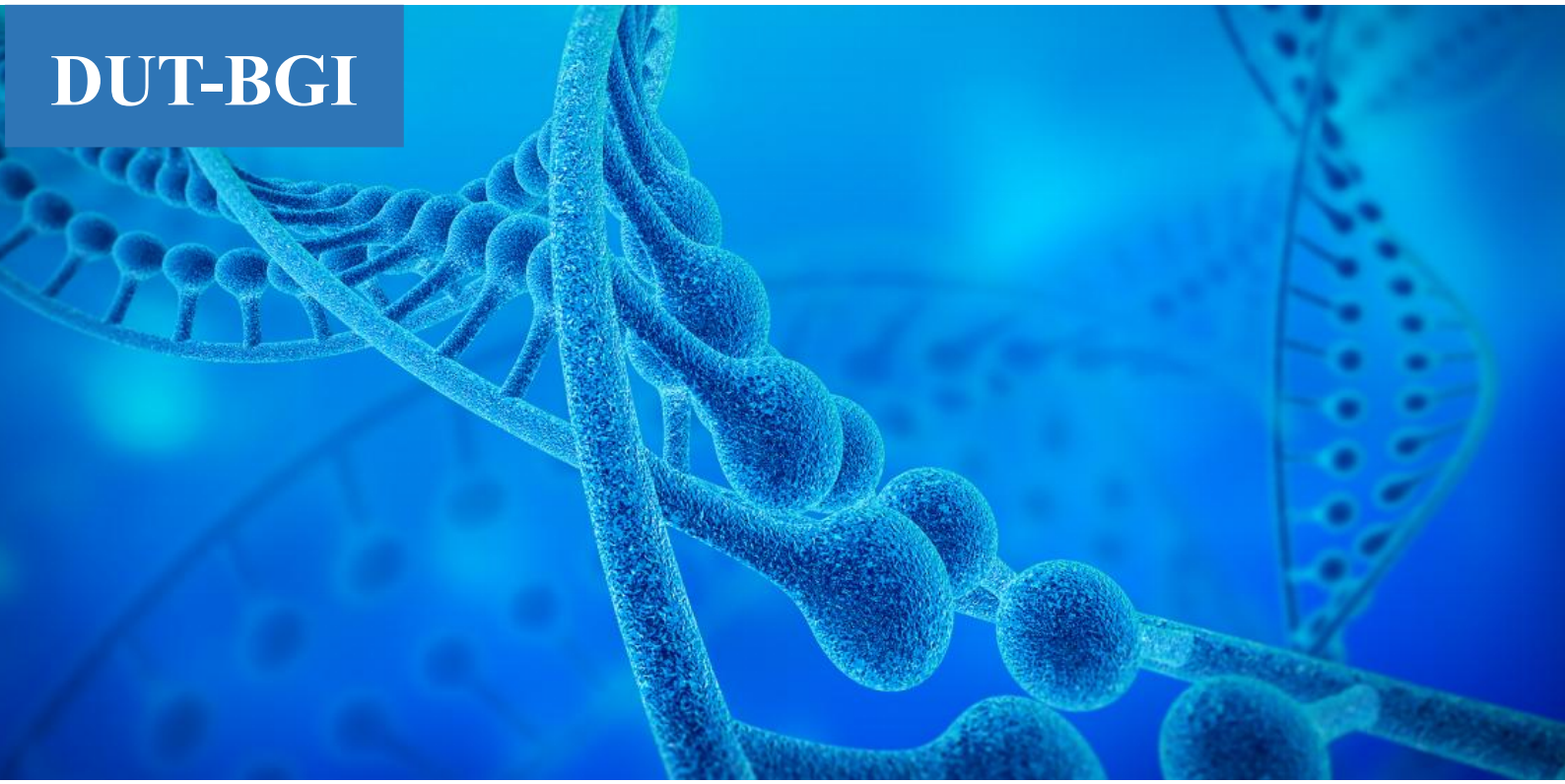
大连理工大学
DALIAN UNIVERSITY OF TECHNOLOGY

华大BGI

DUT-BGI



大连理工大学—华大国际班研究生项目

DUT—BGI Bioengineering Master and Ph.d Program

大 连 理 工 大 学 — 华 大 国 际 班 研 究 生 项 目

DUT—BGI Bioengineering Master and Ph.d Program

项目简介/Briefings

1.项 目 简 介 Introduction

大连理工大学华大国际班结合了我校“双一流”学科建设特色和华大集团国际领先的科研技术平台，旨在培养德才兼备能够从事生物工程领域基础与应用研究、技术开发和管理、具有国际视野的高层次拔尖创新人才。

With the combination of the featured "Double First-Class" discipline construction of Dalian University of Technology (DUT) and BGI's world-leading research and technological platform, DUT-BGI Bioengineering International Class aims to cultivate top-notch innovative talents who are morally upright, proficient in basic and applied research fields of bioengineering, skilled in technological development and management, and equipped with an international perspective.

授课语言 / Language of Instruction: 英文 / English

学制 / Duration:

硕士研究生项目 3 年，采用“0.5+2.5”模式

Master Program is 3 years, including 0.5-year in DUT and 2.5-year in BGI

博士研究生项目 4 年，采用“0.5+3.5”模式

Ph.D Program is 4 years, including 0.5-year in DUT and 3.5-year in BGI

***学生入学后第一学期在大连理工大学参与集中教学，后续在华大开展科研实践训练。**

*Students will finish the foundation courses in DUT during the first semester, then continue their scientific research practice in BGI.

