October 2022

School of Life Science
The Graduate University for Advanced Studies, SOKENDAI
Application Guidelines

Contents
I. Admission Policy: School of Life Science
   pp. 2-3

II. Outline: School of Life Science
    pp. 4-5

III. Five-year Doctoral Program: Application Procedures and Important Notes
     pp. 6-22

IV. Three-year Doctoral Program: Application Procedures and Important Notes
    pp. 23-37

V. Majors and Research subjects of the Faculty in the School of Life Science
    pp. 38-54

The Application Guideline (PDF) and a booklet of application forms are required to initiate an application. Please contact the address below to ask for a booklet or any further information.

Please make sure to confirm the changes of application guideline in each department due to COVID-19: https://www.soken.ac.jp/news/6567/

[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

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.
I. Admission Policy

School of Life Science

[School’s basic policy]
Graduate programs offered in the School of Life Science advance frontiers of life science through exploring biological phenomena and their mechanisms at molecular, organismal, and population levels. In the superb environment of affiliated research Institutions, flexible graduate programs are provided to cater to a diverse range of academic backgrounds and experience. The School aims to nurture internationally competitive researchers with broad perspectives.

[Ideal students being sought]
Applicants should possess strong interest in biological phenomena and their mechanisms. We seek students who have the potential and drive to become independent, internationally active researchers.

Department of Genetics

[Department’s basic policy]
The Department of Genetics aims to nurture independent, creative scientists who can conduct research activities around the globe. The primary objective is to educate students with rich background knowledge and to train them with highly advanced research skills.

[Students]
The Department of Genetics seeks students who have a strong interest and desire to pursue research in Life Sciences, have the potential to become independent researchers, and strive to do so through the academic experience at the Department of Genetics.

[Basic approach to selecting applicants]
1) Knowledge is important, but the Department of Genetics also emphasizes high motivation, creativity, and logical thinking.

In addition, English ability for scientific research is evaluated.

2) In order to measure the potential of each prospective student as a researcher, interviews and written tests are evaluated by the entire faculty.

3) Admissions process is designed to provide opportunities to various people, including international students, transfer students and students entering from the working force.

Department of Basic Biology

[Department’s basic policy]
We study the basic principles common to all living organisms, and the mechanisms that enable diversity and allow life to adapt to changing environments. We educate students to discover essential questions in the field of biology, and solve them.

[Students]
We seek individuals with interests in biological phenomena and the investigation of the mechanisms behind them.
[Basic approach to selecting applicants]

Based on application forms and interviews with our faculty members, we evaluate the student's motivation and potential for studying. In addition, for prospective five-year students, we examine the student’s ability to think logically, as well as their skills in English language through short essays and a written examination.

**Department of Physiological Sciences**

[Department’s basic policy]

The Department of Physiological Sciences conducts education and supervision aimed to nurture researchers who can explore function of living organism and its mechanism from various perspectives (from the molecular and cellular level, which is a basic unit of the living organism, to the individual level, which is an integrative system of the unit). In this way, the Department nurtures outstanding researchers who have broad perspectives on medicine, neuroscience and a whole range of life science, and the foresight to forge new fields of knowledge.

[Students]

The Department seeks students who understand and sympathize with the basic policy of the Department, and who have the potential to develop into outstanding researchers with keen intellect, abundant sensibilities, and broad perspectives.

[Basic approach to selecting applicants]

1) In selecting applicants, the Department determines whether the applicant is suitable in light of the Department’s basic policy.

2) The Department adopts a multifaceted selection process. Accordingly, in addition to the results of a scholastic ability test, the Department also considers the applicant’s personality, temperament, motivation, and various other latent qualities.

3) The scholastic ability test assesses comprehensively criteria, such as the applicant’s comprehension, expressive ability, logical thinking ability, and English language proficiency.
II. Outline: School of Life Science

The Graduate University for advanced Studies, SOKENDAI is a national university that has a five-year doctoral program and accepts only the students who aim to pursue a doctoral degree. Those who hold a Master’s degree may be enrolled in the third year of the five-year doctoral program (which can be considered as "three-year doctoral program").

The School of Life Science includes three departments: Department of Genetics, Department of Basic Biology, and Department of Physiological Sciences. We investigate biological phenomena at multiple levels, ranging from molecules to individual organisms. Additionally, we conduct advanced education and research that contribute to the development of the life sciences.

We take full advantage of the research environments available at our affiliate inter-university research institutes (IURIs) to provide flexible doctoral courses for students with a variety of educational backgrounds and experiences. Our aim is to cultivate first-class researchers with a broad international perspective.

The School of Life Science offers two doctoral courses; qualifications, educational background, and experience requirements vary for each one. Applicants for the Five-year doctoral program must have completed a Bachelor’s course or the equivalent. Applicants for the Three-year doctoral program must have completed a Master’s course or the equivalent.

Admission for both courses is offered twice each year in April and October. Additionally, an entrance examination for April admission is held twice per year; first round in summer and second round in winter. The admission details for the five-year doctoral program are described on pages 6-22. Admission details for the three-year doctoral program are described on pages 23-37.

Department of Genetics

The Department of Genetics offers educational and research opportunities in a variety of cutting-edge disciplines with the goal of investigating biological phenomena in the context of genetics. Study and research fields include both basic and applied fields of molecular, cellular, individual, and population genetics; students can take advantage of an extensive DNA database and a wide range of experimental organisms. Our educational philosophy is to encourage graduate students to become competent and self-motivated scientists; additionally, the entire teaching staff is involved in the academic guidance of each individual student. For example, graduate students present their individual progress reports twice each year before a panel of academic advisors. This invaluable opportunity allows students to discuss their research with and receive advice from a number of faculty members other than their theses advisors. The department also offers an English language program designed specifically for scientists, and it provides ample financial assistance opportunities, such as our research assistant program.
Department of Basic Biology
Advanced training and research are conducted in the field of basic biology with emphasis on cell biology, developmental biology, neurobiology, evolutionary biology, environmental biology, and theoretical biology. Fundamental biological phenomena are studied by using a variety of model organisms and approaches, such as techniques in cell biology, molecular biology, physiology, biochemistry, mathematics, and bioinformatics.

Department of Physiological Sciences
Physiology clarifies the mechanisms of living bodies from elements (cells and molecules) and systems; therefore, it provides important basic knowledge necessary for understanding pathological conditions. The importance of physiology has increased with the clarification of genome structures. In this course, students can learn the function of intact organisms at multiple levels from molecular and cellular levels as basic units of living organisms to whole body levels as systems which integrate the basic units. Moreover, students are expected to become pioneering researchers in medicine and bioscience.

Degree Requirements
Doctor of Philosophy shall be conferred to students who have satisfied the requirements of their respective program as prescribed below.

Five-year doctoral program
Students must be enrolled in SOKENDAI for at least five years; additionally, they must earn the necessary credits, receive necessary research guidance, and pass the examination for a doctoral thesis. Students who are recognized as having achieved significant progress may be able to graduate within a shorter time frame.

Three-year doctoral program
Students must be enrolled in SOKENDAI for at least three years; additionally, they must earn the necessary credits, receive necessary research guidance, and pass the examination for a doctoral thesis. Students who are recognized as having achieved significant progress may be able to graduate within a shorter time frame.
### III. Five-year Doctoral Program: Application Procedures and Important Notes

#### 1 Number of Students Accepted

<table>
<thead>
<tr>
<th>Department</th>
<th>Division</th>
<th>October Admission</th>
</tr>
</thead>
<tbody>
<tr>
<td>Genetics</td>
<td>Molecular/Cell Genetics, Development Genetics, Evolutionary Informative Genetics, Genome Genetics</td>
<td>A few</td>
</tr>
<tr>
<td>Basic Biology</td>
<td>Cell Biology, Developmental Biology, Environmental Biology, Neurobiology, Evolutionary Biology and Biodiversity, Reproductive Biology</td>
<td>A few</td>
</tr>
<tr>
<td>Physiological Sciences</td>
<td>Molecular and Cellular Physiology, Homeostatic Regulation, Fundamental Neuroscience, System Neuroscience</td>
<td>A few</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

#### 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 a 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 a 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 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 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; (Note)

(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) in advance.

3 Qualification Screening for Application

Applicants who intend to apply under the provisions (9), (10), (11) or (12) in section 2 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 screening

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

(b) Application documents (as described in section 5 below)

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

(c) Other documents required by each Department. For details, please refer to each Department.

(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 section 2 (Qualification for Application))

<table>
<thead>
<tr>
<th>Department</th>
<th>Application Period</th>
</tr>
</thead>
<tbody>
<tr>
<td>Genetics</td>
<td>June 6 (Monday) to June 9 (Thursday), 2022</td>
</tr>
<tr>
<td>Basic Biology</td>
<td>June 6 (Monday) to June 9 (Thursday), 2022</td>
</tr>
<tr>
<td>Physiological Sciences</td>
<td>June 6 (Monday) to June 9 (Thursday), 2022</td>
</tr>
</tbody>
</table>

The application must arrive within the application period described in subsection 2.

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 submitted 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.

(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

(1) Application Period

<table>
<thead>
<tr>
<th>Department</th>
<th>Application Period</th>
</tr>
</thead>
<tbody>
<tr>
<td>Genetics</td>
<td>June 30 (Thursday) to July 6 (Wednesday), 2022</td>
</tr>
<tr>
<td>Basic Biology</td>
<td>June 30 (Thursday) to July 6 (Wednesday), 2022</td>
</tr>
<tr>
<td>Physiological Sciences</td>
<td>June 30 (Thursday) to July 6 (Wednesday), 2022</td>
</tr>
</tbody>
</table>

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

The complete set of application documents should be submitted by registered express mail in principle to the following address:

<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

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 Department 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.

5 Application Documents

Please read through the “Important Notes for Applicants” beforehand. Also, the application documents must fill in the application forms with black or blue pen without erasable pen.

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

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. Please read through the application guidelines. Your signature is required on Form 1.

(2) Academic transcripts (original)

(a) Applicants who intend to apply under the provision (1) in section 2 should 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 section 2 should submit all the academic transcripts concerning the Bachelor’s degree.

(c) Applicants who intend to apply under the provisions (3) to (9) in section 2 should submit the academic transcripts from the foreign undergraduate school.
(d) Applicants who intend to apply under the provisions (10) to (12) in section 2 should 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 section 2, should 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 section 2, should 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 section 2, should submit the certificate of (expected) graduation from the foreign university.
(d) Applicants who intend to apply under the provision (10) in section 2, should submit the school-certificate, and applicants who intend to apply under the provisions (11) and (12) in section 2, should submit the certificate of graduation of their final academic background.

(4) Statement of Purpose (Form 2)
Applicants who apply to a second-choice department should copy Form 2 and prepare “Statement of Purpose” for the second-choice department 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 label (Form 9)

(7) Envelope for Admission ticket for the examination
Applicant’s name, address and zip code (postal code) should appear on the envelope (attached to the Application Guidelines), and 674 yen of postage stamp should be affixed.

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

(9) 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 department should submit another set of copy of the documents for the second-choice department separately.

(10) Books, papers, or lectures that were particularly interesting to you (Form 10-1)
(Applicants to Department of Genetics only) Please refer to “Important Notes” on page 15.

