SCRMP OFFICIAL MAGAZINE

Health Kingdom

12 JAN, 2025

With the Theme
The Future of Pharmacy: Bridging Technology and Patient Care

SOCIETY OF CLINICAL RESEARCH & MEDICAL PROFESSIONALS

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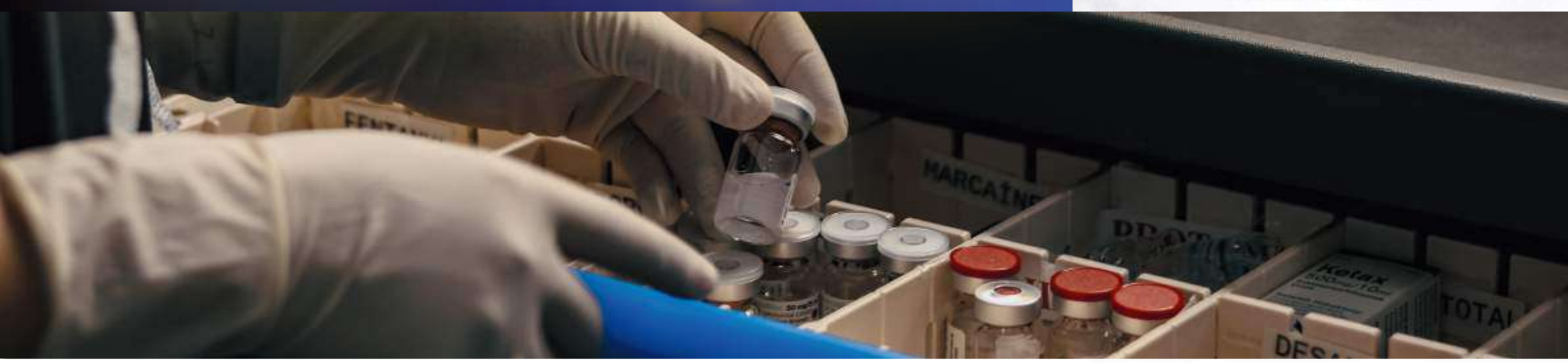
Society of Clinical Research and Medical Professionals



Theme: The Future of Pharmacy - Bridging Technology and Patient Care

>>> OCTOBER - DECEMBER 2024 (Vol 1 - Issue 1) <<<

>>> AIM

To promote clinical research as a recognized specialty among medical and healthcare professionals, fostering innovation and advancements in the field. To facilitate international collaboration and relations among universities, societies, and professionals, ensuring global opportunities for research, education, and student exchange.

OBJECTIVE <<<

Promote clinical research as a specialty, fostering innovation and advancements. Facilitate international collaborations among universities and professionals, enabling global opportunities in research, education, and student exchange while encouraging partnerships to drive growth and excellence in clinical research and healthcare.

PHARMACISTS OATH

- I swear by the code of ethics of the Pharmacy Council of India about the community and shall act as an integral part of the health care team.
- I shall uphold the laws and standards governing my profession.
- I shall strive to perfect and enlarge my knowledge to contribute to the advancement of pharmacy and public health.
- I shall follow the system that I consider best for pharmaceutical care and counselling of patients.
- I shall endeavour to discover and manufacture quality drugs to alleviate humanity's suffering.
- I shall confidently hold the knowledge gained about the patients in connection with my professional practice and never divulge unless compelled to do so by the law.
- I shall associate with organizations having their objectives for the betterment of the profession of pharmacy and make contributions to carry out the work of those organizations.
- While I continue to keep this oath unviolated, may it be granted to me to enjoy life and the practice of pharmacy respected by all, at all times!
- Should I trespass and violate this oath, may the reverse be my lot!

MESSAGE FROM THE EDITOR-IN-CHIEF

With great excitement, we introduce Health Kingdom, the official magazine of SCRMP. This publication is a vibrant platform that showcases the creativity, knowledge, and innovation of our student community in the field of pharmacy.

Health Kingdom features a diverse array of content, including insightful articles, engaging puzzles, crosswords, and updates on groundbreaking advancements in pharmacy and healthcare. It reflects our commitment to fostering curiosity, celebrating achievements, and encouraging the exchange of ideas among students, educators, and professionals.

We hope this magazine serves as both an inspiration and a resource for everyone passionate about the evolving landscape of pharmacy. Your contributions and feedback are always welcome as we continue to grow and enrich this platform together.

Warm regards,

Dr. Umama Yezdani

Founder of SCRMP

Editor-in-Chief

Health Kingdom

MESSAGE FROM THE CO-EDITOR

It is with great enthusiasm that we present Health Kingdom, the official magazine of SCRMP. This dynamic publication is a platform designed to highlight the creativity, expertise, and innovation of our student community within the field of pharmacy. Health Kingdom features a variety of content, including thought-provoking articles, interactive puzzles and crosswords, and updates on groundbreaking advancements in pharmacy and healthcare.

Our magazine embodies a commitment to nurturing curiosity, recognizing achievements, and fostering the exchange of ideas among students, educators, and professionals. We aspire for Health Kingdom to serve as both an inspiration and a valuable resource for all those passionate about the ever-evolving field of pharmacy.

We encourage your contributions and feedback as we continue to grow and enhance this platform together.

Shaik Mohammad Noor

National Secretary, Co- Editor

SCRMP Pharmacy Wing

SCRMP
Society of Clinical Research and Medical Professionals

ABOUT SCRMP

The Society of Clinical Research and Medical Professionals is a registered society in Telangana, India, and a dedicated non-governmental organization committed to advancing the field of pharmacy, clinical research, and supporting medical professionals. Established to foster innovation, education, and collaboration, our society serves as a hub for researchers, healthcare providers, and medical practitioners. We strive to enhance the quality of clinical research, promote ethical practices, and ensure that medical professionals are equipped with the latest knowledge and tools to improve patient care. Through workshops, seminars, and various initiatives, we aim to create a thriving community that contributes significantly to the advancement of medical science and the betterment of the global health and life science industry.

SCRMP OFFICIAL MAGAZINE

Health Kingdom

SCRMP
Society of Clinical Research and Medical Professionals

TABLE OF CONTENTS

SCRMP OFFICIAL MAGAZINE

Health Kingdom

SCRMP
Society of Clinical Research and Medical Professionals

TABLE OF CONTENTS

SCRMP OFFICIAL MAGAZINE

Health Kingdom

SCRMP
Society of Clinical Research and Medical Professionals

TABLE OF CONTENTS

INTRODUCTION OF
SCRMP CEC

Dr. Sumanta Mondal
National President

Dr. Tarunjot Singh
National Vice President

Mohammad Gayoor khan
General Secretary

Dr. Rajeev K. Singla
Director of Outreach

Dr. M.G. Rajanandh
CEC Member

Dr. Devarakonda Kishna Prasad
CEC Member

MESSAGE FROM NATIONAL CHAIRPERSON

MORZIUL HAQUE

Dear Readers,

It is a pleasure to share this magazine with you. As National Chairperson of the SCRMP Pharmacy Wing: Student Forum, I am proud of all we've achieved together this year.

This magazine highlights the dedication and teamwork behind our initiatives. In 2024, we hosted impactful events like the SCRMP Symposium, quizzes, webinars, and a Virtual National Conference, fostering learning and collaboration.

We also focused on livelihood programs, women's empowerment, and building a student network across universities.

As we look to 2025, we aim to organize more events, enhance learning platforms, and expand our reach.

Thank you for your unwavering support!

Warm regards,
Morziul Haque
National Chairperson
SCRMP Pharmacy Wing: CEC SF

MESSAGE FROM NATIONAL PRESIDENT

VIVEKRAJ MAHESHWARI

Dear Readers,

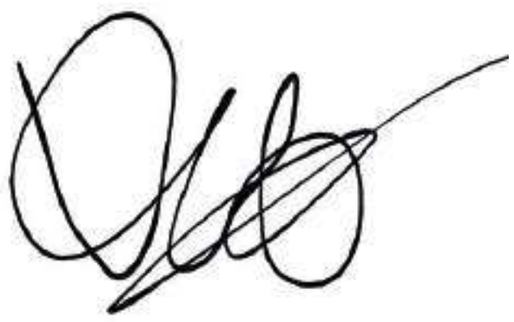
I am thrilled to present the first edition of Volume 1 of Health Kingdom, a reflection of the dedication and vision of the Society of Clinical Research and Medical Professions, Pharmacy Wing.

This edition invites you into a realm of innovation and excellence, where health and medicine intersect to shape a brighter future.

Featuring insightful articles and reviews, it highlights the collective aspiration of the global pharmacy community to push boundaries and inspire progress.

More than a magazine, Health Kingdom is a movement to empower, educate, and ignite curiosity. Together, let's drive innovation and build a healthier, informed world.

Warm regards,
Vivekraj Maheshwari
National President
SCRMP Pharmacy Wing: CEC SF



MESSAGE FROM NATIONAL VICE PRESIDENT

SATYAM YADAV

Dear Readers,

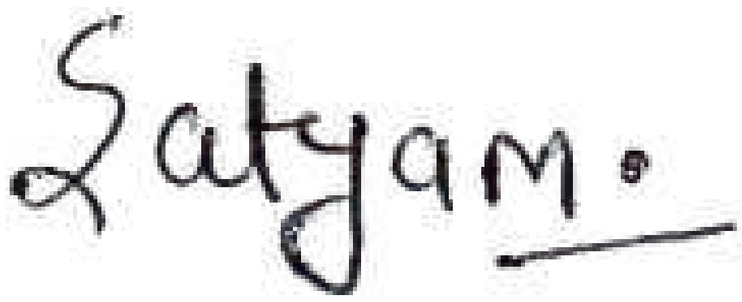
It is my privilege to congratulate you on the release of the inaugural edition of SCRMP HealthKingdom Vol-1.

As the National Vice President of the Pharmacy Wing Student Forum (SF) at SCRMP, I am proud to witness this milestone that reflects our community's dedication, innovation, and teamwork.

This magazine is more than a collection of articles; it represents our vision of fostering knowledge, inspiring change, and preparing for future challenges.

I thank the editorial team and contributors for their efforts. May this magazine inspire us to learn, dream, and shape a healthier future.

Warm regards,
Satyam Yadav
National Vice President
SCRMP Pharmacy Wing: CEC SF



MESSAGE FROM NATIONAL SECRETARY

SHAIK MOHAMMAD NOOR

Dear Readers,

It is a privilege to present this magazine as the National Secretary of the SCRMP Pharmacy Wing: Student Forum.

This platform showcases our collective dedication, innovation, and teamwork. In 2024, we achieved significant milestones, including the SCRMP Symposium, quizzes, webinars, and a Virtual National Conference.

Our initiatives, such as livelihood programs and women empowerment, strengthened our student network and inspired growth in pharmacy and healthcare.

As we look to 2025, our vision includes dynamic events, enhanced learning platforms, and broader outreach.

Thank you to every member of SCRMP for your passion and support. Together, we create lasting impact.

Warm regards,
Shaik Mohammad Noor
National Secretary
SCRMP Pharmacy Wing

MESSAGE FROM NATIONAL JOINT SECRETARY

SUMAIYA BASHIR SHAIKH

Dear Readers,

IIt is an immense honor to serve as the National Joint Secretary, and I am truly grateful for the opportunity to contribute to the growth and success of our organization. Being part of such a dynamic team has been incredibly fulfilling, and I have gained valuable insights into leadership, teamwork, and collaboration.

Throughout our journey, I have had the privilege of organizing impactful campaigns, events, and fostering meaningful partnerships. These experiences have not only enhanced my skills but also strengthened our collective vision and mission. I am proud of the progress we've made together.

Looking ahead, I am excited to continue working alongside such a dedicated team, and I remain committed to supporting our goals. Together, we will achieve even greater milestones and create lasting positive change. Here's to more successes and continued collaboration!

Warm regards,
Sumaiya Bashir Shaikh
National Joint Secretary
SCRMP Pharmacy Wing: CEC SF

MESSAGE FROM NATIONAL JOINT SECRETARY

JANHAVI MAHESH KATKAR

Dear Readers,

I am truly honored to serve as the National Joint Secretary and am grateful for the opportunity to contribute to the success and growth of our organization. It has been a fulfilling experience working alongside such a dedicated team, and I've gained invaluable insights into leadership and collaboration.

Alongside my core responsibilities, I have also had the opportunity to contribute to managing our social media handles, helping to expand our outreach and engage the wider community.

I am excited to continue supporting our shared vision, and I look forward to the future milestones we will achieve together. Here's to continued success and growth!

Warm regards,
Janhavi Mahesh Katkar
National Joint Secretary
SCRMP Pharmacy Wing: CEC SF

MESSAGE FROM DIRECTOR OF STRATEGY AND PLANNING

A. V. VASANTHI

Dear Readers,

I am delighted to share exciting updates as the Director of Strategy and Planning for the SCRMP Magazine.
Our upcoming issue and activities will highlight advancements in clinical research, knowledge-driven courses, and engaging competitions.
We aim to deliver evidence-based insights that empower clinical and medical professionals to thrive.
Additionally, we are expanding our magazine to include success stories, challenges, and innovative solutions from professionals like you.
Your contributions and feedback are invaluable, and we encourage you to share ideas with our editorial team.
Thank you for your support in advancing our community's growth and excellence.

Warm regards,
A.V. Vasanthi
Director of Strategy and Planning
SCRMP Pharmacy Wing

MESSAGE FROM DIRECTOR OF STRATEGY AND PLANNING

VARAD RAUT

Dear Readers,

I am deeply honoured to serve as the Head of Strategy and Planning for the Society of Clinical Research and Medical Professionals.
Joining this dynamic team of visionaries has been a truly enriching experience. Together, we are shaping the future of clinical research, fostering innovation, and driving excellence in healthcare practices.
I am inspired by the dedication, expertise, and passion of my colleagues who strive to make a difference every day. This role offers me the privilege of contributing to impactful initiatives that advance patient care and empower professionals across the medical field.
Here's to a brighter, healthier future!
Let's Join the new door of opportunities through SCRMP.

Warm Regards,
Varad Raut
Director of Strategy and Planning
SCRMP Pharmacy Wing: CEC SF

MESSAGE FROM DIRECTOR OF STRATEGY AND PLANNING

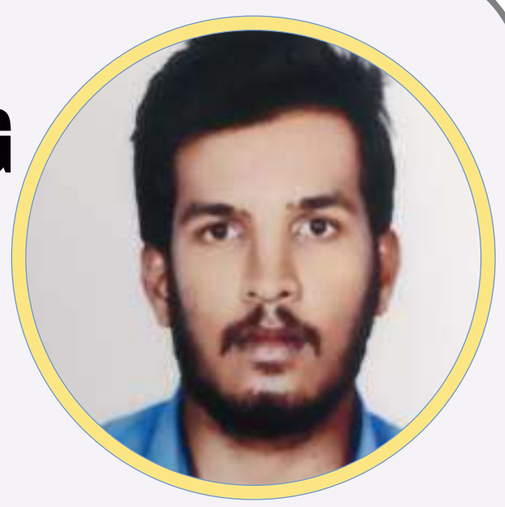
ANIKET MUKHERJEE

Dear Readers,

As the Director of Strategy and Planning for the Pharmacy Wing Student Forum of SCRMP, it is an honor to connect with such a vibrant community dedicated to advancing pharmacy education, research, and clinical practice.
My goal is to foster collaboration, innovation, and growth, creating opportunities that inspire leadership and equip future pharmacists to address evolving healthcare challenges.
Your active participation drives our shared success. Engage with our initiatives to enhance learning, build camaraderie, and achieve excellence together.
Thank you for your passion and dedication. Let's work collaboratively toward our vision of transforming pharmacy practice and healthcare.

Warm Regards,
Aniket Mukherjee
Director of Strategy and Planning
SCRMP Pharmacy Wing: CEC SF

MESSAGE FROM DIRECTOR OF STRATEGY AND PLANNING



DEEPAK KUMAR PUNNA

Dear Readers,

As Director of Strategy and Planning of the SCRMP Pharmacy Wing Student Forum, I set the timeline and task deadlines and organize the necessary resources to ensure the smooth execution of projects.
My aim is to enhance scientific publications, support event organizations, and foster engaging content creation to advance SCRMP's mission.
I focus on building networks for impactful collaborations and strengthening our digital presence for broader outreach.
This magazine is a celebration of all that we have worked for and achieved so far. I hope it encourages all of you to keep working hard and keep making a difference.

Warm Regards,
Deepak Kumar Punna
Director of Strategy and Planning
SCRMP Pharmacy Wing: CEC SF

MESSAGE FROM DIRECTOR OF OUTREACH

SNEHA CHOUDHURY

Dear Readers,

As Director of Outreach, I, Sneha Choudhury, firmly believe in the power of connecting individuals who strive to be the best versions of themselves and embrace knowledge. Our magazine acts as a bridge, uniting diverse voices and perspectives from the medical and pharmaceutical community. Through thought-provoking stories, we aim to foster empathy, understanding, and a deeper connection to knowledge.
We are dedicated to reaching beyond our readership, engaging with the wider community, and creating an inclusive space where everyone's voice is valued. By working together, we can cultivate a community that celebrates diversity and shared learning.
Let's build bridges, one story at a time, and deliver knowledge that resonates with all.

Warm Regards,
Sneha Choudhury
Director of Outreach
SCRMP Pharmacy Wing: CEC SF

MESSAGE FROM DIRECTOR OF OUTREACH

AKHILESH MADHAV BHEDE

Dear Readers,

As the Director of Outreach, I am committed to fostering meaningful connections and expanding our network to include esteemed speakers, judges, and thought leaders who are making valuable contributions to society. My role involves reaching out to individuals who bring insightful perspectives, knowledge, and expertise, helping us elevate our initiatives and events.
By building these relationships, we create opportunities for collaboration, learning, and growth within our community. Together, we can bring forward impactful discussions that inspire change and drive progress.
I am proud to be part of a team that is dedicated to making a difference, and I look forward to the continued success of our collective efforts.

Warm Regards,
Akhilesh Madhav Bhede
Director of Outreach
SCRMP Pharmacy Wing: CEC SF

MESSAGE FROM NATIONAL PUBLIC HEALTH OFFICER

PRISHA ATUL NAIDU

Dear Readers,

I am delighted to introduce you all as a Public Health Officer at SCRMP and express my gratitude for the opportunity to contribute to various tasks, webinars, quizzes, and other initiatives that have enriched our collective mission. These experiences have not only broadened my skills but also allowed me to collaborate with an amazing team that shares passion for making a difference in public health.

Each webinar and task we've undertaken has provided invaluable insights, helping us reach new milestones in enhancing community well-being. I am particularly proud of the dynamic quizzes and engagement activities I have organized, which fostered knowledge sharing and collaboration within the team.
It is a privilege to be part of such a dedicated group, and I am thrilled to have the opportunity to contribute further. I look forward to continuing our work together and supporting our vision in every way I can. Here's to more successes ahead!

Warm regards,
Prisha Atul Naidu
National Public Health Officer Head
SCRMP Pharmacy Wing: CEC SF

MESSAGE FROM NATIONAL PUBLIC HEALTH OFFICER

QUSAI.M.GANGARDIWALA

Dear Readers,

Public health is about more than just treating illness; it's about creating conditions where everyone can thrive. We work to prevent disease outbreaks, promote healthy and quality behaviours
Public health is about hope, persistence, and the unwavering belief that together, we can overcome any challenge.
Our goal is a healthier future for all. We believe in the power of community and collaboration to achieve this vision. Together, we can build a healthier world for ourselves and future generations.
This magazine is a celebration of all that we have worked for and achieved so far. I hope it encourages all of you to keep working hard and keep making a difference.

Warm regards,
Qusai.M.Gangardiwala
National Public Health Officer
SCRMP Pharmacy Wing: CEC SF

MESSAGE FROM NATIONAL LIAISON OFFICER

HIMAVARSHINI ADEPU

Dear Readers,

As the Liaison Officer, I am deeply committed to fostering strong connections between our organization and other state chapters. My role focuses on facilitating communication, engaging with different chapters, and promoting events that unite us all in our shared mission. By working together, we can ensure that our initiatives reach a broader audience and make a greater impact.

Through collaboration and active engagement, I aim to build lasting partnerships that support our goals and enhance the success of each event. I look forward to strengthening these connections and continuing our work to inspire positive change across all states. Let's work together to create opportunities that drive progress and unity!

Warm regards,
Himavarshini Adepu
National Public Health Officer Head
SCRMP Pharmacy Wing: CEC SF

MESSAGE FROM DIRECTOR OF MEDIA AND COMMUNICATIONS/EDITOR

B. MEDHA GAYATRI

Dear Readers,

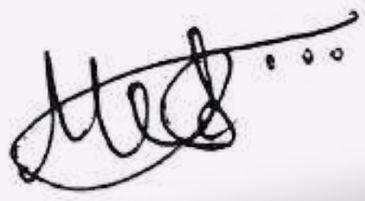
We are thrilled to present this special edition of Healthkingdom Magazine, themed The Future of Pharmacy: Bridging Technology and Patient Care.

The pharmacy profession is evolving rapidly, driven by advancements like artificial intelligence, robotics, 3D printing, and telepharmacy.

