

BIOMEDICAL RESEARCH IN HONG KONG

Hong Kong is a dynamic city that hosts eight institutions of higher education: City University of Hong Kong (CityU), Hong Kong Baptist University (HKBU), Lingnan University (LU), The Chinese University of Hong Kong (CUHK), The Hong Kong Institute of Education (HKIEd), The Hong Kong Polytechnic University (PolyU), The Hong Kong University of Science and Technology (HKUST) and The University of Hong Kong (HKU).

In Hong Kong, research has continuously been nurtured by the University Grants Committee and its Research Grants Council (RGC). However, basic research disciplines have been developed only in recent years in Hong Kong, thanks to the establishment of the RGC in 1991. In this role, the UGC works with Institutions, the Administration and the Community to promote excellence in the higher education sector, with a view to establishing Hong Kong as the education hub of the region and to nurturing high quality people to promote the economic and social development of Hong Kong. These collective efforts have led to the present culture of research which is robust, diversified and flourishing.

The largest universities have achieved international recognition that has been confirmed by the latest rankings. HKU, founded in 1911 and the oldest tertiary education institution in Hong Kong, is currently ranked 27th in the overall rankings; HKUST is 36th, CUHK is 44th, and CityU is 55th, according to the recently released 2016 QS World University Rankings.

HKU (<http://www.hku.hk/>) has established its reputation for research excellence and has gained the position of the most successful university in Hong Kong in terms of securing competitive research funding from the Research Grants Council (RGC). HKU has made major contributions in the field of cellular and molecular virology, highlighted by the discovery of the coronavirus responsible for the SARS outbreak in 2003. Work in the area of host-pathogen interactions has led to the emergence of a cluster of laboratories that participate in a so-called "Area of Excellence" scheme, focusing on influenza pathogenesis. Other areas of investigation are tumor biology and neurobiology of ageing and degeneration. HKU has entered a long-term collaboration with Institut Pasteur (France) that led to the establishment of the HKU-Pasteur Research Pole, which has a strong cell biology focus with the goal to understand how viruses exploit the cell during the early (entry) and late (assembly and budding) stages of the viral life cycle (<http://www.hkupasteur.hku.hk/>). Stem cell and regenerative research has recently become a major research focus. Recognized as one of the research centres in the Faculty of Medicine at HKU, the Stem Cell and Regenerative Medicine Consortium (SCRMC) currently enrolls over 150 members, of which 70 are faculty members at the level of Assistant Professor or above. Its mission is to establish a program in Regenerative Medicine that functions as a stem cell hub for attracting regional and foreign talents, and to serve as a bridge between China and Western countries. An area of particular interest is human pluripotent stem cell (i.e. human embryonic stem cell and induced pluripotent stem cell). For additional information about SCRMC, please see <http://www.med.hku.hk/stemcell> or contact stemcell@hku.hk. Recently, the Faculty of Medicine at the University of Hong Kong has established a Faculty Core Facility housing multiple high performance live cell imaging microscopes and cell sorters for communal use.

HKUST (<http://www.ust.hk/eng/index.htm>), was founded in 1991 and has quickly become one of the top universities; it has a strong emphasis on neurobiology with groups working on growth factors, synaptogenesis, neuronal differentiation and degeneration. Other groups are active in cell signaling through G-protein coupled receptors and vesicular transport. It organizes summer courses and runs a Joint Universities Summer Teaching Laboratory (JUSTL) program is an 8 week intensive research experience for Hong Kong postgraduate students at the Marine Biological Laboratory (MBL) in Woods Hole, Massachusetts, USA. Program activities are centered on a Croucher Foundation-funded summer laboratory located at the MBL. JUSTL program participants conduct individual research projects, attend lectures and seminars, as well as undergo training in specialist techniques. The JUSTL laboratory will be located within the "Neuroimaging Cluster", a group of regular MBL summer scientists (<http://ihome.ust.hk/~aequorin/justl/html/information.html>).

CityU (<http://www.cityu.edu.hk/>) assumed full university status in 1994 and has become the 14th ranked university in Asia according to the 2015 QS Asia University Rankings. The Department of Biology and

Chemistry was established in 1993 and each year offers studies and research in fundamental and applied aspects of life, molecular and environmental sciences. The Department strongly fosters interdisciplinary research and development activities. Recent acquisition of equipment highlighted the multidisciplinary nature of experimental and theoretical research. Examples include the first regional installation of an atomic force microscope coupled to an optical microscope, which can be used to examine the surface structures of cells and organism at the nanoscale. The Department of Biomedical Sciences (<http://www.cityu.edu.hk/bms/>) was established by the University in January 2014 to develop strategic growth areas of life sciences and become one of the leading centers in the Asia Pacific region specializing in biomedical education and cutting-edge research in targeted areas of biomedical sciences. For education, the Department provides professional programmes that best equip graduates for future careers in biomedical research, healthcare industry, pharmaceutical and biotech industry, and other related industries. Research in the Department focuses on the relationships between human health, organisms, and diseases, covering specific areas of life sciences including molecular and cell biology, genetics and genomics, physiology and systems biology, pharmacology and medicinal chemistry, microbiology and immunology, and epidemiology and public health.

Although there are no specific PhD programs in Cell Biology, Hong Kong has launched an International PhD Program to attract a highly talented pool of students. The application period opens every year in September and closes in December. There is one call every year. Established in 2009 by the Hong Kong Research Grants Council (RGC), the Hong Kong PhD Fellowship Scheme aims to attract the outstanding students in the world to pursue their PhD degree programs in Hong Kong's institutions. The Fellowship provides a monthly stipend of HK\$20,000 (approximately US\$2,600) and a conference and research-related travel allowance of HK\$10,000 (approximately US\$1,300) per year for a period of three years. One hundred thirty five PhD Fellowships have been awarded for the 2010/11 academic year¹. For awardees that need more than three years to complete the PhD degree, additional support may be provided by the chosen institutions. For details, please contact the institutions concerned directly. For more information, please visit the University Grant Committee website. (<http://cerg1.ugc.edu.hk/hkpfs/index.html>).

HKU-Pasteur Research Pole offers an annual Master Class in Cell Biology for postgraduate students, which is organized in the spring and includes both lectures and practical sessions. The course attracts renowned scientists who present their most recent studies in the field and provides a special environment where students can closely interact with leading scientists in an informal atmosphere (for more details, see: http://www.hkupasteur.hku.hk/index.php/Teaching/Courses/category/cell_biology).

In 2009, the Hong Kong government set up a Research Endowment Fund of \$18 billion (USD\$1=HKD\$7.7) to reaffirm its continued support to Research & Development; HKD\$4 billion of this fund has been deployed to establish the so-called Theme-Based Research Scheme (TBRS) for financing the development focused efforts on highly selected themes of strategic importance to the long-term development of Hong Kong and China. After a series of selection processes, "Stem Cell" and "Infection Diseases" have been selected to receive financial support.

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