(11) Letter of Recommendation
Applicants to Department of Genetics are not required to submit the Letter of Recommendation.
Applicants to Department of Basic Biology 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 section 2 are recommended to submit the Letter of Recommendation for the qualification screening.
Applicants to Department of Physiological Sciences who intend to apply under the provision (1) to (8) in section 2 are not required the Letter of Recommendation, and who intend to apply under the provision (9) to (12) in section 2 shall refer to “Important Notes” on page 20.
(12) TOEFL/TOEIC/IELTS score

Applicants to Department of Genetics shall refer to “How to submit TOEFL/TOEIC/IELTS score” on page 17.
Applicants to Department of Basic Biology are not required to submit TOEFL/TOEIC/IELTS score.
Applicants to Department of Physiological Sciences shall refer to “Important Notes for Applicants” on page 20.

(13) 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.

(14) 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 2 is also available at our website.


For other forms, please submit the form in the application guidelines of the booklet version.

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.

6 Screening Procedures

Screening will be conducted based on submitted application documents and results of academic tests.

Please see “Important Notes” for details of screening.

If you apply to more than one department, screenings are conducted individually. For the details of the screening methods for each department, please refer to “Important Notes for Applicants” for each Department.

<table>
<thead>
<tr>
<th>Department</th>
<th>Examination Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Genetics</td>
<td>July 31 (Sunday) and August 1 (Monday), 2022</td>
</tr>
<tr>
<td></td>
<td>Spare date: August 2 (Tuesday), 2022</td>
</tr>
<tr>
<td>Basic Biology</td>
<td>August 2 (Tuesday) and August 3 (Wednesday), 2022</td>
</tr>
<tr>
<td>Physiological Sciences</td>
<td>August 17 (Wednesday) and August 18 (Thursday), 2022</td>
</tr>
</tbody>
</table>

(Note) Detailed information about the time and venue of the examination will be issued 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 our website(https://www.soken.ac.jp/en/admission/general_admission/guideline/seimei/) for the delivery status of admission ticket.
Venue of the examination

<table>
<thead>
<tr>
<th>Department</th>
<th>Location and Directions</th>
</tr>
</thead>
</table>
| Genetics                 | National Institute of Genetics (NIG)  
1111 Yata, Mishima, Shizuoka 411-8540  
From the bus rotary on the South Exit of Mishima Station (JR Tokaido line), take a bus bound for "Yanagigochil" at No.5 bus stop and get off at "Idenken mae" (in front of NIG), or take a taxi (10 minutes) from Mishima Station.  
The NIG free shuttle bus runs between NIG and the North Exit of Mishima Station on weekdays. |
| Basic Biology            | National Institute for Basic Biology  
38 Nishigonaka, Myodaiji, Okazaki, Aichi 444-8585  
Seven-minute walk from Higashi-Okazaki Station (Nagoya Railway, Meitetsu). |
| Physiological Sciences   | National Institute for Physiological Sciences  
38 Nishigonaka, Myodaiji, Okazaki, 444-8585  
Seven-minute walk from Higashi-Okazaki Station (Nagoya Railway, Meitetsu).  
*Written examination and the interview will be conducted through the Internet remotely.* |

7 Announcement of Results

<table>
<thead>
<tr>
<th>Admission</th>
<th>Notification</th>
</tr>
</thead>
<tbody>
<tr>
<td>October 2022</td>
<td>Middle September 2022</td>
</tr>
</tbody>
</table>

Further details will be sent to applicants.

Results will be posted on the notice board both in each research institute and Hayama Campus, as well as notification to be mailed to all applicants (but not including applicants who have withdrawn from examination). Announcement of results will be made on SOKENDAI website (https://www.soken.ac.jp/en/admission/general_admission/result/) , however, results shall be confirmed by the notice sent to the applicants by mail. Inquiries regarding the results by telephone or any other means will not be responded.

8 Admission Procedures

1. Admission period is scheduled as below:
   Late September 2022 for the enrollment of October 2022
   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 below:
      September 30, 2022 for the enrollment of October 2022

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 College 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/admissions/immigration/certificate.html

9 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 alterations 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) Physically challenged applicants 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) If there is any change for SOKENDAI admissions, we will announce on SOKENDAI website. Please make sure SOKENDAI website.

10 Extended Study Program

Extended Study Program is for students who have extenuating circumstances, such as being employed, so that they can study for a longer period instead of the 5-year standard program term. For further information, please contact the Educational Affairs Section.

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

11 Security Export Control

Depending on the specifics of the education and research instructions they wish to receive upon entering the program, applicants may be subject to regulations on the export/transfer of controlled technologies based on the Foreign Exchange and Foreign Trade Law. Please consult each department office for further details.

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 Department of Genetics  
(Five-year Doctoral Program)

(1) When you apply to the Department of Genetics, please contact the PI of the lab you wish to belong to in order to discuss the research with them. As for each lab’s research, please read “Majors and Research Subjects of the Faculty in the School of Life Science” on pages 38 - 42 or see the faculty introduction on the Department of Genetics website. (https://www.nig.ac.jp/nig/phd-program/faculty)

Faculty members who plan to retire within the standard period of study (5 years from the time of admission) cannot be appointed as supervisors.

(2) Fill your prospective supervisor’s name in “1st Choice of Supervisor” of “Application Form (Form 1)”. You may appoint another supervisor at the Department of Genetics as “2nd Choice of Supervisor”.

(3) In Form 2 “Statement of Purpose”, state “The reason why you would like to research at Department of Genetics” in approximately 800 words in English.

(4) In Form 10-1 “Books, papers, or lectures that were particularly interesting to you”, specify three titles and describe briefly what made you interested in them.

(5) A score of TOEFL-iBT, TOEIC or IELTS test which was taken within 2 years prior to the entrance examination day is used to evaluate English ability. Please submit your score record/official certificate in accordance with "How to submit TOEFL/TOEIC/IELTS score" on page 17.

(6) The examination will be held in 2 days, and you will take a written examination on the first day and an interview on the second day. The written examination will last 3 hours, and essay-type questions will be given to judge the abilities necessary for a researcher, such as thinking ability and logicality. The interview will last up to 30 minutes per applicant. In the first five minutes, you will be asked to give a presentation about an appropriate theme such as your research activities, paper/lecture which has impressed you recently, future aspiration or the reason why you wish to study at the Department of Genetics. A whiteboard is available for use. You will be asked about your presentation, answer of the written examination and the application documents in the rest of time.

Please refer to the notice mailed before the examination for detailed schedule.

(7) This entrance examination can be taken either in Japanese or in English. You may write a short essay in English. Applicants may take the interview in English, if you wish to do so.

(8) In page 11 "Ⅱ-6 Screening Procedures", three dates are stated as examination dates. The third day is spare. Usually the examination will be carried out within the first two days.

(9) Criteria for evaluation and judgment

Criteria for evaluation
The result of the written examination, interview and submitted documents shall be evaluated comprehensively.

Criteria for acceptance
Applicants who are considered to be competent to write a doctoral dissertation in five years and to obtain enough research abilities as PhD.

(10) Due to circumstances, in case that you need to register pre-planned courses which take longer than the standard period required for graduation, you might be allowed to take "extension of study". See the link for the details: https://www.nig.ac.jp/nig/phd-program/courses-top/stretched-graduate-program

When you apply for the plan at the time of an entrance examination, consult with your prospective supervisor beforehand.

(11) SOKENDAI students may be granted 710,000 JPY as an annual income by taking Research Assistant System.
(12) Please contact Academic Services Division, National Institute of Genetics for any enquiries about the Department of Genetics.
Tel: +81-55-981-6720  Fax: +81-55-981-6715  E-mail: info-soken@nig.ac.jp
For further information about the Department of Genetics and NIG, please refer to the website below.
https://www.nig.ac.jp/nig/phd-program/main-page-top/main-page
How to submit TOEFL/TOEIC/IELTS score

The Department of Genetics uses TOEFL, TOEIC, or IELTS score to evaluate the applicant’s English proficiency. When you submit your score record, please note the following points.

(1) Eligible Tests

TOEFL-iBT Test, TOEIC Listening & Reading Test, or IELTS (Academic Module) must be taken within two years prior to the entrance examination day.

(2) How to Submit Score Record

When you apply to the Department of Genetics, enclose one photocopy of your score from any of the following tests:
- Official Score Report for TOEFL-iBT Test
- Official Score Certificate for TOEIC Listening & Reading Test
- Test Report Form for IELTS (Academic Module)

Do not forget to bring the original score record on the day of the entrance examination.

If it is impossible for you to obtain the score record by the application period, please submit Form 11 at the time of application, and bring the original score record with you to the testing location on the examination date.

TOEFL-iBT Test: You can make an arrangement with ETS to send your Official Score Report directly to SOKENDAI. If you do so, you do not need to bring the original on the examination day.

- Institution Code: 7564
- Institution Name: The Graduate University for Advanced Studies, SOKENDAI

Note:

Dates and venues for these English tests are limited. If you intend to apply to the Department of Genetics, we recommend that you take one of the English tests ahead of time. Check the official websites for the details of TOEFL-iBT Test, TOEIC Listening & Reading Test, or IELTS (Academic Module).

- (TOEFL-iBT) https://www.toefl-ibt.jp/index.html
- (TOEIC) https://www.iibc-global.org/english.html
- (IELTS) https://www.eiken.or.jp/ielts/en
Important Notes for Applicants to Department of Basic Biology
(Five-year Doctoral Program)

(1) It is highly recommended that before the submission of a formal application, applicants contact an appropriate supervisor to inform him or her of their interest in submitting a research plan. Please refer to “Main research of supervising professors of Department of Basic Biology on pages 43-48 of this brochure for information regarding which laboratories and professors are affiliated with this department. Applicants may also select a second-choice laboratory in addition to their first-choice laboratory.

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

(3) Selection Method
   (a) Document screening, 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 as many as three dictionaries among the following: their native language-to-English dictionary, English-to-their native language dictionary, and English dictionary (Electronic dictionaries will not be 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 such applicable topics. During the interview, a whiteboard is available for use. The other 15 minutes will be used to conduct a question-and-answer session covering the applicant’s presentation, submitted documents, and the results of written examination.
   (c) This entrance examination can be taken either in Japanese or in English. You may write a short essay in English and/or take the interview in English. Applicants who write a short essay in English are exempted from the English written examination. If you wish to write a short essay in English and/or take the interview in English, you will need to inform us in advance.
   (d) Written examination and the interview will take place at National Institute for Basic Biology in Aichi, Japan. Please note that the department office will NOT make an arrangement for applicants to obtain a short-term stay visa for entrance examination, air tickets and/or accommodation.

(4) Criteria for grading, evaluation and admission decision
   <Criteria for grading and evaluation>
   Applicants will be graded on a scale from A (the highest grade) to D (the lowest grade) based on the submitted documents, interview and written examination results.
   <Criteria for admission decision>
   Acceptance will be determined by overall performance, which will be assessed based on the submitted documents, interview and written examination results.

(5) For individuals who require a period of study that exceeds the pre-determined length, a long-term course of study may be permitted after admission. Those who desire to pursue this course 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 discussion with their supervising professor. Those employed as Research Assistants are each granted an annual salary of approximately 1,000,000 yen.
(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
Important Notes for Applicants to Department of Physiological Sciences
(Five-year Doctoral Program)

(1) Applicants are advised to have a close discussion with a prospective professor regarding the contents of their research before submitting their application documents.

(2) Applicants should fill in the name of their desired professor in the “1st-choice of supervisor” column of the Application Form (Form 1). Only a first-choice professor may be selected for Department of Physiological Sciences. (Filling in a second-choice professor is invalid).

(3) Applicants may include information on the content of their research to date in the “Statement of Purpose” (Form 2).

