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Roadmap for Pharmacy Profession: Challenges and Opportunities

School of Pharmacy International Conference - Newgiza University

21-22 June 2023
Auditorium - Newgiza University

Prof. Sameh Farid
NGU President

Prof. Lamis Ragab
NGU Vice President

Prof. Manal Maher
NGU SOP Dean

Welcome Note

Dear distinguished guests, esteemed colleagues, and participants,

It is my utmost pleasure to welcome you to the School of Pharmacy, Newgiza University International Conference titled "Roadmap for Pharmacy Profession: Challenges and Opportunities".

Our theme, "Roadmap for Pharmacy Profession: Challenges and Opportunities", encapsulates the dynamic nature of the pharmacy profession. We find ourselves in an era of rapid transformation and innovation, where new technologies, regulatory frameworks, and patient-centered care models continuously emerge. The conference offers a chance for great collaborations and networking between the key players in the fields of pharmaceutical industry, regulation, research, and academia with a strong influence on the Egyptian Market. Together, we will discuss strategies to promote the localization of the pharmaceutical industry, address the evolving role of pharmacists in healthcare systems, and examine the integration of digital health and personalized medicine into our practice.

The sessions and panel discussions have been meticulously designed to foster dialogue, collaboration, and knowledge exchange. I extend my warmest gratitude to all the distinguished speakers, experts, researchers, and practitioners who have generously contributed their time and expertise to make this conference a reality.

The conference will be filled with insightful discussions, networking opportunities, and recommendations that will lead to forging new partnerships that will add to the pharmacy profession success.

Once again, welcome to our international conference "Roadmap for Pharmacy Profession: Challenges and Opportunities". Together, let us embark on this journey of discovery, growth, and excellence in advancing the pharmacy profession.

Thank you

Prof. Manal Maher
School of Pharmacy Dean, NGU

Organizing Committee

Conference Coordinator

Prof. Rania Mohsen

Professor of Pharmacology & Toxicology, Vice Dean for Graduates and Research Affairs, School of Pharmacy, NewGiza University

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Teaching Assistant of Pharmaceutical Chemistry, School of Pharmacy, NGU

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Lecturer of Clinical Pharmacy, School of Pharmacy, NGU

Dr. Ahmed Magdy Abdel Bar
Adjunct Lecturer of Pharmaceutics and Industrial Pharmacy, School of Pharmacy, NGU

Ashrakat Nabawy
Teaching Assistant of Microbiology and Immunology, School of Pharmacy, NGU

Mayar Ashraf
Teaching Assistant of Clinical Pharmacy, School of Pharmacy, NGU

Biographies

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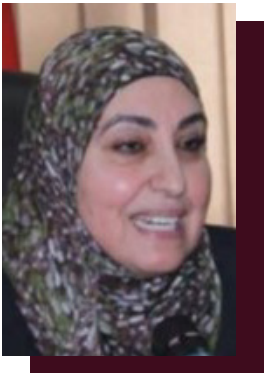
EDA Opening Speech

Prof. Tamer Essam
Chairman, Egyptian Drug Authority (EDA)

He acted as the Deputy Minister of Pharmaceutical Affairs – Ministry of Health and Population during the period of 2018- Early 2020, and before that he was the Head of Central Administration for Pharmaceutical Affairs (Capa) during the period of 2015-2016. He is also a Professor of Microbiology and Immunology, additionally he acted as a lead assessor and a member of the Supreme Committee of the Egyptian Accreditation Council - Ministry of Trade and Industry, member of the Arabic Accreditation Council (Arac), member of the Technical Committee for the Egyptian Standards for Cosmetics - Egyptian Organization for Standardization (Eos) and a reviewer in many scientific journals. He has been graduated from Faculty of Pharmacy, Cairo University at the year 2002, and got his PhD from Lund University, Sweden in the field of Biotechnology at the year 2006. He was the director of the Biotechnology Centre, Faculty of Pharmacy, Cairo University and the founder of the Biotechnology and Life Sciences Department, Faculty of Postgraduate Studies for Advanced Sciences, Beni-Suef University.

Prof. Azza M. Agha
Professor of Pharmacology and Toxicology, Faculty of Pharmacy, Cairo University
Former Dean, Faculty of Pharmacy, Cairo University



Azza M. Agha is a Professor of Pharmacology and Toxicology, She was the Vice President for Higher Education - National Authority of Quality Assurance and Accreditation of Education (NAQAAE) in Egypt, and Member of IC - Accreditation Council for Pharmacy Education (ACPE) in USA, and Dean of Faculty of Pharmacy Cairo University. She got fellowships to Germany and USA, and earned many awards nationaly and internationally.

Azza works on performance appraisal and development of Higher Education Institutions (HEIs) through development of "Accreditation Standards of HEIs", "National Academic Reference Standards (NARS) of different educational discilplines", and conducting evaluation visits to HEIs.

As expert of quality assurance (QA), Azza founded and chaired "QA centers in her Facuty and University", and "Training Department in NAQAAE". She founded "International Relations Burea", Continuous Education Center", and "Career Development Center", and improved "Biotechnology Center" in her Faculty. She conducted "Institutional Self Studies"and "National and International Workshops on QA". She participated in accreditation of HEIs and Pre-University institutions in Egypt, and in Germany with AQAS, and with ACPE. She was member in "National Committee of Continuous Improvement and Quality Assurance Program (CIQAP)", "Faculty and Leadership Development Program (FLDP)", and "Higher Education Enhancement Project Fund" in Ministry of Higher Education (MOHE). She participated in Bonn, Alexandria and Brussels Declarations on QA in HE across Borders.

Azza is involved in development of pharmacy profession, as she was the "Deputy of Pharmacy Sector" and "Member of Scientific Promotion Committee for Pharmacology" in Supreme Council of Universities - MOHE; "Member of Drug Control Committee" and "Member of Pharmacology Committee in Ministry of Health and Population; and "Member of WHO / UNESCO / FIP Global Pharmacy Education Taskforce".

Plenary Session
"IPE/IPCP: Roadmap for Improving Healthcare Practice"

Prof. Cate Whittlesea
Director of Clinical Education, UCL School of Pharmacy
Interim Director, Head of the Research Division of Practice and Policy
Professor of Pharmacy Practice, UCL School of Pharmacy

Day 1, Session 1
Roadmap for Pharmacy Profession: Stakeholders Perspective

Cate is Interim Director, Head of the Research Division of Practice and Policy and Director of Clinical Education at UCL School of Pharmacy. She is also the UCL 5-year integrated MPharm programme lead. Cate has worked as a pharmacy academic at Cardiff University, King's College London, Durham University and UCL. Cate's research has focused on the pharmacists' role in public health particularly alcohol screening and treatment in community pharmacy; oral contraception/sexual; health services delivered through community pharmacy and patient support for pre-depression /depression interventions. She is co-investigator for NIHR funded research studies making a significant pharmacy contribution to the research, stakeholder engagement (patient/public and pharmacy) and policy development. Her research also focuses on medication safety including systems to improved patient safety and use of Big Data to support the safe use of medicines. She has experience in developing collaborative partnerships and leading multidisciplinary teams in public health and medicine safety research, having worked with pharmacy organisation and NHS Trusts in Wales, London and the North East of England. Cate's undergraduate and postgraduate teaching has included medication safety and public heath linked to her research in these areas. Cate has developed and led undergraduate teaching and assessment in clinical assessment skills at King's College London, Durham University and UCL. She has developed innovative courses, including independent prescribing, to support the professional development of both pharmacists and pharmacy students to meet changing healthcare needs. She is a General Pharmaceutical Council accreditation panel member for the MPharm degree and OSPAP courses. Cate is a Fellow of the Royal Pharmaceutical Society and a Senior Fellow of the Higher Education Academy. She is an experienced external examiner at a number of UK Schools of Pharmacy and is external advisor for the pharmacist prescribing course in New Zealand. She also has an adjunct appointment as Professor at the Faculty of Pharmacy and Pharmaceutical Sciences, Monash University, Australia.
Cate has published many academic papers in her research areas of public health and patient safety. She is a chapter author and editor of an international clinical pharmacy academic textbook.

Prof. Ian Bates

Chair of Pharmacy Education, UCL School of Pharmacy
Director, International Pharmaceutical Federation (FIP)

Professor Ian Bates holds the Chair of Pharmacy Education at the UCL School of Pharmacy and is a Director for the International Pharmaceutical Federation (FIP), leading an international team appointed by FIP working in partnership with UCL, WHO and UNESCO, with an outreach of over 4 million pharmacists and pharmaceutical scientists worldwide. He is the Director of the FIP Global Pharmaceutical Observatory leading a team developing data-driven monitoring for global development and progression. Professor Bates is the Programme Director for the UCL post-registration professional programmes, providing foundation and advancement training and workplace education for practitioner development for NHS pharmacists.

He is Editor-in-Chief of Pharmacy Education, an international research journal hosted by FIP which has been publishing peer reviewed educational research continuously since 2000. He is a Fellow of the Royal Pharmaceutical Society, a Fellow of the Royal Statistical Society, a Fellow of the Royal Society for Public Health, and a Trustee for the European Pharmaceutical Students' Association. He was awarded Fellowship of the International Pharmaceutical Federation in 2012 in recognition of global leadership in education and workforce.
Under the auspices of the International Pharmaceutical Federation, he was instrumental in authoring and launching the global Workforce Development Goals which were subsequently presented at the World Health Assembly in 2017 which are now widely used as a policy framework across many countries. He received a Lifetime Achievement Award from the UK Clinical Pharmacy Association in recognition of his leadership in international education development and in 2017 received the Royal Pharmaceutical Society Charter Award, the highest award for achievement and leadership from the profession.

Day 1, Session 1
Roadmap for Pharmacy Profession: Stakeholders Perspective

Dr. Naeema Al-Gasseer

Representative in Egypt and Head of Mission, World Health Organization

Dr Naeema Al-Gasseer (Bahrain) occupies the position of WHO Representative in Egypt since August 2020. She was formerly Senior Advisor to Regional Director, and WHO Representative in Sudan. Dr Al-Gasseer joined WHO in 1999 as Senior Scientist for Nursing and Midwifery, Geneva, responsible for the coordination and integration of nursing and midwifery issues in the work of WHO policy and programs. She later served as WHO Representative in Iraq, before being reassigned to the post of Assistant Regional Director in 2010, where she focused on strengthening health systems based on research and evidence.

Day 1, Session 1
Roadmap for Pharmacy Profession:
Stakeholders Perspective
"Panel Discussion"

Prof. Ahmed Taha

Chairman, General Authority for Healthcare Accreditation and Regulation (GAHAR)

Prof. Dr. Ahmed Abdel Hamid Taha has forty years of experience in learning and educating medicine and healthcare, and more than fifteen years of managerial experience in the fields of hospital management, strategic planning, medical education development, leadership styles, financial stewardship, and quality assurance. This is besides his broad experience in teaching, training, and scientific research at the national and international levels, especially in the field of vascular surgery, with more focus on open vascular surgeries, non-invasive interventions for arteries and veins repair, and transplant surgeries. He obtained his bachelor's degree in medicine and surgery, Kasr-El Ainy, Cairo University in 1986, and received his master's as well as PhD in General Surgery in 1990 and 1994 consecutively. Besides, he obtained fellowships in different universities such as University of Amsterdam, the Netherlands; the Royal College of Surgeons of Ireland (FRCSI); and a fellowship from Cologne University in Aortic aneurysm repair. He is a Founder and President of the Egyptian Association of Diabetic Foot and Limb Salvage. On the other side, he has also received a professional Diploma in Healthcare and Hospital Management, American University in Cairo (AUC) as well as training courses in governance, leadership and change management, healthcare facilities culture and environment, presentation skills, strategic planning, quality management, business development and marketing, information technology and its role in healthcare.

Day 1, Session 1
Roadmap for Pharmacy Profession: Stakeholders Perspective
"Panel Discussion"

Prof. Aiman ELkhatib
Deputy Chairman, EDA
Professor of Pharmacology and Toxicology, Faculty of Pharmacy, Cairo University

Prof. Aiman Elkhatib is currently the Vice President of the Egyptian Drug Authority. He is a Professor of Pharmacology and Toxicology in the Faculty of Pharmacy, Cairo University since May 2002. He held several leadership positions in Cairo University including Vice President for Graduate Studies and Research Affairs, Dean of Faculty of Pharmacy, Vice Dean for Education and Students Affairs as well as Vice Dean for Community Service and Environment Development. Additionally, he held the post of Assistant Minister of Health and Population for Pharmaceutical Affairs. His primary research area of interest is investigation of the pharmacological properties of various drugs, including natural products on the gastrointestinal tract, cardiovascular and central nervous systems. He published numerous articles in international journals. His awards include Cairo University Scientific Research Fosterage in field of Theoretical and Applied Biological Sciences in 2004, Silver and Gold Medal of Merit from Egyptian Syndicate of Pharmacists in 2004 and 2005.

