FACULTY OF PHARMACEUTICAL SCIENCES
Malaysian universities that featured in the rankings

<table>
<thead>
<tr>
<th>Institution</th>
<th>2019</th>
<th>2018</th>
</tr>
</thead>
<tbody>
<tr>
<td>University Malaya (UM)</td>
<td>87</td>
<td>114</td>
</tr>
<tr>
<td>Universiti Kebangsaan Malaysia (UKM)</td>
<td>184</td>
<td>230</td>
</tr>
<tr>
<td>Universiti Putra Malaysia (UPM)</td>
<td>202</td>
<td>229</td>
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<tr>
<td>Universiti Sains Malaysia (USM)</td>
<td>207</td>
<td>264</td>
</tr>
<tr>
<td>Universiti Teknologi Malaysia (UTM)</td>
<td>228</td>
<td>253</td>
</tr>
<tr>
<td>UCSI University</td>
<td>481</td>
<td>-</td>
</tr>
<tr>
<td>Universiti Teknologi Petronas (UTP)</td>
<td>521-530</td>
<td>601-650</td>
</tr>
<tr>
<td>Taylor’s University</td>
<td>601-650</td>
<td>-</td>
</tr>
<tr>
<td>Universiti Utara Malaysia (UUM)</td>
<td>601-650</td>
<td>701-750</td>
</tr>
<tr>
<td>International Islamic University Malaysia (IIUM)</td>
<td>651-700</td>
<td>701-750</td>
</tr>
<tr>
<td>Universiti Tenaga Nasional (UNITEN)</td>
<td>701-750</td>
<td>-</td>
</tr>
<tr>
<td>Universiti Teknologi Mara (UiTM)</td>
<td>751-800</td>
<td>751-800</td>
</tr>
<tr>
<td>Multimedia University (MMU)</td>
<td>801-1000</td>
<td>-</td>
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</tbody>
</table>

UCSI’s Year of Milestones

- Malaysia’s best private university.
- The only private provider in Malaysia to make the top 500.
- A top six university in Malaysia, along with the nation’s five research universities.
- One of only six Malaysian universities in the top 500 to receive a specific rank.
- Malaysia’s most impressive debutant in the global rankings.

QS World University Rankings by Subject 2018

- Malaysia’s best music school
- A top 100 university in the world for performing arts

UCSI is rated in Tier 5 (Emerging Universities) in SETARA 2017, placing it on a par with established foreign branch campuses in Malaysia.

UCSI’s students obtain a merit-based government scholarship or grant.

97.8% of our co-op partners would like to rehire UCSI interns.

More than 4,000 global companies provide our students with internship.

Over 10,000 students on campus.

Over 35% of UCSI’s academic staff are PhD holders and a further 17% are pursuing their doctorate.

The 2015 average at private higher education institutions in Malaysia is 16%.

Over 30% of UCSI’s student population is international.

Students from more than 110 nations have studied at UCSI.
WELCOME TO UCSI
MALAYSIA’S #1 PRIVATE UNIVERSITY

UCSI University opens door for students everywhere. It collaborates with the world’s leading universities, engages the best minds and partners with global companies.

UCSI University stands out as Malaysia’s best private university in the QS World University Rankings 2019. It is a top six university in Malaysia – only UCSI and the nation’s five research universities made the global top 500 benchmark – and it is distinguished in the top 2% of all universities in the world. UCSI is also regarded as one of the world’s best young universities, placing in the top 70 in the 2019 QS Top 100 Under 50 list that rates universities under 50 years old.

These latest milestones cap a memorable year for UCSI. The University was previously distinguished as Asia’s fastest rising university in the QS University Rankings: Asia 2018 after making a meteoric 131-spot climb. It is also ranked as a global top 100 university for performing arts in the QS World University Rankings by Subject 2018 – a remarkable distinction based solely on the merits of its Institute of Music. Additionally, UCSI is rated in Tier 5 (Emerging Universities) – the highest rating achieved by universities under 15 years old – in SETARA 2017, on a par with established foreign branch campuses in Malaysia.

Long renowned for its excellent track record in teaching and learning, UCSI is quickly making a name for itself in research and innovation. The number of research publications has increased by 155% from 2013 to 2016 while the University’s cumulative impact factor score has increased by 957% over the same period. The number of UCSI’s Scopus/ISI publications has also doubled from 2015 to 2016, reflecting the increasing focus on scholarly pursuit.