(4) For applicants who intend to apply under (9), (10), (11), and (12) of section Ⅲ-2, “Qualifications for application” on pages 6-7:
   (a) Those who intend to apply under (10) are advised to submit a letter of recommendation from their current or most recent supervising professor or the head of their department.
   (b) Those intend to apply under (9), (11), or (12) are advised to submit a letter of recommendation from persons who can give an appropriate opinion on applicants’ research capabilities, if possible. Applicants who intend to apply under (1) through (8) do not need to submit a letter of recommendation.

(5) Selection Method:
   (a) Document screening
   (b) Written examination (refer to (7) on the next page)
   (c) Interview (refer to (8) on the next page)
   (d) English ability

*Written examination and the interview will be conducted through the Internet remotely.

(6) English ability will be assessed as follows:
   (a) Japanese applicants
      When you apply to the Department of Physiological Sciences, enclose the original of their TOEIC Official Score Certificate or TOEIC Institutional Program (IP) Score Report. Please note that the tests must be taken within two years before the date of the examination. If it is impossible for you to obtain the score record by the application period, you should submit the score record to Student Affairs Section, Academic and Student Affairs Division, SOKENDAI by August 2 (Tue). (Not e-mail)
   (b) Non-Japanese applicants
      Applicants are required to have obtained the following score(s) by the time of application. The original score sheet must be submitted when you apply to the Department of Physiological Sciences. If it is impossible for you to obtain the score record by the application period, you should submit the score record to Student Affairs Section, Academic and Student Affairs Division, SOKENDAI by August 2 (Tue). (Not email)
      - TOEFL PBT: 550 or higher
      - TOEFL iBT: 80 or higher
      - TOEIC: 730 or higher
      - IELTS: 6.0 or higher

      English test scores are not necessary for applicants who have graduated from universities in the countries where English is a native language and education is conducted in English.
(7) Important notes for the written examination:
   ・The written examination (essay) will last up to 90 minutes.
   ・The written examination will be conducted remotely via Zoom web and e-mail. The applicant will receive a
     password-locked question sheet file and an answer sheet file by e-mail by the day before the examination. The
     applicant will receive the password for the sheets by e-mail or Zoom when the examination starts.
   ・At the end of written examination, the answer sheets should be submitted via email within 20 min.

(8) Important notes for the interview:
   ・The interview will last up to 20 minutes.
   ・For 10 minutes, the applicant will explain the content of previous research (or, for applicants with no previous
     research experience, the content of his or her program(s) of study), reason for applying, and research ambitions. The
     applicant will use his or her own computer and software such as PowerPoint for the presentation. Note that the
     applicant will not be allowed to use devices other than his or her own computer or to distribute supplemental materials
     for presentations.
   ・In the remaining time, the committee members will ask questions about the content of the applicant’s submitted
     documents and of his or her presentation.

(9) Other notes:
   ・The applicant can take the examination at home or in some other place as long as the space is isolated, and the
     contents of the examination are not leaked to a third party.
   ・The examiner record during the examination, and video recording will not be used for any purpose other than the
     examination.
   ・The applicant and examiner will make a Zoom test on the day before the examination.

(10) Criteria for grading, evaluation and admission decision:
    <Criteria for grading and evaluation>
    Applicants will be graded on a scale of A to C on their overall performance, which will be determined on the basis of
    the content of their submitted documents, written-test results, and interviews.
    <Criteria for admission decision>
    Acceptance will be determined in terms of overall performance, which will be determined on the basis on the each
    letter-graded content of the submitted documents, written tests, and interviews.

(11) Financial support for newly enrolled students:
    (a) Japanese students
    Department of Physiological Sciences has been employing all Japanese graduate students (except for those
        receiving Research Fellowship for Doctoral Course Students (DC) provided by Japan Society for the Promotion
        Science) as Research Assistants (RAs) (at an annual salary of 1 million yen). Department of Physiological
        Sciences has been employing an extremely high-score student as RA at an annual salary of 1.7 million yen, and
        a high-score student at an annual salary of 1.4 million yen. Additionally, for new students (except those who have
        received an enrollment-fee waiver), funds equivalent to the amount of their enrollment fees will be paid by the
        Scholarship Fund of National Institute for Physiological Sciences.
(b) Non-Japanese students

Excellent students who wish to enter the 5-year Doctoral Program at National Institute for Physiological Sciences (NIPS) are eligible to apply for two types of NIPS Scholarship. The first type covers the same as described for MEXT scholarship.

The second one covers the following:

- Admission fee (282,000 yen, only once at the time of admission)
- A half of annual tuition fee
- Salary for Research Assistant job (1,400,000 yen per year, about 116,600 yen per month)

All other students are supported as follows.

- Admission fee (282,000 yen, only once at the time of admission)
- Salary for Research Assistant job (1,000,000 to 1,400,000 yen per year, about 83,300 to 116,000 yen per month)

(12) Questions regarding the items in 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
Phone: +81 564 55 7139
Fax: +81 564 55 7119
Web site: http://www.nips.ac.jp/eng/graduate/
IV. Three-year Doctoral Program and Important Notes

1 Number of Students Accepted

<table>
<thead>
<tr>
<th>Department</th>
<th>Division</th>
<th>Number of Students Accepted</th>
</tr>
</thead>
<tbody>
<tr>
<td>Genetics</td>
<td>Molecular/Cell Genetics, Development Genetics, Evolutionary</td>
<td>A few</td>
</tr>
<tr>
<td></td>
<td>Informative Genetics, Genome Genetics</td>
<td></td>
</tr>
<tr>
<td>Basic Biology</td>
<td>Cell Biology, Developmental Biology, Environmental Biology, Neurobiology,</td>
<td>A few</td>
</tr>
<tr>
<td></td>
<td>Evolutionary Biodiversity, and Reproductive Biology</td>
<td></td>
</tr>
<tr>
<td>Physiological Sciences</td>
<td>Molecular and Cellular Physiology, Homeostatic Regulation, Fundamental</td>
<td>A few</td>
</tr>
<tr>
<td></td>
<td>Neuroscience, System Neuroscience</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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.

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

(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. *1
(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. *1

*1 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 (6), (7), (8) and (9) in section 2 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 (6) through (8) in section 2 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 will also be conducted, if necessary.

(3) Applicants who wish to apply under the provision (9) in section 2 above shall be screened as follows:

<table>
<thead>
<tr>
<th>Department</th>
<th>Procedure</th>
</tr>
</thead>
<tbody>
<tr>
<td>Genetics</td>
<td>Screening will be conducted based on the submitted documents. An interview may be added, if necessary.</td>
</tr>
<tr>
<td>Basic Biology</td>
<td></td>
</tr>
<tr>
<td>Physiological Sciences</td>
<td>Screening will be conducted based on the submitted documents. An interview and written examination (English) may be added, if necessary.</td>
</tr>
</tbody>
</table>

(Note) Please consult each department for further details.
(a) Documents required for Qualification Screening for Application are as follows;
   i. Application for Certifying Applicant’s Qualification (Form 7-2)
   ii. Application Documents as specified in Section 5
       Application 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 each department.

(b) Application Period regarding Qualification Screening

<table>
<thead>
<tr>
<th>Department</th>
<th>Application Period</th>
</tr>
</thead>
<tbody>
<tr>
<td>Genetics</td>
<td>June 6 (Monday) to June 9 (Thursday), 2022</td>
</tr>
<tr>
<td>Basic Biology</td>
<td>June 6 (Monday) to June 9 (Thursday), 2022</td>
</tr>
<tr>
<td>Physiological Sciences</td>
<td>June 6 (Monday) to June 9 (Thursday), 2022</td>
</tr>
</tbody>
</table>

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 submitted 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.

(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

(1) Application Period

<table>
<thead>
<tr>
<th>Department</th>
<th>Application Period</th>
</tr>
</thead>
<tbody>
<tr>
<td>Genetics</td>
<td>June 30 (Thursday) to July 6 (Wednesday), 2022</td>
</tr>
<tr>
<td>Basic Biology</td>
<td>June 30 (Thursday) to July 6 (Wednesday), 2022</td>
</tr>
<tr>
<td>Physiological Sciences</td>
<td>June 30 (Thursday) to July 6 (Wednesday), 2022</td>
</tr>
</tbody>
</table>

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

The complete set of application documents should be submitted by registered express mail in principle to the following address:

<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

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 Department 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.

5 Application Documents

Applicants must consult their prospective supervisors prior to the application. Please read through the “Important Notes for Applicants” beforehand. Also, the application documents must fill in the application forms with black or blue pen without erasable pen.

(1) Application form and admission ticket for the examination (Form 1)
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. Please read through the application guidelines. Your signature is required on Form 1.

(2) Academic transcripts (original)
(a) Applicants who intend to apply under the provision (1) in section 2 should 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 section 2 should 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 section 2 should 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 section 2 should 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 section 2 should submit the certificate from the National Institute for Academic Degrees and University Evaluation.
(c) Applicants who intend to apply under the provisions (6), (7), (8) or (9) in section 2 should 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 shall prepare Research Proposal (Form 5) specifying the outline of the research plan after enrollment. Those who apply to a second-choice department should copy the form and prepare the outline for the second-choice department 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)

(9) Envelope for Admission ticket for the examination
Applicant’s name, address and zip code (postal code) should appear on the envelope (attached to the application guidelines), and 674 yen of postage stamp should be affixed.

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

(11) 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 department should submit another set of copy of the Master’s thesis for the second-choice department separately.

(12) Applicants who have any publication of scientific paper or treatise should submit two copies of the publication.
Applicants who apply to a second-choice department should submit another set of copy of the publication for the second-choice department separately.

(13) Books, papers or lectures that were particularly interesting to you (Form 10-2)
Applicants to the Department of Genetics only. Please refer to the "Important Notes” on page 31.

(14) TOEFL/TOEIC/IELTS score (Applicants to Department of Genetics only) Please refer to page 33.

(15) Letter of Recommendation
Applicants to Department of Genetics are not required to submit the Letter of Recommendation.
Applicants to Department of Basic Biology and Physiological Sciences 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.

(16) 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, s/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.

(17) 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 3, 4 and 5 are also available at our website.
   For other forms, please submit the form in the application guidelines of the booklet version.
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.

6 Screening Procedures
Screening will be conducted based on submitted documents and interview.
If you apply to more than one department, screenings are conducted individually. Please take notice of each examination date. For the details of the screening methods for each department, please refer to "Important Notes" for each department on pages 31-37.

<table>
<thead>
<tr>
<th>Department</th>
<th>Examination Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Genetic</td>
<td>October 2022 Admission</td>
</tr>
<tr>
<td></td>
<td>July 31 (Sunday) and August 1 (Monday), 2022</td>
</tr>
<tr>
<td></td>
<td>Spare date: August 2 (Tuesday), 2022</td>
</tr>
<tr>
<td>Basic Biology</td>
<td>August 2 (Tuesday) and August 3 (Wednesday), 2022</td>
</tr>
<tr>
<td>Physiological Sciences</td>
<td>August 17 (Wednesday) and August 18 (Thursday), 2022</td>
</tr>
</tbody>
</table>

(Note) Detailed information about the time and place of the examination will be issued 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 following website for the delivery status of admission ticket.


