October 2026
April 2027
October 2027

For reference

Graduate Institute for Advanced Studies, SOKENDAI
[Basic Biology]
Application Guidelines

Contents

The following Application Guidelines in English are provided for the purpose of non-Japanese Applicants' convenience only. In the event of any inconsistency between the Japanese Application Guidelines and the English version, the Japanese version shall prevail.
Applicants have to require to obtain a booklet of Application Forms. Please contact the address below to ask for a booklet or any further information.

[Contact Information]
Student Affairs Section, Academic and Student Affairs Division
The Graduate University for Advanced Studies, SOKENDAI
Shonan Village, Hayama, Miura, Kanagawa 240-0193 JAPAN
E-mail: gakusei@ml.soken.ac.jp
Telephone number +81-46-858-1525/1526

Ⅰ. Outline: Graduate Institute for Advanced Studies

Admission Policy

<What SOKENDAI expect of our grad students>

SOKENDAI tends to attract students who have a strong interest in research, who constantly hone their abundant intellect and sensitivity with the aim of conducting research in the new era, while taking a “bird's-eye view” of the entire field of study, and who have the will and enthusiasm to be active on the international stage.<Basic policy for the selection of our grad students>

In selecting students for admission, SOKENDAI places importance on basic academic ability and logical thinking ability to actively promote research in the cutting-edge 20 research institutes affiliated to SOKENDAI. In order to properly judge such abilities, various selections will be made according to the respective fields of specialization.

About SOKENDAI

https://www.soken.ac.jp/en/features/

Faculty Directory

https://www.soken.ac.jp/en/faculty-directory/index.html

Course

https://www.soken.ac.jp/en/education/curriculum/course/

Requirements for Graduation

https://www.soken.ac.jp/en/education/curriculum/requirement/

Degree: Apply to Doctor (Katei-Hakase)

https://www.soken.ac.jp/en/education/degree/doctor/index.html

Ⅱ. Five-year Doctoral Program: Application Procedures and Important Notes

1 Number of Students Accepted

Program	Number of Students Accepted	
	April Admission	October Admission
Informatics	Around 8	A few
Statistical Science	Around 2	A few
Particle and Nuclear Science	Around 6	A few
Accelerator Science	Around 2	A few
Astronomical Science	Around 5	
Fusion Science	Around 3	A few
Space and Astronautical Science	Around 4	A few
Molecular Science	Around 7	
Materials structure Science	Around 2	A few
Polar Science	Around 2	
Basic Biology	Around 5	A few
Physiological Sciences	Around 3	A few
Genetics	Around 6	A few
Integrative Evolutionary Science	Around 3	A few
Total	58	

2 Qualifications for Application

Applicants must fulfill one of the following conditions

Applicants who are not required to have qualification screening;

(1) Applicants who have graduated or are expected to graduate from a Japanese university specified in Article 83 of the School Education Law by the preceding month of enrollment.

(2) Applicants on whom a Bachelor's degree has been conferred or is expected to be conferred by the preceding month of enrollment in accordance with Article 104, Paragraph 4 of the School Educational Law. *1

(3) Applicants who have completed or are expected to complete 16-year course of school education in a foreign country by the preceding month of enrollment.

(4) Applicants who have completed or are expected to complete 16-year course of school education in a foreign country by taking the correspondence courses provided by a school in said foreign country while residing in Japan by the preceding month of enrollment.

(5) Applicants who have completed or are expected to complete a program at an educational institute in Japan

designated separately by the Minister of Education, Culture, Sports, Science and Technology, that provides courses of a foreign university within the 16-year school education of said foreign country, by the preceding month of the enrollment. This applies solely to those who have completed 16-year course of school education in said foreign country.

(6) Applicants who have been conferred or are expected to be conferred a degree equivalent to a Bachelor's degree by the preceding month of enrollment by completing an educational course of three or more years in a foreign university or in a foreign educational institute; which shall be evaluated by an organization approved by a relevant official institution in the country for their education and research activities, or recognized as so by the Minister of Education, Culture, Sports, Science and Technology. The course shall include a correspondence course which enables students to study in Japan by a university or an educational institute which is approved by the educational system of the country and satisfy the above requirements.

(7) Applicants who have completed or are expected to complete the specialized course of a vocational school designated separately by the Minister of Education, Culture, Sports, Science and Technology in accordance with Enforcement Regulation of the School Education Law, Article 155, paragraph 1, item 5 (limited to courses for which the term of study is four years or more, and which satisfies the standards determined by the Minister of Education, Culture, Sports, Science and Technology) on or after the date determined by the Minister of Education, Culture, Sports, Science and Technology, or by the preceding month of enrollment.

(8) Applicants who are designated by the Minister of Education, Culture, Sports, Science and Technology in accordance with Enforcement Regulation of the School Education Law, Article 155, paragraph 1, item 6 (i.e., Ministry of Education Notification number 5, 1953) *2

Applicants who are required to have qualification screening before the general application can be submitted;

(9) Applicants who fulfill any of the following provisions (a) to (c) below, and have been recognized by SOKENDAI as having acquired the specified credits with excellent results;

  (a) Applicants who have completed 15-year course of school education in a foreign country by the end of preceding month of enrollment,

  (b) Applicants who have completed 15-year course of school education in a foreign country by taking the correspondence courses provided by a school in said foreign country while residing in Japan,

  (c) Applicants who have completed or are expected to complete a program in an educational institute in Japan designated separately by the Minister of Education, Culture, Sports, Science and Technology, that provides courses of a foreign university within the 15-year school education of said foreign country, by the preceding month of the enrollment. This applies solely to those who have completed 15-year course of school education in said foreign country.

(10) Applicants who have been or will have been enrolled in a Japanese university specified in Article 83 of the School Education Law for at least three years by the end of preceding month of enrollment, and have been recognized by SOKENDAI as having acquired the specified credits of said university with excellent results.

(11) Applicants who have entered a graduate school other than SOKENDAI in accordance with the Article 102,

paragraph 2 of the School Education Law, and have been recognized by SOKENDAI as having the appropriate academic ability to follow the content of graduate coursework.

(12) Applicants who have been recognized as having academic ability equivalent to a university graduate or higher by the individual screening of Admission Qualifications of SOKENDAI, and attain the age of 22 by the end of preceding month of enrollment. *3

*1 Applicants to whom the provision (2) above apply are those on whom a Bachelor's degree has been conferred or are expected to be conferred by National Institute for Academic Degrees and Quality Enhancement of Higher Education (formerly, National Institution for Academic Degrees and University Evaluation).

*2 Applicants to whom the provision (8) above apply are those who have graduated or are expected to graduate from a university under Old University Ordinances, or Daigakko under orders for organization and acts of establishment of government ministries or agencies.

*3 Applicants to whom the provision (12) above apply are those who have graduated or are expected to graduate from junior college, technical college, vocational school, other schools, Japan campus of foreign university, foreigners' school in Japan and other educational institutes, and who have been recognized by SOKENDAI as having academic ability equivalent to a university graduate or higher by individual screening.

If you have any questions regarding the qualification for admission, please contact the Student Affairs Section (E-mail: gakusei@ml.soken.ac.jp or telephone no.: +81-46-858-1525/1526) in advance.

3 Qualification Screening for Application

Applicants who intend to apply under the provisions (9) to (12) in "2 Qualifications for Application" are required to submit the following documents to the Student Affairs Section by the designated deadline. Application documents shall be withheld until the qualification screening is completed.

(1) Documents Required for Qualification Screening for Application

(a) Application for Certifying Applicant's Qualification (Attached **Form 7-1**)

(b) Application documents (as described in "5 Application Documents" below)

Examination fee, however, should be paid after application qualification is approved.

(c) Other documents required by this program. For details, please refer to the program office.

(a), (b) and (c) above must be submitted all together.