Day 1, Session 1
Roadmap for Pharmacy Profession: Stakeholders Perspective
"Panel Discussion"

General Dr. Tarek Abdelrahman

Vice Chairman, Egyptian Unified Procurement Authority (UPA)
Member, Executive Bureau of the Arab Pharmacists Union

General Dr. Tarek Abdelrahman has held several leadership positions over the years, most notably as Chairman of the Board and Managing Director of three companies affiliated with the Holding Company for Pharmaceuticals. He served as Chairman of the Board and Managing Director of the Republic Trading Company for Drugs and Medical Supplies from 2015 to 2017, and then was appointed as Chairman of the Board and Managing Director of the Egyptian Company for Trading in Pharmaceuticals in 2017. Afterwards he was appointed as Chairman of the Board and Managing Director of the Arab Pharmaceutical Company from 2017 to 2018.

Day 1, Session 1
Roadmap for Pharmacy Profession: Stakeholders Perspective
"Panel Discussion"

Dr. Hany Rashed

Vice Chairman, General Authority of Healthcare (GAH)

Dr. Hany holds a Bachelor of Medicine and Surgery, as he graduated from Faculty of Medicine, Al-Azhar University in 1998. Dr. Hany obtained several scientific certificates, which include:

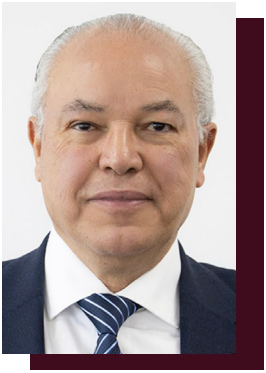
Egyptian Fellowship Health Facilities Management
Master of Business Administration
Hospital Management Diploma
Total Quality Diploma from the American University in Cairo
Infection Control Diploma
Human Resources Diploma
Management of General applications in planning health services
Scientific Research Methods, Quality Control and Patient Safety
Occupational Safety and Health programs and work environment security
Risk Management
Hospital Design Standards
Modern methods of hospital management
Integrated healthcare model

Dr. Hany held the following leadership positions:
Director of Aswan Cancer Center
Director of Al-Haram Hospital
General Director of Nasser Institute Hospital

Day 1, Session 1
Roadmap for Pharmacy Profession: Stakeholders Perspective
"Panel Discussion"

Dr. Gamal El-Leithy

Head, the Pharmaceutical Chamber of the Federation of Egyptian Industries



Chairman & Managing Director of Future Pharmaceutical industries “FPi” from January 2009 till now and Chairman of Industrial Chamber of Pharmaceuticals, Cosmetics & Appliances
Logistic Director & Board Member in Global Napi Pharmaceuticals from January 2000 to December 2008
Sales & Marketing Director & Board Member in Global Napi Pharmaceuticals from February 1995 to January 2000
Managing Director of North Africa Pharmaceutical Industries "Napi" Project under development from July 1990 to January 1995
Area Sales Manager with El-Lilly from February 1988 to March 1990
Financial Analyst with El Lilly from July 1986 to January 1988
Marketing Planning & Research Associate With El-Lilly from February 1985 to June 1986.
Medical Representative With El Lilly (located in Taiz, North Yemen) from January 1983 to 1985
Pharmacy Manager From 1981 to 1982
Production Supervisor With PFIZER Egypt, at their plant in Cairo, From 1978 to 1979 worked in the major four production areas: Sterile, liquid, solid and packaging areas.

General Works: -
Board member in Russian University since 2012.
Board member in Faculty of Pharmacy – El Azhar University since 2014.
Minister of Food and Drug Safety in El Wafed Government for three Consecutive Sessions since 2010.
Member of the Committee for The Studies of the Pharmaceutical Sector - Supreme Council of
Universities.
Member of the General Committee for Pharmacy Elections.
Member of the Board of Trustees of Ain Shams Pharmacy.
Member of the Board of Trustees of the Faculty of Pharmacy - University of Ennahda.
Member of the Egyptian-Lebanese Association of Businessmen.
Member of the Pharmacists Syndicate

Day 1, Session 1
Roadmap for Pharmacy Profession: Stakeholders Perspective
“Panel Discussion”

Dr. Riad Armanious
Chief Executive Officer, Eva Pharma

Riad is a serial entrepreneur that strives to empower the fight for health and well-being as a right. He heads the EVA group, which is one of the leading healthcare organizations in Africa and Middle East (AFME). Riad is an active member in the YPO (Young Presidents Association), YGL (Young Global Leaders), holds the role of Vice-chairman in the Egyptian Industrial Chamber, the role of founder and former president of the Association of Graduates of Business Administration in Harvard and a member of the board in the Egyptian / Hungarian / Ethiopian / Bahraini & Emirati Business councils. Moreover, Riad is the founder of the "T20" foundation, a non-profit that focuses on utilizing the knowledge of highly educated youth to develop people and programs for social and economic improvement.

He gives special attention to biomedical research projects as he made a 21 million grant to be awarded to high-priority basic biomedical research projects with the potential for high scientific impact addressing new concepts and techniques to improve health in 3 fields: Multiple drug Resistance Bacteria, Immunotherapy in Cancer and NASH Non-alcoholic Steatohepatitis.

His experience includes Business Development, Marketing, Production, International Markets, and Project Management. Prior to his current position in Eva Pharma, Riad sets the company strategy, vision, and objectives to achieve the company's profitability.

Armanious's goal is to help patients and physicians across the Middle East and Africa. He wants to make sure that quality generics are accessible throughout this part of the world. He believes that the number of people without access is enormous, yet few companies are working to overcome the hurdles to reach and help these people. He sees the potentiality of making a strong impact in terms of improving access to affordable and high-quality medicine across Africa, and he sees a need to continue to invest with this goal in mind despite any political and economic turmoil."

Riad has a Bachelor of Pharmacy from Cairo University and an MBA degree from Harvard Business School.

Day 1, Session 1
Roadmap for Pharmacy Profession:
Stakeholders Perspective
"Panel Discussion"

Moderator

Dr. Islam Anan
Founder and CEO of Accsight L.L.C

Lecturer of Pharmacoeconomics (Faculty of Pharmacy, Ain Shams University). Lecturer of Health Policy, Pharmacoeconomics and Pharmacoepidemiology (Faculty of Pharmacy, MIU and Future University- Arab Academy for Science Technology & Maritime Transport). Lecturer of Medical Journalism (The American University in Cairo). Health Policy and Health Economics Consultant to the presidential initiatives dept. at the Egyptian Ministry of Health, UPA, EDA. With 20 years in healthcare industry with academic and professional experience in healthcare and research consultancy located in different affiliates in the Middle-East and emerging markets as well as western Europe, he is currently the founder and CEO of Accsight (Healthcare Integrated Solutions), the leading research consultancy agency with presence in 15 countries and more than 50 employees. Throughout his career he participated in 500+ research projects with many publications in the field of Health Economics, health policy, market research, PRO and Epidemiology. He got 10,000+ consulting and instructing hours to different entities (pharmaceutical companies, universities, healthcare public bodies and general public) and consultant to many public sector bodies (governmental bodies in Egypt and Middle East countries like Egyptian MOH, UPA, and HIO), and pharmaceutical companies. He expert matter guest at the BBC channel, DMC, MBC, SKYNEWS and many others in the field of COVID-19 policies and economics, his forecast models of the COVID-19 waves were the base of many political decisions in the Middle-East since December 2019 with 90+% accuracy. He is a reviewer to many medical journals like VIH, editor at AIJPMS journal and (ISO 20252) auditor for Health Care Research.

Day 1, Session 1
Roadmap for Pharmacy Profession: Stakeholders Perspective
"Panel Discussion"

Chairperson

Assoc. Prof. Mohammed Abdallah

Head of Central Administration of Drug Control, EDA
Associate Professor of Pharmaceutics and Industrial Pharmacy, Faculty of Pharmacy, Cairo University

He spent almost his entire career life in several academic and managerial positions. He started his career in Faculty of Pharmacy -Cairo University as a member in the Pharmaceutics and industrial pharmacy Department, then he became the Head of Central Lab at Faculty of Pharmacy, Cairo University in 2017. In 2019, he became the head of Pharmaceutics Department at School of Pharmacy at New Giza University in collaboration with University College London till 2022. Since that time, he became the head of Central Administration of Drug control at Egyptian Drug Authority. Dr. Abdallah has many effective contributions and scientific publications in different pharmaceutical fields including the pharmaceutical industry, dosage form design, nano-formulations, design of experiments, pharmaceutical statistics, pharmacokinetics, and bioequivalence.

Day 1, Session 2
Localization of Pharma Industry: Challenges and Opportunities

Chairperson

Prof. Marwa Fouad

Professor of Pharmaceutical Chemistry, Vice Dean for Students Affairs, School of Pharmacy, NewGiza University

Dr. Marwa Fouad, Professor of Pharmaceutical Chemistry, Vice Dean for Students Affairs, School of Pharmacy, NewGiza University. She earned her PhD from Faculty of Pharmacy, Cairo University in October 2009. She has about 75 international publications in peer reviewed journals with high impact factor and participated with oral and poster presentations in different international conferences in Pharmaceutical Chemistry field in different countries like Egypt, France and Spain. She joined Prof. Jean-Marie Pages group in UMR-MD1 Research Unit, Aix-Marseille University in France in 2013 where she worked as a postdoctoral fellow then she joined Prof. Bertrand Blankert group in pharmaceutical analysis laboratory, Mons University in Belgium for a postdoctoral fellowship in 2014. She supervised about 50 master and PhD theses. She reviewed around 60 international publications in many international journals. She got the Award of Best International published paper in Pharmaceutical Chemistry from 3rd Scientific Conference of the Faculty of Pharmacy- Cairo University, April 2012 and 8th Scientific Conference of the Faculty of Pharmacy- Cairo University, April 2017. She also got Awards for international publications in 2011-2020 from Cairo University. She is the Associate Managing Editor of Journal of Advanced Research. She is a member of the Consultative Committee on Intellectual Property, Egyptian Drug Authority and also a member of the Specialized Scientific Committee for evaluating the quality file and evaluating the pharmaceutical products submitted by the unified registration system CTD - Egyptian Drug Authority.

Research Interest:

Her main research interest includes drug design, pharmaceutical synthesis and analysis, pharmacokinetics and metabolism in drug design and discovery, experimental design, molecular docking and QSAR.

Day 1, Session 2
Localization of Pharma Industry: Challenges and Opportunities

Prof. Dr. Medhat Al-Ghobashy
Chairman Advisor for Regulatory and Reference Labs, EDA
Professor of Bioanalytical Chemistry, Faculty of Pharmacy,
Cairo University

Currently, he is the Chairman advisor for Regulatory & Reference Labs at the Egyptian Drug Authority (EDA). Dr Al-Ghobashy has been a "Titular Member" of the Analytical Chemistry Division of the International Union of Pure & Applied Chemistry (IUPAC) for two years after serving as the "National Representative" of Egypt for two more years in the same division. Currently, Dr Al-Ghobashy is serving as the EDA representative in the supreme committee of the Egyptian Pharmacopoeia. Dr Al-Ghobashy is the leader of the Bioanalysis Research Group. He has a solid background in the field of biosimilarity assessment, biomolecular characterization, and biocompatibility studies of medical devices. He is currently involved in several research projects covering the development and characterization of biotechnology-derived drugs intended for the treatment of multiple sclerosis and breast cancer. The expertise of the Bioanalysis Research Group in tandem mass spectrometry has been lately extended to the analysis of pharmaceuticals in biological fluids and undesirable compounds / related substances in pharmaceutical raw materials and finished products.

Day 1, Session 2
Localization of Pharma Industry: Challenges and Opportunities

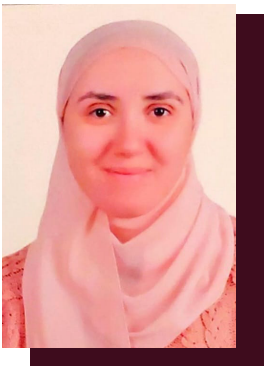
Dr. Asmaa Fouad
Manager, the Biological Products General Administration, EDA

Dr. Asmaa Fouad Ismail is currently General Manager of the Biological Products General Administration, the Central Administration of Biological and Innovative Products and Clinical Trials at EDA managing marketing authorization, lot release and laboratory testing and evaluation & technical support of biological products. Dr. Asmaa is EDA representative in ICH & member of IPRP management committee. Dr. Asmaa is also a member of the Emergency Committee at EDA and has participated in the formulation of many national guidelines in Egypt and worked in the COVID-19 Vaccines Global Review team with the WHO. Dr. Asmaa has 20 years of experience in regulating biological products in Egypt. Dr. Asmaa obtained her B Pharm from Faculty of Pharmacy, Cairo University & MBA from the Arab academy of managerial, finance & banking sciences.

Day 1, Session 2
Localization of Pharma Industry: Challenges and Opportunities

Dr. Sara Magdy

Manager, Technical Support Administration at the Biological Products General Administration, EDA



Dr. Sara Magdy is head of Technical Support directorate in the general administration of Biological Products within BIO-INN, EDA. Dr. Sara works with stakeholders to provide the required updates in the field of harmonization of regulations and guidelines elaboration. Prior to working in technical support administration, Dr. Sara was the head of Marketing Authorization Department in the National Organization for Research and Control of Biologicals, Egypt, where she was responsible for the technical assessment of biological products marketing authorization applications. Sara uses 15 years of experience from regulatory and marketing authorization work as well as a doctorate in Analytical Chemistry from Cairo University specialized in the characterization of recombinant therapeutic proteins to help the technical support teams achieve their goals. As an expert, Sara presents EDA in contribution to the expert working group formulated by ICH for the update of M4Q(R2) ICH guideline.

