2023

11th SCIENTIFIC CONFERENCE

11TH EDITION

Book

FACULTY OF PHARMACY - MANSOURA UNIVERSITY

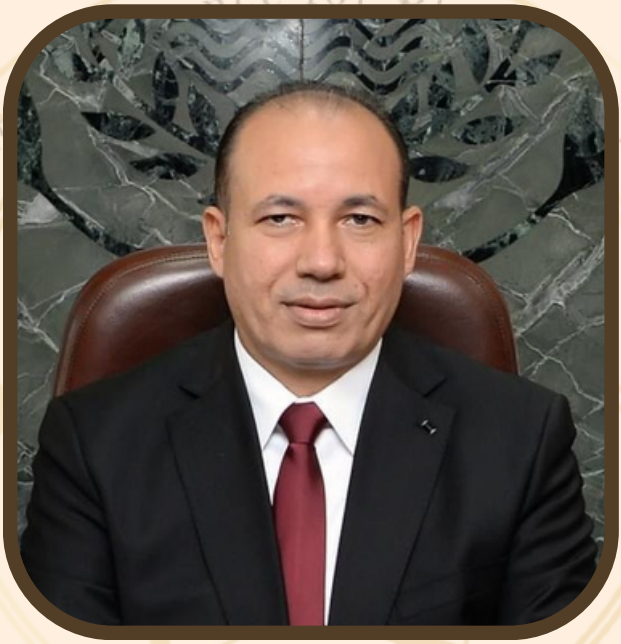
Vision:

- The scientific conference of pharmacy is a full day event organized by Faculty of Pharmacy, Mansoura University which aims to recognize and reveal scholar research of undergraduate pharmaceutical and biochemical students all over Egypt.
- It aims to promote and celebrate the research project of diverse and multidisciplinary biomedical and pharmaceutical field.

Mission:

- Reveal the importance of scientific research in solving problems, inventing solutions, and developing new products.
- Show the inherent research potential in undergraduate students.
- Create opportunity for undergraduate students to investigate themselves as contributors in research community.
- Provide updated ideas and instructions to research methodologies and ethics.

Faculty of pharmacy, Mansoura University, would like to express gratitude for:

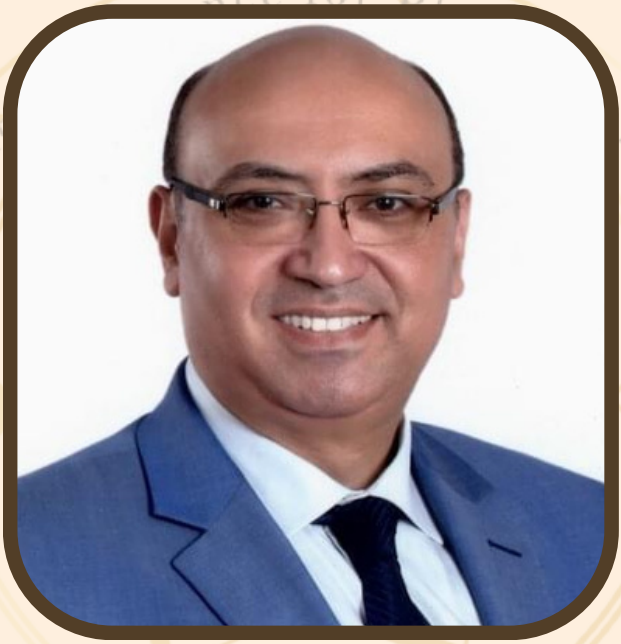


Prof. Sherif Youssef Khater

President of Mansoura University

For the genrous support without which 11th scientific conference, Faculty of Pharmacy would not have been possible.

Faculty of pharmacy, Mansoura University, would like to express gratitude for:



Prof. Mohamed Attia El-Bauomi

Vice President of Mansoura University for Education and Students' Affairs

For the genrous support without which 11th scientific conference, Faculty of Pharmacy would not have been possible.

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President of Mansoura University

Prof. Mohamed Attia El-Bauomi

Vice President of Mansoura University for Education and Student's Affairs

Prof. Mahmoud Elmeligy

Vice President of the University for community service and environmental development affairs

Prof. Ashraf Tarek Hafez

Vice President of Mansoura University graduate studies, research and culture relations

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Dean of Faculty of Pharmacy

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Vice Dean for Education and Student's Affairs

Prof. Khalid B. Selim

Vice Dean for graduate studies & scientific research

Prof. Hany Ebrahim Kenawy

Vice Dean for community service and environmental development affairs

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Associate professor of pharmaceutical organic chemistry
Rapporteur of the conference

Dr/ Nada Fawzy Ibrahim
Associate Professor of Biochemistry
Secretary of the conference

Dr/ Selwan Mahmoud El-Sayed
Lecturer of Medicinal Chemistry
(Chairman of the Organization Committee)

Dr/ Noha Osama Mansour
Lecturer of Clinical Pharmacy
(Chairman of the Scientific Committee)

Dr/Sherin Mohamed Elfeky
Lecturer of Pharmaceutical Organic Chemistry
(Chairman of the Media Committee)
(Scientific Committee)

Dr/ Amal Ayman El-Masry
Lecturer of Medicinal Chemistry
(Media Committee)
(Scientific Committee)

Dr/ Omnia Ahmed Nour
Lecturer of pharmacology and toxicology
(Scientific Committee)

Dr/ Sahar Abd El gawad Helmy
Lecturer of Biochemistry
(Scientific Committee)

Dr/ Mona Mohammed Eltamalawy
Lecturer of Clinical Pharmacy
(Media Committee)

Dr/ Randa Hanie Awadeen
Assistant lecturer of Pharmaceutics
(Scientific Committee)

Dr/ Abdullah Mohammed Haikal
Assistant lecturer of Pharmacognosy
(Scientific Committee)

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Teaching assistant of pharmacology and toxicology
(Media Committee)

Dr/ Mohamed Maher Elserwy
Teaching assistant of Microbiology and Immunology
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Dr/ Ahmed Hassan Madkour
Assistant lecturer of pharmacology and toxicology
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Dr/ Enas Yasser Mohamed
Lecturer of Microbiology and Immunology
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Teaching assistant of pharmacology and toxicology
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Dr/ Mennatallah Alsayed Zeyada
Assistant lecturer of Biochemistry
(Organization Committee)

Dr/ Iman Manar El-Islam El-zehery
Teaching assistant of Biochemistry
(Organization Committee)

Soha Abdeldayem
Information Technology Unit

Yara Soliman
Information Technology Unit

Osama El-Mettwaly
Director of Student Welfare Department

Mona Mettwaly
Secretary vice dean of education and students

Aya Fathy
Sports activity specialist

Elsayed Ahmed
Financial Affairs

Prof. Manal Mohamed Eid

Dean Of Faculty Of Pharmacy

I am pleased to extend a warm greeting to all presenters and participants in the 11th Scientific Conference of Pharmacy students. I consider the Scientific Student Conference one of the most important and successful activities of Faculty of Pharmacy-Mansoura University. Our annual scientific conference helps in creation of future generation of scientists to make a difference in solving the major challenges facing the global community today. The conference agenda of the conference combines discussion panels related to oral and poster presentations from 7 universities. The Scientific Student Conference provides a forum to share results of research projects, acquire new knowledge, and exchange ideas on the latest developments in addition to identifying new directions.

This year, we will celebrate the 11thScientific Conference. I am very glad to thank all keynote speakers, moderators and students.

Thank you for joining us at 11thScientific Conference (Pharmacy students).

Dean Of Faculty Of Pharmacy

Prof.Dr. Manal Mohamed Eid

Prof.Dr. Rasha Fathy Barwa

Vice Dean for Education and Student's Affairs

It gives me great pleasure to extend a warm welcome to all presenters and participants of the 11th Scientific Conference (Pharmacy students). The conference aims to shed light on the new pharmaceutical sciences, and research exchanging among the students and the experts of this field. In fact, the Scientific Student Conference provides an opportunity to display results of research projects, gain new knowledge, and exchange ideas on the latest developments. The conference agenda conference combines discussion groups related to oral and poster presentations and keynote speeches in order to keep you engaged and give you an opportunity to express yourself on every topic that comes up.

This year, we will celebrate the 11thOnline Scientific Conference with the participation of 7 universities. Students play a critical role in a development and success of the conference. I warmly thank all keynote speakers and students for their contributions and the session chairs for their dedication.

Thank you for joining us at 11 th Scientific Conference (Pharmacy students).

Vice Dean for Education and Student's Affairs

Prof.Dr. Rasha Fathy Barwa

Dr/ Samar Sameer Tawfik

Rapporteur of the conference

It is my great pleasure to be with you for the 11th year in success, but this time with a different role as the conference rapporteur. I would like to welcome all our students who shared in this great scientific event held in the Faculty of Pharmacy, Mansoura University; the place which has always been a leading educational monument.

Depending mainly on creativity and innovation, we encourage our dear students who are interested in scientific research giving them the chance to share and paving their way to be on the first path of scientific research. This scientific event aims mainly to teach students how to gain new knowledge, exchange ideas, work in teams and also acquire information from successful scientific discussions.

We have this year 7 different universities participating with us, in addition to our home, Mansoura University, hoping that this event will be crowned with success and wishing all the best for all our dear participants.

On behalf of the conference board, I would like to warmly welcome and thank all our participants, in addition, I would like also to extend my great thanks and appreciation to all my dear colleagues in the organizing & scientific committee, IT team, Student's union, Pharma school, all for their great efforts to reach our place right now.