2.项 目 优 势 Advantages

★ **“双导师”培养模式** / “Double Supervisor” cultivating mode

★ **优先加入华大管培生项目，定制个性化的全球职业发展规划**

Personalized global career development plan and priority entry into the BGI management trainee program

★ **参与最先进的基因技术和产品研发**

Firsthand access and contribution to the state-of-the-art gene technologies and products

★ **参与基因组学、单细胞组学、时空组学等国际大科学项目培训**

Immersive training in international big science projects of genomics, single-cell omics, and spatiotemporal omics

Vision — Omics For All

Mission — To be a world leader in the age of life sciences

Values — Curiosity, Application of Knowledge, Working for the Betterment of Mankind

1999
BGI founded.

100+
Services and solutions are available in 100+ countries and regions.

500+
500+ scientific papers published in CNNS (*Cell, Nature, New England Journal of Medicine, Science*.

10000+
BGI has more than 10000 employees worldwide.

Shenzhen
Headquartered in Shenzhen.

3900+
SCI publications

1715
Patents obtained

3.华大简介 About BGI

华大成立于 1999 年，是全球领先的生命科学前沿机构。秉承“基因科技造福人类”的使命，怀抱“健康美丽，做生命时代的引领者”的愿景，华大以“产学研”一体化的发展模式引领基因组学的创新发展。

Founded in 1999, BGI is one of the world's leading life science and genomics organizations. BGI's mission is to use genomics to benefit mankind and to be a leader in the era of life sciences. BGI follows a genomics development model of "research, production and application".

4.华大科研和教育成果 Research and Education of BGI

★ **根据自然指数 2023 年度榜单，华大连续 8 年蝉联亚太生命科学企业榜首，全球生命科学企业排名第 5**

2023 Nature index: BGI has **topped the Asia Pacific life science corporation for the eighth year running**. BGI ranks **5th among global life science corporation**

★ **华大 4 个学科领域（分子生物遗传学、临床医学、生物学与生物化学、植物与动物科学）位列 ESI 全球前 1%**

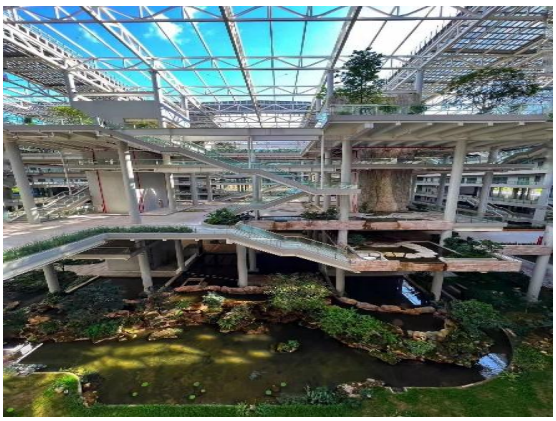
4 disciplines (Molecular Biogenetics, Clinical Medicine, Biology and Biochemistry, Plant and Animal Sciences) have entered the top **1% of ESI** in the world

★ **已培养学生共计 2,314 人次，其中博士研究生 479 人、硕士研究生 810 人、本科生 1,025 人**

Fostered 2,314 talents in total, including 479 PhD students, 810 MSc students and 1025 BSc students

★ **学生发表 SCI 论文超过 600 篇，其中超 200 篇发表在《科学》、《自然》、《细胞》等顶级期刊上，共获专利 400 多项、软著 160 多项**

Students’ achievements: **More than 600 scientific papers**, including 200+ published on top journals such as Science, Nature and Cell, as well as **more than 400 patents and more than 160 software copyrights**



1.刘 斯 奇　Prof. Siqi LIU

华大集团联合创始人、监事长 / Co-founder, Chairman of the Supervisory Board of BGI Group

作为联合创始人，创建了华大基因和中国科学院北京基因组研究所。国家重大科学研究计划（973 项目）“基于高精度质谱数据的蛋白质表达谱定量计算方法的研究及应用”的首席科学家。主持并完成了一系列国家级的科学研究项目，如 863 项目“重大疾病分子分型和个体化诊疗”、973 项目“极端微生物的噬热分子机制研究”、“人类蛋白质组计划”、政府间合作项目“应用蛋白质组学、基因组学技术对消化道肿瘤及皮肤黑色素瘤肿瘤标志物的研究”等。长期从事蛋白质分析技术的研发，同时利用规模化生物学分析手段研究肺癌、胃癌、糖尿病等疾病的生物标志物和致病分子机制。作为通讯作者在重要国际杂志上发表学术论文超过百篇。

研究方向 Research Orientation: 基因组及蛋白质组学 / Genomics and Proteomics

Prof. Siqi Liu founded BGI and the Beijing Genomics Institute of the Chinese Academy of Sciences as a co-founder. He is the Chief scientist of the National Major Scientific Research Program (973 Project) "Research and Application of Quantitative Calculation Methods for Protein Expression Profiles Based on High-Precision Mass Spectrometry Data". During the ten years since returning to China, he has presided over and completed a series of national-level scientific research projects, such as the 863 Project "Molecular Classification and Individualized Diagnosis and Treatment of Major Diseases", the 973 Project "Research on the Thermophilic Molecular Mechanism of Extremophile Microorganisms", "Human Proteome Project", Intergovernmental Cooperation Project "Research on tumor markers of digestive tract tumors and skin melanoma using proteomics and genomics technologies", etc. He has long been engaged in the research and development of protein analysis technology, and uses large-scale biological analysis methods to study biomarkers and pathogenic molecular mechanisms of lung cancer, gastric cancer, diabetes, and other diseases. As the corresponding author, he has published more than 100 academic papers in important international magazines.

