



University of Kuwait Faculty of Pharmacy

ANNUAL REPORT 2016-2017

جامعة الكويت
كلية الصيدلة





Faculty of Pharmacy

Annual Report 2016/2017

Emergence of pharmacy as an independent discipline

From the late eighth century and beginning of the ninth, during the early phase of Islamic civilization which spread outwards from the Arabian peninsula into Middle Asia, North Africa and parts of Europe, there began a resurgence of intellectual activity in the physical and medical sciences. The knowledge and philosophies of classical Greece were revived in earnest and fashioned into more practical application. The rapid expansion of knowledge in herbal remedies and their desire to apply it to heal ailments in a more systematic way, led to some concerns, that one practitioner carrying out the dual task of preparing the medication and also treating the patient at the same time, would lead to complications. Additionally, a trend that started in Baghdad, the center of learning at that time, and disseminating to other Muslim lands was the rise of a number of privately owned apothecaries, some of which had profit as their priority. In order to keep curing the patient's illness as the major concern, as well as encouraging optimum workload, it was decided in Baghdad that pharmacy and medicine as should be kept as two distinctive professions. Only pharmacists, who were skilled in the apothecaries' art and being knowledgeable about the compounding, storing and preserving of the drugs, were allowed to own these new shops. To prevent any dishonesty in their products, a government appointed official Al-Muhtasib and his aides, would periodically inspect each pharmacy to assure the accuracy of the weights and measurements of the drugs, and the purity of the materials used to prepare them. This was a way of safeguarding the public from mal-practitioners. State-sponsored hospitals owned dispensaries that prepared drugs on a large-scale, in several dosage forms such as syrups, ointments and electuaries.

Some leading figures from this enlightened era include Yunnah Ibn Maswyah (ca 777-857), who was a popular pharmacist during the ninth century in Baghdad. He catalogued some thirty therapeutic plants, describing their physical properties and pharmacological effects as well as methods of detecting adulteration. For example, he recommended saffron for the liver and stomach ailments. Ibn Maswyah was fond of promoting a healthy diet, saying *"the physician who would cure the patient by only diet, without drugs, was most successful and skilled"*. In his book Al- Mushajjar Al-Kabir (a medical encyclopedia on diseases and their treatment by drugs and diet), he recommended the use of medical plants to boost the immune system. At- Tabari (ca 839-923) was a notable pharmacist who wrote several medical books, the most renowned being *"Paradise of Wisdom"*, in which he discusses diseases and remedies, therapeutic uses of animal and bird organs, as well as drugs and their methods of preparation. Some of his examples of storage conditions worth mentioning are glass ceramic vessels for liquid drugs, and lead containers for fatty substances. Another important figure was Ibn Sahl, who was the first to write a medical formulary in Arabic. His book was unique as it was purposely written as a guidebook for pharmacists either working in their private places or in hospitals. It included routes of administration as well as the diseases and drug treatment, and preparations.

While we take inspiration from the contributions of our illustrious predecessors, we can most honour them by continuing and extending their great works and noble traditions. We want future historians to look back to this as the age when pharmacists flourished and provided effective knowledge and tools with which medical practitioners could sustain human health.

Article contributed by Ajwan Behbehani

Sources:

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www.alislam.org/library/articles/Muslim-Contribution-to-Pharmacy201009.pdf



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Back illustration - from Warburg Institute

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VISION To be recognized as an outstanding innovative leader in pharmacy education and research, contributing responsibly to the continuous improvement of pharmaceutical services and patient-centered care within our community, and promoting the philosophy of a healthy lifestyle.

MISSION

- *Educate* our students and current pharmacists to the highest standards of pharmaceutical sciences and pharmacy practice to meet evolving needs of society
- *Engage* in relevant, interdisciplinary and high quality research to contribute to the development and better understanding of medicines and therapeutic applications
- *Share* the expertise and experience of its members with the community to promote health and responsible and safe use of medicines
- *Develop* intellectual capital to be an effective component of Kuwait University

VALUES Individual **COMMITMENT**: The journey towards our vision depends upon each and every individual contributing to our global efforts by focusing on their specific tasks and being open to change to improve their effectiveness in delivering the expected outcomes.

Intrinsic INTEGRITY: In order for our Faculty to succeed in its evolution, we must maintain the highest level of professional integrity in all aspects of our mission. This will foster mutual trust between ourselves and with both the higher university administration and our key external partners.

Intentional CREATIVITY: Our vision requires that we continually strive for focused and innovative outcomes that represent significant evolution from best practices. This needs collective time and effort to analyze all situations, to devise consensual solutions and implement strategic actions.

Internal SOLIDARITY: To face current and future challenges during its evolution, our Faculty needs to be a strong and unified organization, with complete cooperation between academic and administrative departments communicating and working together to fulfill our mission. Our collective goals should prevail above our individual interests.

Social ACCOUNTABILITY: As a public organisation, this Faculty is responsible for delivering the highest level of education, and for the creation of new knowledge to contribute to the advancement of our society. We are also responsible to actively contribute, by engaging with all relevant stakeholders, to the quality of healthcare offered to our population.

Dean's executive summary

During this academic year, that marked the 50th anniversary of Kuwait University and the 20th of our Faculty, we have begun to address our strategic objectives and continued our preparation for eventually obtaining Canadian accreditation. Our current assessment is that we are well underway to reach this milestone, with improvements in our curriculum, management, external collaborations and resources.

In the academic domain, we have launched the two-year add-on PharmD for our BPharm graduates and the first year of the programme has been a great success. The introduction of active learning methods had a positive impact on the competence and confidence of the trainees. Ten students successfully completed the first year and are now enrolled in the second year. For the first time, the Faculty has conducted a two-day workshop to prepare preceptors for their important role as they will be front line with our students during this second year. Simultaneously, the entry-to-practice PharmD implementation committee (EPIC) was hard at work to develop the next pharmacy curriculum based on competency development. The first draft of the programme was supported at the Faculty level and was forwarded to the Vice-President for Academic Affairs for external review. Their comments highlighted the strong points of this new curriculum and some aspects that deserved more work. EPIC continued its work to improve the programme and better define the content of each course. Meanwhile, the BPharm continues to deliver quality education to prepare pharmacists for their professional responsibilities.

Our research continues to do extremely well when compared to KU standards and our Faculty is amongst the leaders in terms of funding and publications per academic staff. We are proud of our achievements in this respect and we currently see the emergence of more research by our junior staff, under the mentorship of our more senior professors. The future seems promising and this annual report highlights the diversity and quality of the research being conducted. Unfortunately, initiation of several projects was delayed due to financial restrictions in the University Research Sector funding. This may have an impact on our future productivity, but the great spirit of collaboration that resides in our Faculty will surely at least partially compensate.

In terms of outreach, the Faculty organised its sixth international conference as part of the advancement of pharmacy education in the GCC and Middle-East conference series. Delegates from Lebanon, Saudi Arabia and Qatar joined us to participate in workshops in topics such as competency-based education, active learning assessment, life-long learning and team teaching. A task force (called TAPP) was developed with external stakeholders to catalyse the implementation of clinical pharmacy practice in the country, while the Office of Consultation, Studies and Training was waiting to obtain a new cadre for its operations.

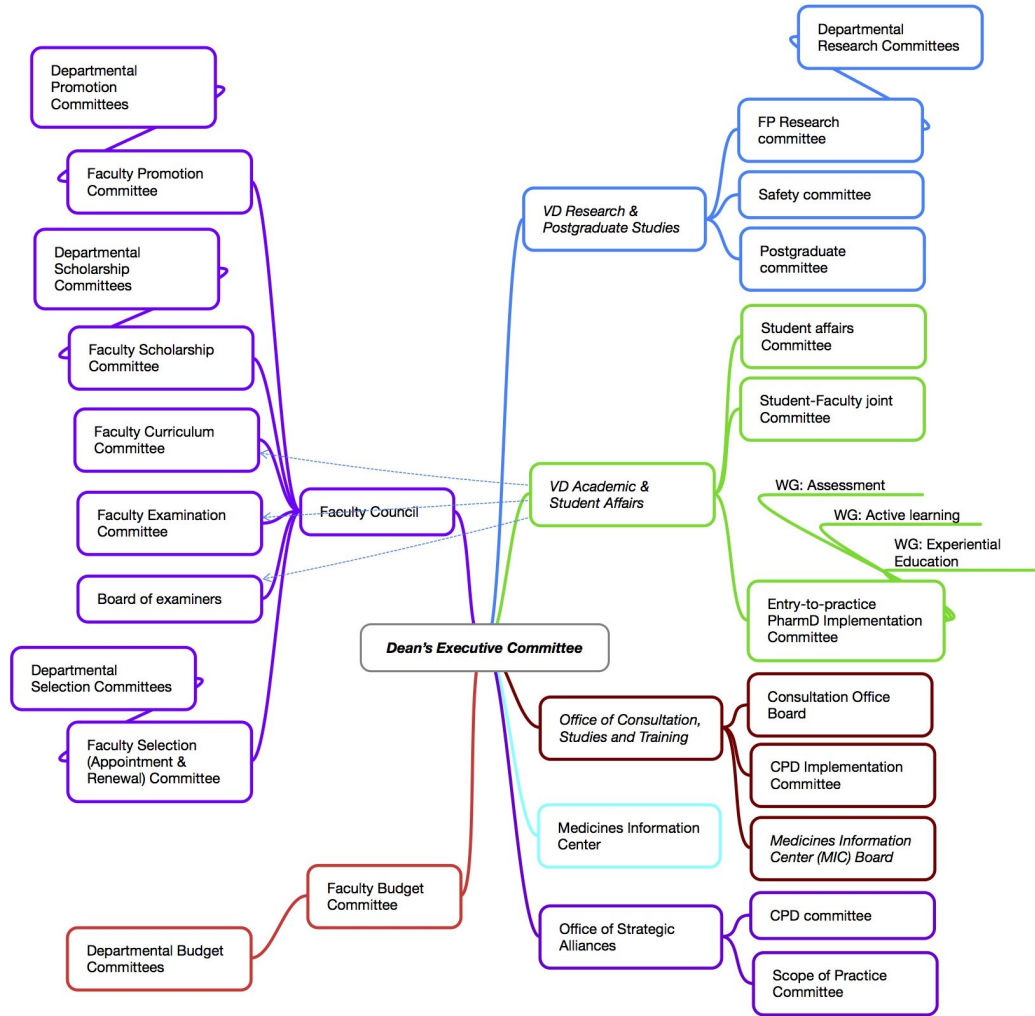
In May 2016, a Faculty Achievement Day was held to showcase the progress made during the year, in the four dimensions of our mission: education, research, outreach and management. The occasion was also marked by recognising particular individuals (selected by their peers) for exemplary contribution in our 5 core values: commitment, integrity, creativity, solidarity and accountability.

This annual report captures our achievements from September 2016 to August 2017. I am proud of all of our individual and collective accomplishments during the course of this academic year. I am even prouder of the women and men working relentlessly to create an outstanding academic environment, fostering quality education, research and community services. We have several strategic goals planned in front of us to continue to improve and journey towards our vision of being innovative leaders in our field.



Prof Pierre Moreau

Faculty Governance



Faculty Personnel



Department of Pharmaceutical Chemistry

Academic Faculty

Prof. Yunus Luqmani	Professor & Chairman
Prof. Ladislav Novotny	Professor
Prof. Oludotun A. Phillips	Professor
Prof. Mohammed Abdel-Hamid	Professor
Dr. Khaled Orabi	Associate Professor
Dr. Nada Al-Hasawi	Assistant Professor
Dr. Naser Al Tannak	Assistant Professor (on Study Leave)

Academic Support Staff

Ph. Leyla Hassan Sharaf	Lecturer
Ph. Hanan Gaber Sary	Lecturer
Mrs Zainab Taqi	Teaching Assistant
Mrs. Sanaa Amine	Scientific Assistant

Technical Staff

Mr. Sulaiman M. Al-Sulaiman	Chief Technician
Mr. Emad El-Sayed	Technician
Mr. Islam M. Essa	Technician
Mr. Akram Fayeq	Technician
Mrs. Athraa Khan	Senior Chemist
Mrs. Mary Verghese	Technician
Mrs. AlDana AlBuhairi	Assistant Technician
Mrs. Asmaa Badawy	Senior Secretary

Research Staff

Mrs. Princy Mathew	Research Assistant
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Graduate Students

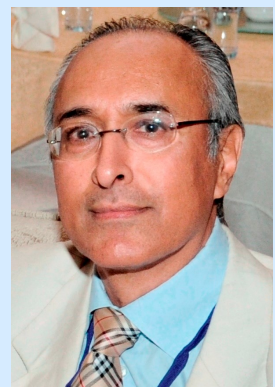
Ms. Amna Al Rabeea
Mrs. Lobna Adi
Mrs. Dalal Al Adwani
Mrs. Fatma Al Jeeran
Mr. Wael Al Shady



Future plans

- Contribute to continuing development of the newly implemented 'add on PharmD' and proposed new PharmD curriculum
- Continue to support and extend MSc programme in Pharmacy, and in Molecular Biology
- Encourage student utilisation of electronic sources of information/facilities -promoting use of HSC e-learning website for course materials and communication
- Promote departmental research activity
- Encourage mentorship of junior staff to establish research activity
- Encourage undergraduate student participation in research and advocate research culture
- Promote the Office of Consultations, Studies and Training
- Improve and expand on-going community services on screening metabolic diseases in neonates and infants and pharmaceutical drug analysis

Prof Yunus Luqmani



Department of Pharmacology & Therapeutics

Academic Faculty

Dr. Kamal Matar	Associate Professor (<i>Chairman</i>)
Prof. Pierre Moreau	Professor (<i>Dean</i>)
Prof. Samuel B. Kombian	Professor (<i>Vice Dean Academic & Research</i>)
Prof. Jagdish N. Sharma	Professor
Prof. Ahmed El-Hashim	Professor
Dr. Willias Masocha	Associate Professor
Dr. Mohamed G. Qaddoumi	Assistant Professor
Dr. Maitham Abbas Khajah	Assistant Professor (<i>on Scientific Leave</i>)
Dr. Altaf Al-Romaiyan	Assistant Professor
Dr. Bedoor Qabazard	Assistant Professor
Dr. Jacinthe Lemay	Assistant Professor

Academic Support Staff

Ph. Al-Shaimaa Al-Kandery	Clinical Instructor
Ph. Maram Jamal Katoue	Teaching Assistant

Technical Staff

Ph. Bindu K. Baby	Technician
Ph. Seena Elizabeth Mathew	Technician
Mrs. Shila Anas	Senior Secretary

Research Staff

Mrs. Princy Mathew	Research Assistant
Mrs. Rhema Susan Baby	Research Technician

Graduate Students

Mrs. Mandy Moein
Ms. Batool Al Refai
Mrs. Fajer Al Shamlan



Future plans

- Encourage staff members to participate in promoting the Office of Consultation, Studies & Training
- Provide clinical pharmacokinetics & therapeutics consultations to MOH
- Train ward pharmacists on therapeutic drug monitoring and dose optimization of specific drugs
- Collaborate with other departments in the Faculty in establishing PhD programme

