

October 2023
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For reference

Graduate Institute for Advanced Studies, SOKENDAI
[Genetics]
Application Guidelines

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The following Application Guidelines in English are provided for the purpose of non-Japanese Applicants' convenience only. In the event of any inconsistency between the Japanese Application Guidelines and the English version, the Japanese version shall prevail.

Applicants are required to obtain a booklet of Application Guidelines to start the application procedure. Please contact the address below to ask for a booklet or any further information.

Please make sure to check the changes in application guideline due to COVID-19:

<https://www.soken.ac.jp/en/news/emergency/20221122.html>

[Contact Information]

Student Affairs Section, Academic and Student Affairs Division

The Graduate University for Advanced Studies, SOKENDAI

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

E-mail: gakusei@ml.soken.ac.jp

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

I . **Outline: Graduate Institute for Advanced Studies**

Admission Policy

<What SOKENDAI expect of our grad students>

The Graduate University for Advanced Studies, SOKENDAI, seeks students who have a strong interest in research, who constantly hone their abundant intellect and sensitivity with the aim of conducting research that will open up a new era, while taking a “bird's-eye view” of the entire field of study, and who have the will and enthusiasm to be active on the international stage.

<Basic policy for the selection of our grad students>

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

About SOKENDAI

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

Faculty Directory

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

Course

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

Requirements for Graduation

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

Degree: Apply to Doctor (Katei-Hakase)

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

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

1 Number of Students Accepted

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

2 Qualifications for Application

Applicants must fulfill one of the following conditions

Applicants who are not required to have qualification screening;

- (1) Applicants who have graduated or are expected to graduate from a Japanese university specified in Article 83 of the School Education Law by the preceding month of enrollment.
- (2) Applicants on whom a Bachelor's degree has been conferred or is expected to be conferred by the preceding month of enrollment in accordance with Article 104, Paragraph 4 of the School Educational Law.
*1
- (3) Applicants who have completed or are expected to complete 16-year course of school education in a foreign country by the preceding month of enrollment.
- (4) Applicants who have completed or are expected to complete 16-year course of school education in a foreign country by taking the correspondence courses provided by a school in said foreign country while residing in Japan by the preceding month of enrollment.

- (5) Applicants who have completed or are expected to complete a program 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;
 - (a) Applicants who have completed 15-year course of school education in a foreign country by the end of preceding month of enrollment,
 - (b) Applicants who have completed 15-year course of school education in a foreign country by taking the correspondence courses provided by a school in said foreign country while residing in Japan,
 - (c) Applicants who have completed or are expected to complete a program in an educational institute in Japan designated separately by the Minister of Education, Culture, Sports, Science and Technology, that provides courses of a foreign university within the 15-year school education of said foreign country, by the preceding month of the enrollment. This applies solely to those who have completed 15-year course of school education in said foreign country.
- (10) Applicants who have been or will have been enrolled in a Japanese university specified in Article 83 of the School Education Law for at least three years by the end of preceding month of enrollment, and have been recognized by SOKENDAI as having acquired the specified credits of said university with excellent results.

- (11) Applicants who have entered a graduate school other than SOKENDAI in accordance with the Article 102, paragraph 2 of the School Education Law, and have been recognized by SOKENDAI as having the appropriate academic ability to follow the content of graduate coursework.
- (12) Applicants who have been recognized as having academic ability equivalent to a university graduate or higher by the individual screening of Admission Qualifications of SOKENDAI, and attain the age of 22 by the end of preceding month of enrollment. *3

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

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

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

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

3 Qualification Screening for Application

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

(1) Documents Required for Qualification Screening for Application

- (a) Application for Certifying Applicant's Qualification (**Form 7-1**)
- (b) Application documents (as described in "5 Application Documents" below)
Examination fee, however, should be paid after application qualification is approved.
- (c) Other documents required by the program. For details, please refer to the program office.
(a), (b) and (c) above must be submitted all together.

