

院、工業技術研究院及國家實驗研究院之學術合作，落實研究的整合。目前已聘任多位中央研究院分子生物研究所及國家衛生研究院之傑出學者擔任本所之兼任教師以協助指導研究生。另外將加強與生技產業界的互動，提昇本所與產業界之合作。

(李文森 所長/教授)

## Graduate Institute of Medical Sciences

### History and Overview

The Graduate Institute of Medical Sciences (GIMS) at Taipei Medical University was authenticated by Ministry of Education in 1995 and established in 1996. GIMS was found by merging five previous Graduate Institutes including Basic Medical Science (with master and PhD programs), Cellular and Molecular Biology (with master and PhD programs), Medical Laboratory and Biotechnology (with master program and offering in-service refresher courses), Pharmacology (offering master degree) and Neuron Science (PhD program only). Under supervision and guiding of the former chairperson, Dr. Lin, Chien-Huang and the current chairperson, Dr. Lee, Wen-Sen, this recreated GIMS makes steadily progress in various aspects including teaching, research and community service. This accomplishment is attributed to an adequate integration of outstanding faculties and scientists, rich teaching experience and abundant research resources/equipments from each original program. We expect this energetic GIMS will grow stronger and can compete with other elite research institutes or programs in Taiwan today.

Currently, GIMS offers master and doctoral program as well as in-service refresher courses in five subprograms with specialization of (1) microbiology and immunology, (2) molecular pharmacology, (3) biochemistry and molecular cell biology, (4) cellular physiology and neuroscience and (5) medical laboratory science and biotechnology. In PhD program, students are not required to specify any one of subprograms; however, students who are pursuing master degree are obligated to specify

and register into one of these subprograms.

### Development Strategy

**I**ntegration of research resources  
**D**evelopment of research characteristics  
**T**he pursuit of academic excellence  
**E**nthusiasm in international perspective

### Direction and focus of

**d**evelopment Research-oriented teaching and learning  
GIMS is research-oriented institute and emphasizes the importance of graduate students with rational and logical consideration and planning to solve the questions appeared in experimental studies or research during graduate training. To strengthen students' fundamental professional knowledge and skills in biomedical science, GIMS offers several core courses related to biomedical research for students, such as cellular biology, molecular biology, applied statics, experimental designing, seminar in special topic and a coach course in improving scientific article writing. Beside these required core courses, each subprogram will also provide students several elective courses with characteristic professional topics associated with one of five subprograms' specializations. Under these well-planned courses and training, students will achieve more precise professional knowledge and advanced experimental skills.

### Disease-oriented basic research

GIMS is inclining to concentrate on the basic medical research related to medical issues and diseases. In GIMS, scientists use advanced equipments, technique and tools to decipher the causes of diseases, to dissecting the cellular and molecular mechanisms of diseases, to explore the potential genetic causes of – or correlation to– diseases and to decode the mysterious of regulation/modulation of diseases as well as those disease-causing proteins involved in cellular signaling pathway with tissues. Our goal, however, is to develop or

provide better preventions to diseases and treatments for patients. Our current primary research fields as following:

Identification of the pathogenesis of cerebrovascular diseases and neurodegenerative diseases

Understanding of cancer pathogenesis and development of anticancer drugs

Deciphering the genetic regulation and intracellular signal transduction of infectious diseases.

Studies of the pathogenesis of cardiovascular diseases and development of therapeutic agents or drugs.

Disclosures of the pathogenesis of reproductive organs related diseases.

Development of molecular diagnostic methods and probes

Investigations on genomics and proteogenomics.

### **Goal of Education**

In order to comply with the guidelines in the field of national biomedical research program, we design two distinct aims for PhD and master graduates in GIMS. To have each doctoral candidate to become a competent scientist or a primary investigator who can propose and execute scientific projects is our ultimate goal. In contrast to PhD students, each master graduate is expected to become an experienced research assistant with adequate research skills and fundamental knowledge in biomedical science and can support project managers or primary investigators to fulfill the research projects. In the long run, GIMS are looking forward to becoming a prestigious research institute with superb educational atmosphere and provide the first-rate scientists with broad international perspective and enthusiastic social responsibility to research institutes and pharmaceutical industries in Taiwan.

### **Distinctive Feature of Education**

#### *Courses Design*

The graduate program is designed for students

who intend to specialize in medical sciences.

The course covers the chemical, molecular and cellular basis of life, physiology, neurobiology, pharmacology and modern biotechnology. The purpose of this program is to educate the students with modern multidisciplinary knowledge and to become an independent researcher in the related fields.

#### *Facilities*

The Institute is fully equipped with major facilities and to ensure the maximum effectiveness of all the facilities in the Institute, resource sharing is main concept to encourage cooperative activities between investigators.

#### *Internationalization*

To ensure the global perspectives of the students and to expand the international research cooperation, we have some courses internationalized by infusion some international perspectives into existing courses and incorporating international components in the teaching and learning activities. These include the distinguished lecture series by international scholars, the short-term study abroad of the faculty and the graduate students, international research cooperation and attending the international conferences.