Dr Kamal Matar



Department of Pharmaceutics

Academic Faculty

Prof. Aly Nada	Professor & Chairman
Dr. Mohsen Hedaya	Associate Professor
Dr. Abdelazim Zaghoul	Associate Professor
Dr. Monerah Al-Soraj	Assistant Professor
Dr. Yaqoub Al-Basarah	Assistant Professor

Academic Support Staff

Mrs. Farzana Bandarkar	Teaching Assistant
Mrs. Elizabeth Abraham	Scientific Assistant

Technical Staff

Mrs. Doha Nabil	Technician
Mr. Saji Abraham	Technician
Mrs. Farah Jamaa	Assistant Technician
Mr. Yehya Mahmoud	Assistant Technician
Ms. Marwa Gouda	Secretary

Research Staff

Ms. Rinu Thomas	Research assistant
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Graduate Students

Mrs. Reham Al Kazemi	M.Pharm. Sci.
Ms. Bashaier Alkandari	M. Pharm. Sci
Mrs. Marian Sobhy	Ph.D (Cairo Univ)



Future plans

- Strive to continuously improve teaching and research quality.
- Plan more laboratory-based Final Year Research Projects to enable students to tackle practical problems
- Promote utilisation of the “E-learning” website for more effective communication with students.
- Intensify intra- and inter-departmental research collaboration, with joint research applications
- Promote postgraduate research activities for the MPharm.
- Promote international collaboration
- Apply for general facilities grant to improve and upgrade laboratory facilities

Prof. Aly Nada



Department of Pharmacy Practice

Academic Faculty

Prof. Abdelmoneim Awad	Professor & Chairman
Dr. Mohammed Waheedi	Assistant Professor
Dr. Abdullah El-Bassam	Assistant Professor
Dr. Fatma Jeragh	Assistant Professor
Dr. Fatma Al-Saleh	Assistant Professor
Dr. Salah Waheedi	Assistant Professor
Dr. Dalal Al-Taweel	Assistant Professor
Dr. Maryam Al-Owayesh	Assistant Professor
Dr. Sarah Al-Ghanem	Assistant Professor
Dr. Mona Murad	Assistant Professor

Academic Support Staff

Mrs. Eman Abahussain	Senior Clinical Lecturer
Mrs. Tania Bayoud	Clinical Lecturer
Mrs. Reny Mathew	Clinical Instructor
Ms. Asmaa Al-Haqan	Clinical Instructor (on Study Leave)
Mrs. Heba Abul	Clinical Instructor
Mrs. Noor Marafie	Clinical Instructor
Mr. Samuel Koshy	Teaching Assistant
Ms. Youmna Alaa-Elddine	Teaching Assistant
Ms. Sara Al Ajmi	Clinical Instructor

Technical Staff

Mrs. Randa Abdul-Salam	Chief Technician
Ms. Shaimaa Abdel-Meguid	Technician
Mr. Abdul-Razzak Al-Shaar	Technician
Mrs. Reny Varghese	Technician
Mrs. Amal Mostafa	Technician

Administrative Coordinators

Mrs. Mona Naqi	Administrative Coordinator
Ms. Esraa Saleh	Administrative Coordinator
Mrs. Zahra Al Saleh	Administrative Specialist



Future plans

- Continue the improvement of the experiential training
- Continue the support to MOH pharmacists to improve the standard of practice in Kuwait
- Continue the supervision of MSc Students with University of Dundee and Dasman Diabetes Institute
- Expand the community services
- Expand the FOP medicine information center services, through delivering workshops for pharmacist in Kuwait
- Development and implementation of interventions to protect the environment through safe disposal practice of medication
- Development of Model Pharmacy.

Prof Abdelmoneim Awad



STUDY



*examinations last for a few hours
but a good education endures for a lifetime*

Message from Vice Dean for Academic and Student affairs



The 2016/2017 academic year marked admission of the first students to the Doctor of Pharmacy (PharmD) programme, in addition to admission of the 20th batch of students to the BPharm programme. Regarding academic and student affairs, we undertook several major projects and worked on them throughout the year.

The Add-on PharmD Programme

Eleven students who graduated from the BPharm programme in June 2016, were enrolled in the PharmD programme. Eleven new competency-based courses were developed and offered for the first time. This required heroic effort from the course coordinators who developed the courses, in addition to using active learning strategies and novel competency assessment framework, while teaching these courses. The students in the PharmD programme utilised the newly developed pharmacy practice laboratories. Preparation for the second year of the programme involved the selection of the practice sites that will be utilised during the rotations. This is in addition to the development of a training programme for the preceptors who will be involved in training the second year PharmD students.

The Entry-to-Practice PharmD Programme

In October 2016, the application for the transformation of the undergraduate pharmacy programme from the BPharm to the Entry-to-Practice PharmD, was submitted to Kuwait University Administration. This application included the vision mission and objectives, human and physical resources (available and needed), programme admission criteria and characteristics, list of courses and course descriptions, progression and graduation

requirements, and academic degree title. The application was sent by the Vice President for Academic Affairs office to two external reviewers in the USA and Canada for evaluation. A market survey to determine the need for the pharmaceutical services that will be provided by clinical pharmacists in Kuwait was performed. More than seventy health care professionals currently practicing in Kuwait participated in this survey. The results clearly indicated the need for trained pharmacists who can provide clinical pharmacy services, which are inadequately provided now. All the course contents were prepared for the new programme, and it is intended to file all the needed information early in the Fall of 2017.

The student affairs Committee

The student affairs committee which included four faculty members, a student and a non-academic staff member, continued to enforce the developed standard procedures which include policy dealing with student absence from examinations, lectures and laboratory classes. Also, procedures for examination regulations, procedures for dealing with cheating incidents, and invigilator responsibilities before, during and after the examinations. These procedures were made available for all faculty members, academic and non-academic staff, as well as students. The committee also developed the code of ethics, which includes sections about professionalism and professional behaviour, proper academic conduct, academic dishonesty and consequences. The committee also planned an orientation for the new pharmacy students which was held in the beginning of the new academic year and updated the student handbook.

Faculty-Students Joint Committee

This committee includes four faculty members and four student representatives, one from each year. This committee provided a mechanism for communication between the faculty members and the students. The new rules and regulations developed by the student affairs committee were communicated to the students through the student representatives in this committee. The students also made several suggestions which were discussed and found to be useful, and these suggestions were presented in the Dean's executive committee.

Dr Mohsen Hedaya

Curriculum Development

MSc in Pharmaceutical Sciences

The Faculty of Pharmacy implemented a postgraduate MSc program in pharmaceutical sciences in September 2014 to improve and upgrade the pharmacy education at the Faculty. A total of 16 regular students and 4 non-degree students have registered during the period 2014-2017. The MSc curriculum consists of didactic and practical courses, in addition to a laboratory-based research thesis. The curriculum provides the basic knowledge in pharmaceutical sciences including pharmaceutical chemistry, drug discovery, biopharmaceutics, molecular pharmacology and drug delivery. The practical course provides the students with laboratory techniques used in pharmaceutical and pharmacological research. Introductory courses include biostatistics and computer science applications in pharmaceutical and medicinal fields, scientific writing and communication skills, ethics and professionalism. Elective courses cover the specialty areas of herbal products and their therapeutic uses, drug delivery systems, and central neuropharmacology. For graduation, the student should complete 21 credits of course work in 2 semesters with an average GPA not less than 3, in addition to a successful completion of research thesis in specialty area of pharmaceutical chemistry, pharmaceutics or pharmacology. The course name, course number of compulsory and elective courses with specified credits are listed below:

Curriculum

21 COMPULSORY COURSE CREDITS

3 ELECTIVE COURSE CREDITS

1100-525	Advanced Biopharmaceutics and Pharmacokinetics (3)
1100-540	Drug Discovery and Development (3)
0550-505	Molecular Pharmacology (2)
0510-501	Biostatistics and Computer in Medicine (2)
1100-520	Advanced Pharmaceutical Chemistry (3)
1100-521	Techniques in Pharmaceutical and Pharmacological Research (3)
2000-501	Scientific Writing and Communication Skills (3)
2000-503	Ethics and Professionalism (2)

ELECTIVE COURSES*

1100-522	Evidence-based Phytotherapy (3)
1100-527	Advanced Drug Delivery Systems (3)
1100-541	Central Neuropharmacology (3)

*The student should select only ONE course

THESIS (COMPULSORY)

1100-597 (0), 1100-598 (0), 1100-599 (9)

*Prof Mohammed AbdelHamid
(VDR and Postgraduate Studies)*

Final Year Student Research Projects

In their final semester students take a 3 credit course in which they are expected to conduct a short piece of research on a specified topic and required to submit a written report of 5500-6500 words and give a 20 minute oral presentation of their work. Students are randomly pre-assigned to a faculty staff member who supervises their work throughout the project during regular weekly discussion meetings over approximately 13-15 weeks.

During this year there were a total of 41 students: 9 were assigned to Pharmaceutical Chemistry, 13 to Pharmacology & Therapeutics, 7 to Pharmaceutics and 12 to Pharmacy Practice. As usual the topics were quite diverse. Pharmaceutics offered projects concerned with different modes of drug delivery and formulations for targeted therapies, evaluation of paracetamol tablets, 3-D printing, and pharmacokinetics. Pharmacology & Therapeutics projects dealt with aspects concerning diabetes inflammatory mechanisms, hypertension, neurological disorders, pain mediators, and medication perspectives. Pharmacy Practice had all questionnaire based surveys, on safety culture in community pharmacies, inhaler device techniques, pharmacist, physician and patient perceptions/attitude/views on various drug related topics and pharmacy education, adherence issues and views on implementation of clinical pharmacy; all required students to perform statistical and

qualitative data analyses. Projects in Pharmaceutical Chemistry included topics on cancer hypoxia and use of mABs in treatment, ACE inhibitors, chemistry of Bufadienolides, curcuminoids and synthetic cannabinoids, applications of mass spectrometry, and herbal remedies.

The general standard was again high with many excellent and highly graded projects. There were some laboratory based projects which had highly successful outcomes. Two of the projects were subsequently published in edited form in the Kuwait Pharmacy Bulletin and another is in preparation for the winter issue. The oral presentations were of generally high quality; however response to questions again exposed some shortcomings. The main issues encountered were in correct usage of grammar and scientific language, selection of appropriate sources and being sufficiently critical in assessing/interpreting the information wherever appropriate.

It is recommended that further effort should be made to ensure that projects require use of and critical assessment of information rather than too much emphasis on descriptive narrative of well described knowledge. There were no issues of plagiarism as students were aware that their compositions would be vetted through 'turnitin' software

Prof Yunus Luqmani

List of projects by department

Department of Pharmaceutical Chemistry

The effect of hypoxia on cancer progression
Structure and therapeutic activity of ACE inhibitors
Chemical structure and biological activities of bufadienolides

Curcuminoids: chemistry and therapeutic uses

Mass spectrometry and its applications in pharmaceutical /forensic practice
Synthetic cannabinoids
Isolation and Identification of Cannabimimetics in "Legal Highs"

Therapeutic use of the medicinal plant, Haloxylon salicornicum (Moq)
Potential use of a novel PankoMab-GEX mAB in treatment of cancer

Student

Ann Fadel Hashem
Hanan Mohammed Ali
Hawra Ali Abbass
Fatema Abdul-Aziz Al-Mutawa
Alghalia Mahmoud
Muqem
Fatema Yaquoub Al-Dallal
Aseel Waleed Al-Mezrem
Amal Abdullah Al-Hemaidan
Farah Khaled Al-Zahmoul

Supervisor

Y A Luqmani
L Novotny
L Novotny
OA Phillips
OA Phillips
M AbdelHamid
K Orabi
N Al Hasawi
N Al Hasawi

Department of Pharmacology & Therapeutics

	Student	Supervisor
Exploring a role for obesity in childhood asthma	Sara Nabil Aba-Hussain	A El Hashim
Evaluation of angiotensin-like proteins in diabetic eye diseases	Mohammed Ahmed Al-Kanderi	M Qaddoumi
Targeting calcitonin gene-related peptide for the management of headaches	Deema Munif al-Hathal	W Masocha
Effectiveness of GLP-1-based therapy in type 1 diabetes mellitus	Noura Faisal Al-Shelahi	A AlRomainyan
Potential of Kisspeptin as drug target in the treatment of diabetes mellitus type 2	Zainab Mohammed Al-Mousawi	A AlRomainyan
“Inflammaging” and its potential contribution to age-associated diseases	Eissa Meshal Al-Harban	B Qabazard
Advances in the management of painful diabetic peripheral neuropathy	Refaa Ali Al Hemaida	B Qabazard
Mechanisms of neurodegeneration: emerging therapeutic advances	Arwa Khalifah Al-Fraij	S Kombian
Renal bradykinin system as potential drug target for salt-sensitive hypertension	Abrar Ahmed Al-Azmi	JN Sharma
Pharmacological properties of hydroxychloroquine in rheumatoid arthritis and related diseases	Asmaa` Khalaf Al-Azmi	JN Sharma
Physician perception, attitude and practices towards medication reconciliation in governmental hospitals in Kuwait	Hajar Ahmed Hussain	J Lemay
Physician perception, attitude and practices towards medication reconciliation in governmental hospitals in Kuwait	Hamad Abdullah Al- Mohammed	J Lemay
Physician perception of the expanded pharmacist scope of practice within governmental hospitals in Kuwait	Aseel Al Saqar	P Moreau

Department of Pharmacy Practice

	Student	Supervisor
General practitioners views on collaborative practice in primary care setting	Fatema Yousef Al-Mutawa`	A Al Bassam
Pharmacists' views on collaborative practice in primary care setting	Mohammed Faisal Al-Bazaz	A Al Basam
Adherence, persistence, and satisfaction of Multiple Sclerosis patients to disease modifying therapies in Kuwait	Najat Jassim A. Al-Kanderi	M Al Owaish
"Safety culture" assessment in community pharmacy: results from the Capital and Hawalli governorates in Kuwait.	Haila Barjas Al-Dousari	F Al Saleh
"Safety culture" assessment in community pharmacy: results from Al-Ahmadi, Al-Farwaniyah, and Al-Jahra governorates in Kuwait	Malak Nasser Al-Hejaily	F Al Saleh
Pharmacists' attitudes toward continuing education in Kuwait	Hamed Hamdi Al-Tabba`	S Waheedi
Patients' perceptions of privacy and the need for a private consultation area in polyclinic pharmacy	Sarah Ali Al-Ojaiman	S Waheedi
Medication adherence and depressive symptoms in patients with diabetes	Mennat-Allah Asharf Ahmed	M Waheedi
A survey to document development and implementation of Clinical Pharmacy in Kuwait	Sara Amed Al-Rayes	M Waheedi
The association between health literacy and the use of nebulizer therapy by COPD/Asthma at home in Kuwait	Asrar HmoudAl-Enizi	M Murad
Inhaler device technique among pharmacists at the MoH: a descriptive study	Fatema Mohammed Jerrag	F Jeragh
Inhaler device technique among children with asthma at the MOH: a descriptive study	Sara Ali Al-Obaid	F Jeragh

Department of Pharmaceutics

	Student	Supervisor
Quality control tests of paracetamol tablets in Kuwaiti market	Aseel Nafe` Al-Khalifah	A Nada
3-D tablet printing: contribution to tablet manufacturing	Hanan Khaled Al-Shemali	M Hedaya
Tools to predict the <i>in vivo</i> pharmacokinetics performance of orally administered drugs: guide to drug discovery	Hanouf Misfer Al-Ajmi	A Zaghloul
Graphene-based nanomaterials in drug delivery: focus on anti-cancer drugs	Sara Nawaf Al-Mutairi	A Zaghloul
Pharmaceutical applications of silicone polymers	Zahra Yousef Al-Khamis	M Al Soraj
Microneedles for transdermal delivery of insulin	Haya Dhari Al-Aiban	Y Al Basarah
Transungual drug delivery	Nada Abdullah Al-Suwaileh	Y Al Basarah

Report of the Vice Dean for Postgraduate Studies & Research

The multi-disciplinary MSc program in pharmaceutical sciences with specialty areas in pharmaceutical chemistry, pharmaceuticals and pharmacology, initiated in 2014, was developed to run alongside the clinical PharmD program which is hoped to be implemented in 2018/2019. The MSc program was structured to prepare skilled and self-dependent researchers, capable of conducting research in pharmaceutical and medicinal topics.

