Student Support

Pre-RA support

Students admitted to the GTR are employed as research assistants (RAs) and provided financial support (0.5 million yen/year).

RA support

Students who have passed the qualifying examination on their interdisciplinary research proposal at the completion of M1 are employed as research assistant (RAs) and provided financial support (1 million yen/year).

We also provide assistance with your application for the JSPS (Japan Society for the Promotion of Science) research fellowship, as well as in your research activities following the adoption of your proposal by the JSPS.

Inviting Applications for Admission

[Admission Policy]

We look for talented individuals who possess sufficient fundamental knowledge and skills to acquire a high degree of expertise, the ability to express themselves appropriately, exuberant curiosity in broad areas ranging from chemistry to life sciences, and the ability to work on their research in a responsible way in cooperation with many types of people.

[Selection method]

Selection is carried out by review of application documents and interviews (please check the website for application details).

Requirements for completing the GTR

- A thesis based on interdisciplinary frontiers research
- Interdisciplinary research conducted by enrolling in multiple laboratories
- Passing two qualifying exams (QE)
- Earning credits and points required in the curriculum for development of foundational strengths

Students are assessed in terms of the process of working toward their interdisciplinary research and the quality of their research.

Organization

Intra-university divisions The chemistry- and bioscience-related divisions in Nagoya University jointly conduct educational research.

- Institute of Transformative Bio-Molecules (ITbM)
- Graduate School of Science (Department of Chemistry, Division of Biological Science)
- Graduate School of Engineering (Department of Chemistry and Biotechnology)
- Graduate School of Bioagricultural Sciences
- Graduate School of Pharmaceutical Sciences
- Doctoral Education Consortium

External institutions We collaborate with cutting-edge research institutions in chemistry and biosciences areas.

- Institute of Physical and Chemical Research (RIKEN)
- Institute for Molecular Science (The Graduate University of Advanced Studies)
- National Institute for Basic Biology (The Graduate University of Advanced Studies)

Companies We collaborate with companies to conduct educational research connected with society.

- Kaneka Corporation
- Konica Minolta Corporation
- Japan Tobacco Inc. Plant Innovation Center
- ITbM Consortium (17 companies as of 2018)
- GTR supporter companies

GTR Nagoya University

Nagoya University WISE Program (Doctoral Program for World-leading Innovative & Smart Education)
Graduate Program of Transformative Chem-Bio Research
The GTR Student Support Office (Science and Agricultural Building Room 337)
Furo-cho, Chikusa-ku, Nagoya, 464-8602, Japan
TEL / +81-(0)52-789-2954 E-mail / gtr@itbm.nagoya-u.ac.jp WEB / http://gtr.itbm.nagoya-u.ac.jp

Nagoya University

WISE Program (Doctoral Program for World-leading Innovative & Smart Education)

Graduate Program of Transformative Chem-Bio Research

Graduate Schools, Departments, and Divisions involved in this program

Graduate School of Science

- Department of Chemistry
- Division of Biological Science

Graduate School of Engineering

- Department of Molecular and Macromolecular Chemistry
- Department of Materials Chemistry
- Department of Biomolecular Engineering

Graduate School of Bioagricultural Sciences

- Department of Forest and Environmental Resources Science
- Department of Plant Production Sciences
- Department of Animal Sciences
- Department of Applied Biosciences

Graduate School of Pharmaceutical Sciences

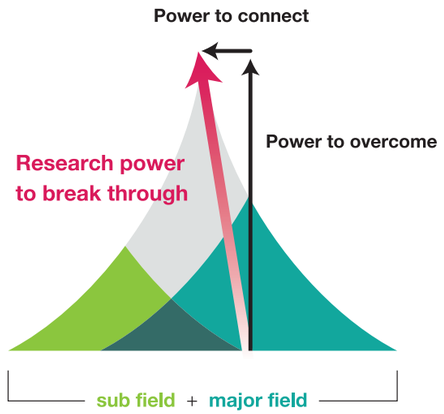
- Department of Basic Medicinal Sciences

The best way to acquire real research power is to accumulate experience with promoting and accomplishing exciting high-quality research on your own initiative.

GTR (Graduate Program of Transformative Chem-Bio Research), aims to train scholars who will pioneer interdisciplinary frontiers in the areas of chemistry and life science. In order to achieve sustainable development of society, many challenges must be overcome, including environmental and energy problems, stable food production, the development of materials leading to industrial and technological innovations, and life science research that contributes to health. To address these issues faced by science and society, the roles of chemistry and life science research are becoming increasingly important. To break through these issues, both advances in research in each field and promotion of interdisciplinary research are necessary.