2.徐 讯　Dr. Xun XU

华大集团执行董事、深圳华大生命科学研究院院长 / Executive Director of BGI Group, Director of BGI Research

担任国际标准化组织/生物技术委员会（ISO/TC276）副主席，全国生物样本标准化委员会（SAC/TC559）专家委员，广东省高通量基因组测序与合成编辑重点实验室主任。目前在单细胞、基因测序技术等领域发表两百余篇国际顶级科学期刊研究论文，近五年引用次数达 46000 余次，连续七年入选科睿唯安“高被引科学家”。主持或多项重大项目，包括国家 863 计划、“前沿生物技术”国家重点研发计划等。曾荣获“科技部大挑战青年科学家”、“鹏城杰出人才奖”、“广东省科学技术奖”一等奖，入选百千万人才工程“有突出贡献中青年专家”，谈家桢生命科学产业化奖等。

研究方向 Research Orientation: 单细胞和时空组学 / Single-cell and Spatiotemporal Omics

Dr. Xu is appointed as Vice-Chairman of International Organization for Standardization/Biotechnology Committee (ISO/TC276), and on the National Committee for Standardization of Biological Specimens. In addition, he is also elected as Director-at-Large–China of International Society for Biological and Environmental Repositories (ISBER). His research focuses on the sequencing technologies, single-cell sequencing, stereo-seq technologies and applications of sequencing technologies in precision medicine and biodiversity. Dr. Xu has authored or co-authored 300+ scientific papers published in top international peer-reviewed journals including Nature, Science, and Cell. The number of citations using his published papers in the past five years has reached more than 24,000 times. He’s also Selected as a "Highly Cited Scientist" by Clarivate Analytics for eight consecutive years. Dr. Xu has either led or participated in several major national scientific research projects and several international projects, including the National 863 Sequencer Project, the National Key R&D Program, and the National Development and Reform Commission's Industrial Agglomeration Project. He has been awards with many honors, such as “Grand Challenges-Young Scientist” by MOST and Bill & Melinda Gates Foundation, “Guangdong Science and Technology Award”, “Natural Science Award of MOE”.

3.顾 颖 Dr. Ying GU

深圳华大生命科学研究院副院长 / Vice-director of BGI Research

深圳市海外高层次人才，深圳市优秀科技创新人才“杰出青年”，中国老年学和老年医学学会抗衰老分会委员。利用单细胞及空间组学等技术，在物种嵌合、胚胎发育、再生机制等生物前沿领域进行科学研究，分析不同物种早期胚胎发育差异，揭示物种嵌合竞争机制，解析蝾螈肢体及脑再生的分子细胞动态过程，带领团队在 Science 发表蝾螈脑再生封面研究文章，并在 Nature，Cell Stem Cell，Cell Discovery，Developmental cell, Protein & Cell 等期刊产出系列成果，为发育及再生医学研究提供了重要的理论基础。近五年共发表论文 35 篇，其中以第一作者（含共同）或通讯作者（含共同）发表文章 15 篇，申请专利 17 项。

研究方向：细胞及分子生物学、发育生物学、干细胞及基因编辑技术、细胞组学

Research Orientation: Cell and Molecular Biology, Developmental Biology, Stem Cell and Gene Editing Technology, Cell omics

Dr. Gu, Overseas High-Caliber Personnel in Shenzhen, is appointed as the Recipient of the Shenzhen Science and Technology Program for Distinguished Young Scholars. She is also a member of the Anti-Aging Branch of the Chinese Geriatrics and Gerontology Society. Using techniques such as single-cell and spatial genomics, she conducts scientific research in the fields of species chimerism, embryonic development, and regenerative mechanisms to analyze the differences in early embryonic development among different species, uncover the competition mechanisms of species chimerism, and decipher the molecular and cellular dynamic processes of limb and brain regeneration in salamanders. She led her team to publish a cover research article on salamander brain regeneration in Science, and has produced a series of achievements in journals such as Nature, Cell Stem Cell, Cell Discovery, Developmental Cell, Protein & Cell, providing important theoretical foundations for developmental and regenerative medicine research. She has published 35 papers and applied for 17 patents in the last 5 years.

4.沈 玥 Dr. Yue SHEN

深圳华大生命科学研究院合成生物学领域首席科学家 / Scientist of Synthetic Biology, BGI Research

国家重点研发计划项目首席科学家，国家自然科学基金优秀青年科学基金项目获得者。完成人工设计合成 3 条酿酒酵母染色体，建立一系列合成基因组学的技术与方法。开发自主知识产权高通量芯片 DNA 合成设备并实现技术转化，建立生物与信息融合（BT 与 IT 融合）的大数据存储新范式。发表论文 47 篇，申请/授权发明专利 53 项。获得“2017 年中国科学十大进展”与“2019 年度天津市自然科学特等奖”、“2021 年深圳市科学技术奖自然科学类一等奖”荣誉。

