. However, critics point to concerns about the long-term safety of semaglutide, potential side effects such as gastrointestinal issue's and rare but serious risks like pancreatitis or thyroid tumours, and the ethics of prescribing it for weight loss in individuals without diabetes. Furthermore, the surge in demand for Ozempic has led to supply shortages, raising questions about the drugs availability for its intended use in diabetes management. This presentation explores the ongoing controversy surrounding Ozempic, examining the public perceptions, and the broader social implications of its use for both diabetes and weight loss.

Keywords: Glucagon-like peptide-1, glycaemic control, diabetic patients.

MIS-OP-022

GENE THERAPY FOR SICKLE CELL DISEASE

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The U.S. Food and Drug Administration approved two milestone treatments, Casgevy and Lyfgenia, representing the first cell-based gene therapies for the treatment of sickle cell disease (SCD) in patients 12 years and older. Casgevy is the first FDA-approved therapy utilizing CRISPR/Cas9, a type of genome editing technology. Patients' hematopoietic (blood) stem cells are modified by genome editing using CRISPR/Cas9 technology. Lyfgenia is a cell-based gene therapy. Lyfgenia uses a lentiviral vector (gene delivery vehicle) for genetic modification and is approved for the treatment of

patients 12 years of age and older with sickle cell disease and a history of vaso-occlusive events. With Lyfgenia, the patient's blood stem cells are genetically modified to produce HbA^{T87Q}, a gene-therapy derived hemoglobin that functions similarly to hemoglobin A, which is the normal adult hemoglobin produced in persons not affected by sickle cell disease. Red blood cells containing HbA^{T87Q} have a lower risk of sickling and occluding blood flow. These modified stem cells are then delivered to the patient. Both products are made from the patient's own blood stem cells, which are modified, and are given back as a one-time, single-dose infusion as part of a hematopoietic (blood) stem cell transplant. Prior to treatment, a patient's own stem cells are collected, and then the patient must undergo myeloablative conditioning (high-dose chemotherapy), a process that removes cells from the bone marrow so they can be replaced with the modified cells in Casgevy and Lyfgenia. Patients who received Casgevy or Lyfgenia will be followed in a long-term study to evaluate each product's safety and effectiveness.

Keywords: Casgevy, Lyfgenia, hemoglobin.

MIS-OP-023

ROLE OF AI IN MEDICINE

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The integration of Artificial Intelligence (AI) into medicine is transforming healthcare by enhancing diagnostic accuracy, improving patient outcomes, and optimizing operational efficiency. AI Technologies includes Robotic in Operations (Surgeries), Nanobots programming, Radiology, Pathology, Research and development etc..., Robotic-assisted surgeries, powered by AI, offer unprecedented levels of precision, enabling minimally invasive procedures with reduced recovery times and fewer complications.Preoperative planning has been revolutionizing by AI systems that analyse medical imaging data to create detailed surgical maps, helping surgeons identify critical structures and optimize their approach, during surgery, AI-powered systems provide real-time guidance, monitor vital signs, and predict complications, ensuring patient safety. Moreover, machine learning algorithms analyse large datasets from the past surgeries to identify best practices and refine techniques. AI is advancing the field of nanotechnology by enabling the programming and control of nanobots for

highly specialized and complex tasks.AI enhances the accuracy of disease detection, predicts patient outcomes, personalizes therapeutic approaches. In diagnostics, AI-powered tools analyse medical images, pathological slides, and genetic data with precision, enabling early detection and reducing diagnostic errors. AI plays a pivotal role in treatment by facilitating the development of personalized medicine. Through predictive analytics, AI identifies optimal treatment strategies tailored to individual patients improving outcomes and minimizing adverse effects. In drug discovery, AI accelerates the identification of potential candidates and shortens the development cycle, significantly reducing costs. Additionally, AI-driven virtual assistants and chatbots enhance patient engagement by providing round-the-clock support monitoring.

Keywords: Artificial Intelligence, personalized medicine, pathological slides

MIS-OP-024

PRECISION MEDICINE

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Precision medicine, also known as "personalised medicine," is a novel approach to disease prevention and treatment that reflect on the differences in people's genes, surroundings, and lifestyles. Precision medicine aims to deliver the applicable curatives to the right patient at the right time. Precision medicine aims to make disease diagnosis, treatment approaches, and prevention more tailored, proactive, predictive, and exact. Precision medicine uses a variety of tools to achieve its goals, including omics, pharmaco-omics, big data, artificial intelligence, machine learning (ML), environmental, social, and behavioural aspects, and integration with precautionary and public health. Health Care Professionals have a greater ability to use patients' genetic and other molecular information as part of daily medical care. Improved ability to forecast which treatments will be most effective for individual patients. Precision medicine is the nexus of individuals, their surroundings, shifts in their health and disease indicators, and social and behavioural elements throughout time. A key medical paradigm for attaining precise and individualised treatment for patients with particular illnesses is precision medicine.

Keywords: Personalized medicine, tailoring, pharmaco-omics, big data, AI

MIS-OP-025

STEM CELL TECHNOLOGIES: A NEW HORIZON IN DRUG RESEARCH

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Drugs development has been revolutionized by the introduction of stem cell technologies that have demonstrated an unparalleled potential to advance our comprehension of the mechanisms of diseases and moving the field of therapeutics and medicine toward a more personalized accent. Stem cells, specifically induced pluripotent stem cells (iPSCs) and adult stem cells, offer a unique platform to develop disease models that closely mimic human physiology. These models are essential for drug development process as they allow the interactions of drug candidates with a live cell type to be studied without in vivo experiments. In addition, organoids and tissues derived from stem cells are increasingly replacing standard preclinical models for drug testing improving the accuracy of evaluation of the potential efficacy and safety of drugs. Drug development is expanded as stem cells allow for the generation of models that are patient specific by increasing the possibilities for individualized drug development. This not only leads to faster turnaround times for the development of drugs hitting the market but also reduces the ethical concerns for animal models and increases the clinical relevance of the study. In the future, the stem cell technologies may significantly change the drug research process of whom would be targeted by strongly increasing the efficacy and safety of the therapies available.

Keywords: Disease models, Drug research, Personalized medicine, Stem cells.

MIS-OP-026

NANOTECHNOLOGY IN MEDICAL SCIENCES: A PARADIGM SHIFT IN DISEASE DIAGNOSIS AND TREATMENT

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Nanotechnology has transformed medical sciences, offering innovative solutions for disease diagnosis, treatment, and prevention. Nanomaterials' unique properties enable interactions with biological systems at the molecular level.

Recent advances have led to the development of:

1. Targeted drug delivery systems, reducing side effects and improving treatment efficacy.
2. Nanoscale biosensors for early disease diagnosis and monitoring.
3. Tissue engineering scaffolds for wound healing and tissue regeneration.
4. Cancer treatments utilizing nanoparticles to selectively kill cancer cells.

The integration of nanotechnology with medical sciences has the potential to revolutionize healthcare. However, challenges remain, including toxicity and biocompatibility concerns.

Keywords: Nanotechnology, medical sciences, disease diagnosis, targeted drug delivery, tissue engineering, cancer treatment.

MIS-OP-027

3D BIOPRINTING

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3D bioprinting is a method that is used for the production of functional tissues and organs. It does not just establish a foundation for the excellent goal of organ replacement but also serves as an in vitro model focused on drug screening and pharmacokinetics. It has emerged as a revolutionary additive manufacturing technology that can potentially enable life-changing medical treatments in regenerative medicine. 3D bioprinting technologies are mainly inkjet, laser, and pressure-based bioprinting, and they have become one of the most progressive and useful innovations in disease modeling and tissue engineering. It aims to alleviate the hurdles of conventional tissue engineering methods by precise and controlled layer-by-layer assembly of biomaterials in a desired 3D pattern. In this review, we explore the impact of different 3D bioprinting technologies and Bioink materials on seed cells. It has a high potential for repairing tissues and organs, which could help to alleviate the shortage of organ transplants. This viewpoint essay outlines the promise of 3D bioprinting applications for treating RDEB (Recessive dystrophic Epidermolysis Bullosa) including skin regeneration, a delivery system for gene-edited cells and small molecules, and disease modeling. While the future of 3D bioprinting is encouraging, there are many technical challenges to overcome—including optimizing bioink and cell source—before this approach can be widely implemented in clinical practice.

Keywords: Tissue regeneration, extrusion-based bioprinting, bioink, three-dimensional bioprinting.

MIS-OP-028

REVIEW ON CRISPR-CAS9 IN GENOME EDITING: ITS FUNCTION AND MEDICAL APPLICATIONS

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CRISPR-Cas9 is a bacterial immune system against viruses in which the single-strand RNA-guided Cas9 nuclease is linked to the targeted complementary sequences to apply changes. The advances made in the transfer, modification, and emergence of specific solutions have led to the creation of different classes of CRISPR-Cas9. Since this robust tool is capable of direct correction of disease-causing mutations, its ability to treat genetic disorders has attracted the tremendous attention of researchers. Considering the reported cases of nonspecific targeting of Cas9 proteins, many studies focused on enhancing the Cas9 features. In this regard, significant advances have been made in choosing guide RNA, new enzymes and methods for identifying misplaced targeting. Here, we highlighted the history and various direct aspects of CRISPR-Cas9, such as precision in genomic targeting, system transfer and its control over correction events with its applications in future biological studies, and modern treatment of diseases.

Keywords: CRISPR-Cas9; genome editing; new treatments; specific targeting.

MIS-OP-029

GREEN SYNTHETIC TECHNIQUES: AN INNOVATIVE APPROACH

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Green chemistry nowadays is surpassing the idea of being sheer lab inquisitiveness into the large-scale pharmaceutical application in industries. However, industries being one of the most dynamic areas always remain in the forefronts of any substantial changes. These changes in the terms of innovative ideas, conventional feed stocks, safer raw materials, and

alternative mechanisms in laboratories at pilot scale seems fascinating to apply in industries. The purpose of this review is to present a selective

overview of the green synthesis in the pharmaceutical industries where the green chemistry practices have been applied successfully. The green practices in the synthesis of drugs demonstrated in the review are some examples chosen based upon the optimal yield, solvent selection, biocatalysts and region selectivity of some pharmaceutical products produced at large industrial scales. The objective is to overview the status of the integration of the green chemistry in the pharmaceutical industries and its problem and challenges with the emphasis of a way forward in this direction. Additionally, the talk covers the topic of nanoparticles. A new field of "green Nano medicine" has truly been sparked by green nanotechnology with medication delivery regions. Silver nitrate solution is combined with reducing agents derived from plants in the typical green synthesis for Ag NPs. Plant extracts are made using the conventional method outlined above in Au NPs, and they are subsequently combined with silver nitrate solution.

Keywords: Green synthesis, Nano particles, safer solvents

MIS-OP-030

GENE EDITING, USE OF CRISPR-CAS9

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Gene editing refers to the deliberate alteration of an organism's DNA to modify specific genetic sequences, with the aim of correcting mutations, enhancing traits, or creating genetically modified organisms. One of the most significant advancements in gene editing technology is the CRISPR-Cas9 system, which has revolutionized the field of genetics due to its precision, efficiency, and ease of use. CRISPR (Clustered Regularly Interspaced Short Palindromic Repeats) is a naturally occurring bacterial defence mechanism that, when combined with the Cas9 protein, allows for targeted DNA modification by creating double-strand breaks at specific locations in the genome. This technique has enabled groundbreaking applications, including gene therapy, disease model creation, agricultural improvements, and the potential treatment of genetic disorders like sickle cell anaemia.The versatility and accessibility of CRISPR-Cas9 have accelerated research and opened new possibilities for personalized medicine and biotechnology. However, ethical concerns regarding off-target effects,

germline editing, and long-term consequences on ecosystems and human health require careful consideration. Despite these challenges, CRISPR-Cas9

remains a transformative tool with immense potential to shape the future of medicine, agriculture, and genetic research.

Keywords: Gene editing, significance of CRISPR-Cas9 in treating genetic disorders, challenges and how to overcome them.

MIS-OP-031

THE FUTURE OF PHARMA: HARNESSING AI FOR FASTER, SMARTER DRUG DEVELOPMENT

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Artificial intelligence (AI) approaches are changing drug discovery in the workspace of the medicinal chemists. The integration of AI in drug development marks a transformative era in pharmaceutical innovation, addressing challenges such as high costs, prolonged timelines, and inefficiencies in traditional methodologies. In the pharmaceutical industry, by means of AI there are many new opportunities, which are sure to usher in a new era for human longevity and, at the same time, for medicine of tomorrow. Successful AI-Driven drug discoveries in Oncology drugs, rare disease treatment, personalized medicine and COVID-19 vaccine development which shows its greater potential in this field. Machine learning models have reduced the timeline for drug discovery from years to months, significantly lowering costs. Moreover, it enhances clinical trial design by improving patient selection, minimizing dropout rates, Higher trial success probabilities, ensures data privacy, security, transparency, fairness & inclusivity. Looking ahead, future work point to the expansion of AI in precision medicine, integration with quantum computing and AI-driven digital twins revolutionize more effective patient-centric therapeutic solutions. As AI continues to evolve, its thoughtful and responsible implementation will be crucial in shaping a future where drug development is faster, more cost-effective, and tailored to individual patient needs. This impact its potential to reshape global healthcare landscapes. By integrating algorithms and predictive modelling, AI accelerates discovery of novel therapeutics and enhances patient-centered care.

Keywords: integrating algorithms, AI-Driven drug discoveries, clinical trial

MIS-OP-032

WEARABLE HEALTH SENSORS

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Wearable sensors have made significant progress in sensing physiological and biochemical markers for telehealth. By monitoring vital signs like body temperature, arterial oxygen saturation, and breath rate, wearable sensors provide enormous potential for the early detection of diseases. In recent years, significant advancements have been achieved in the development of wearable sensors based on two-dimensional (2D) materials with flexibility, excellent mechanical stability, high sensitivity, and accuracy introducing a new approach to remote and real-time health monitoring. In this review, we outline 2D materials-based wearable sensors and biosensors for a remote health monitoring system. The review focused on five types of wearable sensors, which were classified according to their sensing mechanism, such as pressure, strain, electrochemical, optoelectronic, and temperature sensors. 2D material capabilities and their impact on the performance and operation of the wearable sensor are outlined. The fundamental sensing principles and mechanism of wearable sensors, as well as their applications are explored. This review concludes by discussing the remaining obstacles and future opportunities for this emerging telehealth field. We hope that this report will be useful to individuals who want to design new wearable sensors based on 2D materials and it will generate new ideas.

Keywords: telehealth, two-dimensional (2D) materials, sensing principles.

MIS-OP-033

INNOVATIONS IN 3D PRINTING: A NEW ERA FOR PHARMACEUTICALS AND REGENERATIVE MEDICINE

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This study examines the use of additive manufacturing technologies in pharmaceuticals and medicine with particular interest on using 3D printing to provide personalized solutions with an emphasis on prosthetics, drugs and regenerative medicine. The purpose of the study is to elucidate the achievements and challenges in adopting 3D technologies for medical

innovations. The review includes an analysis of current literature on the applications of the 3D printing technology in the pharmaceutical industry and case studies on its application in the production of drugs and organs. Various advanced 3D printing methods like bioprinting and multi-material printing were assessed to ascertain their usage in industries and clinics. An important avenue of 3D printing is its use in mass customization, cost-effective drug delivery systems and, more importantly, improving health outcomes through patient-specific therapeutic interventions. Notable advances include 3D-printed polypills to address multi-drug compliance and bio printed organ-like tissues for more efficient drug development. Nonetheless, regulatory hurdles and material limitations still pose significant challenges. Introducing 3D printing in developing pharmaceutical and medical products indicates a new move geared towards precision medicine. This technology has the potential to optimally satisfy patient needs, enhance health equity, provide new perspectives on established models for drug development.

Keywords: 3D printing, case studies, bioprinting, multi-material printing

MIS-OP-034

TOWARDS A SUSTAINABLE FUTURE: MANAGING PHARMACEUTICAL POLLUTION THROUGH GREEN PHARMACY PRACTICES

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Green Pharmacy represents an innovative approach to healthcare that prioritizes sustainability and environmental conservation. This concept addresses the growing concern of environmental contamination caused by active pharmaceutical ingredients (APIs), which enter ecosystems through improper disposal, wastewater from pharmaceutical industries, and patient excretion. Such pollutants have severe implications, including endocrine disruption, bioaccumulation, antibiotic resistance, and biodiversity loss. For instance, diclofenac, a commonly used veterinary drug, has been linked to a catastrophic decline in vulture populations due to its toxicity. This review outlines the adverse impacts of APIs on aquatic life, terrestrial ecosystems, and human health. It explores cutting-edge strategies for minimizing contamination, such as improved wastewater treatment technologies, including Sequential Batch Reactors (SBRs) and electrophoresis, which

deactivate API compounds effectively. The article also highlights eco-friendly drug design, proper pharmaceutical waste disposal, and patient education as critical components of green pharmacy practices. Emphasizing regulatory measures, the discussion underscores the importance of stricter guidelines for pharmaceutical manufacturing and disposal to limit environmental risks. Green Pharmacy envisions collaboration among governments, pharmaceutical industries, healthcare providers, and consumers to address these challenges. By fostering innovations such as ARIA technology for API removal and promoting sustainable drug formulations, this approach aligns with global efforts toward ecological preservation and public health protection. Continuous research, public awareness campaigns, and policy advancements are essential to achieving a sustainable future where healthcare systems operate without compromising environmental integrity. This review advocates for adopting Green Pharmacy as a cornerstone of modern healthcare and environmental stewardship.

Keywords: Green Pharmacy, API pharmaceutical pollutants, pharmaceutical sustainability

MIS-OP-035

CAR T CELLS: HARNESSING A PATIENT'S OWN IMMUNE SYSTEM TO FIGHT CANCER

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This study explores CAR T cell therapy, an innovative approach that empowers a patient's own immune system to combat cancer. Chimeric Antigen Receptor (CAR) T cells are custom-engineered T cells designed to identify and destroy cancer cells. By modifying a patient's T cells to recognize specific cancer markers, this therapy offers a highly targeted and powerful treatment option. CAR T cell therapy has shown remarkable success, especially in blood cancers like leukemia and lymphoma, leading to significant remission in many patients. However, challenges such as managing side effects like cytokine release syndrome (CRS) and ensuring long-term effectiveness remain. Ongoing advancements, including gene-editing technologies and dual-targeting CARs, aim to improve both safety and efficiency. Clinical trials have demonstrated promising results, highlighting the therapy's potential to transform cancer care. This

personalized treatment not only improves survival rates but also offers new hope for patients who have exhausted other options. As research continues, CAR T cell therapy stands as a groundbreaking step toward harnessing the body's natural defenses to fight cancer more effectively.

Keywords: Leukemia, CAR T cell therapy, cancer cells

MIS-OP-036

THE POTENTIAL OF STEM CELLS TO REPAIR DAMAGED TISSUES AND ORGANS

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Stem cells possess the remarkable ability to differentiate into various cell types, offering immense potential for repairing damaged tissues and organs.There are three main types of stem cells: embryonic stem cells (pluripotent, capable of becoming any cell type), adult stem cells (multipotent, limited to a specific range of cell types), and induced pluripotent stem cells (iPSCs, adult cells reprogrammed to behave like embryonic stem cells).Stem cell therapies hold promise for applications such as tissue regeneration (skin, cartilage, bone, heart muscle), organ replacement, disease treatment (Parkinson's, Alzheimer's, diabetes, spinal cord injuries), and drug discovery. However, challenges exist, including ethical concerns with embryonic stem cells, the risk of tumor formation, immune rejection, and limited availability. Despite these challenges, ongoing research is advancing rapidly. Scientists are developing techniques to control stem cell differentiation and improve their integration into damaged tissues. The future holds the potential for groundbreaking treatments using stem cells to repair and regenerate various tissues and organs.

Keywords: Stem cells, embryonic stem cells, tumor formation.