These innovations are transforming the industry, making patient care more efficient, accessible, and personalized.
This edition explores these exciting developments and their impact on healthcare.

As Director of Media and Communications and Editor, I extend heartfelt gratitude to our contributors for their invaluable insights. Thank you for being part of the SCRMP community.

Warm regards,
B. Medha Gayatri
Director of Media and Communications/Editor
SCRMP (Pharmacy Wing): CEC-SF



MESSAGE FROM NATIONAL COORDINATOR

PRACHET SHRIHANS BURSE

Dear Readers,

As a National Coordinator, I am committed to strengthening the collaboration between our national society and state chapters, ensuring seamless coordination for all events and initiatives. My role involves building strong connections, promoting events, and providing support to ensure their success across regions. By working together, we create opportunities for growth, knowledge-sharing, and collective achievement.

I am always available to assist in coordinating efforts and providing any necessary information to ensure our events are impactful and well-executed. Let's continue working hand in hand to drive our mission forward and make a lasting difference across the nation. community.

Warm regards,
Prachet Shrihans Burse
National Coordinator
SCRMP (Pharmacy Wing): CEC-SF

MESSAGE FROM NATIONAL COORDINATOR

MOHAMMED RAAHIL

Dear Readers,

As a National Coordinator, my focus is on fostering collaboration and enhancing communication between the national society and state chapters. I work to ensure that each chapter is well-informed and actively engaged in our initiatives. By promoting events and providing the necessary coordination, I aim to create a unified effort that brings together diverse regions for greater impact.

I am dedicated to supporting the smooth execution of events and ensuring that every chapter has the resources they need to succeed. If you need any assistance or further information, please don't hesitate to reach out. Together, we can achieve our collective goals and inspire meaningful change across the nation.

Warm regards,
Mohammed Raahil
National Coordinator
SCRMP Pharmacy Wing: CEC SF

SCRMP TEAM ♥ UP!

MORZIUL HAQUE
NATIONAL CHAIRPERSON

VIVEKRAJ MAHESHWARI
NATIONAL PRESIDENT

SATYAM YADAV
NATIONAL VICE PRESIDENT

SHAIK MOHAMMAD NOOR
NATIONAL GENERAL SECRETARY

SUMAIYA BASHIR SHAIKH
NATIONAL JOINT SECRETARY

JANHAVI MAHESH KATKAR
NATIONAL JOINT SECRETARY

A V VASANTHI
DIRECTOR OF STRATEGY AND PLANNING

VARAD ANAND RAUT
DIRECTOR OF STRATEGY AND PLANNING

ANKIT MUKHERJEE
DIRECTOR OF STRATEGY AND PLANNING

DEEPAK KUMAR PUNNA
DIRECTOR OF STRATEGY AND PLANNING

SNEHA CHOUDHURY
DIRECTOR OF OUTREACH

AKHILESH MADHAV BHEDE
DIRECTOR OF OUTREACH

PRISHA ATUL NAIDU
PUBLIC HEALTH OFFICER

QUSAI.M. GANGARDIWALA
PUBLIC HEALTH OFFICER

HIMAVARSHINI ADEPU
LIAISON OFFICER

MEDHA GAYATRI BHATIPROLLU
EDITOR/DIRECTOR OF MEDIA AND COMMUNICATIONS

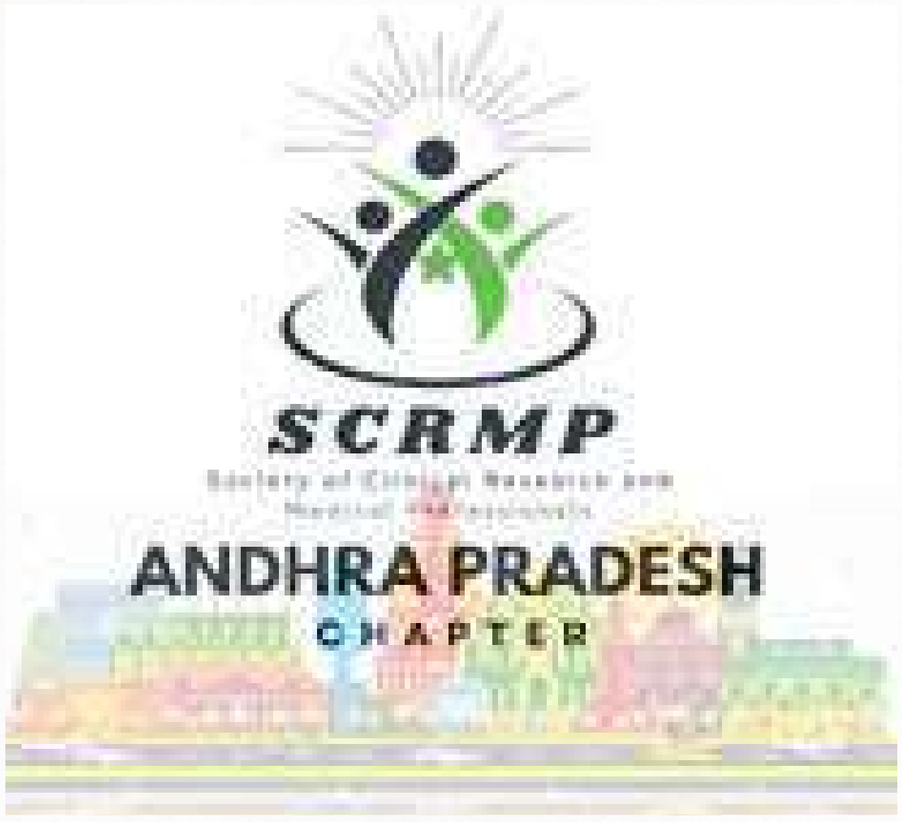
PRACHET SHRIHANS BURSE
NATIONAL COORDINATOR

MOHAMMED RAAHIL
NATIONAL COORDINATOR

EXTENDED FAMILY OF SCRMP

SCRMP is working with a motive of promoting clinical research as a specialty among medical and healthcare professionals, to establish forum for exchange knowledge of clinical research and its sub disciplines such as Pharmacovigilance, regulatory affairs, clinical data management, medical writing, real world evidence (health economics), market research, to Promote Research In collaboration with different labs, Journals, Medical & Pharmacy University, to Promote International Student Exchange Program, Generate Scholarships for needy through sponsors, build international relations between universities and society for overseas admissions, to facilitate the growth of clinical research in by monitoring clinical research activity, providing review and peer consultation facilities for research projects, and making representation to government and other agencies on behalf of the clinical research community. Keeping this motive in mind we are continuously expanding our branches in different states like Maharashtra, Gujarat, Delhi, Bihar, Madhya Pradesh, Tamil Nadu, Andhra Pradesh Punjab, Telangana and West Bengal.

Our State Chapters



Our State Chapters

SCRMP (Pharmacy Wing)

National Symposium on Clinical Research

ONLINE SYMPOSIUM

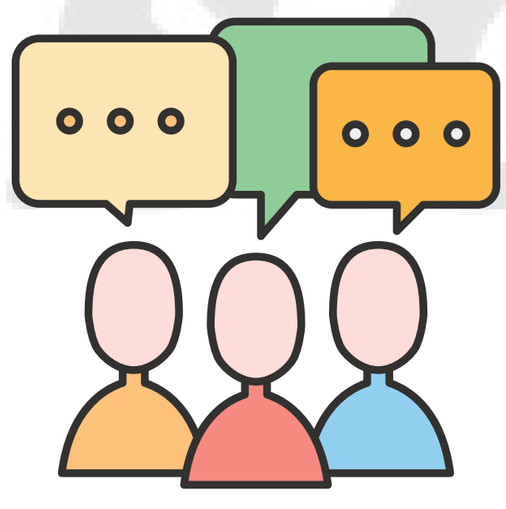
The Society of Clinical Research and Medical Professionals hosted a two-day National Symposium on Clinical Research on August 31 and September 1, 2024. The symposium brought together distinguished experts and professionals from the field of clinical research, aiming to provide a comprehensive understanding of critical topics and emerging opportunities in the industry.

Day 1 Highlights

The inaugural day set the stage with engaging sessions by renowned speakers:

1. Dr. V. Ananda Deepak delivered an insightful talk on "Decoding Clinical Research: Insights and Opportunities on a Global Scale." His session emphasized the vast potential of clinical research and how professionals can harness global opportunities in this domain.

2. Dr. Aniruddha Yashwant Jadhav explored the theme of "Good Clinical Practices," providing participants with a detailed understanding of ethical and practical standards that are pivotal to successful clinical trials.



National Symposium on Clinical Research

ONLINE SYMPOSIUM

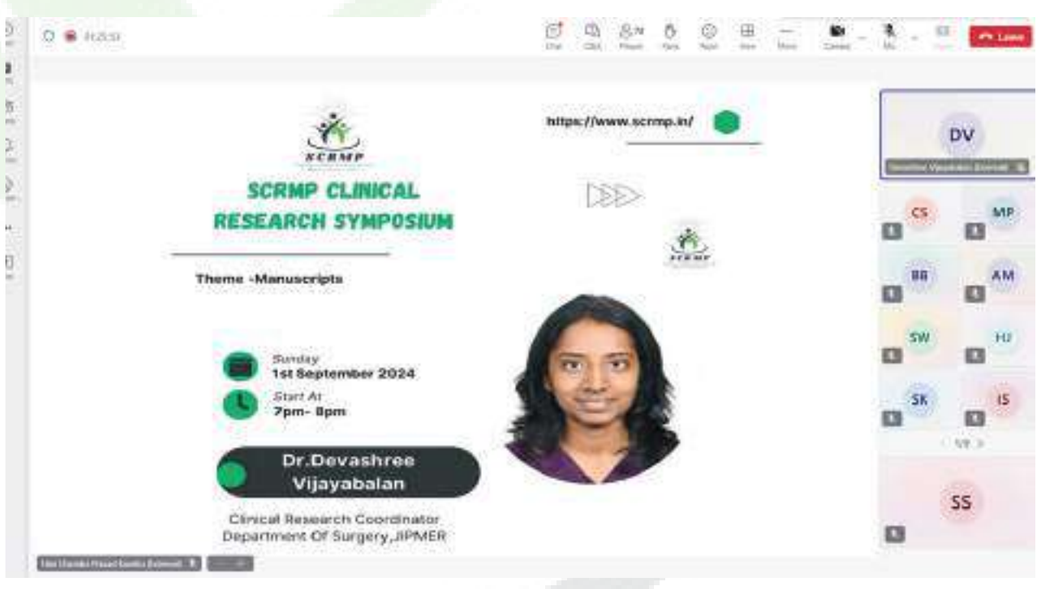
Day 2 Highlights

The second day featured sessions focused on specialized aspects of clinical research:

1. Dr. Aparna Matpathi captivated the audience with her presentation on "Medical Writing in Clinical Research: Crafting Effective Documents." She shared strategies for developing clear, impactful, and regulatory-compliant documents, which are critical for clinical trials.

2. Dr. Devashree Vijayabalan delved into the complexities of the "Menu Scheme," offering a fresh perspective on its role and relevance in clinical research.

3. Debraj Mukhopadhyay, a regulatory leader, addressed the "Ethical Pathways of Clinical Trials." His session highlighted the importance of adhering to ethical frameworks and regulatory requirements to ensure patient safety and research integrity.



2-DAY NATIONAL CONFERENCE: THE FUTURE OF DRUG SAFETY: PHARMACOVIGILANCE IN AN EVOLVING WORLD

ONLINE CONFERENCE

Commenced on 30th November-01st December 2024

Pharmacovigilance is the science and activities related to the detection, assessment, understanding, and prevention of adverse effects or other drug-related problems. Its primary focus is on the safety of pharmaceutical products after they have been approved for use. The goal of Pharmacovigilance is to ensure that medicines are used safely and effectively, minimising harm to patients while optimising the benefits of drug therapies. Key Objectives of Pharmacovigilance like, Detecting Adverse Drug Reactions (ADRs), Assessing the Risk-Benefit Profile, Ensuring Safe Drug Use, Preventing Drug-Related Problems, Providing Safety Information were explained in the Webinar. Importance of Pharmacovigilance in Pharm care was also discussed. Patient Safety, Post-Market Surveillance, Regulatory Actions, Informed Decision making were one of the few topics discussed by our profound speakers.

SCRMP (Pharmacy Wing)

Future R_x Dialogue Lecture Series

ONLINE WEBINARS

WEBINAR 01: ABROAD CAREER OPPORTUNITIES IN CLINICAL RESEARCH

The online course "Abroad Career Opportunities in Clinical Research" gave students an overview of the clinical research area and job options. The speaker went on to discuss the top international places for pharmacists. She also discussed the breadth of pharmacists in Canada, Australia, and the Europe. She went on to discuss the required skills, such as knowledge of GCP, regulatory knowledge, data analysis, and project management. Large multinational corporations such as Pfizer, Roche, and Novartis frequently have global clinical research divisions. The webinar concluded with a Q&A session.

WEBINAR 02: HOW TO CRACK OPRA EXAM IN FIRST ATTEMPT

The speaker gave useful information and interesting insights on how to pass the OPRA test, as well as an preview of the role of clinical pharmacist overseas. The webinar focused on the OPRA test and its eligibility, Strategies for passing tests were also covered. The speaker also discussed his own experience and inspirational path. SCRMP provides students with a forum on which they may openly debate any topic with our trained speakers and resolve any doubts that may arise. All of the most recent developments on entrance tests for careers in other countries were reviewed throughout the webinar. He shared points like Start by thoroughly understanding the syllabus and exam pattern, focusing on areas like clinical pharmacy, pharmaceutical calculations, and law and ethics.

Future R_x Dialogue Lecture Series

ONLINE WEBINARS

WEBINAR 03: PHARM D CAREER GROWTH IN INDIA VS ABROAD

The speaker gave insightful information like PharmD graduates have significant career growth opportunities abroad due to the global demand for healthcare professionals with advanced knowledge of pharmacotherapy and patient care. Countries like the United States, Canada, Australia, and the Gulf nations offer lucrative roles in clinical pharmacy, hospital settings, and pharmaceutical research. These roles often involve direct patient interaction, medication therapy management, and collaboration with healthcare teams to optimize treatment outcomes. Regulatory agencies, such as the FDA in the U.S., also hire PharmD professionals for roles in drug safety and policy-making.

WEBINAR 04: YOUR PATH TO SUCCESS: CAREER & JOB OPPORTUNITIES IN PHARMA

As a Medical Advisor, the speaker has firsthand knowledge of all current trends and popular career profile alternatives in the pharmaceutical area. The conference focused on current career prospects in the Pharma business. The lecturer then went on to detail all of the specialisations available in the subject, as well as career options such as chemist, R&D, quality control and assurance, drug inspector, clinical research, medical writing, government and public sector employment. Our knowledgeable lecturer also discussed further education and specialisations in pharmacy. The webinar concluded with a brainstorming session for all students and a Q&A round.

SCRMP (Pharmacy Wing)

Future R_x Dialogue Lecture Series

ONLINE WEBINARS

WEBINAR 05: ROLE OF BIOSENSORS IN PHARMACARE SETUP IN 21ST CENTURY

The webinar highlighted the transformative role of biosensors in modern healthcare and pharmaceutical applications. Sir emphasized the integration of biosensors in drug development, patient monitoring, and personalized medicine. Advanced biosensor technologies, including wearable devices and lab-on-a-chip systems, were showcased for their ability to provide real-time, accurate diagnostics. Discussions included the use of biosensors in therapeutic drug monitoring, ensuring optimal dosing, and detecting adverse drug reactions. Concluding remarks focused on the potential of biosensors to revolutionize pharmacare by enhancing patient outcomes, reducing healthcare costs, and enabling precision medicine.

WEBINAR 06: NANOTECHNOLOGY IN DRUG DELIVERY

A webinar on "Nanotechnology in Drug Delivery" was held to explore the transformative role of nanotechnology in modern medicine. The session highlighted how nanotechnology is revolutionizing drug delivery systems by enhancing precision, bioavailability, and therapeutic efficacy. Sir discussed the potential of nanotechnology in overcoming biological barriers and delivering drugs to hard-to-reach areas. The webinar concluded with a discussion on regulatory challenges, scalability, and the future of nanomedicine, emphasizing the need for interdisciplinary collaboration. Attendees gained valuable insights into the innovative approaches shaping the future.

SCRMP (Pharmacy Wing)

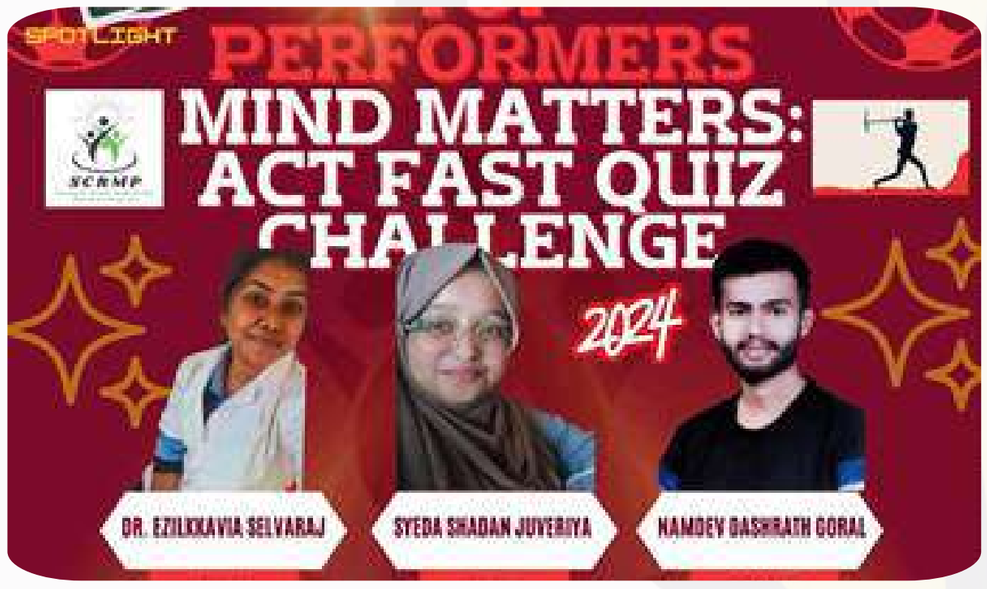
SCRMP

QUIZ CHALLENGE

VOLUME 01 | OCT-DEC | ISSUE 02

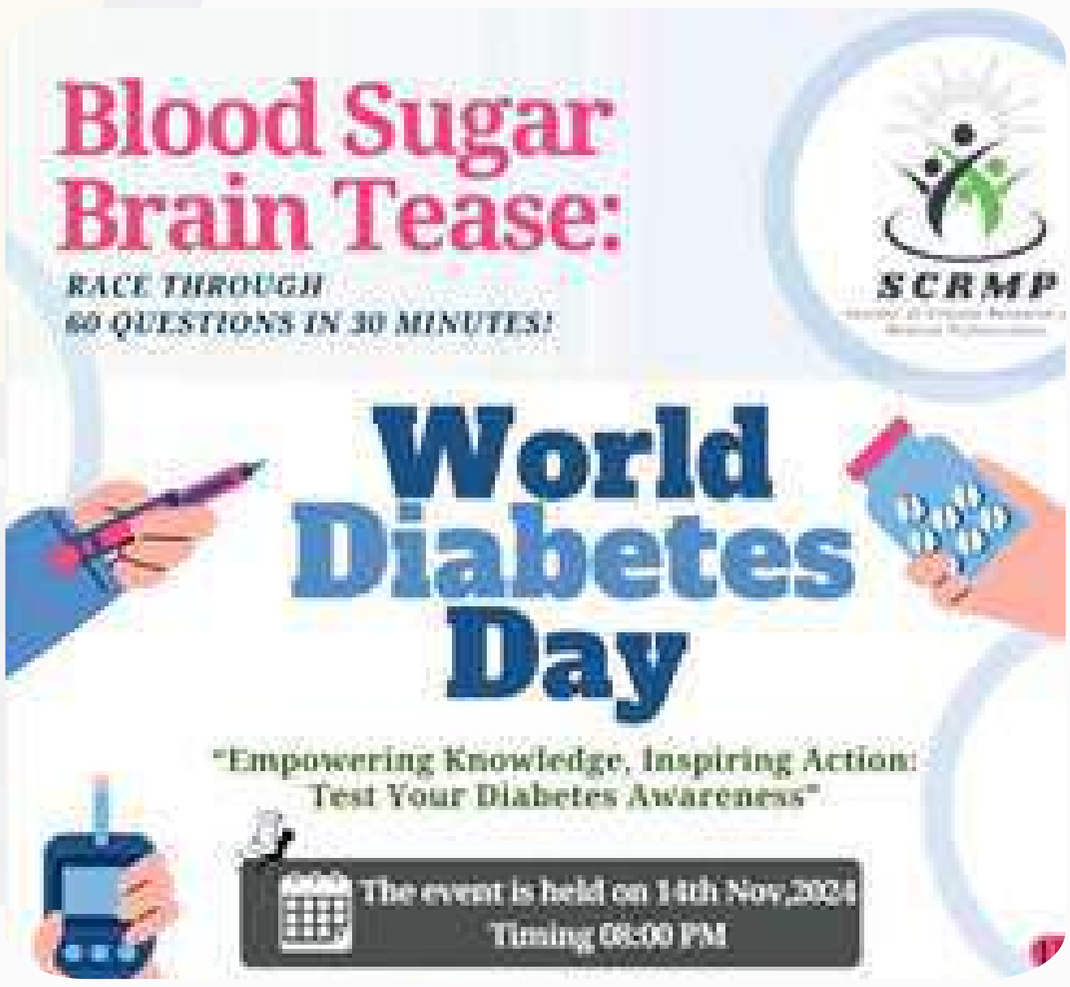
MIND MATTERS: ACT FAST- ULTIMATE STROKE AWARENESS QUIZ CHALLENGE:

On the occasion of **WORLD STROKE DAY**, a Quiz challenge was held on 29th October 2024 by SCRMP Pharmacy Wing. The duration of quiz challenge was 30mins with a total of 50MCQs. The questions range in difficulty from the foundations of stroke to case study-related topics. We had enthusiastic involvement from 301 students from all throughout the country. The top three were named winners. We all know that **Syeda Shadan Juveriya** came in **first** place. **Dr. Ezilkkavia Sevaraj** finished **second**, while **Namdev Dashrath Goral** came in **third**. Our society's goal in hosting this event was to raise awareness about stroke.