Day 1, Session 2
Localization of Pharma Industry: Challenges and Opportunities

Prof. Emad Basalious
Product Development Consultant, Gypto Pharma
Professor of Pharmaceutics and Industrial Pharmacy,
Faculty of Pharmacy, Cairo University

Emad B. Basalious, Ph.D., Professor of Pharmaceutics and Industrial Pharmacy, Faculty of Pharmacy, Cairo University, Former Chairman of the National Organization for Drug Control and Research (NODCAR). Product Development Consultant at Gypto Pharma (Medicine City), Scientific consultant for several EDA scientific committees, technical consultant for several national pharmaceutical factories and CROs. Fellow member of Drug Research Council by the Academy of Scientific Research and Technology. He published more than 45 papers and 1 US patency , h index 21. member of several international organization such as AAPS and FIP. reviewer for National Professorship Promotion Committee by Universities Supreme Council.

Dr. Emad was awarded Cairo University Excellence Award, in March 2021, the Silver Medal in Geneva Inventions 2021 and was awarded the Scientific Creativity/Innovation Award 2018 from Coptic Orthodox Culture Center.

Day 1, Session 2
Localization of Pharma Industry: Challenges and Opportunities

Dr. Mosaad Morsi
Chairman and CEO, Ray, DataClin, Zi Diligence,
Pharma-Med and ClinM

Mosaad Morsi is an accomplished member of the pharmaceutical industry in the Middle East region, holding several leading positions within the medical and regulatory fields for 23 years at Pfizer-Middle East and Sanofi-Egypt. He was the medical and regulatory affairs director of Sanofi Egypt for 10 years and also held several positions at Pfizer Middle East, including the medical director and clinical research director positions, for a total of 13 years. Furthermore, he was designated team leader of a novel medicinal product for Pfizer Africa, Middle East, India, and Pakistan. Dr. Mosaad Morsi completed his MB BCh from Cairo University, holds MSc in Dermatology and Venereology from Al Azhar University, and practiced medicine for several years in Egypt, Saudi Arabia, and Kuwait. After joining the industry, he became actively involved in clinical research as well as medical and regulatory fields and developed a comprehensive understanding of the standards imposed by both local and international regulatory bodies. He received extensive training on ICH/GCP guidelines and clinical research management and conducted basic and advanced GCP training programs to hundreds of physicians and investigators in the Middle East. Throughout his career, he has successfully managed numerous clinical studies at different phases of drug development by ensuring full compliance with ethics and quality standards. Dr. Mosaad Morsi is currently the Chairman and CEO of several companies, offering a wide range of support services to the pharmaceutical industry, medical community, and academia. These companies include:

RAY: Clinical Research Services (RAY-CRO) and Patient Support Services (RAY-PSP)
Dataclin: Contract Research Organization
Zi-Diligence: Bio-analytical Center
Pharmamed: Medical Translation Services
Clin-m: Clinical Supplies Management

His primary goal is to, promptly and continually, improve the overall quality of scientific research and healthcare services, ultimately improving patient outcomes. He remains committed to implementing a patient-centered approach through ethics, quality, and compliance.

Day 1, Session 2
Localization of Pharma Industry: Challenges and Opportunities

Chairperson

Dr. Sameh El Bagoury

General Manager at Sandoz Egypt & Libya

Sameh El Bagoury is a pharmaceutical industry leader with over 24 years of experience. He has held several senior positions in Sandoz & Novartis, including Commercial Director for APMA and Business Unit Head for Cardio-Metabolic-EGYPT & Hypertension MENA Lead. Sameh is currently serving as the Sandoz Egypt & Libya General Manager. Throughout his career, Sameh has worked in several countries across the globe, giving him a unique perspective and the ability to work effectively with diverse people and cultures. He is known for his ability to turn around challenging businesses and drive commercial success. Sameh holds a Bachelor of Pharmacy from Cairo University and a Master of Business Administration (MBA) from Edinburgh Business School in the UK.

Day 2, Session 1
Disruptive Innovations: From Bench to Market

Chairperson

Prof. Ahmed Attia

Professor of Microbiology and Immunology,
Faculty of Pharmacy, Cairo University
Adjunct Professor, School of Pharmacy, NGU

Ahmed Sherif Attia, works as Professor of microbiology and immunology, Faculty of Pharmacy, Cairo University and has an adjunct faculty position in the School of Pharmacy, Newgiza University. He obtained his PhD in molecular microbiology from the University of Texas Southwestern Medical, USA working on the molecular aspects of the microbial resistance to the complement system. Working as a postdoctoral fellow at Vanderbilt University, USA, he identified new microbial therapeutic targets and novel host antimicrobial mechanisms using cutting edge technologies. Dr. Attia's current research focuses on; i) identifying novel microbial therapeutic targets, ii) development of new vaccines and biotechnological products, and iii) discovering novel non-traditional antimicrobial agents from natural sources and through synthetic chemistry. Dr. Attia's work is highly recognized as he has been awarded several prestigious awards from both local and international entities.

Chairperson

Prof. Rania Mohsen

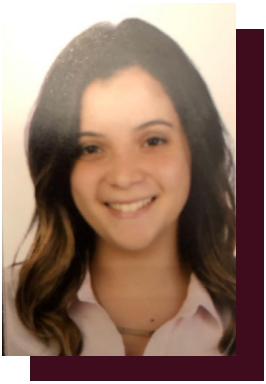
Professor of Pharmacology & Toxicology, Vice Dean for Graduates and Research Affairs, School of Pharmacy, NewGiza University

Dr. Rania Mohsen Abdelsalam a Professor of Pharmacology & Toxicology, vice dean for graduates and research affairs and the acting head of the biology discipline at the School of Pharmacy, Newgiza University. She has a solid background in the field of hepatic fibrosis, neuropharmacology, and oncology she has more than 55 internationally published papers peer reviewed journals in these fields [H-index (20) and i10-index (29)]. Former member of the ethics committee (REC) in the Faculty of Pharmacy, Cairo University (2010-2020) and was the Head of the Career Center Unit (FOPCC), Faculty of Pharmacy, Cairo University. She is also a member of the Central Committee for Ethics of Scientific Research, The Supreme Council of University Hospitals. Dr. Rania is the coordinator of the student support committee in School of Pharmacy, NewGiza University, and head of the research ethics committee in SOP, NGU.

Assoc. Prof. Ali Ellebedy
Associate Professor of Pathology & Immunology,
School of Medicine, Washington University, MO, USA

Ali Ellebedy is a viral immunologist. He was born in Egypt and graduated with a B.S. in pharmaceutical sciences from Cairo University in 2004. In 2006, he moved to the US, where he studied immune responses to influenza viruses at St Jude Children's Research Hospital in Memphis, Tennessee, for his Ph.D. He then moved to Emory University in Atlanta, Georgia as a postdoctoral fellow in the laboratory of Rafi Ahmed, studying human B cell responses to viruses. In 2017, Ali joined the Department of Pathology and Immunology at Washington University School of Medicine in St. Louis, Missouri as an assistant professor. His team studies the factors dictating the breadth and durability of antibody responses to viral infection and vaccination. In response to the SARS-CoV-2 pandemic, his team published seminal studies defining the breadth and persistence of human immune responses to SARS-CoV-2 infection and vaccination. He is a tenured associate professor.

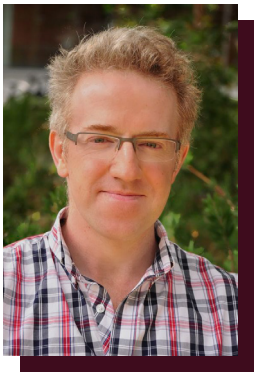
Dr. Elham Ali
Technical Sales Executive, Technoscient Agilent
Pharma Department



Graduated from the Clinical Pharmaceutical Science School of Cairo University on 2020 , And currently working as Technoscient Agilent Pharma department Technical Sales Executive since 2020.

Day 2, Session 1
Disruptive Innovations: From Bench to Market

Prof. Matthew Todd
Professor and Chair of Drug Discovery,
UCL School of Pharmacy



Matthew Todd was born in Manchester, England. He was educated at Cambridge University where he obtained an MA in Natural Sciences in 1995 and a PhD in organic chemistry (with Chris Abell) in 1999. He was then a Wellcome Trust postdoc at The University of California, Berkeley (1999-2000), a College Fellow back at New Hall (now Murray Edwards) College, Cambridge University (2000-2001), a Lecturer in Chemistry at Queen Mary, University of London (2001-2005) and between 2005 and 2018 was at the School of Chemistry, The University of Sydney where he moved from Lecturer to Associate Professor. He is now Professor and Chair of Drug Discovery at University College London (2018-present).

Prof. Mine Orlu
Professor of Pharmaceutics, UCL School of Pharmacy

Mine Orlu is Professor of Pharmaceutics and MSc Pharmaceutics Programme Director in the UCL School of Pharmacy. She completed her MPharm, MSc and PhD studies in the Istanbul University, Faculty of Pharmacy. During her PhD studies, she held a one year visiting scientist post at King`s College London funded by the EU Marie Curie EST programme and received GALENOS Euro-PhD in Advanced Drug Delivery. Mine took up two post-doctoral positions in the University of London, The School of Pharmacy – firstly in 2008 and secondly, from 2009 to 2012. She was appointed as Lecturer in 2012 and was promoted to Associate Professor in 2018 and full Professor in 2022 in the UCL School of Pharmacy. Mine is an expert in patient centric medicine development. Her research interests focus on the design of advanced drug delivery systems, as well as the use of novel emerging engineering and digital health technologies for special patient populations.

Prof. Catherine Tuleu
Professor of Pediatric Pharmaceutics,
UCL School of Pharmacy

Dr. Catherine Tuleu is a UK-qualified French pharmacist. She is Professor of Paediatric Pharmaceutics at UCL School of Pharmacy (see https://orcid.org/0000-0001-8384-357X ; H-index 30). Her research, inherently translational, ranges from formulation, methodology development to clinical implementation, integrating the following themes: children centric excipient research; repurposing by reformulating for better medicines for children; development of innovative age appropriate dosage forms (especially for under 5s); administration issues and devices and sensory pharmaceuticsTM (dosage form acceptability and in vitro/in vivo taste assessment; https://www.ucl.ac.uk/pharmacy/people/professor-catherine-tuleu).
She is the founder and chairperson of the European Paediatric Formulation Initiative (EuPFI), a consortium working in a pre-competitive way on paediatric drug formulations (http://www.eupfi.org/). Her spin out company senCeuTics Ltd. specializes in pharmaceutical sensory evaluation and offers a full spectrum of preclinical, clinical and paediatric formulation services under one roof (https://senceutics.com/).

Chairperson

Prof. Sherief Khalifa

Chair of ACPE International Commission
Vice Chancellor for Quality & Institutional Effectiveness
Dean, College of Pharmacy at Gulf Medical University, UAE

Sherief Khalifa received his BSc (Pharm) at King Saud University, Saudi Arabia, and his PhD at the University of Mississippi. Upon graduation, Dr. Khalifa joined Suez Canal University, Egypt, as Assistant Professor in the Faculty of Pharmacy. He was a Fulbright Scholar at Georgia State University in 2001 and accepted an adjunct faculty appointment with the School of Pharmacy, University of Mississippi, from 2001 – 2005.
Dr. Khalifa joined the College of Pharmacy at Gulf Medical University (GMU) in 2017 as Professor and Dean. During his tenure at GMU, he led the initiation and accreditation of several programs in the College.

Dr. Khalifa currently serves as Vice Chancellor for Quality and Institutional Effectiveness. Under his leadership, GMU received international institutional accreditation by the Quality Assurance Agency (QAA), the agency that accredits higher education institutions in the United Kingdom. Dr. Khalifa is currently serving as Chair of the ACPE International commission.

Day 2, Session 2
Empowering Future Pharmacists: Modern Versus Traditional Learning

Chairperson

Dr. Oksana Pyzik

Global Engagement Lead and Founder of UCL Fight the Fakes, UCL

Oksana Pyzik is a Pharmacist, Global Health Advisor and Lecturer at the UCL School of Pharmacy since 2012, with over a decade of experience in academia and global health. Oksana founded the UCL Fight the Fakes global partnership in 2015 and serves as the Academic Chair of the Fight the Fakes Alliance Executive Board. Her teaching, research and global engagement portfolio spans across global health topics including health emergencies and medicines quality with a focus on substandard and falsified medical products where she is a member of the World Health Organization SF expert working group and Editorial Board Member of the SAGE Medicines Access Journal. Oksana is a regular global health commentator in the media and advises Governments, NGOs, and social impact startups on public health issues including COVID-19, and in 2017 was elected to the Board of Trustees of the Commonwealth Pharmacists Association. Oksana was awarded the "Top 35 Women Under 35" in the UK prize by Accenture and Management Today in 2020 and is a Fellow of the Higher Education Academy.