(2) Application Period for Qualification Screening

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

Application Period		
First round	October 2023 Admission April 2024 Admission	June 5 (Monday) to June 8 (Thursday), 2023
Second round	April 2024 Admission October 2024 Admission	November 6 (Monday) to November 9 (Thursday), 2023

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

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

(3) Procedure for Qualification Screening

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

(4) Result of Qualification Screening for Application

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

4 Application Procedure

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

(1) Application Period

Application Period		
First round	October 2023 Admission April 2024 Admission	June 29 (Thursday) to July 5 (Wednesday), 2023
Second round	April 2024 Admission October 2024 Admission	November 30 (Thursday) to December 6 (Wednesday), 2023

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

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

(2) Application Method

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

(Note)

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

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

Mailing address:

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

5 Application Documents

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

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

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

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

(2) Academic transcripts (original)

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

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

(d) Applicants who intend to apply under the provisions (10) to (12) in “2 Qualifications for Application” 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 “2 Qualifications for Application” 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 “2 Qualifications for Application” 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 “2 Qualifications for Application” should submit the certificate of (expected) graduation from the foreign undergraduate school.

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

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

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

(5) Examination fee of 30,000 yen

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

(6) Recipient's address label (**Form 9**)

(7) TOEFL/TOEIC/IELTS score

Please select how to submit your English score on **Form 13-1**. Refer to "Important Notes for Applicants".

(8) Books, papers, or lectures that were particularly interesting to you (**Form 14-1**)

Please refer to "Important Notes for Applicants".

(9) Envelope for Admission ticket for the examination

Applicant's name, address and zip code (postal code) should be written on the prescribed 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 have received their education outside Japan)

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

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

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

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

(13) Confirmation Letter regarding the Applicability of the Specific Categories for Compliance with Article 25(1) and (2) of the Foreign Exchange and Foreign Trade Act (**Form 10**)

Applicants residing in Japan (including international applicants who have been in Japan for 6 months or who have been employed in Japan) are required to submit **Form 10**. Please refer to the simple check flow chart (*) to complete the form. For details, please contact the Research Coordination Section. [E-mail: kenkyo@ml.soken.ac.jp]

* <https://www.soken.ac.jp/en/admission/file/tokuteiruiki-E.pdf>

(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 and Form 14-1** are also downloadable at our website.
https://www.soken.ac.jp/en/admission/application_info/genetics/index.html
- iv. Application documents should be written in Japanese or English. If you submit the certificate neither in Japanese nor English, please also attach the certificate in Japanese or English.

6 Screening Procedures

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

details of the screening methods for this program, please refer to “Important Notes for Applicants”.

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

Examination Date		
First round	October 2023 Admission April 2024 Admission	July 30 (Sunday) and July 31 (Monday), 2023 Spare date: August 1 (Tuesday), 2023
Second round	April 2024 Admission October 2024 Admission	January 31 (Wednesday) and February 1 (Thursday), 2024 Spare date: February 2 (Friday), 2024

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

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

Venue of the examination

Program	Location and Directions
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.

7 Announcement of Results

Notification		
First round	October 2023 Admission April 2024 Admission	Late August 2023
Second round	April 2024 Admission October 2024 Admission	Late February 2024

Further details will be sent to applicants.

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

8 Admission Procedures

(1) Admission period is scheduled as below:

Late September 2023 for the enrollment of October 2023

Early to mid-March 2024 for the enrollment of April 2024

Late September 2024 for the enrollment of October 2024

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

(2) Fees required for admission are as follows.

Entrance Fee: JPY282, 000

Tuition Fee for six months: JPY267, 900

Student Insurance Fee for five years: JPY5,750

(Personal Accident Insurance for Students Pursuing Education and Research)

Note:

- (a) In case the entrance or tuition fees are revised at the time of or during enrollment, the revised fees shall be applied from the date of revision.
- (b) Entrance fees shall not be refunded under any circumstances once the payment is made. Premium for the student insurance, however, may be refunded only if applicants decline the admission by the cut-off dates as blow:

September 30, 2023 for the enrollment of October 2023

March 31, 2024 for the enrollment of April 2024

September 30, 2024 for the enrollment of October 2024

- (3) Applicants who are currently employed full-time must submit the “Letter of Approval” issued by the employer that acknowledges the enrollment while employed. Resignation certificate must be submitted if you resign before you enroll at SOKENDAI.
- (4) Applicants who are enrolled at a school other than SOKENDAI at the time of application (not including applicants who will have graduated/completed the school before you enroll at SOKENDAI) must submit the certificate of withdrawal from said school.
- (5) Foreign nationals are strongly advised to obtain a student visa unless a particular reason would prohibit them from doing so. Detailed information on how to obtain this type of visa is available on the SOKENDAI's website: <http://www.soken.ac.jp/en/campuslife/international/immigration/>

9 Long-term course system

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

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

10 General Notes

- (1) Before applying and taking the entrance examination, applicants should read through “Important Notes for Applicants”.
- (2) Submitted documents shall not be returned. No changes or alternations to the submitted documents shall be accepted after filing.
- (3) Admission might be revoked in case of any false entry or act of dishonesty on application documents and other documents.
- (4) Applicants who wish to transfer to SOKENDAI from other graduate school must contact Student Affairs Section before the last day of the application period.
- (5) Applicants with disabilities who require special consideration at the examination and after enrollment are

advised to inform SOKENDAI three months prior to the application period.

- (6) Applicants should inform the Student Affairs Section if they wish to withdraw their application.
- (7) In case the applicant has changed the mailing address after submitting the application documents, please inform the Student Affairs Section of the change.

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

- (8) Students are not allowed to simultaneously register at other universities while studying at SOKENDAI.
- (9) Please be sure to check our website for any changes in the method of admission selection due to the impact of new coronavirus infection or other factors.

11 Security Export Control

Based on the Foreign Exchange and Foreign Trade Act (*), SOKENDAI has established regulations and conducts examinations for the provision of technology and the acceptance of researchers and students. For this reason, if it is deemed that there is a risk of falling under regulations, you may be required to change your desired education or research content. Security Export Control regulations has nothing to do with passing or failing the entrance examination. Please consult the program office for further details.

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

12 Privacy Policy

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

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

- (1) When you apply to the Genetics Program, 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" on pages 27-31 or see the faculty introduction on the Genetics Program website. (<https://www.nig.ac.jp/nig/phd-program/faculty>)
Faculty members who are scheduled 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 **Form 1-A** (Application Form). You may appoint another supervisor as "2nd Choice" in the Genetics Program.
- (3) You may apply for up to two programs at the same time, and the second choice can be chosen from the Basic Biology Program or the Physiological Science Program or the Integrative Evolutionary Science Program. However, since the selection process is conducted for each program, please be aware of the examination schedules and venues when applying for two programs.
- (4) In **Form 2** "Statement of Purpose", state "the reason why you would like to research in the Genetics Program" based on your past experience in approximately 1,000 words in English.
- (5) In **Form 14-1** (Books, papers, or lectures that were particularly interesting to you), list three titles and explain what you found interesting in several lines.
- (6) All lectures in the Genetics Program are given in English. A score of TOEFL, TOEIC or IELTS test is used to evaluate your English ability. Please submit your score record/official certificate in accordance with "How to submit TOEFL/TOEIC/IELTS score" on the next page.
- (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 logicity. 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 in the Genetics Program. 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) The entrance examination can be taken either in Japanese or English. You may take the written exam or take the interview in English, if you wish to do so.
- (9) In "II-6 Screening Procedures", three dates are set as examination dates. The third day is spare and the examination is usually carried out within the first two days.
- (10) 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.

(11) If circumstances require a planned course of study beyond the standard term of study, students may be allowed to use the long-term enrollment system. For details, please refer to the Genetics Program website. (<https://www.nig.ac.jp/nig/phd-program/courses-top/stretched-graduate-program>)

If you wish to apply for this system at the time of application, please be sure to consult with your prospective supervisor in advance.

(12) Students can earn a salary of 710,000 JPY per year through the Research Assistant (RA) system.