#### *Job Prospects after Graduation*

We have an enviable record for producing high-caliber graduates who move quickly into good careers soon after finishing their studies. Most of the graduated students have been employed or undertaken further study in academic or non-academic fields.

#### **Faculty**

Faculties are composed of 1. full-time professors, 2. joint appointment of full-time professors including faculties in the department of medicine and medical laboratory and Biotechnology and 3. adjunct professors. As matter the fact, GIMS provides a broad research field with extensive diversities of specific

interests including biochemistry, molecular and cellular biology, microbiology, immunology, parasitology, pharmacology, cellular physiology, neuroscience and medical laboratory and biotechnology.

### Distinctive Feature of Research and Prospect

The research and teaching interests of the faculty include fundamental, as well as medically relevant, problems in biochemical and molecular biology, microbiology and immunology, pharmacology, and cellular physiology and neuroscience. The research enterprise supports university research activity and explores cooperation to other research units including the National Academia Sinica, National Health Research Institute, Industrial Technology Research Institute of Taiwan etc. (Wen-Sen Lee, Director/Professor)

### 醫學科學研究所各組簡介

#### 微生物與免疫組

##### 簡史及概況

微生物及免疫學組於 2007 年成立，為醫學院醫學科學研究所編制內的研究組別，招收碩士及博士班學生。

##### 教學目標

微生物與免疫學組之教學目標為訓練研究生在不同的微免相關領域，吸收新知，熟悉實驗技術，培養獨立思考能力、嘗試自我解決研究上的問題。我們希望在碩士班學生的要求，能為國家培養具專業素養之生物科技人才，投入生技產業，做為研究開發的中間幹部。至於博士班學生的訓練，強調自我學習，目標則是培養在微免相關領域上，具有獨立進行研究能力之的高階人才。

##### 教學特色

在研究所課程規劃方面，開設有微生物學特論、分子免疫學特論、應用微生物學以及醫用免疫學以及專題討論等科目做為選修。醫學科學研究所亦開設有細胞生物學，分子生物學等必修科目，加強學生的基礎。除了傳統的課堂授課，加強學生在專業知識之吸收，書報討論及參加演講，也是訓練研究生解析研究文章，訓練自我表達能力的重要課程。

##### 師資

本組目前師資有教授 2 位、副教授 4 位、助理教授 3

位，合計 9 位成員。教師之專長涵蓋細菌學、真菌學、寄生蟲學、免疫學、細胞學、分子生物學、應用微生物學等不同領域。

##### 研究特色

本組老師的研究主題包含了現代微生物及免疫學的不同研究領域，研究方向可概分為營養免疫、寄生蟲學、精神免疫學、真菌遺傳學、藥用真菌、益生菌之應用、細菌致病機制、炎症反應之訊息傳遞、免疫調節食品開發、氣喘之基因治療、天然物或化學合成物之抗癌、抗菌、及免疫調節功能等項目。因為這些研究項目具跨領域性質，本組老師與其他組別或其他學術或產業界的研究人員也建立良好的合作關係。本組具有超高速冷凍離心機、生物發酵槽、多用途磁化分離器、螢光顯微鏡、位相差顯微鏡、聚合酶鏈鎖反應器、恆溫培養箱、以及 P2 級細菌實驗室及細胞培養室等儀器設備及空間，提供學生及教師良好的研究環境。

##### 展望

面對生物科技不斷創新與突破，以及人類面臨許多新興疾病之挑戰，微生物與免疫學知識的傳播與研究更顯重要。微生物的特性、新型疫苗的開發、益生菌在疾病之預防及治療之應用將會是本組的研究重點，希望對全民健康的保障，有所貢獻及發揮。

(蘇慶華 組長/教授)

#### 分子藥理組

##### 簡史及概況

本校於 2002 年成立藥理研究所，並與醫學系藥理學科教師共同指導研究生。主要目標在培養藥理專業人才，提升本校藥物開發與機制探討分析之水準。為求取學院內資源整合、建立老師間更多研究合作管道、讓學生在研究領域上有更多選擇機會，乃於 2007 年將醫學研究所基礎組，細胞及分子生物研究所、藥理學研究所、醫學檢驗暨生物技術研究所碩士班及神經科學研究所整併成為醫學科學研究所。目前醫學科學研究所總共分成 5 組，微生物暨免疫組、分子藥理組、生物化學暨細胞分子生物組、細胞生理暨神經科學組、醫學檢驗暨生物技術組。分子藥理組是醫學科學研究所的五組中的一組。

##### 教學目標

配合國家生技與產業藥物發展之導向。

醫療臨床單位之合作。

培訓藥物研發與藥效評估分析之藥理人才，以配合國家與社會需求。

提昇藥理教育與研究，強化學習整合與問題導向之教學。

##### 教學特色

課程規劃