This distinction opens doors for UCSI students and staff when it comes to collaboration with the world’s best companies, research institutes and universities. Since 2014, UCSI’s top students have been annually selected to advance high impact research at Harvard University, Imperial College London, the University of Chicago and Tsinghua University, among others. A batch of Pharmacy students also furthered research at the University of British Columbia and more endeavours are in the pipeline with leading universities in the Ivy League, the Russell Group, Universitas 21 and Australia’s Group of Eight.

More than 10,000 students from over 110 nations study at UCSI, making the campus a vibrant melting pot of culture and diversity. UCSI also partners with more than 4,000 global companies to provide students with structured internship programmes and job opportunities. These tie-ups provide most UCSI students with at least two months of internship each year. 97.8% of UCSI’s industry partners state that they would like to rehire UCSI interns on the basis of their performance, capabilities and professionalism.

With these unique strengths and more, UCSI stands out as a University that offers an education few can, provides experiences others can’t and delivers life-defining outcomes for students everywhere.
TOMORROW’S EDUCATION TODAY

It’s not just a campus expansion. It’s an education city in the making.

The recent addition of two new high-rise academic complexes at UCSI’s Kuala Lumpur increases its operational capacity by more than 1 million ft² of state-of-the-art learning space. Popular with students and parents, its designs embody the zeitgeist of 21st century dynamism and interconnectivity. Housing science labs, interactive learning spaces, lecture theatres, recital halls, commercial areas, classrooms, hostels, sports facilities and a multi-level parking facility, the new complexes will change the way how students perceive and experience education.

Job done? Not a chance. UCSI’s recent campus expansion is merely a microcosm of a far grander plan. More development will be undertaken to transform the Kuala Lumpur campus into a prominent education city that defines the Cheras skyline. UCSI Hospital is also on the verge of completion. Offering the American model of clinical practice patientcare, this private teaching hospital is purposed to turn Springhill into a vibrant hub of healthcare, education and medical tourism. Over in Kuching, UCSI has just launched its eponymous hotel and new Sarawak campus to much acclaim, providing students in Sarawak with state-of-the-art facilities and learning spaces.

Much more lies in store for the future. Watch this space.
Pharmacists do much more than fill prescriptions — they are an integral part of the healthcare system and have the capacity to directly affect the lives and lifestyles of the people with whom they interact. It is also reputed to be one of the most demanding in terms of professionalism and excellence. At UCSI University, you can make your mark before you even graduate.

UCSI’s Faculty of Pharmaceutical Sciences stands out as one of Malaysia’s first pharmacy schools. The Faculty has a proud record of education and research in pharmaceutical sciences since 2000. Undergraduate and postgraduate programmes are both offered here with emphasis on serving the community. The Faculty boasts dedicated academic staff who are leading researchers in their own right and cutting-edge research facilities.

Research is another key driver at the Faculty. The integration of coursework with research findings in our teaching enables our students to understand and extend their power of creative and critical thinking in their pursuit of new knowledge. We also provide students with research attachment opportunities at leading institutions such as University of British Columbia in Canada, University of Chicago in US and Nihon Pharmaceutical University in Japan. Some of our students publish papers in international refereed journals while others present their findings at national conferences. More students are taking up this challenge and many accomplish much. This speaks volumes about the calibre of our students and these individuals will be part of your cohort — an integral part of your lifelong network.

This is just a microcosm of the culture of excellence that you will experience first-hand at UCSI University. Your studies here will be insightful. You will immerse yourself with the depth of knowledge involved in developing medicinal products, from the discovery of lead compounds to product launches and marketing. You will learn from — and work with — the best as you contribute to the pursuit and expansion of knowledge. Challenge yourself and enrich your educational reservoir in the field of pharmacy at UCSI University.
WHY STUDY PHARMACY IN UCSI UNIVERSITY?

1. QUALITY PHARMACY PROGRAMME WITH AFFORDABLE FEES
   Our programme is Fully Accredited by the Malaysian Pharmacy Board provided by the No. 1 Private University in Malaysia for the year 2019.

2. START FOCUSED
   Our foundation in science programme helps students to stay ahead by offering a pharmacy specialisation pathway.