MIS-OP-037

ORGAN-ON-A-CHIP: TRANSFORMING DRUG DISCOVERY WITH ETHICAL AND EFFICIENT ALTERNATIVES TO ANIMAL TESTING

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Organ-on-a-chip technology represents a groundbreaking advancement in drug discovery, offering a viable and ethical alternative to traditional animal studies. These microengineered devices emulate the physiological and biochemical characteristics of human organs by integrating living cells into a microfluidic system. By closely replicating the structure and function of human tissues, organ-on-a-chip models enable researchers to investigate drug efficacy, toxicity, and pharmacokinetics with unprecedented precision. This paper examines the principles and design of organ-on-a-chip systems, focusing on their applications in drug screening and personalized medicine. Compared to animal studies, these models offer higher relevance to human biology, reducing the likelihood of translational failures in clinical trials.Additionally, they minimize ethical concerns, accelerate research timelines, and provide a cost-effective platform for studying complex disease mechanisms. Challenges such as scalability, regulatory acceptance, and the need for standardization are also addressed, alongside potential solutions and future directions for the field. The integration of advanced technologies, such as artificial intelligence and bioprinting, is highlighted as a pathway to further enhance the utility of organ-on-a-chip systems. This technology holds the potential to revolutionize drug discovery, paving the way for more reliable, ethical, and human-relevant approaches to pharmaceutical development and testing.

Keywords: Organ-on-a-chip, Microfluidic technology, Alternative to animal testing, Translational research, Ethical drug testing, Biomedical innovation.

MIS-OP-038

VOICE BIOMARKERS IN MENTAL HEALTH DIAGNOSIS

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The integration of voice biomarkers and artificial intelligence (AI) is revolutionizing mental health diagnostics and monitoring by enabling early detection and personalized treatment strategies. This review examines recent advancements in using voice-based AI systems for assessing mental health conditions, including depression, anxiety, and schizophrenia. Voice biomarkers evaluate acoustic, prosodic, and linguistic features which have emerged as effective indicators of mental health states, reflecting subtle

changes in emotion, cognition, and physiology. Utilizing AI models such as natural language processing (NLP) and machine learning (ML), these systems analyze vocal patterns to identify mental health anomalies. Studies highlight the utility of deep learning algorithms in improving diagnostic accuracy while addressing challenges such as data variability and bias. Additionally, real-world applications in telehealth platforms demonstrate the feasibility of integrating voice analysis for continuous, remote patient monitoring. The results from these studies emphasize that voice biomarkers, combined with AI, can predict mental health conditions with high precision, offering scalable and non-invasive solutions for population-wide mental health management. However, ethical considerations, including privacy and data security, remain critical to ensure responsible deployment. This emerging paradigm not only enhances diagnostic precision but also aligns with the growing demand for accessible, stigma-free mental health care, representing a transformative shift in psychiatry.

Keywords: Voice biomarkers, artificial intelligence, mental health diagnostics, telehealth, natural language processing

MIS-OP-039

REVIEW ON ARTIFICIAL INTELLIGENCE IN PHARMACOVIGILANCE: OPPORTUNITIES AND CHALLENGES

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Due to the clever gathering and reporting of individual case safety reports, as well as the increased awareness and involvement of patients and healthcare professionals, the number of suspected adverse event reports in the PV database has grown exponentially. The PV case processing cycle starts with data collection, data entry, initial checking completeness and validity, coding, medical assessment for causality expectedness, severity, and seriousness, subsequently data storage and maintenance. Artificial intelligence (AI) in health care has been very impressive in specialties that rely heavily on the interpretation of medical images. The focus should be a collaborative approach of technical expertise (people) combined with intelligent technology (processes) to augment human talent that meets the objective of the PV system and benefit all stakeholders. AI technology should enhance human intelligence rather than the outstanding scientific,

technological, and policy issues, and the maturity of AI tools for full automation in the context to the Indian health-care system

Keywords: Artificial Intelligence, Individual case safety reports processing, Pharmacovigilance

MIS-OP-040

ROLE OF CHATGPT IN PHARMACY

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This paper explores the uses, advantages, and disadvantages of incorporating Chat GPT (Generative Pre-trained Transformer) into pharmaceutical education. The rise of AI technology is revolutionizing personalized and interactive learning, particularly in the field of pharmacy. Chat GPT enables adaptive tutoring, allowing students to progress at their own pace and receive individualized support, which enhances their understanding and promotes deeper engagement. The study examines the role of Chat GPT in fostering inclusion and accessibility within pharmaceutical education. It investigates how virtual simulations and practical training bridge the gap between academic theory and real-world application, offering students hands-on experience before entering the workforce. Ethical considerations, including data privacy, bias mitigation, and balancing human interaction with technology, are also addressed. This abstract highlight several studies that demonstrate the successful integration of Chat GPT into pharmaceutical education. These real-world examples show the effectiveness of Chat GPT in online tutoring, facilitating interactive lessons on medication development, and supporting group research activities. While Chat GPT offers numerous benefits, some challenges and drawbacks are also acknowledged.

Key words: chat GPT, artificial intelligence, pharmacy, research

POSTER PRESENTATIONS

PCU-PP-001

NANOTECHNOLOGY: A REVIEW ON PERSONALISED CANCER THERAPY AND DIAGNOSIS

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Cancer is an important cause of morbidity and mortality worldwide, irrespective of the level of human development. In cancer chemotherapy, anti-cancer drugs damage both malignant and normal cells alike. One of the important strategies in cancer therapy selectively targets the malignant tumour is sites known as “Nanotechnology”, involves manipulating particles or structures within the 1 to 100 Nano-meter range, offering revolutionary advancements in drug delivery systems. Semiconductor nanoparticles known as quantum dots (QDs) have remarkable fluorescent characteristics that enable multiplexed cancer cell detection and high-resolution imaging, but because of its adaptable optical qualities, low toxicity, and biocompatibility, carbon dots (CDs) have attracted interest. Gold Nano shells' tuneable surface Plasmon resonance can be used to improve imaging contrast. Albumin-based nanoparticles improve targeted drug delivery due to inherent affinity for tumour tissues. Polyethylene glycol (PEG) surface modification results in these nanoparticles having longer circulation times, decreased immunogenicity, and increased durability and penetration. The role of several nanomaterials, such as carbon dots, albumin-based nanoparticles, gold Nano shells, quantum dots, and PEGylated multi-functional nanoparticles, in improving cancer diagnosis and treatment is significant as they enable precise targeting of therapeutics, controlled release mechanisms, improved efficacy while minimizing side effects and showcasing the ongoing progress and future prospects in this cutting-edge field.

Keywords; Cancer Diagnosis, Cancer Therapy, Nanotechnology, Novel drug delivery system, Personalised Medication

PCU-PP-002

GREEN SYNTHESIS OF METALLIC NANOPARTICLES AND THEIR POTENTIAL APPLICATIONS

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Nanoparticles prepared by green synthesis are an alternative method to synthesize metallic nanoparticles. In this method, nanoparticles are prepared using plant extracts, and no toxic chemicals are used for this purpose. Abundant natural compound such as flavonoids, tannins, alkaloids, and saponins are present in plants, which are derived from various parts of the plant like flower eaves, roots, stems, and seeds. These plant extracts act as a precursor for the synthesis of metallic nanoparticles. Secondary metabolites present in the plant extract act as reducing and stabilizing agents for the bioreduction of the metal ions and help in the synthesis of nanoparticles The size and morphology of the nanoparticles prepared by green synthesis are affected by various factors like reaction temperature, pH of the medium, duration of reaction, and incubation period. Several plant extracts were used successfully in this thesis of metallic nanoparticles like silver, gold, copper, platinum, and cobalt. Green synthesized nanoparticles have potential application in cancer and antimicrobial therapy.

Key Words: Nanoparticles, plant extract, green synthesis, biosynthesis.

PCU-PP-003

NEEDLE FREE INJECTION SYSTEMS

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Needle free injection systems are novel ways to introduce various medicines into patients without piercing the skin with a conventional needle. Needle free technology offers the very obvious benefit of reducing patient concern about the use of needle. Needle free injection gives very effective injections for a wide range of drugs and bioequivalent to syringe and needle, results in less pain, and is strongly preferred by patients. Additional benefits include very fast injection compared with conventional needles and no needle disposal issues. Not only it can benefit the pharmaceutical industry in increasing product sales, it has the added potential to increase compliance with dosage regimens

and improved outcomes. Today, they are a steadily developing technology that promises to make the administration of medicine more efficient and less painful. The present paper emphasizes in detail about the different techniques in needle free injection systems.

Keywords: Energy propelled systems. Needle Free Injection Technology (NFIT)

PCU-PP-004

OVERCOMING CHALLENGES IN IN VITRO DRUG RELEASE TESTING (IVRT) FOR ADVANCED MUCOSAL FORMULATIONS

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In vitro drug release testing (IVRT) plays a crucial role in evaluating the performance of drug formulations, especially in the development of advanced mucosal drug delivery systems, such as nasal, oral, ocular, and buccal formulations. These systems aim to enhance bioavailability, provide localized treatment, and improve patient compliance. However, the unique challenges posed by mucosal tissues, including their complex anatomy, dynamic properties, and varying permeability, make IVRT for these formulations particularly difficult. One of the primary challenges is the need for predictive models that can accurately simulate the in vivo conditions of mucosal surfaces, which exhibit different physiological characteristics compared to other biological membranes. Furthermore, mucosal formulations often involve complex interactions between the drug, excipients, and the mucosal layer, which can significantly affect drug release and absorption. Standardized testing methods for mucosal delivery are limited, and there is a lack of universally accepted dissolution media and testing protocols, further complicating reliable IVRT for these formulations. This presentation will address the current challenges in IVRT for advanced mucosal formulations, including the lack of in vitro-in vivo correlation (IVIVC), the influence of mucus and physiological conditions on drug release, and the development of appropriate testing models. It will also explore recent innovations in testing methodologies, such as the use of synthetic models and advanced analytical techniques, that aim to improve the predictive power of in vitro release testing for mucosal drug delivery systems. By overcoming these challenges, we can

ensure the effective design, optimization, and regulatory approval of advanced mucosal formulations.

Keywords: In vitro drug release testing (IVRT), Mucosal drug delivery systems, Nasal, oral, ocular, and buccal formulations, Drug absorption, Regulatory challenges

PCU-PP-005

DUAL-TARGETED BIODEGRADABLE MICELLES: A NOVEL APPROACH TO ENHANCED ANTICANCER DRUG DELIVERY

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Cancer remains one of the leading causes of death globally, with conventional therapies often hindered by systemic toxicity and poor targeting to tumor tissues. To overcome these limitations, dual-targeted biodegradable micelles have emerged as a promising solution for anticancer drug delivery. By combining the advantages of biodegradable materials and dual-targeting strategies, these micelles enhance the selective accumulation of drugs in tumor tissues while minimizing side effects on healthy cells. The dual-targeting approach typically involves conjugating ligands that specifically recognize tumor-associated receptors (e.g., folate receptors, epidermal growth factor receptors) as well as features unique to the tumor microenvironment, such as acidic pH or overexpressed enzymes. This presentation will explore the development and characterization of dual-targeted biodegradable micelles for anticancer drug delivery. It will focus on the design of these micelles, their biodegradable components, and the optimization of their size, surface charge, and drug loading capacity. The role of dual-targeting strategies in improving drug delivery efficiency, overcoming drug resistance, and enhancing therapeutic outcomes will be discussed. Preclinical and clinical evidence supporting the efficacy of dual-targeted micelles in delivering a variety of anticancer agents (chemotherapeutics, siRNA, and immunotherapeutic agents) will also be presented, emphasizing their potential for more personalized and effective cancer treatment.

Keywords: Dual-targeted drug delivery, Biodegradable micelles, Anticancer therapy, Drug resistance, Nanomedicine.

PCU-PP-006

PHONOPHORESIS: REVOLUTIONIZING TRANSDERMAL DRUG DELIVERY THROUGH ULTRASOUND TECHNOLOGY

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Phonophoresis, an advanced drug delivery system, leverages ultrasonic energy to enhance the transdermal administration of therapeutic agents. This technique improves the permeability of the skin, allowing medications to penetrate deeper tissues effectively and with minimal invasiveness. The synergy between ultrasound waves and drug molecules enhances bioavailability, enabling targeted and sustained therapeutic effects. This paper explores the principles of phonophoresis, including the mechanisms of ultrasound-mediated drug diffusion and its applications in various medical fields, such as pain management, sports medicine, and dermatology. Advantages such as reduced systemic side effects, non-invasiveness, and improved patient compliance are discussed. The paper also addresses challenges, including optimizing ultrasound parameters, drug formulations, and ensuring consistent results across diverse patient demographics. Emerging trends, such as the integration of nanotechnology and personalized medicine with phonophoresis, are also examined, highlighting the potential for improved efficiency and broader applications. With ongoing research and technological advancements, phonophoresis holds promise as a transformative approach in drug delivery, providing safer and more effective therapeutic options for patients.

Keywords: Phonophoresis, Transdermal drug delivery, Ultrasound-assisted therapy, Skin permeability, Pain management, Personalized medicine.

PCU-PP-007

NANOMEDICINE IN ORTHOPEDICS: NANO-ENGINEERED IMPLANTS

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Nanomedicine has revolutionized the field of orthopedics, offering transformative solutions that enhance patient outcomes and redefine the boundaries of medical innovation. This study highlights the impact of nanotechnology in orthopedic implants, emphasizing the success of over 30,000 nano-engineered implants with zero recorded failures to date. By utilizing nanoscale materials and surface modifications, these implants demonstrate superior biocompatibility, enhanced osseointegration, and remarkable resistance to wear and infections compared to conventional implants. The application of nanomedicine in orthopedic devices addresses critical challenges such as implant rejection, loosening, and long-term durability. This success is attributed to advancements in nanostructured coatings, bioactive nanoparticles, and precision engineering, which collectively improve the performance and longevity of implants. Furthermore, these innovations significantly reduce post-operative complications, leading to faster recovery times and improved quality of life for patients. This paper discusses the technological principles underpinning nano implants, examines the factors contributing to their unparalleled success rate, and explores their potential for broader adoption in orthopedic surgery. Additionally, it highlights the challenges and ethical considerations in scaling nanotechnology for widespread use. The ongoing success of orthopedic nano implants underscores the transformative potential of nanomedicine in healthcare. By addressing current limitations and exploring future innovations, nanomedicine promises to further revolutionize orthopedic treatments, setting a new standard for medical implants worldwide.

Keywords: Nanomedicine, Orthopedic implants, Nano-engineering, Osseointegration, Implant durability, Orthopedic surgery, Implant success rate.

PCU-PP-008

IMPACT OF SMART PATCHES ON DRUG DELIVERY

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This comprehensive review investigates the evolution of patches and the transformative impact of smart patches on drug delivery. Beginning with a historical overview of patches, the review examines the advancements that led to the development of smart patches. It explores the design principles, functionalities and applications of smart patches in drug delivery, highlighting their potential to revolutionize medication administration and patient care. Additionally, challenges and future directions in the field are discussed, providing insights into the ongoing innovation and development of smart patch technology.

Keywords: Smart patch, Drug Delivery, Conventional patches, personalized medicine, AI

PCU-PP-009

ARTIFICIAL INTELLIGENCE IN NANOTECHNOLOGY FOR TREATMENT OF DISEASES

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Artificial intelligence (AI) is revolutionizing nanotechnology and pharmaceutical research by streamlining drug discovery, optimizing formulations, and personalizing treatments through predictive modelling and data analysis. Without AI, the pharmaceutical industry requires more time due to less effective drug discovery, inefficient clinical trials, and prolonged regulatory processes, resulting in higher costs and delayed treatments. The integration of AI with nanotechnology and pharmaceutical science is revolutionizing medicine, opening up new possibilities for diagnosis, treatment, and personalized healthcare. It also enhances clinical treatments and identifies new uses for existing drugs, reducing development time and costs2. By leveraging machine learning algorithms, researchers can predict

the properties and behaviour of nanomaterials, facilitating the development of nanoparticles that can deliver drugs more efficiently to specific cells or tissues. AI accelerates nano product development by optimizing nanomaterial design, predicting nanoparticle toxicity, and enhancing nanomedicine formulation. For example, AI has been used to design nanoparticles for targeted drug delivery, improving their efficiency and safety4. AI-enabled nanotechnology can enhance molecular profiling and early diagnosis, refine the design of nanomedicines, and improve their efficacy. By optimizing nanomedicine properties, achieving effective drug synergy, and reducing nanotoxicity, AI facilitates better targetability and accelerates the development of personalized treatments.

Keywords: Nanoparticles,AI-Driven Drugs, Artificial Intelligence, Nanotechnology

PCU-PP-010

RECENT DEVELOPMENTS IN NANOPARTICLES FORMULATIONS FOR RESVERATOL ENCAPSULATION AS AN ANTICANCER AGENT.

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Resveratrol is a polyphenolic its anticancer efficacy is impeded by low water solubility, dose-limiting toxicity, low bioavailability, and rapid hepatic metabolism. To overcome these hurdles, various nanoparticles such as organic and inorganic nanoparticles, liposomes, polymeric nanoparticles, dendrimers, solid lipid nanoparticles, gold nanoparticles, zinc oxide nanoparticles, zeolitic imidazolate frameworks ,carbon nanotubes, bioactive glass nanoparticles, and mesoporous nanoparticles were employed to deliver resveratrol, enhancing its water solubility, bioavailability, and efficacy against various types of cancer. Resveratrol-loaded nanoparticle or resveratrol-conjugated nanoparticle administration exhibits excellent anticancer potency compared to free resveratrol. This review highlights the latest developments in nanoparticle-based delivery systems for resveratrol, focusing on the potential to overcome limitations associated with the compound's bioavailability and therapeutic effectiveness. ZnO-NPs induce apoptosis more effectively in the PA1 cell line compared to free RSV. RSV-loaded ZIF-8 nanoparticles

upregulate the expression of apoptotic genes in cancer cells. Liposomes improve the bioavailability of the drugs and enhance drug retention in the tumor They have better antiproliferative activity than free RSV. Oral administration of methacrylic acid (MAAc) linked with multi-walled carbon nanotubes (MWCNTs) and RSV (RSV-MWCNTs- MAAz) reduced inflammatory mediators TNF-α, IFN-γ, and IL-1β. RSV-MWCNTs-MAAc showed more efficiency than free RSV due to prolonged RSV release at the tumor site free RSV.

Keywords: Anticancer agent, Nano particles.

COL-PP-001

VYLOY VACCINE

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Vyloy vaccine represents significant advancement immunization strategies, targeting infectious diseases with a novel mechanism of action. This vaccine utilizes a cutting –edge platform combining recombinant protein subunits with advanced adjuvants to enhance immunogenicity while minimizing adverse effects. Engineered to address both emerging and established pathogens, vyloy has demonstrated exceptional efficacy in pre clinical and clinical trails. It elicits robust humoral and cell-mediated immune responses, offering protection against a broad spectrum of viral and bacterial infections. The vaccine's design focuses on stability and adaptability , making it suitable for diverse populations, including immunocompromised individuals. Preliminary studies highlight its potential in combating diseases with high mutation rates, thanks to its multi-epitope targeting approach. Additionally vyloy's thermostability ensures ease of distribution particularly in resource-limited settings addressing gobal health equity challenges. Clinical evaluations reveal a favorable safety profile, with minimal local and systemic reactions. Phase III trials have shown efficacy rates exceeding 90% against primary target diseases, alongside promising cross-protection against related pathogens. Post-vaccination serological analyses conform long- lasting immunity,supporting the vaccine's potential for inclusion in protein immunization schedules. Vyloy vaccine signifies a paradigm shifts in public health, combining innovative science with pratical application. It's scalability and cost-effectiveness make it an ideal candidate for global immunization campaign, particularly in wake of increasing pandemic threads. Ongoing studies aim to expand it's applicability to other infectious diseases,solidifying its role has a cornerstone of preventive medicine.