During the period 2014-2017, a total of 18 students were admitted to the program of whom 4 students were registered as non-degree students. In Feb 2017, one student of class 2014/2015 was graduated in the specialty area of molecular Pharmacology. The remaining (3 students) from the first batch are expected to be graduated in specialty areas of pharmaceuticals, pharmaceutical chemistry and pharmacology by the end of 2017 or beginning of 2018. The students admitted in September 2015 (4 students) are currently registered for their thesis, those admitted in September 2016 (5 students) will begin their theses in September 2017.

With regard to the academic research at the Faculty, we have pursued a vigorous policy of encouraging both senior and junior staff to apply for funding to the University Research Sector as well as other financial sources e.g. KFAS and

Dasman Diabetes center. Publication in international peer-reviewed journals with good impact factors is considered particularly important and new grant applications are thoroughly vetted for quality.

In the last year, we faced many logistical problems in the procurement of chemicals and consumables for which funding had already been approved and this has greatly hampered our progress.

Up to September 2017, a total of 15 projects (6 graduate and 9 Faculty research) were running, 10 were completed and 8 were submitted for funding.

The total funding of ongoing Faculty research projects by RS and KFAS up to September 2017, is KD 363,200 and for graduate research projects is KD 34,900. In addition, faculty members participated in 4 research projects outside the Faculty with a total budget of KD 262,723 .

The Faculty research productivity during the academic year 2016-2017 was 32 published papers in peer-reviewed journals (of which 6 articles were published in Q1 journals), 18 oral presentations and 37 poster presentations in international and national conferences.

*Prof Mohammed
AbdelHamid*



Scholarships



Name of Student	University of study	Tentative completion
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Department of Pharmaceutical Chemistry

Sama'a Al-Rushaid	University of Manitoba, Canada	2018
Fatma Al-Awadi	University of Florida, USA	2017
Bashayer Al Thufairi	Virginia Comm University USA	2018
Fatma Taha	University of Manchester, UK	2021

Department of Pharmaceutics

Wabeel Al-Busairi	University of the Pacific, USA	2017
Maitham Bahman	University of Strathclyde, UK	2018
Amina Almurjan	Aston University, UK	2021
Abdul-Aziz Al Obaid	Aston University, UK	2022

Department of Pharmacology and Therapeutics

Omama Al Farsi	Johns Hopkins University, USA	2018
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Department of Pharmacy Practice

Dana Al-Sanea	Virginia Comm University USA	2020
Sarah Al-Manie	Virginia Comm University USA	2018
Mai Al-Hazami	Virginia Comm University USA	2018
Emad Al-Saraf	MCPHS, Boston, USA	2020
Ethar Makhseed	MCPHS, Boston, USA	2020
Fatma Rashed	MCPHS, Boston, USA	2020
Ali Saleh Al-Harbi	MCPHS, Boston, USA	2018
Huda Al-Enezi	MCPHS, Boston, USA	2020
Afrah Al Kazemi	MCPHS, Boston, USA	2022
Maha Al Harbi	MCPHS, Boston, USA	2022
Ahmed Ali Taqi	MCPHS, Boston, USA	2022
Mariam Al Obaidi	MCPHS, Boston, USA	2022
Asmaa Al Baloushi	MCPHS, Boston, USA	2022
Farah Al Humaidi	MCPHS, Boston, USA	2022

Note : The last 11 students in PP list are studying for PharmD. All other students are doing MSc/PhD

Research



*extending knowledge is admirable
but being innovative is remarkable*



Faculty Research

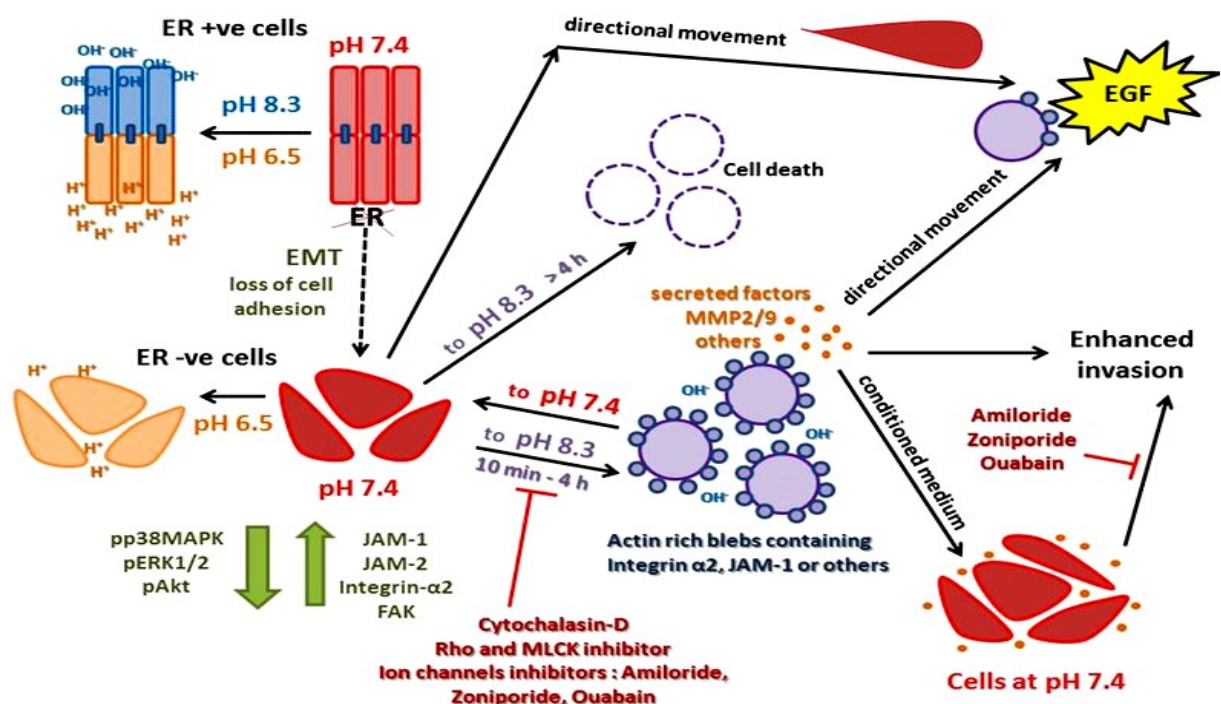
In order to foster more collaborative research and to create a more conducive environment for staff, particularly junior staff, to join scientific research, an initiative was taken last year by staff members, to establish specific Research Units. These were named Molecular Oncology, Drug Discovery and Development, Immunity and Inflammation, Pharmaceutical Technology and Drug Delivery, Professional Practice and Education.

The major research focus areas and the extent of contribution were defined by each Research Unit. The collaborative research may be extending outside Kuwait with other Universities or research institutions and laboratories in Europe and USA. As a result of this collaboration, research articles were published and pharmaceutical/medical/educational research materials were presented in international and local conferences.



Research Units – Molecular Oncology

Friend or foe? – while an essential reproductive hormone, estrogen has long been known to be the major stimulus driving progression of breast cancer through activation of a nuclear receptor (ER). Endocrine intervention, either with pharmacological antagonists or inhibitors of estrogen biosynthesis in postmenopausal women forms the basis of treatment of ER+ patients. As with general cytotoxic agents, persistent onset of drug resistance poses significant therapeutic setbacks. Attempts to identify the molecular mechanisms whereby cancer cells acquire resistance have, through use of *in vitro* cellular models, identified proliferative growth factor induced signaling that bypass the ER pathway rendering estrogen blockade redundant. We have established several siRNA mediated ER silenced sub-lines, derived from the commonly used ER+ MCF7 cell line, that are characterised not only by their endocrine independence, but also by a remarkable transition from their original epithelial phenotype to one resembling mesenchymal cells. This is reminiscent of the EMT which is now commonly accepted as a pathway for tumour metastasis. We are studying the metabolic and morphological behaviour of these cells which unlike the parental cells have the propensity for increased motility and invasion. A striking feature is their unique response to extracellular alkaline pH with extensive re-arrangement of cortical actin producing a spherical shaped cell with dynamic blebbing of the plasma membrane which we believe to be associated with migratory capacity. Projects are ongoing to study these phenomena, as well as the reversibility of EMT. Sequence profiling indicates differential microRNA expression that may regulate key pathways currently under investigation. Our data suggests that the prevailing notion of extracellular acidity driving metastasis of hypoxically challenged cells may not be applicable to endocrine resistant cells. Our current model is based on a contrarian view that tumour cells which have acquired mesenchymal character migrate through the extracellular matrix in order to escape from a localised region of alkalinity that is detrimental to their continued viability. We aim to test this hypothesis with co-culture experiments using combinations of cells exposed to different environments.



Members

Faculty

Prof Yunus Luqmani
Dr Maitham Khajah
Dr Monerah Al Soraj

Research Assistants

Mrs Princy Mathew
Mrs Zainab Taqi

Graduate students

Ms Amna Al Rabeea
Mrs Lobna Adi



Under-graduate student

Ms Asmaa Rezig

Vision

To be recognised as an active and innovative investigative group in the field of molecular oncology with major emphasis on breast cancer research

Mission

To build a nucleus of talented and like-minded individuals who will continue to engage in interdisciplinary and high quality research to contribute to increased understanding of the biology of breast cancer and the optimum therapeutic strategies to manage the disease

Operational Strategy

- formulate and obtain research grants to explore innovative ideas
- fully utilise current resources and extend our technical capabilities by acquiring latest technologies
- attract into the group and train talented and enthusiastic graduate students

Collaborative research with local and international research institutions or centers

We have had active collaborations with a group in York (Dr W Brackenbury) to perform electrophysiology and currently are working with a group in Munich (Dr A Roidl) to do *in vivo* studies with the ER silenced cell lines.

Major research problems faced by researchers in the unit

- financial issues associated with utilising funds in the awarded grants. Research Sector (RS) procedures are very complex, restrictive and time consuming. Procurement times to obtain chemicals/consumables is extremely long due to compulsory involvement of local intermediary companies and lengthy tendering processes particularly for equipment.
- lack of maintenance for equipment over several years has resulted in significant deterioration of our facilities
- infrastructure facilities in FoP (eg tissue culture hoods, incubators, autoclaves, centrifuges, fridges/freezers, supply of liquid nitrogen or solid CO₂) are all sub-optimal and poorly maintained or unavailable.

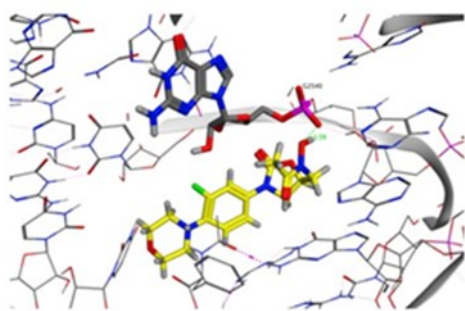
Suggested solutions:

- facility for direct orders for RS grants
- increase in RS petty cash to KD2000
- faster processing of tenders
- need development budget to upgrade Faculty equipment
- petty cash facility for repairs

Research Units – Drug Discovery & Development (DDD)

The drug discovery and development research unit will focus on the:

- ✦ discovery of novel medicinal compounds from natural and synthetic sources targeting various human diseases, including, but not limited to bacterial infections (Gram-positive bacteria Mycobacterium tuberculosis, MRSA, VRE), promotion and progression of malignant cancers, CNS (epileptic seizures).
- ✦ development of biological assays for and pharmacological evaluation of such molecules
- ✦ development of accurate, sensitive and specific analytical techniques for elucidation of chemical structures and stability of newly discovered pharmaceutical compounds
- ✦ study of *in vitro* metabolic stability and detailed *in vivo* pharmacokinetics of newly discovered pharmaceutical compounds.
- ✦ use of “In-silico-aided drug design approaches in discovery of novel compounds of pharmaceutical interest.
- ✦ collaboration with national and international research organisations to facilitate the discovery and development of novel compounds of clinical potentials.

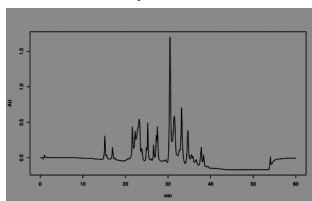


drug design

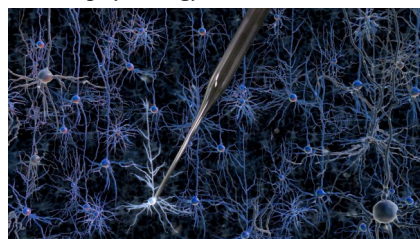


natural products chemistry

HPLC analysis



electrophysiology



Members

Faculty

Prof Oludotun A. Phillips
 Prof Mohamed Abdel-Hamid
 Prof Ladislav Novotny
 Prof Samuel Kombian
 Dr Khaled Orabi
 Dr Mohsen A. Hedaya
 Dr Mohammed Qaddoumi
 Dr Nada Al-Hasawi
 Dr Naser F. Al-Tannak

Research Assistants

Mrs Sanaa Amine
 Mrs Leyla Sharaf
 Mrs Hanan Gaber

Graduate students

Mrs Dalal Al-Adwani
 Mrs Fatemah Al-Jiran

Vision

Aspire to attain a research excellence in drug discovery and development of new drug entities that would add to the therapy of selected human diseases.

Mission

- perform exploratory research activities that would result in research grants.
- engage in the chemical, biochemical and pharmacological evaluation of novel pharmaceutically important compounds.
- engage in internal and external research collaborations at local and international levels.
- develop a center of excellence for drug discovery and development that is well- recognized at Kuwait University.

Strategy

- encourage inter-disciplinary collaboration and contribute to cutting-edge research
- solicit funding through collaborative research grants
- utilise KU research core facilities to enhance our research capabilities
- encourage participation of undergraduate and postgraduate students in research activities
- recruit qualified and innovative research assistants
- apply for patents when applicable
- publish and present the research outcomes in national and international conferences

Measurement of the outcomes

Funded and unfunded research projects (4)

Submitted research projects (1)

Published research articles (4)

Submitted research articles (2)

Conference oral presentations (1)

Conference poster presentations (4)

Collaborative research with local and international research institutions or centers

- *In vitro* & *in vivo* anti-tuberculosis screening of our newly discovered compound TAACF in USA
- *Preliminary in vivo* anti-convulsant screening NIH / NINDS - USA
- The University of Mississippi National Centre for Natural products Research, University of Louisiana Baxter Bio-Science, LA, CA, USA.