(2) Application Period for Qualification Screening

(Only for the applicants who intend to apply under the provisions (9) to (12) in "2 Qualification for Application")

Application Period		
First round	October 2026 Admission April 2027 Admission	June 1 (Monday) to June 4 (Thursday), 2026
Second round	April 2027 Admission October 2027 Admission	November 4 (Wednesday) to November 6 (Friday), 2026

The application must arrive no later than the last day of the application period without fail.

It must be received during 09:00～12:00, 13:00～17:00 on weekdays of the application period.

(3) Procedure for Qualification Screening

The complete set of application documents should be sent by postal mail in a commercially available envelope (33cm x 24cm) with the prescribed label in the booklet pasted. Please be sure to send it by registered express mail. Applicants should write “Application Documents and Application for Certifying Applicant’s Qualification Enclosed” in red ink on the face of the envelope. The application must reach SOKENDAI no later than the last day of the application period.

(4) Result of Qualification Screening for Application

The result of Qualification Screening for Application shall be notified prior to the application period. Applicants who have been approved by the screening should send in the payment for the examination fee in accordance with **Form 8**. After remittance is completed, **Form 8** on which the remittance receipt is attached should be submitted.

4 Application Procedure

Applicants who intend to apply under the provisions (1) to (8) in “2 Qualifications for Application” are required to submit the following documents to the Student Affairs Section by the designated deadline.

(1) Application Period

Application Period		
First round	October 2026 Admission April 2027 Admission	June 25 (Thursday) to July 1 (Wednesday), 2026
Second round	April 2027 Admission October 2027 Admission	December 3 (Thursday) to December 9 (Wednesday), 2026

The application must arrive no later than the last day of the application period without fail.

It must be received during 09:00～12:00, 13:00～17:00 on weekdays of the application period.

(2) Application Method

In principle, the complete set of application documents should be sent by postal mail in a commercially available envelope (33cm x 24cm) with the prescribed label in the booklet pasted. Please be sure to send it by registered express mail. The application must reach SOKENDAI no later than the last day of the application period. Please note that application documents will NOT be accepted by any parent institute or program office.

(Note)

Before submitting, please be sure to fill in and enclose all the necessary documents.

Please allow enough time to send the application documents, giving consideration to mail delivery conditions and the case of insufficient documents.

Mailing address:

Student Affairs Section, Academic and Student Affairs Division

The Graduate University for Advanced Studies, SOKENDAI

Shonan Village, Hayama, Miura, Kanagawa 240-0193 JAPAN

Telephone number +81-46-858-1525/1526

5 Application Documents

Please read through the “Important Notes for Applicants” beforehand. Also, application forms must be completed with a black or blue pen or ballpoint pen (erasable pens are not acceptable).

(1) Application form and admission ticket for the examination (**Form 1-A**)

Please attach two identical photographs (4.5cm by 3.5cm taken within the past three months, upper body, full-faced with no hat) on **Form 1-A**. Please read through the application guidelines and sign your name in agreement with the contents.

(2) Academic transcripts (original)

(a) Applicants who intend to apply under the provision (1) in “2 Qualifications for Application” must submit academic transcripts from the undergraduate school. In case any of the credits was approved after transferred to the undergraduate school, academic transcripts from the technical college or other college are also required.

(b) Applicants who intend to apply under the provision (2) in “2 Qualifications for Application” must submit all the academic transcripts concerning the Bachelor’s degree.

(c) Applicants who intend to apply under the provisions (3) to (9) in “2 Qualifications for Application” must submit the academic transcripts from the foreign undergraduate school.

(d) Applicants who intend to apply under the provisions (10) to (12) in “2 Qualifications for Application” must submit the academic transcript from their final academic background.

(3) Certificate of (expected) graduation (original)

(a) Applicants who intend to apply under the provision (1) in “2 Qualifications for Application” must submit the certificate of graduation from the university which a Bachelor’s degree has been conferred from.

(b) Applicants who intend to apply under the provision (2) in “2 Qualifications for Application” must submit the certificate from National Institute for Academic Degrees and Quality Enhancement of Higher Education (formerly, National Institute for Academic Degrees and University Evaluation).

(c) Applicants who intend to apply under the provisions (3) to (9) in “2 Qualifications for Application” must submit the certificate of (expected) graduation from the foreign undergraduate school.

(d) Applicants who intend to apply under the provision (10) in “2 Qualifications for Application” must submit the school-certificate, and applicants who intend to apply under the provisions (11) and (12) in “2 Qualifications for Application” must submit the certificate of graduation of their final academic background.

(4) Statement of Purpose (**Form 2**)

Applicants who apply to a second-choice program should copy and prepare the form for the second-choice program separately.

(5) Examination fee of 30,000 yen

For payment details, please refer to **Form 8**. MEXT scholarship students do not have to bear the examination fee, however, they need to submit a certificate of MEXT scholarship student status.

(6) Recipient’s address labels (**Form 9**)

Applicants who live outside Japan must contact the Student Affairs Section in advance. [E-mail: gakusei@ml.soken.ac.jp]

(7) Confirmation Letter regarding the Applicability of the Specific Categories for Compliance with Article 25(1) and (2) of the Foreign Exchange and Foreign Trade Act (**Form10**)

Applicants residing in Japan must submit **Form 10**. Please refer to the simple check flow chart (*) to complete the form. For details, please contact the Research Coordination Section. [E-mail: kenkyo@ml.soken.ac.jp]

* https://www.soken.ac.jp/en/admission/file/tokuteiruikei-E.pdf

(8) LETTER PACK PLUS

We will send Admission ticket for the examination by "LETTER PACK PLUS." Please purchase "LETTER PACK PLUS" at the post office in Japan. Applicants who live outside Japan must contact the Student Affairs Section in advance. [E-mail: gakusei@ml.soken.ac.jp]

(9) Curriculum Vitae (**Form 1-2**, only for international applicants and Japanese applicants who have received their education outside Japan)

(10) Documents certifying the applicant's research abilities, such as thesis, research report and other materials in which research capabilities are indicated.

Applicants who apply to a second-choice program must submit another set of copy of the documents for the second-choice program separately.

(11) Letter of Recommendation

Applicants may submit the Letter of Recommendation, if any, from those who are appropriate to evaluate the applicant's academic ability. The letter must be sealed up by the writer. Applicants who intend to apply under the provision (9) in "2 Qualifications for Application" are recommended to submit the Letter of Recommendation for the qualification screening.

(12) Permission for Studying While in Employment (**Form 6**)

Applicants who are currently employed full-time are required to submit Permission for Studying While in Employment (**Form 6**). In case the permission cannot be obtained or the applicant intends to resign before enrollment, s/he may instead submit a statement of reason with her/his signature.

(13) A copy of Residence Card (international applicants residing in Japan) or

A copy of passport (international applicants residing outside Japan at the time of application)

Notes:

i. Incomplete documents shall not be accepted. No documents shall be returned.

ii. In case the applicant's name has changed after marriage, etc., a copy of family register should be attached.

iii. **(Form 1-2, Form 2** is also downloadable at our website.
https://www.soken.ac.jp/en/admission/application_info/bb/index.html

iv. Application documents should be written in Japanese or English. If you submit the certificate neither in Japanese nor English, please also attach the certificate in Japanese or English.

v. Applicants who are (were) in the doctoral or master's program must submit a transcript of the doctoral

or master's program. Applicants who have graduated from a doctoral or master's program must submit a certificate of graduation. Applicants who have withdrawn from the doctoral or master's program must submit a withdrawal certificate.

6 Screening Procedures

Screening will be conducted based on submitted application documents and results of academic tests. For the details of the screening methods for this program, please refer to “Important Notes for Applicants”.
If you apply to more than two programs, please note that screening is conducted individually, and the date or venue may differ depending on the screening.