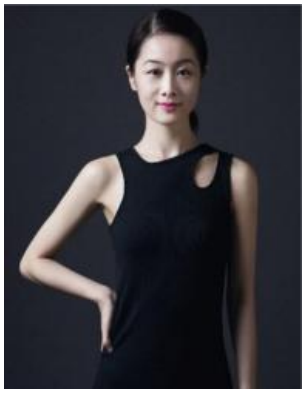
研究方向：合成基因组学和合成生物学

Research Orientation: Synthetic Genomics and Synthetic Biology

Dr. Shen is the chief scientist of the National Key Research and Development Program and the National Science Fund for Excellent Young Scholars. She designed and synthesized three Saccharomyces cerevisiae chromosomes and established a series of synthetic genomics technologies and methods. She has developed independent intellectual property rights for high-throughput chip DNA synthesis equipment and realized technology transformation, and established a large scale of biology and information integration (BT and IT integration) A new paradigm for data storage. She Published 47 papers and applied or authorized 53 invention patents. Some of the publications were selected as the “Top 10 Scientific Advances of 2017 in China”, the top prize in natural science of “the 2019 Tianjin Science and Technology Awards”, and the first prize in 2021 Shenzhen Science and Technology Award

5.肖 敏 凤　Dr. Minfeng XIAO

深圳华大生命科学研究院专项科学家、华大学院副院长 / Scientist of BGI Research, Vice-dean of BGI College



近年来致力于整合基因组学、合成生物学、人工智能等前沿技术来开展防控感染性疾病、慢性疾病相关的“基础—应用”全链条创新研究。主持国家科技重大专项-“一带一路”传染病防控保障关键技术研发子课题、国家重点研发计划-新型冠状病毒感染的肺炎疫情应急专项子课题、国家重点研发计划-面向合成生物系统海量工程试错优化的人工智能算法研究与应用子课题、国家自然科学基金青年项目、广东省自然科学基金博士启动项目。发表论文 20 多篇，包括 Cell Host & Microbe, Cell Reports Methods, Nucleic Acids Research、Genome Medicine 等，其中一作（含并列）5 篇、通讯（含共同）9 篇， 申请专利 7 项，代表性成果“基于临床样本进行新冠病毒高通量测序的多种方法”入选 2020 年 Springer Nature 中国学者高影响力研究。

研究方向：细微生物基因组学与合成生物学

Research Orientation: Microbial Genomics and Synthetic Biologyomics

In recent years, Dr. Xiao has been devoted to integrating cutting-edge technologies such as genomics, synthetic biology, and artificial intelligence to carry out innovative research on the "basic-application" full-chain approach for preventing and controlling infectious and chronic diseases. She has published over 20 research papers, including publications in Cell Host & Microbe, Cell Reports Methods, Nucleic Acids Research, and Genome Medicine. Notably, she has also filed 7 patents, demonstrating her commitment to innovation and intellectual property. Her significant achievement, "Multiple methods for high-throughput sequencing of SARS-CoV-2 from clinical samples," was included in the 2020 Springer Nature China Scholar Highly Cited Research.

6.董 旋　Dr. Xuan DONG

深圳华大生命科学研究院主任科学家 / Scientist of BGI Research

深圳市海外高层次人才，深圳市盐田区“梧桐人才”。主要从事肿瘤免疫治疗新技术研发。聚焦新抗原相关肿瘤免疫治疗技术，完成了华大肿瘤免疫治疗全贯穿研发平台的搭建，建立了从临床肿瘤样本出发的新抗原靶点质谱发现挖掘、多组学新抗原特异性 T 细胞鉴定、微流控高通量 TCR 功能筛选验证的全流程贯穿研发平台。该平台可快速、高效、准确地为临床肿瘤肿瘤患者提供潜在的免疫治疗候选靶点，助力临床免疫治疗研究和应用。主持或作为骨干参与了多项国家和深圳市科各级研究项目，发表 SCI 文章 20 余篇，申请发明专利 7 项。

研究方向：肿瘤免疫细胞治疗

Research Orientation: Therapy of Tumor Immune Cell

Dr. Dong is awarded as the Overseas High-level Talent in Shenzhen and the "Wutong Talent" in Yantian District, Shenzhen. She is mainly engaged in the research and development of new technologies for cancer immunotherapy. She focuses on neoantigen-related cancer immunotherapy technologies and has completed the construction of BGI's comprehensive research and development platform for cancer immunotherapy. The platform establishes a pipline for the discovery and exploration of neoantigen targets from clinical tumor samples and neoantigen-specific T cells in high-throughput based on the microfluidic droplet platform. This pipeline can quickly, efficiently, and accurately provide potential immunotherapy target candidates for cancer patients. She has led or participated as a core member in multiple national and Shenzhen-level research projects, published more than 20 SCI papers, and filed 7 patents.

培 养 方 式
Education and Training Methods

以课程学习和参与科学研究为主，重点进行科学研究方法、团队合作和创新能力的培养。研究生培养实行双导师负责制和以导师为主的指导小组负责制，每名学生由一名大工导师和一名华大导师共同辅导。导师（组）负责研究生日常管理、学风和学术道德教育、制订和调整硕士研究生培养计划、组织安排开题、指导科学研究和学位论文等。在研究生培养过程中，充分发挥导师（组）的指导作用，又要特别注重硕士生自学、独立工作和创新能力的培养。

研究生课程学习实行学分制，在申请答辩之前须修满所要求的学分。

The graduate education is mainly focused on course learning and scientific research participation, with an emphasis on cultivating scientific research methods, teamwork, and innovative abilities. The graduate education is conducted under the guidance of a supervisor from the university and a supervisor from BGI, who are jointly responsible for the daily management of the graduate students, academic and ethical education, the formulation and adjustment of the master's graduate training plan, organization of the thesis proposal, guidance of scientific research and dissertation writing, etc. During the graduate education process, the guidance of the supervisor is fully utilized, while special attention is paid to the cultivation of the master's students' self-learning, independent work, and innovative abilities.

The graduate curriculum adopts a credit system, and students must complete the required credits before applying for the defense.