Major research problems faced by researchers in the unit

- insufficient funding availability
- lack of adequate manpower
- increased teaching load of faculty members
- delay of purchase processing
- extremely long delays in releasing funds
- severe restrictions on petty cash (release and expenditure)

Suggested solutions

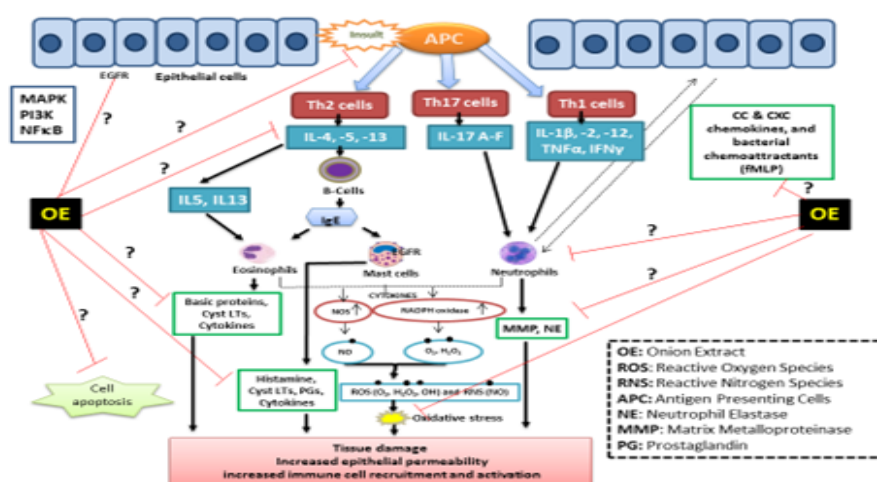
- recruit of additional academic staff
- KU should consider providing every academic staff member with research technician or associate
- KURS to expedite and streamline petty cash processing

Future research plans

- expand current research efforts and seek new opportunities for new collaborative multidisciplinary research projects to include new Kuwaiti academic staff as they join the Faculty
- expand our involvement in international research programs that would help increase our cutting-hedge capabilities
- develop a diverse and productive research program that would investigate most top priority disease areas in Kuwait
- train graduate and undergraduate students in research and natural resource conservation

Research Units – Immunity and Inflammation

Chronic inflammatory disorders are a major cause of morbidity, mortality, and drug utilisation worldwide. Only a few of the currently available drugs provide reasonable therapeutic outcomes, sometime at a high cost, as their chronic usage can lead to serious side effects and some result in drug dependence/resistance. We currently have several research programmes running in this unit trying to understand and characterise the mechanisms underlying inflammatory bowel disease (IBD), asthma/cough and neuroinflammation/peripheral neuropathies. These include the role of angiotensin 1-7 peptide in IBD pathogenesis, the role of Src and epidermal growth factor receptor in driving the asthma phenotype, the role of Bradykinin, PGE2 and adenosine in central sensitisation/inhibition of the cough reflex, and the role of hydrogen sulphide and endocannabinoid system in neuropathic pain. We are investigating the potential use of various agents such as the enaminone E121, the angiotensin peptide 1-7, the chemically modified tetracycline COL-3, onion bulb extract, and the slow-release H₂S donor GYY4137 in various animal models and cell lines, and the molecular mechanisms/pathways by which these agents mediate their anti-inflammatory effects. We are using various approaches to test their efficacy *in vivo* both as prophylactic and preventative agents. We also aim to explore the involvement of oxidative stress and endoplasmic reticulum stress in mediating some drug effects. In the Unit we have the expertise to perform both *in vitro* mechanistic experiments utilising a variety of molecular techniques, as well as the facility to perform *in vivo* and *ex vivo* manipulations to identify the mode of actions of these agents.



Members

Faculty

Prof Ahmed El-Hashim - Professor
 Dr Maitham Khajah - Associate Professor
 Dr Willias Masocha - Associate Professor
 Dr Bedoor Qabazard - Assistant Professor

Research Assistants

Mrs Seena Mathews (Technician)
 Mrs Bindu Baby (Technician)
 Ms Maryam Alasousi (Technician)
 Mrs Princy Mathew (Research assistant)
 Ms Amal Thomas (Senior research assistant)

Graduate students

Ms Esraa Aly
 Mrs Fajer AL-Shamlan
 Ms Shaimaa Al-Kanderi
 Ms Mona Yassin

Vision

To be an active research group in the field of inflammation and immunity.

Mission

To build an active group of talented scientists, technical staff, and graduate students who will perform high quality research in the field of inflammation and immunity in order to better understand these diseases and find better and safer treatment agents to control them.

Strategy

- write and obtain high standard research grants to perform high quality research in the field of inflammation and immunity.
- have a platform to get new talented graduate students who will contribute in this field of research.

Measurement of the outcomes (Sept 2016- Sept 2017)

Number of Research Projects (funded, unfunded) = 8

Number of publications per year = 6 (3 in Q1)

Number of conference presentations (oral and poster presentations) = 8

Number of collaborations (internal and external) = 5

Submitted research grants in the field of research unit = 2

Collaborative research with local and international research institutions or centers

Our international partners include Department of Pharmacology, University of Bern, Switzerland; Sackler Institute of Pulmonary Pharmacology, King's College London, United Kingdom; Department of Neuroscience, Karolinska Institute, Sweden; Department of Pharmaceutical Sciences, University of Saint Joseph, USA; Centre for Pain Research, National University of Ireland, Ireland.

Major research problems faced by researchers in the unit

- complexity of research sector system in executing petty cash orders, direct orders and tenders.
- lack of maintenance for most of equipment in the Unit and in FoP in general.
- long procedure for employment of research assistants.
- irregular salary payment of research employees.

Suggested solutions

- an independent budget for the unit.
- faster processing of petty cash orders, direct orders, and tenders.
- need development budget to upgrade Faculty equipment.
- maintenance budget for departmental equipment.
- ordering chemicals and consumables directly from the source which will lead to reduced overall cost and time.

Future Research Plans

securing grants for collaborative research between the members of the Unit and for future graduate students and contribute high quality science to our field.

Research Units – Pharmaceutical Technology

The research in this unit focus on pre-formulation and formulation studies to optimise the physico-chemical properties of APIs and excipients using a variety of techniques such as solid dispersions, crystal modification, self-emulsified and liposomal formulations in addition to development of drug delivery systems (DDS) with modified and targeted release attributes; e.g. Nano-particulate DDS, transdermal DDS, and liposomes. The research is also extended to include stability studies, quality control of pharmaceuticals, bioavailability and pharmacokinetic studies on new drug formulations and marketed products, pharmacokinetic drug interaction studies and pharmacokinetic pharmacodynamic modelling. More recently, we are interested in technological and biological aspects of drug and gene delivery, endocytosis and cellular delivery of therapeutic macromolecules.

Members

Academic staff

Prof Aly Nada,
Dr Mohsen Hedaya
Dr Abdelazim Zaghoul
Dr Monerah Al-Soraj
Dr Yaqoub Al-Basarah

Support staff

Mrs Farzana Bandarkar
Ms Ghadeer Al-Mousawi
Mrs Elisabeth Abraham
Mrs Doha Nabeel
Mr Saji Abraham

Graduate Students

Mrs Reham Al-Kazmi (MSc)
Mrs Marain Sobhy (PhD. in collaboration with Cairo University).



Measurement of the outcomes

Number of Research Projects (2)
Number of submitted Research Projects (3)
Number of publications (5)
Number of submitted publications (1)
Number of conference presentations (Oral and poster presentations) (6)

Collaborative research with local and international research institutions or centers
Faculty of Pharmacy, Cairo University

Major research problems faced by researchers in the unit

- Longevity of research grant processing
- Cut of budget allocated for research grants
- Insufficient budget allocated for scientific missions for staff member to present their new findings

Suggested solutions

- Simplifying the research grant processing and reducing the time needed for this process.
- Increasing the budget allocated for research and scientific missions.

Research Units – Professional Practice & Education Research Unit

The Professional Practice and Education Research Unit consists of 4 subunits and 13 members. Its focus areas are (i) educational research that covers innovative teaching approaches, faculty and students development, inter-professional education, and curriculum design; (ii) pharmaco-epidemiology research to provide insights into the quality of medication utilization using audits to compare actual use to national/international guidelines, determinants of medication use, outcomes and economic consequences; (iii) medicines information research to ultimately promote the rational use of medicines by physicians, pharmacists and public; and (iv) therapeutic drug monitoring and pharmacometric studies to optimize medication therapy. The vision of the subunits: (i) aspire to be an international leader in healthcare education by becoming a local reference for innovation in education and (ii) aspire to be the core center of research in the field of safe and rational use of medicines in Kuwait by formulating and conducting local studies that investigate the magnitude of problem in Kuwait, and to plan strategies for improvement. The members of the research unit are 12 academic and support staff.

Members

Faculty

Prof Pierre Moreau

Prof Abdelmoneim Awad

Dr Fatemah Alsaleh

Dr Dalal Altaweel

Dr Sarah Alghanem

Dr Maryam Alowayesh

Dr Jacinthe Lemay

Research assistants

Ms Asmaa Al-Haqan

Mr Samuel Koshy

Mrs Maram Katoue

Mrs Tania Bayoud

Mission

- ✦ Identify educational needs and issues and develop innovative solutions for improvement.
- ✦ Measure impact of interventions to foster quality improvement of education and its outcomes.
- ✦ Gather data on medicine use and safety in Kuwait [e.g. rational use of medicine, ADRs].
- ✦ Assess needs of healthcare professionals and public for achieving best use of medicines ;develop innovative solutions for improvement based on best practice, and current research.
- ✦ Measure impact of our proposed interventions to foster quality improvement of services and patient outcomes.
- ✦ Use the “WHO indicators” for rational use of medication to evaluate practice of prescribing by doctors, dispensing by pharmacist and use of medications by the public.
- ✦ Quantify amount of medication waste as an indicator for irrational use of medication.
- ✦ Involve other partners in Kuwait such as the Environment Public Authority (EPA) to help targeting rational use of medicines to decrease pharmaceutical waste and disposal.
- ✦ Evaluate prescribing practices using audits to compare actual use to national/international guidelines.
- ✦ Evaluate and design dosage regimens using modeling and simulation techniques.

Measurement of the outcomes of Research unit (2016-2017)

- No. of Submitted/accepted/published research articles: 8
- No. of oral and poster conference presentations: 15
- No. of submitted/approved research grants : 2
- No. of organised conferences, seminars, workshops: 9

Collaborative research with local and international research institutions or centers

Clinical Pharmacy Key Performance Indicators (cpKPI) National Registry Pilot Tool- St. Joseph’s Health Care London, Canada. (Dr. Tania Bayoud).

Major research problems faced by researchers in the unit and suggested solutions

The report illustrates the lack of working together as a Unit during the last year. This is mainly due to the fact that allocating time for research has been a great challenge for all members due to several circumstances including the increased teaching load in the undergraduate and add-on PharmD courses and the maternity leaves. For several of the members, educational research is not the main domain of their research. Thus, there is less time to spend on writing manuscripts about this topic. However, by putting our efforts together as a unit, we will surely achieve better results.

Suggested solutions

To recruit additional senior academic staff members in the department.

Future research plans

- ✦ Collecting data on ADR in healthcare settings (general and private hospitals and polyclinics) from organisations where Accreditation Canada International (ACI) was received.
- ✦ Determining the impact of targeted training sessions on the medication reconciliation process among pharmacists at Farwaniya hospital.
- ✦ Completing data analysis from the TARSHĒD campaign.
- ✦ Antimicrobial stewardship and antibiotic use review for a selected clinical pathway.
- ✦ Venous thrombo-embolism prophylaxis in a hospital setting- current practice assessment in surgery.



Current Research Grants

MSc Graduate Research Projects

A Nada (PI), Y Albasarah (Co-I), R Al-Kazemi (MSc Student). YP01/16. Dissolution enhancement of atorvastatin as a model poorly soluble drug. Budget KD 6000.2015-2017. Status: Ongoing.

The aim of the present study is to investigate appropriate techniques to enhance atorvastatin (AT) dissolution, using the co-crystal formation or/and ultrahomogenization. The resulting modifications will be assessed concerning the relevant physicochemical properties, such as solubility, dissolution rate, particle size and shape, thermal profile, etc.; in comparison with the untreated AT. The stability of the developed formulations will be evaluated under different storage conditions to monitor any deviation from the initial characteristics. Furthermore, a comparative in vitro dissolution study of developed tablets formulation(s) against marketed AT tablet brand(s) is foreseen.

K Matar (PI), S Alghanem (Co-I), M Moien (MSc Student). Population pharmacokinetics of topiramate in patients with epilepsy in Kuwait. Budget KD 950 by CGS .2015-2017. Status: Ongoing.

Topiramate (TPM) is a relatively novel antiepileptic drug that is used as monotherapy or an add-on therapy. It is also used as a prophylactic agent for migraine. To optimize the right dose of TPM that gives the best efficacy with minimal side effects, the population pharmacokinetics of TPM will be determined to develop the best fit model to identify factors that influence the pharmacokinetics of TPM and the variability around them. The study is a retrospective for routine therapeutic drug monitoring (TDM) data stored at the TDM unit, Faculty of Medicine (FoM). TPM samples will be collected from 50 -200 pediatric and adult patients with epilepsy from various public hospitals in Kuwait. In addition, patients' demographic data including gender, weight, height and age, concomitant antiepileptic medications, and serum creatinine will be obtained. The data will be collected from patients who have at least one TPM sample measured. Other pharmacokinetic data will be collected including time of sampling, dose, dosage interval or dosing frequency, assay used to analyze samples.

K Matar (PI), B Al-Refai (MSc Student). YP01/17. A quantitative tandem mass spectrometric method for determination of colistin in plasma and its application to a pharmacokinetic study. Budget KD 6000. 2017-2019. Status: Ongoing.

Colistin has been available for clinical use for more than 50 years. However, this medication did not go through the current drug development stages from validating its target, lead optimization to the different phases of studying its safety and efficacy. This resulted in a limited pharmacokinetic data available to guide appropriate dosage regimens, especially for critically-ill patients. Colistin is administered as a prodrug, colistimethate sodium (CMS). Early studies utilized nonspecific microbiological assays, which were not able to differentiate Colistin present in biological samples at the time of collection from that of CMS during the incubation phase. The aim of the present study is to develop and fully validate a method to quantify Colistin and CMS levels in plasma using high performance liquid chromatographic-tandem mass spectrometry (LC-MS/MS) technique and then apply it in experimental animals (rats) to investigate the pharmacokinetic profile of Colistin in this species.

K Orabi (PI), W Renno (Co-I), D Al-Adwani (MSc Student). YP03/15. Neurotherapeutic effects of Ginkgo biloba extract and Ginkgolide. Budget KD 4000. 2015-2017. Status: Ongoing.