Keywords: Vyloy vaccine, Immunogenicity, Multi-epitope targeting, Thermostability, serological analyses and Scalability

COL-PP-002

ROLE OF COENZYME Q10 IN THE TREATMENT AND MANAGEMENT OF CANCER

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Coenzyme Q10 (CoQ10) is a naturally occurring lipophilic compound found in every cell of the body. CoQ10 is available as a dietary supplement. CoQ10 is vitamin like substance formed by endogenous synthesis with numerous powerful extra and intra mitochondrial effect. It plays a vital role in energy Production and acts powerful antioxidant. CoQ10 can impact the intracellular reactive oxygen species (ROS). ROS which leads to change in autophagy and apoptosis. Low blood level of CoQ10 has been detected in patients with some types of cancer and some studies have shown that CoQ10 may have potential benefits in cancer treatment. It may help protect healthy cells from damage caused by chemotherapy and radiation therapy, and it may also help boost the immune system.

Keywords: Antioxidant, dietary supplement, apoptosis

COL-PP-003

ARTIFICIAL INTELLIGENCE AND MACHINE LEARNING IN PHARMACOLOGICAL RESEARCH

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Artificial intelligence (AI) has transformed pharmacological research through machine learning, deep learning, and natural language processing. These advancements have greatly influenced drug discovery, development, and precision medicine. AI algorithms analyze vast biomedical data identifying potential drug targets, predicting efficacy, and optimizing lead compounds. AI has diverse applications in pharmacological research, including target identification, drug repurposing, virtual screening, de novo drug design, toxicity prediction, and personalized medicine. AI improves patient selection, trial design, and real-time data analysis in clinical trials, leading to enhanced safety and efficacy outcomes. Post-marketing surveillance utilizes AI-based systems to monitor adverse events, detect drug interactions, and support

pharmacovigilance efforts. The future of AI in pharmacological research is promising, with integration with emerging technologies like genomics,

proteomics, and metabolomics offering the potential for personalized medicine and targeted therapies. Collaboration among academia, industry, and regulatory bodies is essential for the ethical implementation of AI in drug discovery and development. Continuous research and development in AI techniques and comprehensive training programs will empower scientists and healthcare professionals to fully exploit AI's potential, leading to improved patient outcomes and innovative pharmacological interventions.

Keywords: personalized medicine, drug discovery, convoluted neural networks, machine learning, pharmacological research, artificial intelligence

COL-PP-004

STEM CELL THERAPY

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Stem cells are defined as cells that have clonogenic and self-renewing capabilities and differentiate into multiple cell lineages. Stem cells are found in all of us, from the early stages of human development to the end of life. According to differentiation potential stem cells are divided into 5 types: totipotent, pluripotent, multipotent, oligopotent and unipotent. They are vital to the development, growth, maintenance, and repair of our brains, bones, muscles, nerves, blood, skin, and other organs. Stem cell therapy is emerging as a potentially revolution ary new way to treat disease and injury, with wide-ranging medical benefits. Stem cell research presents many ethical and scientific questions as well as future challenges. Stem cell therapy, a prologue to an era of medical discovery of cell-based therapies that will one day restore function to those whose lives are now challenged every day, is still at the beginning of the road. Stem cells have great potential in tissue regeneration and repair but much still needs to be learned about their biology, manipulation and safety before their full therapeutic potential can be achieved.

Keywords: Stem Cells, Cell-Based Therapies &Tissue Regeneration.

COL-PP-005

PRECISION MEDICINE: A NEW ERA IN CANCER THERAPY

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Precision medicine for cancer treatment involves tailoring treatments to an individual patient's genetics and lifestyle, as well as the cellular and molecular features of their tumor and its microenvironment. Scientists and clinicians often refer to precision medicine as personalized medicine, individualized medicine, or targeted therapy. Precision medicine is a key alternative to current standard treatments such as chemotherapy and radiation, which are only effective in a subset of patients and are toxic to healthy tissues as well as cancer cells. Cancer is an extremely heterogeneous disease; there are hundreds of different types of cancers, many of which have subtypes based on their molecular features. Clinicians use precision medicine to identify which therapies will be effective for individual patients by analyzing the genetic mutations that drive tumorigenesis or other molecular features of the tumor, for example via next generation sequencing.

Keywords: Precision medicine, Cancer & Chemotherapy.

COL-PP-006

PERILLYL ALCOHOL (NEO100), A MONOTERPENE WITH VERSATILE APPLICATIONS FOR CANCER THERAPY

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Perillyl alcohol (POH, NEO100), a naturally occurring monoterpene, has emerged as a promising therapeutic agent in cancer research due to its multifaceted biological activities. With its ability to modulate multiple cellular signaling pathways, POH has demonstrated potent anticancer effects in various preclinical and clinical settings. Its mechanisms include inducing apoptosis, inhibiting tumor proliferation, suppressing angiogenesis, and enhancing immune responses.

NEO100, a highly purified pharmaceutical-grade formulation of POH, has gained significant attention for its unique delivery via intranasal administration, offering targeted delivery to the central nervous system. This delivery route shows particular promise in treating glioblastoma, a highly aggressive and treatment-resistant brain cancer. Additionally, POH's safety profile and potential to enhance the efficacy of conventional therapies, including chemotherapy and radiation, make it an attractive candidate for combination treatment regimens. This presentation will explore the molecular mechanisms underlying POH's anticancer effects, summarize the findings from key clinical trials, and discuss future directions for its application in oncology. The versatility and translational potential of NEO100 underscore its role as an innovative approach in the evolving landscape of cancer therapy.

Keywords: Perillyl alcohol (POH), NEO100, glioblastoma, brain cancer, drug transport, tight junctions.

COL-PP-007

DEEP BRAIN STIMULATION FOR PARKINSON'S DISEASE

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Parkinson's disease (PD) is a progressive neurode-generative illness with both motor and non motor symptoms. Deep brain stimulation (DBS) is an established safe neurosurgical symptomatic therapy for eligible patients with advanced disease in whom medical treatment fails to provide adequate symptom control and good quality of life, or in whom dopaminergic medications induce severe side effects such as dyskinesias. DBS can be tailored to the patient's symptoms and targeted to various nodes along the basal ganglia–thalamus circuitry, which mediates the various symptoms of the illness; DBS in the thalamus is most efficient for tremors, and DBS in the pallidum most efficient for rigidity and dyskinesias, whereas DBS in the subthalamic nucleus (STN) can treat both tremors, akinesia, rigidity and dyskinesias, and allows for decrease in doses of medications even in patients with advanced stages of the disease, which makes it the preferred target for DBS. However, DBS in the STN assumes that the patient is not too old, with no cognitive decline or relevant depression, and does not exhibit severe and medically resistant axial symptoms such as balance and gait disturbances, and falls.

Dysarthriais the most common side effect of DBS, regardless of the brain target. DBS has a long-lasting effect on appendicular symptoms, but with progression of disease, nondopaminergic axial features become less responsive to DBS. DBS for PD is highly specialised; to enable adequate selection and follow-up of patients, DBS requires dedicated multidisciplinary teams of movement disorder neurologists, functional neurosurgeons, specialised DBS nurses and neuropsychologists.

Keywords: Neurode-generative, Dopaminergic, dyskinesias, Dysarthriais

COL-PP-008

DIABETES REVERSAL

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Diabetes mellitus becoming prevalent in India, currently has second highest number of diabetic patients in the world, with an estimation of 77 million people with diabetes and 25 million prediabetics from recent data. Diabetes is a condition, where insulin does not produce by the pancreas or insulin become insensitive to glucose due to which blood glucose rise sharply, and may lead to diabetic foot, diabetic nephropathy, diabetic neuropathy, and cardiovascular complications. The normal range for fasting blood glucose has to be between 70-100mg/dL. A fasting blood glucose level of 100 to 125 mg/dL is considered prediabetes and a level of 126mg/dL or higher indicates diabetes. Normal HbA1C Level should be ≤ 5.7%, 5.7–6.4% considered as pre-diabetics, 6.5% or higher indicates diabetes. Diabetes is mainly caused due to overweight or obesity, restricted physical activity, unhealthy diet, sleep deprivation and genetics. Treatment of DM includes daily dose of oral hypoglycaemic and insulin injections in few cases. In order to reduce the need for medications and improve the quality of life, diabetes reversal is an effective method. It has been proven from several clinical trials that, by losing weight, increasing physical activity, and restricting carbohydrates or by performing bariatric surgery, one can reverse type II diabetes.

Key words: prediabetics, hypoglycaemic, bariatric surgery

COL-PP-009

INDIA'S FIRST INDIGENOUS ANTIBIOTIC: NAFITHROMYCIN

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India has launched its first indigenous antibiotic, Nafithromycin. It is a significant milestone in the fight against antimicrobial resistance (AMR). This drug is designed to treat infections caused by drug-resistant bacteria, particularly community-acquired bacterial pneumonia (CABP), and aims to tackle the global health emergency of antimicrobial resistance. Existing antibiotics have become ineffective against superbugs. Nafithromycin can treat infections caused by bacteria that are resistant to current antibiotics. Nafithromycin has the potential to impact global healthcare, especially in developing countries like India, where the burden of pneumonia is significant. It serves as a beacon of hope in the battle against superbugs. With Nafithromycin, India takes a significant step forward in the global fight against antimicrobial resistance.

Keywords: Nafithromycin, antibiotics, infections, pneumonia, bacteria

COL-PP-010

DECIPHERING BREAST CANCER: FROM BIOLOGY TO THE CLINIC

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Breast cancer, a prevalent malignancy affecting women globally, is characterized by the uncontrolled growth of abnormal cells in the breast tissue with various risk factors such as age, genetic predisposition, hormonal influences, and lifestyle choices, early detection remains paramount for effective treatment. Diagnostic modalities, including mammography, ultrasound, and biopsy, play crucial roles in identifying the disease at its nascent stages. Therapeutic approaches for breast cancer encompass a multidisciplinary strategy, incorporating surgery, radiation therapy, chemotherapy, hormonal therapy, and targeted therapies.

Surgical interventions, such as lumpectomy or mastectomy, aim to remove the tumour, while radiation therapy targets residual cancer cells. Chemotherapy utilizes cytotoxic drugs to destroy rapidly dividing cancer cells, and hormonal therapies modulate hormone receptor-positive tumours. Targeted therapies, including monoclonal antibodies and small molecule inhibitors, focus on specific molecular pathways implicated in cancer progression. Advancements in precision medicine have led to the development of personalized therapies tailored to individual patients based on genetic and molecular profiling. Immunotherapy, harnessing the body's immune system to combat cancer cells, emerges as a promising frontier in breast cancer treatment. In this review article, we have studied how breast cancer is evolved and how we can cure it together with the therapies involved in the management of breast cancer.

Keywords: Cancer, Breast cancer, Tumours, Therapies, Oestrogen, HER2, Genetic.

COL-PP-011

SYNTHETIC 3D TUMOR CELLS

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Three-dimensional (3D) cell cultures have emerged as valuable tools in cancer research, offering significant advantages over traditional two-dimensional (2D) cell culture systems. In 3D cell cultures, cancer cells are grown in an environment that more closely mimics the 3D architecture and complexity of in vivo tumors. Preparation of three-dimensional porous scaffolds from synthetic polymers is a challenge to most laboratories conducting biochemical research. Before the synthesis of 3D tumor cells, 2D cell cultures were synthesized. 2D cell cultures have several limitations that make them less representative of real cell. Environments like these cells don't accurately represent the interactions between all and the extracellular matrix, 2D cultures can change morphology and polarity which can lead to abnormal gene and protein expression, growing cells on a flat surface doesn't accurately represent how cells grow and function in the human body, where they are surrounded by other cells in three dimensions. 3D cultures are alternative to 2D cultures that allow cells to grow and interact with each other in all three dimensions.

3D cultures can better recapitulate the characteristics of tumor cells in vivo, such as cell heterogeneity, hypoxia, growth kinetics and gene expression patterns.

Keywords: 3D tumor cells, heterogeneity, extracellular matrix

COL-PP-012

NANOROBOTICS IN TISSUE DIAGNOSIS AND ORGAN REPAIR

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The present era of nanotechnology has reached to a stage where scientist are able to develop and programme complex machines that are built at molecular level which can work inside patient body. New automated procedure are being discovered with new aspects of self-guided nano robots. Nano robot is an excellent tool for future medicine. Nano robots that would float around in your body, could carry and deliver drugs into defected cells. These nano robots will be able to repair tissues, clean blood vessels and airways, transform our physiological capabilities, and even potentially counter act the aging process Many scientists working on this bright field of nano robots especially on Alzheimer's disease and cancer treatments. The engineering of molecular products need to be carried out by robotic devices, which has been termed nano robots. Nano robotics sometimes referred to as molecular robotics. Cell /tissue repair nanorobot is more advanced and sophisticated than nanorobot that used in cancer treatment.

Keywords: Nanobot, Engineered Molecule, Robotic Device, Nano Robot.

COL-PP-013

CAR- T -CELL THERAPY

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Generally, people who suffer from blood cancers are unable to get effective treatment as bone marrow transplantation is not effective in blood cancers because sometimes the cancer can relapse again and high dose Chemotherapy can make the patient more weak comparatively due to the

temporary deficiency of vital blood cells. An autologous stem cell transplant involves treatment with high doses of chemotherapy followed by an infusion of the patient's own hematopoietic stem cells to rebuild their blood supply . Stem cell therapy is generally effective for patients who can tolerate high doses of chemotherapy. CAR- T- cell therapy is a type of immunotherapy that uses a patient's own immune cells to fight cancer. T-cells are modified in the laboratory to kill cancer cells. The patient's reengineered CAR T- cells are returned to them through an infusion, and the cells begin to multiply and attach to cancer cells to destroy them.

Keywords: CAR- T- cell therapy, immune cells, hematopoietic stem cells

COL-PP-014

HEALING IN HARMONY: A REVIEW OF CHRONOTHERAPEUTICS AND ITS POTENTIAL BENEFITS

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Chronotherapeutics is an emerging field that considers the body's natural circadian rhythms and the timing of medical treatment. It's based on the idea that the body's physiological processes, such as hormone secretion, metabolism, and immune function, follow a natural daily rhythm. Chronotherapeutics is applied in various fields, including cancer treatment, cardiovascular disease, diabetes management, and sleep disorders. Chronotherapeutics can improve treatment outcomes, reduce side effects, increase patient compliance, and potentially reduce healthcare costs. Some potential branches of chrono therapeutics are circadian-based medicine, chronopharmacology,chrononutrition,chronopsychology,chronocardiology,chronocancerology,chrononeurology,chronopediatrics,chronogerontology,chronoinformatics.Advantages of chronotherapy are improved efficacy, reduced side effects, enhanced patient compliance, increased cost-effectiveness, personalized medicine, improved quality of life, minimized drug resistance, enhanced immune function, reduced hospitalization rates, increased survival rates, improved mental health, enhanced athletic performance, improved sleep quality, reduced inflammation, increased antioxidant activity. Technologies used in chronotherapeutics are - wearable devices, mobile apps, circadian rhythm monitoring devices, light therapy devices, chronobiology software.

Potential biomarkers for chronotherapeutics, melatonin levels, cortisol levels, body temperature, heart rate variability, circadian rhythm-related gene expression. Future research directions: - investigating the role of chronotherapeutics in the prevention and treatment of various diseases, developing personalized chronotherapy approaches, examining the potential benefits and limitations of chronotherapeutics in combination with other therapies, investigating the impact of chronotherapeutics on patient quality of life and healthcare outcomes.

Keywords: Chronotherapeutics, Circadian Rhythm, Patient Compliance, Chrono Psychology, Chrono Neurology.

COL-PP-015

RECENT ADVANCES IN CARDIOVASCULAR THERAPY: INNOVATIONS AND CLINICAL APPLICATIONS

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Coronary artery disease (CAD) is one of the most common causes of death worldwide. In the last decade, significant advancements in CAD treatment have been made. The existing treatment is medical, surgical or a combination of both depending on the extent, severity and clinical presentation of CAD. The collaboration between different science disciplines such as biotechnology and tissue engineering has led to the development of novel therapeutic strategies such as stem cells, nanotechnology, robotic surgery and other advancements (3-D printing and drugs). These treatment modalities show promising effects in managing CAD and associated conditions. Research on stem cells focuses on studying the potential for cardiac regeneration, while nanotechnology research investigates nano-drug delivery and percutaneous coronary interventions including stent modifications and coatings. This article aims to provide an update on the literature (in vitro, translational, animal and clinical) related to these novel strategies and to elucidate the rationale behind their potential treatment of CAD. Through the extensive and continued efforts of researchers and clinicians worldwide, these novel strategies hold the promise to be effective alternatives to existing treatment modalities.

Keywords: stem cells, surgery, treatment modality, heart

COL-PP-016

SALIVARY GLUCOSE AS A POTENTIAL BIOMARKER FOR MONITORING BLOOD GLUCOSE LEVELS IN TYPE 2 DIABETES MELLITUS

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Monitoring glucose levels is crucial for effectively managing diabetes mellitus, a prevalent and chronic metabolic disorder impacting millions worldwide. Traditionally, blood glucose level tests have been the gold standard for diagnosing and managing diabetes. However, alternative methods such as salivary glucose level tests have gained attention. One significant advantage of salivary glucose level tests is their non-invasive nature, which eliminates the need for finger pricking or venous blood collection which may increase patient compliance, additionally, salivary glucose level tests offer the potential for real-time or continuous monitoring, enabling timely adjustments in diabetes management strategies. However, several challenges need to be addressed before salivary glucose level tests can be widely adopted. Saliva glucose levels are influenced by various factors, including oral health, diet, and saliva flow rate. Standardization of saliva collection methods and the development of reliable and accurate sensing technologies are crucial to overcome these limitations. Moreover, obtaining regulatory approval and conducting validation studies is imperative to affirm the clinical efficacy of tests measuring salivary glucose levels. In conclusion, tests measuring salivary glucose levels present a promising alternative to conventional blood glucose tests in the realm of diabetes management. While addressing technical and clinical challenges requires additional research, the appealing non-invasive nature and the potential for frequent monitoring make salivary glucose level tests an attractive option for enhancing diabetes care. Future advancements in salivary glucose sensing technologies may revolutionize glucose monitoring, improving the quality of life for individuals with diabetes.

Keywords: Hyperglycemia, Salivary Glucose Level, Non-invasive

COL-PP-017

UNRAVELING THE COMPLEXITY OF HIV

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Human immunodeficiency virus persists as a formidable global health challenge, underpinned by its extraordinary biological complexity, including genetic diversity, latency, and the establishment of resilient viral reservoirs. The virus adeptly evades immune detection through sophisticated mechanism such as mutational escape, down regulation of major host compatibility complex molecules, and the sequestration of pro-viral DNA within host genomes these factors, coupled with its ability to establish latent infection, complicate eradication efforts and render a sterilizing cure an enduring scientific conundrum . The advent of antiretroviral therapy has profoundly altered the landscape of HIV management, achieving near-complete viral suppression and transforming a fatal disease into chronic condition however, lifelong therapy is necessitated, underscoring the imperative for transformative approaches. Emerging strategies such as CRISPR/cas9-mediated gene editing and epigenetic reprogramming hold promise in targeting and purging latent reservoirs. Broadly neutralizing antibodies are also gaining traction, capable of augmenting immune efficacy and enabling synergistic therapeutic interventions. Furthermore, innovative paradigms such as the “Block and lock” strategy aim to induce durable viral silencing by tethering proviral DNA into a transcriptionally inert state. HIV vaccine development, however, remains a herculean task, impeded by the virus’s protean antigenicity and immune evasion capabilities. Cutting edge efforts focus on personalized mRNA vaccines and immunotherapeutics designed to elicit robust, broadly neutralizing immune responses. Additionally, the integration of epigenetic modulators, alongside inhibitors like raltegravir, dolutegravir, lopinavir, and ritonavir, continues to underpin therapeutic regimens

Keywords: CRISPR/cas9, antigenicity, immunotherapeutics, raltegravir, dolutegravir

COL-PP-018

ALTIUS DIRECT ELECTRICAL NERVE STIMULATION SYSTEM- REVOLUTIONIZING PAIN RELIEF

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After an amputation, patients experience different types of chronic pain, sensations, and feelings. These sensation and pain are called as Phantom pain(pain in the missing limb) and Residual pain(pain in the remaining part of the limb).Medications used in the treatment of Phantom and Residual pain are Opioids ,NSAIDS, Antidepressants, Nerve stimulation devices but none are curative and found to have limitations. The NEUROS MEDICAL has come up with a revolutionized device called ALTIUS DIRECT ELECTRICAL NERVE STIMULATION SYSTEM. The Altius Direct Electrical Nerve Stimulation System is an implantable device to help reduce long-term (chronic) and difficult to manage phantom limb pain and residual limb pain in the legs of adult amputees post-amputation. It uses a high frequency alternating current (HFAC) to manage chronic intractable post-amputation pain (PAP). The Altius implantable pulse generator (IPG) is implanted in the abdomen and designed to generate a HFAC electrical stimulus (5-10khz) that is conveyed to the nerve by a stimulating lead to an implanted cuff electrode wrapped around the target nerve(s) in the amputated leg proximal to the tip of the severed nerve. The total therapy duration is 30 minutes. Patients can use the Altius System to treat pain episodes as needed (PRN). The clinical study reports a clinically meaningful reduction of pain by 50% or greater. FDA has reviewed and approved to market the device on 26/08/2024. In conclusion, Altius nerve stimulation system has found to be effective and safe in treating the chronic pain in the leg amputees.