Day 2, Session 2
Empowering Future Pharmacists: Modern Versus Traditional Learning

Chairperson

Dr Sherif Kamal

Chairman Consultant, Egypt Health Authority

Sherif Kamal is one of a second-generation Egyptian clinical pharmacist, with more than 20 years of experience in this field, involved in the planning, designing and implementation of pharmaceutical care in oncology centers as senior Clinical Pharmacy consultant. Sherif Kamal is now the consultant of the Chairman of the Board of Egypt Healthcare Authority and is leading the medication management and pharmaceutical affairs department. He was the Director of Pharmaceutical Services at the Children's Cancer Hospital in Egypt for more than 18 years. He earned his BS in Pharmacy, an MSc in Clinical Pharmacy and is currently a PhD candidate at the Cairo University School of Pharmacy. Sherif has also completed a visiting fellowship at St. Jude's Children Hospital in the United States in 2008. For more than 20 years, Sherif has led a team that implemented clinical pharmacy services at various hospitals throughout Egypt.

He was the first International Pharmacy Practice Residency director who got accredited by ASHP and was the Pharm D program director for 16 years in collaboration with Colrado SKAGG school of pharmacy. He is now the VP of the European Society of Oncology Pharmacy Global.

Sherif is a leading consultant working to implement clinical pharmacy in Egypt (4 Ministry of health Hoapitals;2 Military Hospitals and 3 Police Hospitals). Sherif is also leading an african initiative to improve healthcare in Africa through implementation of clinical pharmacy including Sudan, Ethiopia, Malawi, Uganda and Botswana. Sherif is also a professionally and practically qualified project manager in fundraising and business development, with more than seven years' experience in this field involved in the fundraising activity of the National Cancer Institute and Children Cancer Hospital Foundation 57357. He is a Certified Lean six sigma green belt.

Day 2, Session 2
Empowering Future Pharmacists: Modern Versus Traditional Learning

Dr. Tamer Al-Shareef

HR Director, Roche Pharmaceuticals, Egypt

Tamer is a seasoned Human Resources leader with 15+ years of in-depth experience in strategic HR business partnership, talent management, talent acquisition, labor relations and HR management consultancy. Tamer has accumulated a wealth of differentiated experiences in leading the P&C function, mega scale transformations, complex change management and project management programs, and major organization redesign within a wide range of geographies with major multinational and regional players in FMCG, eCommerce, Fintech, Pharmaceutical and Oil and Gas industries such as PepsiCo, Amazon, Maersk Drilling and Roche with focus on leading large scale HR teams, operating model redesign, shared services design and implementation, technology implementations, cost optimization programs and innovative talent acquisition solutions design and implementation.

Throughout his diverse HR business partnership roles ranging from managing blue collar intensive operating businesses to strategic partnership with leadership, Tamer has a proven track record in setting up functions from the start-up to the maturity phase, leading culture transformation, enabling Go-To-Market transformation and turning around employee engagement; all supported by in depth knowledge of the business model and challenges, strong strategic acumen and trust based relationships with partners at all organization levels.

Tamer holds an MSc. In HR Management and a BSc. in Pharmaceutical Sciences and is currently leading the People and Culture function for Roche Egypt. Tamer is married to Noura who is a fellow Pharmacist on a mission to change the world and is blessed with two kids; Hassan and Dana who are 8 years and 3 years old, respectively. Tamer enjoys traveling with a wide wealth of built-for-purpose “traveling with kids” itineraries, in addition to playing different types of sports such as Ultra-running, diving and tennis.

Prof. Duncan Q. M. Craig
Dean, School of Science, University of Bath, UK

Duncan graduated from the University of Bath in 1984 with a first class BPharm and, following pre-registration training at Upjohn Ltd and St Thomas' Hospital, he went on to study for a PhD at the School of Pharmacy, University of London, on the topic of polymeric drug delivery systems. He subsequently joined the staff and rose to the position of Reader in 1999 but left to take up a chair at the Queen's University Belfast, where he stayed for four years before moving to the University of East Anglia to set up the new School of Pharmacy in 2003. The School went on to achieve top ranking in the national student survey for five years in a row and was consistently ranked within the top 3 UK pharmacy schools in the major league tables under his stewardship. He stepped down as Head of School in 2011 to work for the Vice-Chancellor's Office as Director of Internationalisation, charged with shaping the university's policy on international relations and collaborations. In 2013 he returned to the School of Pharmacy, now part of UCL, to assume the position of Director of the newly merged School. Duncan has won numerous prizes including the Glaxo SmithKline International Award, the Controlled Release Society Young Investigator Award and the British Pharmaceutical Conference Science Award. His research interests include the generation of drug-loaded nanofibers and nanoparticles, the use of new thermal analysis approaches for dosage form characterisation and the development of novel polymeric drug delivery systems. He was also instrumental in setting up the Pharmacy School at New Giza University, a major new educational initiative in Egypt. He assumed the position of Interim Dean of the UCL Faculty of Life Sciences in 2022, a position he held for a year. He then moved to the University of Bath to take up the position of Dean of the Faculty of Science in March 2023.

Day 2, Session 2
Empowering Future Pharmacists: Modern Versus Traditional Learning

Dr. Arnaud Ruiz
Senior Lecturer of Pharmacology,
UCL School of Pharmacy

Dr. Arnaud Ruiz is the MPharm research projects lead at the UCL School of Pharmacy. He obtained a BSc in Physiology from the University of Aix-Marseille followed by a Masters in Neurophysiology and a PhD in Neuroscience. After several postdoctoral positions in labs across Europe, he became Assistant Professor and was promoted to Associate Professor in 2015. Throughout his teaching career Dr Ruiz has demonstrated leadership and innovation, for example by bringing the topic of sleep to the MPharm curriculum, or by implementing meta-analysis approaches for the running of MPharm projects in the department of pharmacology. He played a pivotal role in transforming pharmacology and anatomy practical classes for online delivery during the Covid-19 pandemic, impacting on the assessment of the MPharm and other MSc programmes. He enjoys teaching in lectures and workshops across all years of study. Dr Ruiz also leads a small research group and is engaged in public outreach and governance activities at UCL.

Empowering Future Pharmacists: Modern Versus Traditional Learning

NGU Seniors' Projects

Mai Wael Rashad
Teaching Assistant of Pharmaceutical Chemistry,
School of Pharmacy, NGU

Yara Ahmed Zaky
Senior Student,
School of Pharmacy, NGU

Day 2, Session 2
Empowering Future Pharmacists: Modern Versus Traditional Learning

Poster Presentations

جامعة الجيزة الجديدة
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Postgraduate Students

Pharmaceutical Technology and Nano-drug Delivery

Architecting Novel Multilayer Nanosponges for co-administration of two drugs managing high-risk type II Diabetes Mellitus patients suffering from cardiovascular diseases

Reham Waheed Hammad, Rania Abdel-Basset Sanad[a], Nevine Shawky Abdelmalak, Randa Latif

[a]Department of Pharmaceutics, Egyptian Drug Authority, Giza, Egypt

Nanosponges are porous solid nanoparticles composed of hyper-cross-linked polymers that serve as specific micro-domains designed for the co-encapsulation of two drugs with different chemical structures. Our goals were to engineer a novel assembly of multilayer nanosponges (MLNS) based on a layer-by-layer approach. This MLNS was engineered to incorporate two drugs (Linagliptin and empagliflozin) that their oral co-administration might not achieve the required efficiency. Linagliptin has low oral bioavailability due to intestinal degradation and low permeability. Its pharmacokinetics shows a non-linear profile which leads to a disproportionate increase in its effectiveness with increasing the dose frequency. Empagliflozin has low permeability and is very slightly soluble in aqueous media between pH 1-7.5. MLNS could improve their bioavailability along with resolving possible risks due to the non-linear pharmacokinetics of linagliptin and maximizing its dose efficiency. 23 factorial design was used to optimize the novel systems. MLNS (F4) was chosen as the optimal system with an average diameter of 40nm and the highest entrapment efficiency which accounts for 92.93%±2.27 and 100.94 %± 0.55 for linagliptin and empagliflozin respectively. Förster resonance energy transfer confirmed the formation of a multilayer structure in MLNS. The optimized MLNS system was incorporated within chitosan mucoadhesive buccal films which were optimized through 22factorial design. The permeation study from optimized MLNS-film (B4) ensured an improved empagliflozin permeation along with a controlled efflux for linagliptin, resolving possible risks due to the nonlinear plasma profile. In-vivo study of MLNS-film(B4) revealed that AUC(0–∞)of linagliptin and empagliflozin was enhanced by 2-fold and 10-fold, respectively. Therefore, the nano-buccal formulation for the co-delivered hypoglycemic drugs could contribute to improved clinical efficacy in the treatment of diabetes.

Postgraduate Students

Pharmaceutical Technology and Nano-drug Delivery

Ezetimibe loaded nanostructured lipid carrier for oral delivery: response surface methodology; in vitro characterization and pharmacodynamic evaluation in rats

Dalia Elkhayat[a], Nevine Abdelmalak, Reham Amer, Heba Awad

[a]Department of Pharmaceutics, Faculty of Pharmacy, October University for Modern Sciences and Arts

The aim of the present study was to improve the oral bioavailability of the poorly soluble lipid lowering agent ezetimibe (EZ), a member of class II as per Biopharmaceutics Classification System (BCS). The drug was formulated as nanostructured lipid carrier (NLC) employing ultra-sonication technique. A Response surface D-optimal design was used to study the effect of changing the liquid lipid type (X1) and the percentage of liquid lipid relative to total lipid amount (X2) on particle size (Y1), zeta potential (Y2), percentage entrapment efficiency (Y3) and percentage of drug released after 24 hours (Y4). Eighteen NLC formulations were prepared and pharmaceutically evaluated. The Optimized formulation was selected and prepared using 30% of the liquid lipid oleic acid. The results of the optimized formula showed that the prepared NLCs were spherical with no aggregation having a particle size of 204.3±19.17 nm, a zeta potential equals to -32±7.59 mV, an entrapment efficiency of 81.5 ± 3.58 % and 72.15±4.58 % drug released after 24 hours. Optimized EZ-NLC was assessed in high fat diet model to induce hyperlipidemia in rats in comparison with EZ suspension. The results demonstrated the superiority of EZ-NLC in ameliorating the elevated serum lipid parameters compared to EZ.

Postgraduate Students

Pharmaceutical Technology and Nano-drug Delivery

Linagliptin loaded novasomes as a complementary treatment for Alzheimer's disease: in- vitro characterization, statistical optimization and ex-vivo permeation study

Asmaa Samy[a], Neveine Abdel Malak, Shahira El Menshawe, Michael Farag, Doaa Hamad

[a]Department of Pharmaceutics and Industrial pharmacy, Faculty of Pharmacy, Modern university for Technology and Information, Egypt

Alzheimer's disease (AD) is an idiopathic, irreversible and progressive neurodegenerative brain disorder affecting around 55 million people worldwide. It is prospected that 100 million people will suffer from AD by 2050. Nowadays, AD is ranked as the seventh leading cause of death. Glucagon-like peptide-1 (GLP-1) has a neuroprotective effect via reducing Aβ deposition, the major histopathological hallmark lesions of AD, but GLP-1 is rapidly degraded by dipeptidyl peptidase-4 (DPP-4), resulting in its extremely short life span. Intriguingly, the DPP-4 inhibitor "Linagliptin" inhibits the degradation of GLP-1, suggesting its use for AD treatment. One of the major drawbacks of LGP is its low oral bioavailability (29.5%) due to first-pass metabolism and P-gp efflux. In an attempt to increase its bioavailability, LGP-loaded novasomes were prepared for brain delivery of through nasal route. Novasomes were formulated adopting thin film hydration technique. A Box-Behnken Design was employed to statistically optimize the formulation variables namely, amount of cholesterol, concentration of stearic acid and concentration of span-80. Fifteen formulae were prepared and characterized regarding entrapment efficiency, particle size, polydispersity index, zeta potential and % LGP released after 8 h. The design expert software suggested an optimized formula with desirability= 0.719, composed of 10 mg cholesterol, 52.7 mg stearic acid and 86.9 mg span-80. The prepared optimized formula showed high entrapment (83.59%), small particle size (241.89 nm), adequate zeta potential (-25.68 mV), controlled release of LGP (64.43%) after 8 h. The optimized formulation was examined using transmission electron microscope, which revealed non-aggregating nanovesicles with narrow size distribution. Stability studies revealed non-significant changes in the physicochemical parameters of optimum formula over six months. The ex-vivo permeation study showed controlled permeation of LGP relative to drug solution. In conclusion, the intranasal LGP-loaded novasomes might be considered a promising approach for the combat of AD.