Ginkgo biloba is a native Chinese plant that has specific physical and chemical features. A standardized *Ginkgo biloba* leaves extract (EGB761, Tanakan®) consists of 24% flavonoids and 6% terpenes lactones where both are responsible for the biological effect of the extract (GBE). GBE is mainly indicated for Alzheimer's disease, age-related dementia, cerebral insufficiency, intermittent claudication, and tinnitus. Molecular and neuropharmacology studies reported positive results of GBE on promoting peripheral nerve injury in a rat model. GBE was previously investigated to promote sciatic nerve injury; however, crush sciatic nerve injury healing properties have not been reported for the extract in a rat model. In this project, the crush sciatic model will be prepared and the effect of GBE along with the pure ginkgolide B on nerve regeneration on sciatic nerve injury will be evaluated.

K Orabi (PI), M Al-Muteire (Co-I), W Fadel (MSc Student). YP04/16. Bioactivity-directed fractionation to isolate possible anticancer leads from Costus speciosus: potential molecular mechanisms of action. Budget KD 6000. 2016-2018. Status: Ongoing.

To date, only few reports have shown the effect of *Costus speciosus* rhizomes extract on human cancer cell lines which demonstrate the in vitro inhibition of cell proliferation and induction of apoptosis in different cancer cell lines. However, the main mechanism by which *Costus speciosus* extract exerts its anticancer effect is not yet known. In this project the plant material will be extracted and fractionated using C-18 silica gel to get eleven fractions that differ in their polarities. These fractions will be evaluated for their cytotoxic activities. Those fractions with promising activities will be tested to investigate the possible involvement of mitogen activated protein kinases (MAPKs) in apoptosis induced by *Costus speciosus* in breast cancer cells. Three distinct MAP kinase cascades have been identified; extracellular signal-regulated kinases (ERKs), Jun N-terminal Kinase (JNK) and p38. It has been demonstrated that abnormalities in MAPK signaling play a critical role in the development and progression of breast cancer. Using different fractions of *Costus speciosus* extract will enable us to highlight the active lead(s) mediating its apoptotic effect and through which signaling pathway. Fraction(s) show promising activities will be subjected to several chromatographic processes to isolate and purify responsible compounds. The identities of the isolated pure compounds will be established using different spectral techniques, like UV, IR, MS, and 1D and 2D NMR.

AZ El-Hashim (PI), W Masocha (Co-I), F Al-Shamlan (MSc Student). YP05/16. Investigations into the sensitizing effects of Bradykinin on central cough pathways and its signaling mechanisms. Budget KD 6000. 2016-2017. Status: Ongoing.

Chronic cough is a poorly understood and managed clinical problem with a high prevalence rate. Despite the magnitude of the problem, current anti-tussive therapies are mainly ineffective. Bradykinin is well established as a mediator of both acute and chronic pain also been reported to both induce cough and sensitise cough reflex in preclinical animal models and humans. These effects are thought to be mainly due to its action on airway sensory nerves. In this grant proposal, we are investigating if Bradykinin can sensitize the cough reflex via a central action and characterise the pathways by which Bradykinin sensitise the cough reflex. Characterisation of this pathway will not only help us to understand the mechanisms underlying cough hypersensitivity but may result in identification of novel anti-tussive molecular targets that result in more effective cough medication

YA Luqmani (PI), S Al Sabah (Co-I), L Adi (MSc student). YP02/15 Investigating amino acid residues that contribute to the constitutive activity of the glucose-dependent insulinotropic polypeptide receptor. Budget KD 6000. 2015-2016. Status: Completed

The incretin hormones; GIP and GLP-1 are important regulators of metabolism. Both potentiate insulin secretion in a glucose-dependent manner by binding their respective receptors (GIPR & GLP-1R) on pancreatic β -cells. Expressed at comparable levels, GIPR displays significantly higher ligand-independent, or constitutive, activity than GLP-1R. The aim of this project was to identify the amino acid residues that contribute to this constitutive activity. Site-directed mutagenesis was used to make amino acid substitutions in the 6th trans-membrane helical domain of GIPR and the mutated receptors characterized. Reciprocal substitutions were made in GLP-1R. The aim of this work is to provide further insight into the structure and function relationship of this pharmacologically important family of receptors.

YA Luqmani (PI), A Al Rabeea (MSc student). YP02/15 Extracellular vesicles as modifiers of phenotypic behaviour of co-cultured recipient breast cell. Budget KD 5000. 2015-2016. Status: Ongoing

Extracellular vesicles (EVs) are shed by many cells and are being recognised as a form of communication between cells distinct from the better understood cell-free soluble mediators. In pathological conditions such particles originating from abnormal cells may have significant impact by modifying the behaviour of recipient cells with which they interact. The aim of this project is to optimize a method for their isolation from various breast cell lines, visualise their size and structure by confocal and atomic force microscopy and co-culture them with target cells to determine their effect. We will assess changes in the target cells both in terms of morphology and behaviour and their phenotypic expression of genes that are characteristic of the donor cells. The principal objective is to determine whether the aggressive properties of mesenchymal type breast cells can be repressed by EVs originating from either other less aggressive cancer cells or from non-malignant cells.

Co-supervision of students registered outside the Faculty

A Nada (PI), M El-Nabarawy (Co-I), M Amna (Co-I), M Sobhy (Ph.D. Student), Faculty of Pharmacy, Cairo University. A Pharmaceutical Study on fast release dosage forms of a certain drug for Optimization of its Bioavailability. 2016-2017. Status: Ongoing.

The aim of this thesis is to improve the solubility and bioavailability of poorly water soluble drugs (non-steroidal anti-inflammatory, antidiabetic, antihypertensive drugs, etc.) by physical modifications, and thus enhancing drug dissolution and bioavailability. The experimental work in this thesis includes: a) Enhance drug solubility using different methods as solid dispersion, and nanotechnology, etc.; b) Evaluate the physical, chemical, and pharmaceutical properties of the drug; c) Stability study of the optimum formulations; and d) Bioavailability study for the best chosen formula compared with the commercially available product(s) in human volunteers.

M Abu Salim (PI), AZ El-Hashim (Co-I), H Amoudy (Co-I), H Safar (PhD student) .YM06/15 from RS, Kuwait University. Immune response to major antigenic proteins of Mycobacterium tuberculosis-specific regions and their role in immunomodulation of asthma in mice. Budget 18,000 KD. 2015 – 2018. Status: On going

Tuberculosis (TB) and asthma are among the major health problems of local and international concerns. The

control of these diseases requires appropriate preventive measures, including vaccines. In both diseases, T helper 1(Th1) cytokines provide protection whereas Th2 and Th17 cytokines contribute to pathogenesis. Thus, a common vaccine, capable of inducing Th1 cytokines preferentially, may be useful in the prevention of both diseases. In this work, we propose to study these proteins for the type of immune response induced in mice by quantifying the marker cytokines secreted by Th1, Th2, Th17 and T-reg cells using various delivery systems, i.e. chemical adjuvants, mycobacteria and plasmid DNA. This study may identify antigens/candidate vaccines useful for protection against both TB and asthma.

M Waheedi (Co-I), M Eldeeb (MSc student). Barriers to pharmacists counseling patients with diabetes in primary health care sector in Kuwait. Co-advisor for MSc in Diabetes Care, Education and Management, The University of Dundee (2016). Status: Completed

This MSc project aimed to explore barriers to pharmacists' counseling patients with diabetes in Kuwait and suggests solutions or strategies that could help improve the situation. A qualitative approach was carried out using three focus groups with pharmacists in primary healthcare in capital health area of Kuwait. The results were triangulated with semi-structured interviews with 3 pharmacists' supervisors. Four main themes resulted from the focus groups: 1) pharmacist related barriers, 2) negative attitude towards the pharmacist's role, 3) organizational barriers, and 4) lack of government support. Strategies were identified by participants, in the light of the findings, to tackle the barriers and promote an effective counseling system for patients with diabetes in the primary healthcare sector.

Faculty Research Projects

MA Khajah (PI), YA Luqmani (Col). PT01/14 from RS, Kuwait University. Studies on the role of the Na⁺/K⁺-ATPase channel in endocrine resistant breast cells. Budget: KD 66,100. 2015-2018. Status: On-going.

Na⁺/K⁺-ATPase (NKP) is an important ion transporter pump as well as an integral signal transduction molecule, whose expression profile is altered in various tumours including breast. In this proposal, we aim to study the effect of inhibiting the NKP (using two chemical inhibitors; ouabain and 3,4,5,6-tetrahydroxyxanthone, as well as siRNA-mediated knockdown), on various cellular functions (such as proliferation, motility, *in vitro* and *in vivo* invasion) and its contribution in modulating various signaling critical in breast cancer pathogenesis. This pump may offer a novel future therapeutic target to be used in breast cancer patients who have developed metastasis, aiming to improve therapeutic outcomes and enhance survival rate.

A Z EL-Hashim (PI), MA Khajah (Col), K Orabi (Col) and HG Sary (Contributor). P11613PT01 from KFAS. Investigations into the inflammatory mechanisms of onion bulb extract and its active constituents in animal models of inflammation. Budget: KD 97,800. 2016-2019. Status: On-going.

We have preliminary data showing that onion extract (OE) has anti-inflammatory effects in two animal models (asthma and inflammatory bowel disease). However, the molecular pathways/mechanism by which OE and/or its metabolites mediate these effects has not been characterised. This grant aims to provide both observational, detailed mechanistic and therapeutic information on the effects of OE or its metabolites on two different inflammatory disease models. Our studies aim to 1) identify the molecular pathways via which onion and/ or its metabolites produce their anti-inflammatory effects, 2) assess if OE and/or its metabolites can reverse established inflammation in models of asthma or IBD and, 3) determine whether administration of OE and/or its metabolites prior to disease induction can affect the disease outcomes.

M AL-Soraj (PI), MA Khajah (Col), YA Luqmani, A Roidl (Contributors). PP01/14 from RS, Kuwait University. Restoration of estrogen receptor functionality into mesenchymal-like invasive breast cancer cells. Budget: KD 91,000. 2016-2019. Status: On-going.

We aim to restore expression of estrogen receptor (ER) and E-cadherin these genes permanently by transfection of appropriate constructs into the ER- tumour cells as well as transiently by exposure to de-methylating agents and histone deacetylase inhibitors. We will also re-express E-cadherin and down-regulate the principal mediators of EMT in our ER silenced cell lines to determine whether EMT that has been induced in these cells can be reversed at points further along the pathway. Another strategy will be to introduce ER protein directly into the ER silenced cells to bypass the siRNA mediated blockade. We will then assess their properties with respect to morphological behaviour and gene expression profile.

BA Qabazard (PI), W Masocha (Col). PT04/16 from RS, Kuwait University. Evaluation of the activity of hydrogen sulfide in a rodent model of chemotherapy-induced neuropathic pain. Budget KD 4000. 2017 – 2019. Status: On-going.

Paclitaxel is an important chemotherapeutic agent for treating metastatic breast cancer and other solid tumors. However, painful peripheral neuropathy is a common side effect of paclitaxel therapy for which no clinically proven drugs are available, except duloxetine which has moderate recommendation for treatment of chemotherapy-induced neuropathic pain (CINP). Recently, a role for hydrogen sulfide (H₂S) in nociception modulation has been suggested. The role of H₂S in relieving CINP is unknown, and whether H₂S can play a role in modulating CINP remains to be identified. Our preliminary results suggest that the novel H₂S donor GYY4137 has an antihyperalgesic effect in mice with paclitaxel-induced thermal hyperalgesia. Thus, we will utilize GYY4137 to investigate the potential of H₂S donors to prevent or alleviate pain in a mouse model of CINP.

W Masocha (PI) and NF Al-Tannak (Col). PT02/15 from RS, Kuwait University. Determination of the role of the endocannabinoid system in the enhanced antinociceptive activity of the combination of indomethacin with minocycline in rodent models of pain. Budget: 89,900 KD. 2016-2019. Status: On-going.

Previously, we observed that co-administering indomethacin plus minocycline (IPM) to mice results in enhanced anti-nociceptive effects. The objective of this proposal is to examine how the endocannabinoid system play a role in the anti-nociceptive effects of the IPM combination. This will be evaluated by measuring the expression of endocannabinoid molecules in rodents with paclitaxel-induced neuropathic pain (PINP) treated with IPM; and also by administering antagonists of the cannabinoid receptors together with IPM to rodents with PINP using the hot plate test and dynamic plantar aesthesiometer. This study will provide us with knowledge of the mechanism of the IPM's synergistic effects and could also provide us a platform for further use of evidence based drug combination in the management of neuropathic pain.

N Al-Tannak (PI), OA Phillips (Col). PC01/16 from RS, Kuwait University. Development and validation of analytical method for analyzing a new antibacterial N-nitrofurancarboxyl glycinyl substituted oxazolidinone. Budget KD 2,500, 2016-2017. Status: On-going.

Oxazolidinones possess potent antibacterial activity against Gram-positive bacteria pathogens such as methicillin-resistant *Staphylococcus aureus* (MRSA), penicillin-resistant *Streptococcus pneumoniae* (PRSP), vancomycin-resistant enterococci (VRE) and *Mycobacterium tuberculosis*. We recently identified that a novel glycinyl-oxazolidinone derivative, PH 189, synthesized in our lab showed potent *in vitro* antibacterial activity against Gram-positive pathogenic bacterial strains, and plans are on-going to investigate *in vivo* efficacy in a *M. tuberculosis* mouse infection model. This proposal will develop a validated analytical method to indicate accurately and pre-

cisely the concentration of PH189 in plasma and in the presence of other biological compounds, and will indicate its instability/stability by using a fast and reliable LC-MS instrumental technique.

J Lemay (PI), M Waheedi (Col), T Bayoud (Contributor), S Alshargawi (Contributor). PT02/16 from RS, Kuwait University. Beliefs about medication: A Kuwait Perspective. Budget KD 3900, 2016-2017. Status: Ongoing.

Medicines are an important tool in managing many chronic illnesses and adherence to those medicines is crucial to achieve therapeutic success. Several factors including non-intentional and intentional factors influence treatment adherence. These factors were characterized in some populations, however, in Kuwait they were not identified. This project aims at documenting the beliefs of patients in Kuwait about their medications and how those beliefs are correlated with adherence to their treatment. In this study, 1295 patients with chronic diseases from 38 primary care polyclinic at different regions in Kuwait, were recruited for 12 months. Patients will be asked to fill a "beliefs in medication questionnaire" (BMQ-G122). Study findings will allow development of tailored strategies to help increase medication adherence.

A Albassam (PI), K Matar (Col), J Albararak (Col), A Kaseb (Contributor). PR01/16 from RS, Kuwait University. Pharmacokinetic investigation of black seed oil in healthy volunteers. Budget KD 4000, 2016-2017. Status: Ongoing.

The aim of this project is to determine the pharmacokinetic parameters of black seed oil active ingredient, thymoquinone (TQ). The black seed herb containing TQ, has been used for many years as part of herbal medicine in several diseases including cancer, epilepsy, liver diseases and GI ulcer, however, the mechanism of action and PK behavior are still unknown. In this study we will conduct the first human trial to evaluate the pharmacokinetic profile of TQ after a single oral dose of black seed oil capsules to healthy adult volunteers.

KY Orabi (PI), M Abaza (Col), YA Luqmani (Contributor), Al-Attayah R (Contributor). PC01/12 from RS, Kuwait University. Investigation into selected terpenes as anticancer leads. Budget KD 55,056, 2013-2016. Status: Completed.