硕 士 学 分 要 求 与 课 程 设 置
Master Credit Requirements and Course Settings

★仅供参考，可能调整。

★For reference only and subject to changes.

总学分不低于 32 学分，其中必修课 30 学分，选修课不低于 2 学分。

The total credits shall not be less than 32 credits, including 30 credits for compulsory courses and 2 credits for elective courses.

博 士 学 分 要 求 与 课 程 设 置
Ph.D Credit Requirements and Course Settings

★仅供参考，可能调整。

★For reference only and subject to changes.

总学分不低于 19 学分，其中必修课 18 学分，选修课不低于 1 学分。

The total credits shall not be less than 19, including 18 credits for compulsory courses and 1 credit for elective

博士学习年限
Length of Ph.D Study

国际博士研究生的基本学制为 4 年，在校修业年限为 6 年，超过修业年限的博士生须办理离校手续、离校；申请博士学位最长年限为 8 年（含休学时间）；各类博士研究生在校学习最短时间为 2.5 年（含提前答辩）。

The normal duration of full time Ph.D programs in DUT is 4 years and the length limit of schooling for Ph.D programs is 6 years. Postgraduate students whose actual length of schooling has exceeded 6 years shall perform the leaving procedures and leave the university. The length limit of degree application for Ph.D programs is 8 years (suspension period included): the minimum duration of on campus schooling for Ph.D programs is 2.5 years (early thesis defense included).

入学后第一个学期（0.5 年）在大工学习汉语、中国文化类课程、数学等相关课程，之后的 7 个学期（3.5 年）在华大学习其余专业课程并开展研究。

After enrollment, in the first semester (0.5 years) students shall study at DUT to learn the Chinese language courses, Chinese culture related courses, mathematical course etc., while in the following seven semesters (3.5 years) students shall study at BGI to learn the other academic courses as well as to conduct research.

如因学术性的正当理由，博士研究生在基本学制结束前可申请学业延期。延期以学期为单位。学生提交所需文件并经相关部门审核批准后，在校修业年限可最多延长至 6 年。延期期间学生继续在华大开展科研完成毕业论文等相关要求。

For academically legitimate reasons, students of Ph.D programs may apply for study extension before the basic schooling period expires. The extension could be applied for by semesters. After submitting the required documents and obtaining approval from the relevant departments, the study period could be extended to a maximum of 6 years. During the extended period, students shall continue their research at BGI to fulfill the requirements for their thesis.

硕士学习年限
Length of Master Study

国际硕士研究生的基本学制为 3 年，在校修业年限为 4 年，超过修业年限的硕士生须办理离校手续、离校；申请硕士学位最长年限为 5 年（含休学时间）；各类硕士研究生在校学习最短时间为 2 年（含提前答辩）。

This The normal duration of full time master programs in DUT is 3 years and the length limit of schooling for master programs is 4 years. Postgraduate students whose actual length of schooling has exceeded 4 years shall perform the leaving procedures and leave the university. The length limit of degree application for master programs is 5 years (suspension period included): the minimum duration of on campus schooling for master programs is 2 years (early thesis defense included).

入学后第一个学期（0.5 年）在大工学习汉语、中国文化类课程、数学等相关课程，之后的 5 个学期（2.5 年）在华大学习其余专业课程并开展研究。

After enrollment, in the first semester (0.5 years) students shall study at DUT to learn the Chinese language courses, Chinese culture related courses, mathematical course etc., while in the following five semesters (2.5 years) students shall study at BGI to learn the other academic courses as well as to conduct research.

如因学术性的正当理由，硕士研究生在基本学制结束前可申请学业延期。延期以学期为单位。学生提交所需文件并经相关部门审核批准后，在校修业年限可最多延长至 4 年。延期期间学生继续在华大开展科研完成毕业论文等相关要求。

For academically legitimate reasons, students of master programs may apply for study extension before the basic schooling period expires. The extension could be applied for by semesters. After submitting the required documents and obtaining approval from the relevant departments, the study period could be extended to a maximum of 4 years. During the extended period, students shall continue their research at BGI to fulfill the requirements for their thesis.

第一学期，享受大连理工大学国际学生校长奖学金；其他学期，享受华大补贴。

The DUT scholarship will cover your first semester study at DUT, and BGI Stipends will cover your the rest semesters at BGI.

1.大连理工大学国际学生校长奖学金

DUT Scholarship

全额奖学金 (Full Scholarship)：

1. 免学费、在大工学习期间住宿费

Tuition waived, free accommodation at DUT.

2. 在大工学习期间生活费：博士研究生 1800 元/月；硕士研究生 1500 元/月

Living allowance at DUT: Ph.D students 1800 CNY/month, Master students 1500 CNY/month.

部分奖学金 (Partial Scholarship)：

1. 免学费，其他费用自理

Only tuition waived.

2.华大研究生补贴

BGI Stipends for Postgraduates

华大基础补贴标准 (BGI Stipends for Postgraduates)：

1. 硕士研究生 （Master students）：2000-3000 CNY/month + 500 CNY*k.
2. 博士研究生 （Ph.D students）：3000-4000 CNY/month + 500 CNY*k.

*k 为奖励补贴考评系数，由所在培养部门决定

*k refers to evaluation coefficient of incentive subsidy (500 CNY), which will be determined by a student's BGI supervisors.

3.华大奖优型奖学金

BGI Merit-based scholarships on a competitive basis

华大基础补贴标准 (BGI Stipends for Postgraduates)：

1. 硕士研究生 （Master students）：5000-20000 CNY/academic year.
2. 博士研究生 （Ph.D students）：10000-30000 CNY/academic year.