To bridge the gaps between traditional disciplines, we need outstanding "research power to break through," which consists of two elements: "the power to overcome" and "the power to connect." The former is based on experience, confidence, and solid practical knowledge and skills that can be fostered through promoting and accomplishing high-quality research on important topics. On the other hand, the latter leads to the creation of innovative ideas through free and vigorous discussions across research fields.

The GTR program provides a practical course for acquiring these important research capabilities through challenge to exciting interdisciplinary research in diverse research environments in which each student benefits from the guidance of two mentors.



GTR's Mixed Lab Concept to Cultivate Research Power to Achieve Breakthroughs

GTR promotes the development of research power to achieve breakthroughs by implementing the following four plans:

Proposal for interdisciplinary research

Proposing an interdisciplinary research project to tackle outstanding problems confronting science and society (Implemented as the QE [Qualifying Examination]) at the completion of M1.

Conducting research in environments of different disciplines

To conduct interdisciplinary research, students are enrolled in a mixed lab or multiple laboratories to research.

Visiting foreign research institutes or companies over the mid- or long-term

Students may conduct their research at a foreign collaborating institution or a company as part of the interdisciplinary research. For international joint research, students are encouraged to stay at a foreign institution for at least 6 months.

Receiving instruction from two mentors

Students benefit from the guidance of two mentors while writing their interdisciplinary thesis.

What is a mixed lab?

Institute of Transformative Bio-Molecules (ITbM), Nagoya University, has set up mixed labs to be shared by researchers and students from different disciplines. Interdisciplinary research has been conducted in a lively atmosphere ever since its inception, producing numerous world-class results. GTR offers a curriculum incorporating the concept of a mixed lab.

Examples of interdisciplinary frontiers research

- Interdisciplinary research pursued by moving into a different laboratory for a year
- Interdisciplinary research carried out in a mixed lab under the instruction of multiple mentors with different areas of expertise
- Interdisciplinary research pursued by simultaneously enrolling in two laboratories
- Interdisciplinary research pursued through collaborations with foreign research groups and companies

The curriculum that helps students acquire the "power to overcome" the boundaries of conventional disciplines and the "power to connect" different disciplines

1 Curriculum for developing **the foundational strengths**

The curriculum cultivates a high degree of expertise in carrying high-quality, cutting-edge research and a broad range of knowledge for launching into different fields of study.

GTR Fundamental Course I

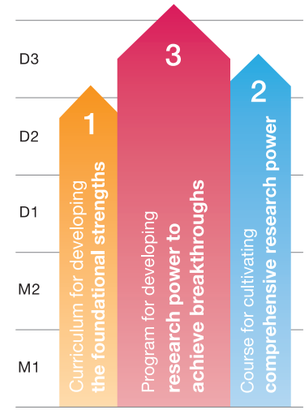
The course consists of six units: material transformation and functions, advanced nano-measurements, chem-bio/drug discovery, systems biology, neuroscience, and biomass/breeding.

GTR Fundamental Course II

The course offers seminars for acquiring skills and knowledge in areas such as intellectual properties, writing, presentation, and research integrity in collaboration with the Nagoya University Doctoral Education Consortium.

GTR Next-Generation Lectures

The program also offers lectures on practical skills and knowledge in areas such as informatics and imaging techniques, which should be acquired in next-generation PhD courses.



2 Course for cultivating **comprehensive research power**

The course cultivates foresight, the power of independent thought, research creativity, the power to develop personal connections and human networks, an international perspective, and a willingness to take on new challenges. The course includes:

- GTR lecture series on thinking about multidisciplinary problems / industrial perspectives
- A proposal for independent research (Qualifying Examination)
- A contest for interdisciplinary research proposals
- Offsite training
- A leadership training program for female scientists
- An English study course for developing debating skills

3 Program for developing **research power to achieve breakthroughs**

The program cultivates research power to achieve breakthroughs, which is the power to easily cross the boundaries of conventional disciplines and advance interdisciplinary frontiers.

Interdisciplinary frontiers research

Under the mixed-lab concept, students receiving instruction from two mentors carry out their research in an interdisciplinary research environment (multiple laboratories), including foreign collaborating institutions and companies.

Cultivating researchers to advance interdisciplinary frontiers through the 5-year integrated program