Postgraduate Students

Pharmaceutical Technology and Nano-drug Delivery

Development of Canagliflozin Nanocrystals Sublingual Tablets in the Presence of Sodium Caprate permeability enhancer: Formulation Optimization, Characterization, In-Vitro, In silico, and In-Vivo Study

Sammar Fathy Elhabal[a], Mohamed A Elnabarawi, Ahmed Mohsen Hamdan, Passant M Mohie, Dania S Waggas, Rania A Gad, Mohammad Ahmed Khasawneh

[a]Department of Pharmaceutics and Industrial Pharmacy, Faculty of Pharmacy, Modern University for Technology and Information (MTI), Mokattam, Egypt

Canagliflozin (CFZ) is a sodium-glucose cotransporter-2 inhibitor (SGLT2) that lowers albuminuria in type-2 diabetic patients, cardiovascular, kidney, and liver disease. CFZ is classified as class IV in Biopharmaceutical Classification System (BCS) and is characterized by low permeability, solubility, and bioavailability, most likely attributed to hepatic first-pass metabolism. Nanocrystals-based sublingual formulations were developed in the presence of sodium caprate, as a wetting agent, and as a permeability enhancer. This formulation is suitable for children and adults and could overcome the above-mentioned problems by improving solubility, permeability, and avoidance of enterohepatic circulation due to absorption through the sublingual mucosa. In the present study, formulations containing various surfactants (P237, P338, PVA, and PVP K30) were prepared by the Sono-homo-assisted precipitation ion technique. The optimized formula prepared with PVP- K30 showed the smallest particle size (157±0.32nm), Zeta-potential (-18±0.01), and morphology by TEM analysis. The optimized formula was subsequently formulated into a sublingual tablet containing Pharma burst-V® with a shorter disintegration time (51s) for the In-vivo study. The selected sublingual tablet improved histological and biochemical markers (blood glucose, liver, and kidney function), AMP-activated protein kinase (AMPK), and Protein kinase B(AKT) pathway compared to the market formula, increased CFZ's antidiabetic potency in diabetic rabbits, boasted bioavailability by five-fold, and produced faster onset of action. These findings suggest successful treatment of diabetes with CFZ nanocrystal-sublingual tablets.

Postgraduate Students

Molecular Biology

A Study on the Combined Effect of Bromelain and Cetuximab Nanoparticles on Cancer Cells

Noha Ahmad El-boghdady, Nevine Fathy Abd El-kareem, Rehab Shamma, Salma Sayed Hilal[a]

[a]Department of Biochemistry, Egyptian drug Authority

Bromelain, which is a cysteine protease found in high concentrations in pineapple stems, is known to have antitumor activities. Therefore, in this study, for the first time, we investigated the combined anticancer effect of bromelain when combined with cetuximab, which is a monoclonal antibody that acts by targeting EGFR in colon cancer cells (CRC). This combination was integrated into PEG2000 liposomal form to increase stability. The objective of this research is to create a PEG2000 liposome encapsulated with bromelain coupled to cetuximab as a model of a low-cost anticancer drug with few adverse effects. We use a variety of experimental techniques to study the combined anticancer effects of key cellular signaling parameters for apoptosis and proliferation in vivo in the CRC mouse model and in vitro on the Caco2 human CRC cell line. Many apoptotic factors have been shown to increase in groups treated with this combination, while anti-apoptotic factors have decreased. The findings of our research suggest that bromelain-loaded liposomes conjugated to cetuximab hold promise for new anticancer drugs and represent an interesting avenue for future research.

Postgraduate Students

Pharmacology and Toxicology

The PPAR-α Agonist fenofibrate reverses the migraine-like pain induced by nitroglycerin in rats

Hassan A. Ruby[a], Nada A. Sallam, Rabab H. Sayed, Sanaa A. Kenawy

[a]Department of Pharmacology and Toxicology, Faculty of Pharmacy, Cairo University, Cairo, Egypt

Migraine is a type of neurological disorder characterized by repeated attacks of pulsatile, severe headache that imposes a significant hindrance on patients globally. Fenofibrate is a peroxisome proliferator-activated receptor alpha (PPAR) agonist that is used to treat dyslipidemia and has recently drawn attention for its potential to treat neurological disorders. Therefore, the current study aimed to investigate the protective effects of fenofibrate in a nitroglycerin (NTG)-induced chronic migraine rat model. Migraine was induced by administering intermittent five doses of NTG (10 mg/kg, i.p.) every 2 days, resulting in several behavioral characteristics of human migraine, such as thermal allodynia, facial and mechanical hyperalgesia, and photophobia. Rats were treated with either topiramate (80 mg/kg/day, p.o.) or fenofibrate (100 mg/kg/day, p.o.) for 10 days. Our results demonstrate that fenofibrate down-regulated the mechanical and thermal hypersensitivity, photophobia, and head grooming induced by NTG compared to the standard drug topiramate. Furthermore, fenofibrate decreased the levels of nitric oxide (NO), calcitonin gene-related peptide (CRGP), and pituitary adenylate cyclase-activating peptide (PACAP) and attenuated the NTG-induced histopathological changes in the trigeminal ganglia (TG) and trigeminal nucleus caudalis (TNC). Fenofibrate also down-regulated c-Fos expression in the medulla and reduced medullary pro-inflammatory cytokine levels. These effects were mediated through inhibition of CGRP/p-CREB/enhancement of purinergic 2X receptor 3 (P2X3) and nerve growth factor (NGF)/PKC/native acid-sensing ion channel 3 (ASIC3) signaling pathways. The findings of the present study support the idea that fenofibrate could be an effective candidate for the treatment of migraine headaches.

Pharmacology and Toxicology

Neuroprotective effects of dapagliflozin in rats with thioacetamide-induced hepatic encephalopathy: Role of the TLR-4/Notch1/NF-κB pathway

Hossam Hassan[a], Mohammed Elyamany, Yasser Omar, Ayman El-sahar

[a]Department of Pharmacology and Toxicology, Faculty of Pharmacy, Cairo University, Cairo, Egypt

Hepatic encephalopathy (HE) is a severe neuropsychiatric syndrome caused by acute or chronic liver failure, which leads to cerebral and neurological alterations. This study aimed to evaluate the potential protective effects of dapagliflozin, a sodium-glucose co-transporter 2 inhibitor with a long duration of action, on HE induced by thioacetamide (TAA) in rats. HE was induced in rats using a single intraperitoneal injection of TAA (300 mg/kg). Forty rats were divided into four groups (n = 10 each): normal control (CTRL), dapagliflozin (CTRL+DAPA), thioacetamide (TAA), and dapagliflozin plus thioacetamide (DAPA+TAA). Dapagliflozin alleviated TAA-induced cognitive impairment as evidenced by the increased final fall-off time in the rotarod test, decreased escape latency in the Morris water maze test, and attenuated serum ammonia, hepatic liver enzymes aspartate aminotransferase (AST), alanine aminotransferase (ALT), and serum albumin levels. Dapagliflozin also reduced malondialdehyde (MDA), glutathione (GSH), nuclear factor kappa B (NF-κB), tumor necrosis factor-alpha (TNF-α), and interleukin-6 (IL-6). Moreover, Dapagliflozin administration reduced Toll-4 receptor (TLR-4) gene expression, Notch1 mRNA expression, caspase-3 protein expression, hepatic necrosis, and astrocyte swelling in the brain. In conclusion, dapagliflozin exerted a neuroprotective effect in TAA-induced HE in rats, as evidenced by the improvement of motor incoordination, cognitive deficits, and histopathological changes, such as astrocyte swelling and vacuolization, hallmarks of HE via reducing hyperammonemia, ameliorating hepatic function, in addition to its antioxidant, inactivation of the TLR-4/ Notch1/NF-κB inflammatory pathway, and anti-apoptotic effects.

Pharmacology and Toxicology

Tadalafil lessens cuprizone-induced neurotoxicity and behavioral deficits in mice by regulating AMPK/SIRT1 and JAK2/STAT3/NF-κB signaling pathways

Mona Samy[a]

[a]Department of Pharmacology and Toxicology, Faculty of Pharmacy, Cairo University, Cairo, Egypt

Multiple sclerosis is an inflammatory neurological disease that compromises the myelin sheath. Tadalafil is a phosphodiesterase-5 inhibitor exhibiting neuroprotective properties in rehabilitating brain disorders. The mechanisms behind tadalafil's neuroprotective impact against cuprizone-induced demyelination in mice were investigated in this study. C57BL/6 mice were fed a 0.7 %(w/w) cuprizone diet for 7 days, then a 0.2 % cuprizone diet for 3 weeks. Tadalafil (15 mg/kg/day, p.o.) was administered in the second week for 21 days. Moreover, tadalafil enhanced locomotor activity and motor coordination in the open field and rotarod testing. Furthermore, tadalafil alleviated demyelination by promoting Olig2 gene expression, as indicated by increased levels of myelin basic protein and myelin proteolipid protein. Tadalafil lowered brain thiobarbituric acid reactive substances while restoring depleted glutathione levels, preventing cuprizone-induced oxidative stress. Tadalafil upregulates the SIRT1 gene and phosphorylated AMP-activated protein kinase (p-AMPK) protein while diminishing the expression of downstream TNF-a, phosphorylated JAK2, STAT3, and NF-kB p65 proteins. Lastly, tadalafil mitigated the neurotoxicity evoked by cuprizone by altering the AMPK/SIRT1 and JAK2/STAT3/NF-kB pathways.

Postgraduate Students

Pharmacology and Toxicology

Berberine's PCOS battling potentiality with directed attention on its pivotal role in autophagy and steroidogenesis

Shahd Salah[a], Reham M. Essam, Mostafa Alnaggar, Dalia El-tanbouly

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PCOS is a common condition affecting female fertility. Imbalanced autophagy and steriodogenesis were recently connected to the syndrome with cAMP as a mediator. Berberine is a Chinese herbal medicine which was long studied for its capabilities against the syndrome. The goal of the study was to observe Berberine's effects in correcting autophagy and steriodogenesis managing certain metabolic and hormonal aspects of the syndrome.The study utilized letrozole for induction in rats. Attempting at correlating results, western blotting, enzymatic activity assay, ELISA, histopathological examination and statistical analysis were performed. Results showed that berbeine decreased insulin levels, fasting blood glucose and HOMA-IR. It also lowered estrogen and testosterone levels. Significant decrease in autophagy markers were seen with increased lc3ii/lc3i ratio. Steroidogenic enzymes levels were decreased while histopathological examination revealed less number of cysts with signs of regained fertility. In conclusion, berberine showed promising results against PCOS in rats and further research is needed for more clear-cut results.

Pharmacology and Toxicology

The effect of Glucagon Like peptide-1 against Alzheimer's disease induced by D-galactose in ovariectomized rats

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Alzheimer Disease (AD) is a progressive neurodegenerative disease, characterized by two hallmark pathologies β-amyloid plaque deposition and neurofibrillary tangles of hyperphosphorylated tau. In Egypt, a meta-analysis revealed that among 6 studies with 28,029 participants, dementia prevalence ranged between 2.01% to 5.07%. In patients with Type 2 Diabetes Mellitus (T2DM), it has been revealed that patients with T2DM are more prone to AD. Diabetic patients without proper control showed higher cerebrospinal fluid-p-tau level in comparison to those on antidiabetic drugs or euglycemic adults, signifying tau pathology might become ameliorated with the antidiabetic drugs. The present study aimed to investigate the potential neuroprotective effect of semaglutide (GLP-1 analogue) in neurobehavioral and neurochemical changes associated with aging and neurodegeneration induced by chronic administration of D-galactose in bilaterally ovariectomized rats. A total of 32 female rats, weighing 150-200 g, were randomly allocated into four groups (N=8). AD features were induced following 8-week injection of D-galactose (150 mg/kg, i.p.) in ovariectomized female rats. Administration of GLP-1 receptor agonist, semaglutide, significantly increased the hippocampal expression of phosphorylated survival factors (PI3K and AKT). Such effects were accompanied by suppression of phosphorylated tau, amyloid, IL-1β and glycogen synthase kinase3β. In parallel, semaglutide ameliorated the histopathological damage observed in D-galactose-ovariectomized rats and improved their learning and recognition memory in Morris water maze and novel object recognition tests. In conclusion, semaglutide reduces cognitive deficits in AD most probably through activation of PI3K/Akt pathway.

Pharmacology and Toxicology

Cardiotoxicity of Saxagliptin in type-2 diabetes rat model: Role of DDP-4 in the regulation of neuropeptide tone

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DPP-4 (dipeptidyl peptidase-4) inhibitors are used widely in the management of type 2 diabetes mellitus (T2DM) because of their tolerability and capability to decrease blood glucose levels after oral administration; however, SAVOR-TIMI-53 trial (Saxagliptin Assessment of Vascular Outcomes Recorded in Patients With Diabetes Mellitus–Thrombolysis in Myocardial Infarction 53) reported increased risk of heart-failure-associated hospitalization in saxagliptin (Saxa)-treated patients. The aim of the study was to investigate the cardiotoxicity of Saxa in T2DM rat model and to delineate the possible involved mechanisms. Animals were assigned into six groups (n=8/group); group 1 received normal saline, groups 2 and 3 received Saxa (10 and 20mg/kg/day; p.o., respectively), groups [4-6] received high fat/high fructose diet for 8 weeks and a single sub-diabetogenic dose of streptozotocin (35mg/kg; i.p) to induce T2DM, afterwards, rats were left untreated (group 4) or treated with either Saxa 10 mg/kg (group 5) or 20 mg/kg (group 6) for 2 weeks. Saxa induced cardiac dysfunction as observed by impairment in electrocardiographic and echocardiographic measurements as well as histopathological examination. Indeed, Saxa increased QT interval and QRS duration coupled with reduction in HR and EF%. Moreover, Saxa induced mitochondrial impairment as demonstrated by increased dynamin-related protein-1 (DRP-1) and mitochondrial calcium uniporter (MCU) together with reduction in optic atrophy protein-1 (OPA-1). Furthermore, inhibition of DPP-4 via Saxa not only potentiated the actions of GLP-1 (glucagon-like peptide-1, which could increase myocardial cAMP) but also potentiated the actions of SDF-1 (stromal cell-derived factor 1), NPY (neuropeptide Y), and substance P to activate the sympathetic nervous system and stimulate β-adrenergic receptors to cause cardiomyocyte apoptosis, presumably through a CaMKII (Ca++/calmodulin-dependent protein kinase II) pathway. In conclusion, sympathetic activation may explain the increased risk of heart failure produced by DPP-4 inhibitors.