*每年约有 5%的华大在读学生会获得该奖项，具体金额以当年的评选办法为准

*Each year, around 5% of all current students will be awarded, and the specific amount is subject to the selection regulations of the current year.

4.其他华大补贴

BGI Other Stipends

膳食补助 (Meal allowance)：800 CNY/month

交通补助 （Transportation allowance）：500 CNY/year

住宿：深圳学习期间免费提供双人间住宿

Accommodation: complimentary accommodation of twin room at BGI, Shenzhen

助教金：担任华大助教可获得每小时 100 元人民币的补贴

Teaching Assistantships: Teaching assistants at BGI receive a stipend rate of 100 CNY/per hour

项目激励：学生参与华大科研项目表现突出者有机会获得项目奖金。

Project Bonuses: Students with outstanding performance will have the opportunity to receive project bonuses by participating in BGI's research projects.

1.合成生物学与系统生物工程
Synthetic Biology and Systems Biotechnology

以高效生产生物产品为目标，重点研究高效细胞工厂构建的理论与技术，在基因-蛋白调控与互作理论、细胞代谢网络适配及重建、高性能元件库、基因编辑工具酶、分子靶标预测工具等方面形成优势和特色。

研究方向：基因编辑与合成生物技术；生物信息学与计算生物学；代谢工程与合成途径优化等。

With the goal of efficient production of biological products, we focus on the theoretical and technological construction of high-efficiency cell factories. Our research strengths and characteristics include gene-protein regulation and interaction theory, cell metabolism network adaptation and reconstruction, high-performance component libraries, gene editing enzyme tools, and molecular target prediction tools.

Research directions: gene editing and synthetic biology technology, bioinformatics and computational biology, metabolism engineering and synthetic pathway optimization, etc.

2.生物催化与转化工程
Biocatalysis and Transformation Engineering

以国家中长期发展战略中的生物质能源和生物基化学品为主攻方向，在高效细胞工厂构建、反应过程控制、分离过程优化及过程集成等方面形成优势和特色。

研究方向：液体生物燃料的生物加工过程工程；生物基化学品的生物转化与分离工程；海洋能源微藻生物技术等。

This major research direction focuses on national medium- and long-term development strategies such as biomass energy and bio-based chemicals. It has formed advantages and characteristics in efficient cell factory construction, reaction process control, separation process optimization, and process integration.

Research directions: Engineering of bioprocessing for liquid biofuels; Biocatalytic transformation and separation engineering of bio-based chemicals; Microalgae biotechnology for marine energy, etc.

3.生物医药与材料工程
Biomedical and Material Engineering

瞄准生物药物和生物材料产业的重大需求，通过设计、改造等方法制备具有优良性质和功能的新型生物药物与生物材料。主要聚焦在生物工程技术在生物材料的开发与应用、纳米生物药物及新型生物材料的研究与应用等方向。

研究方向：血液净化吸附材料；人体组织体外构建；纳米生物给药系统；纳米生物材料；生物小分子药物；生物分析诊断新技术新方法等。

This research direction targets the significant demand for the biopharmaceutical and biomaterial industries, aiming to develop new biopharmaceuticals and biomaterials with excellent properties and functions through design and modification methods. The focus is on the development and application of biotechnology in biomaterials, research and application of nanobiopharmaceuticals, and new biomaterials.

Research directions: blood purification adsorption materials, in vitro construction of human tissues, nanobiopharmaceutical delivery systems, nanobiomaterials, biopharmaceutical small molecule drugs, and new technologies and methods for biologic analysis and diagnosis.

4.生物靶标与分子工程
Biological Targets and Molecular Engineering

主要聚焦于有害生物、恶性肿瘤、生物钟等新型生物靶标的发现研究，发展基于新靶标的药物先导化合物设计新方法。

研究方向：有害分子靶标与农药创制；肿瘤细胞生物学及其新靶标发现；生物钟紊乱的药物及非药物干预措施；基于生物靶标的计算机辅助药物筛选等。

This research direction focuses mainly on the discovery and study of new biological targets, such as harmful organisms, malignant tumors, and biological clocks, and develops new methods for designing drug lead compounds based on these new targets.

Research directions: Discovery of harmful molecular targets and development of pesticides; tumor cell biology and discovery of new targets; drugs and non-drug interventions for circadian rhythm disorders; computer-aided drug screening based on biological targets, etc.

5.单细胞组学
Single-cell omics

单细胞测序是近十年来生命科学领域最重要的技术突破之一，该技术已经成为生命科学领域的底层技术，在发育、进化，人类疾病等领域全面应用，使得人们可以在单细胞分辨率研究生命的多组学图谱，理解生命起源和生老病死。

研究方向：单细胞基因组/外显子组测序、单细胞全长转录组、单细胞多组学、高通量的单细胞建库系统 DNBelab C4 在发育、疾病、动植物演化、衰老、脑科学等领域的应用。

The single-cell sequencing is one of the most important technological breakthroughs in life science in the last decade. It has become the fundamental technology in life science and has been fully used in the fields of development, evolution, human diseases, etc., enabling researchers to study the multiomics atlas of lives with single-cell resolution and understand the origins of lives, illness and death.

Research directions: single-cell genome/exome sequencing, single-cell full-length transcriptome, single-cell multiomics, and the application of high-throughput single-cell library system DNBelab C4 in the fields of development, diseases, animal and plant evolution, aging, brain science, etc.