Natural products play a significant role in the drug discovery and development. With more than 23,000 known compounds, terpenes are the largest class of natural products. Many of these terpenes are used for medicinal purposes. Finding new anticancer therapeutics along with understanding their molecular mechanisms represent new opportunities for treating cancer. Previously, several terpenes; saudinolide, plectranthone and psiadin, were isolated from plants in quantities enough to evaluate their anti-mitogenic activities. The preliminary results were encouraging to explore, in-depth, their anti-mitogenic activities on human cancers and examine the cellular and molecular mechanisms. This project aims at isolating these terpenes and evaluate their effects on cancer cell growth, cell cycle, apoptosis and endoplasmic reticulum and NFRB activities.

Co-investigator in projects outside the Faculty

MH Yousif (PI), BA Qabazard (Col). MR01/17 from RS, Kuwait University. A study on the protective effect of chronic treatment with an H₂S donor on type-1 diabetes-induced impaired reactivity of the perfused mesenteric vascular bed in SD rat. Budget KD 4000. Duration: 2017 – 2018. Status: Ongoing.

Several studies have reported the presence of biological mechanisms associated with diabetes mellitus that can potentiate the risk of cardiovascular disease in diabetic patients. The direct economic problem associated with diabetes mellitus is attributed to the occurrence of macro- and

microvascular complications including coronary artery disease, myocardial infarction, hypertension, impaired reactivity of the blood vessels, retinopathy, end-stage renal disease and neuropathy. Only few studies have examined the effects of *in vivo* administration of the gaseous mediator hydrogen sulfide (H₂S) on the development of complications associated with type-1 diabetes. In this project, we will investigate the therapeutic effectiveness of the slow-releasing H₂S donor GYY4137 [Morpholin-4-ium (4-methoxyphenyl)(morpholino) phosphinodithioate] on the impaired vascular function of the mesenteric vasculature in streptozocin (STZ)-induced diabetic rats.

MS Abaza (PI), KY Orabi (Co-I), KA ElSayed (Co-I), A Bahman (Co-I), AY Elnagar (Contributor) and R Al-Attayah (Contributor). SL02/10 from RS, Kuwait University. Computer Modeling-Assisted Design and Semisynthesis of Natural Flavonols Analogues as Potent Proteasome Inhibitors in Vitro, in male and female cancer cells: Apoptosis Inducing and Chemo-Sensitization Potencies. Budget: KD 77,050. 2014 – 2018. Status: Ongoing.

This project is designed to study the potential of natural flavonols and their semisynthetic analogues, which were pre-designed and examined by *in-silico* docking, to inhibit proteasomal activity *in vitro* in a cell-free system. In addition, their ability to target the ubiquitin-proteasome pathway (UPP) in human male and female tumors, including prostate, breast, and ovary, cancer cell lines is evaluated. Moreover, this project evaluates the antiproteasomal activity and the underlying molecular mechanisms of action through analysis of genes controlling cell cycle, apoptosis and tumor signal transduction. Studying natural phenolics and their *in-silico* pre-designed semisynthetic analogues may lead to the identification of a new generation of proteasome inhibitors.

S Akhtar (PI), AZ El-Hashim, M Yousef, I Benter (Co-Is). MR01/13 from RS, Kuwait University. Characterization of Polyamidoamine dendrimer-mediated modulation of EGFR/ErbB1 signaling in vitro and in vivo: The effect of dendrimer generation, surface chemistry and branching architecture. Budget: KD 86,800. 2013-2017. Status: Ongoing

Polyamidoamine (PAMAM) dendrimers were the first complete nanosized dendrimer family to be synthesized, characterized and commercialized and have been proposed as carriers for gene and siRNA/oligonucleotide delivery. Drug delivery systems are typically used to improve the stability, bioavailability and pharmacokinetics of pharmacologically active agents and have traditionally been thought to be biologically inert. In this project we are investigating the impact of two commercially available PAMAM dendrimers, with the same cationic (—NH₂) surface chemistry, but with different branching architectures (fragmented (SF) vs intact (PF)), on their ability to modulate *in vivo* phosphorylation of several signaling molecules such as MAPKs, as well as the upstream EGFR, in disease models such as the diabetic rat kidney.

C Ezeamuzie (PI), OA Phillips (CoI). MR01/14 from RS, Kuwait University. A study of oxazolidinone hydroxamic acid derivatives as novel inhibitors of leukotriene biosynthesis. Budget KD 94,873. 2015 –2018. Status: On- going.

We recently demonstrated that a series of oxazolidinone hydroxamate derivatives have potent inhibitory effect on the release of LTC₄ following antigen/IgE-mediated activation of mast cells. In this research proposal, we plan to synthesize a series of hydroxamate oxazolidinone analogues and characterize their biological activity, structure-activity relationships and mechanism of action, focusing on their effects on LT release during IgE/antigen-dependent and -independent activation of mast cells *in vitro* and *in vivo*. Cultured and IgE-sensitized rodent mast cells, as well as human blood leukocytes will be stimulated *in vitro* and the effect of the compounds on the release of LTs and degranulation determined. The mechanism of action of the lead compound will be investigated by studying its effect on the activity of the 5-LO enzyme relative to cyclo-oxygenase (COX) enzymes and other enzymes or signaling molecules in the AA metabolic pathway.

Facets of Pharmaceutical Research & Practice

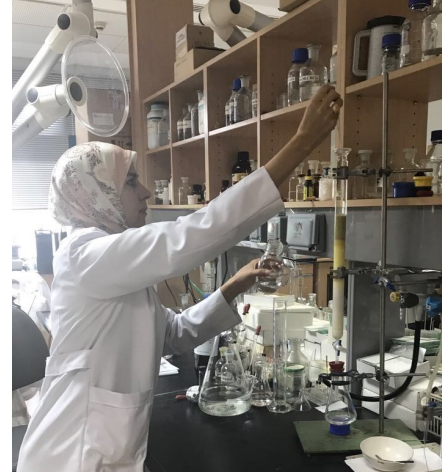
Pharmaceutical Formulations



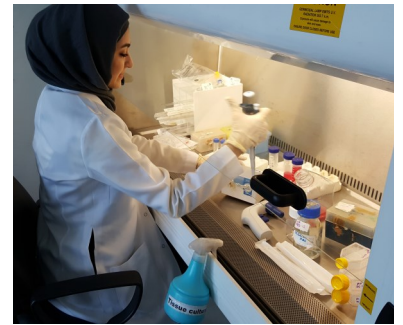
Patient simulation



Organic Chemistry



Cell culture



Neuropharmacology



Hypoxia chamber



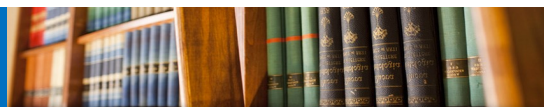
Pharmaceutical Quality Control



Consultation Office



List of Publications



Al-Hajri T, Novotny L (2017). Natural and synthetic retinoids in health and disease and role of pharmacists in preventing their side effects. *Res J Pharm Biol. & Chem Sci* 8: 1362-1373.

Al Haqan AA, Al-Taweel DM, Awad A, Wake DJ (2017). Pharmacists Attitudes and Role in Diabetes Management in Kuwait. *Med Princ Pract* 26(3):273-9.

Al-Musawi A, Matar K, Kombian SB, Andersson L. (2016). Blood concentration of prilocaine and lidocaine after the use of topical anesthesia (Oraqix®) in lacerated wounds. *Dental Traumatology*. 32 (6):502-506.

Alsaleh FM, Alattar AT, Abdulla KA, Muzaffar T, Al-Muaili TN (2016). The Use of Insulin Pumps in Adults with Type 1 Diabetes – Experience from a Secondary Care Hospital in Kuwait. *Journal of Diabetes Research and Therapy* 2(4). doi <http://dx.doi.org/10.16966/2380-5544.124>.

Alsaleh FM, Alzaid SW, Abahussain EA, Bayoud T, Lemay J (2016). Knowledge, attitude and practices of pharmacovigilance and adverse drug reaction reporting among pharmacists working in secondary and tertiary governmental hospitals in Kuwait. *Saudi Pharmaceutical Journal*, 25(6): 830-837.

Alsaleh FM, Lemay J, AL Dhafeeri RR, AlAjmi S, Abahussain EA, Bayoud T (2017). Adverse drug reaction reporting among physicians working in private and government hospitals in Kuwait. *Saudi Pharmaceutical Journal*. <https://doi.org/10.1016/j.jsps.2017.09.002>

Alsayegh F, Waheedi M, Bayoud T, Al Hubail A, Al-Refaei F, Sharma P (2017). Anemia in diabetes: Experience of a single treatment center in Kuwait. *Primary Care Diabetes*11(4): 383-388.

Awad A, Al-Haqan A, Moreau P (2017). Motivations, career aspirations, and learning experience of students in the Pharmacy program at Kuwait University: a tool to guide curriculum development. *Current Pharm Teaching and Learning* 9: 332-338.

Awad A, Osman N, Altayib S (2017). Medication adherence among cardiac patients in Khartoum State, Sudan: a cross-sectional study. *Cardiovasc J Afr* 28:1-7.

Azemi A A and Sharma J N (2017). Renal bradykinin (BK) system as potential drug target for salt- sensitive hypertension. *EC Pharmacology and Toxicology* 3: 182-197.

*El-Hashim AZ, Khajah MA, Renno WM, Babyson RS, Uddin M, Benter IF, Ezeamuzie C, Akhtar S (2017). Src-dependent EGFR transactivation regulates lung inflammation via downstream signaling involving ERK1/2, PI3Kδ/Akt and NFκB induction in a murine asthma model. *Scientific Reports* 30;7(1):9919.

El-Hashim AZ, Jaffal SM (2017). Cough reflex hypersensitivity: A role for neurotrophins. *Exp Lung Res* 93-108.

Etman M, Shekedef M, Nada AH, Ismail A (2017), Preparation and in-vitro Evaluation of Meloxicam Co-Ground Mixtures, *Journal of Applied Pharmaceutical Sciences*, 7(3):31-39.

Hedaya MA, Thomas V, Abdel-Hamid ME, Kehinde EO, Phillips OA (2017). A validated UPLC-MS/MS method for the analysis of linezolid and a novel oxazolidinone derivative (PH027) in plasma and its application to tissue distribution study in rabbits. *J Liq Chromatogr B*. 1040:89-96.

* Khajah MA, Ananthalakshmi KV, Edafiogho I (2016). Anti-Inflammatory properties of the enaminone E121 in the dextran sulfate sodium (DSS) colitis model. *PLoS One* 20;11(12): e0168567.

* Khajah MA, Fateel MM, Ananthalakshmi KV, Luqmani YA (2017). Anti-inflammatory action of angiotensin 1-7 in experimental colitis may be mediated through modulation of serum cytokines/chemokines and immune cell functions. *Developmental and Comparative Immunology*. 74: 200-208.

Khajah MA (2017). The potential role of fecal microbiota transplantation in the treatment of inflammatory bowel disease. *Scand J Gastroenterol* 7:1-13.

Khajah MA, Luqmani YA (2016). Role of Aquaporins in Breast Cancer Progression and Metastasis, Tumor Metastasis, Dr. Ke Xu (Ed.), InTech, DOI: 10.5772/64446, <http://www.intechopen.com/books/tumor-metastasis/role-of-aquaporins-in-breast-cancer-progression-and-metastasis>.

Khajah MA, Mathew PM, Luqmani YA (2017). Inhibitors of PI3K/ERK 1/2/p38 MAPK show preferential activity against endocrine resistant breast cancer cells. *Oncology Research* 25(8): 1283-1295.

Mahmoud F, Al-Ozairi E, Dashti A, Novotny L, Ibrahim B, Abdel-Hamid M (2016). Effect of tea consumption on inflammatory cytokines and metabolic biomarkers in type 2 diabetes patients. *J Ethnopharmacol* 194: 1069-1077.

*Masocha W (2016). Gene expression profile of sodium channel subunits in the anterior cingulate cortex during experimental paclitaxel-induced neuropathic pain in mice. *Peer J* 4:e2702.

*Masocha W, Parvathy S S (2016). Preventative and therapeutic effects of a GABA transporter 1 inhibitor administered systemically in a mouse model of paclitaxel-induced neuropathic pain. *Peer J* 4:e2798.

*Munawar N., Oriowo M.A. and Masocha W. (2017). Anti-hyperalgesic Activities of Endocannabinoids in a Mouse Model of Antiretroviral-Induced Neuropathic Pain. *Front. Pharmacol* 8:136.

Nada AH, Bandarkar F, Albasarah Y (2017), Enhancing of Ibuprofen Dissolution Rate by Nano-suspension Using Ultra-homogenization Technique, *Asian Journal of Pharmaceutics* 11 (1):S14-S23.

Novotny L, Abdel-Hamid ME, Hunakova L (2017). Anticancer potential of β -sitosterol. *Int J Pharmacol Pharmacother* 129 (2): <https://doi.org/10.15344/2017/2456-3501/129>.

Patrick A, Samuel A, Dorcas OS, Kennedy K, Emelia OB, Thomas KK, and Kombian SB (2017). Extract of *Synedrella nodiflora* (L) Gaertn exhibits antipsychotic properties in murine models of psychosis. *BMC Complementary and Alternative Medicine (BCAM)*, 17 (1): 389-403.

Sharma J N (2017). The status of bradykinin system in relation to hypertension. *Austin Hypertension* 2: 1010.

Waheedi M, Awad A, Hatoum H, Enlund H (2017). The relationship between patients' knowledge of diabetes therapeutic goals and self-management behavior. *Int J Clin Pharm* 39(1):45-51.

Waheedi M, Jeragh F, Awad A, Enlund H (2017). "Patients' understanding is the problem": physicians' views of nonadherence among Arabs with type 2 diabetes. *Patient Preference and Adherence* 11: 1413-1421.

Zaghloul A, Lila A, Abdallah F, Nada A (2017). Preparation and In Vitro/In Vivo Evaluation of metformin hydrochloride rectal dosage forms for treatment of patients with type II diabetes. *J Drug Target*.25(5):463-470.

(* in Q1 journals)



List of Conference Presentations

Oral Presentations

Awad AI, Alsaleh FM, Al-Nafisi H (2017). Public Knowledge and Preventive Screening for Cardiovascular disease and Type 2 Diabetes in Kuwait. 2nd International Cardiology and Cardiovascular Medicine Summit, Bangkok, Thailand.

Etman M, Shekedef M, Nada AH, Ismail A (2016). Preparation and in-vitro evaluation of meloxicam co-ground mixtures. 6th World Congress on Bioavailability and Bioequivalence: BA/BE Studies Summit, Chicago, USA.

Khajah MA, Fateel MM, Ananthalakshmi K, Luqmani YA (2016). Anti-inflammatory effect of angiotensin 1-7 (Ang 1-7) in the mouse DSS colitis model. 9th Euro-Global Gastroenterology Conference, Valencia, Spain.

Khajah MA, McCafferty DM (2016). The role of granulocyte-macrophage colony stimulating factor (GM-CSF) in colitis. 9th Euro-Global Gastroenterology Conference, Valencia, Spain.