Dr/ Nada Fawzy Ibrahim

Secretary of the conference

I delighted to welcome all the attendees of the 11th Scientific Conference for Pharmacy Students. Faculty of Pharmacy, Mansoura University is a leader in organizing the students scientific conference as this is our 11th year regularly.

The conference represents a great chance for students to incorporate into scientific research world and improve their skills in presentations and fruitful discussions through presenting their research in form of oral or poster presentations. It represents an inspiring step in generating young researchers.

The 11th Scientific Conference for Pharmacy Students successfully attracts participant from seven universities, Mansoura, Mansoura National, Al-Azhar, Tanta, Horus, Delta, and Badr Universities. I hope all participants will enjoy the conference, and best of luck in their oral or poster presentations.

All thanks to the scientific, organizing and media committee, the student's union, Pharma school association and clinical students' union, we recognize the enormous effort behind this event.

Ahmed Azmy Halawa

President of Clinical Students Universe

I am Ahmed Halawa , a senior year student and President of the CSU .
It is my honor to be a part of the organization of the scientific research conference for students in its 11th version.

"Success is not final; failure is not fatal: It is the courage to continue that counts."
— Winston S. Churchill

Based on this quote we have the motive to host this conference to allow the students such a great opportunity to experience this new kind of learning and gain a lot of new skills.

I would like to thank all our leaders for allowing us such a great experience.

I wish you all such a great experience, building new relations, learning and having fun.

Best Wishes

Reem Mohammed Kashkoush

President of Pharmaschool Association

It's my pleasure to be a part of organizing committee of 11th scientific research conference of faculty of pharmacy-mansoura university.

I want to thank the Faculty for giving pharma school association the opportunity to organize this unique conference, we all do our best for the success of the conference.

We have organized this unique conference for many years and that helped so much for teaching us professional work & enhancing our values, co-operation between all association members.

My advice to all students thinking about attending or being a part of organizing committee, Catch the chance and submit your research in the conference as you have this great chance that will inspire you and open a great way in the world of research.

Finally, I would like to thank everyone who participated in the organization of this conference.

PharmaSchool Association
For Pharmaceutical Development and Scientific Research

Organized by Clinical Students Universe

Ahmed Azmy Halawa
President

- **Organization Committee**

  Karim Moustafa Ahmed Fouda
  Mazen Khalil Ibrahim Nassef
  Omar Magdi El-shafie
  Shahd Alaa Anas El-wogod
  Amira Mohamed Elhelaly
  Enas Ahmed Abd Elbaset
  Zeyad Mohamed Elmadawy
  Rana Mohamed Eltantawy
  Ibrahim mohamed emam
  Doaa Elimam Hassan
  Nada Sobhi Ata
  Maryam Elhossiny Elsayed
  Mariam Mohamed Mansour
  Mennat Allah Ehab Gomaa
  Omar Saad Abou-elfetouh
  Nada Sameh Yousef
  Nada Fahim Eladl
  Nada Hamdy Hamed

Organized by Pharmaschool Association

Reem Mohamed Kashkoush
President

- ## Organization Committee

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Eman adel mohamed
Alaa Mohamed elmahdy
Ghada Mohamed Mahmoud
Mohamed Elsaid abdelaziz
Aya Mohamed yousif
Mohamed shoukry Ebrahim
Haneen Hisham Albialy
Ahmed samier mslhy
Amira Mahmoud Elnady
Abdelrahman fahym Elasfory
mariam Reda farouk
Nada khaled Rashed
Mirna Mousa Abdelmonam
Ahmed Abdelbadea Awad
Hana Mohamed shaban
saraa fathy abdelmohuman
Naira yasser Elbrimbaly
Tarek bashir gourab
Esmail Ali Esmail
Rania Mohamed Elsaid
Mena Ebrahim abdelmonam
Haneen samir abdelrahman
Nada Reda Mahmoud
Rawan Reda Helmy
Salah Monsour Mohamed

Aya gamal Ebrahim
Nour gamal abdelhady
Aya Hamad Mohamed
Kamar Ahmed Sedqi
Mohamed yasser Zedan
Aya Mahmoud Ahmed
Nada abdelrazek Rageh
Hager Ahmed Elsayed
Saleh saied Saleh
Aya fathy Esmail
Abdelrahman Ahmed gamil
yasmeen gmal abdelgany
Salma Abdullah ahmed
Abdelrahman Ramadan Awad
amany gamal aboelnaga
Mohamed Ebrahim Saber
Ebrahim Ebrahim Saber
Omar Mohamed montaser
Naira Mohamed Elyazby
Abdelrahman mamdouh Ramadan
Mariam sherif elmahdy
Israa Elsayed Hassan
Mahmoud Mohamed Atia
Mohamed Abdeen Mahmoud
Nada Mohamed abdelhamed
Abdelrahman shawky Elsaid

11th Scientific Conference for Pharmacy Students - (MU) Schedule

24 - 26/7/2023

Department	Hall	Moderators	Time	Presentation	Evaluation committee
Opening Ceremony (9:30 am – 12:00 pm)					
Pharmacognosy Mon 24/7/2023	قاعة أبو الحسن - الدور الخفيف	م.م/ وليد أمير	12:00-12:30 pm	**Herbal plant in treatment of Hepatic Cellular Carcinoma** Theoretical (review)/ Poster/ Al-Azher University **Code: C1**	أ.د/أشرف طه خليل أ.د/ أمل أحمد حمدي عطوة أ.م.د/ يحي أمين الدياسطي
Organic Chemistry Mon 24/7/2023			12:45-1:15 pm	**Chemically catalyzed recycling loop of PET using EG alcoholysis as a solution for plastic pollution** Theoretical (review)/ Poster/ Mansoura University **Code: O1**	أ.د/ماجدة نصر أحمد نصر أ.د/ فاطمة النبوية السيد أ.م.د/ ولاء محمود الحسيني
Clinical Pharmacy & Pharmacy practice Mon 24/7/2023	قاعة الصفوة- الدور الخفيف	م.م/ نهى أشرف	12:00-12:30 pm	**Anti-diabetic medication' use for halting CKD progression in diabetic and non-diabetic patients** Theoretical (review)/ Oral (by using PowerPoint)/ Mansoura National University **Code: PT1**	أ.م.د/ معتزة محمود السيد د/نهى أسامة منصور د/ منى محمد فتحي
			12:45-1:15 pm	**The Process of Developing and Launching a New Pharmacy careers** Theoretical (review)/ Oral (by using PowerPoint)/ Mansoura National University **Code: PT2**	
			1:30-2:00 pm	**Revolutionizing Healthcare: The Power of Artificial Intelligence in Medicine and Pharmacy** Theoretical (review)/ Oral (by using PowerPoint)/ Mansoura National University **Code: PT3**	
Pharmacology Mon 24/7/2023	قاعة ٦٠٣ - الدور الخفيف	م.م/ أحمد حسن	12:00-12:30 pm	**Quercetin and Cymbopogon flexuosus may be effective in preventing adenine-induced kidney fibrosis in rats by lowering oxidative stress and inflammatory markers.** Practical, Poster, Delta university for science and technology **Code: P1**	د/محمود محمد سماحة د/ أمنية أحمد نور
			12:45-1:15 pm	**Sacubitril/Valsartan in patients with Heart Failure and Concomitant End stage Kidney disease** Theoretical (review)/ Oral (by using PowerPoint)/ Mansoura University **Code: P2**	
			1:30-2:00 pm	**Effect of Dapagliflozin on bleomycin- induced lung fibrosis in mice: Prevention and Treatment** Practical/ Oral (by using PowerPoint)/ Horus University **Code: P3**	

Pharmacology Tue 25/7/2023	قاعة أبو الحسن - الدور الخفيف	ص/رنا جمال	09:30-10:00 am	**Network Pharmacology Approach for Medicinal Plants: Review and Assessment** Theoretical (review)/ Oral (by using PowerPoint)/ Tanta University **Code: P4**	د/ هدى عزت كفل د/ محمود علي الشال
			10:15-10:45 am	**Exploring the Anti-Apoptotic Effects of Modafinil on Hepatic Cells: A Cholestatic Hepatitis Mouse Model Study** Practical/ Oral (by using PowerPoint)/ Delta university for science and technology **Code: P5**	
			11:00-11:30 am	**Unveiling the Anticancer Potential of Vitamin A and its Derivatives: Growth Inhibition and Differentiation Modulation in Cancer Cells and Mechanistic Pathways** Theoretical (review)/ Oral (by using PowerPoint)/ Badr University in cairo **Code: P6**	
			11:45-12:15 pm	**Unlocking the Secrets of the Mind-Body Connection: The Impact of Anger and Stress on Your Physical Health** Theoretical (review)/ Oral (by using PowerPoint)/ Mansoura National University **Code: P7**	
			12:30-01:00 pm	**A possible treatment for type 1 diabetes** Theoretical (review)/ Oral (by using PowerPoint)/ Mansoura University **Code: P8**	

