



ACADEMIA SINICA Taiwan International Graduate Program

TiGp

<http://tigp.sinica.edu.tw>



Taiwan International Graduate Programme (TiGP) – Chemical Biology and Molecular Biophysics (CBMB)

Introduction

Under the leadership of former Director Andrew H-J Wang (2002-2006) and Director Ming-Daw Tsai (2006-present), the **Chemical Biology and Molecular Biophysics Programme** – founded by TiGP, Academia Sinica in 2002 – has advanced to one of the best interdisciplinary programmes in Taiwan. In collaboration with leading universities in Taiwan: National Taiwan University and National Tsing Hua University, the programme aims to enhance scholarly exchanges that will benefit both parties on their overall research achievements and to increase the number of research professionals in the field in hopes of promoting the economic and social development of Taiwan.

The programme covers a great range of subjects mainly in chemistry, physics, biology and interdisciplinary applications. Our distinguished faculty members specialise in biochemistry, bioorganic and bioinorganic chemistry, biophysics and bioinformatics, carbohydrate synthesis, mass spectrometry, molecular biology, organic and medicinal chemistry, structural biology. The core courses provided by the programme are "Experimental Molecular Biophysics" and "Advanced Chemical Biology".

Starting autumn 2009, CBMB is divided into two tracks: Chemical Biology (CB) track and Molecular Biophysics (MB) track. CB track collaborates with Department of Chemistry at NTU and NTHU while MB track collaborates with Institute of Biochemical Sciences at NTU and College of Life Science at NTHU. NTU and NTHU are the two top-ranked universities in Taiwan.

Our research facilities include nuclear magnetic resonance (solution and solid state); electron paramagnetic resonance (continuous and pulse); X-ray crystallography (rotation anode/synchrotron radiation); storage ring for spectroscopy using synchrotron radiation; advanced tandem mass spectrometry (Q/TOF, TOF/TOF, ion trap, FT-ICR); surface plasmon resonance; circular dichroism; stopped-flow; analytical ultracentrifuge; workstations for modeling; fluorescence spectroscopy (time-resolved and steady state); capillary electrophoresis; 2D gel electrophoresis; peptide synthesizer; isothermal titration calorimeter; GC-MS; HPLC, FPLC; cryo-electron microscopy and single molecule fluorescence microscopy; single molecule spectroscopy; scanning tunneling microscopy; atomic force microscopy; confocal microscopy; flow cytometry; high-throughput drug screening; and RT-PCR.

Faculty and Faculty Members

Academia Sinica

Synthesis

Dr. Chi-Huey Wong

Ph.D., Massachusetts Institute of Technology, MA, USA

Research in the Wong lab encompasses a broad spectrum of bioorganic and synthetic chemistry. Development of small molecules targeting proteins and RNA has been performed to investigate how small molecules interact with biologically important molecules and in turn, learn more about the function of those molecules. Development of both synthetic and bioorganic strategies is also paramount to our research.

Dr. Chung-Yi Wu

Ph.D., National Chiao-Tung University, Taiwan, R.O.C.

We focus on the development of new and efficient methods to prepare the important oligosaccharides and use sugar array to address their bio-function.

Dr. Tsung-Lin Li

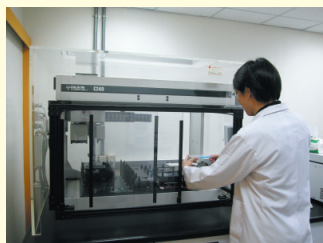
Ph.D., Chemistry, University of Cambridge, UK

Research interests are centered on natural product biosynthesis, functional & structural enzymology, and microbial pathogenicity.

Dr. Chung-Hung Lin (also specialised in Structural Macromolecules)

Ph.D., the Scripps Research Institute, CA, USA

Research lays a special emphasis on infectious diseases and cancers. The approaches include development of potent and selective enzyme inhibitors for drug discovery, preparation of molecular probes for specific protein profiling, deciphering structure information of enzyme/inhibitor complexes, and synthesis of biologically important sugars.



Dr. Wei-Chieh Cheng

Ph.D., University of California, Davis, CA, USA

Total synthesis of various biologically active products, new synthetic methodology, combinatorial chemistry, solid phase organic synthesis, chemical biology, and new drug discovery.