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

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

For further information about the Genetics Program 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

All lectures in the Genetics Program are given in English. A score of TOEFL, TOEIC or IELTS test is used to evaluate your English ability.

On **Form 13-1 (How to evaluate English proficiency)**, please select how you would like to submit your English test score. When you submit your score, please note the following points and prepare accordingly.

(1) Eligible Tests

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

(2) How to Submit Score

Please submit one of the Official Score Report of the TOEFL-iBT Test, Official Score Certificate of the TOEIC Listening & Reading Test or Test Report Form for IELTS (Academic Module) by the method selected in **Form 13-1 (How to evaluate English proficiency)**.

TOEFL-iBT Test: You can arrange with ETS to send your Official Score Report directly to SOKENDAI.

Institution Code: 7564

Institution Name: SOKENDAI (The Graduate University for Advanced Studies)

Note:

Dates and venues for these English tests are limited. If you intend to apply to the Genetics Program, 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>

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

1 Number of Students Accepted

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

2 Qualifications for Application

Applicants must fulfill one of the following conditions

Applicants who are not required to have qualification screening;

- (1) Applicants who hold or are expected to take a Master's degree or a Professional degree by the preceding month of enrollment.
- (2) Applicants on whom a Master's degree or a degree equivalent to a Professional degree has been

conferred or is expected to be conferred in a foreign country by the preceding month of enrollment.

- (3) Applicants who have completed the correspondence courses provided by a school in a foreign country while residing in Japan, and have been conferred or are expected to be conferred a Master's degree or a degree equivalent to a Professional degree by the preceding month of enrollment.
- (4) Applicants who have completed or are expected to complete a program in an educational institute in Japan that provides courses from a foreign graduate school within the school education system of said foreign country, and that is designated separately by the Minister of Education, Culture, Sports, Science and Technology, and have been conferred or are expected to be conferred a Master's degree or a degree equivalent to a Professional degree by the preceding month of enrollment.
- (5) Applicants who have completed a course at the United Nations University and have been conferred or are expected to be conferred a degree equivalent to a Master's degree by the preceding month of enrollment, in accordance with the Enforcement Regulation of the School Education Law, Article 156, Item 4.

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) to (9) in “2 Qualifications for Application” are required to submit the following documents to Student Affairs Section by the designated deadline. Application documents shall be withheld until the qualification screening is completed.

(2) Applicants who wish to apply under the provisions (6) to (9) in “2 Qualifications for Application” are required to submit the following documents for screening to be recognized as “having academic ability equivalent to those who have a Master’s degree or a Professional degree”. An interview may be conducted if necessary.

(a) Documents Required for Qualification Screening for Application

- i. Application for Certifying Applicant’s Qualification (**Form 7-2**)
- ii. Application Documents as specified in “5 Application Documents”

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

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

(b) Application Period regarding Qualification Screening

(Only for the applicants who intend to apply under the provisions (6) to (9) in “2 Qualification for Application”)

Application Period		
First round	October 2023 Admission April 2024 Admission	June 5 (Monday) to June 8 (Thursday), 2023
Second round	April 2024 Admission October 2024 Admission	November 6 (Monday) to November 9 (Thursday), 2023

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

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

(c) Procedure for Qualification Screening

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

(d) Result of Qualification Screening for Application

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

attached should be submitted to Student Affairs Section.

4 Application Procedure

Applicants who intend to apply under the provisions (1) to (5) in “2 Qualifications for Application” are required to submit the following documents to the Student Affairs Section by the designated deadline.

(1) Application Period

Application Period		
First round	October 2023 Admission April 2024 Admission	June 29 (Thursday) to July 5 (Wednesday), 2023
Second round	April 2024 Admission October 2024 Admission	November 30 (Thursday) to December 6 (Wednesday), 2023

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

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

(2) Application Method

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

(Note)

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

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

Mailing address:

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

5 Application Documents

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

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

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

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

(2) Academic transcripts (original)

(a) Applicants who intend to apply under the provision (1) in “2 Qualifications for Application” 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 “2 Qualifications for Application” 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 “2 Qualifications for Application” 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 “2 Qualifications for Application” 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 “2 Qualifications for Application” should submit the certificate of (expected) graduation from the foreign graduate school.