Microbiology Tue 25/7/2023	قاعة الصفوة- الدور الخفيف	ص/محمد ماهر ص/إيمان منار الإسلام	9:30-10:00 am	**The Gut-Brain axis: the Role of Probiotics in Dysbiosis and Alzheimer's Disease.** Theoretical (review)/ Poster/ Mansoura University **Code: M1**	أ.د/ خالد حسين عبد الجليل أ.د/ ايمان سلامة أحمد د/أريج مصطفى المهدي
			10:15-10:45 am	**Immune Checkpoint Inhibitors for the Treatment of Cancer: Clinical Impact and Mechanisms of Response and Resistance** Theoretical (review)/ Oral (by using PowerPoint)/ Mansoura University **Code: M2**	
			11:00-11:30 am	**Genetic engineering as you've never seen before.** Theoretical (review)/ Oral (by using PowerPoint)/ Mansoura National University **Code: M3**	
			11:45-12:15 pm	**Gene Therapy for Hemoglobinopathies: Beta-Thalassemia, Sickle Cell Disease** Theoretical (review)/ Oral (by using PowerPoint)/ Mansoura University **Code: M4**	
			12:30-01:00 pm	**Cytotoxic CD4+ T Cells in Bladder Cancer—A New License to Kill** Theoretical (review)/ Oral (by using PowerPoint)/ Mansoura University **Code: M5**	
			1:15 -1:45 pm	**Mycobiome and cancer diagnosis** Theoretical (review)/ Poster/ Mansoura University **Code: M6**	
			2-2:30 pm	**Marine microorganisms as antibacterial and antiviral** Theoretical (review)/ Poster/ Mansoura University **Code: M7**	

Medicinal Chemistry Tue 25/7/2023	قاعة ٦٠٣ - الدور الخفيف	م.م/ منة زيادة	09:30-10:00 am	**Colchicine in Treatment of Familial Mediterranean fever** Theoretical (review)/ Oral (by using PowerPoint)/ Mansoura University **Code: MC1**	د/سلوان محمود السيد د/ أمل أيمن المصري د/ أحمد رضا علي سيد
Biochemistry Tue 25/7/2023			10:15-10:45 am	**Precision medicine and gene therapy in epilepsy** Theoretical (review)/Oral (by using PowerPoint)/Mansoura University **Code: B1**	د/ راندا أحمد غلول د/الشيماء جمال عبدالسلام د/ نسمة عادل عبدالرزق
			11:00-11:30 am	**Phenylketonuria and Pregnancy: Impact on Maternal and Fetal Health** Theoretical (review)/ Oral (by using PowerPoint)/ Mansoura University **Code: B2**	
			11:45-12:15 pm	**Membrane transport Mechanisms** Theoretical (review)/ Oral (by using PowerPoint)/ Tanta University **Code: B3**	
			12:30-1:00 pm	**New treatment strategies for neurodegenerative diseases** Theoretical (review)/ Oral (by using PowerPoint)/ Mansoura University **Code: B4**	

Pharmaceutics Wed 26/7/2023	قاعة أبو الحسن - الدور الخفيف	م.م راندا هاني	09:30-10:00 am	**Optimization of 5-fluorouracil loading rosasomes prepared by liposome freeze-thawing method** Practical/ Oral PowerPoint/ Horus University **Code: CT1**	أ.م.د/ جرمين نظير سلامة أ.م.د/ ماريزا فؤاد فرج البغدادي د/ ولاء إبراهيم عبد الهادي
			10:15-10:45 am	**The Evolution and Impact of Nuclear Pharmacy: A Comprehensive Portfolio** Theoretical (Review)/Oral PowerPoint /Mansoura National University **Code: CT2**	
			11:00-11:30 am	**Targeted Multifunctional Nanoplatform for Imaging-Guided Precision Diagnosis and Photothermal/Photodynamic Therapy of Orthotopic Hepatocellular Carcinoma** Practical/ Poster / Tanta University **Code: CT3**	

Pharmacology Wed 26/7/2023	قاعة الصفوة- الدور الخفيف	م.م عبد الله هيكل ص/ ضحى داغر	9:30-10:00 am	**Colchicine for atherosclerosis** Theoretical (review) /Poster/ Mansoura University **Code: P9**	د/ مروة السيد عبدالمجيد د/سارة محمد هشام
			10:15-10:45 am	**Role of monomeric amyloid-β in cognitive performance in Alzheimer's disease: Insights from clinical trials with secretase inhibitors and monoclonal antibodies** Theoretical (review)/ Oral (by using PowerPoint)/ Mansoura University **Code: P10**	
			11:00-11:30 am	**Empagliflozin for management of chronic kidney disease** Theoretical (review)/ Oral (by using PowerPoint)/ Mansoura University **Code: P11**	
			11:45-12:15 pm	**MultiDrug Resistance in Chemotherapy (Efflux pump mechanism)** Theoretical (review)/ Poster/ Tanta university **Code: P12**	

Section M

Microbiology and Immunology

Code: M1

The Gut-Brain axis: the Role of Probiotics in Dysbiosis and Alzheimer's Disease.

Theoretical (review)/ Poster/ Mansoura University

Nourseen Mosad Eissa, Ghada Mohamed Mahmoud

Abstract

The human body is an ecosystem carrying an incredible variety of all kinds of microbes that work cooperatively as a metabolic organ finely tuned and interconnected with host physiology. The gut microbiota is a complex community of microorganisms that plays a crucial role in maintaining gut health and the enteric nervous system's normal function/balance. Dysbiosis of gut microbiota, an imbalance in beneficial and harmful bacteria in the gut, is a key factor that influences brain function and behavior. It can also affect the central nervous system (CNS) through the gut-brain axis, which is a nonlinear bidirectional communication pathway that connects the enteric, and central nervous systems. This imbalance can eventually lead to neurodegenerative diseases like Alzheimer's disease (AD) by promoting the imbalance in the levels of neurotransmitters, stimulation of the vagus nerve, decrease in the number of bacteria producing metabolites such as short-chain fatty acid (SCFAs). AD is a long-term condition that affects the CNS and is characterized by dementia, neuronal loss, and amyloid beta protein accumulation. Although the cause and development of AD remain uncertain, probiotics, prebiotics, and symbiotics have been shown to play a pivotal role in preventing and managing dysbiosis and in turn AD. These live microorganisms are all closely related to gut physiology and are important for optimal health and confer health-promoting benefits when administered in adequate amounts and have anti-inflammatory and antioxidant properties, thus improving cognition and metabolic activity. Recent studies have shown that probiotics can effectively reduce intestinal dysbiosis, improve mental functions, and therefore may interfere with AD pathogenesis. In this review, we explore the mechanisms of the gut- brain axis in the junction between dysbiosis and AD, and the role of probiotics in preventing and managing dysbiosis and consequently AD.

Code: M2

Immune Checkpoint Inhibitors for the Treatment of Cancer: Clinical Impact and Mechanisms of Response and Resistance

Theoretical (review)/ Oral (PowerPoint)/ Mansoura University

Yomna Yasser Assad

Abstract

Immune checkpoint inhibitors (ICIs) have made an indelible mark in the field of cancer immunotherapy. Starting with the approval of anti-cytotoxic T lymphocyte-associated protein 4 (anti-CTLA-4) for advanced-stage melanoma in 2011, ICIs-which now also include antibodies against programmed cell death 1 (PD-1) and its ligand (PD-L1)- quickly gained US Food and Drug Administration approval for the treatment of a wide array of cancer types, demonstrating unprecedented extension of patient survival. However, despite the success of ICIs, resistance to these agents restricts the number of patients able to achieve durable responses, There are various resistance mechanisms, such as insufficient antigen recognition by T cells, impaired T-cell migration and/or infiltration, and reduced T-cell cytotoxicity, most of which are related to the T-cell activation process. Thus, we classify them into three main mechanisms: resistance mechanisms related to antigen recognition, T-cell migration and/or infiltration, and effector functions of T cells and immune-related adverse events complicate treatment. Thus, a better understanding of the requirements for an effective and safe antitumor immune response following ICI therapy is needed. Studies of both tumoral and systemic changes in the immune system following ICI therapy have yielded insight into the basis for both efficacy and resistance. Ultimately, by building on these insights, researchers should be able to combine ICIs with other agents, or design new immunotherapies, to achieve broader and more durable efficacy as well as greater safety. I am going to review the history and clinical utility of ICIs, the mechanisms of resistance to therapy, and local and systemic immune cell changes associated with outcome.

Code: M3

Genetic engineering as you've never seen before.

Theoretical (review)/ Oral (PowerPoint)/ Mansoura National University

Malak Hisham Ibrahim, Basmala Said Mohamed, Farah Hamdy Mekki, Amira Mosaad Aboelftouh, Nour Mahrous Goda, Nada Mostafa Elsergany, Hager Ahmed Khafaga, Rawan Mostafa Amr, Ghada Gamal Khalaf

Abstract

Genetic engineering is a powerful technology that allows scientists to manipulate the DNA of organisms, including plants, animals, and humans. With genetic engineering, scientists can create organisms with specific traits, such as resistance to disease or improved growth rates. This technology has the potential to revolutionize many fields, including medicine, agriculture, and environmental science. One of the most pivotal applications in genetic engineering is the Clustered Regularly Interspaced Short Palindromic Repeats (CRISPR) technology, which has the potential to treat various heritable diseases such as genetic blindness, heart disease, and cancer. Moreover, the healthcare field has many other applications for this technology, including gene therapy that is currently being attempted in various clinical trials. Furthermore, diagnostic applications of human diseases that focus primarily on infectious diseases, cancer, and screening for inherited diseases have seen significant progress with the use of this technology. Recent research in this field has also explored precision medicine and nutrigenomics, promising new approaches to personalized care that hold great potential for improving human health outcomes.