Dr. Shih-Hsiung Wu

Ph.D., University of Wisconsin, Madison, WI, USA

Carbohydrate chemistry and glycobiology; preparation of chiral or other useful intermediates by chemoenzymatic methods; Studies on the structure-functional relationship of proteins and peptides by NMR

Dr. Rong-Jie Chien

Ph.D., National Chiao-Tung University, Taiwan, R.O.C.

Development of new synthetic strategies and methods; Total synthesis and the study of the chemistry and biology of natural products and designed molecules.

Dr. Hsien-Ming Lee

Ph.D., Purdue University, IN, USA

Using chemistry as a tool to study, to probe and even to alter the biochemical reactions in the living cells is a very exciting topic in the area of chemical biology. We are very interested in any type of vesicle design that can deliver drugs or functional macromolecules into the living cells, such as surface functionalized liposomes, nanoparticles and cell penetrating peptides. Our lab also focuses on the design and the synthesis of many types of biosensor that can report to us what is going on in the living cells. These two directions will allow us, in the foreseeable future, to "run" or "test" our biochemical reactions in the living cells.

Dr. Cheng-Chung Wang

Ph.D., TIGP-CBMB Programme, Academia Sinica in cooperation with National Tsing Hua University, Taiwan, R.O.C.

Development of new tools and methodologies for carbohydrate Chemistry. Development of new technologies and methodologies for automated carbohydrate synthesis. Synthesis of glycoconjugates and study of their interactions with envelop proteins of viruses.

Structural Macromolecules

Dr. Che Alex Ma

Ph.D., University of Pennsylvania, PA, USA

Membrane Protein Structural Biology; The main focus of our research is to use X-ray crystallography and nuclear magnetic resonance (NMR) spectroscopy to elucidate the structures of membrane proteins.

Dr. Su-Chang Lin

Ph.D., National Defence Medical Centre, Taiwan, R.O.C.

The lab's future research goal is to unravel the signalling mechanisms in immune responses and cancers by structural and biochemical studies. Specifically, our goal is to better understand the signalling pathways that lead to or are involved in inflammatory diseases, which will help the development of therapies that could relieve the symptoms or treat the diseases. Our recent research effort has concentrated on the signalling complexes involved in TLR/IL-1R signalling that initiates innate immunity.

Dr. Andrew H.-J. Wang

Ph.D., University of Illinois at Urbana-Champaign, IL, USA

Using structural proteomics to understand the functions of important bio-systems. Primary methodologies are high throughput synchrotron protein crystallography and proteomics. Other advanced technologies, e.g., NMR spectroscopy, biophysical or immunological methods are used if necessary.

Dr. Ming-Daw Tsai (also specialised in Kinetics/Mechanism of Proteins)

Ph.D., Purdue University, IN, USA

The main research program of Tsai lab focuses on proteins involved in cell cycle progression that are closely related with cancer and virus infection.

Dr. Chung-I Chang

Ph.D., University of Texas Southwestern Medical Centre at Dallas, TX, USA

Structural Biology; Protein Engineering; Structure-Based Drug Discovery

Dr. Meng-Chiao Ho

Ph.D., University of Boston, MA, USA

Structure-activity studies of pharmaceutically important enzymes, protein crystallography, drug design.

Dr. Shang-Te Danny Hsu

Bijvoet Centre for Bio molecular Research, Utrecht University, Netherland

Molecular Biophysics, protein folding and Misfolding, NMR spectroscopy

Dr. Chin-Pan Chen

Ph.D., University of Washington, WA, USA

Structure/function study of biologically significant biomolecules by using a variety of biophysical techniques: GISP-like proteins, DNA-binding proteins and other proteins.

Dr. Der-Lii M. Tzou (also specialised in Spectroscopy)

Ph.D., School of Physics, Georgia Institute of Technology, GA, USA

Current research focuses on the specific interaction between vaccine viral envelope protein A27L and glycosaminoglycans (GAGs). Research topics include the self-assembly formation of A27L protein and the specific binding mechanism to heparin. Liquid state NMR and CD spectroscopy were utilized to study the molecular structure of A27L. In addition, SPR and ITC were applied to analyse the structure/function relationship. We aim to better understand the mechanism of viral entry to normal cell.