(c) Applicants who intend to apply under the provisions (6) to (9) in “2 Qualifications for Application” 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**)

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

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

(7) Examination fee of 30,000yen

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

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

(9) TOEFL/TOEIC/IELTS score

Please select how to submit your English score on **Form 13-2**. Refer to “Important Notes for Applicants”.

(10) Books, papers or lectures that were particularly interesting to you (**Form 14-2**)

Please refer to the “Important Notes for Applicants”.

(11) Envelope for Admission ticket for the examination

Applicant’s name, address and zip code (postal code) should be written on the prescribed envelope (attached to the application guidelines), and 674 yen of postage stamp should be affixed.

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

(13) Applicants who have a Master’s degree or who have submitted the Master’s thesis should submit two copies of Master’s thesis. Please specify “Master’s thesis” on the upper-right corner of the front page in red ink.

Applicants who apply to a second-choice program should submit another set of copy of the Master’s thesis

for the second-choice program separately.

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

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

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

Applicants who are currently employed full-time are required to submit Permission for Taking the Entrance Examination (**Form 6**). In case the permission cannot be obtained or the applicant intends to resign before enrollment, 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.

(16) Confirmation Letter regarding the Applicability of the Specific Categories for Compliance with Article 25(1) and (2) of the Foreign Exchange and Foreign Trade Act (**Form 10**)

Applicants residing in Japan (including international applicants who have been in Japan for 6 months or who have been employed in Japan) are required to submit **Form 10**. Please refer to the simple check flow chart (*) to complete the form. For details, please contact the Research Coordination Section. [E-mail: kenkyo@ml.soken.ac.jp]

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

(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, 5 and 14-2** are also downloadable at our website.
https://www.soken.ac.jp/en/admission/application_info/genetics/index.html
- iv. Application documents should be written in Japanese or English. If you submit the certificate neither in Japanese nor English, please also attach the certificate in Japanese or English.

6 Screening Procedures

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

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

Examination Date		
First round	October 2023 Admission April 2024 Admission	July 30 (Sunday) and July 31 (Monday), 2023 Spare date: August 1 (Tuesday), 2023
Second round	April 2024 Admission October 2024 Admission	January 31 (Wednesday) and February 1 (Thursday), 2024 Spare date: February 2 (Friday), 2024

(Note) Detailed information about the time and place of the examination will be provided with the admission

ticket for the exam. In case the ticket shall not be delivered one week prior to the date of examination, please contact the Student Affairs Section. Please see the following website for the delivery schedule of admission ticket.

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

Venue of the examination

Program	Location and Directions
Genetic	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 “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.

7 Announcement of Results

Notification		
First round	October 2023 Admission April 2024 Admission	Late August 2023
Second round	April 2024 Admission October 2024 Admission	Late February 2024

Further details will be sent to applicants.

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

8 Admission Procedures

(1) Admission period is scheduled as below:

Late September 2023 for the enrollment of October 2023

Early to mid-March 2024 for the enrollment of April 2024

Late September 2024 for the enrollment of October 2024

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

(2) Fees required for admission are as follows.

Entrance Fee: JPY 282,000

Tuition Fee for six months: JPY 267,900

Student Insurance Fee for three years: JPY 3,620

(Personal Accident Insurance for Students Pursuing Education and Research)

Note:

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

(b) Entrance fees shall not be refunded under any circumstances once the payment is made. Premium

for the student insurance, however, may be refunded only if applicants decline the admission by the cut-off dates as blow:

September 30, 2023 for the enrollment of October 2023

March 31, 2024 for the enrollment of April 2024

September 30, 2024 for the enrollment of October 2024

- (3) Applicants who are currently employed full-time should submit the “Letter of Approval” issued by the employer that acknowledges the enrollment while employed. Resignation certificate must be submitted if you resign before you enroll at SOKENDAI.
- (4) Applicants who are enrolled at a school other than SOKENDAI at the time of application (not including those who will have graduated from/completed the school before you enroll at SOKENDAI) must submit the certificate of withdrawal from said school.
- (5) Foreign nationals are strongly advised to obtain a student visa unless a particular reason would prohibit them from doing so. Detailed information on how to obtain this type of visa is available on the SOKENDAI's website: <http://www.soken.ac.jp/en/campuslife/international/immigration/>