Code: M4

Gene Therapy for Hemoglobinopathies: Beta-Thalassemia, Sickle Cell Disease

Theoretical (review)/ Oral (PowerPoint)/ Mansoura University

Mohammed Khaled Mostafa Atta

Abstract

β-thalassemia and sickle cell disease (SCD) are the most common monogenic diseases in the world and are potentially curable after allogeneic hematopoietic stem cell transplantation (HSCT) or autologous HSCT after genetic modification. Autologous gene therapy has the potential to offer a universal cure that overcomes many limitations of allogeneic HSCT including the lack of available donors, graft-vs-host disease, and graft rejection. Significant progress in gene therapy for the hemoglobinopathies has been made over the last several decades, now with multiple ongoing clinical trials investigating both gene addition and gene-editing strategies. Available results from a small number of patients, some with relatively short follow-up, are promising, with current efforts focused on continuing to improve the efficacy, durability, and safety of gene therapies for the cure of hemoglobin disorders.

Code: M5

Cytotoxic CD4+ T Cells in Bladder Cancer—A New License to Kill

Theoretical (review)/ Oral (PowerPoint)/ Mansoura University

Seif El-dein Emad Mohamed Ahmed, Mohamed Osama

Abstract

The advent of immune checkpoint inhibitors has revolutionized the field of cancer immunotherapy. The success of these agents has led to intensified interest in the specific immune cell populations and fundamental mechanisms responsible for anti-tumor immunity. This field of research has historically been defined by the view that the primary workhorse of immune-mediated tumor killing is the cytotoxic CD8+ T cell. The role of CD4+T cells in anti-tumor immunity has thus previously been conceptualized as indirect, either primarily supporting CD8+T cell mediated tumor killing via T-helper phenotype (Th) or restricting such responses via T-regulatory (Treg) phenotype. However, increasing evidence suggests that a subset of cytotoxic CD4+T cells can engage in direct tumor cell killing and may play a key role in anti-tumor immunity. Our understanding of the versatile role of CD4+ T cells in anti-tumor immunity has evolved rapidly over the past several years. CD4+ T cells have been demonstrated to support the priming of cytotoxic CD8+ T cells through both promoting the production of inflammatory cytokines and direct licensing of dendritic cells via CD40. CD4+ T cell help has a significant impact on the subsequent differentiation and effector function of CD8+ T cells as well as on survival, migration, and epigenetic modification at key genetic loci. Cytotoxic CD8+ T cells, which develop in the absence of CD4+ T cell help, are less likely to exhibit an effector-memory function and instead tend toward an exhausted phenotype similar to that observed commonly in human tumors. Interestingly, mature CD4+ T helper cells have also been identified to exhibit phenotypic plasticity with the ability to de-repress CD8+ lineage genes and exhibit MHCII-restricted cytotoxicity under certain conditions. Cytotoxic CD4+ T cells have a well characterized history as key actors in multiple infectious diseases. The potential for CD4+ T cell- mediated tumor killing by direct cytotoxicity has emerged more recently as a distinct mechanism of anti-tumor immunity. Through utilizing single cell RNA sequencing to evaluate the immune landscape of hepatocellular carcinoma and non-small cell lung cancer have also identified unique CD4+ T cell populations. Taken together, these findings suggest an important role for cytotoxic CD4+ T cells in anti-tumor immunity across various solid tumors. In new work by Oh *et al*., single cell RNA sequencing and paired T cell receptor (TCR) sequencing is applied to the characterization of the tumor immune micro environment of 7 resected bladder cancers.

Code: M6

Mycobiome and cancer diagnosis

Theoretical (review)/ Poster/ Mansoura University

Hasnaa Saed Neseem, Fatima Ashraf

Abstract

In the human body, there is normal microbiota and only recently it was discovered that there is a variety of fungi in the human body which are significantly present in human cancers. Cancer is among the leading causes of death globally. Despite all the scientists efforts, it's cause is still not fully understood. Recent data have shown that the microbiome has an important relationship with cancer on various levels, including cancer pathogenesis, diagnosis, prognosis and treatment. Since most studies have focused only on the role of bacteria in this process. A global team of scientists created the first pan-cancer mycobiome atlas, looking at 35 types of cancer and their associated fungi. In this article, we review the role of fungi in the development of cancer and how it can impact responses to anticancer medications. Fungi are detected by multiple staining methods in human tumors and different cancer types exhibit cancer-type-specific mycobiomes. Since fungi and bacteria elicit unique host immune responses. It was hypothesized that intratumoral fungal-bacterial-immune clusters exist. Furthermore, we demonstrate a recent evidence that shows how the different microbial communities interact and affect each other at gastrointestinal and non-gastrointestinal sites, including the skin, thereby emphasizing the importance of investigating the microbiome beyond bacteria.

Code: M7

Marine microorganisms as antibacterial and antiviral

Theoretical (review)/ Poster/ Mansoura University

Fedaa Tarek Salama, Fatma Ashraf Ahmed

Abstract

Marine microorganisms are defined by their habitat as microorganisms living in a marine environment, that is, in the saltwater of a sea or ocean or the brackish water of a coastal estuary. Humans have suffered from viral infections over the centuries, such as influenza, HSV, and HIV, which have killed millions of people worldwide. However, the availability of effective treatments for infectious diseases remains limited until now, as most of the viral pathogens displayed resistance to many medical treatments. Marine microbes are currently one of the most copious sources of pharmacologically active natural products, which have constantly provided promising antivirus agents. To date, a large number of marine microbial secondary metabolites with antiviral activities have been widely reported. Compared with those from terrestrial environments, marine- derived microorganisms can produce active substances with more novel structures and unique functions. From 2015 to 2019, 89 antiviral compounds of eight structural classes have been isolated from marine microorganisms, of which 35 exhibit anti-H1N1 activity. Antibiotic resistance and residues in aquaculture are a growing concern worldwide and consequently identifying favorable antibacterial compounds against aquatic pathogenic bacteria is gaining more attention. Active compounds derived from marine microorganisms have shown great promise in this area.

Section CT

Pharmaceutics

Code: CT1

Optimization of 5-fluorouracil loading rosasomes prepared by liposome freeze-thawing method

Practical / Oral PowerPoint / Horus University

Mohamed Fatthy Elbaz

Abstract

Cervical cancer accounts for most cases of malignant cervical tumors. Worldwide cervical cancer is the second most common malignancy affecting women.

5-Flurouracil (5-FU) have been used in many centers with good results in a cervix tumor. The effect and utility of 5-flurouracil are inadequate due to associated low solubility, stability and lack of cellular specificity. There for, the study tried to enhance liposomal entrapment for delivering the highest quantities of the drug to tumor cells.

This was stabilized by increasing the entrapment of the hydrophilic drug in the lipoidal vesicles using freeze thawing technique and optimize the characterization of the prepared liposomes. The results were promising as > 80% of the drug were encapsulated in the liposomes after six freeze thawing cycles and the produced liposomes have size <20nm with high negative charges on surface and the collected phospholipids used have optimized cytotoxicity of 5-flurouracil loaded Liposome against HELA Cell Line the product as evidenced by TMT experiment

Code: CT2

The Evolution and Impact of Nuclear Pharmacy: A Comprehensive Portfolio

Theoretical (Review) / Oral PowerPoint / Mansoura National University

Youssef Hesham Alsayed

Abstract

Nuclear pharmacy is a specialized field that focuses on preparing and dispensing radioactive drugs for diagnostic and therapeutic purposes. Radiopharmaceuticals allow healthcare professionals to accurately diagnose and treat a wide range of diseases with greater accuracy and precision than ever before. The preparation and dispensing of these radiopharmaceuticals require specialized training and expertise, and strict safety protocols must be followed to ensure the safety of both, patients and healthcare professionals. The regulations also require that nuclear pharmacies be equipped with state-of-the-art facilities and equipment to handle these powerful drugs. The future of nuclear pharmacy looks promising as technology advances. Despite the challenges that nuclear pharmacy faces, such as limited funding and regulatory obstacles, the field is poised for growth due to the increasing demand for personalized medicine and targeted therapies. With advances in technology, nuclear pharmacy is becoming more accessible and affordable, making it an attractive option for healthcare professionals and patients alike. Nuclear pharmacists and pharmacies are an important part of healthcare globally and in Egypt. Becoming a nuclear pharmacist is a rewarding career choice particularly for those interested in the intersection of pharmacy and healthcare technology added to the potential for advancement and professional development. Looking to the future, artificial intelligence is expected to play a significant role in this evolution, as it can help optimizing the use of radiopharmaceuticals and improve patient outcomes. With ongoing research and development, the potential breakthroughs in nuclear pharmacy are vast, and the field is poised to continue to play a crucial role in disease management for years to come.