Examination Date		
First round	October 2026 Admission April 2027 Admission	August 4 (Tuesday) and August 5 (Wednesday), 2026
Second round	April 2027 Admission October 2027 Admission	January 21 (Thursday) and January 22 (Friday), 2027

(Note) Detailed information about the time and venue of the examination will be provided with the admission ticket for the exam. In case the ticket shall not be delivered one week prior to the date of examination, please contact the Student Affairs Section. Please see the following website for the delivery schedule of admission ticket.
https://www.soken.ac.jp/en/admission/application_info/bb/index.html

Venue of the examination

Program	Location and Directions
Basic Biology	National Institute for Basic Biology 38 Nishigonaka, Myodaiji, Okazaki, Aichi 444-8585 Seven-minute walk from Higashi-Okazaki Station (Nagoya Railway, Meitetsu).

7 Announcement of Results

Notification		
First round	October 2026 Admission April 2027 Admission	Late August 2026
Second round	April 2027 Admission October 2027 Admission	Mid-February 2027

Further details will be sent to applicants.
Results will be mailed to the successful applicants. Announcement of results will be made on the SOKENDAI website (https://www.soken.ac.jp/en/admission/general_admission/result/index.html), however, results shall be confirmed by notification by mail. Inquiries regarding the results by telephone or other means will not be responded to.

8 Admission Procedures

(1) Admission period is scheduled as below:

Late September 2026 for the enrollment of October 2026
Early to mid-March 2027 for the enrollment of April 2027
Late September 2027 for the enrollment of October 2027

Successful applicants must complete the admission procedures during the prescribed period. Further details will be notified to successful applicants separately.

(2) Fees required for admission are as follows.

Entrance Fee: JPY282, 000

Tuition Fee for six months: JPY267, 900

Student Insurance Fee for five years: JPY5,750

(Personal Accident Insurance for Students Pursuing Education and Research)

Note:

(a) In case the entrance or tuition fees are revised at the time of or during enrollment, the revised fees shall be applied from the date of revision.

(b) Entrance fees shall not be refunded under any circumstances once the payment is made. Premium for the student insurance, however, may be refunded only if applicants decline the admission by the cut-off dates as blow:

September 30, 2026 for the enrollment of October 2026

March 31, 2027 for the enrollment of April 2027

September 30, 2027 for the enrollment of October 2027

(3) Applicants who are currently employed full-time must submit the “Letter of Approval” issued by the employer that acknowledges the enrollment while employed. Resignation certificate must be submitted if you resign before you enroll at SOKENDAI.

(4) Applicants who are enrolled at a school other than SOKENDAI at the time of application (not including applicants who will have graduated/completed the school before you enroll at SOKENDAI) must submit the certificate of withdrawal from said school.

(5) Foreign nationals are strongly advised to obtain a student visa unless a particular reason would prohibit them from doing so. Detailed information on how to obtain this type of visa is available on the SOKENDAI’s website: http://www.soken.ac.jp/en/campuslife/international/immigration/

9 Long-term course system

Long-term course system is a planned course of study for a certain period of time beyond the standard period of study upon request from the student, who has an occupation or other circumstances. For further information, please contact the Educational Affairs Section.

E-mail: kyomu@ml.soken.ac.jp, or Fax: +81-46-858-1632

10 General Notes

(1) Before applying and taking the entrance examination, applicants should read through “Important Notes for Applicants”.

(2) Submitted documents shall not be returned. No changes or alternations to the submitted documents shall be accepted after filing.

(3) Admission might be revoked in case of any false entry or act of dishonesty on application documents and other documents.

(4) Applicants who wish to transfer to SOKENDAI from other graduate school must contact Student Affairs Section before the last day of the application period.

(5) Applicants with disabilities who require special consideration at the examination and after enrollment are advised to inform SOKENDAI three months prior to the application period.

(6) Applicants should inform the Student Affairs Section if they wish to withdraw their application.

(7) In case the applicant has changed the mailing address after submitting the application documents, please inform the Student Affairs Section of the change.
E-mail: gakusei@ml.soken.ac.jp, or Fax: +81-46-858-1632

(8) Students are not allowed to simultaneously register at other universities while studying at SOKENDAI.

(9) For applicants with foreign nationality, if your name contains characters from your native language, these characters may be replaced with the Roman alphabet for administrative purposes.

(10) If there is any change for SOKENDAI admissions, we will announce on SOKENDAI website. Please make sure SOKENDAI website.

(11) Students enrolled in the five-year doctoral program of the Graduate Institute for Advanced Studies who have passed the certification for master's degree eligibility stipulated in Article 5 of the University's Degree Regulations and who were also permitted to withdraw from the program will be awarded a master's degree upon leaving the program.

11 Security Export Control

Based on the Foreign Exchange and Foreign Trade Act (*), SOKENDAI has established regulations and conducts examinations for the provision of technology and the acceptance of researchers and students. For this reason, if it is determined that your intended education or research activities fall under, or are likely to fall under, the regulations, you may be asked to modify your proposed education or research content. Additionally, admission may not be granted, regardless of the entrance examination results. Please consult the program office for further details.

* https://www.meti.go.jp/policy/anpo/englishpage.html

12 Privacy Policy

(1) Any personal information including applicant’s name and address submitted to SOKENDAI as part of the application documents shall be used during the application process such as applicant/examination procedures, notification of results and admission procedures. After enrollment, personal information shall also be used for student affairs (school register and course registration), student services (health care, tuition exemption and scholarship application, and career support) and administrative purposes of processing payments for entrance and tuition fees.

(2) Personal information obtained in the screening process such as examination results, shall be used for aggregate analyses of examination results and research for use in the screening process.

Important Notes for Applicants to Basic Biology Program (Five-year Doctoral Program)

(1) It is highly recommended that applicants contact an appropriate supervisor prior to submitting a formal application to inform him or her of their interest in submitting a research plan. For information on which laboratories and professors are affiliated with this program, please see The course subjects and the faculty members on pages 26-30 of this brochure.

Applicants may also select a second-choice laboratory in addition to their first-choice laboratory. Applicants can apply to the second-choice program from Astronomical Science, Fusion Science, Space and Astronautical Science, Molecular Science, Materials structure Science, Polar Science, Physiological Sciences, Genetics or Integrative Evolutionary Science, if the application period, doctoral program, and enrollment period are the same. Please note that screening is conducted individually, and the date or venue may differ depending on the screening.

(2) Applicants may submit a letter of recommendation from someone who can provide an appropriate opinion of their research abilities.

(3) Selection Method

(a) Document review, written examinations (English and short essay), and an interview will be conducted. Each written examination will take an hour. For the English examination, applicants are allowed to use up to three dictionaries from the following: their native language-to-English dictionary, English-to-their native language dictionary, and English dictionary (electronic dictionaries are not allowed).

(b) The interview will take up to 30 minutes. The first 15 minutes will be spent exploring the applicant's reasons for applying, previous research (or details of his or her studies), future research aspirations, and any other relevant topics. A whiteboard will be available for use during the interview. The remaining 15 minutes will be used for a question-and-answer session covering the applicant's presentation, submitted documents, and the results of the written examination.

(c) This examination can be taken in either Japanese or English. Applicants may write a short essay in English and/or take the interview in English. Applicants who write a short essay in English will be exempted from the English written examination. If applicants wish to write a short essay in English and/or take the interview in English, they must notify us in advance.

(d) The written examination and interview will be held at the National Institute for Basic Biology in Aichi, Japan. Please note that applicants need to obtain their own short-term visa for the entrance examination themselves.

(4) Criteria for grading, evaluation and admission decision

<Criteria for grading and evaluation>

Applicants will be graded on a score from A (the highest grade) to D (the lowest grade) based on the results of the written examination, interview, and submitted documents.

<Criteria for admission decision>

Acceptance will be determined by the total score and overall performance.

(5) For individuals who require a longer period of study than the prescribed length, a long-term course of study may be permitted after admission. Those who wish to pursue this course of study must contact an appropriate supervisor before submitting their application documents.

(6) Financial Support for Students

Graduate students may apply for the Research Assistance program after consultation with their supervising professor. Those employed as Research Assistants receive an annual salary of approximately 1,000,000 yen each.