BLOOD SUGAR BRAIN TEASE - MCQ QUIZ:

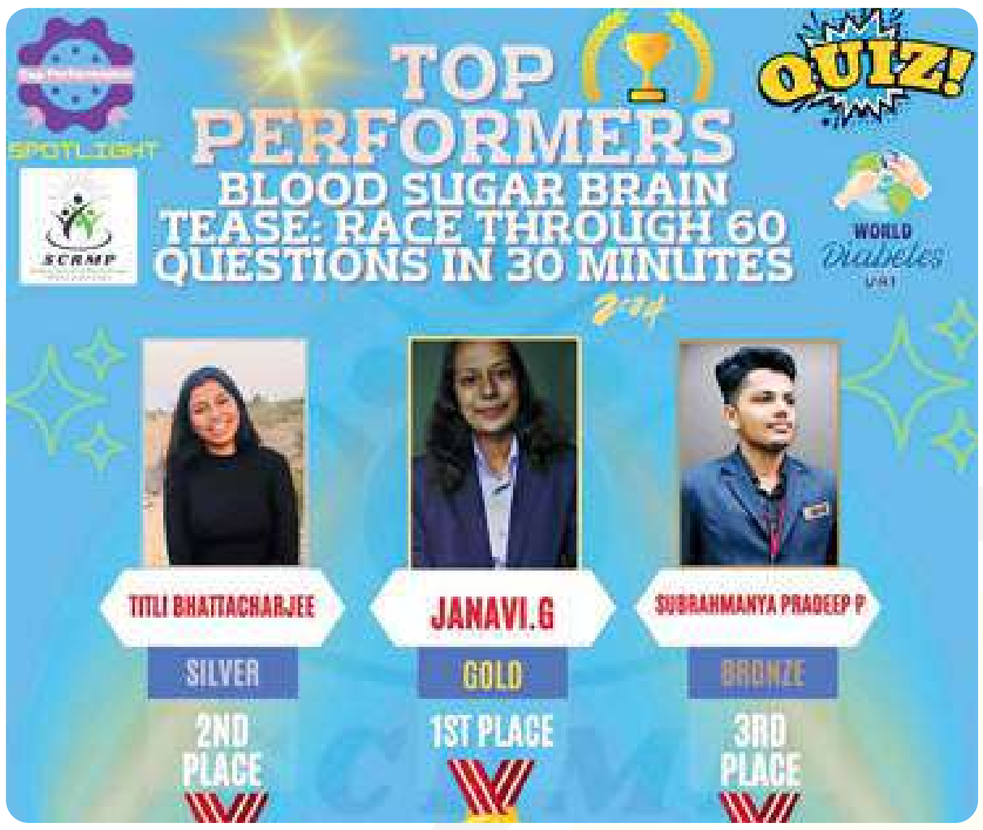
On **WORLD DIABETES DAY** i.e. 14th November 2024, the SCRMP Pharmacy Wing hosted a quiz challenge. The quiz challenge lasted 30 minutes and had 60 multiple-choice questions. The questions range in complexity from the basis of Diabetes Mellitus to case study-related subjects. We had enthusiastic participation from 201 kids from all around the country.



SCRMP

QUIZ CHALLENGE

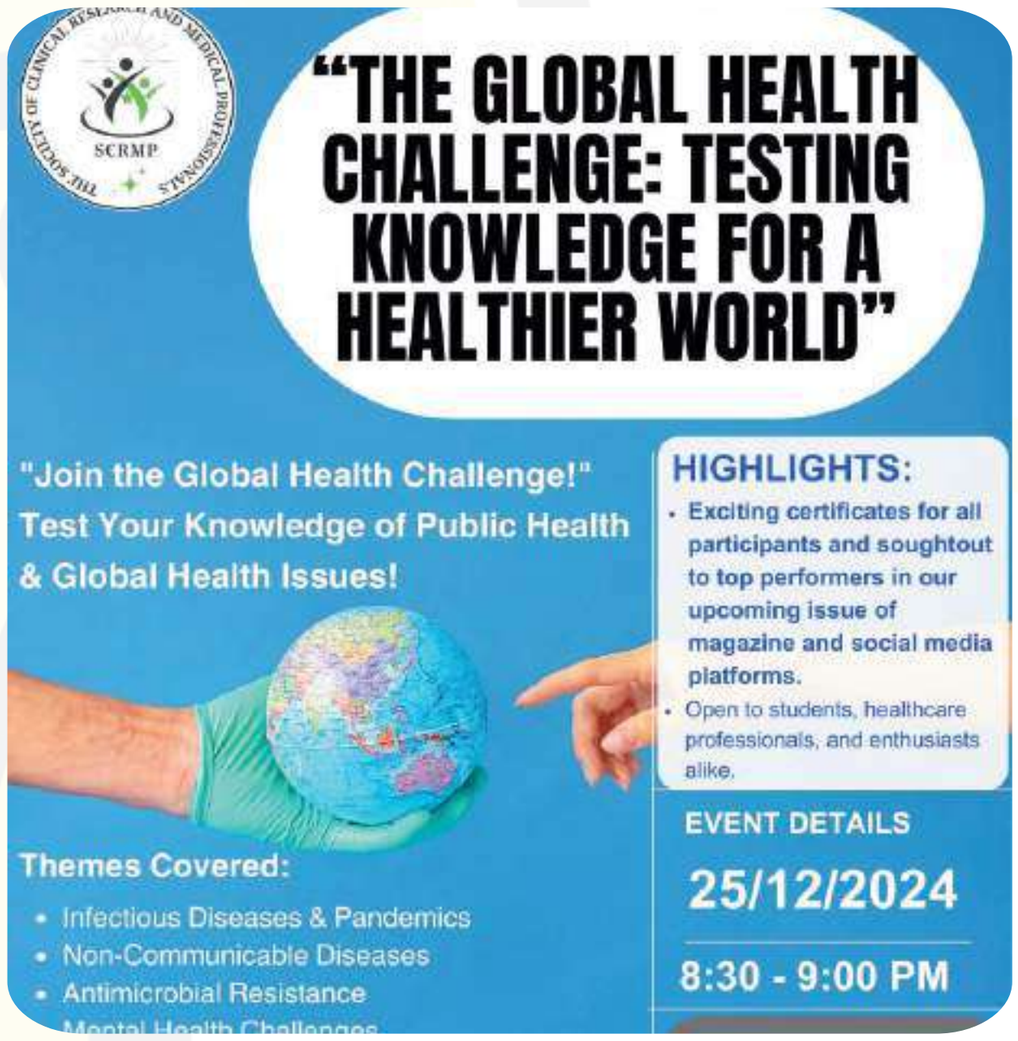
VOLUME 01 | OCT-DEC | ISSUE 02



The top three were declared winners. We all know that **Janavi G.** won **first** place. **Titli Bhattacharjee** took **second** place, followed by **Subrahmanya Pradeep P** in **third**. Our society's purpose in organizing this event was to raise awareness about Diabetes Mellitus.

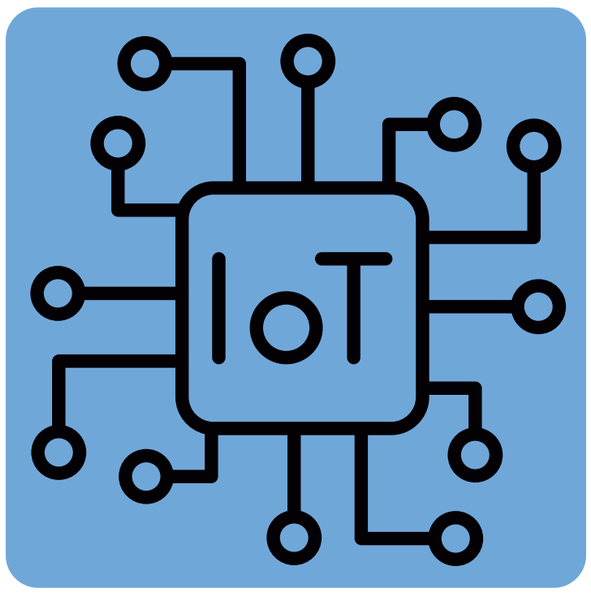
THE GLOBAL HEALTH CHALLENGE: TESTING KNOWLEDGE FOR A HEALTHIER WORLD

On **25th December 2024**, the SCRMP Pharmacy Wing hosted a quiz challenge. The quiz challenge lasted 30 minutes and had 60 multiple-choice questions. The questions range in complexity from the basis of Infectious, Non-Communicable Diseases & Mental Health Challenges We had enthusiastic participation from 164 participants from all around the country. The top three were declared winners. We all know that **Arshita Kumari** won **first** place. **Kaushik Modak** took **second** place, followed by **Muskan Basnet** in **third**. Our society's purpose in organizing this event was to raise awareness about **THE GLOBAL HEALTH CHALLENGE - KNOWLEDGE FOR A HEALTHIER WORLD**



ROLE OF ARTIFICIAL INTELLIGENCE IN RECENT ADVANCES ON IOMT

Ritu Sapra
Faculty Advisor, SCRMP -MP State Chapter
Assistant professor, Medi-Caps University, Indor

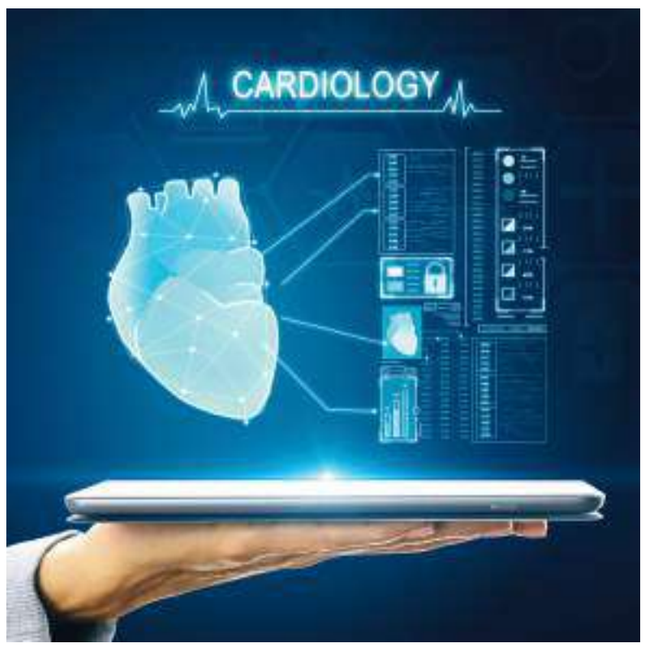


The Internet of Medical Things (IoMT) is revolutionizing healthcare. It integrates connected medical devices and software to create powerful new tools for improving human health and well-being. Internet of Medical Things (IoMT) devices, or healthcare IoT, revolutionize health monitoring with automated, AI-powered systems. These systems use sensors and machine learning to track health data without constant human interaction. IoMT securely connects patients and doctors via medical devices, facilitating remote data collection, processing, and transmission. Wireless health monitoring, powered by AI and machine learning, reduces hospital stays and lowers healthcare costs.

AI-ASSISTED SYSTEMS INTERFACED WITH IOMT IN HEALTHCARE

The use of AI in healthcare has the potential to significantly improve clinical laboratory testing, treatment choices, and disease diagnosis. In some areas of healthcare, artificial intelligence (AI) algorithms can outperform humans by mining massive data sets and finding patterns. By reducing human mistake, AI increases accuracy, lowers costs, and saves time. It has the ability to transform personalized medicine, tailor drug dosages, improve population health management, create best practices, enhance virtual health assistants, offer mental health support, aid in patient education, and bolster patient trust. Wearable continuous monitoring devices that utilize nanotechnology are increasingly prevalent in the healthcare industry. These advanced wearables are equipped with nano-integrated sensors, enabling them to consistently track 4,444 physiological parameters. Recently, MXene-embedded e-skin sensors have also been reported to monitor human movements based on the principle of pressure transduction. Scientists have developed a new sensor to detect preeclampsia. This sensor uses gold nanoparticles and artificial intelligence to monitor volatile gases in the body, identifying chemical changes linked to this dangerous pregnancy complication. Anticipating how receptors will recognize their targets in challenging conditions is crucial for enhancing the selectivity and specificity of the assay. The researchers designed and analyzed a programmable RNA switch using deep neural network (DNN) techniques. The created model can aid in comprehending how synthetic bioreceptors switch between ON and OFF states. The development of Internet of Medical Things (IoMT) devices with improved biomolecule detection is significantly advanced by nanomaterials and AI-assisted platforms are crucial for collecting and transferring raw data, analyzing that data, and making data-driven decisions.

AI SUPPORTED CARDIAC MONITORING



Cutting-edge AI is revolutionizing cardiac monitoring, providing faster and more accurate diagnoses of various cardiovascular diseases. Heart health can be monitored in several ways. These include advanced imaging techniques such as cardiac CT, familiar electrocardiograms (ECGs), long-term monitoring using Holter devices, stress tests to assess heart function under pressure, and blood marker analysis to detect signs of disease. Techniques such as electrocardiograms (ECGs), exercise testing, and blood biomarker analysis have greatly improved cardiovascular health assessment. These methods provide a fast and effective way to assess heart function. Machine learning is also being used to improve diagnostic accuracy, allowing patients to accurately identify irregular heartbeats and predict potential heart problems. Analyzing ECG data can detect a variety of heart conditions, including heart attack (myocardial infarction), rapid heartbeat (sinus tachycardia), and sleep apnea.

ROLE OF AI IN SURGERY, DIABETES MELLITUS AND CANCER MANAGEMENT

The Internet of Medical Things (IoMT) is rapidly gaining importance due to advances in related fields such as artificial intelligence (AI), machine learning (ML), computer vision (CV), deep learning (DL), and natural language processing (NLP). Over time, surgical procedures have become fully AI-driven and autonomous. This includes options ranging from specialized functions such as image guidance to procedures that do not require any direct human intervention at all. The fields of artificial intelligence and machine learning are revolutionizing spinal care. These technologies are used for diagnostic imaging, prediction of treatment outcomes, information access, biomechanical analysis, and tissue characterization. The traditional finger-prick method of glucose sensing may eventually be replaced by non-invasive glucose sensing, a growing field for continuous glucose monitoring. AI-driven technologies offer numerous promising uses in cancer research and clinical trials. These include early detection, extensive screening processes, cancer classification and staging, molecular profiling, forecasting treatment responses, customizing personalized therapies, streamlining radiotherapy procedures, and developing new anti-cancer medications. AI and machine learning algorithms can also be utilized to create predictive models that assess lymph node metastases, treatment response to medications, and overall prognosis.

ONGOING CHALLENGES AND FUTURE PROSPECTS

Even though AI/ML has shown promise in transforming healthcare practices and medical devices merged with IoMT, several technical complications must be addressed to fully unlock the potential for commercialization and integration within clinical settings and society as a whole. Depending on the link between sample parameters and observed signals, the AI/ML technology enables IoMT devices to extract hidden information using supervised machine learning approaches. Because AI and machine learning systems depend significantly on precise data for their programming and training, it is crucial to focus on thorough data collection to ensure high-quality training and learning for patients. Technological connectivity is key to associating people to IoMT devices. The association can be one-way or two-way. Before the data from the IoMT sensor can be sent to the microcontroller or processor, it needs to be processed, as these components only require digital information. Mobility has created new opportunities for healthcare IoMT (Internet of Medical Things) devices. Smart devices can be controlled, accessed, monitored, and tracked by IoMT devices that have mobile applications installed. Mobile gadgets, however, raise privacy and security issues. Innovative approaches to the problems of security and safe data transfer are being investigated by healthcare practitioners.

Ritu Sapra

FACULTY ADVISOR, SCRMP -MP STATE CHAPTER

ASSISTANT PROFESSOR, MEDI-CAPS UNIVERSITY, INDORE

Telepharmacy: Expanding Access to Care

Vivekraj Maheshwari

LJ DEPARTMENT OF PHARMACEUTICAL SCIENCES, LJ UNIVERSITY

Telepharmacy represents a method (which employs telecommunications technology) to enhance pharmaceutical care delivery—particularly in underserved regions. Its popularity has surged (primarily) because of the COVID-19 pandemic's focus on accessible healthcare services. This article explores its definition, benefits, challenges and future prospects; however, the implications of such a system are complex. Although telepharmacy offers significant advantages, it also faces hurdles that must be addressed.

- **Definition of Telepharmacy**

Telepharmacy (a rapidly evolving field) leverages telecommunications technology to deliver pharmaceutical services: medication dispensing, patient counseling, therapy management and drug utilization reviews (all provided by licensed pharmacists). This technology incorporates video conferencing, phone calls and electronic health records—thus bridging the gap between patients and pharmacists. However, it is particularly beneficial in rural and remote areas where access to traditional pharmacy services is limited. Although some may question the effectiveness of such methods, the advantages are evident because it enhances healthcare accessibility.

- **The Need for Telepharmacy**

Access to healthcare services (especially in rural areas) remains a significant challenge; half of small rural hospitals report minimal on-site pharmacist availability. Telepharmacy addresses this issue (however) by providing essential pharmaceutical care remotely. This improvement in patient access to necessary medications and consultations enhances outcomes, because it reduces medication mismanagement (and) poor health outcomes.

- **Benefits of Telepharmacy**

1. Improved Access to Pharmaceutical Care: It enables patients in remote areas to receive timely consultations and medication management without extensive travel, especially beneficial for elderly patients or those with mobility issues.
2. Enhanced Operational Efficiency: Tele pharmacy services can significantly enhance healthcare operational efficiency by allowing remote pharmacists to conduct medication reviews and approvals faster than traditional methods, reducing after-hours drug approval times to 14-20 minutes, and minimizing medication errors during peak staffing periods

3. Cost Savings: Telepharmacy can significantly reduce healthcare costs by eliminating the need for on-site pharmacists and enabling hospitals to outsource certain pharmacy functions. Patients also benefit financially by avoiding travel expenses associated with in-person visits.

4. Improved Patient Outcomes: Telepharmacy improves patient outcomes by improving medication adherence and management, reducing adverse drug events, and positively impacting chronic disease management.

5.Increased Patient Satisfaction: Telepharmacy services are highly favored by patients due to their convenience and accessibility, eliminating transportation and long wait times at pharmacies.

- **Challenges Facing Telepharmacy:**

1. Regulatory Barriers (the regulatory landscape for telepharmacy varies globally), leading to inconsistencies in licensing requirements and regulations. This makes it challenging (to integrate telepharmacy into existing healthcare systems).
2. Technology Limitations: Telepharmacy, a crucial service, faces a digital divide because of insufficient access to necessary tools and internet connectivity for remote consultations. However, this highlights the need for investment in technology infrastructure and training to ensure equal healthcare access.
3. Resistance from Traditional Pharmacy Models: Some pharmacists and organizations may resist telepharmacy due to job security concerns or traditional practice model changes; but overcoming this resistance requires demonstrating its value in improving patient care.

- **Future Prospects of Telepharmacy**

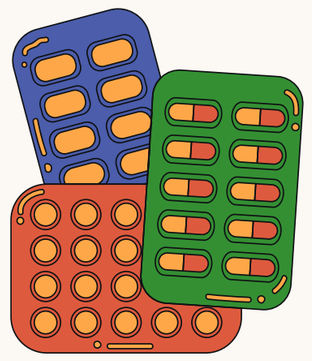
Telepharmacy is poised (for a promising future) in healthcare as it evolves towards patient-centered models. Trends include integration with telehealth services, expanding into new markets (beyond rural areas) and technological advancements like artificial intelligence and machine learning. Telepharmacies can also address diverse populations because they target patients with transportation or mobility issues (due to chronic illnesses). These advancements could lead to more efficient workflows and improved patient outcomes.