Code: CT3

Targeted Multifunctional Nanoplatform for Imaging-Guided Precision Diagnosis and Photothermal/Photodynamic Therapy of Orthotopic Hepatocellular Carcinoma

Practical / Poster / Tanta University

Elsayed Ashraf Elsayed Elmorshedy Eman Omar Gramoon, Rehab Salah El Din Abd Ellatif, Doha Wael Mofed Ragab, Ziadad Ahmed Talaat, Yasmeen Naseem Salem

Abstract

Hepatocellular carcinoma (HCC) has a 5-year survival rate lower than 18%. Efficient theranostic of HCC is needed but conventional imaging methods such as computed tomography (CT) and magnetic resonance (MR) imaging have limitations in sensitivity and specificity. The Dual-model near-infrared (NIR) photoacoustic imaging (PAI) and fluorescence imaging (FLI) has high sensitivity and high resolution as a diagnostic tool for HCC. The aim is to provide a new efficient phototheranostic nanomedicine of early- stage HCC. Anti-CXCR4-targeted Indocyanine green (ICG)/Platinum (Pt)-doped polydopamine melanin-derivative nanoparticle (designed as ICG/Pt@PDA-CXCR4, referred to as IPP-c) is synthesized as an HCC-specific contrast agent for high-resolution precise diagnostic PAI/FLI and optical imaging-guided targeted photothermal therapy (PTT)/photodynamic therapy (PDT) of orthotopic small hepatocellular carcinoma (SHCC).in both PAI and FLI, the multifunctional targeted nanoparticle provides high optical imaging specific for orthotropic SHCC . IPP-c nanoparticle is stable and biocompatible. Also, it can generate singlet oxygen species and has high photothermal conversion efficiency (PCE, 58.7%) after 808-nm laser irradiation. The targeting ability of IPP-c was validated in in vitro experiments on selectively killing the CXCR4- overexpressing HCC cells. We investigate the efficient dual-modal optical precision diagnosis and PDT/PTT of IPP-c via in vivo in an early-stage SHCC mouse model (tumor diameter about 1.2 mm). IPP-c provides effective and targeted non-invasive PDT/PTT for orthotopic SHCC without causing injury to normal liver tissues and the other major organs. CXCR4-targeted indocyanine green/platinum-doped polydopamine nanoparticle (IPP-c) provides presise NIR PAI/FLI imaging of early-stage HCC with high sensitivity, high resolution and deep penetration. With defined laser wavelength, IPP-c is a biocompatible, stable targeted PDT/PTT of early-stage HCC with high photothermal therapy compared to other reported nano agents in NIR region.

Section O

Organic Chemistry

Code: O1

Chemically catalyzed recycling loop of PET using EG alcoholysis as a solution for plastic pollution

Theoretical (Review) / Poster / Mansoura University

Norhan Mohamed Shaban

Abstract

The water bottles, plastic bags, textiles, electrical and electronics, industrial machinery, and others are all made of plastic Causing all countries to suffer a worldwide problem of pollution by plastic. The natural biodegradation of plastics is difficult, taking decades or even centuries for plastic to completely disintegrated. The Plastic manufacture itself is a problem where, plastic is manufactured from petrochemicals from and requires consumption of energy the process itself causes air pollution due to emission of greenhouse gases. In a search for a solution of the accumulation of plastic wastes; recycling offered a solution for the world. Chemical recycling is the most effective due to the high-quality of products. Through converting polymers into their raw materials (monomers) that then undergo further polymerization into different commercial forms in an infinite closed loop without the need to synthesize plastic polymers from crude petrochemicals. Plastics types include PET, HDPE, LDPE, PP, and others. This research focuses mainly on the chemical recycling of PET. Polyethylene terephthalate (PET) is a polyester that is depolymerized into its monomers by one of the following reactions: hydrolysis, methanol alcoholysis, ethylene glycol alcoholysis, alcohol-alkali combined depolymerization, ammonolysis, and others. This paper concentrates specifically on the depolymerization of PET using the ethylene glycol (EG) alcoholysis (transesterification) method, which is a type of solvolysis reactions in which ethylene glycol is the solvent. This reaction is not effective without a catalyst and needs difficult conditions, such as high temperature and pressure. There are many catalysts that can be used to increase the rate of reaction in milder conditions. Zn(OAc)2- [Bmim][OAc], tropine-zinc acetate complex, and Titanium benzoate are the best of three catalysts that can be used to increase the reaction rate. It was concluded that the tropine-zinc acetate complex is the most effective catalyst among the three, with an EG/PET ratio of 5:1, a catalyst/PET ratio of 1:20, a temperature of 190 °C, a product (BHET) yield of 82.3%, and a time requirement of 2 hours for complete PET conversion. Polyethylene terephthalate (PET) recycling by glycolysis using tropine-zinc acetate complex can help reduce pollution all over the world with the production of high-quality products.

Section MC

Medicinal Chemistry

Code: MC1

Colchicine in treatment of Familial Mediterranean Fever

Theoretical (Review) / Oral (PowerPoint) / Mansoura University

Nada Abdelnasser Hamza

Abstract

Exploring the association between colchicine and Familial Mediterranean fever (FMF) has gained great attention. FMF is the most common hereditary autoinflammatory disease. It is caused by the gain-of-function mutations of the MEFV gene which encodes pyrin, an immuno- regulatory protein. Practically, although FMF is considered an episodic disease characterized by brief attacks. Colchicine is the basis of FMF treatment. It is a traditional anti-mitotic drug that blocks mitotic cells in metaphase. It binds to soluble tubulin to form tubulin-colchicine complexes, which then attach to the ends of microtubules to prevent the elongation of the microtubule polymer. Colchicine reduces the frequency and the intensity of bouts of illness. It also relieves the inflammatory response and prevents progression to amyloidosis. Over the past many years, we have witnessed several new developments in FMF regarding pathogenesis, diagnosis, comorbidities, and treatment approaches. However, colchicine resistance is still a major obstacle. Therefore, identifying new mechanisms to overcome colchicine resistance is necessary. Interleukin-1 (IL-1) antagonists, such as anakinra and canakinumab, are the treatment of choice in refractory or intolerant cases. Experience their usage is now available in for thousands of colchicine-resistant FMF patients.

Section B

Biochemistry

Code: B1

Precision medicine and gene therapy in epilepsy

Theoretical (Review) / Oral (PowerPoint) / Mansoura University

Eman Adel Mohamed

Abstract

Epilepsy is a complex neurological disorder characterized by recurrent seizures that affect millions worldwide. Traditional antiepileptic drugs (AEDs) have been the mainstay of treatment for epilepsy. However, a significant number of patients continue to experience seizures despite optimal medication management in addition there are 30% of epileptic patients worldwide resistant to medication, and many AEDs show adverse effects that may be life-threatening, such as suicide and other potential diseases. Precision medicine allows us to determine these individual variations. It focuses on tailoring treatments to the specific characteristics of individuals, thus enabling a deeper understanding of the underlying mechanisms driving epilepsy in each patient. This approach allows clinicians to identify specific genetic variants, biomarkers, or pathways associated with drug response and disease progression. Thus, personalized treatment strategies can be devised, optimizing therapeutic outcomes, and minimizing adverse effects. One of the precision strategies is gene therapy, a cutting-edge therapeutic approach involving the delivery of therapeutic genes to correct or modulate the genetic defects underlying epilepsy. This strategy aims to address the root causes of the disorder rather than merely suppressing the symptoms. Recent advancements in gene therapy have shown great potential in various preclinical and clinical studies. Recent studies have demonstrated encouraging results, including seizure reduction and even seizure freedom in animal models and some human trials. This review explores the current state of gene therapy and precision medicine in epilepsy, highlighting the potential of these innovative approaches to transform epilepsy management.

Code: B2

Phenylketonuria and pregnancy: Impact on maternal and fetal Health

Theoretical (Review) / Oral (PowerPoint) / Mansoura University

Rana Mohamed Eltantawy, Mennat Allah Ehab Gomaa

Abstract

Phenylketonuria (PKU) is an inherited metabolic disorder characterized by the inability to properly metabolize phenylalanine. While PKU has been extensively studied in various contexts, its specific impact on pregnancy remains an area of ongoing research. Maternal PKU during pregnancy poses unique challenges as high levels of phenylalanine can be detrimental to both maternal health and fetal development. Elevated maternal phenylalanine levels can lead to neurodevelopmental issues, growth abnormalities, and congenital malformations in the baby. Additionally, uncontrolled maternal phenylalanine levels can result in complications such as hypertension, preeclampsia, and impaired cognitive function. Existing research has focused on the importance of strict dietary management and close monitoring of phenylalanine levels in pregnant women with PKU to minimize the risks to both mother and baby. However, several research gaps remain including further investigation into the optimal phenylalanine target levels during pregnancy, the long-term cognitive and neurodevelopmental outcomes for children born to mothers with PKU, and the potential impact of maternal PKU on placental function and fetal programming. Addressing these research gaps is crucial for enhancing our understanding of the complex interplay between PKU and pregnancy and for optimizing clinical management strategies. This review provides an overview of the relationship between PKU and pregnancy, highlighting the effects on both the mother and the developing baby, while also shedding light on the existing research gaps in this field.

Code: B3

Membrane transport mechanisms

Theoretical (Review) / Oral (PowerPoint) / Tanta University

Nadia Mohammed Hassan

Abstract

Diffusion, carrier-mediated transport including facilitated diffusion and active transport, osmosis, and endocytosis are the main four mechanisms that facilitate solute movement across biological membranes. Among these transport processes, the movement of solute and solvent by diffusion occurs more frequently than movement by any other process. Even though substances undergo carrier-mediated transport or pinocytosis, they also undergo diffusion. Diffusion or simple diffusion is a process whereby substances move from the regions of higher concentration or electrochemical potential to the regions of lower concentration or electrochemical potential. The likelihood of a substance undergoing diffusion depends upon several factors. This review investigates different membrane transport mechanisms as well as factors influencing these process.