(7) Questions regarding this section may be addressed to:

Graduate Student Affairs Section
International Relations & Research Cooperation Division
National Institutes of Natural Sciences (NINS)
Nishigonaka 38, Myodaiji, Okazaki 444-8585, Japan
Phone: +81 564 55 7139
Fax: +81 564 55 7119
Web site: http://www.nibb.ac.jp/en/univ/

Ⅲ. Three-year Doctoral Program: Application Procedures and Important Notes

1 Number of Students Accepted

Program	Number of Students Accepted	
	April Admission	October Admission
Anthropological Studies	Around 4	
Japanese Studies	Around 3	
Japanese History	Around 3	
Japanese Literature	Around 2	
Japanese Language Science	Around 3	
Informatics	Around 12	A few
Statistical Science	Around 6	A few
Particle and Nuclear Science	Around 1	A few
Accelerator Science	Around 1	A few
Astronomical Science	Around 1	A few
Fusion Science	Around 2	A few
Space and Astronautical Science	Around 3	A few
Molecular Science	Around 5	A few
Materials structure Science	Around 1	A few
Global Environmental Studies	Around 2	
Polar Science	Around 1	A few
Basic Biology	Around 3	A few
Physiological Sciences	Around 6	A few
Genetics	Around 2	A few
Integrative Evolutionary Science	Around 1	A few
Total	62	

2 Qualifications for Application

Applicants must fulfill one of the following conditions

Applicants who are not required to have qualification screening;

(1) Applicants who hold or are expected to take a Master's degree or a Professional degree by the preceding month of enrollment.

(2) Applicants on whom a Master's degree or a degree equivalent to a Professional degree has been conferred or is expected to be conferred in a foreign country by the preceding month of enrollment.

(3) Applicants who have completed the correspondence courses provided by a school in a foreign country while residing in Japan, and have been conferred or are expected to be conferred a Master's degree or a degree equivalent to a Professional degree by the preceding month of enrollment.

(4) Applicants who have completed or are expected to complete a program in an educational institute in Japan that provides courses from a foreign graduate school within the school education system of said foreign country, and that is designated separately by the Minister of Education, Culture, Sports, Science and Technology, and have been conferred or are expected to be conferred a Master's degree or a degree equivalent to a Professional degree by the preceding month of enrollment.

(5) Applicants who have completed a course at the United Nations University and have been conferred or are expected to be conferred a degree equivalent to a Master's degree by the preceding month of enrollment, in accordance with the Enforcement Regulation of the School Education Law, Article 156, Item 4.

(6) Applicants who have completed a course of study at a school in a foreign country or an educational institute that has graduate school in a foreign country or the United Nations University, and have passed or will have passed the examinations and screening equivalent to those specified in Article 16-2 of the Standards for Establishment of Graduate Schools (1974 Ministry of Education, Science and Culture Ordinance Number 28), and who have been or will have been recognized by SOKENDAI as having academic abilities equivalent to those who have a Master's degree.

Applicants who are required to have qualification screening before the general application can be submitted;

(7) Applicants who have graduated from a university and have been or will have been engaged in research at a university or a research institute for at least two years by the preceding month of the enrollment, and have been recognized by SOKENDAI as having academic ability equivalent to or superior to those who have a Master's degree or a Professional degree based on said research achievement.

(8) Applicants who have completed 16-year course of school education in a foreign country or 16-year course of school education by taking the correspondence courses provided by a school in a foreign country while residing in Japan, and thereafter, have been or will have been engaged in research at a university or a research institute for at least two years by the preceding month of the enrollment, and have been recognized by SOKENDAI as having academic ability equivalent to or superior to those who have a Master's degree or a Professional degree based on said research achievement.

(9) Applicants who have been recognized by SOKENDAI as having academic ability equivalent to or superior to those who have a Master's degree or a Professional degree by the individual screening of Admission Qualifications of SOKENDAI, and attain the age of 24 by the end of preceding month of enrollment. *

* Applicants who have completed a six-year course of medical, dental, pharmaceutical or veterinary schools are required to be recognized by SOKENDAI as having academic ability equivalent to or superior to those who have a Master's degree or a Professional degree by the individual screening of Admission Qualifications of SOKENDAI. For details, please refer to '3. Qualification Screening for Application'.

If you have any question regarding the qualification for admission, please contact the Student Affairs Section

(E-mail: gakusei@ml.soken.ac.jp or telephone no.: +81-46-858-1525/1526) in advance.

3 Qualification Screening for Application

(1) Applicants who intend to apply under the provisions (7) to (9) in "2 Qualifications for Application" are required to submit the following documents to Student Affairs Section by the designated deadline. Application documents shall be withheld until the qualification screening is completed.

(2) Applicants who wish to apply under the provisions (7) to (9) in "2 Qualifications for Application" are required to submit the following documents for screening to be recognized as "having academic ability equivalent to those who have a Master's degree or a Professional degree". An interview may be conducted if necessary.

(a) Documents Required for Qualification Screening for Application

i. Application for Certifying Applicant's Qualification (**Form 7-2**)

ii. Application Documents as specified in "5 Application Documents"

Examination fee, however, should be paid after the application is approved.

(i.) and (ii.) above should be submitted all together. Please note that applicants might be asked to submit other documents by the program.

(b) Application Period regarding Qualification Screening

(Only for the applicants who intend to apply under the provisions (7) to (9) in "2 Qualification for Application")

Application Period		
First round	October 2026 Admission April 2027 Admission	June 1 (Monday) to June 4 (Thursday), 2026
Second round	April 2027 Admission October 2027 Admission	November 4 (Wednesday) to November 6 (Friday), 2026

Application must arrive no later than the last day of the application period without fail.

It must be received during 09:00～12:00, 13:00～17:00 on weekdays of the application period.

(c) Procedure for Qualification Screening

The complete set of application documents should be sent by postal mail in a commercially available envelope (33cm x 24cm) with the prescribed label in the booklet pasted. Please be sure to send it by registered express mail. Applicants should write "Application Documents and Application for Certifying Applicant's Qualification Enclosed" in red ink on the face of the envelope. If the application documents do not fit in an envelope, they may be sent in a box. However, even in this case, please send the documents by traceable mail. The application must reach SOKENDAI no later than the last day of the application period.

(d) Result of Qualification Screening for Application

The result of Qualification Screening for Application shall be notified prior to the application period. Applicants who have been approved by the screening should complete payment for the examination fee accordance with **Form 8**. After the remittance is completed, **Form 8** on which the remittance receipt is attached should be submitted to Student Affairs Section.

4 Application Procedure

Applicants who intend to apply under the provisions (1) to (6) in “2 Qualifications for Application” are required to submit the following documents to the Student Affairs Section by the designated deadline.

(1) Application Period

Application Period		
First round	October 2026 Admission April 2027 Admission	June 25 (Thursday) to July 1 (Wednesday), 2026
Second round	April 2027 Admission October 2027 Admission	December 3 (Thursday) to December 9 (Wednesday), 2026

The application must arrive no later than the last day of the application period without fail.

It must be received during 09:00～12:00, 13:00～17:00 on weekdays of the application period.

(2) Application Method

In principle, the complete set of application documents should be sent by postal mail in a commercially available envelope (33cm x 24cm) with the prescribed label in the booklet pasted. Please be sure to send it by registered express mail. If the application documents do not fit in an envelope, they may be sent in a box. However, even in this case, please send the documents by traceable mail. The application must reach SOKENDAI no later than the last day of the application period. Please note that application documents will not be accepted by any parent institute or program office.

(Note)

Before submitting, please be sure to fill in and enclose all the necessary documents.

Please allow enough time to send the application documents, giving consideration to mail delivery conditions and the case of insufficient documents.