Key words: Post amputation pain, Electrical nerve stimulator, HFAC, IPG, target nerve, FDA

COL-PP-019

BACLOFEN AS AN ADJUVANT ANALGESIC

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Baclofen, a GABA agonist, is traditionally used for spasticity but also shows promise as an adjuvant analgesic, particularly in neuropathic pain such as trigeminal neuralgia. Despite its uncertain precise mechanism, Baclofen likely enhances inhibitory neural activity, disrupting pathways that lead to abnormal pain signaling. This drug has demonstrated effectiveness in several controlled and clinical trials for episodic pains, but its efficacy in chronic pain conditions like diabetic neuropathy and postherpetic neuralgia is limited. Baclofen exerts its effects by acting on both presynaptic and postsynaptic GABA receptors, reducing excitatory amino acid release while enhancing inhibitory signals. These dual actions make it particularly effective for episodic and allodynic pain, with minimal impact on normal sensation The drug is administered orally or intrathecally, with intrathecal methods showing potential in severe cases. Baclofen is also being explored for other applications, including as an adjunct in opioid therapy during surgery and in conditions involving reflex sympathetic dystrophy. The development of L-baclofen, a more potent and better-tolerated form, represents a significant advancement, necessitating further research to optimise its therapeutic potential. The optimal use of baclofen as an adjuvant analgesic requires an understanding of its pharmacology, side effect spectrum, and dosing guidelines that have proven useful in clinical practice.

Key words: Baclofen, adjuvant analgesic, neuropathic pain.

COL-PP-020

PLATELET-RICH PLASMA (PRP) THERAPY: AN APPROACH TO UNDERSTAND THE APPLICATIONS

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Platelet-rich plasma (PRP) is currently used in different medical fields. The interest in the application of PRP in dermatology has recently increased. It is

being used in several different applications as in tissue regeneration, wound healing, scar revision, skin rejuvenating effects, and alopecia. PRP is a biological product defined as a portion of the plasma fraction of autologous blood with a platelet concentration above the baseline. It is obtained from the blood of patients collected before centrifugation. The knowledge of the biology, mechanism of action, and classification of the PRP should help clinicians better understand this new therapy and to easily sort and interpret the data available in the literature regarding PRP. In this review, we try to provide useful information for a better understanding of what should and should not be treated with PRP.

Keywords: Autologous therapy; Biology; Mechanism of action; Plasma

COL-PP-021

THE EFFECT OF STRESS ON THE DEFENSE SYSTEMS

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Acute stress increases resistance to infection. The alteration of this mechanism in chronically stressed people impairs the organism's ability to mount a strong immune response with a resultant increase in morbidity. Acute stress induces a probable sympatho-adrenergically mediated increase in chemotaxis and adhesion molecules expression, thus promoting immune cells migration to sites of infection and/or inflammation, while chronic stress impairs this mechanism. Protracted stressful conditions decrease NK cytotoxic capacity. There is a substance P, which under stressful circumstances mediates the increase in macrophage cytokine production. Acute stress increases T cell mobilization through a beta2-Adrenergically mediated process, which is blunted during chronic stress. Psychological stress impairs the immune system's ability to produce antibodies in response to a vaccine, thereby making the organism more vulnerable to infections. The two main systems at work in this adaptive process are the nervous system (especially the brain) and the immune system. While reacting to a trespasser, there is a continuous interchange of message between these two systems in the attempt to keep the organism in balance and free of infecting organisms. The mechanisms responsible for the mediations of these interactions are both neuroendocrine and autonomic and form the object of a relatively new discipline: psychoneuroimmunology. The major pathways involved in these

interactions are the hypothalamic–pituitary–adrenal (HPA) axis and the sympathetic nervous system (SNS).One of the key mediators is probably corticotrophin–releasing hormone (CRH), which exerts a general immunosuppressive influence by enhancing the release of corticosteroids, catecholamines, and certain opiates through its action on the sympatho–adrenergic system.

Keywords: Acute stress, chronic stress, NK cell, lymphocyte, antibody production, vaccination, corticotropin releasing hormone(CRH),sympathetic nervous system(SNS).

COL-PP-022

EFFECT OF CHRONOTHERAPY IN DEPRESSION

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Chronotherapy is a non – Pharmacological approach targeting the circadian rhythm, has emerged as a Promising Treatment for Depression. Depression a prevalent health disorder, often exhibits alternations in circadian rhythm. recent studies suggest that interventions like sleep deprivation, sleep phase advancement and light therapy can rapidly improve depressive symptoms. Triple chronotherapy a combination of these three techniques has shown significant efficacy in both inpatient and outpatient settings. This review presents a comprehensive review of the most up to date literature on the relationship between chronotherapeutic and depression. chronotherapy offers a potential adjunctive or standard therapy for individuals with treatment resistance or treatment – intolerance depression.

Keywords: Sleep depression, light therapy, triple chronotherapy, circadian rhythm.

COL-PP-023

ADVANCING PERSONALIZED MEDICINE THROUGH PHARMACOGENOMICS: TAILORING TREATMENTS FOR OPTIMAL PATIENT OUTCOMES

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Pharmacogenomics, the study of how genes influence individual responses to medications, plays a pivotal role in personalized medicine by enabling the customization of drug therapies based on genetic profiles. This poster presentation explores the integration of pharmacogenomic testing into clinical practice, highlighting its potential to enhance therapeutic efficacy and minimize adverse drug reactions. We will discuss key genetic variants associated with drug metabolism, efficacy, and safety, emphasizing their importance in diverse therapeutic areas, including oncology, cardiology, and psychiatry. Case studies will illustrate successful applications of pharmacogenomic insights, demonstrating improved patient outcomes through tailored treatment strategies. Furthermore, we will address the challenges and barriers to implementing pharmacogenomic testing in routine healthcare, such as cost, access, and the need for clinician education. By fostering a deeper understanding of pharmacogenomics, healthcare providers can make informed decisions that align with the genetic characteristics of their patients, ultimately promoting safer and more effective care.This presentation aims to inspire dialogue among healthcare professionals about the future of pharmacogenomics in personalized medicine and its potential to transform patient management through individualized therapeutic approaches. Advances in technology, such as DNA proteomics, imaging protocols, and wireless health monitoring devices, have contributed to significant improvements in personalized medicine.

Keywords: Pharmacogenomics, Personalized Medicine, Genetic Testing, Drug Metabolism, Patient Outcomes.

COL-PP-024

LUPUS NEPHRITIS IN SYSTEMIC LUPUS ERYTHEMATOSUS: ADVANCES AND CHALLENGES IN RENAL MANAGEMENT

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Systemic Lupus Erythematosus (SLE) is a chronic autoimmune disorder that affects multiple organ systems, with kidney involvement being one of the most common and serious manifestations. The kidney complications in SLE, collectively referred to as lupus nephritis (LN). LN is characterized by inflammation of the kidneys, which can results in glomerular injury, renal dysfunction, etc. Early diagnosis and effective management are essential to prevent irreversible renal damage and improve long-term outcomes. The pathogenesis of lupus nephritis is multifactorial, involving immune complex

deposition, complement activation, and pro-inflammatory cytokine release that drive glomerular and tubulointerstitial inflammation. The clinical presentation of LN ranges from asymptomatic proteinuria to nephrotic syndrome. Diagnosis is based on combination of clinical assessment, laboratory findings and renal biopsy, which provides insight into severity of glomerular involvement and helps guide treatment decisions. It involves the use of immunosuppressive therapies, including corticosteroids, cyclophosphamide, mycophenolate mofetil, and biologic agents like rituximab. The choice of therapy depends on severity of renal involvement, aiming of inducing remission and preserving renal function. Despite improved therapies, the management of LN remains challenging, with long-term renal damage, emphasizing regular monitoring and personalized treatment approaches. SLE-associated kidney complications, particularly lupus nephritis, represent a significant clinical challenge. Timely diagnosis, individualized treatment, and ongoing monitoring are crucial to mitigating kidney damage and improving the prognosis of affected individuals.

Keywords: Glomerular, nephritic, cyclophosphamide

COL-PP-025

ANTIMICROBIAL RESISTANCE

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Antibiotics have saved millions of lives. However, antimicrobial resistance threatens this progress and presents significant risks to human health. To identify factors associated with AMR and possible solutions to the AMR problem. PubMed and ClinicalTrials.gov databases were searched for articles related to AMR, focusing on the epidemiology and clinical effects of AMR. The increase in AMR has been driven by a diverse set of factors, including in-appropriate antibiotic Prescribing and sales, use of antibiotics outside Of the healthcare sector, and genetic factors intrinsic to bacteria. Alternative approaches to address the AMR threat include new methods of antibacterial drug identification and strategies that neutralize virulence factors. Antimicrobial resistance poses significant challenges for current clinical care. Modified use of antimicrobial agents and public health interventions, coupled with novel antimicrobial strategies, may help mitigate the effect of multidrug-resistant organisms in antimicrobial.

Keywords: antibiotic, virulence, antibacterial drug

COL-PP-026

HEMORRHAGIC TRANSFORMATION: A DEVASTATING COMPLICATION OF ISCHEMIC STROKE.

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Both Hemorrhagic and Acute ischemic strokes (AIS) cause impairing cognitive and neuropsychiatric impairments. Hemorrhagic transformation (HT) is a dangerous and lethal side effect of AIS. Hemorrhage in the infarcted areas following an ischemic event is known as Hemorrhogic Transformation. In addition to comorbidities like essential hypertension, atrial fibrillation, diabetes mellitus, congestive heart failure, and ischemic heart disease, certain risk factors like demographics like age, gender, and race/ethnicity, as well as predictors like a higher NIHSS score, a larger infarction size, cardioembolic strokes, systolic blood pressure/pulse pressure variability, higher plasma glucose levels, higher body temperature during an ischemic event, lower levels of total cholesterol and low-density lipoprotein, early ischemic changes on imaging modalities, and some uncommon causes make a person more likely to develop HT. The Globulin levels in patients after thrombolysis and mechanical thrombectomy, elevated arterial stiffness, and the function of the blood-brain barrier are a few additional risk factors. Furthermore, both the duration of treatment and the effects of dual antiplatelet therapy relate to the risk of developing HT. The cornerstone of HT treatment is supportive care, which aims to control symptoms, avoid complications, and improve patient outcomes. In cases of severe HT with a large mass effect or elevated intracranial pressure, surgery can be required. Controlling blood pressure is essential to stopping more bleeding. Because they raise the risk of further bleeding, anticoagulation and antiplatelet medication should be avoided in patients with HT.Patients with HT should be cautious when undergoing thrombolytic therapy with tissue plasminogen activator (tPA) as this may increase the risk of further bleeding.

Keywords: Risk factors- Acute ischemic stroke, Blood brain barrier, Tissue plasminogen activator, Antiplatelet therapy, Hemorrhogic transformation.

COL-PP-027

CURRENT AND FUTURE TREATMENTS FOR CERVICAL CANCER

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Cervical cancer remains a significant global health concern. This comprehensive review provides an overview of current and emerging treatments for cervical cancer, aiming to inform clinicians and researchers about recent advancements and future prospects in the field. Current treatment modalities for cervical cancer include surgery, radiotherapy, and chemotherapy, often used in combination depending on the stage and extent of the disease. However, these treatments are associated with considerable morbidity and may not be effective in advanced or recurrent cases. Therefore, there is an urgent need for novel therapeutic approaches. Emerging treatments for cervical cancer encompass a variety of strategies, including targeted therapies, immunotherapy, and gene therapies. Targeted therapies, such as inhibitors of the Epidermal Growth Factor Receptor (EGFR) and Vascular Endothelial Growth Factor (VEGF), have shown promising results in clinical trials, particularly in combination with standard treatments. Immunotherapy, particularly immune checkpoint inhibitors has revolutionized cancer treatment and holds significant potential for cervical cancer. Additionally, gene therapies, including oncolytic viruses and gene editing technologies, offer innovative approaches to targeting cancer cells while sparing healthy tissue. Looking forward, the integration of these emerging treatments into standard clinical practice has the potential to improve outcomes for patients with cervical cancer. However, further research is needed to optimize treatment regimens, identify biomarkers for patient selection, and overcome resistance mechanisms. Collaborative efforts between clinicians, researchers, and pharmaceutical companies are essential to translate these promising therapies from bench to bedside and ultimately reduce the global burden of cervical cancer.

Keywords: HPV, Chemotherapy, Immunotherapy, Targeted therapy

COL-PP-028

THE ROLE OF ANTIOXIDANTS IN NON ALCOHOLIC FATTY LIVER DISEASES

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Non alcoholic fatty liver disease (NAFLD) defines fat accumulation in the liver, and it is commonly associated with metabolic syndromes like diabetes & obesity. progressive NAFLD leads to non alcoholic steatohepatitis (NASH) and ultimately causes cirrhosis & hepatocellular carcinoma, and NASH is currently a frequent cause of liver transplantation. Oxidative stress is often contributed to the progression of NAFLD, oxidative stress and inflammation are the main risk factors for NAFLD. Antioxidants can help protect biomolecules &cell structures from damage caused by oxidative stress and hence, antioxidants such as silymarin, silybin, or silibinin, pentoxifylline, resveratrol, and vitamins A, C, and E are used in NAFLD. Resveratrol inhibits methylation at Nrf-2 promoters and NF-κB activity via SIRT1 activation in NAFLD conditions. However, clinically, resveratrol has not shown promising beneficial effects. Vitamin C is beneficial in NAFLD patients. Vitamin E is not effectively regressing hepatic fibrosis. Hence, its combination with antifibrotic agents is used as an adjuvant to produce a synergistic antifibrotic effect. Further, these antioxidants should be studied in NAFLD patients with larger populations and multiple endpoints in the future.

Keywords: Antioxidant, NAFLD, NASH, lipid oxidation, oxidative stress.

COL-PP-029

POLYCORIA

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Polycoria, an extremely rare pathological condition of eye in which a patient may experience multiple pupils in one eye or more than one papillary opening of the iris. It may be in left, right, or in both eyes. The general cause is unknown. It is caused mainly by the effect of teratogenic factors, coloboma of iris, intrauterine factors, iridocorneal endothelial syndrome, latrogenic

effects, traumatic injury, and Axenfeld-Rieger syndrome. It is of two types i.e. true polycoria and psedu polycoria . The primary signs is the appearance of multiple pupils. Blurred and poor vision, issues with glare and double vision, bridge of iris tissues between the pupils are the other signs and symptoms. The patients with polycoria should consult opthalmogist. The special examinations include study of papillary reaction, biomicroscopy of the eye, perimetry, ultrasound of the eye, and tonometry. The treatment includes iris plastic surgery, surgical correction, and symptomatic therapy. The surgical technique used pupilloplasty and double –armed polypropylene. The gene that causes polycoria is PRDM5 which is also linked with brittle cornea syndrome.

Keywords: Polycoria, iridocorneal endothelial syndrome, Axenfeld-Rieger syndrome, pupilloplasty, double-armed polypropylene, PRDMS, ophthalmologist.

COL-PP-030

CARDIAC BASED SEIZURES - PREDICTION BY WEARABLE SENSOR DEVICES

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Recurrent seizures are a hallmark of the neurological disorder known as epilepsy, which can drastically reduce a person's quality of life. Wearable devices for cardiac-based seizure detection use real-time monitoring of the heart activity to identify seizure-related abnormalities. These devices use sensors such as photoplethysmography (PPG) or electrocardiography (ECG) to detect heart rate variability (HRV), arrhythmia, or sudden changes in the heart rhythm that often accompany seizures. Advanced algorithms analyze the data to differentiate seizure-induced patterns from normal physiological variations or other conditions like stress. The non-invasive and portable nature of wearable devices makes them an ideal option for continuous monitoring, especially for epilepsy patients. Early seizure detection may allow timely intervention and therefore decrease the risks associated with it, such as an injury or sudden unexpected death in epilepsy (SUDEP). The main challenges are in specificity improvement to reduce false alarms and robust performance in different populations of users. This review focused on studies that utilized non-invasive wearable sensors, such as electrocardiogram (ECG) for seizure detection or prediction. In cardiac-based seizure detection and prediction, we examine the different signal processing methods, machine

learning algorithms, and sensor modalities used. We also go over these approaches, possible benefits and drawbacks in comparison to more conventional EEG-based techniques. In general, this review adds to the expanding corpus of information regarding non-invasive seizure monitoring and management, which may enhance the quality of life for those who have epilepsy.

Keywords: Seizures, Epilepsy, Photoplethysmography, Electrocardiography, Algorithms, Heart rate variability, Arrhythmia

COL-PP-031

UNDERSTANDING INSULIN RESISTANCE

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Insulin resistance is a metabolic condition wherein the body's cells are less responsive to insulin, a hormone produced by the pancreas that helps regulate blood sugar (glucose) levels. Consequently, the body needs more insulin to maintain blood glucose levels. Eventually, this results in elevated blood sugar levels, a characteristic of type 2 diabetes, and other health complications, such as high blood pressure, high cholesterol, and increased fat accumulation.The major causes of insulin resistance are a combination of genetic factors and lifestyle choices, including poor diet, lack of physical activity, and excess body weight, particularly abdominal fat. High sugar diets and unhealthy fats cause the body to be unable to use insulin properly. Also, overweight individuals, particularly those with visceral fat stored around organs, exacerbate insulin resistance through inflammation and disruption of the normal function of insulin receptors on cell membranes. Treatment for insulin resistance often requires a lifestyle change in diet to a balanced, low glycemic intake and increased physical activity along with weight loss. Sometimes medications such as metformin can be prescribed to increase sensitivity to insulin. It is vital to intervene early so as not to allow it to become type 2 diabetes and thus reducing the risk of other related cardiovascular diseases.

Keywords: Insulin resistance, low glycemic, metformin

COL-PP-032

PRECISION MEDICINE IN DIABETES PREVENTION, CLASSIFICATION AND MANAGEMENT

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Diabetes is a complex and multifaceted condition that affects millions globally. Precision medicine, which tailors healthcare based on individual genetic, environmental, and lifestyle factors, offers transformative potential in diabetes care. In prevention, genetic screening and metabolic profiling enable early identification of at-risk individuals, facilitating personalized lifestyle and pharmacological interventions. The classification of diabetes is moving beyond the traditional dichotomy of Type 1 and Type 2, leveraging biomarkers and genetic data to identify distinct subtypes, allowing for more accurate diagnoses and targeted therapies. In management, precision medicine integrates advancements like pharmacogenomics, continuous glucose monitoring, and microbiome-based interventions to optimize patient outcomes. Despite its promise, challenges such as cost, accessibility, and ethical considerations need to be addressed for widespread adoption. Looking ahead, innovations in artificial intelligence, multi-omics data integration, and personalized therapeutic approaches will redefine diabetes care. Precision medicine represents a paradigm shift, offering hope for minore effective prevention, accurate classification, and improved management of diabetes.