Code: B4

New treatment strategies for neurodegenerative diseases

Theoretical (Review) / Oral (PowerPoint) / Mansoura University

Esraa Mohamed Attia

Abstract

Neurodegeneration is hallmarked by the progressive loss of dopaminergic neurons and/or a significant increase in protein aggregates in the brain. Neurodegenerative diseases are a leading cause of death worldwide with over 15 million people currently suffering from either Parkinson's disease (PD) or Alzheimer's disease (AD). PD is characterized by both motor and non-motor symptoms, including muscle rigidity, tremors, and bradykinesia, while AD is displaying symptoms of confusion and dementia, with a prevalence estimated at 24 million worldwide. AD affects around 11%, while PD affects 2–3% of the population over 65 years of age, which are expected to rise over the next decade. The conventional treatments of neurodegenerative diseases are classified into: a) levodopa to replace dopamine in PD patients, b) deep brain stimulation in affected regions of the brain, and c) physical therapy. However, these treatments are typically not disease-modifying, and mostly fail due to their inability to cross the blood– brain barrier. Moreover, there is a lack of treatments that diminish the common side effects of nausea, swelling and vomiting, as well as for a targeted treatment that can focus on a specific pillar pathway in the disease architecture. In accordance, there is a crucial need for treatments that not only restore the losses observed in AD and PD but can also prevent further damage. Recently, the researchers have uncovered a potential positive therapeutic effect of nanoparticles for disease therapies classifying them into a) extracellular vesicles (EVs), b) cell-penetrating peptides (CPPs), and c) microRNAs (miRNAs). It is expected mostly to receive an exciting new era in prospect by utilizing these approaches (either individually or combined) and their potential novel therapeutic effect in the field of neurodegeneration.

Section C

Pharmacognosy

Code: C1

Herbal plant in treatment of hepatocellular carcinoma

Theoretical (Review) / Poster / Al Azhar University

Shimaa Yasser El-Sheikh

Abstract

Hepatocellular carcinoma [HCC] is a major problem around the world caused by hepatitis infection. Several mechanisms are involved in the action of these herbal products in prevention of HCC. The medicinal products from plants continue to be a rich source of biologically active compounds. Still there are a lot of more steps for further studies on chemical characterization as well as standardization of the extract used with the help of pharmacological studies on mice model. In this review we will discuss various medicinal herbs that have been examined for anti-liver cancer activity, presenting an important route into their use for treatment of liver cancer showing that there has a wide safety and improving the quality of life in patients.

Section PT

Pharmacy Practice

Code: PT1

Anti-diabetic medication use for halting CKD progression in diabetic and non-diabetic patients

Theoretical (review)/ Oral (PowerPoint)/ Mansoura National University

Nada Mohammed Ismail Asker, Mohammed Shaher Mohammed Fawzy, Yasmen Khaled Beder Elbhrawy, Mahmoud Hassan Mahmoud Youssef, Nada Sameh Ali Tag, Ahmed Emad Samey Albashir, Menna Mohamed Abdelhamed Soliman

Abstract

Chronic kidney disease (CKD) doubles a person's risk for hospitalization and is a leading cause of death globally. There is an urgent need for therapies proven to delay CKD progression. Researchers from Oxford University conducted the EMPA-KIDNEY trial to assess the effects of empagliflozin (anti-diabetic drug) for halting CKD progression in a broad range of patients.

Methods

This international, randomized, parallel-group, double-blind, placebo-controlled trial assessed the efficacy of empagliflozin in patients with CKD, with or without diabetes and with a range of albuminuria levels. Eligible patients with CKD and an estimated glomerular filtration rate (eGFR) of 20-45 ml/minute/1.73 m2 of body-surafce area, or with an eGFR of 45-90 ml/min/1.73 m2 but with a urinary albumin-to-creatinine ratio ≥200 mg/g were randomly assigned to receive10 mg of empagliflozin or matching placebo daily. In this study, 54% of patients had CKD without diabetes and 34% had an eGFR of <30 ml/minute/1.73 m2. The primary outcome was the first occurrence of progression of kidney disease or death from cardiovascular causes.

Results

6609 patients were randomized and followed for ~2 years. The primary outcome was reduced by 28% with empagliflozin vs. placebo (P<0.001). Results were consistent among diabetics and non-diabetics. A significant reduction in all-cause hospitalizations was demonstrated with empagliflozin vs. placebo. There were no significant between- group differences with respect to the composite outcome of hospitalization for heart failure or death from cardiovascular causes or death from any cause. Serious adverse events were similar in both groups.

Conclusions

Patients at risk for CKD progression, empagliflozin led to a lower risk of disease progression or death from cardiovascular causes than placebo

Code: PT2

The Process of developing and launching new pharmacy careers

Theoretical (review)/ Oral (PowerPoint)/ Mansoura National University

Rawan Moheb Elshafey, Mona Essam Sewelam, Shahd Roshdy Elsayed, Menna Mostafa Elbadrawy, Rehab Hatem Abdelmohsen

Abstract

Pharmacy is generally defined as the technology or science of making and preparing new medicines, and making appropriate adjustments to old medicines. As for the specialty of pharmacy, it is a medical and health specialty, and its function is to link health with the science of pharmacology. It also aims to ensure, provide, and secure the use of medicines and other healthcare products in a safe, healthy, appropriate, and effective way. Pharmacy career development has significantly progressed over time, with numerous career pathways available, but not all pharmacists have access to comprehensive information about these fields .

Methods: We searched different reliable resources using PudMed, pharmacy times, and others for discovering varieties of the pharmacy fields globally and in Egypt.

Results: We found that, in the past, most pharmacists worked in community pharmacies, dispensing medications and providing patient education on the use of medications. They were primarily responsible for ensuring the safe and effective use of medications, and worked closely with physicians and other healthcare professionals to develop treatment plans for patients. Today, the pharmacy career has expanded to include a wide range of specialty areas and practice settings. Pharmacists may work in hospitals, clinics, research institutions, or government agencies, and may specialize in areas such as clinical pharmacy, regulatory pharmacy, research pharmacy, nuclear pharmacy, nanotechnology,...etc. More recently and not widely spreaded, new era of pharmacy career have been evolved as telepharmacy, precision medicine, and digital health. Looking ahead, the pharmacy career is expected to continue to evolve and expand to meet the changing needs of patients and healthcare providers. Pharmacies will likely use robots in the future, making technology a cornerstone in pharmacology.

Conclusion: The pharmacy career has undergone significant changes over the past few decades, and is poised for even more transformation in the future. Pharmacists will continue to play a critical role in ensuring the safe and effective use of medications and in improving patient outcomes, and will have opportunities to specialize in a variety of areas and practice settings.

Code: PT3

Revolutionizing Healthcare: The Power of Artificial Intelligence in Medicine and Pharmacy

Theoretical (review)/ Oral (PowerPoint)/ Mansoura National University

Aseel Mohammed Elsayed Hassan, Israa Nasser Mahmoud Elsayed, Sara Mohammed Mansour Abdelgawad, Omnia Mohammed Mohammed Ibrahim, Raghad Kandil Fathy Elsayed, Reham Ahmed Abdelbaky Elshahaat

Abstract

Artificial intelligence (AI) is a combination of various intelligent processes and behaviors that have been developed through computational models, algorithms, or a set of rules to help machines imitate human cognitive abilities. These cognitive abilities include learning, reasoning, problem-solving, perception, and language understanding. AI enables machines to analyze vast amounts of data, recognize patterns, make predictions, and adapt to new situations, making them valuable tools in fields such as finance and transportation. In recent years, AI has gained significant attention in the fields of medicine and pharmacy due to its potential to improve efficiency and accuracy in various aspects of healthcare.

Methods: We searched different reliable websites for research articles and reviews using Pub Med, Research Gate, and Jama Network to collect data about this field in the era of medicine and pharmacy.

Results: AI approaches began to be introduced in our fields. It demonstrated interesting help for health care providers and patients. Such applications and programs are now available for recording medication errors, drug delivery and discovery, disease diagnosis, support while conducting research, and other different tasks that may reduce time and effort with a minimum of errors in the health system. With the introduction of ChatGPT programs, our field will change. It can perform intelligence tasks associated with disease diagnosis in the early stages and provide other helpful tools. However, it is important to approach its implementation with caution and to carefully consider the potential risks and benefits.

Conclusion: AI has successfully achieved scientists' goals of improving detection and stratification processes, and medical centers have begun to investigate the integration of AI in healthcare, which has the potential to revolutionize the industry by improving patient outcomes, reducing costs, and enhancing the efficiency of healthcare delivery. However, it is important to ensure that the use of AI in healthcare is ethical and transparent and that privacy and security concerns are adequately addressed.

Section P

Pharmacology

Code: P1

Quercetin and *Cymbopogon flexuosus* may be effective in preventing adenine-induced kidney fibrosis in rats by lowering oxidative stress and inflammatory markers.

Practical / Poster / Delta university for science and technology

Amal Mohamed Salah Ebrahim, Salma wael hamdy Amro, Nada Nasr elbadrawy, Eman Khaled Elzogby

Abstract

Chronic kidney disease (CKD), a serious condition that requires dialysis or kidney transplantation, causes end-stage renal disease (ESRD). Cymbopogon has pleiotropic effect in tissue protection. The aim of the current study is to evaluate the effects and mechanisms of cymbopogen vs quercetin in adenine-induced renal failure model. Rats were randomly alienated into seven groups, as follows: negative, negative plus quercetin, negative plus cymbopogon, adenine-induced renal failure, adenine plus quercetin, adenine plus cymbopogon 250 and adenine plus cymbopogon 500. Drugs were administered to the rats for four weeks.

The levels of creatinine, uric acid, inorganic phosphate, and LDH were assessed in plasma samples. Albumin and creatinine were also measured in urine. Both NGAL and N-acetyl-D-glucosaminidase (NAG) were tested. The concentrations of cystatin C, interleukin-1, and interleukin-6 were measured using ELISA kits. Total antioxidant capacity (TAC), superoxide dismutase (SOD), catalase, and glutathione reductase (GR) activities were all assessed. Hematoxylin and eosin (H&E) staining was used to examine kidney tissue.