- **Conclusion**

Telepharmacy represents a significant advancement in expanding access to pharmaceutical care (especially for underserved populations). It addresses accessibility, efficiency and cost-effectiveness barriers in healthcare delivery; however, it also faces challenges like regulation and technology access. Despite these hurdles, telepharmacy remains a vital component of modern healthcare systems. As we move into a digital future—embracing telepharmacy ensures high-quality, tailored care for all patients (regardless of location or circumstances). Through innovation and collaboration, telepharmacy can improve individual health outcomes and transform global pharmaceutical care.

Vivekraj Maheshwari
SCRMP NATIONAL PRESIDENT
PHARMACY WING- SF

SCRMP
Pharmacy Crossword



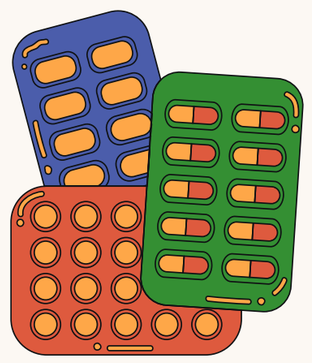
Across

4. Medication that reverses the effects of an opioid
6. A person you can talk to with questions about your medication
7. A substance that is used to treat a disease or injury
8. Always follow the _____ on how to take a medicine
10. A type of medicine that a doctor prescribes for a disease or injury

Down

1. Always examine the medicine_____to identify instructions and who can take the medicine
2. Always keep your medicines in their original _____ or container
3. Non-drowsy antihistamine drug used for allergy relief
5. A safe place to store your medication in the kitchen or bathroom
9. Never_____your medicines with others or take anyone else's medicines

SCRMP
Pharmacy Crossword



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ANTIMICROBIAL RESISTANCE AND STEWARDSHIP: A CALL FOR ACTION

SATYAM YADAV
ISF COLLEGE OF PHARMACY, MOGA PUNJAB-142001

1. Introduction:

Antimicrobial resistance (AMR) has emerged as a significant global health threat, jeopardizing the effectiveness of antibiotics and other antimicrobial agents. AMR poses a staggering threat to global health, with projections indicating that it could lead to over 39 million deaths between now and 2050 if current trends continue. This insidious phenomenon occurs when microorganisms, such as bacteria and fungi, evolve to resist the effects of medications designed to eliminate them, rendering standard treatments ineffective.

The significance of AMR cannot be overstated; it compromises the effectiveness of surgeries, cancer therapies, and other critical medical interventions, ultimately threatening the very foundation of modern medicine. In response to this crisis, antimicrobial stewardship (AMS) has emerged as a vital strategy aimed at optimizing the use of antimicrobials. AMS promotes responsible prescribing practices, enhances patient outcomes, and curtails the spread of resistance, making it an essential component in the fight against AMR.

2. The Growing Threat of Antimicrobial Resistance:

AMR is rapidly emerging as one of the most pressing global health threats, with an estimated 4.95 million deaths linked to drug-resistant infections in 2019 alone. If left unchecked, AMR could lead to 10 million deaths annually by 2050, surpassing fatalities caused by cancer. The economic ramifications are equally alarming, with potential losses of up to $3.4 trillion in global GDP each year due to increased healthcare costs and lost productivity. Socially, AMR exacerbates health inequities, particularly in low- and middle-income countries, where access to effective treatments is already limited.

Notable resistant pathogens include methicillin-resistant Staphylococcus aureus (MRSA), multidrug-resistant tuberculosis (MDR-TB), and extended-spectrum beta-lactamase (ESBL)-producing bacteria, all of which complicate treatment options and increase mortality rates. The drivers of AMR are multifaceted, including the overuse and misuse of antibiotics in both humans and livestock, inadequate infection control measures, and a sluggish pipeline for new antibiotic development. Lack of awareness about AMR further compounds the issue, highlighting the urgent need for comprehensive strategies to mitigate this growing threat.

3. What is Antimicrobial Stewardship (AMS)?

AMS is a coordinated approach aimed at promoting the responsible use of antimicrobial agents, including antibiotics. Its importance lies in optimizing treatment protocols to enhance patient outcomes, reduce the emergence of resistance, and ensure the efficient use of healthcare resources. AMS programs focus on prescribing the right drug at the right dose for the right duration, ultimately improving patient safety and minimizing adverse effects associated with inappropriate antibiotic use.

Core strategies of AMS include:

Education: Training healthcare professionals and raising public awareness about the dangers of overusing antibiotics.

Guideline Implementation: Developing and enforcing evidence-based guidelines for antibiotic prescribing to standardize practices across healthcare settings.

Monitoring: Regularly assessing antibiotic use and resistance patterns to inform future prescribing decisions and improve stewardship efforts.

A notable example of successful AMS implementation is at the Cleveland Clinic, where a comprehensive program led to a significant reduction in unnecessary antibiotic prescriptions and improved patient outcomes. By utilizing data analytics to track antibiotic use and resistance trends, the clinic has effectively minimized the risk of AMR while enhancing care quality.

4. Global Efforts and Policies:

Global efforts to combat antimicrobial resistance (AMR) are critical in addressing this escalating health crisis. The World Health Organization (WHO) launched the Global Action Plan on AMR in 2015, which outlines five strategic objectives: improving awareness, strengthening surveillance and research, reducing infection incidence, optimizing antimicrobial use, and ensuring sustainable investment in combating AMR. This plan serves as a framework for countries to develop their national action plans aligned with global standards.

Countries like India, the UK, and the US have implemented national policies and surveillance systems to monitor and control AMR. For example, the UK has established a comprehensive national action plan that includes public awareness campaigns and guidelines for healthcare providers. In the US, the Centers for Disease Control and Prevention (CDC) plays a pivotal role in coordinating AMR efforts through surveillance programs and educational initiatives.

Organizations such as the Food and Agriculture Organization (FAO) and the World Organisation for Animal Health (OIE) collaborate with WHO to adopt a One Health approach, recognizing the interconnectedness of human, animal, and environmental health in tackling AMR. International collaboration is essential, as AMR knows no borders; coordinated global action is vital for effective prevention and control strategies.

5. What Can Individuals and Communities Do?

Individuals and communities play a crucial role in combating AMR through various actions. Healthcare professionals can significantly impact AMR by avoiding the overprescribing of antibiotics and ensuring patients understand the importance of completing their prescribed courses. This helps prevent the development of resistant strains of bacteria. The general public can contribute by avoiding self-medication and not demanding antibiotics for viral infections, such as colds or the flu, where they are ineffective. Practicing good hygiene, including regular handwashing and proper sanitation measures, is essential in preventing infections that could lead to unnecessary antibiotic use

Moreover, raising awareness about AMR is vital. Individuals can advocate for responsible antibiotic use within their communities, share information on the importance of AMS, and support initiatives aimed at reducing AMR. By fostering a culture of informed antibiotic use and hygiene practices, both healthcare providers and the public can work together to mitigate the threat of AMR effectively.

6. Conclusion: A Collective Responsibility:

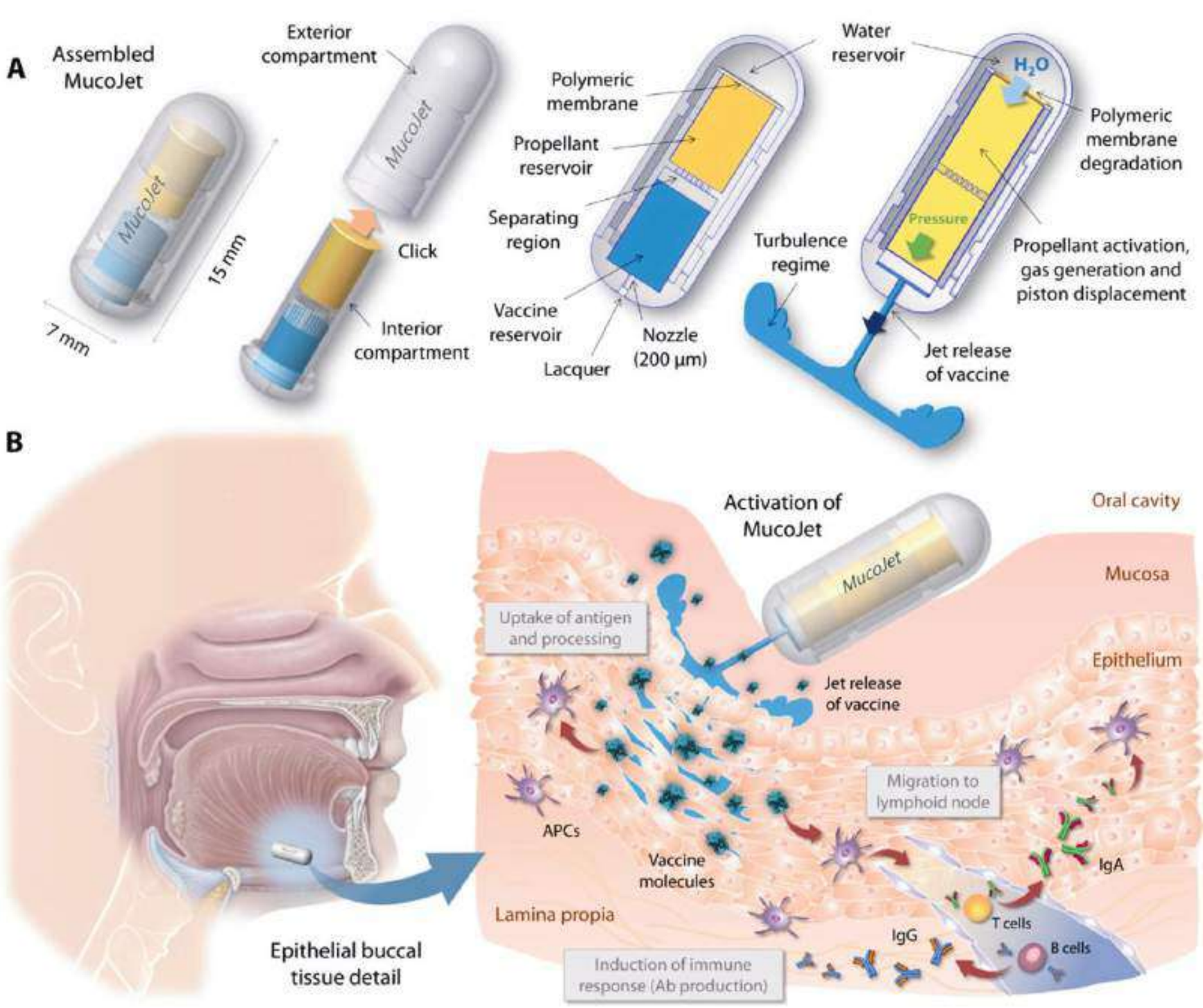
In conclusion, the urgency of combating AMR through effective AMS cannot be overstated. It requires a collective effort from policymakers, healthcare providers, and the public to ensure responsible antibiotic use and safeguard public health. By working together—raising awareness, implementing best practices, and advocating for change—we can make significant strides in this fight. As we face this formidable challenge, let us remember: Together, we can preserve the miracle of antibiotics for future generations.

Satyam Yadav

SCRMP(PHARMACY WING) SF-NATIONAL VICE PRESIDENT

MucoJet Pills: Painless Oral Alternative to the Needle

JANHAVI MAHESH KATKAR
INDIRACOLLEGE OF PHARMACY, VISHNUPURI, NANDED.



Injectable vaccination is by far the most used method of delivering vaccines to prevent infectious illnesses. Despite its widespread use, poor patient compliance is frequently caused by its capacity to cause pain, the sterility of vaccination needles and syringes, and a number of other safety issues. Although it has been widely acknowledged that non-invasive vaccinations have the potential to enable mass immunisation at a reasonable cost, developing non-invasive vaccine delivery technology has proven difficult. Right now, the most promising method for non-invasive vaccination is micro needles. Non-invasive administration methods have the following benefits: they decrease clinician handling of patients, boost patient compliance, and trigger systemic and local immune responses. Because the buccal mucosa is well-supplied by vascular and lymphatic drainage systems, it has a number of benefits as a site for vaccine administration. It avoids the gastrointestinal tract's (GIT) enzymatic drug breakdown and has a first liver by-pass metabolism. It is ideal for a retentive device, and with the correct dosage and formulation, the local environment and permeability can be regulated to enable gradual release and high antigen retention.

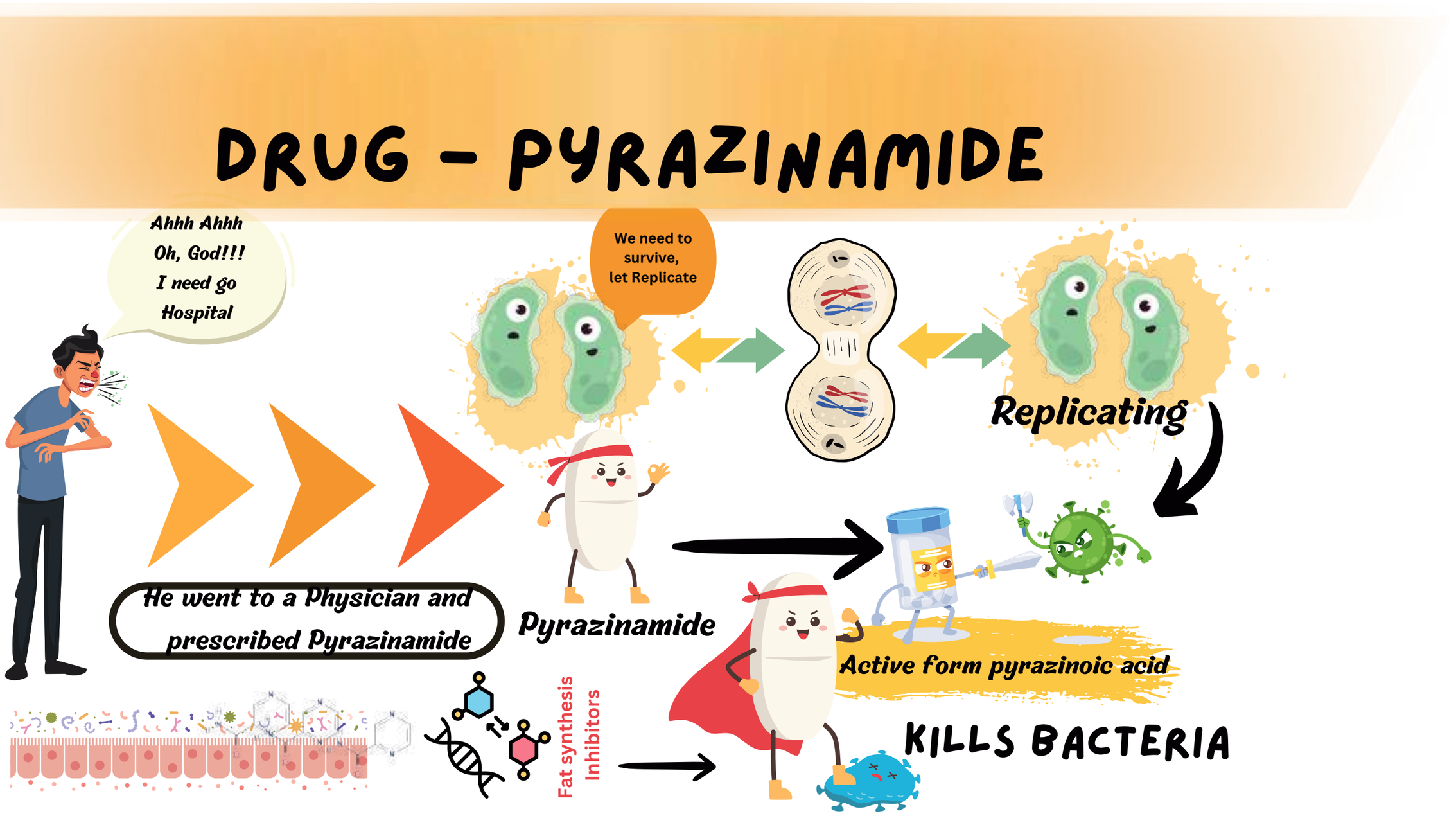
The buccal mucosal layer can be penetrated by the mechanically built device. It consists of two compartments, with a water chamber on the outside and two reservoirs within divided by a moving piston and a porous plastic membrane. A built-in porous membrane and movable piston divide the lower reservoir, which holds a dry chemical propellant composed of carbon dioxide (CO2) and citric acid, from the top reservoir inside the interior compartment. On the opposite end, a pH-responsive polymeric barrier with a pH 6.0 dissolving threshold isolates the upper reservoir from the external compartment. The upper reservoir, which is connected to a sealed delivery nozzle on one end and the piston from the lower chamber on the other, is made to hold the vaccine solution. In order to administer the vaccine, the device is placed in the buccal cavity, where the exterior and inner compartments click together; causing the polymeric valve membrane that seals the propellant reservoir to dissolve. When water in the reservoir comes into contact with the chemical propellant, a chemical reaction is set off that result in the production of CO2 gas. An increase in CO2 generation causes the propellant chamber's pressure to rise, which breaks the drug chamber's nozzle and dispenses the vaccine into the buccal cavity's mucosal layer.

Drug penetration can be decreased by the existence of gap junctions like desmosomes and hemi desmosomes on the surface epithelium, even though the buccal epithelium lacks tight connections between cells like those in the skin epithelium. One of the primary disadvantages of buccal cavity vaccine administration has been a lack of antigen retention at delivery sites. Furthermore, the presence of saliva in the buccal cavity makes vaccine retention difficult because it can lead to vaccine removal from delivery sites unless the antigen is administered with a bio adhesive formulation such as polyacrylic acid, hyaluronic acid, polymethacrylate derivatives, hydrogel, and chitosan to prolong vaccine release.

It is worth noting that the buccal mucosa is part of a large and highly specialised compartmentalised mucosal associated lymphoid tissue (MALT) that contains a variety of immune cells, including antigen presentation cells (APCs) such macrophages and dendritic cells (18,19). These cells are responsible for antigen uptake at vaccine delivery sites before moving to draining lymph nodes to present processed antigen-derived peptides to CD4 and CD8 T-cells via major histocompatibility (MHC) components I and II. Because the MucoJet can form depots, it has a high antigen retention capacity. This allows for the design of systematic studies that aim to clarify the mechanisms that lead to APCs migrating to vaccine delivery sites for antigen uptake and then presenting processed antigen-derived peptides to B- and T-cells. As a result, its use in vaccine delivery will undoubtedly lay the groundwork for a thorough comprehension of the innate immune reactions that immunisation causes in the buccal cavity. Furthermore, it can deliver a variety of vaccine formulations, including nanoparticles, microparticles, and different adjuvant emulsions intended to improve APC migration to antigen delivery sites, thanks to its highly adjustable vaccine carrier chamber size and extremely flexible trajectory.

Janhavi Mahesh Katkar
SCRMP(PHARMACY WING) SF CEC-JOINT SECRETARY

MediArt Chronicles: Simplifying Drugs with Visual Stories



Pyrazinamide is a first-line antituberculosis drug primarily used to treat active tuberculosis (TB) infections. It is a prodrug that gets converted into its active form, pyrazinoic acid, by the bacterial enzyme pyrazinamidase within Mycobacterium tuberculosis.

Mechanism of Action: Pyrazinoic acid disrupts bacterial metabolism by inhibiting fatty acid synthesis, damaging the membrane, and lowering intracellular pH, which leads to bacterial death.

Role in TB Treatment: It is highly effective against dormant or slowly replicating TB bacteria that are hard to target with other drugs, especially in acidic environments like within macrophages.

Part of Combination Therapy: Pyrazinamide is used alongside drugs like isoniazid, rifampin, and ethambutol to shorten the treatment duration and prevent drug resistance.

Side Effects: Common adverse effects include hepatotoxicity, hyperuricemia, and gastrointestinal upset.

Pyrazinamide's unique ability to target persistent bacteria makes it a cornerstone in the treatment of tuberculosis.

NANO-WARRIORS

A. V. VASANTHI

SAROJINI NAIDU VANITA PHARMACY MAHA VIDYALAYA, TARNAKA, HYDERABAD-500017

A Review on Revolutionizing Cancer Treatment with Cutting Edge Technology

1. INTRODUCTION

Cancer caused 10 million deaths and 19.3 million new cases in 2020, with over 70% occurring in low- and middle-income nations, worsened by lifestyle factors.

1.1. Traditional Cancer Treatments And Their Limitations

These include:

A. Low Tumour Selectivity: Treatments may affect healthy cells, causing systemic toxicity.

B. Off-Target Effects: Unintended damage to non-cancerous tissues can lead to severe side effects.

C. Multidrug Resistance: Tumors often develop resistance, making treatments less effective.

D. Recurrence: Cancer recurrence is common due to resistance to previous therapies.

1.2. Key Advantages of Nanotechnology:

These includes:

Enhanced Drug Delivery: NPs target tumour tissues, improving therapeutic efficacy and minimizing damage to healthy tissues.

Improved Imaging and Diagnosis: Iron oxide NPs in MRI enable concurrent cancer diagnosis and treatment.