Mailing address:

Student Affairs Section, Academic and Student Affairs Division
The Graduate University for Advanced Studies, SOKENDAI
Shonan Village, Hayama, Miura, Kanagawa 240-0193 JAPAN
Telephone number +81-46-858-1525/1526

5 Application Documents

Prior contact with the prospective supervisor of your choice is required in order to apply.

Please read through the “Important Notes for Applicants” beforehand. Also, application forms must be completed with a black or blue pen or ballpoint pen (erasable pens are not acceptable).

(1) Application form and admission ticket for the examination (**Form 1-B**)

Please attach two identical photographs (4.5cm by 3.5cm taken within the past three months, upper-body, full-faced with no hat) on **Form 1-B**. Please read through the application guidelines and sign your name in agreement with the contents.

(2) Academic transcripts (original)

(a) Applicants who intend to apply under the provision (1) in “2 Qualifications for Application” must submit the academic transcript from the graduate school or the Professional graduate school, and that from the undergraduate school. In case any of the credits was approved after transferred to the undergraduate

school, academic transcripts from the technical college or other college are also required.

(b) Applicants who intend to apply under the provisions (2) to (6) in “2 Qualifications for Application” must submit the academic transcript from the graduate school in said foreign country (a Master’s degree or a Professional degree) and that from the undergraduate school concerning the Bachelor’s degree.

(c) Applicants who intend to apply under the provisions (7) to (9) in “2 Qualifications for Application” must submit the academic transcript from their final academic background.

(3) Certificate of (expected) graduation (original)

The certificate should state conferment of the Master’s degree or the Professional degree.

(a) Applicants who intend to apply under the provision (1) in “2 Qualifications for Application” must submit a certificate of (expected) graduation from the graduate school which a Master’s degree or a Professional degree has been conferred from.

(b) Applicants who intend to apply under the provision (2) to (5) in “2 Qualifications for Application” must submit the certificate of (expected) graduation from the foreign graduate school.

(c) Applicants who intend to apply under the provisions (6) to (9) in “2 Qualifications for Application” must submit a certificate of graduation of their final academic background.

(4) Summary of Previous Research Experience (**Form 3**)

(5) List of Research Presentations and Publications (**Form 4**)

Applicants who do not have any, please specify “None” on **Form 4** and submit the form.

(6) Research Proposal (**Form 5**)

Applicants who apply to a second-choice program must copy and prepare the form for the second-choice program separately.

(7) Examination fee of 30,000yen

For payment details, please refer to **Form 8**. MEXT scholarship students do not have to bear the examination fee, however, they need to submit a certificate of MEXT scholarship student status.

(8) Recipient’s address label (**Form 9**)

Applicants who live outside Japan must contact the Student Affairs Section in advance. [E-mail: gakusei@ml.soken.ac.jp]

(9) Confirmation Letter regarding the Applicability of the Specific Categories for Compliance with Article 25(1) and (2) of the Foreign Exchange and Foreign Trade Act (**Form10**)

Applicants residing in Japan must submit **Form10**. Please refer to the simple check flow chart (*) to complete the form. For details, please contact the Research Coordination Section. [E-mail: kenkyo@ml.soken.ac.jp]

* https://www.soken.ac.jp/en/admission/file/tokuteiruikei-E.pdf

(10) LETTER PACK PLUS

We will send Admission ticket for the examination by "LETTER PACK PLUS." Please purchase "LETTER PACK PLUS" at the post office in Japan. Applicants who live outside Japan must contact the Student Affairs Section in advance. [E-mail: gakusei@ml.soken.ac.jp]

(11) Curriculum Vitae (**Form 1-2**, only for international applicants and Japanese applicants who have received

their education outside Japan)

(12) Two copy of Master's thesis

Applicants who have a Master's degree or who have submitted the Master's thesis should submit two copies of Master's thesis. Please specify "Master's thesis" on the upper-right corner of the front page in red ink. Applicants who apply to a second-choice program must submit another set of copy of the Master's thesis for the second-choice program separately.

(13) Applicants who have any publication of scientific paper or treatise should submit two copies of the publication.

Applicants who apply to a second-choice program must submit another set of copy of the publication for the second-choice program separately.

(14) Letter of Recommendation

Applicants may submit the Letter of Recommendation from persons who are appropriate to evaluate the applicant's academic ability. The letter must be sealed up by the writer.

(15) Permission for Studying While in Employment (**Form 6**)

Applicants who are currently employed full-time are required to submit Permission for Taking the Entrance Examination (**Form 6**). In case the permission cannot be obtained or the applicant intends to resign before enrollment, she/he may instead submit a statement of reason sealed by her/himself. In this case, "Letter of Permission to be enrolled while employed" or "Certificate of Resign" must be submitted at the time of admission.

(16) A copy of Residence Card (International applicants residing in Japan) or
a copy of passport (international applicants residing outside Japan at the time of application)

(Notes)

i. Incomplete documents shall not be accepted. No documents shall be returned.

ii. In case the applicant's name has changed after marriage, etc., a copy of family register should be attached.

iii. **Form 1-2, Form 3, 4 and 5** are also downloadable at our website.
https://www.soken.ac.jp/en/admission/application_info/bb/index.html

iv. Application documents should be written in Japanese or English. If you submit the certificate neither in Japanese nor English, please also attach the certificate in Japanese or English.

v. Applicants who are (were) in the doctoral program must submit a transcript of the doctoral program.
Applicants who have graduated from a doctoral program must submit a certificate of graduation.
Applicants who have withdrawn from the doctoral program must submit a withdrawal certificate.

6 Screening Procedures

Screening will be conducted based on submitted application documents and results of academic tests. For details of the screening methods for this program, please refer to "Important Notes for Applicants".

If you apply to more than two programs, please note that screening is conducted individually, and the date or venue may differ depending on the screening.

Examination Date		
First round	October 2026 Admission April 2027 Admission	August 4 (Tuesday) and August 5 (Wednesday), 2026
Second round	April 2027 Admission October 2027 Admission	January 21 (Thursday) and January 22 (Friday), 2027

(Note) Detailed information about the time and place of the examination will be provided with the admission ticket for the exam. In case the ticket shall not be delivered one week prior to the date of examination, please contact the Student Affairs Section. Please see the following website for the delivery schedule of admission ticket.

https://www.soken.ac.jp/en/admission/application_info/bb/index.html

Venue of the examination

Program	Location and Directions
Basic Biology	National Institute for Basic Biology 38 Nishigonaka, Myodaiji, Okazaki, Aichi 444-8585 Seven-minute walk from Higashi-Okazaki Station (Nagoya Railway, Meitetsu).

7 Announcement of Results

Notification		
First round	October 2026 Admission April 2027 Admission	Late August 2026
Second round	April 2027 Admission October 2027 Admission	Mid-February 2027

Further details will be sent to applicants.

Results will be mailed to the successful applicants. Announcement of results will be made on the SOKENDAI website (https://www.soken.ac.jp/en/admission/general_admission/result/index.html), however, results shall be confirmed by mailed notification. Inquiries regarding the results by telephone or other means will not be responded.

8 Admission Procedures

(1) Admission period is scheduled as below:

Late September 2026 for the enrollment of October 2026

Early to mid-March 2027 for the enrollment of April 2027

Late September 2027 for the enrollment of October 2027

Successful applicants must complete the admission procedures during the prescribed period. Further details will be notified to successful applicants separately.

(2) Fees required for admission are as follows.

Entrance Fee: JPY 282,000

Tuition Fee for six months: JPY 267,900

Student Insurance Fee for three years: JPY 3,620

(Personal Accident Insurance for Students Pursuing Education and Research)

Note:

(a) In case the entrance or tuition fees are revised at the time of or during enrollment, the revised fees shall be applied from the date of revision.

(b) Entrance fees shall not be refunded under any circumstances once the payment is made. Premium for the student insurance, however, may be refunded only if applicants decline the admission by the cut-off dates as blow:

September 30, 2026 for the enrollment of October 2026

March 31, 2027 for the enrollment of April 2027

September 30, 2027 for the enrollment of October 2027

(3) Applicants who are currently employed full-time should submit the "Letter of Approval" issued by the employer that acknowledges the enrollment while employed. Resignation certificate must be submitted if you resign before you enroll at SOKENDAI.