Keywords: Pharmacogenomics, multi-omics data

PAQ-PP-001

ROLE OF ANALYTICAL TECHNIQUES FOR ANALYSIS OF MICROPLASTICS IN FISH

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Micro plastics, typically defined as plastic particles less than 5 milli-meters in size, are prevalent in marine and freshwater environments and are increasingly being found in the tissues of aquatic organisms, including fish. Micro plastics pollution has emerged as a significant environmental concern globally affecting both marine and freshwater ecosystem. In recent years studies have increasingly focused on the presence of micro-plastics in marine organisms particularly fish which are integral part of marine food webs and are regularly consumed by humans. Through many research has documented the ingestion of micro-plastics by fish particularly in their gas channel tracks there is a growing concern about the presence of micro plastics in fish edible tissues. These tissues including muscle and organs are directly consumed by the human's raising questions about the potential of implications for the human health. This study examines the edible and non-edible tissues of five commonly consumed fishes in Chennai. Micro Raman Spectroscopy is commonly used to identify and characterize microplastic particles in biological samples, and when combined with FTIR, it becomes effective in identifying polymer types based on their distinct molecular vibrations. As microplastic contamination continues to escalate, further research is needed to understand the long-term effect on aquatic life and potential risks to human health through the consumption of contaminated seafood. This issue requires comprehensive efforts to reduce plastic pollution and mitigate its impact on the environment and food safety.

Keywords: Micro plastics, edible and non edible tissues, Raman spectroscopy, sea food, plastic pollution, food safety.

PAQ-PP-002

MICROFLUIDIC CHIP TECHNOLOGY: A BREAKTHROUGH IN INNOVATION & APPLICATIONS

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Microfluidics is an interdisciplinary topic of research that draws inspiration from other areas such as fluid dynamics, microelectronics, materials science, and physics. Microfluidics has made it possible to create microscale channels and chambers out of a broad variety of materials by borrowing ideas from a number of different fields. This has opened up exciting possibilities for the development of platforms of any size, shape, and geometry using a variety of approaches. One of the most significant advantages of microfluidics is its versatility in applications. Microfluidic chips can be used for a variety of purposes, such as incorporating nanoparticles, encapsulating and delivering drugs, targeting cells, analyzing cells, performing diagnostic tests, and cultivating cells. This adaptability has led to the development of several device-like systems for use in a range of settings. In this study, we explore cutting-edge novel applications for microfluidic and nanofabrication technologies. We examine current developments in the area of microfluidics and highlight their potential for usage in the medical industry. We pay special attention to digital microfluidics, a recently developed and very useful technique for illness diagnosis and monitoring. The originality of microfluidics is found in the fact that it allows for the miniaturization of complex systems and processes, paving the way for the creation of cutting-edge gadgets with wide-ranging practical applications. Microfluidics has the potential to transform various fields, including medicine, biotechnology, environmental monitoring, and more. The development of novel microfluidic platforms, coupled with advancements in digital microfluidics, promises to revolutionize the way we diagnose, treat, and monitor diseases.

Keywords: Microfluidic chips, miniaturization, targeting cells

PAQ-PP-003

ADVANCED TECHNOLOGIES IN FOOD PROCESSING

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Food processing plays a crucial role in coping up with the challenges against food security by reducing wastage and preventing spoilage. Research into innovative techniques in the food technology is developing dynamically. In this presentation some new techniques used in food processing that not only increase efficiency but also enable the creation of products with desirable nutritional characteristics were discussed with in-depth analysis of the available scientific evidence. Recent advancements, such as ultrasonic processing, high-pressure processing, vacuum packaging address current market demands for better food preservation and safety measures. These methods are non-thermal food processing techniques use little to no heat to deactivate enzymes and extend shelf life. The ultrasound technology has revolutionized the food processing industry with its wide application in different unit operations (filtration, freezing, sterilization, pasteurization, etc.) using high-intensity sound waves to preserve food and serve as a sustainable and low-cost alternative. High pressure processing (HPP) preserves food with minimal quality deterioration, inactivates microorganisms using high hydrostatic pressure. Vacuum packaging involves removing air from a package to create a vacuum-sealed environment. By reducing the oxygen content inside the packaging, vacuum packaging inhibits the growth of aerobic microorganisms and slows down oxidative reactions, such as rancidity, which contribute to spoilage. Thus, this advanced food technologies hold great promise for the future of food systems by not only improving food safety but also creating healthier and sustainable options.

Keywords: High-pressure processing, Ultrasonication, Vacuum packaging

PCH-PP-001

OXI QUINAZOLINES AS ANTICANCER AGENTS AND HDAC INHIBITORS: COMBINED PHARMACOPHORE MODELING, 3D-QSAR, AND MOLECULAR DYNAMICS STUDIES

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Lung cancer is the most commonly diagnosed cancer type, followed by prostate and colon cancers and HDACs are vital in a variety of cellular functions. In this study, we have identified various pharmacophores from the previously published oxoquinazolines and validated using regression analysis. Dataset of 33 oxoquinazolines with cytotoxicity against colorectal adenocarcinoma (SW620), prostate cancer (PC3) and non-small cell lung cancer (NCI-H23) were considered. For all three cell lines, common pharmacophore hypotheses (CPHs) were individually generated with maximum of six sites and were validated using ligand-based QSAR and externally validated using ROC analysis. Molecular dynamics was performed for HDAC-b4 and b13 complexes for 25 ns. CPHs obtained from all three cancer cell lines consist two H-bond acceptors, one H-bond donor, two hydrophobic and one aromatic region (AADHHR). For SW-260 and PC3 cell lines, regression scores (R^2/Q^2) were higher for AADHHR.10 CPH (0.95/0.67 and 0.97/0.77) and AADHHR.13 CPH (0.96/0.79) for NCI-H23 cell line, with AUC values of 0.972, 0.887 and 0.932 ($p<0.001$), respectively. Molecular dynamics elucidated the impact of the extended side chain of the oxoquinazolines on the conformational changes of the complex. A single pharmacophore model (AADHHR) was obtained exhibiting cytotoxic potential against three cell lines and all the three CPHs were statistically significant. Along with the insights from molecular dynamics, these results reflect the importance of extended side chain in the improved cytotoxic activity when compared to compounds with/without shorter substituted aliphatic side chain.

Keywords: 3D-QSAR, HDAC, molecular dynamics, pharmacophore modelling, ROC analysis

PCH-PP-002

QSAR BASED DRUG REPURPOSING: A NEW PARADIGM IN BREAST CANCER RESEARCH

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Breast carcinoma is the world's most prevalent type of cancer. The building of predictive cytotoxicity breast cancer models assists permanent synthetic activities and give critical information about structure-activity of novel structure design through a quantitative Structure-Activity Relationship (QSAR) modelling application. Quantitative Structure-Activity Relationships (QSAR) present a model that links pharmacological and biological activities to chemical structures and molecular docking research reveals the medication's interaction with its targeted enzymes. This review is dedicated for the detailed study of models for designing highly effective breast anticancer MCF7 cells. The Per-ARNT-SIM transcription factor family includes the Aryl hydrocarbon Receptor (AhR), which is a member recognized as a viable novel aim for the cure of breast cancer. The development of a series of 2-phenylacrylonitriles that target AhR has showed enticing and discerning efficacy against malignancy cells while preserving healthy and non-cancerous cell lines. This study aims to use estimating techniques such molecular docking studies, Quantitative Structure-Activity Relationship (QSAR) and QSAR model parameters to more advanced design
new effective molecules and analyse the pharmacokinetics "drug-likeliness" assets of the new compounds before they could progress to pre-clinical trial. These investigations also showed that derivatives of 2-(4-fluorophenyl) imidazole-5-one were more potent anti-cancer therapeutic candidates against the MCF-7 cell line. This exemplifies a remarkable medical breakthrough in the fight against breast cancer (MCF-7 cell line).

Keywords: Breast carcinoma, MCF-7 cell line, 2-phenylacrylonitriles, QSAR, Model development.

PCH-PP-003

RATIONAL DESIGN OF ENZYME INHIBITORS

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Selective inhibitors of enzyme-catalyzed reactions are widely used in both biochemical and medical science. The inhibitor may be used to block either a single enzyme or a metabolic pathway. The utility of an enzyme inhibitor as a mechanistic probe or a therapeutic agent will depend, in part, on the potency of the inhibitor and its specificity toward its target enzyme. These properties will, in turn, depend on the number and type of interactions the inhibitor makes with the enzyme and the overall mode of inhibition. Here we provide a concise overview of the forces involved in inhibitor binding, and a brief summary of the treatment of enzyme kinetic data. Enzyme inhibitors have been divided into two groups, reversible and irreversible, based on whether the inhibitor binds covalently to its target enzyme. Within these groups inhibitors have been classified on the basis of kinetics, structure, and mechanism. Examples are provided in all cases and, where possible, these are of inhibitors possessing therapeutic interest. The criteria for inclusion in each class of inhibitor are described, as well as the kinetic implications, with particular reference to the specificity of the inhibition. Treatment of the examples includes discussion of the design aspects and, if appropriate, a historical perspective that demonstrates the development of a rational approach to inhibitor design.

Keywords: Enzyme, enzyme-Inhibitor, binding, target enzyme, Kinetics

PCH-PP-004

DESIGN, *IN-SILICO* STUDIES AND DOCKING STUDIES OF FURAN CONTAINING ISOXAZOLE DERIVATIVES

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Furan is a planar five-member heterocyclic ring with four carbon and one Oxygen atom. Being a non polar aromatic compound the presence of the oxygen adds polarity as well as the potential for hydrogen bonding it improves pharmacokinetic characteristics of lead molecules and used to

optimize bioavailability parameters . Furan derivatives have occupied a unique place in the field of medicinal chemistry. The incorporation of furan nucleus is important in drug discovery. The high therapeutic properties of furan have encouraged to chemists to synthesize various medicines. Furan derivatives show various pharmacological activities such as Anti-inflammatory activity and Analgesic activity, Anti-microbial, Anti-hypertensive and anti ulcer activity etc.,

Isoxazole is a member of five-remembered hetero-cycle's, it has two hetero atoms oxygen and Nitrogen atom . The inclusion of isoxazole in medicinal compounds may contribute to the increased efficacy, decreased toxicity ,and improved pharmacokinetic properties. Isoxazole compounds possesses broad biological activities including Anti inflammatory and analgesic activity, anticancer activity ,anti-fungal activity and anti microbial activity etc,. Therefore, Furan containing Isoxazole might also contain these activities and we are aiming to find the anti inflammatory and analgesic activities of Furan containing Isoxazole compounds and synthesize the compound.

Keywords: Isoxazole, furan, hetero-cycle, oxygen, nitrogen, anti-inflammatory activity, analgesic activity.

PCH-PP-005

MOLECULAR DOCKING STUDIES, SYNTHESIS, AND EVALUATION OF ANTIBACTERIAL ACTIVITY OF NEWER SULPHONAMIDE DERIVATIVES

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Docking studies were performed on a series of naphthalene substituted sulphonamide derivatives to investigate their potential binding modes with relative biological targets. Molecular docking is a computational technique used to predict the binding of drug molecule with targets like proteins. For docking, the protein used is 4URO that is docked against sulphonamide derivatives. The compounds with highest docking score were synthesized and screened for antibacterial activity using cup plate and disc diffusion methods. The structural conformation of synthesized compounds were done by using Infrared spectroscopy (IR), Proton Nuclear Magnetic resonance (^{1}H-NMR), Carbon NMR (^{13}C-NMR) and mass spectrometry. All the compounds were evaluated for antimicrobial activity by using cup plate method against

Bacillus subtilis, Bacillus cereus, Escherichia coli, Pseudomonas aeruginosa. Out of all the 15 synthesized compounds, S-2 and S-5 showed good activity against both gram positive and gram-negative bacteria in comparison with the standard drug.

Keyword: Sulphonamide analogue, Molecular docking, Cup plate technique, Disc diffusion method, antibacterial activity, Spectral characterization.

PCH-PP-006

ANABOLIC ANDROGENIC STEROIDS

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Steroids belong to the family of terpenoid lipids. Anabolic steroids are synthetic derivatives of the male hormone testosterone. They have significant effects on physical strength, endurance, muscle synthesis, and athletic performance.they promote protein anabolism and are often abused in sports for muscle strength and size enhancement. Athletes and bodybuilders use them to boost performance and bulk up. However, anabolic steroids are associated with adverse side effects. In males, they can cause sterility and erectile dysfunction, while females may develop male attributes. They are also linked to increased cholesterol and triglyceride levels, elevating the risk of cardiovascular disease. Studies suggest anabolic steroids alter immune responses by affecting lymphocyte activity, antibody production, and cytokine levels. Steroid abuse extends beyond sports, with many adults using them for physical appearance and muscle mass. Adolescents are particularly at risk, as reported by the National Institute of Drug Abuse. Sports organizations ban performance-enhancing drugs (PEDs) and penalize offenders, yet some individuals manipulate drug cycles and dosages to evade detection.Screening for anabolic androgenic steroids (AAS) is highly sensitive, involving gas and liquid chromatography-mass spectrometry. Advanced techniques like carbon isotope mass spectrometry detect natural testosterone administration in men..This work emphasizes creating awareness among adolescents about anabolic steroids' risks to promote informed decisions and safer practices.

Keywords: Steroids, Anabolic steroids, Athletic performance, cardiovascular disease, sports, testosterone.

SILVER-CATALYZED CYCLIZATION OF N-PROPARGYL N-SULFONYL AMINO ALCOHOLS FOR THE SYNTHESIS OF 3,4-DIHYDRO-2H-1,4-OXAZINE IN SOLID-PHASE PEPTIDE SYNTHESIS

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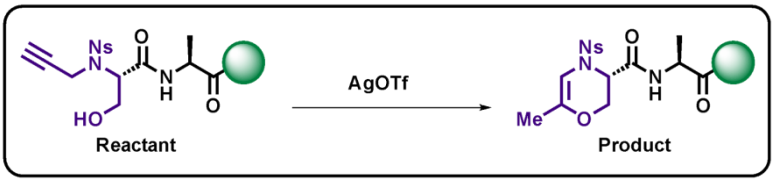
3,4-Dihydro-2H-1,4-Oxazine is an oxygen-containing heterocyclic compound. Oxazines are significant heterocyclic compounds recognized for their wide-ranging biological activities and roles in medicinal chemistry. This research focuses on the synthesis of new oxazine derivatives, examining their structural features and reactivity. We employed various synthetic methods to create substituted oxazines, followed by thorough characterization using NMR and mass spectrometry techniques. Biological assessments of the compounds demonstrated notable antimicrobial and anticancer effects, highlighting their potential as candidates for drug development. Furthermore, we explored how different substituents affect the pharmacological profiles of these heterocycles, contributing to a better understanding of structure-activity relationships. This study emphasizes the versatility of oxazines in developing therapeutic agents and sets the stage for further investigations into their medicinal properties.

Here, we have established a methodology yielding 3, 4-dihydro-2H-1, 4-Oxazine by cyclization of N-propargyl N-sulfonyl amino alcohols using silver as a catalyst at ambient temperature in solid phase peptide synthesis (SPPS) to introduce the oxazine heterocyclic ring into short peptides containing serine & cysteine. Notably, rink amide resin supported the on-resin formation of 3, 4-dihydro-2H-1, 4-Oxazine, thus offering a versatile method for late-stage modification of peptides.

Keywords: oxazine, SPPS, Total Organic Synthesis, NMR, HR-MS, HPLC.



COG-PP-001

HERBAL NANOPARTICLES: A COMMITMENT TOWARDS CONTEMPORARY APPROACH

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Herbal medicines have been used extensively since ancient times in almost every region of the world and are regarded by patients and doctors as having the best therapeutic value or effect because they have very few or lesser side effects than synthetic medications. In order to deliver the components over time, avoid the need for repeated dose administration, and improve patient compliance, phytotherapeutics requires some scientific approaches. The current article discusses the various kinds of nanoparticles, nano drug delivery methods, agricultural applications, advantages, properties, disadvantages, and methods of preparing nano herbal-medicines. Nanoparticle applications in a variety of fields, including cosmetics, plant protection,crop enhancement, wastewater treatment, and treatment of several chronic diseases, are also discussed. The novel or newer drug delivery system not only aids in reducing the number of times the drug must be administered to overcome non-compliance, but also significantly boosts therapeutic value by boosting bioavailability and limiting toxicity. Herbal nano scale drug delivery systems or plant derived medication has a promising future in overcoming problems and enhancing activities associated with plant derived medicines. As a result, nano-formulations are frequently being used for more precise and controlled drug delivery to target tissues.Nanostructured systems can enhance the effects of plant extracts, lowering dosage requirements,minimising side effects, and increasing their activity.

Keywords: Herbal Nanoparticles, Herbal Drugs, Nano Formulations, Nanofertilizers.

COG-PP-002

HERBAL DRUG INTERACTIONS IN MODERN MEDICNE

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The possibility of drug interactions, direct toxicities, and contamination with active pharmaceutical agents are among the safety concerns about dietary and herbal supplements. Although there is a widespread public perception that herbs and botanical products in dietary supplements are safe, research has demonstrated that these products carry the same dangers as other pharmacologically active compounds. Interactions may occur between prescription drugs, over-the-counter drugs, dietary supplements, and even small molecules in food—making it a daunting challenge to identify all interactions that are of clinical concern.Most herb-drug interactions identified in current sources are hypothetical, inferred from animal studies, cellular assays, or based on other indirect means; however, attention to this issue is needed for drugs with a narrow therapeutic index, such as cancer chemotherapeutic agents, warfarin, and digoxin.Due to a worldwide rise in the use of dietary supplements and/or herbal preparations, the incidence and severity of herb-drug interactions are increasing. This poses a serious problem in the treatment of patients, and represents a serious and under-recognized hazard in clinical care, especially for those using drugs with narrow therapeutic indices. More clinical data regarding herb-drug pharmacokinetic and/or pharmacodynamic interactions are needed to make informed decisions regarding patient safety.

Keywords: Drug interactions, Modern medicine, Herbal medicine.

COG-PP-003

LATEST TRENDS IN CANCER THERAPY USING HERBAL DRUGS

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The potential of herbal medicines as complementary or alternative therapies has drawn a lot of attention in the field of cancer therapy. Natural products

have proven to be promising anti-cancer agents due to their diverse chemical structures and bioactivity. Medicinal plants contain bioactive compounds, such as flavonoids, alkaloids, terpenoids and polyphenols, which exhibit various anticancer properties. These compounds induce apoptosis, inhibit cell proliferation and cell cycle progression, interfere with microtubule formation, act on topoisomerase targets, inhibit angiogenesis, modulate major signalling pathway improve the tumor microenvironment, reverse drug resistance and activate immune cells. Improved bioavailability and targeting have been achieved through the utilization of advanced delivery systems, such as nanoparticles (polymeric nanoparticles, dendrimers, micelles, liposomes, protein nanoparticles, cell membrane nanoparticles,gold nanoparticles) and liposomes(the vesicle of phospholipid bilayer) with the compounds. Phytocomponds are being increasingly recognized as useful complementary treatments for cancer botanical products such as curcumin, green tea, polyphenols and resveratrol have exhibited potential in cancerous cell proliferation, inhibition, apoptosis induction and inhibition of inflammatory effects. This review aims to explore the central role of natural products in the fight against cancer, focusing on their mechanisms of action, therapeutic benefits, and the current research landscape, while also discussing the challenges and future.