Pharmaceutical Technology and Nano-drug Delivery

Nasal Inserts Carrying Favipiravir Nanomixed Micelles for Brain Targeting: Formulation and In Vitro Characterization

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Favipiravir (FPV) is an antiviral drug that inhibits RNA polymerase and prevents replication of the viral genome. However, it exhibits poor blood brain barrier (BBB) penetration. This diminishes its potential as treatment for viral agents that cross the BBB and cause infections like viral encephalitis. Incorporation of FPV in nanomixed micelles (NMMs) can facilitate passage to the brain. We aimed at preparing and evaluating FPV loaded NMMs then formulating intranasal inserts carrying the NMMs intended for brain delivery through the nose to brain route. Subsequently, we evaluated the prepared FPV NMMs and the inserts carrying them using available in vitro methods. The evaluation determined that Pluronic-P123/Solutol HS15 surfactant combination was optimum for formation of FPV loaded NMMs. The system had a particle size of 16.62±0.21 nm, polydispersity index equal to 0.19±0.04, and a negative zeta potential equal to -5.47±0.62. These values will ensure optimum properties to cross the BBB. This system was incorporated into freeze dried intranasal inserts made of carboxy methyl cellulose (CMC) at 2% w/v. However, to confirm successful brain delivery further in-vivo studies must be conducted.

Pharmaceutical Technology and Nano-drug Delivery

Galactosylated Stearylamine Bilosomes for Liver-Targeted Delivery of Ledipasvir

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Ledipasvir is a novel HCV anti-viral acting by inhibiting the viral non-structural protein NS5A. Aspiring for a reduced dose and cost therapeutic regimen of ledipasvir, enhanced interaction with the HCV-infected hepatocytes is aimed. Our proposal to accomplish this objective is the formulation of i) ledipasvir-loaded cationic bilosomes (CBs) and ii) ledipasvir-loaded galactosylated bilosomes (GBs) that can target the asialoglycoprotein receptors (ASGPRs) of the liver. Eight formulations of bilosomes were prepared using the ethanol injection method according to a 2 3 full factorial design. The numerical optimization by the Design Expert ® suggested an optimized bilosomes formulation composed of 10 mg ledipasvir, 20 mg cholesterol, 150 mg egg yolk lecithin, and 19 mg sodium deoxycholate. On the other hand, a chemical reaction was carried out between stearylamine and lactobionic acid to synthesize galactosylated stearylamine. Afterwards, stearylamine and the synthesized galactosylated stearylamine were incorporated in the preparation of the optimized bilosomes formulation in order to obtain the CBs and GBs respectively. The stearylamine containing CBs possessed particle size (PS) of 227.1 ± 3.82 nm, polydispersity index (PDI) of 0.25 ± 0.001, entrapment efficiency (EE) of 86.8 % ± 2.72 and zeta potential (ZP) of +36.95 ±1.06 while the galactosylated stearylamine containing GBs had PS of 164 ± 2.83 nm, PDI of 0.137 ± 0.012, EE of 72.71% ± 2.41 and ZP of - 49.7 ± 0.28 mV. When these two ASGPRs targeting formulations were incubated for 7 hours with HepG2 cell culture, the cumulative cellular uptake of ledipasvir in case the CBs (31.79 %) and GBs (20.62 %) was significantly higher than that of the free drug dispersion (11.02 %). Therefore, the CBs and GBs can be considered promising formulations for hepatocellular targeting of ledipasvir.

Pharmaceutical Technology and Nano-drug Delivery

Novel Fast Disintegrating Freeze Dried Sublingual Baicalin Tablets for Enhanced Hepatoprotective Effect: In-vitro Characterization, Cell Viability and In-vivo Evaluation

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Baicalin (BG), a natural product, has been used in the prevention and treatment of several types of liver diseases including drug-induced liver injury (DILI); however, its poor solubility and extensive liver metabolism limit its pharmacological use. The aim of the present study was the formulation of fast-disintegrating freeze-dried sublingual tablets (FFSTs) to increase BG dissolution, avoid first-pass metabolism, enhance its bioavailability and make a patient's friendly dosage form to overcome swallowing difficulties in geriatric patients. FFSTs were prepared following a 23 factorial design. The effect of three independent variables namely matrix former, maltodextrin, concentration (4%, and 6%), binder concentration (2%, and 3%), and binder type (methocel E5, and methocel E15) on the FFSTs in-vitro disintegration time and percentage dissolution after 2 minutes was studied along with other tablet characteristics. Differential scanning calorimetry (DSC), scanning electron microscopy (SEM), in-vivo characterization, and HepG2 cell viability studies were also performed. F8 (6% maltodextrin, 2% mannitol, 2% methocel E5), with desirability of 0.852, has been furtherly enhanced using 1%PEG (F10). F10 has achieved an in-vitro disintegration time of 41 ±14.74 secs, and 60.83±5.90% in-vitro dissolution after 2 min. In-vivo study in rats and cell viability assay confirmed that pretreatment with F10 has achieved a significant hepatoprotective effect over the BG suspension against acetaminophen (APAP)-induced hepatotoxicity. Histopathological studies results declared the ability of F10 to protect the liver against APAP-induced liver injury. The outcome of this study demonstrated that BG-loaded FFSTs may present a patient-friendly dosage form against drug-induced liver injury.

Pharmaceutical Technology and Nano-drug Delivery

Vancomycin Gelatinized Hyalusomes as a Topical Dual Tackling Antibacterial System Against MRSA in Skin Wound Infection

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MRSA is one of the most serious skin infections worldwide. In addition, MRSA skin infection has high prevalence in diabetic patients. The first-line of treatment for the MRSA skin infection is Vancomycin. Vancomycin has physicochemical properties challenges such as high molecular weight and low permeability. Hence, the aim of this study, to achieve topical formulation that contains hyaluronic acid for the dual tackling effect, where it has been reported that hyaluronic acid has wound healing effect. In addition, increasing the EE% and the permeability. Different preparation methods were screened in this study, the ethanol injection method showed the best results, thus it was adopted for the rest on the research. Gel-core liposomes and hyalusomes were formulated using the ethanol injection method where the gel concentration was either 0.25% or 0.75% and the phosolipon 90G:tween 80 molar ratio was either 90:10 or 85:15. Different responses were measured to choose the optimum formulation. The Design Expert software® showed two formulations with high desirability. A combination of the two formulation was formulated (Gelatinized Hyalusomes) which mainly consisted of both 0.75% gelatin and hyaluronic acid. The gelatinized hyalusomes had particle size within the nano-range and appropriate EE%. In-vitro release and ex-vivo permeation was carried out for the gelatinized hyalusomes, once it showed promising permeation it was furtherly investigated in in-vivo study. The in-vivo study showed that in 5 days of treatment the gelatinized hyalusomes had decreased the microbial count by 10 fold compared to the conventional formulations. Summarily, the gelatinized hyalusomes are showing promising results so far. However, more time is required to furtherly investigate these results.

Clinical Pharmacy

Liver-Type Fatty Acid-Binding Protein (L-FABP) as a New Prognostic Serological Marker in Non-Alcoholic Fatty Liver Disease (NAFLD) in Egyptian Pediatrics.

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Background: Non-alcoholic fatty liver disease (NAFLD) is widely growing worldwide and becoming one of the most common fatty liver diseases. Its prevalence reached almost 52.5% among obese paediatric patients. Currently, non-invasive methods are proposed for the assessment of NAFLD, including transient liver elastography and biological markers that could help in the assessment of liver fibrosis. Recent studies started investigating Liver-type fatty acid binding protein (L-FABP) as a prognostic marker in chronic liver diseases. It is a small protein (Mwt:14 kDa) synthesized in the liver as a regulator for fat metabolism. The aim of this study was to investigate the possible association between serum L-FABP levels and liver functions. Moreover, using serum L-FABP concentration as a prognostic biomarker in paediatric NAFLD progression.

Methods: This was an observational, cross-sectional study on 55 Egyptian paediatric patients with NAFLD and 47 healthy children as a control group. The study protocol was approved by the IRBs of both the National Hepatology and Tropical Medicine Research Institute (NHTMRI) and NGU. All the included patients underwent an abdominal ultrasonographic examination in addition to a calculated NAFLD fibrosis score (NFS) to determine their fibrosis status. L-FABP serum level was determined using ELISA assay.

Results: Serum L-FABP levels showed a significant difference between the NAFLD and control groups ($P<0.0001$). ALT, Albumin, T.BIL, PLTs, age, and HbA1C all showed a significant positive association with L-FABP serum levels (P-value<0.05) in univariable analysis. After adjusting for the patient characteristics in multivariable analyses, only ALT, albumin, and HbA1C showed significant association with L-FABP (P-value<0.05).

Conclusion: The results in this study suggest that serum L-FABP could be used as a reliable and sensitive biomarker to monitor liver minor hepatocyte injuries owing to its low molecular weight, abundance in the liver, and higher specificity. Moreover, recommend using L-FABP as a prognostic marker for NAFLD.

Clinical Pharmacy

Association Between Response to Therapy of Ovarian Cancer Treated with Paclitaxel plus Carboplatin and Serum Levels of CA125 and HE4 Biomarkers

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Background: According to Globocan's projections for 2020, around 37% additional women will be diagnosed with ovarian cancer (OC) worldwide by 2040. About 70% of ovarian cancer patients have advanced stage at diagnosis that includes metastases outside the pelvic cavity. Advanced ovarian cancer is usually accompanied by a poor prognosis (5-year survival rate of only 17 %). About 20% of patients do not respond to platinum-based chemotherapy and are regarded as clinically resistant at baseline. The aim of this study was to investigate the possible association between the plasma levels of CA125 and HE4 biomarkers with the response/resistance to Paclitaxel (PTX) plus carboplatin (CBP) as a first line therapy of OC in Egyptian patients.

Methods: 34 Egyptian female patients under chemotherapy (Paclitaxel plus Carboplatin) were chosen according to the inclusion criteria. Blood samples were collected from them before chemotherapy, after first, second and third cycles, in order to measure serum levels of CA125 and HE4. Initial tumor staging was done according to FIGO staging system at baseline and response to treatment was assessed by CT scan, MRI and PET scan by the end of the third cycle and then evaluated by RECIST criteria.

Results: About 67% of the patients showed response to treatment, (either complete response or partial response), 29% of the patients progressed while 4% had a stationary course after chemotherapy. CA125 showed high significance with tumor staging at baseline according to FIGO staging and no significance with response to platinum-based chemotherapy after the third cycle. On the contrary, HE4 showed low significance with initial tumor staging by FIGO staging system and high significance with response to treatment after the third cycle. It was also shown that the majority of patients who progressed were initially diagnosed with high FIGO stage ranging from 2B-3C.

Conclusion: The results present in this study suggest that there is an association between serum levels of HE4 and the response to therapy of OC patients. Thus, measuring HE4 levels can predict the response to chemotherapy which can guide the physician to personalize alternative treatments for different OC patients.

Clinical Pharmacy

Measuring the prevalence of fatigue in children with cancer: Evidence from Egypt.

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Background: Cancer related fatigue (CRF) is a common side effect of cancer and cancer treatment that impacts every aspect of quality of life. To our knowledge, the statistics for prevalence in pediatrics are lacking in Egypt. The aim of this study is to record the prevalence of fatigue and its significant predicting factors in pediatric oncology patients.

Methods: we interviewed children aged 8-18 years with cancer, prescribed chemotherapy and not in severe distress. After the consent of the guardian is taken, the children personally filled 2 fatigue-related questionnaires (PROMIS Pediatric Short Forms of Fatigue (PROMIS fatigue), pedsQL multidimensional fatigue (PedsQL fatigue)) and 3 symptoms related questionnaires.

Results: 42 children (47.6% female) (mean age 12.1 years (SD 3.3 years)) participated. Half of the children were in primary school (n=21, 50%) and most of them had their parents accompanying them (n=35, 83.3%). Most children suffered from a hematological tumor (n=35, 83.3%) and didn't suffer from other chronic health conditions (n=39, 92.8%). Reported moderate to severe fatigue in children is between half to third of the children depending on the measurement tool used. The mean T-score for PROMIS fatigue was 53.76 (SD 12.5), the mean score for PedsQL fatigue was 74.27 (SD 21.79). Stepwise standardized multivariant linear regression showed that fatigue following PROMIS fatigue could be predicted by depressive symptoms (= 0.47, p <0.001) and mobility (= -0.39, p =0.002) while following PedsQL fatigue, it could be predicted by upper extremity function (= 0.34, p= 0.005), depressive symptoms (=-0.49, p <0.001) and treatment status (=-0.25, p= 0.013).