(4) Applicants who are enrolled at a school other than SOKENDAI at the time of application (not including those who will have graduated from/completed the school before you enroll at SOKENDAI) must submit the certificate of withdrawal from said school.

(5) Foreign nationals are strongly advised to obtain a student visa unless a particular reason would prohibit them from doing so. Detailed information on how to obtain this type of visa is available on the SOKENDAI's website: http://www.soken.ac.jp/en/campuslife/international/immigration/

9 Long-term course system

Long-term course system is a planned course of study for a certain period of time beyond the standard period of study upon request from the student, who has an occupation or other circumstances. For further information, please contact the Educational Affairs Section.

E-mail: kyomu@ml.soken.ac.jp, or Fax: +81-46-858-1632

10 General Notes

(1) Before applying and taking the entrance examination, applicants should read through **"**Important Notes for Applicants for Applicants**"**.

(2) Submitted documents shall not be returned. No changes or alternations to the submitted documents will be accepted after filing.

(3) Admission might be revoked in case of any false entry or act of dishonesty on application documents and other documents.

(4) Applicants who wish to transfer to SOKENDAI from other graduate school must contact Student Affairs Section before the last day of the application period.

(5) Applicants with disabilities who require special consideration at the examination and after enrollment are advised to inform SOKENDAI three months prior to the application period.

(6) Applicants should inform the Student Affairs Section if they wish to withdraw their application.

(7) In case the applicant has changed the mailing address after submitting the application documents, please

inform the Student Affairs Section of the change.

E-mail: gakusei@ml.soken.ac.jp, or Fax: +81-46-858-1632

(8) Students are not allowed to simultaneously register at other universities while studying at SOKENDAI.

(9) For applicants with foreign nationality, if your name contains characters from your native language, these characters may be replaced with the Roman alphabet for administrative purposes.

(10) If there is any change for SOKENDAI admissions, we will announce on SOKENDAI website. Please make sure SOKENDAI website.

11 Security Export Controls

Based on the Foreign Exchange and Foreign Trade Act (*), SOKENDAI has established regulations and conducts examinations for the provision of technology and the acceptance of researchers and students. For this reason, if it is determined that your intended education or research activities fall under, or are likely to fall under, the regulations, you may be asked to modify your proposed education or research content. Additionally, admission may not be granted, regardless of the entrance examination results. Please consult the program office for further details.

* https://www.meti.go.jp/policy/anpo/englishpage.html

12 Privacy Policy

(1) Any personal information including applicant's name and address submitted to SOKENDAI as part of the application documents shall be used during the application process such as applicant/examination procedures, notification of results and admission procedures. After enrollment, personal information shall also be used for student affairs (school register and course registration), student services (health care, tuition exemption and scholarship application, and career support) and administrative purposes of processing payments for entrance and tuition fees.

(2) Personal information obtained in the screening process such as examination results, shall be used for aggregate analyses of examination results and research for use in the screening process.

Important Notes for Applicants to Basic Biology Program (Three-year Doctoral Program)

(1) It is highly recommended that applicants contact the appropriate supervisor prior to submitting a formal application to inform him or her of their interest in submitting a research plan. For information on which laboratories and professors are affiliated with this program, please see The course subjects and the faculty members on pages 26-30 of this brochure.

Applicants may also select a second-choice laboratory in addition to their first-choice laboratory. Applicants can apply to the second-choice program from Astronomical Science, Fusion Science, Space and Astronautical Science, Molecular Science, Materials structure Science, Global Environmental Studies, Polar Science, Physiological Sciences, Genetics or Integrative Evolutionary Science, if the application period, doctoral program, and enrollment period are the same. Please note that screening is conducted individually, and the date or venue may differ depending on the screening.

(2) Applicants may submit a letter of recommendation from a person who can provide an appropriate opinion of their research abilities.

(3) Selection Method

Document review and an interview will be conducted.

(a) Document review: Review will be conducted regarding the contents of the application, including academic transcripts, and associated materials.

(b) Interview: An interview will take 30 minutes. The first 15 minutes will be spent exploring the applicant's previous research and future research aspirations. A whiteboard will be available for use during the interview. The remaining 15 minutes will be used for a question-and-answer session covering the content of the applicant's presentation and submitted documents.

(c) This examination can be taken in either Japanese or English. If applicants wish to take the interview in English, they must notify us in advance.

(d) The interview will be held at the National Institute for Basic Biology in Aichi, Japan. Please note that applicants need to obtain their own short-term visa for the entrance examination themselves.

(4) Criteria for grading, evaluation and admission decision

<Criteria for grading and evaluation>

Applicants will be grated on a score from A (the highest) to D (the lowest grade) based on the content of their research to date, interview, and academic transcripts.

<Criteria for admission decision>

Acceptance will be determined by the total score and overall performance.

(5) For individuals who require a longer period of study than the prescribed length, a long-term course of study may be permitted after admission. Those who wish to pursue this course of study must contact an appropriate supervisor before submitting their application documents.

(6) Financial Support for Students

Graduate students may, after consultation with their supervising professor, apply for the Research

Assistance program. Those employed as Research Assistants receive an annual salary of approximately 1,000,000 yen each.

(7) Questions regarding this section may be addressed to:

Graduate Student Affairs Section
International Relations & Research Cooperation Division
National Institutes of Natural Sciences (NINS)
Nishigonaka 38, Myodaiji, Okazaki 444-8585, Japan
Phone: +81 564 55 7139 Fax: +81 564 55 7119
Web site: http://www.nibb.ac.jp/en/univ/

Ⅳ. The course subjects and the faculty members

Basic Biology Program

The faculty members affiliated with Basic Biology Program conduct the following research at the National Institute for Basic Biology (NIBB). For more detailed information and the research interests of faculty members not listed here, please visit the NIBB website (https://www.nibb.ac.jp) and the websites of the individual laboratories listed here. Faculty members marked with (＊) are not eligible to be considered as potential supervisors due to retirement or other reasons.

DIVISION OF CELLULAR DYNAMICS

Prof. UEDA, Takashi (+81-564-55-7530) tueda@nibb.ac.jp
Assoc. Prof. ITO, Emi (+81-564-55-7529) itoemi@nibb.ac.jp
(https://www.nibb.ac.jp/cellular/en/)

Membrane trafficking among single membrane-bounded organelles plays a pivotal role in various cellular activities in eukaryotic organisms, which are also crucial in multiple layers of higher-order functions in multicellular organisms. While the fundamental framework of membrane trafficking is well conserved across eukaryotic lineages, recent studies have shown that each lineage has developed a distinctive membrane trafficking system during evolution. Our research focuses on elucidating the mechanisms underlying the diversification of membrane trafficking in plants. Currently, we are investigating the unique organelle functions and membrane trafficking pathways in plants using *Arabidopsis thaliana* and the liverwort *Marchantia polymorpha* as model organisms.

DIVISION OF CHROMATIN REGULATION

Prof. NAKAYAMA, Jun-ichi (+81-564-55-7680) jnakayam@nibb.ac.jp
(https://www.nibb.ac.jp/chroma/index_eng)

Multicellular organisms are made up of diverse populations of many different types of cells, each of which contains an identical set of genetic information encoded in its DNA. Cell differentiation and the process of development itself depend on the ability of individual cells to maintain the expression of different genes, and for their progeny to do so through multiple cycles of cell division. In recent years, we have begun to understand that the maintenance of specific patterns of gene expression does not rely on the DNA sequence, but rather takes place in a heritable, “epigenetic” manner. DNA methylation, chromatin modifications, and RNA silencing are some of the best known epigenetic phenomena. Our division investigates how modifications to the structure and configuration of chromatin (complexes of nuclear DNA and proteins) contribute to epigenetic gene regulation by studying events at the molecular level in the model organisms such as fission yeast, the ciliate *Tetrahymena*, and mammalian cultured cells.