Dr. Ding-Kwo Chang

Ph.D., University of Wisconsin-Madison, WI, USA

Conformation of HIV-1 envelope glycoprotein fragments and its folding kinetics to understand binding between CD4, coreceptors and HIV-1 envelope glycoprotein; Protein-membrane interactions and proteomics from bioinformatics; Search of SARS coronavirus cellular receptor and inhibitors of viral attachment to the target cell. Development of antibody to the SARS virus for diagnosis and SARS treatment; Development of inhibitors of HIV-1, SARS coronavirus and other virus replication with derivatives of viral envelope fusion proteins

Dr. Wei-Hau Chang

Ph.D., Stanford University, CA, USA

Structure and function of macromolecules that are important in human disease processes; Reconstitution of a minimal DNA repair system of budding yeast; Cryo electron microscopy; Optical microscopy

Dr. Chwan-Deng Hsiao

Ph.D., University of Pittsburgh, PA, USA

The 70-KDa heat-shock protein cognate; Structural and Functional Study of the Outer Membrane Protein - Toc34 from Chloroplasts; Primosome Proteins - PriA and PriB

Dr. Hanna S. Yuan

Ph.D., University of Southern California, CA, USA

Structural and functional studies of DNA/RNA degradation nucleases in protection or killing of cells

Dr. Yen-Chywan Liaw

Ph.D., National Taiwan University, Taiwan, R.O.C.

Model Building and Crystallographic Studies of CHL1, SMN and Thioesterase I

Computational Bioinformatics

Dr. An-Suei Yang

Ph.D., the Johns Hopkins University, MD, USA

The research direction in this laboratory is to engineer proteins of significant biomedical importance. We develop computational and bioinformatic approaches to design stable protein scaffolds and use phage-based molecular evolution to engineer stability in folding and affinity toward target molecules. The goal is to enhance the insight into molecular basis on protein recognition and to use the engineered proteins in biomedical applications.

Dr. Jung-Hsin Lin

Ph.D., University of Duisburg, Germany

Pharmacoinformatics; computational biophysics; bioinformatics; structural biology; molecular simulations

Dr. Carmay Lim

Ph.D., University of Minnesota, MN, USA

Computational biophysics & chemistry; bioinformatics; protein structure, folding and dynamics; molecular recognition and structure-based drug-design

Dr. Ming-Jing Hwang

Ph.D., University of Pittsburgh, PA, USA

Computational biology, bioinformatics, structural biology, genome science

Dr. Chao-Ping Hsu

Ph.D., California Institute of Technology, CA, USA

Development and applications of related electronic structure theories of electrons in molecules and materials, in order to provide satisfactory prediction of chemical and physical properties with affordable computational cost; studies of protein structure and interaction between protein and other biological molecules with knowledge derived from genomic databases.

Kinetics/Mechanism of Protein**Dr. Yun-Ru Ruby Chen**

Ph.D., North Carolina State University, NC, USA

Equilibrium and kinetic mechanisms in protein folding; Amyloids and deficient enzymes in protein Misfolding disease

Dr. Lie-Fen Shyur

Ph.D., National Taiwan University, Taiwan, R.O.C.

Directed evolution and structure-function studies of industrial enzymes; Metabolomics and chemo-prevention bioactivities of medicinal plants

Dr. Inn-Ho Tsai

Ph.D., Northwestern University, IL, USA

The venom species of medical importance, representative or monotypic, or of high biodiversity

Dr. Po-Huang Liang

Ph.D., University of Maryland, MD, USA

Our laboratory has been mainly focusing on (i) enzyme mechanisms, structures, and inhibitor design. (ii) Biopolymer synthesis and degradation enzymes (iii) anti-cancer target identification and drug discovery.

Dr. Rita P.-Y. Chen

Ph.D., University of Cambridge, UK

The research interest is regarding protein folding and misfolding behaviours in order to answer how proteins can fold into its native structure and how certain proteins can misfold and cause disease.

Dr. Shui-Tein Chen

Ph.D., National Taiwan University, Taiwan, R.O.C.