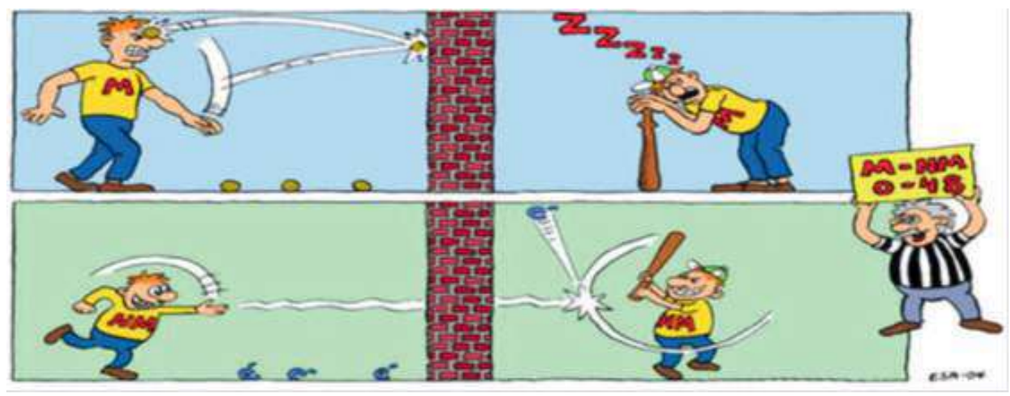
High Drug Loading Capacity: Nanoparticles large surface area facilitates significant drug loading and efficient delivery to tumour sites.

1.3. Theranostics Systems: Integration of Diagnosis and Therapy

Theranostics combines diagnostics and therapy into one system, enabling simultaneous real-time monitoring of drug delivery and therapeutic response. It supports personalized medicine by tailoring treatments based on patient-specific diagnostic data.

1.4. Challenges and Future Directions

Key challenges include addressing nanomaterial toxicity and optimizing Nanotheranostic systems through ongoing research to enhance clinical effectiveness.



Nano-particle ability to Penetrate into Cell

CANCER DIAGNOSIS & THERAPY

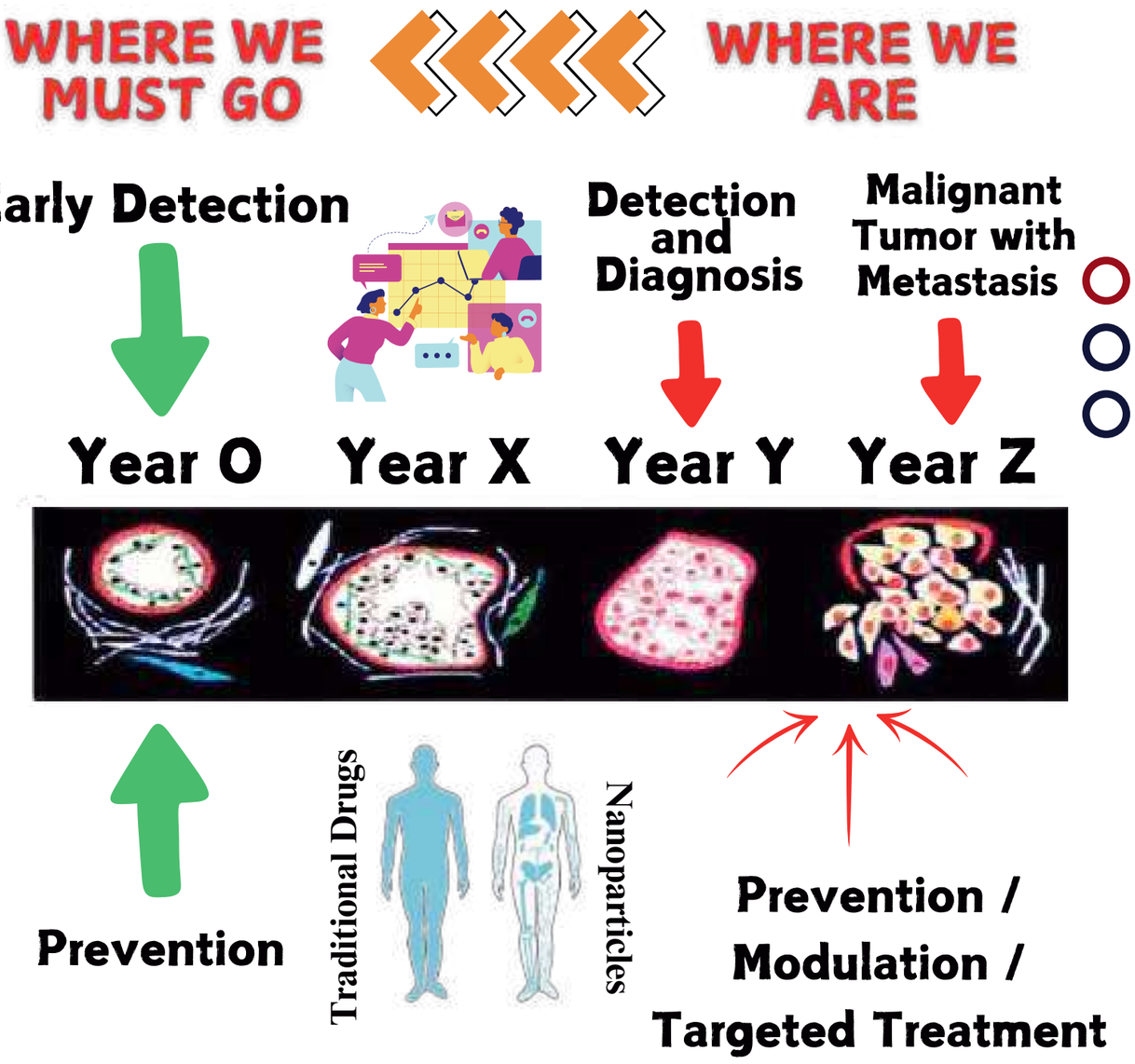
2. NANOTECHNOLOGY IN CANCER DIAGNOSIS

- **Quantum dots --Medical imaging:**

The structure of a nanoparticle has a big impact on its optical characteristics. In particular, a quantum dot's (a semi-conductor nanoparticle's) wavelength (color) is determined by its diameter. After injecting the quantum dots (QD) into a patient, it is possible to detect them by stimulating them to release light.

- **Carbon Dots (C-Dots):**

Carbon dots (C-dots) are biocompatible, eco-friendly fluorescent nanomaterials (2-15nm) with efficient fluorescence, high photo-stability, broad excitation spectra, and size-dependent emission, offering alternatives to toxic quantum dots.



3. NANOTECHNOLOGY IN CANCER THERAPEUTICS

- **Nanotechnology-based drug delivery:**

In most cases, resistance develops when cancer cells begin expressing a protein, known as p-glycoprotein that is capable of pumping anti-cancer drugs out of a cell as quickly as they cross through the cell's outer membrane.

New research shows that nanoparticles may be able to get anti-cancer drugs into cells without triggering the p-glycoprotein pump.

THE STEALTH TECHNOLOGY:

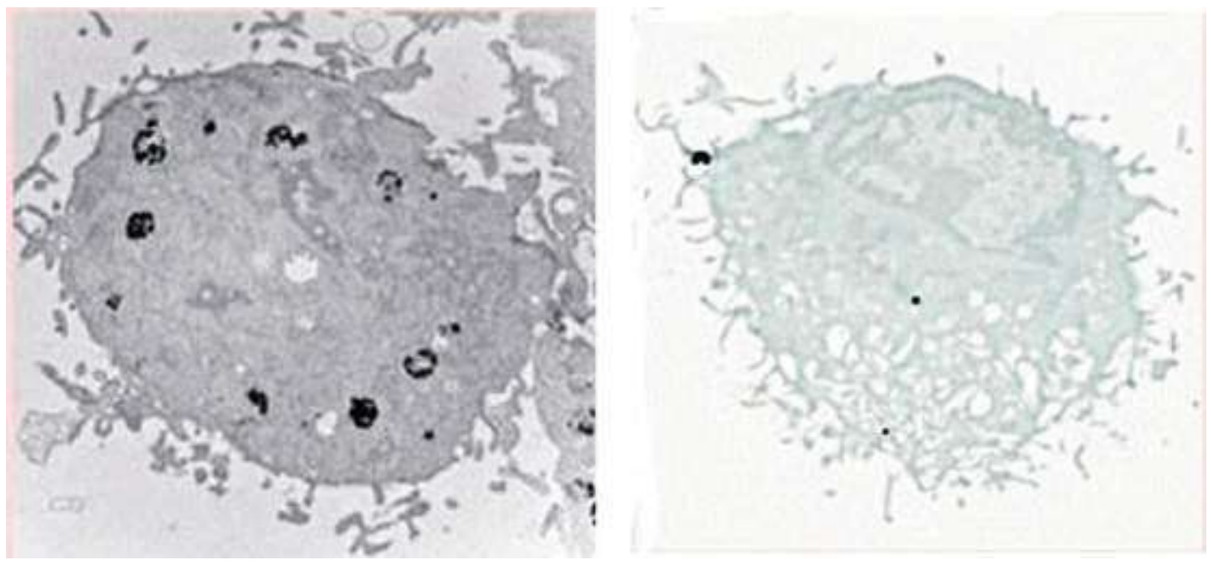
The EPR effect, while useful for targeting newly vascularized tissues, can be undesirable if it reduces the half-life of the Nano drug.

- An efficient way to reduce this effect is to cover the nanoparticle with a layer of PEG.
- This procedure is a technology customized under the name STEALTH®.

EPR EFFECT:

PEG – a Special Polymer

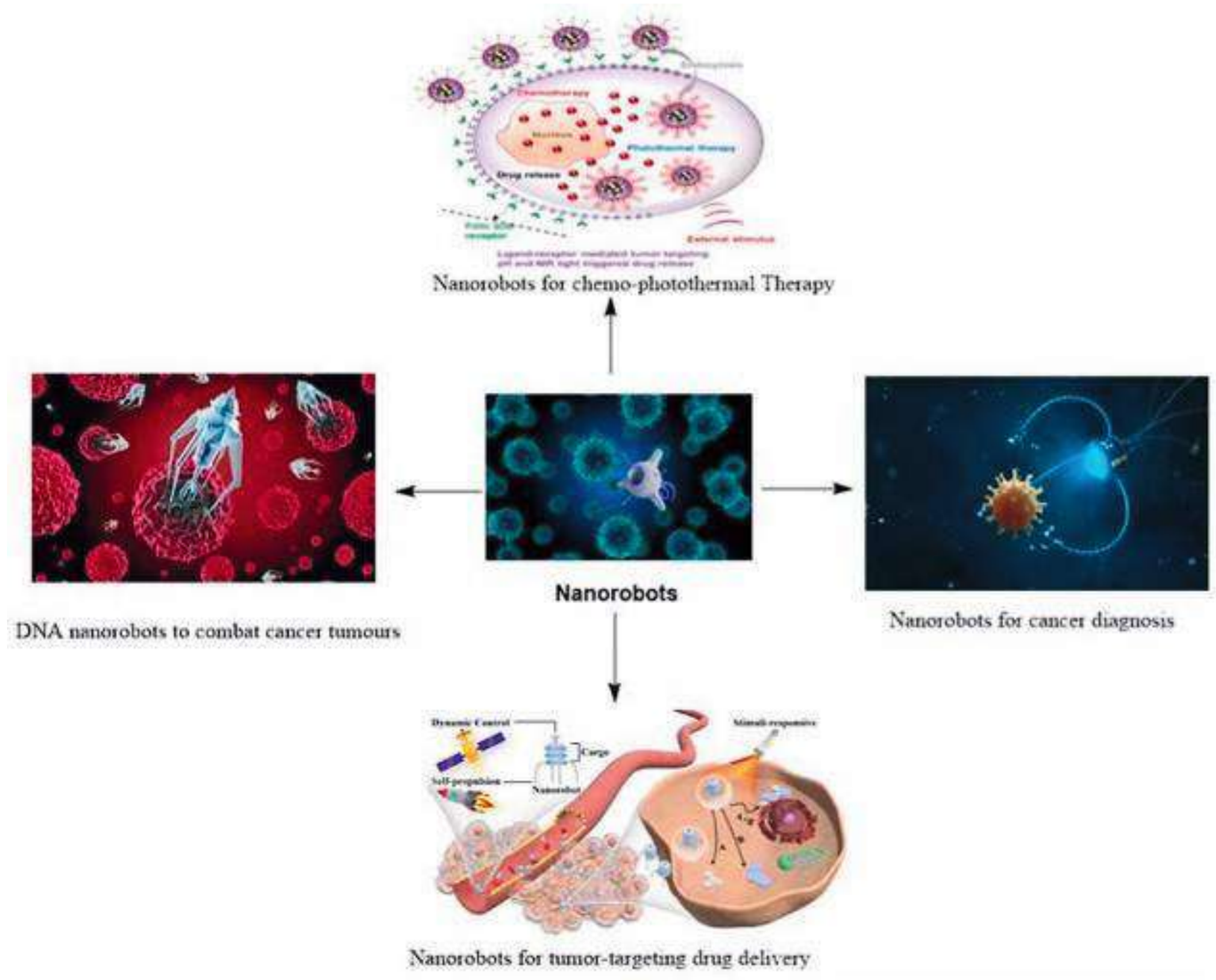
- Poly ethylene glycol or Poly ethylene oxide or PEG or PEO
- FDA Approved
- Water Soluble
- Low immiscible response
- Biocompatible
- Enchanced Permeation
- Increased Solubility



Uncoated nAu (on the left) enters the phagocyte in very larger amount than PEG-coated nAu (on the right) of similar size and shape.

4. NANOROBOTS IN CANCER THERAPY AND DIAGNOSIS

Nano robots integrated with AI have the potential to revolutionize cancer treatment and diagnosis. AI enables Nano robots to analyze complex data, identify tumor characteristics, and optimize drug delivery strategies in real-time. These intelligent Nano-bots can adapt to changing conditions, target cancer cells precisely, monitor therapeutic responses, and provide personalized treatment, improving efficiency, accuracy, and patient outcomes.



Nano-Robots in Cancer Therapy and Diagnosis

A. V. Vasanthi

SCRMP (PHARMACY WING) SF CEC-DIRECTOR OF STRATEGY & PLANNING

3D PRINTING TECHNOLOGY IN PHARMACY: PIXELS TO PILLS

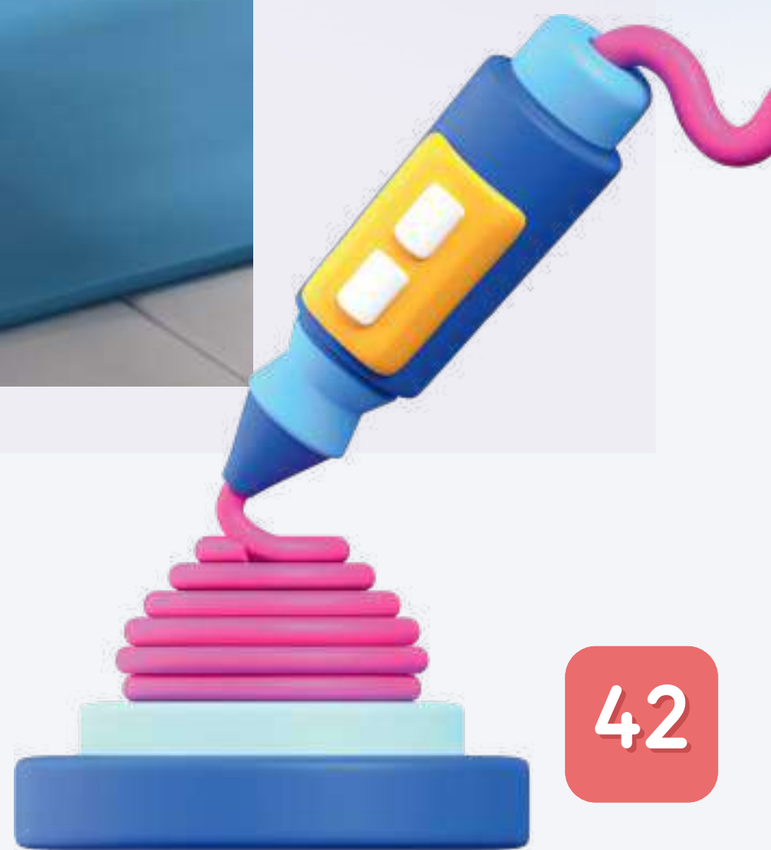
B. MEDHA GAYATRI

SAROJINI NAIDU VANITA PHARMACY MAHA VIDYALAYA, TARNAKA, HYDERABAD-500017

- **INTRODUCTION:**

Since its initial application in 1996, 3D printing of pharmaceuticals has been the subject of extensive research and significant advancements. The development of technologies that facilitate the shift from the traditional large-scale manufacturing of medications with fixed strengths to the creation of customized and adaptable dosage forms and combinations of doses on demand is imperative. 3D printing technologies can facilitate this shift. 3D printing can create printlets or 3D printed tablets that are tailored to the personal preferences of a patient (such as shape, size, texture, and flavor) and his or her therapeutic needs, including dosage, drug combination, and drug release profiles. The layer-by-layer manufacturing process is what makes 3D printing possible. The technology could be readily incorporated into healthcare settings, such as hospital wards, in-patient pharmacies, and community pharmacies, due to the portable, small, and easy-to-use nature of 3D printers and their capacity to produce medications on demand.

- **ADVANTAGES:**
- Personalized Medicine: This is a new technology that, through individual patient needs, modifies the treatment combinations and dosages accordingly to optimize drug effectiveness without side effects.
- On-Demand Manufacturing: 3D printing makes it possible to produce medications on-demand, which can significantly cut waste and lead times.
- Complex Dosage Forms: The same technology gives us the chance to create ways of delivering drugs that cannot be made through conventional processes. This would include the special shapes and features for medicine forms in order to facilitate better drug absorption into the body, coupled with multi-layer tablets and controlled-release designs



HOW DOES 3D PRINTING WORK?

Designing
- Designing a 3D drug product model with a CAD.

Stero-lithography
- The digital design is to be converted into STL File

Slicing
- The slicer converts the STL file into series of thin layers containing instructions to print the 3D Product.

Material Processing
- Preparing pharmaceutical formulation ink such as filament, binder, etc. based on the technology used.

Printing
- The formulation ink is transferred to the printer head and solidified layer by layer, on a substrate.

Post printing
- The final 3D Product may need redusting, drying, polishing, scientering, etc. after printing.

- **APPLICATIONS:**
- Complex Drug Structures: 3D printing makes the production of challenging or impossible to make traditional geometric drugs easier. It can be a multi-layered tablet as well, improving the drug's effectiveness and patient efficacy.
- Surgical Models and Guides: 3D printing is a fact of life when it comes to personalized anatomy modeling from images obtained through CT or MRI. Their significance lies in the fact that they enable surgeons to elaborate on the deformities mentioned in the planning and to advise on the steps of surgery.
- Prosthetics and Implants: Custom prosthetics and implants can be manufactured to match the exact anatomy of a patient, improving the fit and functionality.
- Bioprinting: Another territory of 3D printing in medicine is bioprinting, which is performed with cells and biomaterials and makes tissues and maybe complete organs. This innovation brings forward the potential of regenerative medicine.
- Formulation Optimization: The ability to control drug release profiles and incorporate complex geometries in drug tablets helps in optimizing formulations.
- Preclinical Studies: In preclinical research, 3D printing simplifies the creation of various drugs that are required for testing efficacy with different drug formulations.
- Geriatrics & Pediatrics: It allows for personalized drug dosages and formulations, improving medication adherence by tailoring shapes, sizes, and release profiles to individual needs .

- **3D PRINTED DRUGS APPROVED BY FDA:**

Spritam, made by US-based pharmaceuticals company Aprecia, is an oral formulation of levetiracetam, which is used to control seizures in people who have epilepsy.
T19 by China based pharmaceutical and 3D printing technology firm Triastek has been developed in-house and is designed to treat Rheumatoid Arthritis.

- **CONCLUSION:**

3D printing is one of the innovative technologies in the pharmacy industry that comes with numerous benefits. The exactness in the drug release profiles guaranteed by the technology may result in a better therapeutic outcome for patients suffering from complex conditions. Additionally, by simplifying the production process, 3D printing is making it possible to perform on-demand manufacturing. Thus, it is not only a saving but also a great development for rare diseases or small patient populations. The efficiency of 3D printing in the field of pharmaceutical care is expanded by its ability to create even more advanced drug delivery systems, such as multipill/polypill- A pill that contains all your prescriptions. Nevertheless, there are obstacles that need to be addressed, such as scalability, regulatory barriers, and the need for specialized materials and tools, before 3D printing can be fully incorporated into the standing pharmaceutical rules.