Venue of the examination

<table>
<thead>
<tr>
<th>Department</th>
<th>Location and Directions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Genetic</td>
<td>National Institute of Genetics (NIG)</td>
</tr>
<tr>
<td></td>
<td>1111 Yata, Mishima, Shizuoka 411-8540</td>
</tr>
<tr>
<td></td>
<td>From the bus rotary on the South Exit of Mishima Station (JR Tokaido line), take a bus bound for “Yanagigochi” at No.5 bus stop and get off at “Idenken mae” (in front of NIG), or take a taxi (10 minutes) from Mishima Station. The NIG free shuttle bus runs between NIG and the North Exit of Mishima Station on weekdays.</td>
</tr>
<tr>
<td>Basic Biology</td>
<td>National Institute for Basic Biology</td>
</tr>
<tr>
<td></td>
<td>38 Nishigonaka, Myodaiji, Okazaki, Aichi 444-8585</td>
</tr>
<tr>
<td></td>
<td>Seven-minute walk from Higashi-Okazaki Station (Nagoya Railway, Meitetsu).</td>
</tr>
<tr>
<td>Physiological Sciences</td>
<td>National Institute for Physiological Sciences</td>
</tr>
<tr>
<td></td>
<td>38 Nishigonaka, Myodaiji, Okazaki, Aichi 444-8585</td>
</tr>
<tr>
<td></td>
<td>Seven-minute walk from Higashi-Okazaki Station (Nagoya Railway, Meitetsu). *Written examination and the interview will be conducted through the Internet remotely.</td>
</tr>
</tbody>
</table>
Announcement of Results

<table>
<thead>
<tr>
<th>Admission</th>
<th>Notification</th>
</tr>
</thead>
<tbody>
<tr>
<td>October 2022</td>
<td>Middle September, 2022</td>
</tr>
</tbody>
</table>

Further details will be sent to applicants.

Results will be posted on the notice board both in each research institute and Hayama Headquarter, as well as notification to be mailed to all applicants (not including those who have withdrawn from examination). Announcement of results will be made on the SOKENDAI website (https://www.soken.ac.jp/en/admission/general_admission/result/), however, results shall be confirmed by the notice sent to the successful applicants by mail. Inquiries regarding the results by telephone or other means will not be responded.

Admission Procedures

1. Admission period is scheduled as below:
   
   Late September 2022 for the enrollment of October 2022
   
   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 below:
       
       September 30, 2022 for the enrollment of October 2022

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.

Foreign nationals are strongly advised to obtain a College 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:

https://www.soken.ac.jp/en/campuslife/international/immigration/

General Notes

1. Before applying and taking the entrance examination, applicants should read through “Important Notes for Applicants” on pages 31-37.

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) Physically challenged applicants who need 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) If there is any change for SOKENDAI admissions, we will announce on SOKENDAI website. Please make sure SOKENDAI website.

10 Extended Study Program
Extended Study Program is for students who have extenuating circumstances, such as being employed, so that they can study for a longer period instead of the 5-year standard program term. For further information, please contact the Educational Affairs Section.

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

11 Security Export Controls
Depending on the specifics of the education and research instructions they wish to receive upon entering the program, applicants may be subject to regulations on the export/transfer of controlled technologies based on the Foreign Exchange and Foreign Trade Law. Please consult each department office for further details.

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 Department of Genetics
(Three-year Doctoral Program)

(1) When you apply to the Department of Genetics, please contact the PI of the lab you wish to belong to in order to
discuss the research with them. As for each lab’s research, please read “Majors and Research subjects of the Faculty
in the School of Life Science” from page 38 to 42 or see the faculty introduction on the Department of Genetics
website. (https://www.nig.ac.jp/nig/phd-program/faculty)
Faculty members who plan to retire within the standard period of study (3 years from the time of admission) cannot be
appointed as supervisors.

(2) Fill your prospective supervisor’s name in “1st Choice of Supervisor” of “Application Form (Form 1)”. You may appoint
another supervisor at the Department of Genetics as “2nd Choice of Supervisor”.

(3) State your previous laboratory (and supervisor) where you did research in the reverse side “Personal History” of Form
1 (State all if there are more than two).

(4) You can add charts/figures/tables to explain your research activities in Form 3 (Summary of Previous Research
Experience) and Form 5 (Summary of Prospective Research). All charts and figures must fit within the forms. Extra
pages are not allowed.

(5) Specify five papers you have recently read and describe what made you interested in each of them, following the
example of Form 10-2.

(6) A score of TOEFL-iBT, TOEIC, or IELTS which was taken within 2 years prior to the examination day is used to
evaluate the applicant’s English ability. Please submit your score record/official certificate in accordance with "How to
submit TOEFL/TOEIC score" on page 33.

(7) The examination will be held in 2 days, and you will take a written examination on the first day and an interview on the
second day. The written examination will last 3 hours, and essay-type questions will be given to judge the abilities
necessary for a researcher, such as thinking ability and logicality. The interview will last up to 30 minutes per
applicant. In the first five minutes, give a presentation about your current and prospective research activities. A
whiteboard is available for use. You will be asked about your presentation, answer of the written examination and the
application documents in the rest of time.
Please refer to the notice mailed before the examination for detailed schedule.

(8) This entrance examination can be taken in Japanese or English. You may write a short essay in English. If you wish,
you can take an interview in English, as well.

(9) In page 28 “Ⅲ-6 Screening Procedures”, although three days are designated for examination dates, the third day is
spare. Usually the examination will be carried out within the first two days.

(10) Criteria for evaluation and judgment
Criteria for evaluation: The suitability of the applicant as a scientist will be evaluated based on the result of the
written examination, interview and submitted documents.
Criteria for acceptance: Applicants who are considered to be competent to write a dissertation in three years and to
obtain enough research abilities as PhD.

(11) Due to circumstances, in case that you need to register a pre-planned course which takes longer than the standard
period required for graduation, you might be allowed to take “extension of study”. See the link for the details.
https://www.nig.ac.jp/nig/phd-program/courses-top/stretched-graduate-program
When you apply to the course at an entrance examination, discuss with your prospective supervisor beforehand.

(12) SOKENDAI students may be granted 780,000 JPY as an annual income by taking Research Assistant System.

Students for the three-year PhD course may be granted 1,060,000 JPY in the first year by adding up 280,000 JPY for the registration fee.

(13) Please contact Academic Services Division, National Institute of Genetics for any enquiries about the Department of Genetics.

Tel: +81-55-981-6720   Fax: +81-55-981-6715   E-mail: info-soken@nig.ac.jp

For further information about the Department of Genetics and NIG, please refer to the website below.
https://www.nig.ac.jp/nig/phd-program/main-page-top/main-page
How to submit TOEFL/TOEIC/IELTS score

The Department of Genetics uses TOEFL, TOEIC, or IELTS score to evaluate the applicant’s English proficiency. When you submit your score record, please note the following points.

(1) Eligible Tests
   TOEFL-iBT Test, TOEIC Listening & Reading Test, or IELTS (Academic Module) must be taken within two years prior to the entrance examination day.

(2) How to Submit Score Record
   When you apply to the Department of Genetics, enclose one photocopy of your score from any of the following tests:
   - Official Score Report for TOEFL-iBT Test
   - Official Score Certificate for TOEIC Listening & Reading Test
   - Test Report Form for IELTS (Academic Module)

   Please do not forget to bring the original score record on the day of the entrance examination.

   If it is impossible for you to obtain the score record by the application period, please submit Form 11 at the time of application, and bring the original score record with you to the testing location on the examination date.

   TOEFL-iBT Test: You can make an arrangement with ETS to send your Official Score Report directly to SOKENDAI. If you do so, you do not need to bring the original on the examination day.
   - Institution Code: 7564
   - Institution Name: The Graduate University for Advanced Studies, SOKENDAI

Note:

Dates and venues for these English tests are limited. If you intend to apply to the Department of Genetics, we recommend that you take one of these tests ahead of time. Check the official websites for the details of TOEFL-iBT Test, TOEIC Listening & Reading Test, or IELTS (Academic Module).

(TOEFL-iBT)  https://www.toefl-ibt.jp/index.html
(TOEIC)      https://www.iibc-global.org/english.html
(IELTS)      https://www.eiken.or.jp/ielts/en/
Important Notes for Applicants to Department of Basic Biology
(Three-year Doctoral Program)

(1) It is highly recommended that before the submission of a formal application, applicants contact the appropriate supervisor to inform him or her of their interest in submitting a research plan. Please refer to “Main research of supervising professors of Department of Basic Biology on pages 43 - 48 of this brochure for information regarding which laboratories and professors are affiliated with this department. Applicants may also select a second-choice laboratory in addition to their first-choice laboratory.

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

(3) Selection Method
Document screening and an interview will be conducted.
(a) Document screening: Screening 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. During the interview, a whiteboard is available for use. The remaining 15 minutes will be used to conduct a question-and-answer session covering the content of the applicant’s presentation and submitted documents.
(c) This entrance examination can be taken either in Japanese or in English. If you wish to take the interview in English, you will need to inform us in advance.
(d) The interview will take place at National Institute for Basic Biology in Aichi, Japan. Please note that the department office will NOT make an arrangement for you to obtain a short-term stay visa for entrance examination, air tickets and/or accommodation.

(4) Criteria for grading, evaluation and admission decision
Criteria for grading and evaluation
Applicants will be graded on a scale 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 in terms of overall performance, which will be determined on the basis on the each letter-graded content of their research to date, the submitted documents, and interviews.

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

(6) Financial Support for Students
Graduate students may, after discussion with their supervising professor, apply for the Research Assistance program. Those employed as Research Assistants are each granted an annual salary of approximately 1,000,000 yen.

(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
Important Notes for Applicants to Department of Physiological Sciences
(Three-year Doctoral Program)

(1) Applicants are advised to have a close discussion with their desired professor regarding the contents of their research before submitting their application documents.

(2) A letter of recommendation is not necessarily required in applying for this department. Applicants may submit a letter of recommendation if a person can give an appropriate opinion on their research capabilities.

(3) Those who have graduated from a six-year course of medical, dental, pharmaceutical or veterinary schools are also eligible; however, applicants should be aware that the documents to be submitted and the period of submission for applications are different from those of other applicants (see page 24).

(4) Those who complete their course of study in this department is awarded a Doctor of Philosophy degree.

(5) Selection Method:
   Document screening and interview will be conducted.
   (a) Document screening: Screening will be conducted regarding the content of each applicant’s transcript and associated materials.
   (b) Interview: A 30 minutes interview will be conducted, mainly regarding the research performed by the applicant to date and the content of his or her anticipated future research.
      *The interview will be conducted through the Internet remotely.

(6) Important notes for the interview:
   • An interview will last 30 minutes.
   • The interview will be conducted remotely via Zoom web.
   • For 15 minutes, the applicant will explain the content of previous research (or, for applicants with no previous research experience, the content of his or her program(s) of study), reason for applying, and research ambitions. The applicant will use his or her own computer and software such as PowerPoint for the presentation. Note that the applicant will not be allowed to use devices other than his or her own computer or to distribute supplemental materials for presentations.
   • In the remaining 15 minutes, the committee members will ask questions about the content of the applicant’s submitted documents and of his or her presentation.

(7) Other notes:
   • The applicant can take the examination at home or in some other place as long as the space is isolated, and the contents of the examination are not leaked to a third party.
   • The examiner record during the examination, and video recording will not be used for any purpose other than the examination.
   • The applicant and examiner will make a Zoom test on the day before the examination.

(8) Criteria for grading, evaluation and admission decision:
   Criteria for grading and evaluation: All committee members will grade applicants on a scale of A to C based on the contents of their research to date, interviews, and transcripts.
   Criteria for admission decision: Acceptance will be determined by overall performance, which will be assessed based on the contents of their research to date, the submitted documents, and interview.