9 Long-term course system

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

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

10 General Notes

- (1) Before applying and taking the entrance examination, applicants should read through “Important Notes for Applicants”.
- (2) Submitted documents shall not be returned. No changes or alternations to the submitted documents will be accepted after filing.
- (3) Admission might be revoked in case of any false entry or act of dishonesty on application documents and other documents.
- (4) Applicants who wish to transfer to SOKENDAI from other graduate school must contact Student Affairs Section before the last day of the application period.
- (5) Applicants with disabilities who require special consideration at the examination and after enrollment are advised to inform SOKENDAI three months prior to the application period.
- (6) Applicants should inform the Student Affairs Section if they wish to withdraw their application.
- (7) In case the applicant has changed the mailing address after submitting the application documents, please inform the Student Affairs Section of the change.
E-mail: gakusei@ml.soken.ac.jp, or Fax: +81-46-858-1632
- (8) Students are not allowed to simultaneously register at other universities while studying at SOKENDAI.
- (9) Please be sure to check our website for any changes in the method of admission selection due to the impact

of new coronavirus infection or other factors.

11 Security Export Controls

Based on the Foreign Exchange and Foreign Trade Act (*), SOKENDAI has established regulations and conducts examinations for the provision of technology and the acceptance of researchers and students. For this reason, if it is deemed that there is a risk of falling under regulations, you may be required to change your desired education or research content. Security Export Control regulations has nothing to do with passing or failing the entrance examination. Please consult the program office for further details.

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

12 Privacy Policy

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

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

- (1) When you apply to the Genetics Program, 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" on pages 27-31 or see the faculty introduction on the Genetics Program website.
(<https://www.nig.ac.jp/nig/phd-program/faculty>)
Faculty members who are scheduled 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 **Form 1-B** (Application Form). You may appoint another supervisor as "2nd Choice" in the Genetics Program.
- (3) You may apply for up to two programs at the same time, and the second choice can be chosen from the Basic Biology Program or the Physiological Sciences Program or the Integrative Evolutionary Science Program. However, since the selection process is conducted for each program, please be aware of the examination schedules and venues when applying for two programs.
- (4) Enter the name of the laboratory (supervisor) where you have actually conducted your research activities (if you had more than one supervisor, please enter all of them) on the "Personal History" page which is the reverse side of **Form 1-B** (Application form).
- (5) 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 form. A separate sheet of paper cannot be added.
- (6) Select five scientific papers you have read recently that you found particularly interesting, and enter the author's name, title, journal name, volume, page, and year of publication, following the example in **Form 14-2** (Papers you read recently that were particularly interesting to you), and briefly explain what you found interesting about them.
- (7) All lectures in the Genetics Program are given in English. A score of TOEFL, TOEIC, or IELTS is used to evaluate your English ability. Please submit your score record/official certificate in accordance with "How to submit TOEFL/TOEIC/IELTS score" on the next page.
- (8) 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 logicity. 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.
- (9) The entrance examination can be taken in Japanese or English. You may take the written exam or take the interview in English, if you wish to do so.
- (10) In "III-6 Screening Procedures", three days are set as examination dates. The third day is spare and the

examination is usually carried out within the first two days.

(11)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.

(12)If circumstances require a planned course of study beyond the standard term of study, students may be allowed to use the long-term enrollment system. For details, please refer to the Genetics Program website.

(<https://www.nig.ac.jp/nig/phd-program/courses-top/stretched-graduate-program>)

If you wish to apply for this system at the time of application, please be sure to consult with your prospective supervisor in advance.

(13)Students can earn a salary of 780,000 JPY per year through the Research Assistant (RA) system.

