

Cyprus School of Molecular Medicine

Cyprus Institute of Neurology and Genetics

The CSMM and CING seek to expand their network of collaborating institutions in the UK. The collaboration may take various forms as described below:

The Cyprus School of Molecular Medicine (CSMM) is a post-graduate school established by the Cyprus Institute of Neurology and Genetics (CING), in accordance with the Cyprus laws that regulate Universities and Institutes of Higher Education.

- 1) One form of collaboration may be for the CSMM to have access to the platform of the collaborating university, in order to deliver the existing CSMM programs via distance learning. This would be a collaboration under the terms of service provision (paid-for)
- 2) A further form of collaboration is the interest of the CSMM to host visiting academics or administrators from the collaborating University, within the scope of transfer of knowledge/expertise. Visiting academics will be given the titles of Visiting CSMM Faculty and will have the potential to initiate new collaborative projects.

Finally we are very keen to explore and discuss any models of collaboration that add value and offer mutual benefits to the collaborating organisations.

Profile of the Cyprus Institute of Neurology and Genetics (CING) and the Cyprus School of Molecular Medicine (CSMM)

The CSMM, housed within the CING premises, provides students with a unique educational experience combining taught courses and laboratory research which is conducted in specialized state-of-the-art departments and Clinics, in the areas of neurology, genetics and biomedical sciences. The CSMM currently offers MSc and PhD postgraduate accredited programs (by all official bodies of the Republic of Cyprus), with the use of European Credit Transfer System (ECTS) values. All CSMM programs are taught in English.

With the establishment of the School, the medical, research and educational activities of the CING have been enhanced and developed even further and the experience accumulated by CING staff, is immediately transferred to the students, exposing them to a very dynamic and competitive learning environment.

There is a plethora of thematic areas available for projects and interested students are encouraged to visit the website of the CING, where under the section Departments/Research they can view the current research areas of each Department (www.cing.ac.cy). It is noted that the students who select to carry out their project at the CING, will benefit from experiencing a dynamic research and academic environment and working alongside highly accomplished scientists and doctors of international reputation.

Postgraduate Programs

MSc Programs

The Cyprus School of Molecular Medicine (www.cing.ac.cy/csmm) currently offers the following MSc programs on Full-Time and Part-Time mode of study:

- 1) MSc in Molecular Medicine
- 2) MSc in Medical Genetics
- 3) MSc in Neuroscience and
- 4) MSc in Biomedical Research

The MSc programs are organized around taught courses, (including tutorial sessions for each course on a weekly basis) and a library or research project carried out in the Institute's departments. Successful students must pass all course examinations and the MSc Thesis Examination in order to be awarded the MSc degree. The CSMM offers 12-month MSc programs in full-time mode and 24-month MSc programs in part-time mode. Titles awarded: MSc Molecular Medicine, MSc Medical Genetics, MSc Neuroscience, MSc. Credits: 90 ECTS. The MSc in Biomedical research runs for two years on a F/T mode (3 years P/T) and is awarded with 120 ECTS. This is for students who are interested to gain a more in-depth practical laboratory experience.

The MSc programs combine the delivery of taught courses with the execution of original research laboratory projects

PhD programs

The Cyprus School of Molecular Medicine offers the following PhD programs on Full-Time and Part-Time mode of study:

- 1) PhD in Molecular Medicine
- 2) PhD in Medical Genetics
- 3) PhD in Neuroscience

The PhD programs have a minimum duration of 4 years and are organized around taught courses and a research project carried out in the Institute's departments. Successful students must pass all course examinations, the PhD Thesis Examination and have at least one first author publication in a peer-reviewed journal in order to be awarded a PhD degree. The doctoral programs can be extended to a maximum of six years for completion of the thesis work.

Scholarships are awarded specifically to all PhD students, for years 2, 3 and 4 to cover costs of consumables and/or a monthly allowance. PhD Studies can be extended up to 8 years depending on the mode of study.

Furthermore, the preparatory course "Introduction to Biomedical Science" is a 3-week course, offered during end of August-beginning of September of every year, and we would welcome BSc graduates and other professionals who wish to acquire knowledge in this field, regardless if they wish to proceed to postgraduate studies or not.

Accreditations

In regards to the Accreditation of the Cyprus School of Molecular Medicine, we would like to highlight the following 3 facts:

1. all the above programs are fully accredited by all official accreditation bodies of the Republic of Cyprus and the degrees awarded, are considered equivalent to University degrees
2. the CSMM possess the Erasmus Charter for Higher Education, hence, it uses the ECTS system which allows the acknowledgment of its degrees' workload within the European Countries and facilitates the mobility of its students and staff
3. the CSMM and its academic programs are also fully accredited in countries outside the European Union, i.e. the People's Republic of China, the Hashemite Kingdom of Jordan and the Sultanate of Oman. Additional information regarding the Cyprus School of Molecular Medicine can be retrieved via the CSMM website: www.cing.ac.cy/csmm/

What is the reason behind the establishment of the Institute?