(9) Financial support for newly enrolled students:
   (a) Japanese students
Department of Physiological Sciences has been employing all Japanese graduate students (except for those receiving Research Fellowship for Doctoral Course Students (DC) provided by Japan Society for the Promotion Science) as Research Assistants (RAs) (at an annual salary of 1,000,000 yen). Department of Physiological Sciences has been employing an extremely high-score student as RA at an annual salary of 1.7 million yen, and a high-score student at an annual salary of 1.4 million yen. Additionally, for new students (except those who have received an enrollment-fee waiver), funds equivalent to the amount of their enrollment fees will be paid by the Scholarship Fund of National Institute for Physiological Sciences.

(b) Non-Japanese student

Excellent students who wish to enter the 3-year Doctoral Course at NIPS are eligible to apply for two types of NIPS Scholarship. The first type covers the same as described for MEXT scholarship.

The second one covers the following:
- Admission fee (282,000 yen, only once at the time of admission)
- A half of annual tuition fee
- Salary for Research Assistant job (1,400,000 yen per year, about 116,600 yen per month)

All other students are supported as follows.
- Admission fee (282,000 yen, only once at the time of admission)
- Salary for Research Assistant job (1,000,000 to 1,400,000 yen per year, about 83,300 to 116,000 yen per month)

Questions regarding the items in 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
Phone: +81 564 55 7139
Fax: +81 564 55 7119
Web site: http://www.nips.ac.jp/eng/graduate/
IV. Majors and Research Subjects of the Faculty in the School of Life Science

Department of Genetics

This is a list of research groups in the Department of Genetics. For more detailed information about research, please visit the website of the National Institute of Genetics (https://www.nig.ac.jp/nig/).

*Faculty members who plan to retire within the standard period of study (5 years from the time of admission for the 5-year PhD program, 3 years from the time of admission for the 3-year PhD program) cannot be appointed as supervisors.

AKASHI, Hiroshi Laboratory
Population genetics and genome evolution
Our research focuses on identifying mechanisms of genome evolution in microbes as well as multicellular eukaryotes. Our work often combines theoretical/computational population genetics and large scale data analyses (bioinformatics) to test evolutionary ideas. Current topics of interest include: weak selection in genome evolution (e.g. related to chromatin structure, codon usage), global constraints that act on proteomes, and methods to infer ancestral states and to estimate adaptive evolution. (+81-55-981-6793, hiakashi@nig.ac.jp, https://www.nig.ac.jp/labs/EvoGen/index.html)

ARITA, Masanori Laboratory
Evolutionary network study based on genome and metabolome
Our research theme is metabolomics, genomics and network biology. We do not perform biological experiments: computational analysis of genome and metabolome is our expertise. The target species range from bacteria, fungi, to higher animals, to investigate how genome evolves in general. We look forward to accepting students with a broader vision and higher motivation. (+81-55-981-9449, arita@nig.ac.jp)

IKEO, Kazuho Laboratory
Study for molecular basis of organismal evolution based on genomic sequence and gene expression profile
We study the molecular basis and evolutionary history for the acquisition of novel characters based on comparative genomics and gene expression profiles. In particular, we are currently focusing more on elucidation of (1) Biodiversity of marine ecosystem using metagenome data, (2) Evolution of central nervous system and sensory organs from the viewpoint of gene expression change, (3) Molecular evolutionary process of dosage compensation, and (4) Evolutionary basis of symbiosis between Cnidarians and algae. We also work on (5) Method development for large scale sequence data, (6) Comparative study of large scale sequence data sets for the study of bioinformatics field. (+81-55-981-6851, kikeo@nig.ac.jp, https://www.nig.ac.jp/labs/DnaData/)

IWASATO, Takuji Laboratory
Neuronal Circuit Development in the Mouse Brain
To understand development of complex yet sophisticated neuronal circuits underlying higher brain function of mammals, integrative studies which cover from molecules to whole animals are indispensable. By taking advantage of mouse genetic technologies and resources which have been tremendously improved in the past decades, we are studying mechanisms of development and function of mammalian neuronal circuits. In the somatosensory system of the mouse, formation and refinement of neuronal circuits which connect the peripheral sensory organ and cortex can be detected morphologically as "barrel" patterning. We are studying molecular and cellular mechanisms of barrel patterning as a model of activity-dependent circuit maturation, by developing and using our original mouse genetic and imaging systems. (+81-55-981-6773, tiwasato@nig.ac.jp, http://www.iwasato-lab.sakuraweb.com)

KANEMAKI, Masato Laboratory
DNA replication and new genetic technologies
Our research goal is to understand the mechanisms contributing stability of the human genome that prevent cancer predisposition and genetic disorders. We are particularly interested in DNA replication which is essential for cell proliferation and often becomes a source of genome instability. For this purpose, we use new genetic technologies such as the CRISPR/CAS9-based genome editing and the auxin-inducible degron (AID) system, the latter of which was developed in our lab. These technologies allow us to generate conditional-knockout cell lines of human cells. We also aim to develop and improve genetic technologies for the studies of human cells and in mice. Our current projects are as follows.
- Understanding the mechanisms of DNA replication in human cells
- Improvement of the AID system
- Applying the AID system to stem cells and animals
(+81-55-981-5830, mkanemak@nig.ac.jp)
KAWAMOTO, Shoko Laboratory
Research on utilization of biological resource and database
Our laboratory has been working in research and development of databases and information system for the national bio-resource project (NBRP) and genetic resource center in NIG. We are continuing to improve the quality of databases for resource user. We are also developing genome databases of wide variety of model organisms. Recently we are building a research registry for making use of model animals for medical research.
(+81-55-981-6885, skawamot@nig.ac.jp, http://www.nbrp.jp)

KITANO, Jun Laboratory
Genetic mechanisms of adaptation and speciation
How are new species formed? How do animals adapt to novel environments? We investigate the genetic mechanisms underlying adaptation and speciation using stickleback fishes as a model. Stickleback fishes have achieved tremendous diversification during the last few million years, resulting in the evolution of divergent morphs. We use integrative approaches to investigate the following topics.
- Genetic mechanisms of speciation
  We are investigating the molecular mechanisms of reproductive isolation between sympatric morphs of sticklebacks.
- Genetic mechanisms of adaptation and phenotypic plasticity
  Both genetic changes and phenotypic plasticity contribute to phenotypic changes that occur after colonization of novel environments. We are investigating the molecular mechanisms underlying adaptive evolution and plastic changes.
- Mechanisms of anthropogenic evolution
  Our third project is aimed at applying the knowledge of evolutionary genetics to animal conservation and ecological management. We are investigating the genetic and ecological mechanisms by which invasive stickleback populations adapt to novel environments.
(+81-55-981-9415, jkitano@nig.ac.jp, https://www.nig.ac.jp/labs/EcoGene/index-e.html)

KIMURA, Akatsuki Laboratory
Understanding Cell Architecture through quantification and modeling
Cells are the minimal unit of life, and are beautiful architecture in nature. One of the biggest mysteries in Cell Biology is 'how a huge number of tiny macromolecules assemble into a cell with organized and dynamic structure that performs a harmonized function.' To tackle this question, we are constructing quantitative 4-dimensional models of cells that explain and predict the structure and function of Cell Architecture. These models serve as compilation of our current understanding of the cell and, more importantly, clarify future questions to be addressed. We are using the nematode Caenorhabditis elegans embryo as a model system. The ongoing research projects are followings:
- Modeling the forces determining the intracellular positioning of the centrosomes.
- Modeling the dynamics of intracellular organelles during oocyte-to-embryo transition
- Modeling the cell positioning during embryogenesis
- Prediction and measurement of the forces inside the cells
(+81-55-981-5854, akkimura@nig.ac.jp, http://cellarchlab.galaxy.bindcloud.jp)

KUBO, Fumi Laboratory
Neural circuit mechanisms for visual processing and behavior
Animals generate a range of behavior depending on visual information that they receive from the outside world. Using zebrafish as a model, our lab investigates the neural circuit mechanisms by which visual inputs produce goal-directed behavioral outputs. In particular, we aim to understand the roles of genetically defined neuron types and their circuit connectivity underlying the visually guided behaviors. Our lab uses a combination of different approaches, such as behavioral, genetic and optical techniques, as well as quantitative data analyses. Our ongoing projects include:
- Genetic basis of the motion processing neural circuit
- Roles of excitatory and inhibitory circuits in the motion processing circuit
- Neural basis for lateralized behavior
(+81-55-981-5828, fumikubo@nig.ac.jp)

KURAKU, Shigehiro Laboratory
Understanding animal evolution with the mechanism of genomic readout
Our understanding of organismal characteristics is not fully achieved by sequencing the whole genome and is limited by the scarcity of our knowledge about the interplay between different genes and their products as well as other genomic components. Our laboratory aims at elucidating the evolutionary history of complex life by scrutinizing the genome evolution mechanisms based on accumulating knowledge of genomic readout in cellular and developmental processes. Typical approaches in our research include molecular phylogenetics involving diverse vertebrate species containing non-traditional model species and genome-wide molecular profiling. Skills of genome informatics and biodiversity literacy obtained through training with us will broaden professional career opportunities in the changing society oriented towards evidence and sustainability.
(+81-55-981-6801, skuraku@nig.ac.jp)
KUROKAWA, Ken Laboratory
Unveiling microbial community dynamics
We are interested in understanding about microbial genome evolution and microbial community dynamics, and we are currently reaching out in the following two major research directions;
I. Facilitate the development of an integrated database “MicrobeDB.jp”
II. Microbial community dynamics.
Our research interests blend a background in microbial genomics and metagenomics with bioinformatics and integrated database developments that are just now allowing the prospect of illuminating microbial community dynamics. We are trying to gain a better understanding of how microbial diversity maintain as well as how it emerged.
(+81-55-981-9437, kkurokawa@nig.ac.jp, http://microbedb.jp/)

KOIDE, Tsuyoshi Laboratory
Analysis of behavioral genetics and neural mechanism using wild-derived mouse strains
For understanding the genetic basis of inheritance and evolution of behavior, we are studying behavioral phenotype, such as tameness, maternal behavior, pain sensitivity, itch sensitivity, and social behavior by using inbred strains established from wild mice. A variety of mouse inbred strains exhibited diversity in their behavioral phenotype. In order to elucidate a genetic and neural mechanisms underlying the behavioral difference, we are currently conducting genetic and neural analyses using a variety of mouse resource. Further analyses of candidate genes for each behavioral phenotype are conducted using the genome editing method.
• Comparative studies of behavioral patterns among wild-derived strains
• Genetic studies of tameness in mice
• Genetic and neural studies of maternal behavior
• Genetic and neural studies of social/aggressive behavior
• Domestication of African rodents, grasscutter
(+81-55-981-5843, tkoide@nig.ac.jp, http://www.mgrl-lab.jp/eMGRL_toppage.html)
*Retiring at the end of March, 2027

SAITO, Kuniaki Laboratory
RNA biology and epigenetics in Drosophila
Germ cells are the only type of cell that can transmit all genetic information to the next generation. Recent studies revealed that epigenetic codes, including histone modifications and small RNA-mediated regulatory events, are critical for the inheritance of genomic information from parents to progeny. However, it still remains obscure what molecules are involved in and how epigenetic codes are established and inherited. In order to uncover these issues, we are currently engaged in studying RNA-mediated regulatory pathways in Drosophila by genetic, biochemical and bioinformatic techniques.
(+81-55-981-6823, saitok@nig.ac.jp, http://ksaitolab.org/)