Keywords:-Herbal Medicine, phytocompounds

PRA-PP-001

GLOBAL REGULATORY STRATEGIES FOR RARE DISEASE DRUG DEVELOPMENT

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The development of drugs for rare diseases presents unique challenges due to the small patient populations, limited clinical data, and high unmet medical need. To address these challenges, regulatory agencies around the world have implemented strategies to facilitate the development and approval of orphan drugs. In the United States, the Food and Drug Administration (FDEA) has introduced the Orphan Drug Act, which offers incentives such as tax credits, extended market exclusivity, and waived user fees. Similarly, the European Medicines Agency (EFMA) has its Orphan Medicinal Products Regulation, which provides benefits like protocol assistance and market exclusivity for up to ten years. Other global regions, such as Japan and Canada, have also adopted specific measures for rare diseases, including expedited approval pathways and financial incentives for companies. Japan's Pharmaceuticals and Medical Devices Agency (PMDA) offers a fast-track process for orphan drugs, while Health Canada's orphan drug program ensures accelerated review and access to therapies. Despite these efforts, challenges persist in rare disease drug development, including the need for robust clinical trial designs and the difficulty in recruiting sufficient patient numbers. Regulatory agencies have increasingly focused on flexible approaches such as adaptive trial designs, reliance on surrogate endpoints, and international collaboration to overcome these obstacles. This abstract highlight the importance of harmonized regulatory strategies to accelerate the development and availability of treatments for rare diseases, ultimately improving patient access to life-saving therapies across diverse global markets.

Keywords: Regulatory strategies, rare diseases, life saving therapies

PRA-PP-002

INSPECTION OF DRUG DISTRIBUTION CHANNELS

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The integrity of drug distribution channels is pivotal in ensuring the availability of safe, effective, and high-quality medicines to patients. As the pharmaceutical supply chain becomes increasingly complex and globalized, it faces challenges such as counterfeit drugs, improper storage conditions, and non-compliance with regulatory standards. Rigorous inspection and monitoring of drug distribution channels are essential to mitigate these risks and safeguard public health. This explores the role of inspections in maintaining compliance across various stages of the supply chain, including manufacturing, warehousing, transportation, and retail distribution. It highlights key regulatory requirements set by agencies like the FDA, EMA, and WHO, emphasizing Good Distribution Practices (GDP) to ensure product quality and traceability. Emerging technologies, such as block chain for secure record-keeping, Internet of Things (IOT) devices for real-time monitoring of storage conditions, and artificial intelligence (AI) for supply chain analytics, are transforming inspection practices. Case studies demonstrate how these innovations have strengthened oversight, enhanced supply chain transparency, and reduced the risk of drug diversion and counterfeiting. This also underscores the importance of regular audits, personnel training, and collaboration between stakeholders to ensure robust distribution practices. By implementing stringent inspection protocols and leveraging technological advancements, the pharmaceutical industry can address the evolving challenges in drug distribution. In conclusion, effective inspection of drug distribution channels is a cornerstone for maintaining the trust of regulators, healthcare providers, and patients while ensuring access to safe and effective medicines globally.

Keywords: Integrity, drug distribution, GDP, audits, EMA

PRA-PP-003

REGULATIONS FOR MEDICAL DEVICES IN INDIA

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The Medical Devices Rules, 2017, were introduced by the Government of India to regulate the manufacturing, import, and distribution of medical devices in the country. These rules aim to ensure the safety, effectiveness, and quality of medical devices and in vitro diagnostic devices (IVDs) used for medical purposes. The rules classify medical devices into four categories Class A, B, C, and D based on their risk levels, with Class A being low risk and Class D being high risk. The classification system ensures that regulatory oversight is proportional to the risk posed by the device the rules also outline the process for obtaining licenses for manufacturing, importing, and distributing medical devices, which includes ensuring compliance with quality standards and proper clinical testing. The Central Drugs Standard Control Organization (CDSCO) is the regulatory authority responsible for the implementation and enforcement of these rules, with state drug control authorities also playing a key role in overseeing local operations. Importantly, the rules specify requirements for product labeling, clinical trials, post-market surveillance, and vigilance to monitor the safety of medical devices after they are in use. The rules also require that manufacturers and importers maintain detailed records and documentation to ensure traceability and accountability. In summary, the Medical Devices Rules, 2017, represent a comprehensive regulatory framework for ensuring the safety and efficacy of medical devices in India, with the aim of improving public health outcomes and protecting patients from unsafe medical products.

Keywords: Risk- based classification, medical devices regulation, safety and efficacy, regulatory framework, conformity assessment.

PRA-PP-004

REGULATORY AFFAIRS IN THE ERA OF PERSONALIZED MEDICINE

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The rise of personalized medicine is reshaping healthcare, promising more effective and individualized treatments by considering genetic, environmental, and lifestyle factors. This shift presents unique challenges and opportunities for regulatory affairs, as traditional frameworks often struggle to accommodate the complexity and speed of advancements in genomic medicine, targeted therapies, and companion diagnostics. Regulatory agencies face the dual challenge of ensuring patient safety and therapeutic efficacy while fostering innovation and accelerating market access for new personalized treatments. Key challenges include the validation of biomarkers, the integration of real-world evidence, and the development of adaptive clinical trial designs that reflect the heterogeneous nature of patient populations. Additionally, regulatory bodies must navigate ethical concerns related to genetic privacy, informed consent, and equitable access to cutting-edge therapies. To address these complexities, regulators are increasingly adopting flexible, risk-based approaches that incorporate innovative technologies and novel clinical evidence. For example, frameworks such as the FDA's accelerated approval pathways and the European Medicines Agency's adaptive licensing process are evolving to better support personalized medicine. Furthermore, the collaboration between regulatory agencies, industry stakeholders, and academic institutions is crucial to harmonizing global standards and ensuring that personalized treatments meet rigorous safety and quality benchmarks. Ultimately, regulatory affairs in the era of personalized medicine must strike a delicate balance between enabling swift innovation and safeguarding public health, fostering an environment where precision therapies can thrive while ensuring equitable access and rigorous oversight. The future will likely involve continuous adaptation of regulatory frameworks to keep pace with the rapidly advancing science behind personalized treatments.

Keywords: Personalized medicine, genomic medicine, FDA, EMA, harmonizing global standards, informed consent.

PHP-PP-001

ADDRESSING SURGICAL SITE INFECTION & NOSOCOMIAL ANTIBIOTIC RESISTANCE: A CASE REPORT HIGHLIGHTING CLINICAL PHARMACISTS' ROLE IN ANTIMICROBIAL STEWARDSHIP

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Surgical site infections (SSIs) and Nosocomial antibiotic resistance pose significant healthcare challenges. This case report reflects the pivotal role of clinical pharmacists in combating antimicrobial stewardship (AMS). The case study highlights a multidisciplinary approaches wherein clinical pharmacists implemented evidence-based antimicrobial stewardship (AMS) interventions in a hospital setting. These strategies included optimizing antibiotic selection, tailoring dosages to patient-specific factors, and advocating for infection prevention protocols. Clinical pharmacist ensures appropriate drug selection, Dosing & Duration. They provide education to healthcare teams, fostering adherence to infection control guidelines & promote rational antibiotic use. Innovative tools such as real-time microbial resistance surveillance, patient-centered pharmaceutical care were utilized to enhance outcomes. This case highlights their indispensable role in bridging gaps in AMS, emphasizing their contribution to controlling SSIs and mitigating the burden of multidrug-resistant organisms (MDROS). This poster presentation will discuss key findings, practical applications, and future research.

Keywords: - key findings, practical applications, and future research.

PHP-PP-002

UNDERSTANDING AND ADDRESSING POLYPHARMACY IN GERIATRIC PATIENTS

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To assess the prevalence of polypharmacy in elderly, to identify common medication classes and combination to polypharmacy.

To provide patient understanding on their medication and improve medication adherence. Both male and female patients above the age of 65years attending a comprehensive tertiary care teaching hospital were included in study from November 2023 June 2024 .In this study polypharmacy was considered as having 5 or more medication per prescription.A total of 50 patients were included in study around 12(24%) of common medication classes and combination to polypharmacy were prescribed and the prevalence of polypharmacy was 80% and the comparison of medication adherence 22(44%) before counselling and 25(50%) after counselling. A statistical Mc Nemars test was applied to assess the difference in medication adherence score in patients before and after counselling the P value=0.033 which is statistically significant .Polypharmacy, common in older adults can lead to adverse drug reactions and non adherence strategies like simplifying regimes, medication reviews , technology use and patient education can improve adherence, reduce risk and enhance quality of life pharmacist intervention can significantly improve medication adherence in polypharmacy patients.

Key words: Polypharmacy, prevalence.

PHP-PP-003

THERAPEUTIC DRUG MONITORING OF ANTI-ARRHYTHMIC DRUGS:

ENHANCING SAFETY AND EFFICACY IN CLINICAL PRACTICE

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Therapeutic drug monitoring (TDM) is a clinical pharmacokinetics technique that involves determining plasma drug concentrations and adjusting dosages to maintain them within a targeted therapeutic window. It is useful for drugs with a narrow therapeutic index, which are the only ones that require TDM. TDM is crucial for 50-60 substances, considering factors like patient compliance, bioavailability, serum drug level, rate of elimination, drug access, and receptor sensitivity, especially when clinical response and medication concentration are well-correlated. Therapeutic drug monitoring (TDM) is essential for ensuring the safe and effective use of antiarrhythmic drugs, such as amiodarone, sotalol, lidocaine, and flecainide.

It helps optimize dosing, minimize adverse effects, and improve therapeutic outcomes by monitoring drug levels in the blood. TDM balances effectiveness and safety by maintaining plasma drug concentrations, adjusting dosages, and identifying toxicity warnings. TDM is not always necessary for all agents, but can be used more broadly to customize antiarrhythmic treatment, particularly for high-risk individuals. In conclusion, Future advancements in pharmacogenetics and analytical techniques are expected to enhance the accuracy and usefulness of TDM, thereby enhancing its personalization. For example, quinidine has toxicity starting at 3 µg/ml, while procainamide has early toxicity at 8 to 10 µg/ml. Disopyramide has an effective range of 2.5 to 6.0 µg/ml, while lignocaine has an effective range between 1.5 and 5.5 µg/ml. Mexiletine has a very low therapeutic index. However, challenges such as lack of therapeutic ranges and potential pro-arrhythmic effects need to be addressed to fully realize the benefits of TDM in anti-arrhythmic therapy.

Keywords: Therapeutic drug monitoring, anti-arrhythmic medications, cardiac arrhythmias, pharmacogenetics, drug toxicity monitoring, cardiac safety, adverse drug reactions, polypharmacy, dose adjustments, narrow therapeutic index.

PHP-PP-004

THE ROLE OF ARTIFICIAL INTELLIGENCE IN PERSONALIZED PATIENT THERAPY

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Artificial intelligence (AI) is rapidly transforming the landscape of healthcare, and personalized patient therapy is no exception. By leveraging the power of AI, healthcare providers can now access and analyze vast amounts of patient data, including genetic information, medical history, and lifestyle factors, to develop highly tailored treatment plans. This paradigm shift in medicine offers the potential for more effective and efficient treatments, improved patient outcomes, and reduced healthcare costs. AI-powered algorithms can identify patterns and correlations within complex datasets, enabling the prediction of individual treatment responses with unprecedented accuracy. Furthermore, AI can assist in early disease

detection, drug discovery, and the development of novel therapeutic approaches. As AI continues to advance, its integration into personalized patient therapy holds the promise of revolutionizing the way we approach healthcare, ultimately leading to a future where treatments are precisely tailored to the unique needs of each individual patient.

Keywords: Personalized patient Therapy, patient data & tailored treatment plans.

PHP-PP-005

TELEHEALTH AND VIRTUAL CARE: A NEW ERA OF HEALTHCARE DELIVERY

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Telehealth and virtual care have revolutionized the healthcare landscape, offering remote access to medical services. This innovative approach leverages technology to bridge geographical gaps, enhance patient accessibility, and improve healthcare outcomes. By utilizing digital platforms, healthcare providers can deliver a wide range of services, including consultations, diagnoses, and remote monitoring. This abstract explores the potential benefits of telehealth and virtual care, such as increased patient convenience, reduced healthcare costs, and improved patient engagement. It also delves into the challenges and limitations, including technical issues, reimbursement concerns, and potential disparities in access. As technology continues to advance, telehealth and virtual care are poised to play an increasingly significant role in the future of healthcare, transforming the way patients and providers interact.

Keywords: Telehealth, Patient accessibility& reduced healthcare costs.

PHP-PP-006

OSTEOPOROSIS IN POSTMENOPAUSAL WOMEN

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Postmenopausal osteoporosis is a heterogeneous disorder characterized by a progressive loss of bone tissue that begins after natural or surgical menopause and leads to fracture within 15 to 20 years from the cessation of the ovarian function. That estrogen deficiency plays a major role in postmenopausal bone loss is strongly supported by the higher prevalence of osteoporosis in women than in men, the increase in the rate of bone mineral loss detectable by bone densitometry after artificial or natural menopause. The existence of a relationship between circulating estrogen and rate of bone loss, and the protective effect of estrogen replacement with respect to both bone mass loss and fracture incidence. Both a decreased ovarian production of sex steroids and an increase in follicle stimulating hormone[FSH] production secondary to estrogen deficiency contribute to postmenopausal bone loss.

Keywords: Estrogen deficiency, Bone resorption, Osteoporosis, Postmenopaus

PHP-PP-007

ENTREPRENEURSHIP IN COMMUNITY PHARMACY

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To review literature pertaining to entrepreneurship in pharmacy practice, education, and the knowledge, skills, and attitudes (KSAs) identified for pharmacist entrepreneurs. In terms of pharmacy practice, entrepreneurship was most frequently identified with innovation and creativity to develop new opportunities for pharmacists. The most frequent role for entrepreneurship in pharmacy education related to schools putting a greater emphasis on innovation, creativity, or divergent thinking. In terms of KSAs, risk-taking and creativity/innovation were the most frequently identified with 17 (63.0%) different manuscripts mentioning as important for a pharmacist entrepreneur. Other KSAs include self-starter, management, proactivity, communication, strategic planning, positivity, decision-PAP Manuscript Summary. No consensus for entrepreneurship in pharmacy practice or education currently exists. In order to improve instructional design and assessment for pharmacy entrepreneurship education, a core set of KSAs for a pharmacist entrepreneur construct must be identified. The most

commonly cited KSAs in related literature that are not already part of the Accreditation Council for Pharmacy Education standards include risk-taking, strategic planning, marketing, competitiveness, and social responsibility and may serve as a starting point for enhancing pharmacy curricula to embrace pharmacist entrepreneurship.

Keywords: Entrepreneur, Knowledge, Skills & Attitudes.

PHP-PP-008

PROBIOTICS, PREBIOTICS, AND SYNBIOTICS FOR THE PREVENTION OF NECROTIZING ENTEROCOLITIS

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Necrotizing enterocolitis (NEC) is a devastating intestinal disease in preterm infants characterized by barrier disruption, intestinal microbial dysbiosis, and persistent inflammation of the colon, which results in high mortality rates. Current strategies used to manage this disease are not sufficient, although the use of human breast milk reduces the risk of NEC. Mother's milk is regarded as a fundamental nutritional source for neonates, but pasteurization of donor breast milk affects the composition of bioactive compounds. Current research is evaluating the benefits and potential pitfalls of adding probiotics and prebiotics to pasteurized milk so as to improve the functionality of the milk and thereby reduce the burden of illness caused by NEC. Probiotics (live micro-organisms that confer health to the host) and prebiotics (nondigestible oligosaccharides that stimulate the growth of healthy bacteria) are functional foods known to mediate immune responses and modulate microbial populations in the gut. Clinical research shows strain- and compound-specific responses when probiotics or prebiotics are administered in conjunction with donor breast milk for the prevention of NEC. Despite ongoing controversy surrounding optimal treatment strategies, randomized controlled studies are now investigating the use of synbiotics to reduce the incidence and severity of NEC. Synbiotics, a combination of probiotics and prebiotics, have been proposed to enhance beneficial health effects in the intestinal tract more than either agent administered alone. This review considers the implications of using

probiotic-, prebiotic-, and synbiotic-supplemented breast milk as a strategy to prevent NEC and issues that could be encountered with the preparations.

Keywords: Breast milk; functional foods; human milk oligosaccharides; inflammation; necrotizing enterocolitis; neonatology; prebiotics; premature; probiotics.

PHP-PP-009

PHARMACY STUDENTS' ENGAGEMENT WITH CLINICALS DECISION MAKING

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Clinical decision making have been investigated in many health sciences professions .clinical decision making is a critical process underpinning much of a pharmacists daily activities while it is known that pharmacists hesitate to make decisions, it remains unclear whether pharmacy students experience similar hesitancy. The objective of the study was to better understand the phenomenon of decision making in pharmacy .clinical decision making has been described as a process that includes data collection clinical judgment and clinical reasoning is an integral part of pharmacist's practice. clinical decision making is necessary for success on advanced pharmacy practice experiences (APPE's) and the practice of pharmacy. pharmacist work collaboratively with other health care professions, providing medication, therapy, management to optimize patient outcomes in variety of settings. the application of research for clinical decision making in health care is limited but growing.

Keywords: Clinical decision-making, Experiential learning, mentorship.

PHP-PP-010

HEALTHCARE MANAGEMENT
IMPACT OF DIGITAL APPS ON MEDICATION ADHERANCE AND SELF MANAGEMENT

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Digital applications have emerged as valuable tools in enhancing medication adherence and self-management, particularly for individuals with chronic conditions. These apps offer personalized reminders, track medication schedules, and provide real-time monitoring, which collectively help patients stay on track with prescribed treatments. By leveraging smartphone technology, these apps enable patients to record vital health data, receive educational content, and engage with healthcare providers remotely, fostering a more proactive approach to health management. The impact of these digital tools on medication adherence is significant. Studies have shown that reminders and alerts can reduce forgetfulness, one of the most common reasons for non-adherence. Additionally, apps that integrate with wearable devices offer continuous monitoring of health metrics, ensuring that patients follow treatment protocols accurately and receive timely interventions when necessary. This not only improves adherence but also promotes better disease management, reducing hospitalizations and complications associated with poor medication compliance. Furthermore, digital apps empower patients to take control of their health through self-management features, such as symptom tracking, goal setting, and educational resources. This active engagement in care leads to improved health outcomes and patient satisfaction. However, challenges such as technological barriers, privacy concerns, and the need for widespread healthcare integration remain. Nonetheless, the evidence indicates that digital apps hold considerable potential in improving medication adherence and supporting self-management, particularly in the context of long-term, chronic health conditions. Future research and development should focus on overcoming these barriers to maximize their effectiveness.