Conclusion: CRF is multifactorial and prevalent among children and adolescents with cancer. Moreover, predicting factors differed between different tools as they measure fatigue from different dimensions. PedsQL fatigue was predicted by more factors. There is a need to include fatigue screening for pediatric oncology patients and incorporate its management in the medical care plan.

Phytochemistry and Herbal medicine

In vitro antioxidant and cytotoxic activities and standardization of Anchusa azurea Mill. extract

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Anchusa azurea Mill., family Boraginaceae is becoming one of the popular medicinal herbs used in the Egyptian market for the management of skin inflammations, hair problems, depression attacks and for detoxification purposes. The total methanol extract of the aerial parts of A. azurea and the fractions thereof were studied for their antioxidant activity via DPPH free radical scavenging assay. The ethyl acetate fraction showed the most potent antioxidant activity (EC50 of 41.41µg/ml). Moreover, it showed cytotoxic activity against Human Melanoma Reporter Gene cell line (A-375) (IC50 of 443µg/ml) with the retention of the cell viability of the normal skin cells (Human Skin Fibroblast – HSF). TPC and TFC were determined and found to equal 2.52mgGAE/g and 17.87mgRE/100g, respectively. RP-HPLC profiling of the ethyl acetate fraction rationalized its antioxidant and cytotoxic activities via the presence of caffeic acid, chlorogenic acid, rutin, and hesperetin as major identified constituents.

Pharmacology and Toxicology

Empagliflozin Dampens Doxorubicin-Induced Chemobrain in Rats: Crosstalk Oxidative Stress, Neuroplasticity, and PI3K/AKT/mTOR/NF-κB/TNF-α Signaling Pathways

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Chemobrain, is a cognitive impairment that may be experienced by up to 75% of patients treated with doxorubicin (DOX). Cognitive deficits associated with DOX are complex and there are multiple pathways that interplay and contribute to memory impairment and loss of concentration. Recently, Empagliflozin (EMPA), a SGLT-2 inhibitor, neuroprotective potential was elucidated due to its regulatory effect on oxidative stress and neuroinflammation. Thus, this study aimed to explore EMPA protective mechanisms in DOX-induced chemobrain. Rats were allocated into four groups: normal (NC), EMPA, DOX and EMPA+DOX. Chemobrain was induced in the third and fourth groups by DOX (2 mg/kg, IP) on the 0,7th ,14th and 21st days of the study while EMPA was administered (10 mg/kg, PO) for 28 consecutive days in both EMPA and EMPA+DOX groups then behavioral, biochemical, and histopathological assessments were done. Rats treated with DOX suffered from significant memory, learning, and muscle coordination dysfunction. Moreover, DOX boosted brain oxidative stress, evidenced by the raised MDA and reduced GSH, HO-1, and Nrf2 and triggered neuroinflammation observed as upsurge of TNF-α and NF-κB. Diminished BDNF and enhanced expression of the kinases (PI3K, pAkt and mTOR) were also recorded. EMPA exhibited a potent neuroprotective potential in DOX-induced cognitive impairment an effect that can be credited to its antioxidant, neuroplasticity-enhancing properties and suppressing PI3K/Akt/mTOR/ NF-κB/ TNF-α signaling pathway.

Pharmacology and Toxicology

Lactoferrin Averts TAA-Induced Hepatic Encephalopathy in Rats via Modulating HGMB1/TLR-4/MyD88/Nrf2 Pathway

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Hepatic encephalopathy (HE) is a life-threatening disease caused by acute or chronic liver failure manifested by aberrant CNS changes. In the present study, we intended to explore the hepato-protective and neuroprotective effect of lactoferrin (LF) against thioacetamide (TAA)-induced HE in rats. Animals were divided into four groups, control, LF control, TAA-induced HE and LF treatment where LF was administered orally in a dose of 300 mg/kg for 15 days in groups 2 and 4. TAA (200 mg/kg) was given in two consecutive intraperitoneal injections on days 13 and 15 for the third and fourth groups. Administration of LF for 2 weeks before TAA injection significantly improved liver function, as verified by the marked decline in serum AST, ALT, and ammonia, as well as remarkably reducing brain ammonia and enhancing motor coordination and cognitive performance. LF effectively restored the imbalance in brain oxidative stress markers Nrf2, HO-1, GSH, and MDA. The histopathology of brain and liver tissues revealed that LF alleviated TAA-induced liver and brain deficits. Additionally, LF downregulated HMGB1, TLR-4, MyD88, and NF-κB signaling pathways, together with reducing inflammatory cytokine, TNF- , and enhancing brain BDNF levels. In conclusion, the promising results of LF on attenuating HMGB1/ TLR-4/ MyD88 signaling highlight its hepatoprotective and neuroprotective role against HE associated with acute liver injury via ameliorating neuroinflammation, oxidative stress and stimulating neurogenesis.

Pharmacology and Toxicology

Targeting HMGB1/PI3K/Akt and NF-κB /Nrf-2 Signaling Pathways by Vildagliptin Attenuates Testosterone-Induced Benign Prostate Hyperplasia in Rats

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Benign prostatic hyperplasia (BPH) is a prevalent illness in elderly men, characterized by an enlarged prostate. It is well recognized that testosterone have an important function in the onset of BPH. Vildagliptin (Vilda), a dipeptidyl peptidase-IV inhibitor, has been shown to have anti-inflammatory and antioxidant effects. In this study, we studied the effects of vildagliptin on testosterone induced BPH in rats and its underlying mechanisms. Forty male Wistar rats were allocated into four groups: CTRL, Vilda, BPH, and BPH+Vilda groups. Our results revealed that vildagliptin treatment considerably lessened the prostate weight, prostate index, serum levels of prostate-specific antigen, 5a-reductase activity, and DHT levels compared to the testosterone group. Furthermore, vildagliptin treatment inhibited the expression of HMGB1, PI3K/Akt/NF-κB, and TNF-a signaling pathway in the prostate tissue of diseased rats. Additionally, vildagliptin treatment increased the expression of Nrf-2 and HO-1, reduced GSH levels, and lowered MDA levels. Besides, vildagliptin noticeably scaled up the level of cleaved caspase-3 enzyme; conversely, protein expression of proliferating cell nuclear antigen (PCNA). Correspondingly, vildagliptin counteracts testosterone-induced histological irregularities in rats' prostates. These findings suggest that vildagliptin may be a potential therapeutic agent for treating BPH.

Chemistry

Point-of-care Solid-contact Screen-printed Potentiometric Sensors for Selective Potassium Determination based on Hydrophobic Polyaniline

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The clinical benefits of point-of-care testing (POCT) warrants it a global interest status. It is augmented by its significant cost reduction in world challenged with increased healthcare costs. Carbon screen-printed ion-selective electrodes (C-SPE) provide the superior advantages of a potential for miniaturization, simplicity, speed, and low cost. Herein, a modified C-SPE electrode is fabricated for the selective and sensitive detection of potassium ions (K+) in human plasma: Valinomycin is employed as the ionophore to increase the selectivity for the electrode to potassium and tetrakis(4-chlorophenyl) borate behaves as ionic exchanger. Before drop-casting the membrane on the electrode, the investigation in Polyaniline (PANI)-hexadecafluorodecanedioic acid modification is aiming to add the conductive polymer polyaniline as (an ion-to-electron transducer) and hexadeafluorodecanedioic acid as (hydrophobic anion) through electro-polymerization to overcome the drawbacks of ISE's instability to achieve a stable K+ sensor. The potential response of fabricated PANI/ISM/C-SPE to (K+) ion was studied and compared to control ISM/C-SPE. It was observed that the sensor, containing the (hydrophobic PANI-hexadecafluorodecanedioic acid) modification as a solid contact layer, is of higher stability, efficiency, and superior over the control sensor.

Chemistry

Synthesis and characterization of core-shell mussel inspired magnetic molecularly imprinted polymer nanoparticles for the solid phase extraction of levofloxacin in human plasma.

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For therapeutic drug monitoring applications. The concentration of drug in plasma should be measured using precise and accurate analytical techniques. However the complex sample matric interfere and hinder the direct analysis of the analyte of interest without sample preparation step .Consequently, in this study the synthesis of Fe3O4 using mussel inspired magnetic molecularly imprinted polymer nanoparticles (MIP NPs) was performed in a single strep formation in an auto-polymerization process with levofloxacin template and methyldopa as a monomer which offered an innovative approach to shorten the time of separation of the analyte from biological fluid samples . After that, levofloxacin (LFX) , an bacterial antibiotic , was extracted from human spiked human plasma using the Fe3O4 MIPs NPs. Moreover, different experiments were performed using UV-spectroscopy in order to determine the selectivity - binding - and the effect of adsorbent amount on the drug recovery and optimizing the appropriate conditions for levofloxacin to the MIP NPs . The extraction of levofloxacin from the MIP NPs were tested using spiked human plasma sample and their recovery perecent was about 93.5%. The Fe3O4 MIP NPs could imprint the polymer significantly and had a respectable capacity for adsorption..

Chemistry

In vitro pharmacokinetic studies of new Roflumilast analogues: Metabolic, human plasma and GIT stability and plasma protein binding

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Two newly synthesized roflumilast analogues (compounds 8 and 9) were reported to have comparable IC50 on the PDE-4B enzyme to roflumilast. The aim of this study was to study the in-vitro pharmacokinetic properties of compounds 8 and 9 using newly developed chromatographic methods. The compounds were subjected for stability in rat liver S9 fraction, simulated gastrointestinal fluids and human plasma. Additionally, the plasma protein binding affinity of these compounds was studied and determined using equilibrium membrane dialysis between phosphate buffered saline, pH 7.4, and human plasma. The developed high performance liquid chromatography-ultraviolet (HPLC-UV) methods were performed on a ZOBRAX 300SB-C8 column, and the UV detection was carried out at 215 nm. Compounds 8 and 9 displayed greater metabolic stability with longer in vitro half-life times (198.04 and 70.01 minutes, respectively) compared to roflumilast (56.81 minutes). They also displayed lower intrinsic clearance (7.04 and 20.04 mL/min, respectively) than roflumilast (24.69 mL/min). Both compounds were also shown to be more stable in human plasma and simulated gastrointestinal fluids. The plasma protein binding affinity was studied using equilibrium membrane dialysis technique. While compound 8 showed similar plasma protein binding to roflumilast (93.01% and 94.80%, respectively), compound 9 showed the least %binding (77.24%) suggesting its accessibility for tissue distribution. Therefore, these compounds should be subjected for in vivo pharmacokinetic properties to confirm the in vitro pharmacokinetic parameters obtained from this study as they may be good candidates for further development as treatment options for chronic obstructive pulmonary disease.

Chemistry

Discovery of Dual Rho-Associated Protein Kinase 1 (ROCK1)/Apoptosis Signal–Regulating Kinase 1 (ASK1) Inhibitors for the Treatment of Non-Alcoholic Steatohepatitis (NASH)

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Non-alcoholic steatohepatitis (NASH) is an advanced form of non-alcoholic fatty liver disease that can further progress into fibrosis, cirrhosis, and hepatocellular carcinoma. It is a widely emerging disease affecting 25% of the global population, having no current treatment options. Protein kinases are key regulators of cellular pathways, of which, Rho-associated protein kinase 1 (ROCK1) and apoptosis signal–regulating kinase 1 (ASK1) are found to play an important role in the progression of NASH. Moreover, the individual inhibition of each of them has shown promising results when targeting NASH. Thus, ROCK1 and ASK1 stand out as promising targets for NASH therapy. Interestingly, their kinase domains as well are found to be topologically similar; therefore, dual inhibition of ROCK1 and ASK1 is expected to be amenable and could achieve a more favourable outcome. To reach this goal, a training set of ROCK1 and ASK1 type 1 (ATP-competitive) inhibitors was constructed to manually generate receptor-based pharmacophore models representing ROCK1 and ASK1 inhibitors' common pharmacophoric features. The models produced were assessed using a test set of both ROCK1 and ASK1 actives and decoys, and their performance was evaluated using different assessment metrics. The best pharmacophore model obtained, showing an MCC of 0.71, was then used to screen the ZINC purchasable database retrieving 6,178 hits that were filtered and clustered, accordingly returning 114 promising compounds. To confirm that these 114 compounds are capable of binding to our proteins of interest, they were subjected to molecular docking at both protein structures. The results were then assessed individually and filtered, setting the spotlight on ZINC60499106 as a promising dual inhibitor. This molecule was subjected further to lead optimization yielding two optimized molecules, ZINC60499106_LO7 and ZINC60499106_LO25, that outperformed their parent compound.

Molecular Biology

Dexamethasone, a glucocorticoid, in combination with tamoxifen exerts synergistic effect in tamoxifen-resistant BC cells via SOX-2 inhibition.