3. STUDENT-FOCUSED LEARNING AND TEACHING
   Our programme emphasises student-centred learning via hands-on learning, problem-based learning, small group assignments, e-learning, pharmacist role plays, inter-professional learning and research that incorporates leadership, teamwork, communication, project management, innovation and entrepreneurship; encouraging students to become lifelong learners.

   Our faculty advocates one-to-one mentorship by academic staff on academic and professional development matters.

   Our faculty coaches a strong student body with projects which contribute to community health and pharmacy professional development.

4. QUALIFIED AND EXPERIENCED ACADEMIC STAFF
   Our Bachelor of Pharmacy programme academic staff bring to their teaching a wealth of knowledge and experience from pharmacy practice and the industry, locally and internationally; 87% of our lecturers comprise PhD holders and 65% are registered pharmacists with many years of contribution to pharmacy education and pharmaceutical research.

5. COMPREHENSIVE WORKPLACE-BASED EXPERIENTIAL LEARNING WITH PRP PATHWAY
   Our active industry linkages and training attachments provide a workplace-based experiential learning that prepares our students for pre-registration training (PRP) and employment; our faculty is on the list of approved training premises for Provisionally Registered Pharmacists (PRPs) allowing our students to undergo the provisional training while furthering their studies with us.

6. RICH STUDENT LIFE IN A CITY CAMPUS
   Our KL campus offers a vibrant and multicultural learning environment with accessibility to many facilities. Our students are encouraged to participate in many extracurricular activities that extend learning beyond classrooms and integrate their learning outcome in community outreach programmes by promoting health awareness.
The Fourth Industrial Revolution will change healthcare as we know it. With the introduction of empowering technologies, we are expected to live longer, healthier and more productive lives. The healthcare sector will be revolutionised as well and pharmacists will play a pivotal role in the effort. Being an expert in medicine is no longer enough and pharmacists must adapt to the digital age of incessant communication and end-to-end responsibility.

Getting an ideal start has never been more important. To address future challenges in the pharmacy profession, UCSI’s specialised foundation pathway in Pharmacy is specially designed to equip you with the versatility and drive to achieve. Apart from a heavy emphasis on STEM subjects, your Foundation programme will allow you to delve deeper into pharmaceutical studies. This special focus will provide you with an early taste of more in-depth studies at degree level and ease your progression to UCSI’s acclaimed Bachelor of Pharmacy (Hons) programme.

AT UCSI, you will be taught by an experienced team of professors and academics who have strong ties with leading players in the pharmaceutical industry. Take the opportunity to be mentored by them and inculcate independent and critical thinking skills. Benefit from problem-based learning and acquire the skills and know-how that are essential for research and further studies. Above all, fulfil your potential in a dynamic and convivial environment that encourages exploration and discovery.

Take the first step towards a career as a pharmacist. Make it a purposeful one.
Start Focused. Stay Ahead.

UCSI’s specialised foundation pathway helps you acquire a much stronger grasp of your chosen field of study while covering the overall reach of a standard foundation programme. Apart from helping you immensely as you progress to degree studies, UCSI’s foundation programme also provides you with an early taste of what the industry expects.

Core Subjects

- General Chemistry I
- General Chemistry II
- General Biology I
- General Biology II
- General Physics I
- Fundamentals of Mathematics
- Algebra and Trigonometry
- Calculus
- Introduction to Probability and Statistics
- Introduction to Business
- Computing Essentials

Bachelor Degrees

- Bachelor of Pharmacy (Hons)
- Other related degree programmes

Guidance From The Best

Learn from a team of acclaimed professors and academics who are at the forefront of their respective disciplines. Work with them, be mentored by them and benefit from their wealth of experience.

Assistant Professor Dr. Mogana Sundari Rajagopal
Dean, Faculty of Pharmaceutical Science
PhD (Pharmacy) (Nottingham)
BPharm (Hons) (IJM)

Associate Professor Dr Gabriel Akyirem Akowuah
Head of Department, Pharmaceutical Chemistry
PhD Pharmaceutical Chemistry (USM)
MSc Pharmaceutical Chemistry (USM)
BSc (Hons) Chemistry (UCC, Ghana)

Assistant Professor Dr Palanirajan Vijayaraj Kumar
Head of Department, Pharmaceutical Technology
PhD Pharmaceutical Technology (US, India)
MPharm Pharmaceutics (SriPMS, India)
BPharm (JKKN, India)