Kombian SB (2016). Common drugs of abuse in Kuwait: why and why not?. KuPSA Conference: Addiction and Treatment at a Glance, Kuwait University, Kuwait.

Kombian SB, (2017). *Drug effects on CNS*. Waei Conference: Drugs, Addiction Causes and Treatment, Kuwait.

Luqmani YA and Al Ateyah A (2016). Influence of estrogen receptor silencing on miRnome of breast cancer cell lines. 21st World Congress on Advances in Oncology and 19th International Symposium on Molecular Medicine, Greece.

Moreau P (2016). Dean's leadership: what is expected and how well they feel prepared. FIP-AIM forum, FIP World Congress, Buenos Aires, Argentina.

Moreau P (2016). How to translate a competency framework into a competency-based curriculum: experience from Kuwait. Congress of the Association of the Colleges of Pharmacy of the Arab World, Beqaa, Lebanon.

Moreau P (2017). Mechanisms of vascular calcification. Keynote lecture at the 22nd Poster Conference of the Health Sciences Center, Kuwait University, Kuwait.

Moreau P (2017). Re-engineering the Pharmacy Curriculum in Kuwait: Moving from a competency framework to a competency-based education. 4th Future University of Egypt Conference of Pharmaceutical Sciences, New Cairo, Egypt.

Nada AH (2017). Quality Control Tests: Significance for Pharma Industry and Regulatory Bodies. 4th Future University International Conference of Pharmaceutical Sciences, Cairo, Egypt.

Novotny L, Mikus P (2016). Hyphenated HPLC-Q-FOTMS HILIC method for analysis of bleomycins A2 and B2 in an intravenous infusion and plasma. Pharma Middle East International Conference, Dubai, UAE.

Orabi KY (2016). Legal Highs, Are They Legal? Drugs Addiction and Treatment: at a Glance, One Day Conference, Kuwait.

Orabi KY (2017). Synthetic Cannabinoids. Waei Conference: Drugs Addiction, Causes and Treatment, Kuwait.

Phillips OA, Sharaf LH, Thomas V, D'Silva RJ (2017). Anti-mycobacterial Activity of Novel D-/L-alaninyl 5-(1H-1,2,3-triazolyl) Methyl Oxazolidinones. International Conference on Progressive PharmSciences: Technology, Research and Development, EuroPPS-2017. Barcelo Valencia, Spain.

Sharma J N (2017). Recent developments in the kallikrein-kinin system with hypertension and diabetes. Annual Conference on Heart Diseases, Toronto, Canada.

Waheedi S, Alhadlaq N (2017). Patients' Use and Perception of Patient Information Leaflets. 23rd Dubai International Pharmaceuticals and Technologies Conference. Dubai, UAE .

Poster Presentations

Al Sharqawi S, Lemay J, Abahussain E, Bayoud T, Waheedi M (2017). Beliefs about Medications: A Kuwait Perspective. The 6th Kuwait International Pharmacy Conference, Kuwait.

AlAjmi SH, Alsaleh FM, Abahussain EA, Lemay J, Bayoud T. (2017). Knowledge, attitude and practice of pharmacovigilance and adverse drug reactions reporting among private hospital physicians in Kuwait. 6th Kuwait International Pharmaceutical Conference (KIPC), Kuwait.

Alghanem S, Ibrahim A, Gheith O, Awad AI (2017). Evaluation of Tacrolimus Dosage Guideline and Monitoring in Kidney Transplant Recipients. 22nd Health Sciences Poster Conference, Kuwait.

Al-Hasawi N, Novotny L, Phillips OA, Luqmani Y, Abdel-Hamid ME, Orabi KY, Tannak NF (2017). Consistency in students' performance in courses of Department of Pharmaceutical Chemistry. 6th Kuwait International Pharmacy Conference (KIPC 2017), Kuwait.

Almufarreh SA, Udo EE, Novotny L, Paulikova H, Kozurkova M. Phillips OA (2017). Antibacterial and antiproliferative activity of novel triazolyl oxazolidinones, 22nd HSC Poster Conference Kuwait University, Kuwait.

Al-Mutairi M, Lemay J, Alsaleh FM, Abahussain EA, Bayoud T (2017). Knowledge, attitude and practice of pharmacovigilance and adverse drug reactions of primary care pharmacists in Kuwait. 6th Kuwait International Pharmaceutical Conference (KIPC), Kuwait.

Alsaleh FM (2017). Knowledge, attitude and practices of pharmacovigilance and adverse drug reaction reporting among pharmacists working in secondary and tertiary government hospitals in Kuwait. World Congress on Patient Safety and Healthcare Quality, London, UK.

Alsaleh FM, Al-Dhafeeri RR, Alsaleh FM, Abahussain EA, Lemay J, Bayoud T (2017). Knowledge and awareness of pharmacovigilance and adverse drug reactions among physicians in Kuwait. 6th Kuwait International Pharmaceutical Conference (KIPC), Kuwait.

Al-Tabba' R, Khajah MA, Masocha W (2017). Enhancement of the anti-cancer activities of paclitaxel by COL-3 in human breast cancer cell lines, 22th Health Sciences Poster Conference, Kuwait University, Kuwait.

Alzaid SW, Alsaleh FM, Abahussain EA(2017). Knowledge, attitude and practice of Pharmacovigilance and adverse drug reaction reporting among pharmacists working in secondary and tertiary governmental hospitals in Kuwait. 6th Kuwait International Pharmaceutical Conference (KIPC), Kuwait.

Aseel A, Haidar B, and Orabi K Y (2017). Isolation and Identification of Cannabimimetics in Legal Highs. 10th Faculty of Allied Health Sciences Annual Student Research Poster Day, Kuwait University, Kuwait.

Brtko J, Toporova L, Macejova D, Hunakova L, Novotny L, Bobalova J, Dvorak Z (2017). Nuclear retinoid X receptors and adverse role of their triorganotin-based agonists in organism, GenTox, Smolenice, Slovak Republic.

Buresli L, Lemay J, Alsaleh FM, Abahussain EA, Bayoud T (2017). Knowledge, attitude and practice of pharmacovigilance and adverse drug reactions of primary care physicians in Kuwait. 6th Kuwait International Pharmaceutical Conference (KIPC), Kuwait.

Eldeeb AM, Muir F, Waheedi M (2017). Barriers to pharmacists counseling patients with diabetes in primary health care sector in Kuwait. The 6th Kuwait International Pharmacy Conference, Kuwait.

El-Hashim AZ, Khajah MA, Benter I, Babyson R, Akhtar S, Uddin M (2017). Epidermal growth factor (EGF) receptor and Src kinase activation are essential for the development of allergic airway responses. 22th Health Sciences Poster Conference, Kuwait University, Kuwait.

El-Hashim AZ, Khajah MA, Renno WM, Babyson RS, Uddin M, Benter IF, Ezeamuzie C, Akhtar (2017). Src-dependent EGFR transactivation regulates lung inflammation via downstream signaling involving ERK1/2, PI3K δ /Akt and NF κ B induction in a murine asthma model. American Thoracic society, Washington DC, USA.

Etman M, Gamal M, Nada AH, Shams-Eldeen M (2016). Oral Disintegrating Tablets of Desloratadine, AAPS Annual Meeting and Exposition, Denver Colorado, USA.

Etman M, Shekedef M, Nada AH, Ismail A (2016). Preparation and in-vitro evaluation of meloxicam co-ground mixtures. 21st HSC Poster Conference, Kuwait University, Kuwait.

Hanna OL, Al-Taweel DM, Awad AI (2017). Evaluation of Medication Use in Elderly Patients. 22nd Health Sciences Poster Conference, Kuwait University Kuwait.

Hedaya MA, Thomas V, Abdel-Hamid ME, Kehinde EO, Phillips OA (2016). Enhancing the Bioavailability of Two Antibacterial Oxazolidinone Derivatives in the Rabbits Using SMEDDS. AAPS Annual Meeting, Denver, CO, USA.

Katoue MG, Awad AI, Kombian SB (2017). Role of community pharmacists in the prevention and management of the metabolic syndrome in Kuwait. First International Congress of Kuwait Endocrine Society (1st ICKENS) and 8th Update on Endocrinology and Metabolism (8th UEM), Kuwait.

Katoue MG, Baghdady M, Rassafiani M, Al-Jafar E, Bouzubar F, Moreau P (2017). Development of competency-based interprofessional education curriculum at the Health Sciences Centre of Kuwait University. Twenty second Health Sciences Center Poster Conference, Kuwait University, Kuwait.

Kombian SB, Nashawi H, Bartl T, Novotny L. Oriowo MA (2017). Age-dependent effects of TH-9 on synaptic plasticity in the rat hippocampus in vitro. 12th Gottingen meeting of the German Neuroscience Society, Gottingen, Germany.

Lemay J, Al-Mutairi M, Alsaleh F, Abahussain E, Bayoud T. Knowledge, Attitudes and Practices on

Pharmacovigilance and Adverse Drug Reactions Reporting among Primary Care Pharmacists in Kuwait; 4th FUE International Conference of Pharmaceutical Sciences, 31 Jan-2 Feb 2017, Cairo, Egypt.

Masocha W, Munawar N, Oriowo MA (2017). Anti-hyperalgesic Activities of Endocannabinoids in a Mouse Model of Antiretroviral-Induced Neuropathic Pain. 13th SONA International Meeting, Entebbe, Uganda.

Masocha W, Parvathy SS (2016). Systemic administration of a GABA transporter 1 inhibitor attenuates established paclitaxel-Induced neuropathic pain In mice. The 16th World Congress on Pain, Yokohama, Japan.

Munawar N, Oriowo MA, Masocha W (2017). The role of the endocannabinoid system in a mouse model of antiretroviral-induced neuropathic pain. 22nd Health Sciences Poster Conference, Kuwait University, Kuwait.

Orabi KY, Mohamed A, and Susan K (2017). Investigation into Selected Terpenes as Anticancer Leads, 17th Annual International Conference on the Science of Botanicals and 6th Annual Interim American Society of Pharmacognosy Meeting, Oxford, MS, USA.

Orabi KY, Mohamed A, Khalid E, Ahmed E, and Samar F (2017). Flavonols Derivatives as Proteasome Inhibitors: In Silico Design and Synthesis", The 57th Annual Meeting of the American Society of Pharmacognosy, Portland, USA.

Phillips OA, Sharaf LH, Thomas V, D'Silva RJ (2017). In vitro antimycobacterial activity of novel *D/L*-alaninyl 5-(1*H*-1,2,3-triazolyl)methyl oxazolidinones. 22nd Health Sciences Poster Conference, Kuwait.

Qabazard B, Yousif MH, Phillips OA, Anjilivilayil C (2017). Role of Nitric Oxide and ATP-Sensitive K⁺ Channels in Mediating Pharmacological Actions of GYY4137 in Isolated Carotid Artery and Corpus Cavernosum of SD Rats, 22nd Health Sciences Poster Conference, Kuwait University, Kuwait.

Safar H, Amoudy H, El-Hashim A, Mustafa AS (2017). Molecular Cloning, Expression, Purification and Immunological Characterization of Low Molecular Weight *Mycobacterium tuberculosis* Proteins in Mice. 22nd Health Science Poster conference, Kuwait University, Kuwait.

Sary HG, Sharaky M and Orabi KY (2017). Cytotoxic Activity of *Launaea nudicaulis* Alcoholic Extract. 22nd Health Sciences Centre Poster Conference, Kuwait University, Kuwait.

Waheedi S, Almuddhi A (2017). Evaluation of patient information leaflets provided with the most common anti-hypertensive agents used in Kuwait; a comparative study with United Kingdom. International Pharmaceutical Federation (FIP) congress. Seoul, South Korea.

Yousif M H, Qabazard B, Anjilivilayil C (2017). Hydrogen sulfide donor produced nitric oxide-dependent as well as K_{ATP}-mediated relaxation and attenuated diabetes-induced impaired reactivity of the rat corpus cavernosum, FASEB Science Research Conference, Cambridge, UK.

Yousif MH, Qabazard B, Anjilivilayil C, Phillips OA (2017). *Ex vivo* Incubation with H₂S Donor Attenuates Diabetes-Induced Impaired Reactivity in Isolated Carotid Artery and Corpus Cavernosum of SD Rats, 22nd Health Sciences Poster Conference, Kuwait University, Kuwait.

Zaghloul A, Lila A, Abdallah F, Nada A (2017). Probuocol self-emulsified drug delivery system: Stability and bioavailability assessment in human volunteers. *International Congress and Exhibition on Pharmacy, Dubai, UAE.*

Awards & Recognitions

Best Poster Awards

Almufarreh SA, Udo EE, Novotny L, Paulikova H, Kozurkova M. Phillips OA (2017): “Dr. Nael Al-Naqeeb Award for Undergraduate student research Category”. 22nd Health Sciences Poster Conference, Health Science Center, Kuwait.

Alsaleh FM (2017). Knowledge, attitude and practices of pharmacovigilance and adverse drug reaction reporting among pharmacists working in secondary and tertiary government hospitals in Kuwait. World Congress on Patient Safety and Healthcare Quality, London, UK.

Safar HA, Amoudy H, El-Hashim A, Mustafa AS (2017). Live recombinant *Mycobacterium smegmatis* as an antigen delivery system for the induction of antigen-specific and protective cellular immune responses in mice, 22nd Health Sciences Poster Conference, Health Science Center, Kuwait.

Safar HA, El-Hashim A, Amoudy H, Mustafa AS (2017). Evaluation of a *Mycobacterium tuberculosis*-specific protein Rv3619 for the induction of antigen-specific and protective cellular immunity using various antigen delivery systems in mice. 10th Student Research Day Faculty of Allied Health, Kuwait University

Individual contributions

Pierre Moreau

- Leadership development for academic staff and pharmacy students. FIP webinar series (Academic section). October 2016.
- Leadership development for deans and academic staff. FIP webinar series (FIP-AIM), November 2016.

Pierre Moreau & Tania Bayoud

Preceptor training for the add-on PharmD. Two-day workshop on general preceptor skills and assessment of PharmD students, May-August 2017, Faculty of Pharmacy, Kuwait University, Kuwait.

Ladislav Novotny

- Member of the Organising Committee, Pharma Middle East , International Conference, Dubai, UAE, (October 2016).
- Member of the Scientific Committee, 17th Nutrition & Diagnostics Conference, Prague, Czech Republic, (October 2017).
- Editor-in-Chief, International Journal of Pharmaceutical Analysis (2017).

Maitham Khajah

Book editor. Role of neutrophils in disease pathogenesis, INTECH (2017)
www.intechopen.com/books/role-of-neutrophils-in-disease-pathogenesis

Mohamed Abdel-Hamid

Provided analytical services of LC-MS/MS and GC-MS for the analysis of medicines and metabolites in biological samples, screening of inherited metabolic diseases and forensic analysis of illicit drugs.

Bedoor Qabazard

- Co-ordinated a workshop, “Team Teaching in Integrated Courses” , Theme “advancing pharmacy education in the GCC and middle-east”, 6th Kuwait International Pharmacy Conference 2017 , Faculty of Pharmacy, Kuwait University, Kuwait.
- Presented a talk on “Challenges of Team Teaching”, Theme “advancing pharmacy education in the GCC and middle-east”, 6th Kuwait International Pharmacy Conference 2017 , Faculty of Pharmacy, Kuwait University, Kuwait.