Aliaa I. Gaballah[a], Sally A. Fahim, Aliaa A. Elsherbiny, Marwa Sharaky

[a]Department of Molecular Biology, School of Pharmacy, Newgiza University

Breast cancer (BC) is a global health concern, and roughly 80% of cases are estrogen receptor-positive (ER+). Tamoxifen (TAM) is a key player in ER+ BC. However, 20-30% of patients experience relapse and a lower survival rate due to TAM resistance. Previous studies have related TAM resistance to the sex determining region Y-like box-2 (SOX-2) gene, which was reported to be regulated by the E2F3 transcription factor, both of which were found to be over expressed in BC and were linked to the Wnt signaling pathway. Furthermore, it was suggested that SOX-2 overexpression was suppressed by dexamethasone (DEX), a glucocorticoid commonly prescribed to BC patients, which indicates DEX may play a role in preventing TAM resistance. The aim of the present study is to explore the effect of combining DEX and TAM on the inhibition of resistant BC cells (TAMR-1), as well as their mechanism involving the E2F3/SOX-2-mediated Wnt signaling pathway. MCF-7 and TAMR-1 cell viability was assessed after treatment with monotherapy and combination therapy. Drug interactions were analyzed through calculating the CI and DRI using CompuSyn software, and by calculating the synergy score using SynergyFinder 3.0 software. Cell cycle distribution was investigated using flow cytometry, while apoptotic protein expression was measured using a western blotting assay. The gene expression levels of SOX-2 and E2F3 mRNA were assessed using real time PCR, and cell migration was investigated using a wound healing assay. Our results suggest that combining DEX with TAM led to synergistic inhibition of TAMR-1 cell proliferation and migration, induced apoptotsis, and was also associated with S and G2-M phase arrest. Combination treatment also resulted in a significant reduction of SOX-2 and E2F3 expression. Overall, our data suggests that combining DEX with TAM may present an effective therapeutic option to overcome TAM resistance, in addition to exerting an anti-inflammatory effect, by targeting the E2F3/SOX-2/Wnt signaling pathway in resistant BC cells.

Molecular Biology

Association of OAS1 gene polymorphism with the severity of COVID-19 infection in Egyptian patients

Enaya Ghaleb[a], Mohamed El-Shiekh, Mayar Antar, Noha G Bader El Din, Hassan Elsayed, Rehab I. Moustafa

[a]Department of Molecular Biology, School of Pharmacy, Newgiza University

Non-alcoholic steatohepatitis (NASH) is an advanced form of non-alcoholic fatty liver disease that can further progress into fibrosis, cirrhosis, and hepatocellular carcinoma. It is a widely emerging disease affecting 25% of the global population, having no current treatment options. Protein kinases are key regulators of cellular pathways, of which, Rho-associated protein kinase 1 (ROCK1) and apoptosis signal–regulating kinase 1 (ASK1) are found to play an important role in the progression of NASH. Moreover, the individual inhibition of each of them has shown promising results when targeting NASH. Thus, ROCK1 and ASK1 stand out as promising targets for NASH therapy. Interestingly, their kinase domains as well are found to be topologically similar; therefore, dual inhibition of ROCK1 and ASK1 is expected to be amenable and could achieve a more favourable outcome. To reach this goal, a training set of ROCK1 and ASK1 type 1 (ATP-competitive) inhibitors was constructed to manually generate receptor-based pharmacophore models representing ROCK1 and ASK1 inhibitors' common pharmacophoric features. The models produced were assessed using a test set of both ROCK1 and ASK1 actives and decoys, and their performance was evaluated using different assessment metrics. The best pharmacophore model obtained, showing an MCC of 0.71, was then used to screen the ZINC purchasable database retrieving 6,178 hits that were filtered and clustered, accordingly returning 114 promising compounds. To confirm that these 114 compounds are capable of binding to our proteins of interest, they were subjected to molecular docking at both protein structures. The results were then assessed individually and filtered, setting the spotlight on ZINC60499106 as a promising dual inhibitor. This molecule was subjected further to lead optimization yielding two optimized molecules, ZINC60499106_LO7 and ZINC60499106_LO25, that outperformed their parent compound.

Molecular Biology

Identification of staphylococcal species potential drug targets via in silico subtractive proteomics and screening of microbial extracts from Egyptian soil for potential novel antimicrobial agents

Asmaa E. Elbanna[a], *Ashrakat Y. Nabawy, Hanzada T. Nour El-Din, Ahmed S. Attia*

[a]Department of Molecular Biology, School of Pharmacy, Newgiza University

Infectious disease is a global threat, and we faced an example of it during the COVID-19 pandemic. Staphylococcus aureus is an infectious agent that has developed antimicrobial resistance to almost all its available treatments. It also has the ability to infect almost all the organs of the human body. We applied subtractive proteomics approach to identify potential new drug targets on two staphylococcal species; S. aureus and S. lugdunensis. The Chokepoint reaction proteins and the metabolic pathway proteins were retrieved from both BIOCYC and Kyoto Encyclopedia of Genes and Genomes (KEGG) respectively. The essential and non-essential proteins were then filtered out to ensure that they are not homologous to the human and gut flora, have cytoplasmic subcellular localization, and are conserved throughout the staphylococcal strains of each species. The filtered proteins were then tested for their druggability as well as the possibility to have homologues in both Gram-positive and negative bacteria. Eleven target proteins consisting of nine essential and two non-essential proteins were considered potential therapeutic targets. Furthermore, we screened twenty-two microbial extracts isolated from Egyptian soil to evaluate their potential conventional and nonconventional antimicrobial activities. One bacterial and four fungal extracts showed potential growth inhibitory activity. The remaining seventeen extracts were tested for anti-virulence activity. The fungal extracts did not have any effect on either biofilm formation or hemolytic activity. However, two extracts were able to inhibit the biofilm formation and one of them showed the highest inhibitory effect on the hemolytic activity of S. aureus. Moreover, only one bacterial extract was able to inhibit both biofilm and hemolytic activity. Further studies are required to identify the origin of the extracts and the ingredient(s) responsible for the observed phenotypes and to validate the targets identified through the in silico investigation.

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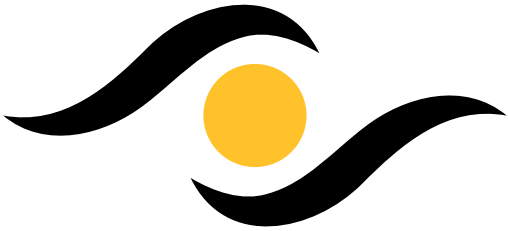

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Agenda

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Day One: June 21, 2023

Opening session 9:00am- 10:30am

On-site Registration 9:00am – 10:00am

10:00am – 10:30am

Welcome speeches

Prof. Manal Maher,
School of Pharmacy Dean, NGU

Dr. Oksana Pyzik,
Global Engagement Lead and Founder of UCL Fight the Fakes, UCL

Prof. Lamis Ragab,
Vice President, NGU

Prof. Sameh Farid,
President, NGU

EDA Opening speech

Prof. Tamer Essam,
Chairman, Egyptian Drug Authority (EDA)

Conference exhibition opening 10:30am – 11:00am

Plenary Session

"IPE/IPCP: Roadmap for Improving Healthcare Practice"

Prof. Azza M. Agha,

Professor of Pharmacology and Toxicology, Faculty of Pharmacy, Cairo University
Former Dean, Faculty of Pharmacy, Cairo University

11:00am – 11:15am

Session 1:
Roadmap for Pharmacy Profession: Stakeholders Perspective

11:20am- 1:30pm

Pharmacy curricula for the future: the UK perspective

Prof. Cate Whittlesea,
Director of Clinical Education, UCL School of Pharmacy, and Interim Director, Head of the Research Division of Practice and Policy
Professor of Pharmacy Practice, UCL School of Pharmacy

11:20am – 11:35am

Meeting the international pharmacy workforce needs of the future

Prof. Ian Bates,
Chair of Pharmacy Education, UCL School of Pharmacy
Director, International Pharmaceutical Federation (FIP)

11:35am – 11:50am

Panel Discussion

Moderator:
Dr. Islam Anan,
Founder and CEO of Accsight L.L.C.

12:00pm – 1:30pm

Dr. Naeema Al Gasseer,
Representative in Egypt and Head of Mission, World Health Organization

Prof. Ahmed Taha,
Chairman, General Authority for Healthcare Accreditation and Regulation (GAHAR)

Panel Discussion

Prof. Aiman ELkhatib,
Deputy Chairman, EDA
Professor of Pharmacology and Toxicology, Faculty of Pharmacy, Cairo University

General Dr. Tarek Abdelrahman,
Vice Chairman, Egyptian Unified Procurement Authority (UPA)
Member, Executive Bureau of the Arab Pharmacists Union

Dr. Hany Rashed,
Vice Chairman, General Authority of Healthcare (GAH)

Dr. Gamal El-Leithy,
Head, the Pharmaceutical Chamber of the Federation of Egyptian Industries

Dr. Riad Armanious,
Chief Executive Officer, Eva Pharma

Coffee Break 1:30pm – 2:00pm

Session 2:
Localization of Pharma Industry: Challenges and Opportunities

Chairpersons: Prof. Aiman ELkhatib – Assoc. Prof. Mohamed Abdallah* – Prof. Marwa Fouad

2:00pm-3:45pm

Session Overview

Prof. Medhat Al-Ghobashy,
Chairman Advisor for Regulatory and Reference Labs, EDA
Professor of Bioanalytical Chemistry, Faculty of Pharmacy, Cairo University

Local pharmaceutical industry with international standards: the role of EDA control labs in raising the industry standards

Assoc. Prof. Mohamed Abdallah,
Head, Central Administration of Drug Control, EDA
Associate Professor of Pharmaceutics and Industrial Pharmacy department- Faculty of Pharmacy, Cairo University

ICH membership: A smart tool to support localization of pharmaceutical industry

Dr. Asmaa Fouad,
Manager, the Biological Products General Administration, EDA

Dr. Sara Magdy,
Manager, Technical Support Administration at the Biological Products General Administration, EDA

*Session Moderator

Compliance issues facing the pharmaceutical industry in Egypt

Prof. Emad Basalious,
Product Development Consultant, Gypto Pharma
Professor of Pharmaceutics and Industrial Pharmacy, Faculty of Pharmacy, Cairo University

3:00pm – 3:15pm

R&D and CRO role in industry localization

Dr. Mosaad Morsi,
Chairman and CEO, Ray, DataClin, Zi Diligence, Pharma-Med and ClinM

3:15pm – 3:30pm

Panel Discussion

3:30pm – 3:45pm

Dinner 3:45pm - 4:30pm

Day Two: June 22, 2023

Session 1:
Disruptive Innovations: From Bench to Market

Chairpersons: Dr. Sameh ElBagoury – Prof. Ahmed Attia* – Prof. Rania Mohsen

9:30am- 11:45am

Immune responses to vaccination in humans: Lessons from the SARS-CoV-2 pandemic

Assoc. Prof. Ali Ellebedy,
Associate Professor of Pathology & Immunology, School of Medicine, Washington University, MO, USA

9:30am – 9:55am

Innovation Fusion: Bridging gap between Pharma Industry & Academia

Dr. Sameh ElBagoury,
General Manager at Sandoz Egypt & Libya

9:55am – 10:15am

Technoscient and Biopharma

Dr. Elham Ali,
Technical Sales Executive, Technoscient Agilent Pharma Department

10:15am – 10:30am

*Session Moderator

Open-source discovery of new medicines

Prof. Matthew Todd,
Professor and Chair of Drug Discovery, UCL School of Pharmacy

10:35am – 10:50am

Personalized medicine: future directions

Prof. Mine Orlu,
Professor of Pharmaceutics, UCL School of Pharmacy

10:50am – 11:05am

Advances in pediatric medicines formulation

Prof. Catherine Tuleu,
Professor of Pediatric Pharmaceutics, UCL School of Pharmacy

11:05am – 11:20am

Panel Discussion

11:30am – 11:45am

Scientific Posters and Coffee Break 11:45am – 12:30pm

Roadmap for Pharmacy Profession:
Challenges and Opportunities

Agenda

Session 2:
Empowering Future Pharmacists: Modern Versus Traditional Learning

Chairpersons: Prof. Sherief Khalifa * – Dr. Oksana Pyzik – Dr. Sherif Kamal

12:30pm – 3:00pm

Is pharmacy education an obstacle in advancing the profession?

Prof. Sherief Khalifa,
Chair of ACPE International Commission, Vice Chancellor for Quality & Institutional Effectiveness and Dean, College of Pharmacy at Gulf Medical University, UAE

12:30pm – 12:50pm

Pharma industry transformation and how it affects job designs and future pharmacists

Dr. Tamer El-Sherif,
HR Director, Roche Pharmaceuticals, Egypt

12:50pm – 1:20pm

Redirecting the tanker – instigating national change in pharmacy educational standards

Prof. Duncan Craig,
Dean, School of Science, University of Bath, UK

1:20pm – 1:40pm

*Session Moderator

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Teaching and assessing student research in pharmacy

Dr. Arnaud Ruiz,
Senior Lecturer of Pharmacology, UCL School of Pharmacy

1:40pm – 1:55pm

Fight the Fakes: the battle against falsified and substandard medicines

Dr. Oksana Pyzik,
Global Engagement Lead and Founder of UCL Fight the Fakes, UCL

2:00pm - 2:15pm

Development of pharmaceutical service: Filling the gaps

Dr. Sherif Kamal,
Chairman Consultant, Egypt Health Authority

Senior NGU students

2:15pm – 2:45pm

Panel Discussion

2:45pm – 3:00pm

Closing Ceremony (conference conclusions and recommendations) 3:00pm – 3:45pm

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Dinner 3:45pm – 4:30pm

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