Assistant Professor Fazollah Keshavarzi
Head of Department, Clinical Pharmacy
MPharm (USM)
PharmD (SUMS, Iran)

Assistant Professor Dr Mohamed Saleem Abdul Shukkoor
Head of Department, Pharmaceutical Biology
PhD Pharmacology and Toxicology (UPM, Malaysia)
MPharm Pharmaconosy (TNMGRMU, India)
BPharm (TNMGRMU, India)

Assistant Professor Dr Anand Gaurav
Head of Research and Postgraduate Studies
PhD Pharmaceutical Sciences (SU, India)
MTech Bioinformatics (IIT-Allahabad, India),
MPharm Pharmaceutical Chemistry (MSU, India)
BPharm (SPU, India)

Assistant Professor Dr Fatokun Omotayo Oladunyoye
Chair, Faculty Examination Committee
PhD (USM)
MPharm (Clinical Pharmacy & Biopharmacy)
(University of Lagos, Nigeria)
BPharm (University of Lagos, Nigeria)

Assistant Professor Dr Chew Yik Ling
Chair, Compliance, Audit & Quality (CAQ)
PhD Pharmaceutical Sciences (Monash)
BSc (Hons) Biotechnology
Bachelor of Pharmacy (Hons)

FULLY ACCREDITED BY THE PHARMACY BOARD MALAYSIA, UCSI UNIVERSITY’S Bachelor of Pharmacy (Hons) is well-known among industry practitioners and employers. Hands-on approach and student-centred, the programme is designed to encourage students to become independent learners who are capable of undertaking and understanding challenges in the use of medicine and in healthcare. The programme is geared towards the patient as the major focus for the application of knowledge of pharmaceutical sciences. There are four main areas within the programme: Physiology and Pharmacology, Pharmaceutical Chemistry, Pharmaceutics and Pharmaceutical Technology, and Clinical Pharmacy and Pharmacy Practice. This programme will equip you with the scientific, clinical and professional knowledge as well as strong communication skills to positively impact the healthcare system.

ASSESSMENT

The curriculum is aligned with modern requirements of outcome-based education. Both, formative and summative assessments such as lab tests, quizzes, assignments, presentations and written tests are essential parts of the curriculum. Students also engage with problem-based learning (PBL) and role-playing teaching methodology for required skill development.

STUDENT EXPOSURE

During semesters, students also get exposure of professional training at different community pharmacies, industrial and hospital pharmacy settings.

Community pharmacy attachment sites (or training sites)
• Trustz Pharmacy
• Guardian Pharmacy
• Alpro Pharmacy
• Big Pharmacy
• Caring pharmacy

Industrial attachment sites (or training sites)
• Genecare Sdn Bhd
• Dynapharm
• Glaxo Smith Kline
• Y.S.P. Industries
• Blackmores
• Natural Wellness Industries

Hospital attachment sites (or training sites)
• Kuala Lumpur Hospital (HKL)
• Sungai Buloh Hospital
• Ampang Hospital
• Selayang Hospital

DID YOU KNOW

91% OF UCSI PHARMACY GRADUATES STATED THAT THEY PERFORMED WELL IN THEIR FIRST PHARMACY JOBS.
CAREER PATHWAY

Bachelor of Pharmacy (Hons) - 4 years

1 year
Provisionally Registered Training

1 year
Provisionally Registered Training via Research and Development (R&D) pathway is available in UCSI University

1 year
Compulsory Service

Career Opportunities
• Community Pharmacist
• Academic Pharmacist
• Hospital Pharmacist
• Industrial Pharmacist
• Regulatory Pharmacist
• Veterinary Pharmacist
• Marketing Pharmacist
• Research Scientist

Postgraduate Studies (Msc/PhD)
• You can further your studies at any point after your degree.
• MSc of Pharmaceutical Chemistry
• MSc of Pharmaceutical Technology
• Master of Clinical Pharmacy Practice
• PhD of Pharmaceutical Sciences

STUDENT’S EXPOSURE

Laboratory Practical Sessions

Hospital Clerkship

Simulated Community Pharmacy

Tablet Press Machine
# ENTRY REQUIREMENTS

**Intake:** August

## QUALIFICATIONS

### A-LEVELS

Qualifications: BBB, AAC or ABC in Biology, Chemistry and Physics or Mathematics. Minimum B grade in Chemistry is compulsory.