B. Medha Gayatri

**SCRMP (PHARMACY WING) SF CEC-
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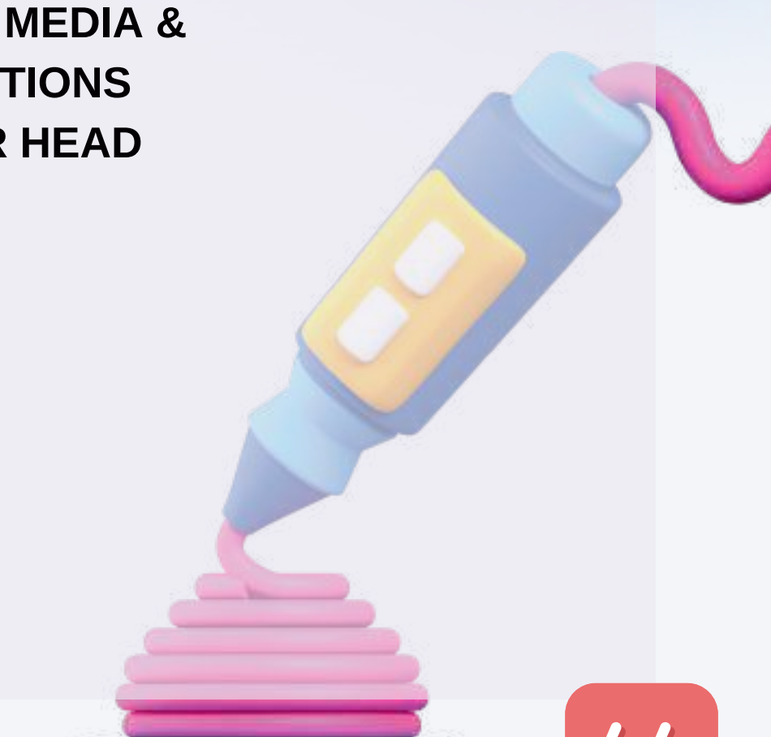
COMMUNICATIONS
AND EDITOR HEAD**



WHAT IS HMPV?

Human MetaPneumo virus

First identified in 2001, HMPV belongs to the Pneumoviridae family, closely related to the Respiratory Syncytial Virus (RSV). The virus typically causes mild upper respiratory symptoms such as cough, runny nose, and sore throat.

MOST COMMON SYMPTOMS:

- Symptoms such as Bronchiolitis Wheezing Coughing along with cold, fever are observed.
- However, in young children, older adults, and individuals with weakened immune systems, HMPV can lead to severe complications, including pneumonia, bronchitis, and exacerbation of chronic respiratory diseases like asthma or COPD.

WHAT TO DO:

- Wash your hands often with soap and water for at least 20 seconds
- Avoid touching your eyes, nose, or mouth with unwashed hands
- Avoid close contact with people who are not sick

TREATMENT OPTIONS FOR HMPV

- Treatment consists of symptomatic and supportive care as there are no specific antivirals against HMPV
- There are some reports of human use of ribavirin(mRNA synthesis inhibitors)and IVIG but no controlled trials and no guidelines are there to recommend the use of these measures.

ADVANCES IN ALZHEIMER'S RESEARCH: NEW TREATMENT APPROACHES

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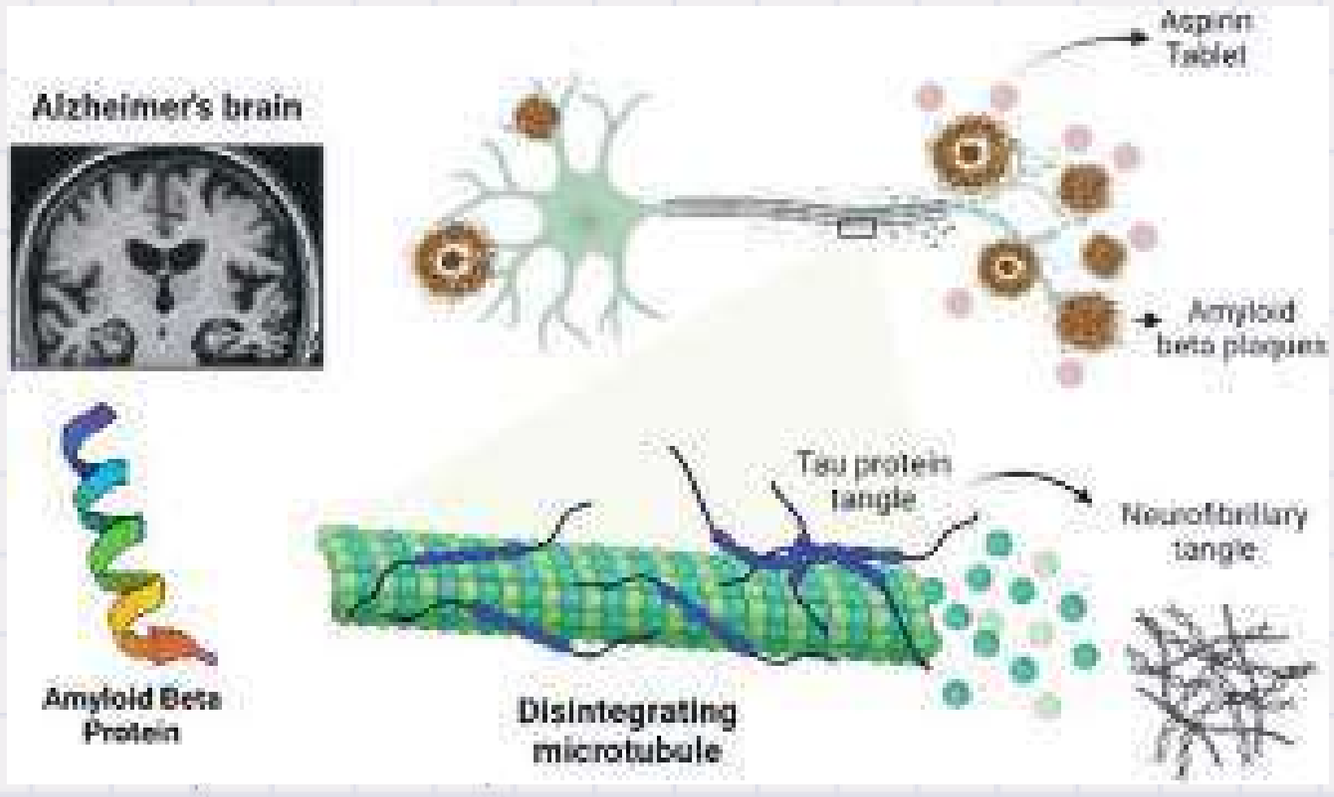
Alzheimer's disease, a progressive neurodegenerative disorder, remains one of the greatest challenges in modern medicine. Characterized by cognitive decline, memory loss, and behavioral changes, Alzheimer's affects millions of people worldwide. As the global population ages, the need for effective treatments has become more urgent. Fortunately, recent advances in Alzheimer's research have provided new hope for those affected by the disease. While there is no cure yet, several promising treatment approaches are emerging, giving scientists and patients alike renewed optimism.



Immunotherapy: Targeting Amyloid Plaques

~ One of the most significant areas of research in Alzheimer's treatment is immunotherapy. Researchers have focused on amyloid plaques abnormal protein accumulations in the brain as a key factor in the disease development. Amyloid plaques disrupt communication between neurons and contribute to their death, leading to cognitive decline. Immunotherapy involves using antibodies to target and remove these plaques from the brain, with the goal of slowing or even halting the disease progression.

~ In recent years, drugs like aducanumab and lecanemab have entered the clinical spotlight. These monoclonal antibodies have shown promise in reducing amyloid plaques and slowing cognitive decline in clinical trials. Aducanumab, approved by the FDA in 2021, was the first drug in decades to show evidence of modifying the course of Alzheimer. While its approval sparked debate due to mixed trial results, it marked a turning point in the development of disease-modifying treatments. Researchers hope that with refined patient selection and tailored treatment protocols, immunotherapies will prove to be a cornerstone of future Alzheimer's treatment.

Tau Targeting: A New Frontier

~ Beyond amyloid plaques, tau tangles-twisted protein fibers inside brain cells are another hallmark of Alzheimer. Tau tangles disrupt the function of neurons and contribute to cognitive decline. As a result, targeting tau has become an increasingly important focus in Alzheimer's research. Several experimental drugs are being developed to prevent the formation of tau tangles or to break them down once they appear.

~ Recent clinical trials have explored tau-targeting therapies with promising early results. Drugs that inhibit tau aggregation or promote the clearance of tau tangles are being tested in clinical settings. Although it is still too early to determine their long-term effectiveness, these therapies offer hope for addressing one of the most critical pathological features of Alzheimer.

ADVANCES IN ALZHEIMER'S RESEARCH: NEW TREATMENT APPROACHES

Personalized Medicine and Genetic Insights

Advances in genetic research are also paving the way for more personalized treatment approaches in Alzheimer's care. The identification of risk factors like the APOE4 gene has thrown light on how genetics influence Alzheimer's susceptibility. This genetic insight allows researchers to develop more personalized treatment strategies.

One such approach is the use of genetic testing to identify early-stage Alzheimer in asymptomatic individuals. Early diagnosis can significantly improve the efficacy of treatment interventions, as the disease may be more manageable before significant brain damage occurs.

Lifestyle Factors: A Complementary Approach

While pharmacological treatments are at the forefront of Alzheimer's research, lifestyle factors also play a significant role in the prevention and management of the disease. Studies have shown that regular physical activity, a heart-healthy diet, and cognitive exercises may help slow the onset of Alzheimer or reduce its severity. Exercise, for example, increases blood flow to the brain, which can help improve cognitive function and reduce the risk of developing Alzheimer.

The diet rich in fruits, vegetables, whole grains, and healthy fats, has been associated with a lower risk of Alzheimer. Cognitive stimulation, whether through puzzles, learning new skills, or social engagement, also contributes to brain health. Researchers are exploring how these lifestyle changes, in conjunction with medical treatments, can provide a more holistic approach to Alzheimer's care.

Emerging Technologies in Diagnosis and Treatment

Emerging technologies, such as artificial intelligence (AI) and advanced imaging techniques, are also revolutionizing Alzheimer's research. AI-powered algorithms can analyze large datasets from brain scans, genetic information, and cognitive tests to identify early signs of Alzheimer. Early detection could potentially delay the severity of the disease.

Advanced imaging techniques, like PET scans, are improving our ability to visualize amyloid plaques and tau tangles in the brain, providing more accurate diagnoses. These technologies may also play a key role in assessing the effectiveness of new treatments in clinical trials.

Conclusion

Alzheimer's research is making significant stand, with new treatment approaches offering hope for patients and families affected by the disease. Immunotherapies targeting amyloid plaques and tau tangles, personalized medicine based on genetic insights, and lifestyle interventions are all contributing to a more comprehensive understanding of Alzheimer. While a cure remains difficult, these advancements represent a promising future, one where Alzheimer's may no longer be the devastating, untreatable condition it once seemed. As research continues to evolve, the possibility of effective treatments and even prevention is becoming more tangible, providing much-needed hope in the fight against Alzheimer's disease.

Prisha Atul Naidu

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THE DIGITAL DAWN OF PHARMACY 4.0: ADVANCING BEYOND THE PILL

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INTRODUCTION

Pharmacy is undergoing a revolutionary transformation with the advent of Pharmacy 4.0, where cutting-edge technologies converge with patient-centric care. This paradigm shift leverages innovations such as artificial intelligence (AI), the Internet of Medical Things (IoMT), 3D printing, blockchain, precision oncology, and gene editing to redefine healthcare practices and improve patient outcomes. It emphasizes a shift from product-focused to service-oriented pharmacy, integrating digital tools to empower patients and healthcare providers alike.

AI IN ACTION: TRANSFORMING DIABETES MANAGEMENT

Managing diabetes demands continuous monitoring and precise insulin administration. Diabeloop, an AI-driven closed-loop system, connects continuous glucose monitors (CGMs) with insulin pumps to automate insulin delivery, reducing glycemic variability and improving the quality of life for type 1 diabetes patients.

AI platforms analyze vast datasets from wearable devices and electronic health records, predicting and mitigating hyperglycemic or hypoglycemic episodes. These systems enhance glycemic control, reduce complications, and improve long-term outcomes. Pharmacists can guide patients in using these technologies, interpret data insights, and integrate AI tools into diabetes education programs.

Virtual AI-powered diabetes coaches provide 24/7 support with tailored advice on diet, exercise, and medication adherence. These tools alleviate patient burdens, allowing pharmacists to focus on complex aspects of care.

IOMT: EMPOWERING ASTHMA AND COPD PATIENTS

Smart inhalers, a key IoMT innovation, are transforming respiratory disease management. Devices like Propeller Health's inhalers track medication usage, provide reminders, and identify environmental triggers to improve adherence. These tools send real-time alerts about factors like pollen count or air quality index, reducing exacerbations and hospital visits. IoMT-enabled spirometers and wearables allow continuous lung function monitoring, enabling early interventions.Pharmacists can integrate IoMT tools into practice by offering personalized disease management plans, helping patients navigate technology, and interpreting data insights to foster better respiratory health.

3D PRINTING: THE DAWN OF PERSONALIZED MEDICINES

3D printing enables the creation of tailored drug formulations. Spritam, the first FDA-approved 3D-printed drug for epilepsy, dissolves rapidly, aiding patients with swallowing difficulties.
Beyond epilepsy, 3D printing is used for producing polypills to simplify chronic disease regimens and designing personalized implants or microcapsules for targeted oncology, neurology, and pediatric therapies.
For pharmacists, 3D printing offers opportunities to provide on-demand drug production with precise, patient-specific formulations, heralding a future where they become innovators in personalized medicine.

PRECISION ONCOLOGY: PERSONALIZED CANCER TREATMENT

Precision oncology tailors cancer treatments to genetic profiles. Targeted therapies, such as trastuzumab for HER2-positive breast cancer and imatinib for chronic myeloid leukemia, selectively attack cancer cells, minimizing side effects and improving survival rates.
Liquid biopsies and next-generation sequencing further refine precision oncology, enabling real-time monitoring of tumor mutations and treatment efficacy. Pharmacists with pharmacogenomics expertise can enhance care by guiding therapy selection, monitoring side effects, and improving adherence, ensuring better outcomes for cancer patients.

GENE EDITING: REWRITING THE FUTURE OF MEDICINE

CRISPR-based therapies are revolutionizing disease management. By correcting the genetic mutation responsible for sickle cell disease, CRISPR offers a functional cure. It holds promise for treating cystic fibrosis, muscular dystrophy, and inherited blindness.
Beyond rare diseases, CRISPR is being explored for cancer immunotherapy, metabolic disorders, and viral infections like HIV. Pharmacists will guide patients through gene-editing treatments, address ethical concerns, and ensure proper medication management, bridging innovation and patient care.

WEARABLE DEVICES: REAL-TIME MONITORING FOR CHRONIC DISEASES

Wearables like smartwatches and biosensors track vital signs, activity levels, and biomarkers like glucose or cortisol in real time. These devices enable early detection of health anomalies and empower proactive patient management.
Pharmacists can leverage wearable data to adjust treatment plans, enhance counseling, and collaborate with healthcare providers for holistic care, embodying the shift towards preventive and precision medicine.

CONCLUSION

Pharmacy 4.0 is not just about adopting new technologies; it's about making healthcare more personalized, efficient, and compassionate. From AI to gene editing, these innovations empower pharmacists to step beyond traditional roles and redefine patient care.

By embracing these advancements, pharmacists can create a future where technology and humanity work hand in hand, blending innovation with empathy for better health outcomes.

Shahid Parvez

SCRMP - DELHI

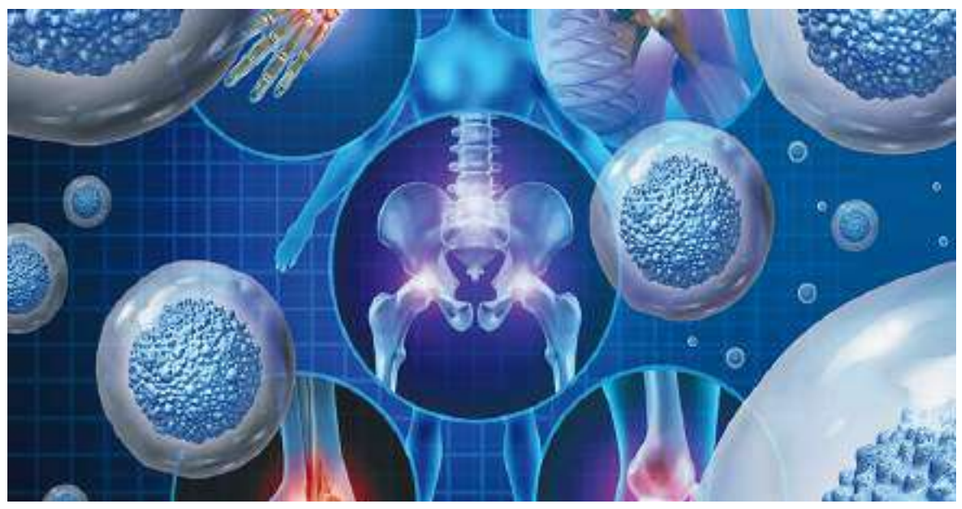
CHAPTER SCRMP/83

Stem Cell Research

FOR REVERSING TYPE 1 DIABETES

Stem cell research is rapidly evolving, with recent breakthroughs offering hope for a potential cure for Type 1 diabetes (T1D). Scientists are exploring how stem cells can regenerate insulin-producing beta cells in the pancreas, which are destroyed in T1D. This article highlights the latest news and developments in stem cell-based therapies for T1D.

REGENERATING BETA CELLS: NEW FRONTIERS



Recent studies have demonstrated significant progress in using induced pluripotent stem cells (iPSCs) to generate insulin-producing cells. A team of researchers has successfully differentiated iPSCs into functional beta cells in the lab, and some early-stage clinical trials are testing the transplantation of these stem cell-derived beta cells into T1D patients. Early results show promise, with some patients experiencing improved insulin production, though long-term success remains to be seen.

RECENT BREAKTHROUGHS IN STEM CELL THERAPY FOR TYPE 1 DIABETES

Recent advancements in stem cell-based therapies for Type 1 diabetes (T1D) are showing promise.

Researchers have successfully created stem cell-derived pancreatic islets, which include insulin-producing beta cells, and transplanted them into diabetic animals. This could provide an alternative to donor organ islet transplantation. Additionally, CRISPR-Cas9 gene editing is being used to modify stem cells, potentially enhancing beta cell development and protecting them from autoimmune attacks. Innovative approaches, such as encapsulating beta cells or using immunomodulatory treatments, aim to prevent immune rejection, improving the long-term success of these therapies.

THE ONGOING AND UPCOMING DIGITAL PHARMACY

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Introduction:

Artificial intelligence in Pharmacy:

AI is a field focused on creating intelligent machines that mimic human cognitive processes, such as data analysis, drawing conclusions, and self-correction. It combines statistical models and computational intelligence to improve decision-making. In pharmacy, AI and automation have helped address challenges like pharmacist shortages and rising costs. Automated systems improve workflow efficiency, reduce costs, and allow pharmacists to focus more on patient care, enhancing health outcomes.[1]

The Digital Transformation in Pharmacy:

The pharmacy industry is rapidly embracing digital technology to improve efficiency, reduce costs, and enhance patient care. Technologies like automation, AI, and machine learning are driving this shift. The digital pharmacy market is growing fast, expected to reach $35.33 billion by 2026. This shift is fueled by the need for more effective, transparent, and patient-centered healthcare, accelerated by the COVID-19 pandemic. AI and machine learning are improving drug development and patient care, contributing to an estimated $100 billion in annual savings for the U.S. healthcare system.[2]

The Pharmacist of the Future:

In the realm of digital health, pharmacists play an increasingly important role by offering a variety of services related to technology-driven healthcare. They can provide access to point-of-care diagnostics, allowing patients to receive immediate health assessments. Additionally, pharmacists may prescribe digitalPharmacists can also assist patients in identifying digital health tools that best suit their individual healthcare needs, whether these are apps, devices, or other digital solutions. Their expertise extends to helping patients set up and configure these medical devices and health applications, ensuring they are used effectively.

Furthermore, pharmacists are equipped to interpret data from these digital health tools, helping patients understand their results and how to apply them for better health management. This integration of technology into pharmacy services enhances patient care and contributes to more personalized, efficient healthcare.[3]

Emerging Technologies in Healthcare:

Advancements in technology are transforming healthcare, offering solutions across different critical areas. These innovations aim to improve efficiency, accuracy, and accessibility. Here's an overview of key technologies revolutionizing healthcare:

1. **Manufacturing**

3D Printing:

In manufacturing, 3D printing is revolutionizing the creation of medical equipment, prosthetics, and even tissue structures. This technology enhances customization while reducing costs and production times.

2. Treatment

Robots:

Robotics are transforming medical treatment, particularly in surgeries and rehabilitation. Robots enhance precision, reduce human error, and assist doctors in performing complex procedures efficiently.

3. Logistics of Medicine Supply

Drones:

Drones are being increasingly used for logistics, especially in the delivery of medicine and vaccines to remote areas. This ensures timely access to life-saving supplies, even in hard-to-reach regions.

4. Patient Support

Internet of Things (IoT):

The Internet of Things connects devices to monitor and support patient care. IoT enables real-time tracking of vital signs, medication adherence, and personalized patient assistance, significantly improving healthcare management.