Systems biology research; Enzymes in organic synthesis; Protein engineering by chemical approach; Enhance efficiency of drug delivery and targeting

Dr. Wen-Shan Li

Ph.D., Case Western Reserve University, OH, USA

Drug Discovery; Enzyme Kinetics and Mechanism; Enzymatic Bioremediation; Cellular Studies; Artificial enzyme

Dr. Steve Sheng-Fa Yu

Ph.D., National Tsing Hua University, Taiwan, R.O.C.

Identification and biochemical as well as biophysical characterization the bacterial oxygenases; Structure and functional studies of copper membrane oxygenases; Processing Engineering: Whole cells catalysis for chemical bulk synthesis of oxygenated fine chemicals.

Dr. Yu-Chan Chao

Ph.D., University of Arkansas, AK, USA

Protein Engineering and Molecular Manipulation of Baculovirus

Dr. Hsiu-An Chu

Ph.D., University of California at Riverside, CA, USA

Structure and mechanism of photosynthetic water oxidation

Dr. Shih-Long Tu

Ph.D., National Defence Medical Centre, Taiwan, R.O.C.

Biosynthesis of phytobilin chromophore

Dr. Chia-Fu Chou

PhD., State University of New York at Buffalo, NY, USA

The lab conducts multidisciplinary research at the boundaries between the physical and life sciences on one hand and engineering on the other, in the emerging field of Nano bioscience and technology, including biosensors, micro/nanofluidics, single molecule and cellular biophysics, and bioMEMS related subjects.

Spectroscopy**Dr. Guang-Chao Chen**

Ph.D., University of Texas at Austin, USA

Rho family GTPase signaling pathways in Drosophila developmental morphogenesis; Functional analysis of focal adhesion proteins in development and tumorigenesis

Dr. Kay-Hooi Khoo

Ph.D., Imperial College, University of London, UK

Development and applications of advanced mass-spectrometry and separation techniques in high sensitivity structural mapping and sequencing of complex glycans, particularly sulfated N- and O-glycans, polysialylation, and/or large polymeric glycan chains

Dr. Wei-Yuan Yang

Ph.D., University of Illinois at Urbana-Champaign, IL, USA

Research focuses on integrating methods from molecular biology, cell biology and optical imaging in studying the autophagic machinery and the proteasomal system.

Dr. Yu-Ling Shih

Ph.D., University of Cambridge, UK

Mechanisms of spatial and temporal control of bacterial cell division and functional study of bacterial cytoskeletons

Dr. Joseph Jen-Tse Huang

Ph.D., National Taiwan University, Taiwan, R.O.C.

Develop fluorescence-based methodologies, such as Förster resonance energy transfer (FRET), to investigate the conformational features of nascent polypeptide as they emerge from the ribosome during translation. Study interactions between nascent peptides and chaperon proteins as well as connections between protein misfolding and diseases. Preparation of different donor- and acceptor-labeled aminoacylated tRNAs as fluorescent FRET pairs to determine intra-molecular distances and distance distributions of the nascent polypeptide. Studies of in vitro protein folding driven by various effect (turn formation, hydrophobic interaction, solvation and etc.) using various biophysical method (including fluorescence technique, CD, NMR and etc.).

Dr. Yu-Ju Chen

Ph.D., Iowa State University, IW, USA

Analytical and physical chemistry; biochemical and biotechnological applications of mass spectrometry; structure elucidation and unimolecular dissociation mechanisms of bio macromolecules

Dr. Chia-Seng Chang

Ph.D. Arizona State University, AZ, USA

Bio-imaging and manipulation with atomic force microscopy (AFM) and phase-contrast transmission electron microscopy (TEM)

Dr. Keng-Hui Lin

PhD, University of Pennsylvania, USA

Microfluidics, Nano- and micro- material Assembly, Biophysics, Tissue Engineering Scaffold, 3D Cell Culture, Mechanics of Solid Foam

Other Fields**Dr. Tzu-Ching Meng**

Ph.D., University of Nebraska Medical Centre, NE, USA

The broad, long-term goal of our study is to delineate the fundamental mechanisms to the control of tyrosine phosphorylation -dependent signal transduction pathways.