LABORATORY OF NEURONAL CELL BIOLOGY

Assoc. Prof. SHIINA, Nobuyuki (+81-564-55-7620) nshiina@nibb.ac.jp
(https://www.nibb.ac.jp/neurocel/English/)

Translation is a fundamental process of life. In neurons, an important part of translation is regulated locally: a subset of mRNA is transported to dendrites and translated upon synaptic stimulation near the stimulated synapses. mRNA transport and subsequent local translation make it possible to supply the stimulated synapses with newly synthesized proteins and potentiate neural networks connected through the stimulated synapses, which is required for long-term memory formation. It is known that RNA granules, which are macromolecular complexes containing the dendritically transported mRNA, play central roles in the regulation of mRNA transport and local translation in dendrites. In our laboratory, we are identifying mRNA and RNA-binding proteins localized to RNA granules and analyzing the mechanism of mRNA transport and local translation in mouse neurons. We are further studying the role of dendritic mRNA transport and local translation in the formation of synapses and neural networks as well as in learning, memory and behavior using mice as model animals.

LABORATORY OF ORGANELLE REGULATION

Prof. MANO, Shoji (+81-564-55-7500) mano@nibb.ac.jp
(https://www.nibb.ac.jp/plantorganelles/)

Plant organelles change their functions, morphology, and the number dramatically in response to cell types, developmental stages and environmental stimuli. This flexibility of organelles supports various biological processes in plant cells. We have been tackling research of plant peroxisomes and oil bodies, which have various crucial functions such as lipid metabolism and accumulation of storage oils, respectively. The defects of their functions disturb normal cell functions and plant growth, showing the significance of both organelles in plant life cycle. However, the detailed mechanisms of dynamics of both organelles remain to be understood. The aim in our laboratory is to understand the regulatory mechanisms of functions and biogenesis of peroxisomes and oil bodies at the molecular level. We are taking a comprehensive approach by a variety of strategies in cell biology, physiology, molecular biology, imaging technique etc. to achieve this purpose.

DIVISION OF EMBRYOLOGY

Prof. FUJIMORI, Toshihiko (+81-564-59-5860) fujimori@nibb.ac.jp
Assoc. Prof. KINOSHITA, Noriyuki (+81-564-59-5862) nkinoshi@nibb.ac.jp
Assoc. Prof. AJIMA, Rieko (+81-564-59-5862) rajima@nibb.ac.jp
(https://www.nibb.ac.jp/embryo/)

The aim of our research is to understand the events underlying early mammalian development during the period from the pre-implantation to establishment of the body axes.
Mammalian embryo is characteristic for their ways of development occurring in the uterus of the mother. The other characteristic is their highly regulative potential. The pattern of cell division and allocation of cells within an embryo during the early stages vary between embryos. The timing of the earliest specification events that control the future body axes is still under discussion. Functional proteins or other cellular components have not been found that localize asymmetrically in the fertilized egg. We would like to provide basic and fundamental information about the specification of embryonic axes, behaviors of cells and the regulation of body shape in early mammalian development through visualization and live imaging of cells and molecules in addition to the classical methods commonly used in embryology.

DIVISION OF GERM CELL BIOLOGY

Prof. YOSHIDA, Shosei (+81-564-59-5865) shosei@nibb.ac.jp
(https://www.nibb.ac.jp/germcell/index_E)

Generation of gametes-eggs and sperm- is one of the most fundamental function of living organisms. Division of Germ Cell Biology focuses on mammalian spermatogenesis, which represents a highly potent and robust stem cell system. Decades of research,including detailed morphological examinations, post-transplantation repopulation, and in vitro culture, have made it one of the most intensively studied mammalian stem cell systems.
However, the cellular nature and regulation of the stem cells remain largely unknown. We aims to fully understand the mammalian sperm stem cell system using mice.
Our current interests include 1) the cellular nature of the stem cell compartment and their behaviors in the in steady-state spermatogenesis, and 2) the anatomical basis and function of the sperm stem cell niche.

DIVISION OF BEHAVIORAL NEUROBIOLOGY

Prof. HIGASHIJIMA, Shinichi (+81-564-59-5875) shigashi@nibb.ac.jp
(https://www.nibb.ac.jp/behavior/)

Neuroscientists have long wanted to understand neuronal mechanisms how locomotion and behaviors are generated. We are trying to address this issue by using small fish (zebrafish and medaka) whose central nervous systems are simpler, and thus easier to analyze. We have been generating a large number of transgenic zebrafish strains, each of which express fluorescent protein in a particular class of neurons. By using these transgenic fish, we are investigating behavioral roles of each class of neurons. Techniques we use include electrophysiology, calcium imaging, optogenetics, and genetic ablation of neurons. Currently, we are focusing on the following topics: (i) how rhythms are generated, (ii) how animals change the speed of locomotion, and (iii) how flexior/extensor and left/right movements are coordinated during rhythmic pectoral fin movements.

LABORATORY OF NEUROPHYSIOLOGY

Assoc. Prof. WATANABE, Eiji (+81-564-59-5595) eiji@nibb.ac.jp
(http://www.nibb.ac.jp/neurophys/)

In order to interact successfully with the environment, animals must deduce their surroundings based on sensory information. The visual system plays a particularly critical role in such interactions with the environment. "Why can we see?" This question is fundamental for a thorough understanding of vision-dependent animals, including human beings. One of our major subjects is the psychophysical and computational studies of medaka (*Oryzias latipes*). Another of our major subjects is the psychophysical and theoretical studies of the visual system of human beings (*Homo sapiens*).

DIVISION OF EVOLUTIONARY DEVELOPMENTAL BIOLOGY

Prof. NIIMI, Teruyuki (+81-564-55-7606) niimi@nibb.ac.jp
(https://www.nibb.ac.jp/niimilab/)

Insects can boast of an overwhelming wealth of species. With a history of evolution spanning over 400 million years, insects have adapted to every environment on earth, diversifying into an extraordinary range of forms along the way. With over a million species, insects are a treasure trove of diversity, and represent infinite possibilities as research tools for unlocking the evolutionary mechanisms responsible for the evolution of animal form. We focus on the evolutionary novelties acquired by insects through evolution, in order to elucidate the molecular and evolutionary mechanisms leading to the large variety of traits that they display. From this wealth of exciting traits, our lab currently focuses on promoting research into (1) the origin and diversification of insect wings, (2) wing color patterns and mimicry of ladybird beetles,, and (3) acquisition and diversification of beetle horns.

LABORATRY OF EVOLUTIONARY GENOMICS

Prof. SHIGENOBU, Shuji (+81-564-55-7670) shige@nibb.ac.jp
(https://www.nibb.ac.jp/en/sections/evolutionary_biology_and_biodiversity/shigenobu/)

Every creature on the earth exists among a network of various biological interactions. For example, many multicellular organisms, including humans, harbor symbiotic bacteria in their bodies: some of them provide their hosts with essential nutrients deficient in the host's diet and others digest foods indigestible by the host alone. The goal of our group is to establish a new interdisciplinary science "Symbiosis Genomics", where we aim to understand the network of biological interactions at the molecular and genetic level. To this end, we take advantage of state-of-the-art genomics such as next-generation sequencing technologies. Grad students in our lab are expected to be trained to be familiar with both of experimental biology and bioinformatics.

DIVISION OF ENVIRONMENTAL PHOTOBIOLOGY

Prof. MINAGAWA, Jun (+81-564-55-7515) minagawa@nibb.ac.jp
Assoc. Prof. YOKONO, Makio (+81-564-55-7517) myokono@nibb.ac.jp
(https://www.nibb.ac.jp/photo/)

Plants and algae possess impressive adaptability to diverse environments. Central to this is optimizing photosynthetic reactions, crucial for harvesting and converting solar energy into vital chemical energy. Particularly, microalgae dynamically adjust light-harvesting protein and photosystem supercomplex organization in response to environmental cues. To unravel how photosynthesis adapts and optimizes, we employ advanced techniques such as biochemistry, molecular genetics, spectroscopy, and microscopy. Our research explores photosystem supercomplexes in a range of plants, various microalgae, and their evolutionary ancestors, uncovering their structural and functional intricacies.