6.时空组学
Spatiotemporal omics

单时空组学技术因其能在组织原位的基础上研究单细胞分辨率的基因组、转录组、表观组等多组学特征，为理解细胞命运调控的复杂性带来了重大突破。

研究方向：单器官 3D 数字化图谱、疾病分型诊断、受精卵如何变成完成个体、演化过程中的器官适应性。

The spatiotemporal omics technology has made a major breakthrough in understanding the complexity of cell fate regulation for its ability to study multiomics features of genomics, transcriptome, and epigenome with single-cell resolution on the basis of tissue in situ.

Research directions: 3D digital map of organs, disease typing diagnosis, the evolution process from fertilized eggs to complete individuals, organ adaptability in the process of evolution.

7.生信前沿工具算法
Frontier bioinformatic tools and algorithms

主要围绕多组学新型测序技术、海量大数据人群分析等前沿生物大数据场景，开发一系列生信算法工具和平台系统，形成完整的生物大数据解决方案。

研究方向：围绕测序仪碱基识别、基因数据压缩、大人群和低深度变异检测、以及空间组学等新型场景的算法工具开发；自动化计算系统、数据仓库系统的开发。

Frontier bioinformatic tools and algorithms: this orientation mainly focusing on the cutting-edge biological big data scenarios like multi-omics sequencing technologies and mass population big date analysis to develop a series of bioinformatic algorithm tools and platforms, forming a complete biological big data solution.

Research directions: development of algorithmic tools with sequencer base recognition, gene data compression, large population and low-level variation detection, and spatial omics, as well as the development of automated computing systems, data warehouse systems, etc.

论文工作必修环节
Required Components of Thesis Work

研究生在完成课程学习、满足课程学分要求的基础上，即进入论文工作环节，要求完成研究生培养过程中的论文学分和必修环节任务。

Upon completion of the course learning and meeting the credit requirements, students will enter the thesis work stage and are required to complete the required graduated credits and tasks.

开题、中期检查和预答辩要求
Requirements for thesis proposal,mid-term assessment,and pre-defense

学位论文的开题、中期检查和预答辩按照 2023 年 7 月出台的《生物工程学院研究生培养过程管理规定》来执行。

The topic opening, mid-term examination and pre-defense of the dissertation shall be carried out in accordance with the "Regulations on the Management of the Graduate Cultivation Process of the School of Bioengineering" issued in July 2023.

发表学术论文
Publication of Academic Papers

具体要求详见 2020 年 7 月出台的《生物工程学院关于研究生在申请学位前发表研究成果的规定》。

The specific requirements are detailed in the “Regulation of the School of Biotechnology on the Publication of Research Results by Graduate Students before Applying for Degree”issued in July 2020.

论文评审与答辩
Thesis Review and Defenses

学位论文撰写格式严格按照大连理工大学各类研究生学位论文模板执行；论文的查重、外审（抽审）、预答辩和答辩严格按照 2019 年印发的《大连理工大学学位授予工作细则（修订）》及学位管理相关文件的要求执行。

The format of the thesis writing must strictly follow the templates of various types of postgraduate degree theses at Dalian University of Technology. The thesis checking, external review, pre-defense, and defense must strictly follow the requirements of the 2019 revised "Detailed Rules for Degree Conferral at Dalian University of Technology" and related degree management documents.

毕业及学位授予
Graduation and Degree Conferral

修满规定学分、成绩合格，并通过论文答辩者，则准予毕业，并发给毕业证书。经学院学位评定分委员会审核，报校学位评定委员会审议通过后可授予硕士/博士学位，并发给学位证书。

Upon completing the required credits, achieving qualified grades, and passing the thesis defense, the student will be allowed to graduate and will receive a graduation certificate. After being reviewed by the subcommittee of the college's degree evaluation committee and approved by the university's degree evaluation committee, the student may be awarded a master's/Ph.D degree and will receive a degree certificate.

科学研究及学位论文要求（硕士）
Requirements for Scientific Research and Thesis for Masters

在修完必要的学分后，学生必须开展相对系统深入的科学研究工作，包括从文献阅读，选题，一定深度的理论分析，参与科研项目，最后撰写符合学位论文要求的毕业论文和学术论文。

在研究工作基础上，发表学术论文。学位论文要求具有系统的研究思路和计划，反映系统科学的研究过程和研究方法，有一定的独立见解和学术探索，具有一定的科学上的前沿性。论文应具有较丰富的工作量，有明确而可信的研究结论。论文的撰写应符合科技文献的编写规范，具有良好的条理性和逻辑性，文字表达精炼准确，外文摘要等的编写合乎要求。

After completing the necessary credits, students are required to conduct relatively systematic and in-depth scientific research, including literature reading, topic selection, certain depth of theoretical analysis, participation in scientific research projects, and finally writing a graduation thesis and academic paper that meets the requirements for the degree thesis.

In addition to the research work, students are required to publish academic papers. The thesis should have a systematic research idea and plan, reflecting the systematic scientific research process and methods, with certain independent insights and academic explorations, and having a certain scientific frontier. The thesis should have a rich workload and clear and credible research conclusions. The writing of the thesis should comply with the norms of scientific and technological literature, with good organization and logicality, concise and accurate language expression, and complying with the requirements for writing abstracts in foreign languages.