Dr. Ting-Fang Wang

Ph.D., Harvard University, MA, USA

Biochemistry of protein complexes involved in DNA recombination and chromosome structure.

Dr. Wen Chang

Ph.D., University of Washington, Seattle, WA, USA

Vaccinia Virus Entry; Host Restriction Mechanism Antagonized by a VV Host Range Protein CP77; Dengue virus entry.

Dr. Wan-Sheng Sunny Lo

Ph.D., St. John's University, NY, USA

Three major foci in research projects: i) the regulatory roles of chromatin modifications in cell growth and development; ii) the molecular mechanism of filamentous growth in fungi; iii) develop a genome-wide survey of ChIP-on-Chip technology to map functional transcription network in cell growth and development.

National Taiwan University

Dr. Geen-Dong Chang

Ph.D., Physiology University of Illinois at Urbana-Champaign, USA

Cell responses to oxidative stress, Machinery and mechanism of cell plasma membrane repair, Target identification of small-molecule drugs, Development of analytical techniques for small molecules by LS-Mass Spectrometer.

Dr. Hung-Yuan Peter Chi

Ph.D., Yale University, USA

Our laboratory is interested in deciphering the functional and mechanistic role of homologous recombination in biology.

Dr. Chung-Yuan Mou

Ph.D., University of Washington, USA

Applications of Nano porous silica nanoparticle in biomedicine

Dr. Hwan-Ching Tai

Ph.D., California Institute of Technology, USA

Degradation mechanisms of oxidized proteins, proteasome composition and function, Cellular antioxidant defence, Interactome analysis by protein mass spectrometry and neurochemical changes at neuronal synapses in Alzheimer's disease.

Dr. Jim-Min Fang

Ph.D., Yale University, Conn, USA

Organic Synthesis and chemical biology including synthesis methods, asymmetric catalysis, bimolecular recognition, natural products and drug discovery

Dr. Chii-Shen Yang

Ph.D., University of Illinois at Chicago, IL, USA

G-protein structure and signal transduction in plant, regulation and specificity study of G-protein signal transduction using fluorescent probe modified RGS proteins, structural and kinetics study of photo sensory signal transduction in halobacteria.

Dr. Chen-Yuan Dong

Ph.D., University of Illinois at Urbana-Champaign, IL, USA

Molecular imaging using optical microscopy, intravital microscopy, cellular biomechanics, tissue engineering.

National Tsing Hua University

Dr. Biing-Jiun Uang

Ph.D., Yale University, CT, USA

Organic Synthesis; Natural Product Synthesis; Asymmetric Synthesis

Dr. Chun-Cheng Lin

Ph.D., the Scripps Research Institute, CA, USA

Syntheses of Complex Carbohydrates, Site Specific Immobilization of Protein, and Nano biotechnology

Dr. Reuben Jih-Ru Hwu

Ph.D., Stanford University, CA, USA

Bionano Sciences & Technology, Gene Therapy, Organic Synthesis and Reactions, Silicon Chemistry, Polymer Science

Dr. Dah-Tsyr Chang

Ph.D., the Johns Hopkins University, MD, USA

Genetic engineering; bioorganic chemistry

Dr. Jya-Wei Cheng

Ph.D., University of Washington, Seattle, WA, USA

Structural biology, drug design; nuclear magnetic resonance

Dr. Ping-Chiang Lyu

Ph.D., New York University, NY, USA

Structural biology; biophysics; bioinformatics

Dr. Rong-Long Pan

Ph.D., the Ohio State University, OH, USA

A new look at the structure and function of vacuolar H⁺-pyro phosphatase and H⁺-ATPase, Exploration on the plant DNA end-binding proteins, Bio nanotechnology.

Dr. Thy-Hou Lin

Ph.D., University of Michigan, MI, USA

Docking & 3D-QSAR; Molecular dynamics simulation & Binding free energy analysis; Quantum mechanics to study drug reaction mechanism; Carbohydrates metabolism-related genes of Lactobacillus; Construct a stable food grade integration vector for Lactobacillus.