*Note: (With reference to the Score system of the Universities and Colleges Admission Service (UCAS) carried out at United Kingdom for A-level result with score of A+ = 140, A=120, B=100 and C=80) 3B proposed by LFM is equal to the total score of 300 with B for Chemistry course.*

### STPM

Qualifications: BBB, AAC or ABC in Biology, Chemistry and Physics or Mathematics. Minimum B grade in Chemistry is compulsory.

*Overall CGPA minimum 3.*

## BASIC REQUIREMENTS

### A-LEVELS

- BBB, AAC or ABC in Biology, Chemistry and Physics or Mathematics. Minimum B grade in Chemistry is compulsory.
- Overall CGPA minimum 3.

### STPM

- BBB, AAC or ABC in Biology, Chemistry and Physics or Mathematics. Minimum B grade in Chemistry is compulsory.
- Overall CGPA minimum 3.

### MATRICULATION OR PRE-STUDY IN MEDICINE AND PHARMACY

**WITH MEDICINE: (Minimum 1 year of study)**

- CGPA 3.0 and above with minimum “B” in Chemistry.

### FOUNDATION IN SCIENCES

**WITH MEDICINE: (Minimum 1 year of study)**

- CGPA 3.0 and above with minimum B in Chemistry.

### DIPLOMA

**WITH MEDICINE: (Minimum 1 year of study)**

- Diploma in Science (Chemistry or Biology or Physics) CGPA 3.75 and above including B in Chemistry subject.
- Diploma in Pharmacy CGPA 3.5 and above.

## ADDITIONAL REQUIREMENTS

### A-LEVELS

Pass SPM with minimum 5B in Biology and Chemistry and Physics and Mathematics (or Additional Mathematics) and one other subject at School Certificate level or equivalent.

### STPM

Pass SPM with minimum 5B in Biology and Chemistry and Physics and Mathematics (or Additional Mathematics) and one other subject at School Certificate level or equivalent.

### DIPLOMA

- Diploma in Science (Chemistry or Biology or Physics) CGPA 3.75 and above including B in Chemistry subject.
- Diploma in Pharmacy CGPA 3.5 and above.

### FIRST DEGREE IN SCIENCE

- CGPA 2.75 and above (CGPA 2.75 = Gred C+)

### UEC

- Pass with a minimum B4 grade in Biology, Chemistry, Physics, Mathematics, Additional Mathematics and one other subject.

### OTHER ACADEMIC QUALIFICATION

- Case-by-case basis.

### ADMISSION REQUIREMENTS

Language requirements are according to the Ministry of Higher Education guidelines; for civil-servant positions, refer to the Public Services Department guidelines.

### ENGLISH REQUIREMENTS

- MUET minimum Band 3 OR TOEFL score of 550 OR IELTS Band 6 (minimum 5.5 in every section)

**Note**

Compulsory Courses: Chemistry, Biology and Physics / Math

All international candidates are required to undergo an interview session prior to admission into the programme.

# CAREER OPPORTUNITIES

- Academic Pharmacist
- Community Pharmacist
- Hospital Pharmacist
- Industrial Pharmacist
- Pharmacologist
- Primary Health Care Pharmacist
- Regulatory Pharmacist
- Research Scientist
- Toxicologist
- Veterinary Pharmacist
FACILITIES

PHARMACY POSTGRADUATE LAB
A dedicated Pharmacy Postgraduate Lab was launched in 2011 to facilitate cutting-edge research. The lab is equipped with advanced facilities like high performance liquid chromatography (HPLC), Fourier transform infrared spectroscopy (FT-IR), and UV-Visible spectrometer, among others.

PHARMACY PROJECT LAB
This lab is used to train students on the technology of drug formulation, formulation evaluation and quality assurance of drugs. UCSI pharmacy students have the option of undertaking a research project and this lab was purpose built to facilitate that.

PHARMACY PRACTICE LAB
The Pharmacy Practice Lab is used by students to practise and master their drug compounding and preparation skills in various dosage forms, including the injectables before entering the workforce. A new cleanroom facility is included in this lab.

PHYSIOLOGY AND PHARMACOLOGY LAB
This Lab provides students the equipment and opportunities to explore disease mechanisms, new pharmacological tools and new medications.