SATO, Yutaka Laboratory
Molecular genetics of plant embryogenesis
The goal of our research is to elucidate the mechanism of plant embryogenesis. We are focusing on processes of the patterning of apical-basal or dorsal-ventral axis formation, and the organogenesis during early stages of rice embryogenesis. We are taking a molecular genetic approach using a series of rice embryogenesis defective mutants as well as comparative embryology and genomics approaches in grass species. We are also responsible for managing, preservation, propagation, and distribution of rice genetic resources of wild rice species collected in the NIG under the NBRP.
(+81-55-981-6808, yusato@nig.ac.jp, https://www.nig.ac.jp/nig/research/organization-top/organization/sato)

SAWA, Hitoshi Laboratory
Mechanisms of asymmetric division in C. elegans
For normal development and homeostasis of animals, behavior (division, differentiation, migration and death) of cells must be tightly controlled. We are studying cell behaviors using the nematode C. elegans in which individual cells can be easily observed in living animals. We are particularly focusing on cell polarization, asymmetric division and dynamics of epigenetic status.
(+81-55-981-6845, hisawa@nig.ac.jp, http://square.umin.ac.jp/Nemalab/index-e.html)
*Retiring at the end of March, 2028

SHIMAMOTO, Yuta Laboratory
Physical and molecular mechanisms of cell division
Our laboratory studies how replicated chromosomes are equally partitioned into the newly-created daughter cells during cell division. Errors in this process are linked to aneuploidy – the hallmark of cancer and several developmental disorders in humans. We use a combination of biophysics, biochemistry, materials science, and cell biology to study the physical and molecular basis underlying the faithful cell division, with a particular focus on the dynamics of microtubule cytoskeleton and microtubule-based motor proteins. We also use our expertise to study the micromechanics of the nucleus, the micron-sized organelle that packages DNA and regulates genome activity.
(+81-55-981-6784, yuta.shimamoto@nig.ac.jp, https://shimamotolab.weebly.com/)
NAKAMURA, Yasukazu Laboratory

Genome sequencing and database construction as an infrastructure for life science

Ultra high-throughput sequencing technologies allow biologists to obtain larger amounts of nucleotide sequence data. Reliable database operation and high-quality annotation supply are essential. However, the explosive growth in the volume of information is making it increasingly difficult to provide experimental biologists with information from databases. In addition, the lack of sequence annotations in databases and the amplification of errors in the description of feature information are becoming problems. To overcome these problems, we are developing DFAST: an automatic annotation system of prokaryotes for DDBJ, as well as determining the genomes of various species that have important roles in evolutionary research, industry and medicine, such as liverworts, citrus fruits, domesticated cats, lactic acid bacteria, and algae, and constructing high-quality genome databases for the species. (+81-55-981-3502, yn@nig.ac.jp, http://ynlab.info)

NIKI, Hironori Laboratory

Genetic dissection of the cell division mechanism using single-cellular model organisms

Bacteria and yeasts are suitable model organisms to understand the fundamental mechanisms on cell proliferation. Our laboratory studies the mechanisms behind chromosome or plasmid DNA dynamics in the cell or the mechanism underlies cell shape formation. Genetical methods as well as cell-biological methods were used to observe those intracellular events. We have made several novel observation in cell proliferation mechanism by using fluorescent-based protein or DNA imaging. Especially Sz. japonicus yeast suits for those cell biological analysis, and hyphal growth and hyphal cell cycle add special value on this organism.

Our ongoing project is as follows:
• Analysis of RodZ, the rod-shape determinant in E.coli cells.
• Chromosome and plasmid DNA transmission mechanism in E.coli cells.
• The function and behavior of DnaA, DNA replication initiation factor in E.coli cells.
• Genetic analysis on Sz. japonicus chromosome segregation mechanisms.
• Hyphal induction and hyphal cell cycle in Sz. japonicus yeast.

(+81-55-981-6870, hniki@nig.ac.jp, https://www.nig.ac.jp/labs/MicroGen/index.html)

NONOMURA, Ken-ichi Laboratory

Molecular cytogenetics of plant germ-cell development

Primordial germ cell is differentiated from hypodermis of stamen (male) and pistil (female) primordia in angiosperm species. Primordial germ cells are divided mitotically several times, and produce into meiocytes and nursery cells. Meiosis is one of the essential events of genetics, because it generates a new gene combination different from that of parents. It has remained to be largely unknown how flowering plants generate and maintain germ cells, and how they undergo meiosis. To answer these questions, we have analyzed molecular functions of genes and proteins relating to early steps of plant germ-cell initiation, development and/or meiosis, mainly by using mutant lines of rice, a monocotyledonous model plant. We have also conducted the germplasm center of wild relatives and local varieties of rice in collaboration with the Plant Genetics Lab., under the funding support of the National Bioresource Project, Japan (NBRP).
(+81-55-981-6872, knonomur@nig.ac.jp, http://nonomuralab-nig.sakura.ne.jp/top_e.html)

HIRATA, Tatsumi Laboratory

Vertebrate neural network formation

Precise neuronal connections are the basis for the complex brain function. The fully functional brain is constructed through a series of carefully controlled developmental processes including neuronal differentiation, migration, axon outgrowth, and target recognition. We are exploring genetic mechanisms governing the developmental processes in vertebrate nervous systems.
• Central Olfactory Projection Olfactory information is transferred and processed in the olfactory bulb of the brain. Development of afferent projections from this first-order center has been studied, using knockout mice for axon guidance molecules.
• Neuronal Migration During development, the guidepost neurons, "lot cells", for olfactory bulb axons show a dynamic ventral migration over the telencephalon. We are investigating mechanisms of this unique neuronal migration.
• Axon Outgrowth and Pausing Axon tip-enriched protein M6a is implicated in axon outgrowth and pausing. We are analyzing physiological functions of this protein.
• Evolution of the neocortical layer structure The layer structure in the neocortex is unique to mammals. The evolutionary scenarios are explored through comparisons of developmental processes in the brain structures of different vertebrate species.
(+81-55-981-6721, tathirat@nig.ac.jp, https://www.nig.ac.jp/labs/Brain/hirata_lab/TOP.html)
MAESHIMA, Kazuhiro Laboratory
3D-organization and dynamics of human genome chromatin
Our research interest lies in understanding how a long string of genomic DNA is three-dimensionally organized in the cell, and how the organized genome functions during cellular proliferation, differentiation, and development. We are using a novel combination of molecular cell biology and biophysics to elucidate 3D-organization and dynamics of genome chromatin. Current on-going projects are as follows:
• Single nucleosome imaging in live cells
• Structural study of chromatin organization by X-ray scattering analysis
• Super-resolution imaging of higher-order chromatin structures in ES cell differentiation
• Development of a novel chromatin purification procedure
(+81-55-981-6864, kmaeshim@nig.ac.jp, http://maeshima-lab.sakuraweb.com)

MIYAGISHIMA, Shin-ya Laboratory
Coordinating mechanisms of eukaryotic cell and organelle/endosymbiont proliferation
Mitochondria and chloroplasts are energy-converting organelles in eukaryotic cells. Both originated more than one billion years ago when bacterial cells were engulfed by primitive eukaryotic cells. Besides these organelles, there are many examples of endosymbioses which have integrated new functions into host cells. In order to maintain a permanent endosymbiotic relationship, endosymbionts/organelles must be replicated and inherited into each daughter cell during host cell division. We have shown that chloroplasts and mitochondria use similar division systems, both of which are derived from the ancestral bacterial endosymbionts and the eukaryotic host.
The major goal of our study is to understand how two different cells are integrated into a new cell by coordinated proliferation of a host and an endosymbiotic cell. To this end, we are investigating (1) how eukaryotic host cells regulate proliferation of organelles/endosymbionts, (2) how activities of organelles/endosymbionts affect proliferation of the host cells, and (3) how these systems have evolved and contributed to eukaryotic evolution.
(+81-55-981-9411, smiyagis@nig.ac.jp, http://miyagishima.sakura.ne.jp)

MURAYAMA, Yasuto Laboratory
Molecular mechanism of chromosome organization and segregation
Spatiotemporal chromosome organization is fundamental for gene expression, DNA replication, repair and chromosome segregation. SMC proteins are one of central chromosomal organizers. We study the molecular mechanism of SMC proteins by reconstituting their DNA loading reaction in test tube. We are now combining our reconstitution system with single molecule approaches.
(+81-55-981-6810, ystmurayama@nig.ac.jp)

MORI, Hiroshi Laboratory
Genome biology to understand the organismal diversity in environments
Organisms inhabit various environments and exhibit remarkable genome diversity. Our main research goal is to understand the relationships between genome diversity and habitat diversity. Currently, we are focusing on microbes. We use various bioinformatics and statistical methodologies related to comparative genomics and metagenomics for our research. We are also developing some bioinformatics methods and tools for genomics and metagenomics, and applying these methods for various collaborative researches in the Advanced Genomics Center.
(+81-55-981-6852, hmori@nig.ac.jp)

YONEHARA, Keisuke Laboratory
Multiscale understanding of the structural principles of mammalian sensory system
Extraction of information about the environment by the sensory system is important for animal’s survival. We aim to understand the fundamental principles and diversity of sensory function emergence and its underlying structure by studying the visual system of mice and monkeys at multi-scales, including genes, molecules, cell types, circuits, neural computation, and behaviors. For this, we combine various techniques such as genetics, two-photon imaging, electrophysiology, transsynaptic labeling, single-cell transcriptomics, and machine learning. Our studies would pave the way to identifying the cell types responsible for sensory diseases and their repair.
(+81-55-981-6792, keisuke.yonehara@nig.ac.jp, https://yoneharalab.org/)
Department of Basic Biology

Professors and Associate Professors marked with an asterisk (*) cannot be a supervisor.

DIVISION OF CELLULAR DYNAMICS

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

Membrane trafficking among single membrane-bounded organelles plays pivotal roles in various cell activities in eukaryotic cells, which are also critical in multiple layers of higher-ordered functions of multicellular organisms. Although the basic framework of membrane trafficking is well conserved among eukaryotic lineages, recent studies have also suggested that each lineage has acquired a unique membrane trafficking system during evolution. Our research focuses on mechanisms of diversification of membrane trafficking in plants, and we are currently studying plant-unique organelle functions and membrane trafficking pathways using Arabidopsis thaliana and the liverwort Marchantia polymorpha.

DIVISION OF QUANTITATIVE BIOLOGY

Prof. AOKI, Kazuhiro (+81-564-59-5235) k-aoki@nibb.ac.jp
(https://www.nibb.ac.jp/qbio/en/)

A living cell acts as an input-output (I/O) unit, which senses environment and internal states, processes information, and responds appropriately to adapt the changes. Our laboratory is interested in such a system for the information processing controlled by intracellular signaling devises and networks. Especially, we focus on several signal transduction pathways related to cell proliferation, differentiation, and cell death in mammalian cells, and aim to quantitatively decipher the mechanisms of signaling networks governing cellular decision-making. To this end, we are attempting to visualize, manipulate, and simulate intracellular signaling with fluorescence imaging techniques and computational approaches.

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 coded 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 scale in the model organism, fission yeast, ciliate Tetrahymena, and in cultured mammalian cells.

LABORATORY OF NEURONAL CELL BIOLOGY

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

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.
Embryonic stem (ES) cells are unique in that they are capable of producing all cell types that make up our bodies (i.e., they are pluripotent). For this property, ES cells and other types of pluripotent stem cells (such as iPS cells) have received tremendous amount of attention with the expectation for their use in medicine. However, despite the knowledge that pluripotent cells appear fundamentally different in various cellular aspects, the detailed mechanisms underlying such differences are not well-understood. In particular, understanding the mechanism by which ES cells maintain their genetic information and how their genome may be affected by differentiation and de-differentiation processes is biologically important. My laboratory is aiming to understand how mechanisms that govern pluripotency intersect with genome maintenance mechanisms and cell cycle regulation in ES cells.