Dr. Wen-Guey Wu

Ph.D., University of Virginia, VA, USA

The group is interested in the structure and dynamics of model and biological membranes, especially upon treatment with toxins or exogenously added lipids. We are also interested in applying NMR to study the structure and dynamics of model and biological membranes.

Dr. Yuh-Ju Sun

Ph.D., University of Pittsburgh, PA, USA

X-ray diffraction; macromolecular crystallography; structural biology

Dr. Shih-Che Sue

Ph.D., National Tsing Hua University, Taiwan, R.O.C.

NMR Developments and Applications in Structural biology and Pharmacology

Dr. Hsien-Sheng Yin

Doctor of Veterinary Medicine & Ph.D., National Chung Hsing University

X-ray crystallography; molecular immunology; molecular microbiology

Curriculum

Core Courses:

- 1. Advanced Chemical Biology I** (4 credits and required for all students)
Topics: Biological Macromolecules; Gene Expression and Protein Production; Enzymes: Catalysis and Mechanism; Enzymes: Kinetics and Inhibition; Protein 3-D Structures; Protein Folding (structure and dynamics); Protein Structural Simulation; Proteomics; Posttranslational Modification; Carbohydrate Chemistry; Enzymatic Reaction for Synthesis; Current Challenge in Glycobiology; Lipid and Membrane; Membrane Protein; Signal Transduction (kinase and phosphatase); Protein Network and Interaction; Infection and Resistance etc.
- 2. Advanced Chemical Biology II** (3 credits and required for all CB track students)
Topics: Synthetic Methodologies; Physical Organic Chemistry; Medicinal Chemistry; Bioorganic Chemistry; Drug Discovery etc.
- 3. Experimental Molecular Biophysics** (3 credits and required for all MB track students)
Topics: Mass Spectrometry; Protein Crystallography; Cryo-Electron Microscopy; NMR; Spectroscopy; Computational Biophysics etc.

Other Required Courses:

1. Colloquium (1 credit per term, a total of 4 credits)
2. Elementary Chinese (3 credits per term, a total of 6 credits; required for international students only)
3. Faculty Presentation (1 credit per term, a total of 1 credit)
4. Lab Rotation (2 credits per term, a total of 2 credits)
5. Seminar (1 credit per term, a total of 4 credits)
6. Thesis Research

Specialised/Elective Courses:

Students are encouraged to take courses in the field of Chemistry and Biology provided by other TIGP programmes.

Note: All courses are conducted in English.

Graduate Requirements

1. CB track

	Doctoral Programme
Duration	3-7 years
Minimum Credits	23-26 credits depending on university and department/institute assigned.
Required Courses	<ol style="list-style-type: none"> 1. Discussion in Advanced Chemical Biology I (Equivalent to "Fundamental Chemical Biology and Molecular Biophysics") 2. Discussion in Advanced Chemical Biology II 3. Lab Rotation: required for one academic year 4. Faculty Presentation: taken in term 1 of the 1st academic year 5. Seminar: required for 2 academic years 6. Colloquium: required for 2 academic years 7. Mandarin Class: required for international students for 1 academic year.
Specialised Courses	Advanced Chemistry or Biology courses offered by NTU, CBMB or other TIGP programmes to fulfil minimum credits for graduation. * Recommended course is <i>Experimental Molecular Biophysics</i> .
Other Requirements	<p>Cumulative Exam (CUM)</p> <ul style="list-style-type: none"> ◆ CB track students should pass at least 2 points in the first year and 7 points in 4 years. ◆ Subjects to choose from: Organic Chemistry, Physical Chemistry, Inorganic Chemistry, Analytical Chemistry, and Chemical Biology ◆ Maximum 4 points will be counted for each subject <p>Pre-Oral Exam</p> <p>Safety Training</p>