Keywords: Digital Health, Medication Adherence, Self-Management, Chronic Conditions, Mobile Apps, Real-time Monitoring, Healthcare Integration

PHP-PP-011

ANTI MICROBIAL STEWARDSHIP

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Antimicrobial Stewardship is one of the key strategies to prevent the emergence of antimicrobial resistance and decrease preventable

healthcare associated infections Antimicrobial resistance (AMR) is a global public health emergency. My research on antimicrobial stewardship found that more than 50% of hospitals in India do not have an AM program. The common barriers identified for implementation of AMS were lack of funding and human resource, lack of information technology, lack of awareness of administration and prescriber opposition. Moreover, Increased indiscrimination antibiotics in COVID 19 heighten to bacterial resistance . Antimicrobial stewardship is of the utmost importance as a way to optimize the use of antimicrobials to prevent the development of Resistance and improve patient outcomes. This review describes the why, what, who, how, when, and where of antimicrobial stewardship. The first goal is to work with health care practitioners to help each patient receive the most appropriate antimicrobial with the correct dose and duration. The second goal is to prevent antimicrobial overuse, misuse, and abuse. In addition, drug-resistant infections impact the health of animals and plants, reduce productivity in farms, and threaten food security. Although antimicrobial stewardship originated within human healthcare, it is increasingly applied in broader contexts including animal health and One Health. With these strategies in place, infections can be prevented from occurring in first place. Healthcare facilities should have a defined antimicrobial stewardship policy in place that is available to all stakeholders

Keywords: Antimicrobial Resistance, Multidrug Resistance antimicrobial Stewardship Program, Antimicrobial Agents, Rational Antibiotic Use

PHP-PP-012

DIETARY RESTRICTIONS IN PATIENTS WITH BRAIN DISORDERS

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The pathophysiology of many neurological disorders involves oxidative stress, neuroinflammation, and mitochondrial dysfunction. There is now substantial evidence that diet can decrease these forms of pathophysiology, and an emerging body of literature relatedly suggests that diet can also prevent or even remediate the cognitive deficits observed in neurological disorders that exhibit such pathology. My research findings summarize

importance of a controlled/restricted diet in patients with brain disorders like Alzheimer's disease, Parkinson's disease (Neurodegenerative disorders) and Schizophrenia (Mental illness). Several lines of evidence indicates that realistic modifications of diet and lifestyle can prevent or manage most disorders including that of brain. Some foods have negative effects on the brain, impacting memory and mood and increasing the risk of dementia. Luckily, one can help reduce the risk of disorder by cutting certain foods out of their diet. Dietary restriction (DR) also called dietary control or calorie Restriction is reported to have many advantages with regard to human health. It leads to suppression of obesity, mitigates free radicals, and increases available antioxidants which are accounted for extending the life span of individuals. According to the research, patients who shifted to a Ketogenic diet, caloric restrictions, and Mediterranean diet started showing improved health and a relaxed mental state.

Keywords: Alzheimer's disease, Parkinson's disease, Schizophrenia, Ketogenic diet, Mediterranean diet.

PHP-PP-013

EXTRAINTESTINAL MANIFESTATIONS OF INFLAMMATORY BOWEL DISEASE

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Extraintestinal manifestations of inflammatory bowel Disease are prevalent in both ulcerative colitis and Crohn's disease. The most common manifestations involve the musculoskeletal and Dermatologic systems. Other manifestations involve the hepatopancreatobiliary system (eg, primary sclerosing cholangitis) as well as The ocular, renal, and pulmonary systems. A multidisciplinary team Approach is often needed for effective management, and emergency Situations require prompt evaluation. EIMs are very common in both UC and CD patient Most EIMs Parallel disease activity and will respond to treatment of Underlying bowel disease; however, some diseases, such as PSC, warrant lifelong monitoring of extra intestinal systems. Clinicians must promptly evaluate complications That can cause emergencies, such as uveitis and cholangitis.

Keywords: Crohn's disease, hepatopancreatobiliary system, EIM.

PHP-PP-014

TECHNOLOGICAL ADVANCEMENTS IN GLUCOSE MONITORING AND ARTIFICIAL PANCREAS SYSTEMS FOR SHAPING DIABETES CARE

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The management of diabetes mellitus has undergone remarkable progress with the introduction of cutting-edge technologies in glucose monitoring and artificial pancreas systems. These innovations have revolutionized diabetes care, offering patients more precise, convenient, and personalized management solutions that significantly improve their quality of life. This review aims to provide a comprehensive overview of recent technological advancements in glucose monitoring devices and artificial pancreas systems, focusing on their transformative impact on diabetes care. Advancements in closed-loop artificial pancreas systems, which integrate CGM with automated insulin delivery, were also examined. These systems, often referred to as "hybrid closed-loop" or "automated insulin delivery" systems, represent a significant leap forward in diabetes care by automating the process of insulin dosing. Such advancements aim to mimic the natural function of the pancreas, allowing for better glucose regulation without the constant need for manual interventions by the patient. Technological breakthroughs in glucose monitoring and artificial pancreas systems have had a profound impact on diabetes management, providing patients with more accurate, reliable, and individualized treatment options. These innovations hold the potential to significantly improve glycemic control, reduce the incidence of diabetes-related complications, and ultimately enhance the quality of life for individuals living with diabetes. With ongoing advancements in sensor technology, connectivity, and data analytics, the future of diabetes care promises to deliver even more seamless, real-time management, empowering patients with greater autonomy and improved health outcomes.

Keywords: Diabetes mellitus, glucose monitoring, continuous glucose monitoring artificial pancreas, technological advancements.

PHP-PP-015

THERAPEUTIC TOOLS FOR MANAGEMENT OF STREES AND MENTAL HEALTH IN PERIOPERATIVE PATIENTS.

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Stress and anxiety are psychophysiological responses commonly experience by the patient during the perioperative process that can increase pre-surgical & post -surgical complications to a comprehensive and positive recovery. Preventive and intervening in stress and anxiety can help patient achieved positive health and well-being. Similarly, the provision of education about surgery can be a crucial component and its inversely correlated with preoperative anxiety levels. Digitals health interventions can be helpful in empowering patients and enhancing a more positive experience. Digital health interventions have been shown to help patients feel informed about the possible benefits and risk of available treatment options. However, the focus is on only providing patient empowerment and providing informative contents.

Keywords: Digital health, Perioperative process, patient empowerment, stress management

PHP-PP-016

A REVIEW OF THE CURRENT MANAGEMENT STRATIGIES FOR VARICOSE VEINS

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Varicose veins are a common condition that can cause enlarged, twisted and swollen veins that appear just under the skin's surface. Varicose veins affect up to 40% of adults and are more common in obese people and in multiparous women. Worsening varicose veins can present with pain and can contribute to decreased quality of life. Endogenous laser ablation is a minimally-invasive and well-tolerated procedure that can help to treat

Varicose veins and improve venous circulation. Endovenous Laser Therapy (Evlt) is a minimally invasive medical procedure used to treat varicose veins. It involves using laser heat to close off the affected vein. It has become a preferred treatment modality for varicose veins, offering a safe and effective solution that enhances quality of life for many patients. The treatment effectively alleviates symptoms such as leg pain; swelling and heaviness.Clinical studies show that EVLT boasts high success rates with a significant percentage of patients experiencing long-term relief from their symptoms. It is a safe and durable treatment option for the management of incompetent superficial and perforator veins of the lower extremities. As an endothermal technology, it remains a key component of the standard of care for the treatment of chronic venous insufficiency.

Keywords-Varicose veins, Endovenous Laser therapy

PHP-PP-017

NAFITHROMYCIN: A GAME-CHANGING ANTIBIOTIC INNOVATION AGAINST AMR

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Antimicrobial resistance (AMR) remains one of the most critical challenges to global health, necessitating the development of new antibiotics. Nafithromycin, a novel ketolide antibiotic developed by Wockhardt with the support of BIRAC, presents a promising solution. This drug targets drug-resistant respiratory infections, particularly Community-Acquired Bacterial Pneumonia (CABP), which often affects vulnerable populations. Nafithromycin is formulated to combat bacteria such as Streptococcus pneumoniae and Mycoplasma pneumoniae. Its unique mechanism of action involves binding to bacterial ribosomes, inhibiting protein synthesis, and offering a highly effective solution against macrolide-resistant strains. What sets Nafithromycin apart is its three-day oral treatment regimen that has demonstrated tenfold greater efficacy than traditional antibiotics like azithromycin. In clinical trials, Nafithromycin has exhibited superior safety and faster recovery times for patients, addressing the urgent need for new treatments in areas severely impacted by AMR. With its market launch under the brand name 'Miqnaf', it represents a significant advancement in

the fight against resistant infections. Nafithromycin's development marks a critical milestone, not just in pharmacological innovation, but also in providing a potential tool to reduce the growing threat of AMR globally.

Keywords: Antimicrobial resistance, Nafithromycin

PHP-PP-018

ARTIFICIAL INTELLIGENCE AND PUBLIC HEALTH: ADDRESSING PHARMACY PRACTICE CHALLENGES AND POLICY

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This research study focuses on the induction of artificial intelligence into pharmacy practice, including challenges associated with AI application and policy issues. The aim is to harness AI in a time-saving manner to enhance service at a pharmacy, coupled with an understanding of its potential pitfalls and governance arrangements. It included government reports, systematic literature reviews of peer-reviewed studies, and policy papers spanning the years 2021–2024. All data were derived from literature searches in PubMed, ScienceDirect, Springer, and Google Scholar. The results show that artificial intelligence can contribute significantly to pharmacy practice by making the drug-dispensing procedure ideal to guarantee better patient care and prevent human mistakes. Coupled with this promising potential were concerns related to data privacy, rigorous regulatory frameworks, and job losses. This will require the development of clear policies and guidelines in the regulatory framework so that AI can be ethically and effectively applied in pharmacy practice. While the present work adds to a growing literature on AI in healthcare, it also acts as a launchpad for future research toward addressing the challenges identified and exploring newer opportunities for innovation. The study identifies several policy barriers, including the lack of standardized regulatory frameworks, unclear liability in cases of AI-related errors. The study identifies several policy barriers, including the lack of standardized regulatory frameworks, unclear liability in cases of AI-related errors.

Keywords: Artificial Intelligence, Pharmacy Practice, Challenges, Policy Issues, Healthcare Innovation.

MIS-PP-001

THE ROLE OF BIOMARKERS IN CANCER THERAPY

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Biomarkers are biological molecules within the body that can provide information about health or disease. In cancer treatment, biomarkers play a pivotal role in several key areas:

* Diagnosis: Biomarkers can help detect the presence of cancer early on, even before symptoms appear. This can significantly improve treatment outcomes.
* Prognosis: Biomarkers can be used to assess the likely progression and severity of a cancer, helping to determine the most appropriate treatment plan.
* Predicting Response to Treatment: Certain biomarkers can predict how well a patient is likely to respond to a specific therapy. This information can help personalize treatment and avoid unnecessary side effects.
* Monitoring Treatment Effectiveness: Biomarkers can be used to track the effectiveness of treatment and detect any recurrence of the cancer.
* Developing New Therapies: Biomarkers can help identify new targets for cancer therapies and guide the development of new drugs.

Overall, biomarkers are powerful tools that are transforming cancer treatment by enabling more personalized and effective care.

Keywords: Cancer treatment, Biomarkers & Predicting Response to Treatment.

MIS-PP-002

DIGITAL PILLS: IMPACT OF RISING TECHNOLOGY

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Digital Pills (DP) are an innovative drug-device technology that permits to combine traditional medications with a monitoring system to record data about medication adherence as well as patients' physiological data without human intervention. The Digital Medicine System (DMS), a drug–device combination developed for patients with serious mental illness, together combines adherence measurement with pharmacologic action by placing an

ingestible sensor in a pill, allowing for information sharing among patients, Health Care Providers (HCPs), and caregivers via a mobile interface. Non-adherence to medication compromises the helpfulness of psychiatric treatments in patients with Serious Mental Illness (SMI).

The combination of wearable technology with a "Digital Ingestion Tracking Program" (DITP) embedded within a pain pill may allow patients, caregivers as well as healthcare providers to track ingestion of pills through the web or a Smartphone app. Digital adherence technology could be promising patient-centered strategies for monitoring adherence. In November 2017, the Food and Drug Administration (FDA) approved a version of a second-generation antipsychotic, aripiprazole; embedded with a sensor (Abilify MyCite). The paper highlights the impact of DMS and provides detailed review about it.

Keywords: Digital pills, Digital medicine, Mobile health & Monitoring devices

MIS-PP-003

CHALLENGES FACED BY INDIAN B PHARMA GRADUATES IN THE JOB MARKET: INSIGHTS AND SOLUTIONS

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Indian Bachelor of Pharmacy (B. Pharma) graduates face numerous challenges in the job market, despite the expanding pharmaceutical sector. These challenges include a saturated employment landscape, a gap between academic training and industry expectations, limited opportunities in research and development roles, and low starting salaries in private sectors. The growing competition for limited government jobs further intensifies the struggle. A significant issue is the misalignment between the skills imparted during academic programs and the demands of the industry, which often necessitates additional training to make graduates employable. Moreover, the lack of entrepreneurial support and awareness about emerging opportunities in the pharmaceutical and healthcare sectors restricts graduates from pursuing innovative career paths. This study identifies these key challenges and their underlying causes, analyzing their impact on employability and professional growth. It also offers solutions, including reforming academic curricula to meet industry standards, implementing

focused skill-development initiatives, fostering collaborations between academia and industry, and promoting entrepreneurship through government policies. Addressing these challenges is critical to enhancing the employability of B. Pharma graduates and enabling them to contribute meaningfully to the pharmaceutical sector and the broader healthcare ecosystem. The proposed interventions aim to create a more supportive environment for graduates, bridging the gap between education and employment.

Keywords: Pharmaceutical sector, academic training, skill-development initiatives, entrepreneurship, B. Pharma graduates.

MIS-PP-004

DISRUPTIVE INNOVATION: AN INTELLECTUAL HISTORY AND DIRECTIONS FOR FUTURE RESEARCH

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The concept of disruptive innovation has gained considerable currency among practitioners despite widespread misunderstanding of its core principles. Similarly, foundational research on disruption has elicited frequent citation and vibrant debate in academic circles, but subsequent empirical research has rarely engaged with its key theoretical arguments. This inconsistent reception warrants a thoughtful evaluation of research on disruptive innovation within management and strategy. We trace the theory's intellectual history, noting how its core principles have been clarified by anomaly-seeking research. We also trace the theory's evolution from a technology-change framework essentially descriptive and relatively limited in scope to a more broadly explanatory causal theory of innovation and competitive response. This assessment reveals that our understanding of the phenomenon of disruption has changed as the theory has developed. To reinvigorate academic interest in disruptive innovation, we propose several underexplored topics response strategies, performance trajectories, and innovation metrics to guide future research.

Keywords: Competitive Strategy, Disruptive Innovation, Innovation Metrics, Systemic Industries, Technology Trajectories

MIS-PP-005

PHARMACOGENOMICS: ADVANCING PERSONALISED MEDICINE IN THE GENOMIC ERA

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One of the newest methods of precision medicine is pharmacogenomics, which adjusts drug selection and dosage based on a patient's genetic characteristics. International scientific consortia have recently released a number of pharmacogenetic guidelines; however there has been little success in implementing them in clinical settings. To remove the current obstacles to the use of pharmacogenomic research, numerous coordinated multinational activities are in progress. However, the observed clinical diversity in the therapy outcome can only be partially explained by the currently available validated pharmacogenomic. There is a need for fresh approaches to research, such as the examination of the immune system's pharmacogenomic involvement and previously overlooked uncommon genetic variations, which are said to be responsible for a significant portion of the inter-individual variability in drug metabolism. We compiled a number of articles on pharmacogenomics in this special issue, spanning a wide range of topics. These include researching new pharmacogenomics markers to improve therapeutic efficacy and safety, developing tools or infrastructure to support this process, implementing pharmacogenomics in clinical practise, and the effects of rare genetic variants.

Keywords: Human genetics, Personalized medicine, Pharmacogenomics, Pharmacology.

MIS-PP-006

CRISPR TECHNOLOGY IN CYSTIC FIBROSIS

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CRISPR (Clustered Regularly Interspaced Short Palindromic Repeats) is a cutting-edge gene-editing tool that enables precise modifications to DNA. It uses the Cas9 enzyme, guided by RNA, to locate and cut specific DNA sequences. This technology offers immense potential for treating genetic

disorders, including cystic fibrosis (CF), a condition caused by mutations in the CFTR gene. Cystic fibrosis results in defective or absent CFTR proteins, leading to thick mucus that affects the lungs, pancreas, and other organs. Traditional treatments manage symptoms but do not address the underlying genetic defect. CRISPR, however, can directly target and repair the CFTR gene, offering a potential cure. Using CRISPR, scientists can correct the most common CF mutation, ΔF508, and other mutations that disrupt CFTR function. Advanced CRISPR techniques, such as base editing and prime editing, allow for precise DNA changes without cutting, minimizing risks of unintended effects. Delivery methods, like lipid nanoparticles or viral vectors, are being developed to target epithelial cells in the lungs effectively. Adeno-associated viruses (AAVs) are used to deliver CRISPR components. These vectors can efficiently infect airway epithelial cells, but their payload capacity is limited. Lipid nanoparticles (LNPs) can encapsulate CRISPR-Cas9 components and deliver them to target cells. This non-viral method reduces the risk of immune responses. While still in experimental stages, CRISPR is revolutionizing CF research and offers hope for a genetic cure, marking a significant leap toward personalized and transformative medicine.

Keywords: CRISPR, Cystic Fibrosis (CF), CFTR gene, Gene Editing, DNA modifications, Viral vectors.

MIS-PP-007

SWIMMING ROBOTS IN MEDICINE

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Swimming robots are micro or nano robots that can swim when injected in to the body via vascular and digestive systems by using blood sugar as fuel, due to their small size they are potentially cheap. The main aim of the field of micro robotics is to create micro robots which can travel to currently inaccessible parts of body, perform user directed tasks such as highly localized drug delivery, screening for diseases that are in their very early stages. Avoid invasive major surgeries. Patients own body as a way of generating power bloodstream, with mounted electrodes using the electrolytes found in blood. Creating the first practical nanorobot could treat everything from heart disease to cancer. To re-engineer our bodies to become resistant to disease, increase our strength or even improve our intelligence. Implant robots able to patrol a human's body, reacting to any

problems that pop up microscopic robots rushing around in our veins, making corrections and healing our cuts and illnesses. The present paper emphasizes in detail about the mechanism and future challenges of swimming robots in medicine.

Keywords: Micro robots, electrodes, electrolytes

MIS-PP-008

THE MICROBIOME SHIFT: REVOLUTIONIZING HEALTH FROM WITHIN

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The human microbiome, a complex ecosystem of trillions of microbes, is emerging as one of the most revolutionary frontiers in pharmaceutical research. Once considered insignificant, these microbes are now understood to play a crucial role in regulating immunity, metabolism, and even neurological function. Microbiome-based therapies including probiotics, prebiotics, and fecal microbiota transplantation (FMT)are pioneering a shift in medical treatment, offering new possibilities for diseases traditionally considered difficult to manage, such as inflammatory bowel disease (IBD), autoimmune disorders, obesity, and neurological conditions like depression and Parkinson's disease. Unlike conventional therapies that primarily target symptoms, microbiome-based approaches address the root cause—imbalance in the microbial communities that inhabit our bodies. FMT, for example, has demonstrated profound success in treating Clostridium difficile infections, a potentially life-threatening condition that is resistant to antibiotics. Additionally, emerging research into psychobiotics and microbiome manipulation is opening new avenues for mental health treatment, challenging long-standing assumptions about the brain-gut connection. This shift towards microbiome modulation signals a new era of precision medicine, where treatments are tailored to the unique microbial composition of each patient, enhancing therapeutic efficacy and minimizing side effects. By harnessing the natural power of microbes, microbiome-based therapies are poised to not only reshape disease treatment but also redefine our approach to health and wellness, offering safer, more sustainable, and potentially more effective alternatives to traditional pharmaceutical strategies.

Keywords: Genotobiotics, metabolites, , microbiome-based therapies

MIS-PP-009

NEW DIRECTIONS IN NICOTINE VACCINE DESIGN AND USE

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Clinical trials of nicotine vaccines suggest that they can enhance smoking cessation rates but do not reliably produce the consistently high serum antibody concentrations required. A wide array of next-generation strategies are being evaluated to enhance vaccine efficacy or provide antibody through other mechanisms. Protein conjugate vaccines may be improved by modifications of hapten or linker design or by optimizing hapten density. Conjugating hapten to virus like particles or disrupted virus may allow exploitation of naturally occurring viral features associated with high immunogenicity. Conjugates that utilize different linker positions on nicotine can function as independent immunogens, so that using them in combination generates higher antibody concentrations than can be produced by a single immunogen. Nanoparticle vaccines, consisting of hapten, T cell help peptides, and adjuvants attached to a liposome or synthetic scaffold, are in the early stages of development. Nanoparticle vaccines offer the possibility of obtaining precise and consistent control of vaccine component stoichiometry and spacing and immunogen size and shape. Passive transfer of nicotine-specific monoclonal antibodies offers a greater control of antibody dose, the ability to give very high doses, and an immediate onset of action but is expensive and has a shorter duration of action than vaccines. Next-generation immunotherapies are likely to be substantially more effective than first-generation vaccines.