Willias Masocha

- Mentor at the International Brain research Organization- African Regional Committee (IBRO-ARC). Writing Papers Workshop, Entebbe, Uganda 2017.
- Provided mentorship to young researchers from different African countries on how to write scientific papers. Worked on how to improve their research manuscripts. Gave two lectures titled “How to write an original research paper” and “Preparing a cover letter”, 2017

Khaled Orabi

- Consultant, the General Administration of Criminal Evidences, Ministry of Interior, Kuwait. Provide different consultations in the field of drugs of abuse detection. Put a plan to develop the Departments of Narcotics and Toxicology. Started a comprehensive database for cannabimimetics. 2016 – Present.
- Leader, Joint Research Team; Faculty of Pharmacy, Faculty of Science, Kuwait University and

the General Administration of Criminal Evidences, Ministry of Interior, Kuwait. The team is established to collaboratively do research on detection and identification of drugs of abuse newly introduced and confiscated in Kuwait. 2014-present.

Mohammed Waheedi

Managing Healthcare Professionals. A two-day workshop conducted for pharmacy managers. Organized by the Life Science Academy, Kuwait, 1-2 November 2016.

Yunus Luqmani, Leyla Sharaf, Samuel Koshy

Editorship of Kuwait Pharmacy Bulletin, Faculty of Pharmacy



*- before you look for the answer
seek the question*

Continuing Education Programme

Investigating amino acid residues that contribute to the constitutive activity of the glucose-dependent insulinotropic polypeptide. *Lobna Adi*, MSc student, defense of MSc thesis, Molecular Biology MSc Program, December 20, 2016.

Quantification of colistin in plasma by tandem mass spectrometry: application in pharmacokinetic study. *Ph. Batool Al-Refai*, Pharmaceutical Sciences MSc Program, Faculty of Pharmacy, Feb 22, 2017.

Synthesis and antibacterial evaluation of novel N-asparagine-oxazolidinone derivatives. *Ph. Fatma Y. Al-Jeran*, Pharmaceutical Sciences MSc Program, Faculty of Pharmacy, March 01, 2017.

Role of bradykinin in the sensitization of the central signaling mechanisms of cough. *Ph. Fajer Al-Shamlan*, Pharmaceutical Sciences MSc Program, Faculty of Pharmacy, March 08, 2017.

Bioactivity-directed fractionation to isolate possible anticancer lead(s) from *Costus speciosus*: potential molecular mechanisms of action. *Ph. Wael M. Fadel*, Pharmaceutical Sciences MSc Program, Faculty of Pharmacy, March 15, 2017.

Nanotechnology in drug delivery. *Dr. Hanan Refai*, Associate Professor of Pharmaceutics and Industrial Pharmacy, Faculty of Pharmacy, Misr University for Science and Technology (MUST), 6 October City, Giza Egypt, May 10, 2017.

Medicines Information Skills for Pharmacists. For Dasman Diabetes Institute, *Dr. Dalal Al-Taweel*, *Ph. Asmaa AL-Haqan*, & *Ph. Shaimaa Abdel-Maguid*, Department of Pharmacy Practice, Faculty of Pharmacy, Kuwait University. (Workshop) May 22-24, 2017.

Polymer-Based Nanomedicine Platforms for Delivery of Peptide Therapeutics. *Dr. Ahmed Faheem*, Senior lecturer in Pharmaceutics, School of Pharmacy and Pharmaceutical Sciences, University of Sunderland, UK, May 25, 2017.



Office of Strategic Alliances

Approximately 2 years ago in November 2015, the Office of Strategic Alliances was created with the objective of developing long standing partnerships with key external stakeholders interested in contributing and working towards an expanded scope of pharmacy practice in Kuwait. To achieve this goal, several bodies have to collaborate to ensure appropriate framework and resources are in place. To that end, two different steering committees were created within the Office of Strategic Alliances:

1. Steering Committee for Expansion of the Scope of Pharmacy Practices is responsible for:
 - Identifying & approving the selection of key individuals, services and institutions to initiate and implement an action plan to develop clinical services and clinical rotations
 - Developing a proposal for new standards of practice, associated with a new cadre, promotion and license renewal rules
 - Assessing the training needs of the targeted pharmacists on a continuous basis to ensure sustainable implementation and further growth of the clinical services and rotations

2. Steering Committee for the Implementation of Continuing Professional Development for Pharmacists is responsible for:
 - Ensuring a formal CPD accrediting body for pharmacists
 - Planning and implementing action plans to achieve partnership objectives, mainly in terms of CPD as described in the partnership agreement with the Ministry of Health and expressed needs of the industry and other Faculty partners
 - Approving training orientations based on needs assessments
 - Assessing CPD needs of the different stakeholders – KDFC, MoH pharmacists, industry partners, and other pharmacists – on a continuous basis

The past two years have shown that this “top-down” approach proved sub-optimal to achieve our goals. Hence, together with some members of the steering committees, a group external of the faculty was created with the objective of providing a “bottom-up” approach which would support the objectives of the Office of Strategic Alliances: the “Taskforce for Advancing Pharmacy Practice” (TAPP). Indeed, the Faculty of Pharmacy working jointly with Life Science Academy (LSA) seem to be the main drivers for setting the stage for expanding the scope of practice in Kuwait.

TAPP was created to enable pharmacists to develop their clinical competencies, initiate national projects that will advance the scope of practice, unify existing and emerging practices and influence decision makers to support the evolution. These objectives will be supported through active partnerships, key performance indicators to measure progress and a thorough communication plan.

Director, Dr Jacinthe Lemay



Kuwait Pharmacy Bulletin

The Kuwait Pharmacy Bulletin (KPB) is registered internationally with ISSN number 1028-0480 and published by Kuwait University Press. The editorial team consists of Yunus Luqmani, Leyla Hassan Sharaf and Samuel Koshy. It continues to be produced quarterly by the Faculty of Pharmacy. By December 2017 we will have completed 21 annual volumes amounting to a total of 84 issues since its inception in the spring of 1997.

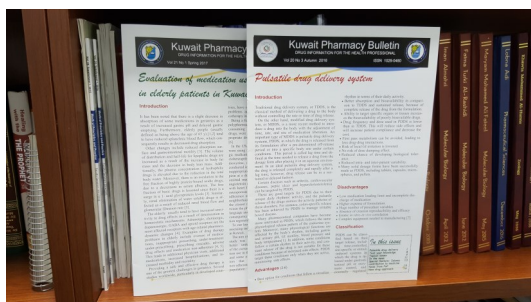
The Bulletin is a non-profit publication distributed free of charge to academics within the Kuwait University Health Sciences Centre and other Faculties of the University, to hospital pharmacies and other Ministry of Health centres and practising pharmacists around the country. In addition it is also sent to a number of Universities and Medical/Pharmacy schools throughout the Gulf and Middle eastern regions. Distribution has been continued under the supervision of Mr Faleh Al Ajmi and Ms Anood Al Faraaj.

Our principal aim is to provide instructive articles on a range of drug-related and medical topics that we hope will be of interest to a wide academic and professional readership in both pharmacy and medicine. We are particularly reaching out to practitioners to encourage them to maintain an active interest in the scientific progress and achievements in the medical field. We feel this should be one of the objectives of the University, to disseminate knowledge beyond our confines. To our knowledge this bulletin remains the only such production from the Health Sciences Centre.

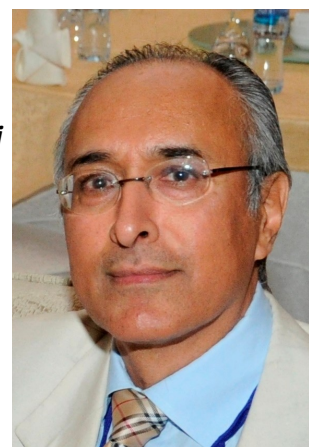
We have continued with the standardised format of the bulletin which has been refined over the past several years. We have tried to introduce a diverse range of topics to promote the integration of pharmacy and medicine and to maintain its appeal to both the scientific and the general healthcare community. While we maintain the essentially scientific nature of the publication we also include a mix of less technical and general material to make for easier and lighter reading.

We have adhered to the 16 page production and its organisation into regular sections; a *lead article* dealing in detail with some aspect of pharmaceutical medicine, sections entitled *Test your knowledge* (which includes a prescription question), offering readers some MCQ brain teasers, *Topical issues and controversies* presenting new interesting developments around the world, *In the news*, presenting short articles of important events/medical milestones, *News from the FDA* giving information on newly approved medicines of general interest, as well as highlighting warnings about commonly used drugs and a list of *newly registered products* approved by the MOH for use in medical practice in Kuwait. This information is provided by the Pharmaceutical and Herbal Medicines Registration and Control Administration Quality Assurance. In addition, we have introduced a section for news and events within the Faculty of Pharmacy, and some articles on the contribution of Islamic scholars to pharmacy and medicine.

Except for the lead article, the material included in the KPB is adapted, edited or compiled from a range of mostly web-based sources, taking copyright permission where appropriate. We have followed our past practice of asking our recently graduated students to provide the lead article from their final year research projects. We plan to continue this trend and encourage more participation from our student body.



Prof Yunus Luqmani
(Managing Editor)



Office of Consultations, Services and Training

The OCST was established on January 7, 2009 upon the receipt of the approval letter from the Secretary General of Kuwait University. Its organisational structure follows the one mentioned in the University President Decree number 1072 and dated May 11, 2008.

The OCST is composed of three units:

- Consultations Unit
- Training Unit
- Accounting Unit

These three units are controlled by a board of representatives from all Departments of the Faculty, the Continuous Professional Development (CPD) officer and the Director.

Dr. Khaled Orabi	Director
Dr. Eman AbaHussain	Department of Pharmacy Practice
Dr. Mohsen Hedaya	Department of Pharmaceutics
Dr. Naser Al-Tannak	Department of Pharmaceutical Chemistry
Dr. Jacinthe Lemay	Department of Pharmacology and Therapeutics
Dr. Monerah Al-Soraj	CPD Officer

Services offered during the last academic year:

- ◆ A series of theoretical and practical sessions about the detection of new psychoactive substances A series of Analysis of six narcotic herbal preparations from the General Administration of Criminal Evidences, Ministry of Interior.
- ◆ Analysis of four biological samples in criminal cases from the General Administration of Criminal Evidences, Ministry of Interior.
- ◆ Consultations for detecting new synthetic cannabinoids, General Administration of Criminal Evidences, Ministry of Interior.
- ◆ Numerous over-the-phone consultations from the General Administration of Criminal Evidences, Ministry of Interior.
- ◆ Organising the workshop “Medicines Information Skills for Pharmacists” in collaboration with Medicines Information Center (FoP) and Center for Research Support and Conferences (FoM).

Dr Khaled Orabi



Faculty Conference – 6th KIPC



The sixth International Congress of the Faculty of Pharmacy (KIPC6) was aligned with the second forum on the Advancement of Pharmacy Education in the Gulf and Middle East (APE-GCC-ME). The organising committee was presided by Dr. Mohamed Waheedi and included Prof. Pierre Moreau, Dr. Nada Al-Hasawi, Dr. Altaf Al-Romaiyan, Dr. Jacinthe Lemay, Dr. Yaqoub Al-Bassarrah and Dr. Salah Waheedi. The goal of the forum was to bring dedicated pharmacy educators from the region in an effort to share best practices and discuss together the challenges that we face regarding this core aspect of our respective missions. Most of the schools that participated are seeking international accreditation, and the conference created a great opportunity to advance pharmacy education synergistically. After the huge success of the first forum in Qatar in December 2015, we maintained a similar format of keynote lectures together with participative workshops.

International speakers included Prof. Wayne Hindmarsh from Toronto (Canada), Dr. Barbara Gobis from British Columbia (Canada), Dr. Arijana Mestrovic from Croatia and Dr. Michael Rouse from Chicago (USA). They discussed respectively about international accreditation standards, the integration of education and practice in a Faculty-led pharmacy clinic, the importance of competencies in education, and a model for life-long learning.

The workshop themes were selected by the Deans of the seven Faculties from the region (Lebanon, Kuwait, Qatar and Saudi Arabia) involved in preparing program. They included competency-based education, active learning assessment, life-long learning and team teaching. Dedicated academic staff members from the schools prepared the workshop sessions to make them as interactive as possible. This level of participation before the meeting ensured that the content was both relevant and stimulating.

With an additional 24 poster presentations, this two day conference was a great success and allowed the schools to continue their collaboration in education for the benefit of our students. We thank our sponsors: Kuwait University, Kuwait Foundation for the Advancement of Science (KFAS), Life Science Academy, Safwan Co., Ali Abdulwahab Al Mutawa Co., and Al Essa Group for their invaluable support. The conference was held in the Abdul Husain Marafie Grand Ballroom of the Radisson Blu Hotel in Kuwait.





Educational trip to UCL London

In February 2017, KPSS organised an educational trip to UCL London for 5 days. Students were given the opportunity to explore their chances.



Blood donation event in collaboration with Central blood bank.



KPSS hosted the 6th Eastern Mediterranean Pharmaceutical symposium as a part of KPSS participation in the International Pharmaceutical students' Federation (IPSF).



Draw a smile events

Blue circle and Diabetes awareness

A. Annual participation with Dasman institute for patient awareness and counselling. Medication adherence was assessed through a questionnaire.

B. As a part of Diabetes awareness, a booth was set up at elevation burger restaurant in collaboration with Blue Circle. Our students offered counselling and educational tips for visitors of the restaurant.



Graduation ceremony of class of 2017



بِسْمِ اللَّهِ الرَّحْمَنِ الرَّحِيمِ

قسم طلبة كلية الصيدلة وخريجיהا

أُقْسِمُ بِاللَّهِ الْعَظِيمِ أَنْ أُرَاقِبَ اللَّهَ فِي مُزَاوَلَتِي لِمِهْنَتِي، بَادِلًا فِي أَدَائِهَا جُهْدِي بِكُلِّ صِدْقٍ وَأَمَانَةٍ وَمُحَافِظًا عَلَى شَرَفِهَا وَسِرِّيَّتِهَا، وَمُتَعَاوِنًا مَعَ زُمَلَائِي بِمَا يُحَقِّقُ الرِّقْيَ وَالتَّقَدَّمَ فِي الرِّعَايَةِ الصِّيدَلَانِيَّةِ لِجَمِيعِ الْمَرْضَى.

وَاللَّهُ عَلَى مَا أَقُولُ شَهِيدٌ.

In the name of God, the most merciful, the most gracious

I swear in the name of God, the Greatest that I shall practice my profession within his guidance, that I shall put my ceaseless effort with loyalty and truthfulness, that I shall maintain its integrity and secrecy, that I shall be cooperative with all my colleagues for the sake of advancement and development in pharmaceutical care for all patients

May God be witness to all I said



"Preparing Medicine from Honey", from a Dispersed Manuscript of an Arabic Translation of *De Materia Medica* of Dioscorides. Dated A.H. 621/ A.D. 1224. Prescribed to cure weakness and loss of appetite. A doctor holds a gold cup while stirring the boiling honey and water in a cauldron as he prepares to scoop it up for the seated patient. The architectural setting suggests that the drugs are being