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.

Secreted signaling molecules play essential roles in many dynamic and well-organized phenomena during animal development. We are trying to understand the coordinative regulation in animal development by focusing on the characteristics and dynamics of secreted signaling molecules. We are also concerning the mechanism of somitogenesis, which is accomplished by coordinated interaction between extracellular signals and transcription factors. In these studies, we utilize mouse and zebrafish systems, both of which are available for genetic analysis, as model systems. The followings are some of our current projects:

1. Study on the mechanism of somite development
2. Study on the mechanism of the development of the pharyngeal arches
3. Study on the secretion and extracellular dynamics of Wnt proteins

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 functions 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 aim 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 steady-state spermatogenesis, and 2) the anatomical basis and function of the sperm stem cell niche.

LABORATORY OF REGENERATION BIOLOGY

Prof. AGATA, Kiyokazu (+81-564-55-7650) agata@nibb.ac.jp
Assoc. Prof. SUZUKI, Kenichi (+81-564-55-7542) suzuk107@nibb.ac.jp
(https://www.nibb.ac.jp/en/sections/developmental_biology/agata/)

Why regeneration-competent animals such as newts can restore their missing body parts, but mice and humans cannot? In the past decade, great advances in regeneration studies have revealed many of the molecular mechanisms underlying regeneration. Thus, we now aim to develop strategies to induce regenerative response in humans for replenishing missing tissues and organs by understanding the molecular basis of regeneration from regeneration-competent animals.

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 of 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 BIOLOGY

Prof. HASEBE, Mitsuyasu (+81-564-55-7546) mhasebe@nibb.ac.jp
(https://www.nibb.ac.jp/evodevo/index_EN)

Our group is working to solve basic and general questions in developmental and cellular evolutionary biology especially focusing on:
1) Why are plant cells more plastic than animal cells and easy to become pluripotent stem cells?
2) How does self-organization function in development and evolution?
3) What did genetic changes cause the evolution of carnivorous plants?
4) How did the sensitive plant Mimosa pudica acquire the mechanisms for movement?
5) What did cytoskeletal changes cause the evolution of plant cells?

DIVISION OF SYMBIOTIC SYSTEMS

Prof. KAWAGUCHI, Masayoshi (+81-564-55-7564) masayosi@nibb.ac.jp
Assoc. Prof. SOYANO, Takashi (+81-564-55-7563) soyano@nibb.ac.jp
Assoc. Prof. KAWADE, Kensuke (+81-564-55-7563) kawa-ken@nibb.ac.jp
(https://www.nibb.ac.jp/miyakohp/)

Symbiosis refers to close and sympatric interactions between species. The interactions involve dynamic changes of genomes, metabolisms, and signaling networks of symbiotic partners, and a unified understanding of these interactions is required when studying symbiotic organisms. Using a model legume Lotus japonicus, we are studying the molecular mechanisms of nodulation and mycorrhization to elucidate their evolutionary origin. In addition, we use mathematical and computational approaches to understand complex metabolic interactions in symbiosis.

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.

LABORATORY 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.
LABORATORY OF BIORESOURCES

* Prof. NARUSE, Kiyoshi (+81-564-55-7580) naruse@nibb.ac.jp
  (https://www.nibb.ac.jp/bioresources/)

Medaka is a small egg-laying “secondary” fresh water fish found in brooks and rice paddies in Eastern Asia. This species has a long history as an experimental animal, especially in Japan. Our laboratory has conducted the study on evolution of sex determination system using medaka and relatives, identification of the causal gene of body color mutants to analyze the pigment cell development in fish. We are focusing on development of novel cre driver lines which can visualize neural activities. In addition to these activities, our laboratory is stepping forward to lead the National BioResource Project Medaka (NBRP Medaka: http://www.shigen.nig.ac.jp/medaka/).

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 have a large capacity to acclimate themselves to changing environments. We are interested in these acclimation processes, in particular, how efficiently yet safely they harness sunlight for photosynthesis under the changing light environment, for instance, non-photochemical quenching and state transitions. Using unicellular model green algae, we are studying the structure-based functional mechanisms underlying such photoacclimation events at the molecular level using biochemistry, spectroscopy, structural biology, live-imaging, and genetics.

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.

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 comparisons. 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 microscopy 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)

Assoc. 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.

Astrobiology Center

Assoc. Prof. TAKIZAWA, Kenji (+81-564-55-7520) kenji-t@nibb.ac.jp
(https://www.nibb.ac.jp/en/sections/concurrent/abc1/)

Presence of green plants on Earth can be detected from outer space since their photosynthesis interact with 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 exoplanet will be implemented. We are studying to characterize phototrophs on exoplanets and to predicting detectable biosignatures.
Department of Physiological Sciences

Division of Biophysics and Neurobiology
【Prof. KUBO, Yoshihiro*】【Assoc. Prof. TATEYAMA, Michihiro】 Dynamic aspects of structure-function relationship and regulation mechanisms of ion channels and receptors

Membrane proteins such as ion channels and receptors are sophisticated elements which play critical roles in the brain function. To elucidate the functioning mechanisms we approach their dynamic structural rearrangements and the regulation mechanisms by combined techniques of molecular biology, electrophysiology and optophysiology. We also conduct research using genetically modified mice towards the functional significance of ion channels and receptors in the brain function.

KUBO, Yoshihiro TEL : +81-564-55-7831 / E-mail : ykubo@nips.ac.jp
TATEYAMA, Michihiro TEL : +81-564-55-7832 / E-mail : tateyama@nips.ac.jp
*Prof. KUBO, Yoshihiro can only accept Three-year Doctoral Program.

Division of Membrane Physiology
【Prof. FUKATA, Masaki】【Assoc. Prof. FUKATA, Yuko】 Mechanisms for synaptic transmission and synaptic disorders

We will elucidate the regulatory mechanisms for synaptic transmission and clarify the etiology of neuropsychiatric disorders such as epilepsy and dementia. Our final goal is to address the fundamental question "How does our brain physiologically function and how is the system disrupted in brain diseases?"

1. Identification and functional analysis of synaptic protein network
Synaptic membrane proteins, such as neurotransmitter receptors, ion channels and adhesion molecules, form protein complexes and thereby performing their physiological functions. Using our highly original biochemical techniques, we are purifying and identifying novel synaptic protein complexes from brain tissues and clarifying their synaptic functions by integrative approaches.

2. Molecular mechanisms for protein palmitoylation
Many synaptic proteins undergo protein palmitoylation, and the localization on those synaptic proteins is dynamically regulated by protein palmitoylation upon neuronal activity. Taking advantage of palmitoylating enzymes we discovered, we are elucidating the molecular mechanism for controlling synaptic transmission.

FUKATA, Masaki TEL : +81-564-59-5873 / E-mail : mfukata@nips.ac.jp
FUKATA, Yuko TEL : +81-564-59-5873 / E-mail : yfukata@nips.ac.jp

Division of Structural Biology (Exploratory Research Center on Life and Living Systems)
【Prof. MURATA, Kazuyoshi】 Three-dimensional structural analysis of biological macromolecules using cryo-electron microscopy

We investigate three-dimensional (3D) structure of biological macromolecules, such as large protein complexes, membrane proteins, and virus particles, by using cryo-electron microscopy and single particle analysis. We also elucidate the 3D structure of bacteria and organelles by using cryo-electron tomography. Our research goal is to understand biological functions from molecular structure. URL: www.nips.ac.jp/struct

MURATA, Kazuyoshi TEL : +81-564-55-7893 / E-mail:kazum@nips.ac.jp

Division of Cell Structure
【Prof. FURUSE, Mikio】【Assoc. Prof. IZUMI, Yasushi】Molecular mechanism of epithelial barrier function and paracellular transport

We seek to clarify the molecular basis of epithelial barrier function and paracellular epithelial transport, both of which are required for homeostasis of the body fluid compartments. Our research focuses on tight junctions and their related structures. We characterize the function of the cell-cell junction-associated proteins that we identified by a combination of morphological, molecular biological and physiological techniques using cultured epithelial cells, mice and fruit flies.

FURUSE, Mikio TEL : +81-564-59-5277 / E-mail : furuse@nips.ac.jp
IZUMI, Yasushi TEL : +81-564-59-5279 / E-mail : yizumi@nips.ac.jp
Division of Cell Signaling (Exploratory Research Center on Life and Living Systems)
【Assoc.Prof. SOKABE, Takaaki】【Assoc.Prof. MARUYAMA, Kenta】 Molecular mechanisms of sensing

We are clarifying molecular mechanisms of sensing such as thermosensation, nociception and taste sensation by focusing on TRP channels mainly with electrophysiological and molecular biological techniques. We are also doing analyses at a whole animal level using genetically-modified mice. We are investigating fruit flies to seek novel mechanisms of temperature and mechanical sensations, and developing new strategies of insect pest management. In addition, we are analyzing functional evolution of thermosensitive TRP channels since animals are expected to have changed their thermosensitivity dynamically depending on the changes in ambient temperature in the evolutional process.

SOKABE, Takaaki  TEL : +81-564-59-5287 / E-mail : sokabe@nips.ac.jp
MARUYAMA, Kenta  TEL : +81-564-59-5296 / E-mail : maruken@nips.ac.jp

Division of Cardiocirculatory Signaling (Exploratory Research Center on Life and Living Systems)
【Prof. NISHIDA, Motohiro】【Assoc.Prof. NISHIMURA, Akiyuki】 Elucidation of the molecular mechanism underlying maintenance and transfiguration of cardiovascular homeostasis

We are studying the mechanism underlying adaptation and maladaptation of the cardiovascular system against hemodynamic load through focusing on TRP Ca2+-permeable channels as a regulator of excitation-transcription coupling and GTP-binding proteins as senescence-inducible redox sensors, using in vivo and ex vivo cardiovascular analyzing systems and chemical principles-based biological techniques.

NISHIDA, Motohiro  TEL : +81-564-59-5560 / E-mail : nishida@nips.ac.jp
NISHIMURA, Akiyuki  TEL : +81-564-59-5563 / E-mail : aki@nips.ac.jp

Division of Endocrinology and Metabolism
【Assoc.Prof. NAKAJIMA, Ken-ichiro】 Regulatory mechanism of the brain and hypothalamus in body energy metabolism

Whole body energy metabolism, which is composed of food intake and energy expenditure, is strictly regulated by the multiple organ networks with autonomic nervous system as well as hormones such as leptin, adiponectin and insulin. Our division is investigating the integrative and regulatory roles of the hypothalamus in whole body energy metabolism, nutrient sensing, taste perception and multiple organ networks in mammals. These studies are now important for better understanding the molecular mechanisms behind pathophysiology of obesity, diabetes mellitus and aging.

NAKAJIMA, Ken-ichiro  TEL : +81-564-55-7742/ E-mail: knakaj@nips.ac.jp

Division of Molecular Neuroimmunology
【Assoc.Prof. MURAKAMI, Masaaki*】【Assoc.Prof. HASEBE, Rie】 Molecular mechanism of the development of autoimmune diseases regulated by gateway reflex

Prof. MURAKAMI and Assoc. Prof. HASEBE found a novel concept for neuro-immune interaction, “The Gateway Reflex”, by studying the mechanism of how IL-6 and autoreactive CD4+ T cells induce the tissue-specific autoreactive immune diseases (Cell 148, 447-, 2012, etc). Six Gateway Reflexes have found so far. In the Gateway Reflex, environmental stimulations such as gravity, pain, stress, light, and microinflammation activate the specific neural pathways, which induces accumulation of autoreactive CD4+T cells to induce inflammation around the specific blood vessels of the tissue possessing blood barrier (e.g. the central nervous system or retina). The mechanism of how the Gateway Reflex increases vascular permeability has been addressed by the concept of “IL-6 amplifier” (Immunity, 50, 812, 2019, Immunity, 29, 628-, 2008). The research goals of Division of Molecular Neuroimmunology are, 1. to discover novel Gateway Reflexes, 2. to elucidate molecular mechanism including the details of neural pathway related to the Gateway Reflexes, 3. to elucidate molecular mechanism of inflammation induced by IL-6 amplifier.