MB Track

	Doctoral Programme
Duration	3-7 years
Minimum Credits	23-26 credits depending on university and department/institute assigned.
Required Courses	<ol style="list-style-type: none"> 1. Discussion in Advanced Chemical Biology I (Equivalent to "Fundamental Chemical Biology and Molecular Biophysics") 2. Experimental Molecular Biophysics 3. Lab Rotation: required for one academic year 4. Faculty Presentation: taken in term 1 of the 1st academic year 5. Seminar: required for 2 academic years 6. Colloquium: required for 2 academic years 7. Mandarin Class: required for international students for 1 academic year.
Specialised Courses	Advanced Chemistry or Biology courses offered by NTU, CBMB or other TIGP programs to fulfil minimum credits for graduation. * Recommended course is <i>Experimental Molecular Biophysics</i> .
Other Requirements	<p>Non-Thesis Oral Proposal Examination</p> <p>MB track students must take a non-thesis oral proposal examination before the beginning of 5th semester.</p> <p>Progress Report or Thesis Proposal Evaluation</p> <p>Safety Training</p>

2. Qualifying Exams for Advancement to Ph.D. Candidacy

A. For students in "Chemical Biology" track

Cumulative Written Exam: Students can start taking the Cumulative Written Exams after enrolment. The Exam is divided into six major subjects: Organic Chemistry, Physical Chemistry, Inorganic Chemistry, Analytical Chemistry, Chemical Biology and Molecular Biology. Each time a student can choose 1 or 2 subjects

to take. Grade is rated in three levels: two points for grade A, one point for grade B, and no point for grade C. Student has to obtain at least two points by the end of the first year and obtain 7 points within four years with at least two subjects. Students who fail to meet these requirements will be regarded disqualified and must withdraw from the doctoral programme.

B. For students in "Molecular Biophysics" track

Non-thesis Oral Exam: Students who have passed all registered courses of the first academic year are eligible to take Non-thesis Oral Exam. Students must take first non-thesis oral exam before the first day of their 5th semester. One make-up exam is allowed but students have to retake the exam within 3-6 months after the first exam by using the same topic or a different topic approved by the committee. Students who still fail in the second exam will be disqualified from the Programme.

3. Minimum Publication Requirements

Students should meet the minimum requirement for publication set by the partner institutes they are registered in.

4. Ph.D. Thesis Defence Exam

A. Students who fulfil all of the requirements set by their registered university and CBMB programme are eligible to apply for Ph.D. thesis defence exam.

B. Committee member will grade the student based on the contents of the thesis report and student's performance on the oral presentation. The full and passing marks are 100 and 70 respectively. The final score will be an average of all scores by individual members. However, the examination should be recognised as fail if more than 1/3 of the examiners (≥ 2 persons) grade the result of examination less than 70.

C. There will be one make-up examination if the student fails the first examination. The make-up examination must be completed before the end of the student's seventh academic year. The minimum and maximum of the duration of Ph.D. study is three and seven years respectively.

5. Choosing a Thesis Advisor

Students must choose their thesis advisors before the end of their first academic year.

Admission Requirements

Qualifications

Candidature is open to both local and International students with a BSc or MSc degree in the appropriate field from an accredited institute.

English Language Requirements

For those applicants for whom English is not their first language an English test result of one of the following combinations is required.

TOEFL	IELTS	GEPT
Internet-Based TOEFL	79	High Intermediate Level
Computer-Based TOEFL	213	
Paper-Based TOEFL	550	

Application Process

If you wish to apply, please complete your application through online application system (<http://db1x.sinica.edu.tw/tigp/>) or post your application with required documents listed below to the following address:

TIGP Admission Office
Taiwan International Graduate Programme
128, Academia Road Sec.2
Nankang, Taipei 115
Taiwan, R.O.C



Required Documents

The required materials listed below must be in English. Original documents will be returned only upon request and must be accompanied by a self-addressed envelope.