DIVISION OF PLANT ENVIRONMENTAL RESPONSES

Prof. MORITA, Miyo T. (+81-564-55-7556) mimorita@nibb.ac.jp
(https://www.nibb.ac.jp/perhp/en/)

Plants have the ability to sense various environmental stimuli such as light, humidity, gravity, etc. To enhance their chance of survival, plants reorient growth direction of their organs in response to such stimuli. These physiological responses are referred as tropisms and the gravitropism is one of major determinant for organ growth direction. The direction of gravity is recognized in specific cells called as statocytes in which amyloplasts are displaced toward the direction of gravity. We are interested in the gravity sensing and signaling in gravitropism, in particular, how displacement of amyloplast is converted to biochemical signal transduction. We aim to understand the detailed molecular mechanism of gravity sensing and signaling by

applying a genetical, molecular biological, and cell biological approaches using model plant *Arabidopsis thaliana*.

DIVISION OF PHOTOPHYSICAL BIOLOGY

Prof. KONDO, Toru (+81-564-59-5235) tkondo@nibb.ac.jp
（https://pblab.nibb.ac.jp/）

Photosynthetic organisms utilize light energy to synthesize organic compounds like sugars. Light energy is captured by pigment molecules and finally converted into chemical energy such as ATP through processes including energy transfer, electron transfer, proton transfer, and material transport. These complicated multistep processes are mediated by diverse pigment molecules, pigment-binding proteins, protein supercomplexes, and the biological membranes that incorporate them. Our research group focuses on understanding how localized light stimulations propagate from molecules at the micro scale to biological membranes and eventually to entire cells at the macro scale. To achieve this, we develop original microspectroscopic instruments to pioneer new methods for both measurement and analysis.

LABORATORY OF GENOME INFORMATICS

Assoc. Prof. UCHIYAMA, Ikuo (+81-564-55-7629) uchiyama@nibb.ac.jp
(https://www.nibb.ac.jp/en/sections/theoretical_biology/uchiyama/)

Accumulation of genomic and related data of various kinds of organisms has made it possible to explore general principles of genomic evolution that generates biological diversity, through cross-species comparisions. Toward this goal, we have developed a microbial comparative genome database (MBGD; http://mbgd.genome.ad.jp) based on comprehensive ortholog analysis, and are conducting systematic studies of comparative/evolutionary genomics using this database. We are also developing methods to effectively analyze large-scale genomic data.

LABORATORY FOR SPATIOTEMPORAL REGULATIONS

Assoc. Prof. NONAKA, Shigenori (+81-564-55-7590) snonaka@nibb.ac.jp
(http://www.nibb.ac.jp/~bioimg2/en/)

Live imaging technique of the whole organisms without dissecting and slicing are increasingly important to capture vital phenomena. We pursue left-right determination mechanism and cell migration during gastrulation of developing mouse embryos, using light-sheet microcopy and two-photon microscopy, which enable imaging of thick living organism with good penetration depth and least photodamages. We are also working for the development of imaging techniques based on light-sheet microscopy.

LABORATORY OF BIOTHERMOLOGY（SPECTROGRAPHY AND BIOIMAGING FACILITY）

Prof. KAMEI, Yasuhiro (+81-564-55-7535) ykamei@nibb.ac.jp
(https://www.nibb.ac.jp/lspectro/kamei_lab)

A microscope is a tool for “observation” of micro-world, while, recently, new technologies enable “manipulation” of living cells via microscope. We developed single-cell gene induction microscope which utilized infrared laser for heating cells and utilized heat shock response to induce a target gene. The system can be applied to many model orgasms, such as medaka, nematode and higher plant Arabidopsis. On the other hand, we developed reverse-genetical technique for medaka, called TILLING, and then we can make KO mutants for target genes. We combine the technique for laser gene induction and the mutant production system for the fine gene analysis in vivo to explore how the biological mechanism of gene expression net-work builds up the body or controls differentiation.

TRANS-OMICS FACILITY

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We employ mass spectrometry (MS)-based *omics* analyses to obtain comprehensive profiles of proteins and metabolites, including sugars, amino acids and hormones, for studying plant signaling pathways. Our particular interest is in plant

hormones (phytohormones) because they play a crucial role in growth, development and stress responses throughout the plant life cycle. Our research themes include investigating plant responses to abiotic stresses, such as drought stress, using *Arabidopsis thaliana*. Additionally, our mission is to develop novel MS-based analytical and imaging platforms.

EMERGING MODEL ORGANISMS FACILITY

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Certain animals exhibit extraordinary regenerative abilities, yet their molecular mechanisms remain largely unexplored. Our study aims to uncover these mechanisms. Additionally, we are developing functional genomics tools and working toward the establishment of new model organisms.

FACILITY FOR SOCIAL BEHAVIOR SCIENCE

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Insects have expanded into nearly every environment on Earth, acquiring a vast array of adaptive behaviors. Among them, the order Hymenoptera, which includes species with diverse behavioral traits such as parasitism, nesting, and sociality, serves as a useful model for investigating the brain basis of behavioral evolution. Our group primarily works on the eusocial European honey bee (*Apis mellifera*) to elucidate the molecular and neural mechanisms underlying social behavior and its evolution. We develop molecular and neuroethological tools for the honey bee including genetic manipulation methods and novel behavioral assays. We also conduct comparative gene expression analyses of brain regions and constituent cells across closely related species with distinct behavioral traits to search for the neural basis accounting for behavioral differences.

RESEARCH UNIT

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In cell modeling using a systems biology approach, we have been building a foundation for understanding complex cells as systems by mathematically modeling life functions such as transcription, metabolism, and signal transduction based on biomolecular information. For example, in whole-cell modeling of organisms like bacterial E. coli and mycoplasma, we have been converting a wide variety of biomolecular information into reaction rate equations to predict and validate phenotypes from genome sequences. However, cells are not merely assemblies of biomolecular networks; they also encompass a variety of physical parameters and governing equations derived from thermodynamics, statistical mechanics, optics, fluid dynamics, and quantum biology. These elements correlate with the network information of biomolecules, together forming a single life system. In our research group, we are developing a new method of cell modeling that can simultaneously handle both biological and physical information, based on the physical laws and governing equations (such as the heat conduction equation and wave equation) that should apply within cells.

Astrobiology Center

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The presence of green plants on Earth can be detected from outer space since their photosynthesis interacts with the global environment. If ‘alien plants’ exist on extrasolar planets, oxygen in the atmosphere and light reflection by vegetation could be detected via astronomical observation. In the next decade, direct imaging of habitable exoplanets will be implemented. We are studying to characterize phototrophs on exoplanets and to predict detectable biosignatures.

Interuniversity Bio-Backup Project for Basic Biology

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Seeds are excellent storage organs for genetic information and can have a long lifetime under the appropriate conditions. However, in some plants, such as the citrus, the high heterogeneity of the genome makes it difficult for the seeds to transmit the genetic characteristics of the parent to the progeny. In such cases, it is important to develop a technology to preserve shoot apices and axillary buds at ultra-low temperatures below -190°C. This technology will make it possible to use shoot apices and axillary buds preserved at ultra-low temperatures for grafting and maintaining plant lineages. In plants, if somatic cells can tolerate ultra-low temperatures, the possibility of long-term preservation becomes more feasible. The IBBP center is working to elucidate the cellular conditions suitable for ultra-low temperature preservation and to study the effects of ultra-low temperature treatment on the genomes. In particular, we analyze gene expression and epigenetic changes, and aim to develop preservation techniques applicable to various species.