The CING was established in 1990 as a bi-communal, non-profit, academic, medical organisation and offers specialized services, research and education in the areas of Neurology, Biomedical Sciences and Forensics.

Vision: Function as a National and Regional centre of Excellence in the areas of Neurology, Genetics, and Biomedical Sciences.

Mission: Provide high quality Clinical and Laboratory services, develop advanced research programs and provide post-graduate education in the areas of Neurology, Genetics and other Biomedical Sciences.

The Institute was created because there was a need in Cyprus to establish a National center for dealing with the diagnosis and management of patients suffering from neurological disorders. In addition, there was a need to establish

laboratories for the delivery of specialized diagnostic services for the better management of several diseases. These include common and rare disorders, such as cancer and thalassemia, that are prevalent in the Cypriot population. For these reasons the Institute is financially supported by the Cyprus government through the Ministries of Health and Finance.

The CING consists of 16 highly specialised departments which include neurology clinics, a Genetics Clinic and 11 laboratory departments. The clinics are headed by holders of MDs, who are Consultant Neurologists. They diagnose, treat and manage all patients who are referred to the CING with neurological disorders, including patients referred from abroad.

The 11 laboratory departments are headed by experienced scientists, holders of PhDs. The departments are: Molecular Genetics of Thalassemia, Molecular Virology, Cancer Genetics Therapeutics and Ultrastructural Pathology, Biochemical Genetics, Cytogenetics & Genomics, Cardiovascular Genetics & Forensic Genetics, Neurogenetics, Molecular Genetics, Function & Therapy, and the Bioinformatics Group. These departments receive biological specimens (DNA, blood samples, biopsies) which are analysed and investigated for diagnosis and research applications using specialized techniques that also embrace molecular biology and genetics. These activities cover a wide range of diseases, including neurological and neuromuscular disorders, thalassaemia, metabolic, infectious and cardiovascular diseases, chromosomal abnormalities, inherited metabolic disorders and cancer among many others. A major focus is on the investigation of inherited disorders, both common and rare which affect the Cypriot population. The Clinics and departments of the CING are accredited by CHKAS and by ISO 15189 respectively.

What are the most important breakthroughs the Institute in research?

- The development of Non-Invasive Prenatal Diagnosis (NIDP) of syndromes, caused by chromosomal abnormalities which has been patented. This has led to the establishment of a spin-off company, named NIPD.
- The development of a food supplement named NEUROASPIS which has been patented and is available worldwide. Currently NUROASPIS is in clinical trials in relapsing/remitting Multiple Sclerosis and early Parkinson's disease.

- The development of transgenic mice that manifest several human disorders, including peripheral neuropathies.
- The discovery of genes and genetic mutations that cause the development of several diseases such as:
 - Discovery of the genetic mutations that cause ataxias or other neuropathies.
 - Characterization of novel mutations in cancer predisposition genes, such as the BRCA genes that predispose to breast/ovarian cancer.

Has the Institute put any research result into clinical application and use? If so, how successful?

The Institute is directly involved in the National program for the prevention of Thalassemia as described below:

The birth of children with b-thalassemia was a major public health problem till the late 1980s, as 17% of Cypriots are carriers of a gene mutation. The Institute performs prenatal diagnosis in affected couples and since 1990, when the Institute undertook this National program of prenatal diagnosis, no more children have been born in Cyprus with b-thalassemia. This program is well known internationally as it is an efficient model, of how to restrict a genetic disease, in the population, for which there is currently no cure.

A similar National prevention program is in place for Freidreich's ataxia, a rare neurological disorder that is prevalent in Cyprus.

The Institute has pioneered a national program for the early detection of high risk families, that are prone to develop familial cancer syndromes, such as colorectal, or breast/ovarian cancer due to mutations in predisposition genes.

Which area of study will be most important for the institute in future decades?

- Understanding the early causes of neurodegenerative disorders and diagnosis of prodromal stages where intervention is likely to be more effective.

- Performing translational research on common and rare diseases, such as cancer and neurological disorders.
- Identifying the interplay between genetic predisposition and environmental factors, in order to develop intervention and early diagnosis strategies, for diseases such as multiple sclerosis.
- Bioinformatics applications to comprehensively analyze and gain insight, into the wealth of data created by high throughput technologies.

What are the competitive advantages of studying at the CSMM:

- We have a small intake of new students recruited every year
- We admit around 25 new MSc students across all programs and around 7-8 PhDs
- We have a small pool of students so that everyone is motivated and closely supervised to perform to their best ability and to have the opportunity to acquire hands on experience
- Every student has an assigned personal Academic as well as Research Advisor(s)
- Students are hosted in the CING departments to execute their research projects working alongside highly experienced scientists and doctors
- All departments of the Institute are engaged in the delivery of specialised services, the execution of innovative research as well as participating in educational programs. These three pillars work simultaneously under one roof, exposing students to a very rich learning environment.
- The CING is also a health service provider, so the students in addition to being exposed to patients also get first-hand experience on how new knowledge is applied to help in the diagnosis and management of diseases. This enriches their CV as they also acquire practical experience which makes them more competitive in the job market.