DID YOU KNOW
93% of our lecturers receive ‘EXCELLENT’ — the highest rating — scores by our students in annual reviews. They are leading researchers in their own right and receives multiple research grants each year. This is the quality you can expect at UCSI.
NOTABLE STUDENT ACHIEVERS

LEE SHUO YU
Pharmacogenomics research attachment at University of Chicago, working on participatory genomic test associated with CYP2D6 enzyme by Invader Panel Assay and TaqMan® Copy Number Variation, translation of genotype into phenotype and their correlations with clinically important drugs therapy.

EUGENE LOW YI MING
During his stay in Chicago, he was able to enhance his knowledge in pharmacogenomics. He conducted assays that detect Single Nucleotide Polymorphisms (SNPs) for important genes in the DNA. His project was based on Open Array, which can detect huge amount of SNPs, up to 480 SNPs in a single run.

FOONG XI WEI
Awarded for Pharmaceutical Research Summer Program 2018 in Nihon Pharmaceutical University, Japan, attached to Division of Kampo Medicine, to extract berberine, limonin and obakunone from the bark of Phellodendron amurense.

TAN DI ZHENG
Awarded for Pharmaceutical Research Summer Program 2018 in Nihon Pharmaceutical University, Japan, attached to Division of Pharmacotherapy, to analyze concentrations of melatonin and norepinephrine in breast milk and mammary epithelial cell by HPLC-ECD or LC/MS/MS.

CHO AN NIE
Awarded for Pharmaceutical Research Summer Program 2018 in Nihon Pharmaceutical University, Japan, attached to Division of Kampo Medicine, to study and compare the anatomical characteristics between Cinnamomum cassia, Cinnamomum sieboldii Miesn, Cinnamomum verum J.Presl and Cinnamon burmanii.

P’NG XIU WEN
Research papers published in international refereed journals namely, the Journal of Acute Disease, the International Journal of Pharmaceutical Sciences and Research, and the Journal of Applied Pharmacy, during her study in UCSI.
EVENT HIGHLIGHTS

PUBLIC HEALTH CAMPAIGN

This is a community event organised annually for the public by pharmacy students of UCSI University. This year’s campaign was aimed at increasing awareness on the early detection and prevention of chronic kidney disease among the public.

WORLD PHARMACISTS DAY

UCSI University’s Faculty of Pharmaceutical Sciences organised World Pharmacist Day with the theme “From RESEARCH to HEALTHCARE: Your PHARMACIST is at your SERVICE”. We focused on the extensive expertise that pharmacists need to have to ensure better patient health. This expertise is applied through science and research, through educating the next generation, and through transforming patient needs into services.

COLOUR FESTIVAL

It was a day of colour, music, dance and food at the Colour Festival 2018 organised by UCSI’s Faculty of Pharmaceutical Sciences. The festival was held with the aim to break the ice between students and lecturers and also to provide a relaxing and enjoyable atmosphere for the students and lecturers away from their hectic routines.

ZUMBA

With Zumba, a workout isn’t even a workout; it’s a fun, social dance party organised by the Faculty of Pharmaceutical Sciences with exercise being the biggest perk! The average person will burn around 600 to 1,000 calories in a Zumba class. It also emphasises healthy eating habits for better health and quality of life.
WHITE COAT CEREMONY

The White Coat Ceremony (WCC) and Pledge of Professionalism are conducted during orientation in Year 1. WCC is an induction event that enables students to meet other students, staff and to become familiar with campus services.

BOOK PRIZE AWARD

The Book Prize is awarded to the best academic achiever sponsored by our prestigious partners Medispec, Nuvanta, Xepa Soul Pattinson, NexTx, Elite Organic, Caring Pharmacy, TransLab Industry, BIG Pharmacy and Pahang Pharmacy.

OATH TAKING CEREMONY AND ALUMNI HOMECOMING

This is a yearly event that celebrates the accomplishment of final year students and UCSI alumni. It is a fun night where staff, students and alumni get the chance to interact with each other and have fun.

PHARMACOGENOMICS WORKSHOP

"Translation of Genomic Data into Precision Healthcare", a one-day workshop organised by the Faculty of Pharmaceutical Sciences, focused on important areas such as Barriers and Solutions for Wider Pharmacogenomics and Implications of Nutrigenomics to Health.