Students of the three-year doctoral program may earn 1,060,000 JPY in the first year by adding up 282,000 JPY for the entrance fee.

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

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

For further information about the Genetics Program 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

All lectures in the Genetics Program are given in English. A score of TOEFL, TOEIC or IELTS test is used to evaluate your English ability.

On **Form 13-2** (How to evaluate English proficiency) please select how you would like to submit your English test score. When you submit your score, please note the following points and prepare accordingly.

(1) Eligible Tests

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

(2) How to Submit Score

Please submit one of the Official Score Report of the TOEFL-iBT Test, Official Score Certificate of the TOEIC Listening & Reading Test or Test Report Form for IELTS (Academic Module) by the method selected in **Form 13-2** (How to evaluate English proficiency).

TOEFL-iBT Test: You can arrange with ETS to send your Official Score Report directly to SOKENDAI.

Institution Code: 7564

Institution Name: SOKENDAI (The Graduate University for Advanced Studies)

Note:

Dates and venues for these English tests are limited. If you intend to apply to the Genetics Program, we recommend that you take one of 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/>

IV. Majors and Research Subjects of the Faculty

[Genetics Program]

This is a list of research groups in the Genetics Program.

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 are scheduled 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, <http://www.evogennig.org/>)

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 view point 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, http://molevo.sakura.ne.jp/DnaData_lab/)

*Retiring at the end of March, 2028

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>)

*Retiring at the end of March, 2029

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/>)

SASAKI, Mariko Laboratory

Revealing mechanisms and impact of DNA quantity changes

Changes to our genomes not only lead to numerous human diseases but also contribute to phenotypic diversity. Genomic changes may also have as-yet-unidentified impact on cellular functions. Our laboratory focuses on genomic changes that lead to DNA copy number changes, such as copy number changes of repetitive sequences on the chromosome and production and accumulation of extrachromosomal circular DNA. We aim to understand when and how these changes occur and how they impact cellular functions.

(+81-55-981-6817, m_sasaki@nig.ac.jp)

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

Biophysics of cell division, nuclear dynamics and development

The creation of multicellular organisms requires that cells divide and double their number, chromosomes are copied and equally partitioned, and genes are activated at the appropriate timing. Many of these processes are epigenetically regulated by the cytoskeleton, such as actin, lamins and microtubules, and we study their spatiotemporal dynamics using live cell imaging and subcellular micromanipulation. Our recent studies include (i) day-long, high-resolution fluorescence imaging and biophysical characterization of mouse embryonic nuclei during preimplantation development, (ii) quantitative analysis of meiotic spindle size and shape using machine learning and cell-free *Xenopus* egg extracts, and (iii) in vitro reconstitution of spindle assembly processes using single-molecule imaging. By integrating biophysics, cell biology, biochemistry and materials science, we aim to quantitatively understand the complex inner workings of cells and help develop new therapeutic strategies.

(+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>)

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/NonoLab_HP/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)

*Retiring at the end of March, 2029

MAESHIMA, Kazuhiro Laboratory

3D-organization and behavior of human genome chromatin

Our research interest is understanding how a long string of genomic DNA is three-dimensionally organized and behaves 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 behavior of genome chromatin. Current on-going projects are as follows:

- Single molecule/nucleosome imaging in live cells
 - Quantitative analysis of imaging data
 - Super-resolution imaging of higher-order chromatin structures in cell differentiation
- Computational modeling of chromatin in the cell

(+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, <https://www.genome.id>)

YAMAMICHI, Masato Laboratory

Eco-evolutionary dynamics: interactions of rapid evolution and ecological processes

Organisms modify their phenotypes flexibly in response to environmental changes. Such rapid adaptation to environments can prevent population decline and extinction. Our laboratory combines mathematical models, microcosm experiments, and meta-analyses to investigate the effects of rapid evolution and phenotypic plasticity on population and community dynamics as well as complex eco-evolutionary feedbacks. Our aim is revealing dynamics of biodiversity through exploring interactions and similarities between intraspecific genetic diversity and species diversity in biological communities.

(+81-55-981-6741, myamamichi@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/>)