HASEBE, Rie  TEL : +81-564-55-7729/ E-mail: hasebe@nips.ac.jp
*Prof. MURAKAMI, Masaaki cannot accept students as a supervisor. Assoc.Prof. HASEBE, Rie accepts them instead and discusses the research with Prof. MURAKAMI, Masaaki as well.
Division of Homeostatic Development
【Assoc.Prof. NARUSHIMA, Madoka】Reorganization of neural circuits in development and recovery after neural injury

Neuronal networks are dynamically reshaped by experiences during early postnatal life. The similar neural reorganization is observed after neural injury. What happens at the level of neural networks including synaptic formation and function during postnatal development and recovery after neurological damage? To address these questions, we study the rodent central nervous system with especially focusing on glial functions. Major research techniques applied in our laboratory include in vivo two-photon microscopy, slice patch clamp electrophysiology, immunohistochemistry and molecular biological techniques. In order to explore the possibility that immature features of neural circuits reemerge during the recovery period following neural injury, we study on the mechanisms underlying the reorganization of neural circuits using various animal models.

NARUSHIMA, Madoka TEL: +81-564-55-7854 / E-mail: narumado@nips.ac.jp

Division of Visual Information Processing
【Prof. YOSHIMURA, Yumiko】Circuit mechanisms underlying information processing and functional development in visual cortex

We are studying the properties of neuronal circuits underlying visual information processing in visual cortex, and the development of the circuits based on experience-dependent and synaptic target recognition mechanisms. To this end, we are conducting electrophysiological analyses combined with optogenetics and laser photolysis of caged glutamate in rodent slice preparations and morphological analyses using transsynaptic viral tracers. In order to relate the properties of neuronal circuits to visual functions, we are also investigating the visual responses of cortical neurons in rodents with electrophysiological techniques and 2-photon Ca²⁺ imaging.

YOSHIMURA, Yumiko TEL: +81-564-55-7731 / E-mail: yumikoy@nips.ac.jp

Division of Biophotonics (Exploratory Research Center on Life and Living Systems)
【Prof. NEMOTO, Tomomi】【Assoc. Prof. ENOKI, Ryosuke】Quantitative analysis of neural functions and biological rhythm by cutting-edge optical technologies

We explore innovative bioimaging methodologies and applications for life- and medical sciences by utilizing cutting-edge technologies of laser, optical, and materials. We are developing novel optical microscopy for realizing invasive-less, fast, and super-resolution observations and manipulations in living biospecimens. We hope that cutting-edge visualization technologies clarify principles of the emergence of physiological functions of the brain, exocytosis/secretion, and biological rhythms. We are also promoting the application of such various animal models like cancer and diabetes models, as well as plant cell ones.

NEMOTO, Tomomi TEL: +81-564-59-5257 / E-mail: tn@nips.ac.jp
ENOKI, Ryosuke TEL: +81-564-59-5258 / E-mail: enoki@nips.ac.jp

Division of Multicellular Circuit Dynamics
【Prof. WAKE, Hiroaki】Multicellular Circuits of the Central Nervous System Physiological Function Measurement and Manipulation

The Multicellular Circuit Dynamics Division aims to elucidate the physiological functions of the multicellular circuit dynamics, which consists of neurons and glial cells in the central nervous system, that contribute on higher brain functions. We aim to examine the physiological functions of glial cells that modify the neural circuits activity that ultimately lead to behavior output for mice, and to link this to pathological conditions. In addition to the visualization technique using two-photon microscopy, we will further apply our holographic microscopy to biological applications, focusing on the functional connectivity of neurons and extract the transcriptions, and evaluate local neural circuits by using holographic stimulation and measurement. In addition to those applications, we are stimulating neurons and glial cells to control higher order of brain functions.

WAKE, Hiroaki TEL: +81-564-55-7724 / E-mail: hirowake@nips.ac.jp
Division of Behavioral Development  
【Prof. ISODA, Masaki】 Neural mechanisms of social cognition and behavior  
The goal of this laboratory is to clarify the neural mechanisms underlying social cognition and behavior using macaques. In particular, we focus on self-other distinction, monitoring of others’ actions, observational learning, and self-other comparison. For this purpose, we employ various experimental approaches, such as behavioral testing, electrophysiological recording, neuropharmacological intervention, pathway-selective blockade of neural activity using viral vectors, and cognitive genomics.

ISODA, Masaki  TEL: +81-564-55-7761 / E-mail: isodam@nips.ac.jp

Division of Neural Dynamics  
【Prof. KITAJO, Keiichi】 The functional role of neural dynamics  
The neural activities of humans and other animals show a variety of nonlinear dynamics. We deal with EEG, ECoG, MEG, and fMRI data in humans. We promote computational studies by data analysis and mathematical modeling based on the nonlinear dynamical systems theory, information theory, complex network analysis, and statistical machine learning theory thereby trying to understand the functional role of neural dynamics in perception, cognition, motor, and social functions in relation to individual differences and pathological conditions. We also develop novel techniques for brain-machine interfaces and AI based on neural dynamics.

KITAJO, Keiichi  TEL: +81-564-55-7751 / E-mail: kkitajo@nips.ac.jp

Division of Cerebral Integration  
【Assoc. Prof. FUKUNAGA, Masaki】 Imaging structure and function relationship of human brain by ultra high field MRI  
Magnetic resonance (MR) is an excellent technique for noninvasively observing living organisms’ structure, function, metabolism, and molecular dynamics. In this division, we investigate the structure-function relationship of the human brain using 7-tesla ultra-high-field MR imaging and spectroscopy, and develop new imaging techniques to measure biological parameters. In addition, to understand the diseases through advanced brain imaging, we are participating in multi center clinical research collaboration projects and promoting the exploration of endophenotypes and biomarkers of psychiatric disorders based on the analysis of big imaging data.

FUKUNAGA, Masaki  TEL: +81-564-55-7842 / E-mail: fuku@nips.ac.jp

Division of Sensory and Cognitive Brain Mapping  
【Prof. TAKEMURA, Hiromasa】 Structural and functional brain mapping of sensory and cognitive system  
We investigate structure-function relationship of the brain based on structural and functional neuroimaging using magnetic resonance facility. While our primary focus is to study and understand healthy human brains, we also perform neuroimaging studies on animal models as well as and clinical neuroimaging studies on retinal disorders.

TAKEMURA, Hiromasa  TEL: +81-564-55-7861 / E-mail: htakemur@nips.ac.jp

Center for Animal Resources and Collaborative Study  
【Prof. NISHIJIMA, Kazutoshi】 Establishment and characterization of experimental animal models.  
Knowledge about animal characteristics and optimization of the breeding environment are indispensable for conducting scientifically meaningful animal experiments. Center for Animal Resources and Collaborative Study conducts the establishment of experimental animal models and analysis of their characteristics, development of methods of strain preservation and breeding management suitable for each animal species (especially rabbits), from the viewpoint of veterinary and experimental animal sciences.

NISHIJIMA, Kazutoshi  TEL: +81-564-55-7781 / E-mail: kanish@nips.ac.jp
SUPPORTIVE CENTER FOR BRAIN RESEARCH, Section of Multiphoton Neuroimaging
[Assoc. Prof. MURAKOSHI, Hideji] Imaging signal transduction in subcellular structures of living cells by 2-photon fluorescence microscopy.
We are working on imaging signal transduction in subcellular structure such as dendritic spine of hippocampal neurons using 2-photon fluorescence microscopy and fluorescence resonance energy transfer (FRET) techniques. By combining these techniques with optical manipulation techniques such as caged-compound uncaging and optogenetic tools, we are trying to understand the mechanism of physiological system such as memory system of brain at the level of single synapse.

MURAKOSHI, Hideji  Tel: +81-564-55-7857 / E-mail: murakosh@nips.ac.jp

CENTER FOR GENETIC ANALYSIS OF BEHAVIOR, Section of Viral Vector Development
[Assoc. Prof. KOBAYASHI, Kenta] Analysis of brain function using newly developed gene transfer system.
To understand the mechanisms underlying higher brain functions, we need to analyze the roles of specific neuronal pathways forming the complex neural networks. We succeeded in developing a new gene transfer system to induce transgene expression in the specific neural pathway by using an adeno-associated viral vector and a novel type of lentiviral vector. We analyze the physiological functions of specific neural pathways forming cortico-basal ganglia circuits by using our newly developed gene transfer approach.

KOBAYASHI, Kenta  TEL: +81-564-55-7827 / E-mail: kobaya@nips.ac.jp

Also, you can participate in visiting research divisions.
For the details of research activities, please contact the following
or visit our website.  [http://www.nips.ac.jp]

National Institute for Physiological Sciences
Center for Animal Resources and Collaborative Study, NISHIJIIMA, Kazutoshi
TEL: +81-564-55-7781 / E-mail: kanish@nips.ac.jp
School of Life Science

Department of Genetics

[National Institute of Genetics (NIG), Research Organization of Information and Systems]
Address: 1111 Yata, Mishima-city, Shizuoka
Tel: +81-55-981-6720
Established: June, 1949

NIG was established in order to guide and to promote basic research related to genetics in 1949, and reorganized as the Inter-University Research Institute in 1984. Today about 40 research groups are dedicated to advanced research in many fields of life phenomena based on genetics and are also leaders in processing and analysis in the field of Bioinformatics. Housing extensive resources such as the well-established DNA database (DDBJ), NIG features a unique management system and environment such as adopting a system where associate professors are PI (Principal Investigator)s, appointing young team leaders in the “Center for Frontier Research” and offers a collegial atmosphere through lively debate and frank discussion. Internationally competitive experts are performing cutting-edge research in NIG. In 2004, NIG was reorganized as part of the Research Organization of Information and Systems together with three other national institutes, enabling us to benefit greatly from understanding life science as a system.

Department of Basic Biology

[National Institute for Basic Biology (NIBB), National Institutes of Natural Sciences (NINS)]
Address: 38 Nishigonaka, Myodaiji, Okazaki, Aichi 444-8585, Japan
Tel: +81-564-55-7139
Established: May, 1977

NIBB promotes biological sciences by conducting first-rate research on its own as well as in cooperation with other universities and research organizations. Research at NIBB covers a wide variety of biological fields, such as cell biology, developmental biology, neurobiology, evolutionary biology, environmental biology, and theoretical biology, and is conducted to elucidate general and fundamental mechanisms underlying various biological phenomena.

Department of Physiological Sciences

[National Institute for Physiological Sciences (NIPS), National Institutes of Natural Sciences (NINS)]
Address: 38 Nishigonaka, Myodaiji, Okazaki, Aichi 444-8585, Japan
Tel: +81-564-55-7139
Established: May, 1977

NIPS’ goals are to uncover the mechanisms by which the human body functions. This is the basis of medical science and links to clarifying the pathophysiology of various diseases. Presently our focus is on brain science as the main part of “body and mind” research. Furthermore, as a national center of physiological research, the institute provides facilities and research staff for collaborative studies to scientists from universities and research institutes.