Responsible AI in Pharmacy Practice:

1. **Emerging Governance Trend:**
   a. An emerging concept called "responsible AI" is becoming increasingly significant as organizations adopt AI technologies.
2. **Key Principles of Responsible AI:** Fairness, Transparency, Privacy, Human safety, Explainability
   a. These principles are detailed in the book Turning Point: Policymaking in the Era of Artificial Intelligence.
3. **AI's Transformative Potential:**
   a. AI has the ability to revolutionize thousands of industries, including pharmacy, by improving efficiency, accuracy, and innovation.
4. **Associated Risks and Concerns:**
   a. While the potential benefits of AI are clear, there are growing concerns about how AI technology might be used in pharmacy practice.
   b. Key challenges include ethical usage, privacy concerns, and ensuring AI tools align with pharmacy standards and patient safety[5]

Virtual Reality (VR) in Pharmacy Education:

1. Immersive and Interactive Learning Environment

Virtual reality (VR) provides an immersive, 3D environment that allows students to engage in interactive, hands-on learning experiences.

Unlike traditional teaching methods, VR enables students to simulate real-world pharmacy scenarios in a controlled, risk-free setting.

This interactive approach enhances understanding, retention of knowledge, and the development of practical skills.

Overcoming Early Challenges

In the early stages, instructors faced challenges such as limited technology, lack of software, and high costs when implementing virtual activities for pharmacy education.

VR has now evolved to address these obstacles through:

Improved Hardware: VR headsets and tools are becoming more affordable and accessible.

Enhanced Software: Advanced VR applications now allow realistic simulations of patient interactions, drug formulations, and pharmacy workflows.

User-Friendly Interfaces: Modern VR systems are easier for both instructors and students to operate, reducing learning curves.

Future Potential of VR in Pharmacy Education

With continued technological and software advancements, VR is set to become a critical part of pharmacy education by:

Enhancing Practical Training: Students can practice tasks like dispensing medications, performing patient consultations, and compounding drugs in a virtual setting before applying these skills in real-world situations.

Improving Accessibility: VR allows remote learning, giving students access to high-quality education regardless of location.

Bridging Knowledge Gaps: VR helps learners understand complex concepts, such as drug interactions or patient counselling, through realistic visualizations.

As the technology evolves, VR is likely to transform pharmacy education, making learning more engaging, effective, and efficient.

Kandru Hari Chandra Prasad

SCRMP LOC MEMBER

BREAKING BARRIERS

REVOLUTIONIZING CANCER TREATMENT THROUGH THE CONSTRUCTIVE COLLABORATION OF AI AND PRECISION MEDICINE

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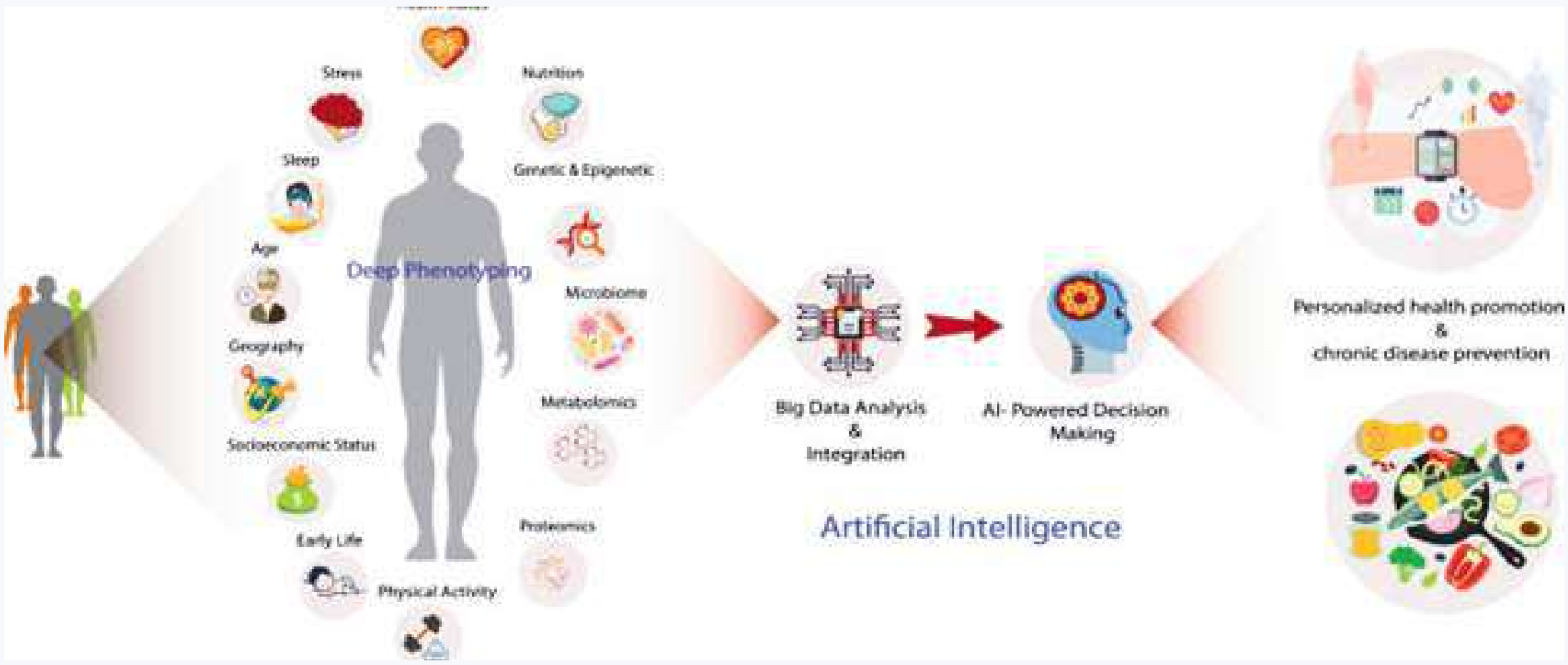

Cancer is a disease which is characterized by uncontrolled growth and abnormal division of cells in the body. Normally, cells in the body grow, divide and die in a regulated manner. However, in cancer, this process goes awry, leading to the formation of ‘tumors. The danger intensifies when cancer cells evade bloodstream and the natural defense system of the body. This property of deep learning extended its applicability to various aspects of cancer research and medicine, such as automatically and accurately detecting cancer from images of stained tumor slides or radiology images thereby holding the potential to unburden pathologists and radiologists from routine and repetitive tasks.

AI AND PRECISION MEDICINE

Precision medicine is a method of disease prevention and treatment that considers each person's unique genetic, environmental, and lifestyle characteristics.

Its tailor’s treatments to each person's distinct biological composition, in contrast to conventional one-size-fits-all approaches. The idea is not new, but more and more everyday healthcare is incorporating it. Only 29% of healthcare facilities now use precision medicine extensively. Experts anticipate a significant rise in its use in several medical specialties, nevertheless. This customized strategy promises to reduce side effects, discover novel medicines, and improve prevention and treatment tactics. Precision medicine can assist in more effective healthcare resource allocation and the reduction of needless expenses related to trial-and-error methods or inefficient therapies by more precisely focusing on treatments. Ensuring adequate intellectual property (IP) protection is one of the most important technological elements in the development of precision medicines. Businesses must carry out extensive IP due diligence both domestically and abroad.

This entails protecting the technology internationally in addition to submitting patent applications in important areas like the USA and Japan. Innovation is exposed to reverse engineering and possible patent infringements when any region of the world is neglected. Companies should make their IP strategies impenetrable by proactively protecting their formulations, processes, and know-how to maintain their position. To keep rivals from copying the technology and obtaining a competitive advantage, this stage is essential.

Thorough Clinical Trial Planning and Implementation: Precision medications, particularly gene therapies, sometimes entail customized therapeutics aimed at patient groups. It is essential to carefully plan and carry out clinical trials. Trials in precision medicine, which concentrate on genetic markers or uncommon disorders, may have smaller sample numbers than those in more general healthcare domains. Thus, careful preparation is necessary to choose appropriate individuals, set up reliable objectives, and guarantee statistically meaningful outcomes. Clinical trials can also be made more accurate and efficient by utilizing cutting-edge methods including biomarker-driven research, adaptive trial designs, and real-world evidence integration. For precision medications to be approved by regulators and widely used, properly carried out trials are essential to proving their effectiveness and safety. The integration of AI in cancer diagnosis contributes to earlier detection, more precise classification of tumors and ultimately patient outcomes. Even if it diagnosed early, the one size fits all approach to cancer treatment has often yielded sub-optimal results, as individual variations in genetic makeup, environmental factors and lifestyle choices significantly influences the course of the disease. AI and ML make it possible to design and prevent disease at the individual patient level by improving our understanding of therapeutic characteristics and patient specificity. Therefore, through its use in precision medicine, AI and ML algorithms are updating several areas of our lives, such as gene expression pattern analysis, risk assessment, phenotypic prediction, and medical imaging.

Because of variations in their habitat, physiology, and other traits, a subpopulation within a vast population can be identified using "precision medicine" that differs from their disease risk, prognosis, detection, and response to therapy. Customized prevention, diagnosis, and therapy for each person based on their unique genetics, phenotype, epigenetics, and lifestyle are the main focuses of personalized medicine.
Deep phenotyping of each person.

In terms of illness risk prediction, phenotypic prediction, and dose-treatment response, recent advances in AI/ML algorithms for precision medicine for neurological, cancer, and cardiovascular diseases have demonstrated encouraging outcomes with a high degree of accuracy and precision.

Moreover, three distinct elements of big data, multimodal analysis, scientific knowledge, and decision support systems can be analyzed through an AI-based decision-making process. Furthermore, the identification of many single-cell parameters—such as proteome signature analysis, immunological marker profiling, genomic/epigenomic profiling, and morphological studies—that inform the choice of target-based medications is made possible by AI/ML-based precision medicine. However, the need for sophisticated computing systems to handle multimodal datasets is a major disadvantage of computational precision medicine. The ""“V” s" of big data—volume, velocity, variety, veracity, variability, and value—are the main obstacles to successful and efficient biomedical and health informatics. AI’s transformative influence on the future of precision medicine is groundbreaking. Through deciphering intricate biological data, AI facilitates personalized treatments and swift diagnoses, revolutionizing healthcare. Embracing this paradigm shift unveils limitless possibilities in patient care advancements.

By harnessing AI’s analytical prowess, medical professionals can tailor treatments with unprecedented precision, optimizing outcomes. In this ever-evolving landscape, AI stands as the cornerstone, reshaping how we approach medicine and ensuring a future where tailored, efficient healthcare is the norm. Our mission at NextGen Invent is to drive precision medicine forward with AI-driven innovations. Experience the future of healthcare today – empower your business with our cutting-edge AI solutions.

DEEPAK KUMAR PUNNA

SCRMP (PHARMACY WING)-
DIRECTOR OF STRATEGY &
PLANNING

SCRMP MEMBERS ACHIEVEMENTS

The Society of Clinical Research and Medical Professionals (SCRMP) takes immense pride in recognizing the exceptional achievements of its members. Their unwavering commitment to advancing medical research, improving patient care, and fostering innovation within the healthcare sector is nothing short of inspiring. From groundbreaking clinical trials to leadership in medical research, SCRMP members have consistently pushed the boundaries of science and medicine. This edition of our magazine highlights their extraordinary contributions, showcasing how their expertise and dedication are shaping the future of healthcare. Join us in celebrating these outstanding professionals whose work continues to have a profound impact on the global medical community and the lives of countless individuals.

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VIVEKRAJ MAHESHWARI

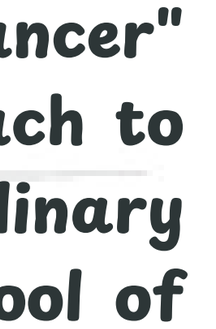
I (Vivekraj Maheshwari) and Kush Dagli are excited to share our victory in the "Make Your Own Recipe" competition at Tech Xtreme 2024, hosted by Gandhinagar University. Representing the LJ Department of Pharmaceutical Sciences, LJ University, this win reflects our hard work and the invaluable mentorship we received. Special thanks to Ms. Disha Joshi, Dr. Shreeraj Shah, and Dr. Dilip Maheshwari for their unwavering support. This achievement inspires us to continue our journey and pursue even greater milestones in the future.

NATIONAL TECH XTREME -2024
ORGANIZED BY
GANDHINAGAR UNIVERSITY

SUMIT SHARMA

I am proud to share that I won the 1st prize for my poster presentation on "New Advancements in Gene Therapy for the Treatment of Cancer" at the International Conference on Approach to Pharmaceutical Insight Through Interdisciplinary Research. The event, organized by the School of Pharmacy at GH Raisoni University, Saikheda, Chhindwara, M.P., took place from October 27 to 28, 2023. This recognition is a testament to my dedication to advancing pharmaceutical research and contributing to innovative cancer treatment solutions.

INTERNATIONAL CONFERENCE ON APPROACH TO PHARMACEUTICAL INSIGHT THROUGH INTERDISCIPLINARY RESEARCH



A V VASANTHI

I am excited to share that I won 1st prize in the E-Poster Competition organized by MusculaRx (Sports Pharmacy) Fest 2k24 on World Pharmacist Day! My poster, titled "Role of Supplements on Athletes' Performance and Health," explored the impact of supplements on athletic performance and overall health. I am honored to have received a certificate, a memento, and a cash prize of ₹3000. It was a fantastic experience to contribute to the field of sports pharmacy and gain recognition for my work!

1ST PRIZE IN THE E-POSTER COMPETITION ORGANIZED BY MUSCULARX FEST 2K24

A V VASANTHI

I had the honor of delivering my first-ever oral presentation on the topic "Revolutionizing Pharmacovigilance: The Role of AI in Ensuring Drug Safety." While I've presented posters at various offline and online events, this oral presentation marked a significant milestone in my journey. I'm thrilled to share that I secured 3rd Prize at the SCRMP 2-Day National Conference. This achievement not only boosted my confidence but also deepened my passion for the evolving intersection of AI and drug safety in pharmacovigilance.

SCRMP 2 DAY NATIONAL CONFERENCE ORAL PRESENTATION

B. MEDHA GAYATRI

I am honored to have been recognized with a certificate award for my research paper, alongside 13 other researchers among 2100 submissions from Telangana, during this enriching event. The experience has left me inspired and driven to contribute to this ambitious vision for our nation's future. Key takeaways:

- Education serving as the cornerstone for nurturing responsible global citizens.

- Integration of traditional wisdom with contemporary education for comprehensive growth.

- Collective endeavors aimed at shaping a developed India by 2047.

BEST RESEARCH PAPER AWARD IN TELANGANA- BSM BHARATH

विजन फॉर विकसित भारत (विविभा) - २०२४

VISION FOR VIKSIT BHARAT (VIVIBHA) - 2024

राष्ट्रीय शोधपत्र लेखन प्रतियोगिता

A National Level Research Paper Writing Competition

भारतीय शिक्षण मंडल, युवा आयाम, प्रांतः तेलंगाना

Bharatiya Shikshan Mandal, Yuva Aayam, Prant: Telangana

शोधपत्र पुरस्कार प्रमाणपत्र

Date: 16-10-2024

शोधपत्र लेखन का पुरस्कार डॉ./श्री/श्रीमती/सुश्री बी. मेधा गायत्री

कार्यरत सरोजिनी नायडू, वनिता फार्मेसी महा विद्यालय को उनके उत्कृष्ट एवं गुणवत्तापूर्ण

शोधपत्र "The Unseen Influence - Ancient Indian Contributions to Global Science & Technology" के लिए

दिया जाता है। यह शोध पत्र विकसित भारत के लिए महत्वाकांक्षी एवं परिवर्तनकारी योजना तथा आवश्यक नींव के निर्माण के उद्देश्य से आयोजित राष्ट्रीय शोधपत्र लेखन प्रतियोगिता "विजन फॉर विकसित भारत (विविभा)" में प्रस्तुत किया गया। इस शोधपत्र में प्रस्तुत किये गए आपके विचार तथा परिकल्पनाएं महत्वपूर्ण एवं सराहनीय है।

CERTIFICATE FOR RESEARCH PAPER AWARD

The Research Paper Award is presented to ~~Dr./Mr./Mrs.~~ /Ms. B. MEDHA GAYATRI

from SAROJINI NAIDU VANITA PHARMACY MAHA VIDYALAYA.

for ~~his~~/her outstanding and meritorious research paper titled

"The unseen Influence - Ancient Indian Contributions to global Science & Technology"

which was presented at the National Research Paper Writing Competition VISION FOR VIKSIT BHARAT (VIVIBHA): An Ambitious and Transformative Agenda to Build a Foundation for Viksit Bharat. Your vision and ideas presented in this research paper are valuable and appreciated

Dr. Ch. Pamachander
Prant Yuva Aayam Pramukh

Dr. A. Uma
Prant Secretary

Prof. Shivaraj
Prant President

B. MEDHA GAYATRI

I am excited to share that I secured the First Position in the Best Creative Poster category for World Pharmacists Day 2024, organized by Derozio Pharma Institute. My poster, titled "Nanotechnology in Healthcare," showcased the transformative potential of nanotechnology in revolutionizing medical treatments and healthcare solutions. This achievement reflects my passion for innovation in pharmacy and highlights the importance of emerging technologies in enhancing patient care and treatment outcomes.

FIRST POSITION IN BEST CREATIVE POSTER CATEGORY FOR WORLD PHARMACISTS DAY 2024

MUSKAN BASNET

I am excited to share that I secured 3rd position in the 3D PharmMech Competition with my project on Smart NanoCarrier. The competition provided an excellent platform to showcase innovative ideas in pharmaceutical science, and my work focused on the potential of smart nanocarriers in targeted drug delivery systems. This achievement reflects my dedication to advancing pharmaceutical technology and reinforces my passion for contributing to the development of more effective and personalized treatment options in healthcare.

3D PHARMMECH COMPETITION
SMART NANOCARRIER

मेडी-केप्स विश्वविद्यालय, इन्दौर

Medi-Caps University, Indore

Certificate

This is to certify that ***Ms. Muskan Basnet*** *B. Pharm II Semester has successfully participated in* ***3D PharmMech Competition,*** *and presented model* ***Smart Nanocarriers*** *and secured the* ***Third*** *position, organized by* ***Pharmacy Department,*** *under the Faculty of Pharmacy, Medi-Caps University, Indore held on 17th February 2023.*

Dr. Mousumi Kar Pillai
Head of Department

Dr. Sanjay Jain
Dean Pharmacy

VARAD ANAND RAUT

I am pleased to announce that my article titled "Exploring the Cytotoxic Potential of Chromane: Mechanisms, Derivatives, and Therapeutic Implications" was published in the International Research Journal of Modernization in Engineering Technology and Science. The article delves into the cytotoxic effects of chromane compounds, highlighting their mechanisms, derivatives, and potential therapeutic applications in cancer treatment. This publication reflects my commitment to advancing research in the field of pharmacology and therapeutic innovation.

REVIEW ARTICLE PUBLISHED IN IJRMETS

IRJMETS

International Research Journal Of Modernization in Engineering Technology and Science

(Peer-Reviewed, Open Access, Fully Refereed International Journal)

Ref: IRJMETS/Certificate/Volume 06/Issue 08/60800031532

DOI : https://www.doi.org/10.56726/IRJMETS61040

e-ISSN: 2582-5208

Date: 19/08/2024

Certificate of Publication

*This is to certify that author "**Varad Anand Raut**" with paper ID "**IRJMETS60800031532**" has published a paper entitled "EXPLORING THE CYTOTOXIC POTENTIAL OF CHROMANE: MECHANISMS, DERIVATIVES, AND THERAPEUTIC IMPLICATIONS" **in International Research Journal Of Modernization In Engineering Technology And Science (IRJMETS), Volume 06, Issue 08, August 2024***

Editor in Chief

IRJMETS Impact Factor 7.868

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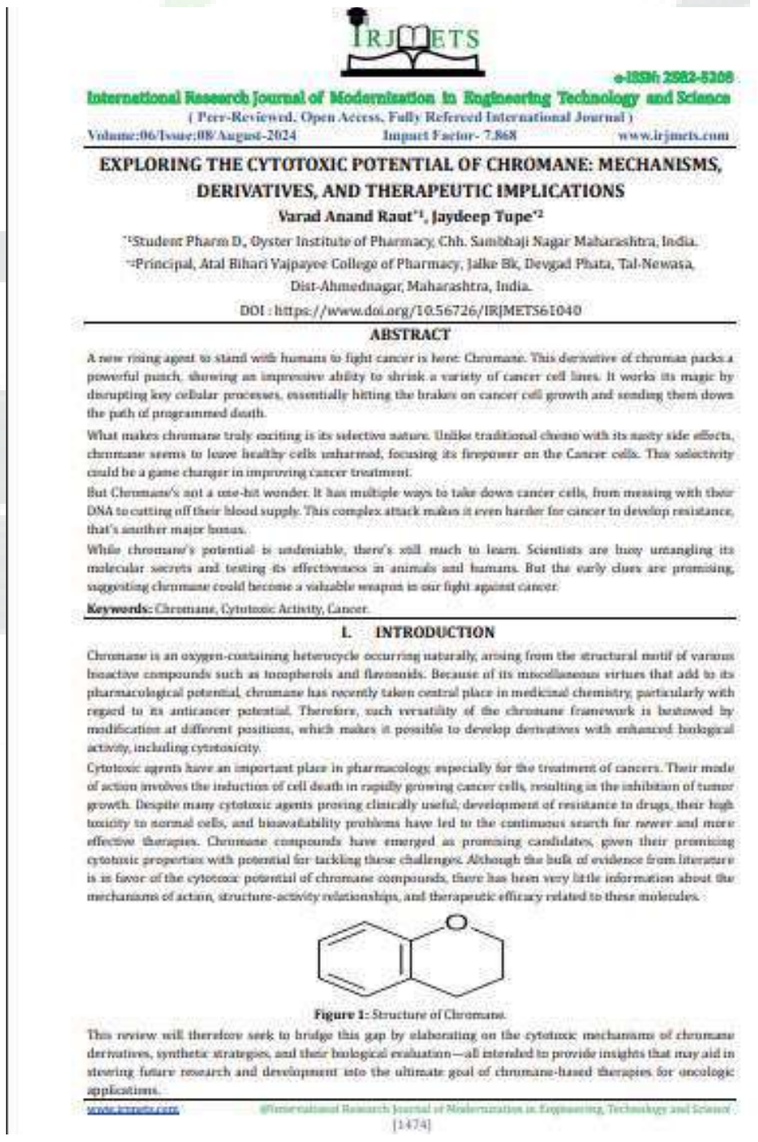
www.irjmets.com



IRJMETS

e-ISSN: 2582-5208

International Research Journal of Modernization in Engineering Technology and Science

(Peer-Reviewed, Open Access, Fully Refereed International Journal)

Volume:06/Issue:08/August-2024 Impact Factor- 7.868 www.irjmets.com

EXPLORING THE CYTOTOXIC POTENTIAL OF CHROMANE: MECHANISMS, DERIVATIVES, AND THERAPEUTIC IMPLICATIONS

Varad Anand Raut*1, Jaydeep Tupe*2

*1Student Pharm D, Oyster Institute of Pharmacy, Chh. Sambhaji Nagar Maharashtra, India.