- I. Bachelor's degree or Master's degree with signature of the registrar and seal of the issuing institution
- II. Official Academic Transcripts
Official transcripts with grading scales must be sent directly by the registrar of the institutions or submitted with the application form in sealed envelopes. An explanation for any non-standard grading system is highly recommended.
- III. Statement of Purpose
The statement of purpose should comprise of a brief statement of the candidates' scientific interests and career goals together with a description of past accomplishments that are not evident from other submitted documents. If applicable, the result of any research in progress may be specified.
- IV. 3 Letters of Recommendation
- V. GRE score (optional)
General and Subject scores of the General Test of the Graduate Record Examination (GRE) are optional but applicants are strongly encouraged to provide such documents. Applicants who do not provide a GRE result will instead be evaluated using the supporting documents submitted along with the application.
- VI. Supporting documents
We highly recommend applicants provide supporting documents relating to their professional experiences, publications, and other original works.
- VII. English Test result if English is not your first language
With regard to English requirements, CBMB applicants will be assessed in accordance with the policy as stated below.
 - ◆ Applicants whose first language is not English are required to submit a proof of an English qualification that fulfils at least the minimum required level from one of the following approved examinations in English language as part of the application procedure.
 - TOEFL (Test of English as a Foreign Language)
 - IELTS (International English Language Testing System)
 - GEPT (General English Proficiency Test) (locals only)
 - ◆ The test must be taken in the last 24 months.
 - ◆ Applicants who have completed a bachelor's or master's degree from an accredited college or university in countries where all instruction is provided in the medium of English are exempted from providing English test result. For example, applicants with degrees from: Australia, Canada (except Quebec), New Zealand, Singapore, United Kingdom (England, Scotland, Ireland, Wales) will automatically receive an English language waiver.
 - ◆ Applicants with degrees from countries where English is spoken but not all courses are provided in the medium of English are not exempt from providing English test result.
 - ◆ Citizenship with native English speaking countries does not automatically exempt an applicant from providing English test result if the applicant's first language is not English.

Please note that under special circumstances applicants who have difficulties in submitting English results before the application closing date but whom have been evaluated as qualified for the graduate programme with regard to other areas of their application may be conditionally admitted to the programme. Such applicants should submit their English test results to the Admission Office of the Taiwan International Graduate Program (TIGP) prior to July 31 each year.

Selection process

- I. Applications are assessed through a 70/30 split between a student's academic record (degree certificates etc.) and interview.
- II. The method of admission Interview
 - ◆ International Students– Skype interview
 - ◆ Local Students – face to face interview

Student Status and Degree Conferral Policy

In application form, students should indicate which track (Chemical Biology or Molecular Biophysics) they want to pursue for Ph.D. degree and their preferred institute to be assigned to (students applying to CB track will have an option between Department of Chemistry at National Taiwan University or at National Tsing Hua University; and students applying to MB track will can choose from Institute of Biochemical Sciences at National Taiwan University,

or College of Life Science at National Tsing Hua University). Upon completion of the programme, each student will be conferred a Ph.D. degree by the designated partner university and a certificate jointly signed by the President of Academia Sinica and Director of TIGP.

Tuition Fee and Medical Insurance Cost

Tuition fee is approximately NTD 58,000 (basic fee credits + fee about US\$ 1,800) per academic year. The health insurance cost is approximately NTD 7,250 (about US\$ 230) per academic year. Please note that International students will be qualified to join the Taiwan National Health Insurance programme four months after receiving student ID from the registered universities.

Fellowship and Stipend

The TIGP scholarship, payable to students as a monthly stipend, is granted to all students admitted to TIGP for up to 3 years; the scholarship amount for first year is guaranteed (NTD 34,000/ USD 1,133) whereas the stipend amount for the second and third year will depend on students' performance. Starting from 4th year, advisors will take charge of paying the students and the amount will be settled by both parties.

Living and Housing Costs

Meals are available at modest costs at the Cafeteria/Dining Hall, the Chinese restaurant, and the Western restaurant of the Activity Centre, Academia Sinica.

The Sport Centre on campus is equipped with jogging track, gym, swimming pool, aerobic court, tennis court, badminton court, and basketball court. The entrance fee for students to access the jogging track, gym, and swimming pool is NTD 50 (about US\$ 1.5) per person.

On campus

Self-catering single room is available for TIGP students for 2 years. The rent is NTD 5,500 (about US\$ 180) per month. Please be noted that there is an additional charge for parking spaces: NTD 1,000 (about US\$ 30) per month per space. Please visit <http://www.sinica.edu.tw/~tigp/dorm.html> for more information.

Off-campus

Rents for off-campus apartments range from NT\$ 5,000 - 15,000 per month.

Correspondence and Information

For more information about the program, please visit <http://www.sinica.edu.tw/~tigpcbmb/> or contact:

Dr. Chun-Hung Lin

CBMB Programme Coordinator
Institute of Biological Chemistry
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