科学研究及学位论文要求（博士）
Requirements for Scientific Research and Thesis for Ph.Ds

在修完必要的学分后，学生必须开展相对系统深入的科学研究工作，包括文献阅读，选题，一定深度的理论分析和较高水平的实验研究，参与科研项目并独立完成和撰写科学研究报告，最后撰写符合学位论文要求的毕业论文。

学位论文要求具有系统的研究思路和计划，反映系统科学的研究过程和研究方法，有独立见解和创新思路，具有一定的科学上的前沿性。论文应具有较丰富的工作量，有明确而可信的研究结论。论文的撰写应符合科技文献的编写规范，具有良好的条理性和逻辑性，文字表达精炼准确，外文摘要等的编写合乎要求。

博士学位论文工作须在导师指导下独立完成，学位论文撰写规范按学校有关要求执行。

After completing the necessary credits, students must conduct relatively systematic and in-depth scientific research, including literature review, topic selection, in-depth theoretical analysis, high-level experimental research, participation in scientific research projects, and independently complete and write scientific research reports. Finally, they must write a graduation thesis that meets the requirements of a degree thesis.

The degree thesis requires a systematic research approach and plan, reflecting a systematic scientific research process and research methods, independent thinking and innovative ideas, and a certain level of scientific frontier. The thesis should have a rich workload and clear and reliable research conclusions. The writing of the thesis should comply with the specifications for scientific and technological literature, with good organization, logical expression, and concise and accurate wording. The writing of the abstract in a foreign language should also meet the requirements.

The work on the doctoral thesis must be completed independently under the guidance of a supervisor, and the specifications for writing the thesis should be implemented according to the relevant requirements of the university.

1.申 请 条 件 Qualification

(1) **非中国籍公民** Non-Chinese citizen

(2) **身体健康，申请硕士年龄在 35 周岁以下；申请博士年龄在 40 周岁以下**

Under the age of 35 years old and in good health for master degree application

Under the age of 40 years old and in good health for Ph.D degree application

(3) **申请硕士，具有正规大学本科毕业学历（获学士学位）；申请博士，具有正规大学硕士毕业学历（获硕士学位）**

Holder of a bachelor degree for master degree application; holder of a master degree for Ph.D degree application

(4) **满足相应的语言水平要求** Satisfied English Language Proficiency Requirement

A. 提交托福（TOEFL）或雅思（IELTS）成绩单，原则上需达到 80 分或以上，雅思需达到 5.5 分或以上

Submit a TOEFL or IELTS transcript, in principle, the score must be 80 or higher, and the IELTS score must be 5.5 or higher

B. 上一阶段授课语言为英语的授课语言证明

Submit the certification issued by graduated university that use English as the language of instruction

C. **以英语作为官方语言国家的申请者，免交英语语言水平证明**

Applicants from countries where English is the official language are exempt from proof of English language proficiency

*** 如无法提供以上证明的申请者，其语言水平可由导师和院系根据面试和笔试的具体情况决定**

* If the applicant cannot provide the above proof, the final tutor and department could evaluate your language level according to the interview or written test.

2.申 请 材 料 Application Documents

(1) **最高学历证明/在学证明（需公证，中文或英文版本）**

The Certified/Notarized Copy of Highest Degree's Diploma or Certificate of Enrollment (Chinese or English Version)

(2) **学习成绩单（需公证，中文或英文版本）**

The Certified/Notarized Copy of Highest Academic Transcript (Chinese or English Version)

(3) **语言水平能力证明** Valid Report of English Language Proficiency Tests

(4) **来华学习计划*（英文，不少于 1000 字）**

Study Plan (English Version, no less than 1000 words)

(5) **申请人毕业学校两名教授或副教授的推荐信*:**

Two recommendation letters in Chinese or English by professors or associate professors from the graduated university

(6) **外国人体格检查记录*** Physical Examination Form

(7) **申请人护照首页扫描件及签证空白页** Passport copies on photo page and blank visa page

(8) **无犯罪证明** Certificate of No-Criminal Conviction

(9) **其他材料** Other documents

*请在 http://sie.dlut.edu.cn/zlxz/zlxz.htm 下载模板

Download the sample from http://sie.dlut.edu.cn/English/Download/Download.htm

3.申 请 时 间 Application Time

每年 11 月 1 日至次年 6 月 30 日 Start from November 1 to June 30

申请网址 Online application Website： **http://iso.dlut.edu.cn**

4.联 系 方 式 Contact Information

Tel: 86-411-84779078

Email: dutluna@dlut.edu.cn

办理学习类居留许可所需材料
Required Documents for Study Residence Permit

1. 录取通知书 / Original Admission Notice

2. 护照原件 / Passport

3. 护照复印件 / Passport Copy

4. A4 纸复印护照首页 / One Copy of First Page, A4 Size

5. 有效签证页 / One Copy of Visa

6. 最近入境章页 / One Copy of Latest Entry Stamp

7. 一张近期白底二存免冠照片 / One Recent Two-inch Bareheaded Photo with White Background

8. JW201/202 表 / JW201 or JW202 Form

9. 六个月之内的体检报告（境外体检机构出具的报告需在大连国际旅行卫生保健中心认证之后方可使用）
Physical examination form issued within six months (Physical examination form issued in the foreign physical examination center must be authenticated by Dalian International Travel Healthcare Center.)

10. 境外人员住宿登记表（校外住宿人员需提前到住宿地派出所办理，校内住宿无需提供）
Accommodation Registration Form for Visitors From Overseas (Off campus accommodation students need to go to the local police station for accommodation registration in advance,and on campus accommodation students do not need to provide it.)

11. 签证费（400 元 / 800 元，根据学习期限决定）
Visa application fee (400 CNY/800 CNY,according to the study period)

大连理工大学
DALIAN UNIVERSITY OF TECHNOLOGY

海纳百川
自强不息
厚德笃学
知行合一

大连理工大学
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