*2Principal, Atal Bihari Vajpayee College of Pharmacy, Jalke Bk, Devgad Phata, Tal-Newasa, Dist-Ahmednagar, Maharashtra, India.

DOI : https://www.doi.org/10.56726/IRJMETS61040

ABSTRACT

A new rising agent to stand with humans to fight cancer is here: Chromane. This derivative of chroman packs a powerful punch, showing an impressive ability to shrink a variety of cancer cell lines. It works its magic by disrupting key cellular processes, essentially hitting the brakes on cancer cell growth and sending them down the path of programmed death.

What makes chromane truly exciting is its selective nature. Unlike traditional chemo with its nasty side effects, chromane seems to leave healthy cells unharmed, focusing its firepower on the Cancer cells. This selectivity could be a game changer in improving cancer treatment.

But Chromane's not a one-hit wonder. It has multiple ways to take down cancer cells, from messing with their DNA to cutting off their blood supply. This complex attack makes it even harder for cancer to develop resistance, that's another major bonus.

While chromane's potential is undeniable, there's still much to learn. Scientists are busy untangling its molecular secrets and testing its effectiveness in animals and humans. But the early clues are promising, suggesting chromane could become a valuable weapon in our fight against cancer.

Keywords: Chromane, Cytotoxic Activity, Cancer.

I. INTRODUCTION

Chromane is an oxygen-containing heterocycle occurring naturally, arising from the structural motif of various bioactive compounds such as tocopherols and flavonoids. Because of its miscellaneous virtues that add to its pharmacological potential, chromane has recently taken central place in medicinal chemistry, particularly with regard to its anticancer potential. Therefore, such versatility of the chromane framework is bestowed by modification at different positions, which makes it possible to develop derivatives with enhanced biological activity, including cytotoxicity.

Cytotoxic agents have an important place in pharmacology, especially for the treatment of cancers. Their mode of action involves the induction of cell death in rapidly growing cancer cells, resulting in the inhibition of tumor growth. Despite many cytotoxic agents proving clinically useful, development of resistance to drugs, their high toxicity to normal cells, and bioavailability problems have led to the continuous search for newer and more effective therapies. Chromane compounds have emerged as promising candidates, given their promising cytotoxic properties with potential for tackling these challenges. Although the bulk of evidence from literature is in favor of the cytotoxic potential of chromane compounds, there has been very little information about the mechanisms of action, structure-activity relationships, and therapeutic efficacy related to these molecules.

Figure 1: Structure of Chromane.

This review will therefore seek to bridge this gap by elaborating on the cytotoxic mechanisms of chromane derivatives, synthetic strategies, and their biological evaluation—all intended to provide insights that may aid in steering future research and development into the ultimate goal of chromane-based therapies for oncologic applications.

RISHIKA SHARMA

I won the Best Poster Presentation at the International Conference on Innovations in Advanced Drug Research, held on December 9-10, 2024, at Delhi Pharmaceutical Sciences and Research University. Among 160+ participants from eight states, including Ph.D. and M.Pharm scholars, my women-focused research on novel drug delivery strategies addressing critical health issues stood out. The event, presided over by the Drugs Controller General of India, strengthened my dedication to advancing women's healthcare.

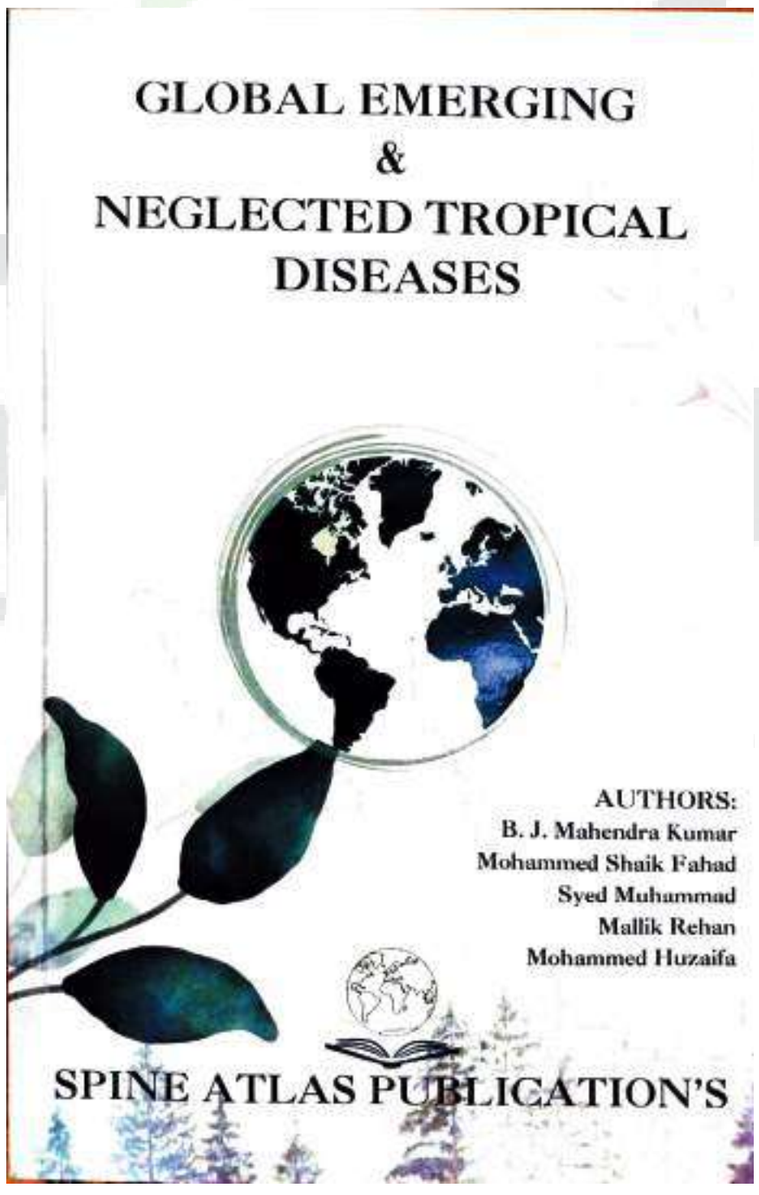
POSTER PRESENTATION AT INTERNATIONAL CONFERENCE ON INNOVATIONS IN ADVANCED DRUG RESEARCH

INTERNATIONAL CONFERENCE
ON
Innovations in Advanced Drug Research
9-10 DECEMBER, 2024
CERTIFICATE OF RECOGNITION
Presented to
Ms. Rishika Sharma
for securing 1st position for presenting poster titled
THE DEVELOPMENT OF PLANT BASED
MUCOADHESIVE TABLET
at International conference on Innovations in Advanced Drug Research - 2024
PROF. V. RAVICHANDIRAN
ble VC DPSRU & Chairman, DIIF
PROF. HARVINDER POPLI
Professor, DPSRU & Director, DIIF

MOHAMMED SHAIK FAHAD

I authored and published the book Global Emerging and Neglected Tropical Diseases with Spine Atlas Publications. The book delves into the pressing challenges posed by neglected tropical diseases, offering insights into their global impact and the necessity for innovative healthcare solutions. This accomplishment underscores my dedication to addressing critical global health issues and contributing meaningfully to the field of academic and research literature.

GLOBAL EMERGING AND NEGLECTED TROPICAL DISEASES WITH SPINE ATLAS PUBLICATIONS



TITLI BHATTACHARJEE

"Excited to share that I won 2nd prize in the video-making competition organized by Parul University during National Pharmacy Week 2024! This competition provided a fantastic platform to showcase creativity and raise awareness about the pharmacy profession. Grateful for the encouragement and inspiration from mentors and peers that made this achievement possible. It's an honor to contribute to such meaningful initiatives, and this recognition motivates me to continue exploring innovative ways to make a positive impact in the field of pharmacy!"

2ND PRIZE IN VIDEO MAKING COMPETITION NPW 2024

Parul® University | NAAC A++

CERTIFICATE
OF PARTICIPATION

This is to certify that

Mr./Ms. Titli Bhattacharjee
has participated in Video Making Competition Program and
secured 2nd Position on the occasion of 4th National Pharmacovigilance Week 2024, held between 18th to 20th September 2024, organized by Department of Pharmacy Practice, Faculty of Pharmacy, Parul University jointly with Department of Clinical Pharmacy & MVPI Center Parul Sevashram Hospital, Vadodara.

Convener | Organizing Secretary | Coordinator

TITLI BHATTACHARJEE

"I am honored to have achieved 2nd rank in Pharm.D 3rd year and 3rd rank in Pharm.D 4th year at Parul University. These accomplishments highlight my dedication to academic excellence and unwavering passion for pharmacy. I am deeply grateful to my mentors for their guidance, my peers for their support, and my family for their encouragement. Each milestone motivates me to pursue knowledge and innovation, striving to make meaningful contributions to the field of healthcare and pharmacy."

2ND, 3RD RANK IN ACADEMICS PHARM D

SHUBHANG SINGH

"Delighted to have achieved 1st position in the Pharma Quiz at SDPC Pharma Spectre 3.0, hosted by Shree Dhanvantary Pharmacy College, Kim. This event provided a fantastic platform to test and expand my knowledge in the field of pharmacy while engaging with peers in a competitive yet collaborative environment. Grateful for the organizers, mentors, and teammates who contributed to this memorable achievement. This milestone motivates me to continue exploring and excelling in the fascinating world of pharmacy!"

1ST POSITION IN PHARMA QUIZ OF SDPC PHARMA SPECTRE 3.0

SHUBHANG SINGH

"I participated in the Case Presentation Competition during the 3rd National Pharmacovigilance Week-2023 at Parul Institute of Pharmacy, Parul University, Vadodara. The competition aimed at enhancing the understanding of pharmacovigilance practices and their significance in drug safety. My presentation, focused on a critical analysis of adverse drug reactions, garnered the 2nd prize. This recognition reflected my in-depth research and effective communication skills, contributing to a broader awareness of pharmacovigilance in the medical community."

2ND PRIZE IN CASE PRESENTATION COMPETITION OF 3RD NATIONAL PHARMACOVIGILANCE WEEK- 2023

23 July 2024

Parul® University | NAAC A++

CERTIFICATE

OF EXCELLENCE

This Certified That

Mr. Shubhang Singh

Student / Faculty Of Pharmacy Practice (PTP) Successfully Participated And Secured 2nd Position In Case Presentation Competition of **3rd National Pharmacovigilance Week- 2023** organized by Department of Pharmacy Practice and ADR Monitoring Centre, Parul Institute of Pharmacy, Faculty of Pharmacy, Parul University

Dr. Mrudangsinh M. Rathod
Head of the Department
Parul Institute of Pharmacy
Parul University

Dr. Abhay Dharamsi
Dean
Faculty of Pharmacy
Parul University

SHAHID PAVREZ

"I proudly won the first prize in the Pharma Quiz during the 62nd National Pharmacy Week, organized by the University (DPSRU). My deep understanding of pharmaceutical knowledge and quick thinking contributed to securing the top spot. In addition, I earned the second prize in the Slogan Competition, organized by the Indian Pharmaceutical Association- Delhi State Branch and DPSRU. This competition allowed me to creatively express important messages related to the pharmacy profession. Both achievements reflect my dedication to advancing pharmaceutical knowledge and awareness."

1ST PRIZE IN PHARMA-QUIZ & 2ND PRIZE IN SLOGAN COMPETITION

SHAHID PAVREZ

I secured the second prize in the Quiz Competition at the G20 Event 2023, organized by DPSRU. The event provided an excellent opportunity to showcase my strong knowledge of global pharmaceutical and healthcare issues. Through this competition, I demonstrated my understanding of the international landscape of healthcare, pharmaceutical regulations, and policies, highlighting my ability to stay updated on current global trends and challenges. This recognition not only reinforced my expertise but also underscored my commitment to being well-versed in the evolving global healthcare sector.

SECOND PRIZE IN THE QUIZ COMPETITION AT THE G20 EVENT 2023

SRASHTI PAWAR

"I had the privilege of publishing an abstract on radiopharmaceuticals at the BRNS-sponsored conference held at Chameli Devi Institute. The conference provided a platform for experts and researchers in the field of radiopharma to exchange knowledge and explore innovative developments. My work focused on advancing the understanding of radiopharmaceuticals, their applications, and their potential in modern healthcare. The publication reflects my commitment to contributing to the growth of radiopharmacy and fostering scientific advancements in this vital area of research."

PUBLICATIONS OF ABSTRACT ON RADIOPHARMA BRNS

Board of Research in Nuclear Sciences (BRNS) sponsored Two Days National Symposium
"AI- RadPharma: The Future of Medicine through Artificial Intelligence in Radiopharmaceuticals" November 8 - 9, 2024

CDIP/BRNS/023

Innovations in Radiopharmaceuticals: Precision Medicine, Theranostics, AI-Driven Developments and the Future of Radiopharmaceuticals with Targeted Therapies, Imaging Techniques

Diya Karanjiya, SrashtiPawar,Ayushi Choudhary, Shailendra Chouhan, Sanjay Jain
Faculty of Pharmacy, Medicaps University, Indore, Madhya Pradesh, India
Email Id: diyakaranjiya@gmail.com

Abstract

Radiopharmaceuticals uniquely combine radioactive isotopes with biologically activemolecules, enabling targeted diagnostic and therapeutic applications, particularly fortissues with high metabolic activity, such as tumours. In diagnostic imaging, radiopharmaceuticals are employed with technologies like positron emissiontomography (PET) and single-photon emission computed tomography (SPECT),where emitted radiation is detected to visualize internal organ functions. PET scans,utilizing positron-emitting radiopharmaceuticals, are especially effective for cancerdetection, heart monitoring, and brain disorder evaluation. Emergingnanoparticle-based formulations show promise for enhancing the efficacy andprecision of next-generation radiopharmaceuticals. Bone-seeking radiotracers, liketechnetium-99m bisphosphonates, are critical for mapping metastatic bone lesions,while agents such as strontium-89 chloride and samarium-153 lexidronam deliver localized radiation to alleviate pain and improve skeletal stability. The integration ofAI-driven image analysis with radiopharmaceuticals i.e. radiomics has significantlyadvanced healthcare by improving lesion detection, disease staging, and treatmentresponse assessment, allowing for highly personalized therapies informed bypatient-specific data and radiation dosimetry calculations. Additionally, theranosticsmerges diagnostic imaging and therapy through radiopharmaceuticals, which consistof a targeting component for specific tumor cells and a radioactive component forimaging or treatment. This innovative approach provides personalized, targetedtreatment options that integrate diagnosis and therapy, enhancing patient outcomes andoptimizing treatment effectiveness while ensuring safety.

Keywords: PET, Radiomics, Theranostics, Bone Metastasis Tracers ,Radiationdosimetry

DIYA KARANJIYA

"I received the 3rd prize in the Scientific Poster Making Competition on Novel Drug Delivery System and Quality by Design, held at the Faculty of Pharmacy, Medicaps University. My presentation focused on Nanorobots and Nanoparticles in drug delivery, specifically highlighting the usage and applications of marketed nano carriers like dendrimers and carbon nanotubes. The poster aimed to showcase the potential of these advanced nanomaterials in enhancing drug delivery systems, offering innovative solutions to improve therapeutic efficacy and targeting."

3RD PRIZE SCIENTIFIC POSTER MAKING COMPETITION IN NOVEL DRUG DELIVERY SYSTEM AND QUALITY BY DESIGN

मेडी-केप्स विश्वविद्यालय, इन्दौर

Medi-Caps University, Indore

Certificate

This is to certify that ***Ms. Diya Karanjiya*** *B. PHARM I Semester has successfully participated in* ***Scientific Poster Making Competition,*** *theme of poster is* ***Novel Drug Delivery Systems and Quality by Design*** *& topic* ***Nanorobots and Nanoparticles for Drug Delivery*** *and secured the* ***Third*** *position, organized by* ***Pharmacy Department,*** *under the Faculty of Pharmacy, Medi-Caps University, Indore held on 25th November 2022.*

Dr. Shailendra Chouhan
Coordinator

Dr. Mousumi Kar Pillai
Head of Department

Dr. Sanjay Jain
Dean Pharmacy

DIYA KARANJIYA

At Medicon 2023, a National Conference on Biostatistics and Research Methodology, I received the 3rd prize in the scientific poster presentation for my work on "E-health Cards." The poster demonstrated the uses, applications, economic benefits, and contributions of e-health cards to health economic modeling. Additionally, I participated in the 2-day National Conference "AI RadPharma: The Future of Medicine through Artificial Intelligence in Radiopharmaceuticals," sponsored by the Board of Research in Nuclear Sciences (BRNS) at Chameli Devi Institute, Indore, where I presented a review paper published in the conference journal.

MEDICON 2023 POSTER PRESENTATION & PAPER PUBLICATION IN CONFERENCE JOURNAL

Board of Research in Nuclear Sciences (BRNS) sponsored Two Days National Symposium
"AI- RadPharma: The Future of Medicine through Artificial Intelligence in Radiopharmaceuticals" November 8 - 9, 2023

CDIP/BRNS/023

Innovations in Radiopharmaceuticals: Precision Medicine, Theranostics, AI-Driven Developments and the Future of Radiopharmaceuticals with Targeted Therapies, Imaging Techniques

Diya Karanjiya, SrashtiPawar,Ayushi Choudhary, Shailendra Chouhan, Sanjay Jain
Faculty of Pharmacy, Medicaps University, Indore, Madhya Pradesh, India
Email Id: diyakaranjiya@gmail.com

Abstract

Radiopharmaceuticals uniquely combine radioactive isotopes with biologically activemolecules, enabling targeted diagnostic and therapeutic applications, particularly fortissues with high metabolic activity, such as tumours. In diagnostic imaging, radiopharmaceuticals are employed with technologies like positron emissiontomography (PET) and single-photon emission computed tomography (SPECT),where emitted radiation is detected to visualize internal organ functions. PET scans,utilizing positron-emitting radiopharmaceuticals, are especially effective for cancerdetection, heart monitoring, and brain disorder evaluation. Emergingnanoparticle-based formulations show promise for enhancing the efficacy andprecision of next-generation radiopharmaceuticals. Bone-seeking radiotracers, liketechnetium-99m bisphosphonates, are critical for mapping metastatic bone lesions,while agents such as strontium-89 chloride and samarium-153 lexidronam deliver localized radiation to alleviate pain and improve skeletal stability. The integration ofAI-driven image analysis with radiopharmaceuticals i.e. radiomics has significantlyadvanced healthcare by improving lesion detection, disease staging, and treatmentresponse assessment, allowing for highly personalized therapies informed bypatient-specific data and radiation dosimetry calculations. Additionally, theranosticsmerges diagnostic imaging and therapy through radiopharmaceuticals, which consistsof a targeting component for specific tumor cells and a radioactive component forimaging or treatment. This innovative approach provides personalized, targetedtreatment options that integrate diagnosis and therapy, enhancing patient outcomes andoptimizing treatment effectiveness while ensuring safety.

Keywords: PET, Radiomics, Theranostics, Bone Metastasis Tracers ,Radiationdosimetry

SCRMP

Society of Clinical Research and
Medical Professionals

THANK YOU

FOR READING