Quercetin and cymbopogon both reduced levels of creatinine, cystatin, and NAGL while raised antioxidative stress markers. In addition, they improved renal tissue and decreased inflammatory markers in addition to lowering apoptosis. Moreover, the levels of uric acid, phosphate, and LDH were decreased. Renal sections from adenine+ Cymbo 500 group showing slightly swollen Bowman's capsule, mild hydropic degeneration in few tubules. Renal sections from adenine+ Quercetin group showing very mild hydropic degeneration in individual tubule.

In conclusion, via lowering inflammation and oxidative stress, cymbopogon and quercetin could protect the kidney. There should be more investigation into how both drugs affect persons with chronic renal failure.

Code: P2

Sacubitril/Valsartan in patients with heart failure and Concomitant end-stage kidney disease

Theoretical (review)/ Oral (PowerPoint)/ Mansoura University

Mahmoud Ibrahim Alsayed, Mohamed Yasser Zidan

Abstract

Heart failure with reduced ejection fraction (HFrEF) is a chronic disease with considerable mortality. Renal dysfunction is highly prevalent in patients with HF and is associated with poor outcomes. Patients with advanced kidney disease also have higher left ventricular (LV) preload caused by fluid retention, arterial stiffness due to vessel calcification and high output shunting through dialysis vascular access. Novel therapies have emerged from an improved understanding of the pathophysiology of heart failure and cardiac remodeling, among these new drugs angiotensin receptor/neprilysin inhibitor (ARNI). The pathophysiology of heart failure involves a maladaptive response during which the renin-angiotensin-aldosterone system is activated. The natriuretic peptide system is simultaneously activated to work antagonistically to the renin-angiotensin-aldosterone system. Neprilysin inhibitor prevents the breakdown of natriuretic peptides and therefore prolongs the favorable effects of these natriuretic peptides. Sacubitril/valsartan is the first agent to be approved in the angiotensin receptor neprilysin inhibitor (ARNI) class. The current case study shows the effectiveness and safety of sacubitril/valsartan in patients with HFrEF and end-stage kidney disease. Sacubitril/valsartan could improve systolic and diastolic function in patients with HFrEF and end-stage kidney disease. Large scale prospective studies are warranted to survey whether this cardiac function improvement translates to clinical outcomes.

Code: P3

Effect of Dapagliflozin on bleomycin- induced lung fibrosis in mice: Prevention and Treatment

Practical/ Oral (PowerPoint)/ Horus University

Mohamed El-Sayed El-Sherbini Habib, Zeina Hamdy Mahmoud Tolpa, Ghada Mohamed El-Sayed Sheta, Basant El-Sayed El-Hammady, Karima El-Sabahey Abd El-Fatah

Abstract

Idiopathic pulmonary fibrosis (IPF) is the most common type of lung fibrosis. It is considered as chronic respiratory disease that affects the lung as well as airways and manifests by subpleural fibrosis, subepithelial fibroblast foci and microscopic honeycombing. The effect of dapagliflozin on bleomycin-induced lung fibrosis in mouse model of pulmonary fibrosis is demonstrated in this study. Lung fibrosis was induced by intraperitoneal injection of 0.2 ml bleomycin twice weekly for 4 weeks. Oral dapagliflozin (1ml/ kg) was administered daily from week 1 to week 4 as a prophylactic regimen in pulmonary fibrosis, and from week 4 to week 6 as a treatment regimen in this model. At the end of the study, lung weight index was measured. In addition, malondialdehyde (MDA) concentration was measured in lung homogenate as well as nitric oxide level was measured in lung homogenate and bronchoalveolar lavage (BAL). Histopathological examination by Hematoxylin and Eosin (H&E) staining and Masson's trichrome staining were also carried out. Administration of bleomycin significantly increased lung weight index and MDA levels in lung homogenate in addition to elevated nitric oxide concentration in lung homogenate and BAL in comparison with normal control group. Daily administration of Dapagliflozin (1ml/ kg) significantly reduced MDA levels in lung homogenate in treated group in addition to significant reduction of nitric oxide in BAL and lung homogenate. Treated group showed significant reduction in lung MDA in comparison with prophylactic group, lung MDA level and nitric oxide concentration in lung and BAL were decreased significantly in prophylactic group when compared with bleomycin group. The observed biochemical improvement was correlated with histopathological examination. These findings showed that Dapagliflozin reduced pulmonary fibrosis-induced by bleomycin via inhibiting inflammation and decreased progressive fibrosis.

Code: P4

Network Pharmacology Approach for Medicinal Plants: Review and Assessment

Theoretical (review)/ Oral (PowerPoint)/ Tanta University

Mohamed atef alhela

Abstract

Natural products have played a critical role in medicine due to their ability to bind and modulate cellular targets involved in disease. Medicinal plants hold a variety of bioactive scaffolds for the treatment of multiple disorders. The less adverse effects, affordability, and easy accessibility highlight their potential in traditional remedies. Identifying pharmacological targets from active ingredients of medicinal plants has become an important topic for biomedical research to generate innovative therapies. By developing an unprecedented opportunity for the systematic investigation of traditional medicines, network pharmacology is evolving as a systematic paradigm and becoming a frontier research field of drug discovery and development. The development of network pharmacology has opened up new avenues for understanding the complex bioactive components found in various medicinal plants. This study is attributed to a comprehensive summary of network pharmacology based on current research, highlighting various active ingredients, related techniques/tools/databases, and drug discovery and development applications. Moreover, this study would serve as a protocol for discovering novel compounds to explore the full range of biological potential of traditionally used plants. We have attempted to cover this immense topic in the review form. We hope it will serve as a significant pioneer for researchers working with medicinal plants by employing network pharmacology approaches.

Code: P5

Exploring the Anti-Apoptotic Effects of Modafinil on Hepatic Cells: A Cholestatic Hepatitis Mouse Model Study

Practical/ Oral (PowerPoint)/ Delta university for science and technology

Basma Rashwan, Enas Hasanin, Haidy Sediek, Yara Abdelmaksoud, Yasmeen ghorabah, Rana Abdelaziz, Wafaa Mohamed

Abstract

Modafinil has garnered increasing attention as a cognitive enhancer, surpassing its intended therapeutic use. Its cognitive effects have been studied in a myriad of contexts, including attention deficit disorders, depression, mental fatigue and concentration improvement. The drug induces wakefulness by stimulating the orexinergic system, which works in tandem with the sympathetic nervous system. Notably, modafinil has the added benefits of enhancing exercise ability and regulating energy expenditure. Furthermore, the orexin system plays a role in apoptosis regulation in cardiac and neuronal cells. The effect of modafinil-mediated orexin system activation on hepatic cells is unknown. In an attempt to elucidate this effect, we investigated modafinil's influence on apoptosis in a cholestatic hepatitis mouse model. Modafinil (200 mg/kg) was orally administered for six consecutive days. Cholestatic hepatitis was induced with a single intragastric dose (75 mg/kg) of ANIT (alpha-naphthylisothiocyanate). After 48 hours, plasma and liver samples were collected for histopathological examination, as well as examination of ALT, AST, oxidative stress, and pro-apoptotic markers (Bax, Bcl2, and p53). Additionally, the effect of modafinil on the NLRP3 inflammasome pathway was evaluated.

Code: P6

Unveiling the Anticancer Potential of Vitamin A and its Derivatives: Growth Inhibition and Differentiation Modulation in Cancer Cells and Mechanistic Pathways

Theoretical (review)/ Oral (PowerPoint)/ Badr University in cairo

Amir S. Elbokhomy, Mohamed M. Elsayed

Abstract

Vitamin A, a vital micronutrient, plays a crucial role in various physiological processes. Its principal dietary source is retinyl esters, although it can also be derived from β- carotene, a precursor of vitamin A found in green and yellow vegetables. Following ingestion, β-carotene undergoes conversion into retinol within the body. Retinol, in turn, is oxidized to generate visual retinal, a compound of considerable significance. Further oxidation of retinal yields retinoic acid (RA), which exhibits therapeutic properties in patients with promyelocytic leukemia. Consequently, the effects of retinal and RA have been extensively studied. We aim to provide a comprehensive overview of several key aspects related to vitamin A. Firstly; we will delve into the intricate circulation of vitamin A within the body. Secondly, we will explore the mechanisms and actions of retinal and RA. Additionally, we will examine retinoylation, an alternative mechanism of RA function that operates independently of RA receptors. Furthermore, we will investigate the intricate relationship between cancer and the actions of retinol or β-carotene. Despite their significance, the precise in vivo roles of these compounds remain elusive. Lastly, we will discuss the anti-cancer effects of vitamin A derivatives derived from fenretinide (4- HPR). These derivatives offer promising therapeutic potential. Based on the extensive body of evidence, we propose that managing vitamin A intake could be an effective strategy for cancer prevention.

