



IMU's Master of Science in Molecular Medicine equips graduates for careers in medically focused biopharmaceutical and biotechnology industries.

# Understanding molecular medicine

INTERNATIONAL Medical University's (IMU) Master of Science in Molecular Medicine programme caters to medical or basic sciences graduates seeking advanced training in cellular and molecular biology, genetics, and drug development and treatment.

The programme prepares students for career opportunities in medically focused biopharmaceutical and biotechnology industries. It equips them with enhanced skills to carry out research at a higher level in related fields.

The coursework is conducted in an engaging environment to stimulate learning. Comprehensive laboratory-based training is also provided in the form of a hypothesis-driven and disease-oriented research project.

Additionally, flexible delivery in the form of online learning and weekend classes gives adult students the opportunity for career progression through skills upgrade and knowledge update.

Since its inauguration in 2012, the programme has attracted students from diverse backgrounds, including medical practitioners, dentists, pharmacists, research and development scientists, laboratory technologists and dietitians.

Among them is Mohd Fadzly Shaharuddin, a scientific officer at the histopathology laboratory of Hospital Kuala Lumpur's Department of Pathology who recently graduated with distinction from the programme.

"Molecular testing for solid tumour is a new service in my laboratory. We started with in-situ hybridisation (ISH) testing for breast cancer biopsy in 2010 and will soon be focusing on other types of solid tumour such as neuroblastoma, lung cancer, soft tissue tumour, brain tumour and lymphoma," he says.

"Currently, the histopathology laboratory in Hospital Kuala Lumpur is the only centre under the Health Ministry to offer ISH testing for solid tumours. The management is planning to embark on more molecular testing, including genetic biomarker testing for colorectal and lung cancer.

"As a scientific officer, I think it is imperative for me to gain more insight into the molecular basis of cancer and stay abreast of the latest advancement in the diagnosis and treatment of cancer. Both are

important for me to appreciate my job and improve current practices and services offered by the laboratory."

Mohd Fadzly's general role is overseeing the daily operations of the laboratory – both instrument and certified laboratory testing.

Specifically, he performs quality control on histopathology slides, troubleshoots for error in instruments, carries out immunohistochemistry testing for all types of solid tumour, and conducts molecular testing such as ISH for HER2 gene in breast cancer patients and EBER RNA for Epstein-Barr virus infection.

In addition, he is involved in the external quality assessment for technical evaluation of the laboratory test.

"Overall, I think the curriculum of the programme is well designed. In particular, the student-centred learning approach allowed me to be more independent and helped build my confidence.

"Besides that, the online session, which enables students to discuss and communicate with peers and lecturer without the restriction of venue and time, is very useful, especially for a working adult like me," says Mohd Fadzly.

He adds, "Having a higher degree would definitely help in career progression. Aside from that, I have learnt a lot from this programme. For instance, I now have a better understanding of the molecular basis of diseases and the molecular pathway involved in cancer.

"In addition, I am aware of the current development in stem cell technology and the application of the approach in disease management and treatment.

"Only after joining this programme did I start to appreciate the contribution of individual variability in lifestyle, genes and environment to diseases. As such, I strongly believe that precision medicine is the future of healthcare."

IMU offers other postgraduate programmes, including taught MSc in Public Health, MSc in Analytical & Pharmaceutical Chemistry, Master of Pharmacy Practice, Postgraduate Diploma in Implant Dentistry, Master of Health Professions Education, and MSc and PhD by research programmes.

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