Keywords: Addiction; Immunogen; Immunotherapy; Nicotine; Vaccine

MIS-PP-010

BIOSIMILARS: RHEUMATOID ARTHRITIS

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Biologics are a wide range of medicines that can be made from living organisms, such as bacteria, yeast, animal or plant cells, or blood. They can also be made from sugars, proteins, or nucleic acids. Biologics are different

from other medicines because they are generally proteins purified from living culture systems. These drugs are more expensive due to high Research, Development and Production cost. The FDA defines a biosimilar as a biologic medication that is highly similar to an already FDA-approved biologic, also known as a reference product. Rheumatoid arthritis, a chronic autoimmune disease that causes inflammation in the joints and surrounding tissues. In rheumatoid arthritis, biosimilars primarily bind to the same target as their reference biologics. For instance, many of the biosimilars developed for rheumatoid arthritis are designed to inhibit tumor necrosis factor-alpha (TNF-alpha), a key pro-inflammatory cytokine involved in the inflammatory processes associated with the disease. By binding to TNF-alpha, these biosimilars block its interaction with the TNF receptors on the surface of cells, thereby reducing inflammation and preventing joint damage. In summary, biosimilars in rheumatoid arthritis bind to specific targets like TNF-alpha to modulate the immune response and alleviate the symptoms of the disease. The introduction of biosimilars into the market has the potential to lower treatment costs, making effective RA therapies more accessible to a broader range of patients.

Keywords: Biologics, Biosimilars, Rheumatoid arthritis, Tumor necrosis factor-alpha (TNF-alpha), Cytokine, Targeted therapy, FDA

MIS-PP-011

MICROROBOTICS: MICROMARVELS OF FUTURE PHARMACY WORLD

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Microrobots are a revolutionary technical development that has potential to drastically improve human well-performed, which shortens recovery times, improves patient comfort, transform the way healthcare is delivered. Microrobots, which are tiny robotic devices that are usually between a few millimeters and micrometers in size, have enormous potential in a variety of industries, including healthcare. These consists of silicon, polymers, metals, piezoelectric materials, and shape memory alloys, for structural, actuation, and sensing applications. Impart drug delivery, where they can transport medication directly to specific tissues or cells, minimizing side effects and maximizing therapeutic outcomes. They could also be used for minimally

invasive procedures, such as clearing blockages in blood vessels or removing cancerous cells with high accuracy. Drugs like doxorubicin (Anticancer), ciprofloxacin (Arthritis), and Liraglutide (Antidiabetic)have had a significant impact on microrobotics. Likewise, they have been engaged to deliver cancer fighting drugs directly to metastatic lung tumors in mice, by navigating to tumor site and release therapeutic agents, enhancing drug distribution within deep lung tissue. Advancements in microrobotic technology will continue to optimize pharmaceutical processes, enhancing patient care and treatment success. This innovative technology promises to revolutionize healthcare by improving treatment efficacy and reducing invasive interventions.

Keywords: anti- cancer**,** drug delivery, doxorubicin, lung tumors

MIS-PP-012

A MULTIFACETED LINK BETWEEN INFLAMMATION AND HUMAN DISEASES – FOCUS ON ANTI-INFLAMMATORY DIET

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Inflammation is a normal part of the body's healing process after an injury or infection, but if it doesn't resolve, it can become chronic and lead to disease. Chronic inflammation is a key factor in many serious diseases, including cancer, cardiovascular diseases, diabetes, rheumatoid arthritis, renal and liver diseases. If the harmful agent continues, chronic inflammation may worsen, but the response is usually chronic from the beginning. In contrast to the majority of alterations in acute inflammation, chronic inflammation is distinguished by tissue destruction and repair attempts, as well as the infiltration of injured tissue by mononuclear cells such as macrophages, lymphocytes, and plasma cells. The main actors in the chronic inflammatory response are phagocytes. The activation of pathogenic phagocytes, which may arise from ongoing tissue damage and cause dangerous diseases, is the significant disadvantage. In certain cases, eating more plant-based foods and reducing alcohol, processed foods, and red meat may help control inflammation. Generally speaking, anti-inflammatory diets are eating habits rather than strict routines. Diets that reduce inflammation include the DASH diet and the Mediterranean diet. In

many situations, dietary modifications can help control inflammation, both short-term and long-term, albeit their effectiveness as a management strategy will rely on the individual's general health and the underlying causes of inflammation. Hence it is recommended to follow the diet patterns that reduces the inflammation and might have an effect to reduce the severity of chronic inflammatory diseases.

Keywords: Inflammation, chronic diseases, Anti-inflammatory effect, Diet

MIS-PP-013

DIGITAL TRANSFORMATION IN PHARMACEUTICAL INDUSTRY

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The pharmaceutical industry is undergoing a significant digital transformation to improve efficiency, productivity, and regulatory compliance. A critical aspect of this transformation is the enhancement of Quality Management Systems (QMS), which ensure pharmaceutical products safety, efficacy, and quality. It explores the incentives for digital transformation in the pharmaceutical industry, focusing on the need for a more robust QMS. It examines the challenges companies face in achieving a digitally enabled QMS, such as legacy systems, data integrity issues, and resistance to change. It also discusses the benefits of regulatory compliance, including improved product quality, reduced risk of non-compliance, enhanced operational efficiency, and increased patient trust. Future trends and opportunities in the digital transformation of QMS, such as the adoption of blockchain technology for supply chain transparency and data integrity, the integration of Internet of Things (IoT) devices for real-time quality monitoring and predictive maintenance. It underscores importance of a strategic, comprehensive, and collaborative approach to digital transformation, encompassing technology, people, processes, and partnerships, to realize the full benefits of enhanced quality, compliance, and operational excellence in the pharmaceutical industry.

Keywords: Digital transformation, Pharmaceutical Quality Management Systems, Data Integrity, Regulatory Compliance.

MIS-PP-014

ALBUMIN DYNAMICS IN HEPATOCELLULAR CARCINOMA

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Hepatocellular carcinoma (HCC) is the most prevalent primary liver malignancy, frequently associated with hypoalbuminemia due to impaired hepatic function. Albumin, a crucial liver-synthesized protein, is vital in maintaining oncotic pressure, transporting molecules, and modulating inflammation and oxidative stress. Altered albumin dynamics reflect the progression of HCC and actively contribute to its pathogenesis. This study explores the mechanistic role of hypoalbuminemia in HCC progression, focusing on its impact on chronic inflammation, immune dysregulation, and tumor microenvironment. Key biomarkers such as serum albumin levels, albumin-to-alkaline phosphatase ratio (AAPR), and albumin-bilirubin (ALBI) grade are analysed for their diagnostic and prognostic relevance. Furthermore, complications arising from hypoalbuminemia, including ascites, hepatorenal syndrome (HRS), and hyponatremia, are evaluated to understand their interplay with HCC progression. The findings underscore the dual role of hypoalbuminemia in exacerbating HCC-related complications and limiting therapeutic efficacy. Addressing albumin deficits offers a potential pathway to mitigate complications, improve quality of life, and enhance overall treatment outcomes in HCC patients.

Keywords: Hepatocellular carcinoma, Hypoalbuminemia, Ascites, Hepatorenal syndrome

MIS-PP-015

FROM PIXELS TO PATIENTS: THE POWER OF 3D PRINTING IN MEDICINE

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Donor shortages for organ transplantations are a major clinical challenge worldwide. Potential risks that are inevitably encountered with traditional methods include complications, secondary injuries, and limited source donors. Three-dimensional (3D) printing technology holds the potential to

solve these limitations; it can be used to rapidly manufacture personalized tissue engineering scaffolds, repair tissue defects *in situ* with cells, and even directly print tissue and organs. Such printed implants and organs not only perfectly match the patient's damaged tissue, but can also have engineered material microstructures and cell arrangements to promote cell growth and differentiation. Thus, such implants allow the desired tissue repair to be achieved, and could eventually solve the donor-shortage problem. This review summarizes relevant studies and recent progress on four levels, introduces different types of biomedical materials, and discusses existing problems and development issues with 3D printing that are related to materials and to the construction of extracellular matrix *in vitro* for medical applications.

Keywords: 3D echocardiography, Imaging modality, metallic implants.

MIS-PP-016

GUT MICROBIOME: AN EMERGING TOOL IN PERSONALIZED MEDICINE

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The gut microbiome, a complex ecosystem of trillions of microorganisms residing in the human gastrointestinal tract, has garnered significant role in personalized medicine. This study explores the emerging role of gut microbiome in treating various diseases ranging from gastro intestinal disorders to metabolic and mental health conditions. factors such as genetics, diet, environment and lifestyle contribute to unique microbial profile of each person. Therefore, microbiome varies between individual in terms of its composition and diversity. The microbiome can influence drug metabolism and response. Some drugs undergo biotransformation by gut bacteria affecting the pharmacokinetics and efficacy of drugs. The microbiome also plays a crucial role in shaping the immune system imbalance or dysbiosis in the microbiome have been linked to various immune related disorders. The bidirectional communication between the gut and brain, known as the gut brain axis, is influenced by the microbiome. The gut microbiome may impact neurological conditions, mental health, even responses to certain medications. Personalised approaches may consider the gut brain axis in neurological and psychiatric disorders.

Similarly, alterations in the microbiome have been associated with various diseases, including inflammatory bowel diseases, obesity, diabetes and cancer. An individual's unique microbiome is crucial when designing personalised dietary recommendations. The microbiome influences metabolism, nutrient absorption and overall health. Personalised can help develop microbiome- targeted therapies, such as faecal microbiota transplantation or probiotics, to restore a healthy microbial balance in individuals with dysbiosis- related conditions. Integrating gut microbiome and drug research could provide new insights into combating diseases and improving human health by developing novel co-therapies, discovering biomarkers and drug targets. Through this review we highlight the importance of incorporating microbiome as a component of personalised or precision medicine to improve diagnosis, reduce disease risk and optimise early detection and treatment.

Keywords: Dysbiosis, gut brain axis, probiotics, precision medicine, biomarkers

MIS-PP-017

WAFER DRUG DELIVERY: AN INNOVATIVE APPROACH

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Wafer drug delivery systems represent a novel and patient-centric approach to medication administration, particularly advantageous for populations with swallowing difficulties such as pediatric and geriatric patients. These thin, rapidly dissolving films enable precise dosing, improved bioavailability, and enhanced patient compliance. This paper explores the formulation strategies for wafer drug delivery, focusing on the selection of polymers, active pharmaceutical ingredients, and excipients to optimize taste-masking and disintegration properties. Additionally, key evaluation parameters, including mechanical strength, dissolution profile, and shelf-life stability, are reviewed. By addressing these aspects, wafer drug delivery emerges as a promising solution to current challenges in oral drug administration.

Keywords: Wafer drug delivery, thin films, rapid dissolution, patient compliance.

MIS-PP-018

NANOTECHNOLOGY IN DRUG DELIVERY: REVOLUTIONIZING TREATMENT OPTIONS

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Nanotechnology has revolutionized the field of drug delivery by offering innovative solutions to address the limitations of traditional methods. By manipulating matter at the nanoscale, scientists can design precise and efficient drug delivery systems. These systems utilize nanoparticles, which are tiny particles with unique properties, to encapsulate and deliver therapeutic agents to specific target sites within the body. Nanoparticle-based drug delivery systems offer several advantages, including enhanced drug bioavailability, targeted delivery, controlled release, and reduced side effects. These systems can improve the solubility of poorly soluble drugs, protect them from degradation, and prolong their circulation time in the bloodstream. Additionally, nanoparticles can be functionalized with targeting ligands to specifically bind to receptors on target cells, increasing the efficacy of drug delivery and minimizing off-target effects. Various types of nanoparticles, such as polymeric nanoparticles, liposomes, and inorganic nanoparticles, have been explored for drug delivery applications. These nanoparticles can be designed to release their payload in response to specific stimuli, such as changes in pH, temperature, or enzymatic activity, further enhancing the precision of drug delivery. Despite the significant potential of nanotechnology in drug delivery, challenges remain, including toxicity concerns, manufacturing complexities, and regulatory hurdles. However, ongoing research and development efforts are focused on addressing these challenges and translating nanotechnology-based drug delivery systems into clinical applications. By overcoming these obstacles, nanotechnology has the potential to revolutionize the treatment of various diseases, improving patient outcomes and quality of life.

Keywords: Nanotechnology, Drug Delivery, Nanoparticles, Targeted Delivery

MIS-PP-019

REVOLUTIONIZING DRUG DISCOVERY: ROLE OF AI AND FBDD

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AI and Fragment-Based Drug Discovery (FBDD) are revolutionizing drug development by enhancing efficiency, scalability, and precision. FBDD focuses on identifying small chemical fragments that bind to biological targets, which are then optimized into potent drug candidates. Biophysical techniques like NMR and X-ray crystallography support fragment binding identification, while AI accelerates and complements this process. AI facilitates virtual fragment screening, predicts fragment-target interactions, and prioritizes fragments with high binding potential. Using generative models like Variational Autoencoders (VAEs) and Generative Adversarial Networks (GANs), AI optimizes fragments into selective, drug- like compounds. It also advances binding site analysis, predicts binding kinetics and thermodynamics, and creates virtual fragment libraries tailored to specific targets, reducing the need for physical synthesis and experimental testing. Key AI techniques such as machine learning (ML), deep learning (DL), graph neural networks, and molecular dynamics drive these innovations. AI integrates with experimental techniques to refine fragment placement, enhance structural analysis, and expand chemical space exploration. Applications like AlphaFold aid in protein structure prediction, while companies like Exscientia and Schrödinger lead AI-FBDD integration. AI also supports toxicity prediction and drug repurposing, streamlining processes, reducing costs, and improving success rates. However, challenges such as data availability, modeling complex interactions, prediction interpretability, and computational scalability remain. Future directions include AI-driven fragment evolution, integration with quantum computing, and personalized drug design. The synergy of AI and FBDD is transforming drug discovery, offering cost-effective, efficient, and innovative solutions for therapeutic development.

Keywords: Artificial intelligence, fragment-based drug discovery, drug development

MIS-PP-020

ARTIFICIAL INTELLIGENCE IN PREDICTING ADVERSE DRUG REACTIONS: A NEW FRONTIER IN PHARMACOVIGILANCE

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Adverse drug reactions (ADRs) are a significant challenge in healthcare, leading to patient morbidity, mortality, and increased economic burden. Artificial Intelligence (AI) is revolutionizing ADR prediction by incorporating advanced computational techniques, such as machine learning and natural language processing, to analyze large and diverse datasets. AI's role extends from preclinical drug development to post-market pharmacovigilance, enabling early detection of potential ADRs, drug-drug interaction modeling, and patient-specific risk assessments. This review presents the multifaceted applications of AI in predicting ADRs, emphasizing personalized medicine, real-time monitoring, and enhanced reporting systems. Despite challenges like data bias and regulatory hurdles, AI offers a transformative pathway to safer drug development and use, ultimately improving patient outcomes and healthcare efficiency.

Keywords: Artificial Intelligence, Adverse Drug Reactions, Pharmacovigilance, Machine Learning, Predictive Modeling, Data Analysis.

MIS-PP-021

ARTIFICIAL INTELLIGENCE: MILESTONES AND ROLE IN PHARMA AND HEALTHCARE SECTOR

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Artificial Intelligence (AI) is the branch of engineering science which deals with the making of intelligent machines, especially intelligent computer programs. It is the ability of a computer, or a robotic computer enabled system to process the given information and produce outcomes in a manner similar to the attention process of humans in learning, decision making and solving problems. AI is a branch of computer science that aims to create

intelligent machines, which have become an essential part of the technology industry. Research associated with AI is highly technical and specialized. The design of intelligent machines is based upon neural networks and perceptron. Artificial neurons think like human beings in learning, solving problems and decision making. Machine learning technology is assisting research and development scientists to analyse the mass of scientific data to get essential new knowledge. e.g. To carry out research on Amyotrophic Lateral Sclerosis (ALS), they developed "Judgement Correlation System" (JACS), which is able to check billions and trillions of sentences and paragraphs of various abstracts and research and review articles. This review mainly focuses on the milestones of AI, advantages and disadvantages of AI system. The applications of AI system in drug discovery process and in all areas of health care system was explained in detail.

Keywords: Artificial Intelligence, milestones, neural networks, health care.

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G. PULLA REDDY COLLEGE OF PHARMACY, HYDERABAD

SALIENT FEATURES AND ACHIEVEMENTS

* First Private Pharmacy College in the state of combined Andhra Pradesh to start M. Pharm Course in 2003.
* Parliamentary committee visit in the year 2000.
* College is a recognized Research centre for Ph.D. by Osmania University, from the year 2006-2007 onwards. Several Scholars are pursuing their Ph.D program under senior Professors.
* First Prize in IPA National Elocution Competition in 2007.
* Active role in Organization of Association of Pharmaceutical Teacher's of India (APTI) – 15th Annual National Convention (APTICON-2010) in association with APTI state branch.
* G. Pulla Reddy Memorial Gold Medal was instituted in Osmania University for University topper in B.Pharm from the academic year 2011-12.
* "Best Principal of the year -2011 Award" at 16th APTICON-2011.
* FIP (International Pharmaceutical Federation) "Best Poster presentation award" in 2011.
* "Prof. M. L. Khorana medal (IPA)" for securing highest marks at B. Pharm level among all Indian Universities at 63rd IPC, Bengaluru, 2011.
* "Best Outstanding student of the year 2011" by 54th IPC Trust.
* "Best Research Guide and M. Pharm Thesis Award" by Rajanibhai. V. Patel Trust, Ahmedabad.
* "Second prize in the National level Sipra Innovative Pharma Research Award-2014".
* Second prize in National level Quiz Competition conducted by AIDCOC during 66th IPC Hyderabad in 2015.
* First prize in National Pharma Quiz Competition conducted by SKBCOP, Nagpur in Feb 2016.
* Third Position in 68th IPC National level Quiz Competition in 2016 at Vishakhapatnam, A.P.
* Best Oral Presentation in 68th IPC held from 16th - 18th Dec 2016 at Vishakhapatnam, A.P.
* First prize in 69th IPC National level Quiz Competition in 2017 and Second prize in National Elocution Competition 2017 at Chitkara University, Chandigarh.
* "Best Pharmacy Teacher of the year-2017" by Pharmacy teachers trust.
* The College conducts National Symposia and Workshops for students & faculty regularly.
* G. Pulla Reddy college of Pharmacy – USP Collaborative Training Course- 2018 to 2020.
* Active role in organization of PERCEPT-2020 held at UCT Osmania University.
* NAAC Accreditation from March 2021.
* PCI-CBIT Grant for faculty 2021.
* Student selected at state level National Youth Parliament Festival (NYPF)- 2022 and participated in mock parliament session at New Delhi.
* Indian Academy of Sciences, Summer Research Fellowships-2022 at Defence Research Laboratory, DRDO, Tezpur, Assam, India.
* "Best Pharmacy Teacher Award- 2022" by Telangana State Pharmacy Council, Hyderabad.
* "Best Phar macy Teacher of the year-2022" by Pharmacy Teachers Trust.
* Student selected for parliament visit by Nehru Yuva Kendra Sanghatan- 2022, New Delhi.
* Research Innovation presentation in PCI- Pharmaanveshan-2023 at Vigyan Bhavan, NewDelhi.
* Third Prize in IPA-C Gopala krishna murty National Pharma quiz competitions-2024 held on 12th April 2024.
* Distinguished Alumni Dr. Aravind Penmatsa, Professor IISc, Bangalore (B.Pharm GPRCP, 1999-2003), received Vigyan Yuva-Shanti Swarup Bhatnagar Award in August 2024.