Code: P7

Unlocking the Secrets of the Mind-Body Connection: The Impact of Anger and Stress on Your Physical Health

Theoretical (review)/ Oral (PowerPoint)/ Mansoura National University

Rehab Ehab Elmamlouk, Samia Raed Mohamed, Radwa Wael Gouda, Esraa Wajeeh Kamal

Abstract

There is a strong link between our mind and body. The mind-body relationship in medicine has a long history, and these studies are now essential because many medical professionals and researchers from different specialties including those in psychology, neurology, internal medicine, and many other fields have made significant contributions to this relationship in identifying several physical areas that are impacted by mental illnesses. It is important to understand the impact of anger and stress on our physical health to promote awareness of the potential health risks and encourage individuals to manage their anger in healthy ways. We collected information, mostly on the effects of anger and stress on the physical health, by searching through several trustworthy sources using PubMed Central (PMC), NHS foundation trust, psychology today, Science Direct, WebMD, and Medscape.

We found that mind-body connection can range from the most minor of physical injuries to a wide range of illnesses. The anger potentiates the adrenal glands to produce a lot of stress hormones as adrenaline and cortisol, which can have negative effects on various body systems, including the cardiovascular, respiratory, muscular, digestive, immune, and nervous systems. Chronic anger and stress can be detrimental to one's health, increasing the risk of heart disease, musculoskeletal issues, gastrointestinal problems, weakened immune system ,and mental health issues. It is important to manage anger and stress through healthy coping mechanisms such as relaxation techniques, exercise, and seeking support from mental health professionals. In conclusion, we can state that we were able to change this connection into a new practical medical discipline that benefits patients, particularly those with chronic illnesses.

Code: P8

A possible treatment for type 1 diabetes

Theoretical (review)/ Oral (PowerPoint)/ Mansoura University

Aya Gamal Ebrahim

Abstract

Diabetes is an endocrine disorder characterized by disorder in carbohydrates, lipid and protein metabolism. Type 1 diabetes (T1D) is an autoimmune disease that leads to the destruction of insulin-producing pancreatic beta cells. Nearly 11.3 % of American population (37.3 million) is diabetics. Many types of diabetes including T1D depend on insulin to maintain normal level of blood glucose. Insulin is considered to be first line therapy to control T1D. Type 1 diabetics need to use insulin throughout their life which can be considered as stressful process caring for systemic or local insulin adverse effects. Nowadays vertex pharmaceutical company is working on clinical trials that use fully differentiated cells (VX-880 intervention) which can be transplanted to replace B cells of Langerhans' islet for T1D patients with impaired hypoglycemic awareness. Up til now, the results of patients treated with VX-880 are promising regarding HbA1c values and percentage time in normal range of blood glucose levels. The normalization of HbA1c without the need for exogenous insulin one year after therapy with VX-880 is historic and offers hope that the transformative therapies the T1D community has been waiting for may finally become reality. Is this meaning that type 1 diabetes can be treated completely?!

Code: P9

Colchicine for atherosclerosis

Theoretical (review) /Poster/ Mansoura University

Hager Ahmed Elsayed

Abstract

Atherosclerosis is a lipid-driven inflammatory disease of the arterial intima in which the balance of pro-inflammatory and inflammation-resolving mechanisms dictates the final clinical outcome. Inflammation plays a vital role in the development of atherosclerotic cardiovascular disease (ACVD) and has been a missing link in how cardiologists prevent and treat atherosclerotic plaques that can cause heart attacks or strokes. The treatment goals for patients with coronary artery atherosclerosis are to relieve symptoms of coronary artery disease (CAD) and to prevent future cardiac events, such as unstable angina, acute myocardial infarction and death. Medicines can help manage risk factors and treat atherosclerosis or its complications. The onset and progress of atherosclerosis are closely related to aseptic inflammation. The inflammatory responses in atherosclerosis are mainly developed via the NLRP3 inflammasome, interleukin-1 beta (IL-1ß) and interleukin-6 (IL-6) inflammatory response axis and eventually lead to an increase in the C-reactive protein (CRP). Colchicine can block NLPR3 inflammasomes through a variety of ways, thereby inhibiting downstream pathways and reducing the inflammatory responses in atherosclerosis. Although lipid-lowering therapy is still the cornerstone, anti-inflammatory therapy is opening up new ways to treat atherosclerosis. According to a large number of clinical studies in recent years, colchicine, as an anti-inflammatory has been shown to reduce the risk of cardiovascular events, such as heart attack and stroke in patients with atherosclerosis. Also, it has been shown to improve endothelial function. For at all, the inflammatory component of atherosclerosis pathogenesis offers new avenues through which novel therapies can be used and developed. Recently, colchicine has been in the eye of scientists and clinicians looking for new therapies for the management of coronary artery disease complications. The intracellular effects of colchicine directly impact key cellular players of inflammation, resulting in protective effects against atherosclerosis development.

Code: P10

Role of monomeric amyloid-β in cognitive performance in Alzheimer's disease: Insights from clinical trials with secretase inhibitors and monoclonal antibodies

Theoretical (review)/ Oral (PowerPoint)/ Mansoura University

Rawan mohamed Ibrahim gomaa - Asmaa Monier Mohamed Elshishtawy

Abstract

According to the β-amyloid (Aβ) hypothesis of Alzheimer's disease (AD), brain Aβ accumulation is the primary cascade event leading to cognitive deficit and dementia. Numerous anti-Aβ drugs either inhibiting production or aggregation of Aβ or stimulating its clearance have failed to show clinical benefit in large scale. AD trials with β- and γ- secretase inhibitors consistently worsening cognitive and clinical decline. In June 2021, the FDA approved aducanumab, an anti-Aβ monoclonal antibody for early AD based on its ability to reduce brain amyloid plaques, while two other amyloid-clearing antibodies (lecanemab and donanemab) - with empathizing the role of lecanemab recently FDA approval have recently produced encouraging cognitive and clinical results. We reviewed AD trials using PubMed, meeting abstracts and ClinicalTrials.gov and evaluated the effects of such drugs on cerebrospinal fluid (CSF) Aβ levels, correlating them with cognitive effects. We found that β-secretase and γ-secretase inhibitors produce detrimental cognitive effects by significantly reducing CSF Aβ levels. We speculate that monoclonal antibodies targeting Aβ protofibrils, fibrils or plaques may improve cognitive performance in early AD by increasing soluble Aβ levels through Aβ aggregate disassembly and/or stabilization of existing Aβ monomers.These findings suggest that the real culprit in AD may be decreased levels of soluble monomeric Aβ due to sequestration into brain Aβ aggregates and plaques.

Code: P11

Empagliflozin for management of chronic kidney disease

Theoretical (review)/ Oral (PowerPoint)/ Mansoura University

Khaled Osama Yaseen

Abstract

Chronic kidney disease (CKD) is a progressive disease. It is characterized by decreased glomerular filtration rate (GFR) and presence of albuminuria representing key risk factors for the subsequent development of kidney failure. CKD is the 16th leading cause of global life loss, with renal fibrosis being the main pathological feature. There's no cure for CKD, however treatment can help relieve the symptoms as well as reduce the progression of the disease. The treatment depended on the stage of your CKD. The main treatments are lifestyle changes to control associated problems, such as high blood pressure and high cholesterol. Slowing CKD progression and avoiding dialysis or kidney transplantation is highly desirable. The sodium–glucose cotransporter2 (SGLT2) inhibitor belongs to the newest class of antidiabetic drugs. SGLT2 inhibitors display various effects, including modulation of the renin-angiotensin-aldosterone system, changes in energy substrate usage, anti-oxidative, anti-inflammatory and to some extent immune modulatory effects. Empagliflozin is a selective SGLT2 inhibitor. It has been shown to reduce onset and progression of CKD in patients with type 2 diabetes. It reduces the risk of the primary outcome of kidney disease progression or cardiovascular death by 28% in patients with diabetes, cardiovascular problem.

Code: P12

MultiDrug Resistance in Chemotherapy (Efflux pump mechanism)

Theoretical (review)/ Poster/ Tanta university

Hagar Alaa Baiomy, Toka El Sayed Afsa, Toqa Adel Einar, Reem Mossad Hassan

Abstract

Cancer is one of the leading causes of death worldwide; it is responsible for about 1 in 6 deaths worldwide and the second leading cause of death globally, with 8.7 million deaths in 2015.

Several treatments are available for cancer, but unfortunately many treatment methods are ineffective against multidrug-resistant cancer. Multidrug resistance (MDR), including efflux mediated multidrug resistance is responsible for over 90% of deaths in cancer patients taking traditional chemotherapeutics or other novel drugs.

As a result, Multidrug resistance (MDR) especially efflux pump mediated resistance represents a major obstacle to effective therapeutic interventions against cancer.

Studies have shown that efflux pumps can be regulated by various factors, including signaling pathways such as the PI3K/Akt/mTOR pathway, hypoxia-inducible factor 1α (HIF-1α), and nuclear factor-κB (NF-κB). Targeting these pathways has been shown to sensitize cancer cells to chemotherapy by reducing the expression and activity of efflux pumps.

Researchers have made significant efforts to develop strategies to overcome efflux-mediated multidrug resistance. One approach has been the development of efflux pump inhibitors (EPIs) that can block the activity of efflux pumps, thereby increasing the intracellular concentration of chemotherapeutic drugs. Several EPIs have been developed and tested in preclinical studies, but unfortunately their clinical efficacy has been limited by toxicity and lack of specificity.Despite these efforts, the efflux pump-targeted therapies has challenges including the development of EPIs with greater specificity and reduced toxicity, and the identification of biomarkers that can predict which patients are most likely to benefit from efflux pump-targeted therapies. Overall, the results of this review highlight the critical role of efflux pumps in multidrug resistance in cancer cells and the significant efforts that researchers have made to develop strategies to overcome this problem. Although significant progress has been made, further research is needed to develop more effective and specific therapies that can be used in clinical practice.

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