

**The Guideline for Application for 2020 NIG-JOINT**  
**(Joint Research and Research Meeting)**  
**National Institute of Genetics,**  
**Research Organization of Information and Systems**

**Major Change for Application for 2020 NIG-JOINT: Switch to online application system**

Due to the development and introduction of online application system called “Joint-Research On-line Integrated System (JROIS)”, the application procedure must be done through this online application system. Please refer to the attached “Flow of Online Application”.

The applicants (including joint research members and attendees of Joint Research Meeting) need to acquire Researcher ID to be a user of JROIS. Please register the user information on JROIS in advance to the application. JROIS is the common system within the 5 subordinate institutions of Research Organization of Information and Systems (National Institute of Polar Research, National Institute of Informatics, The Institute of Statistical Mathematics, National Institute of Genetics, and Joint Support-Center for Data Science Research). Applicants don't need to acquire new ID, if applicants have ever registered for joint research with any of 5 institutions.

When applying for the program, please be sure to check this guideline and attached “Instruction of Registering Application Information” carefully.

**1. The Guidelines for Application**

**(1) NIG-JOINT**

National Institute of Genetics solicits Joint Research to be conducted between researchers from other universities or institutes and NIG faculties using NIG facilities and equipment on the proposed project. There are three types of research project: NIG-JOINT (A), NIG-JOINT (B) and NIG-JOINT (I).

As a general rule, travel expenses are provided to the researchers visiting NIG.

NIG-JOINT projects should be conducted during the period of time from April 1<sup>st</sup>, 2020 to March 31<sup>st</sup>, 2021. Applicants may submit applications with the same research subject as a new application up to three consecutive years.

**① NIG-JOINT (A)**

- Eligible applicants are researchers affiliated with domestic or overseas universities or research institutes. Travel expenses required for the researchers to visit NIG conducting the Joint Research are provided.
- Up to 200,000 JPY can be requested by an applicant.

**② NIG-JOINT (B)**

- Eligible applicants are researchers affiliated with domestic or overseas universities or research institutes. Travel and research expenses (supplies and other expenses used within NIG, in principle) required for the joint research are provided.
- The joint research should be planned and conducted such that applicant or his/her joint research members, whose names are listed on the application, stay at NIG for more than 7 days in total during the research period.
- Up to 1,000,000 JPY can be requested by an applicant for travel and research expenses.

- Limited numbers of applications are to be accepted compared to (A).
- As an option, you can simultaneously apply for NIG-JOINT (A), in case where (B) application is not approved. If you wish to take this option, please put a check mark to the re-examination request and enter your budget for (A) (up to 200,000 JPY) in the registration screen.

### ③ NIG-JOINT (I) – International Joint Research –

- Eligible applicants are researchers affiliated with overseas universities or research institutes. Travel expenses required for the researchers to visit NIG conducting the Joint Research are provided.
- More than 200,000JPY up to 500,000JPY can be requested by an applicant.
- About 5 Projects will be selected.
- As an option, you can simultaneously apply for NIG-JOINT (A), in case where (I) application is not approved. If you wish to take this option, please put a check mark to the re-examination request and enter your budget for (A) (up to 200,000 JPY) in the registration screen.

#### (2) Joint Research Meeting

The research meeting is held among small number of researchers from inside and outside of NIG. Travel expenses are provided for the visits of researchers to NIG, because the meeting should be held at NIG.

The meeting must be held in the period from April 1<sup>st</sup>, 2020 to March 31<sup>st</sup>, 2021.

- Eligible applicants are NIG faculties and researchers affiliated with domestic or overseas universities or research institutes, and travel expenses for attending the meeting will be provided.
- Up to 500,000JPY can be requested by an applicant.

## **2. Applicants**

The applicants should be, as a general rule, researchers affiliated with universities, inter-university collaborative research institutes and independent administrative organizations in Japan or researchers affiliated with overseas universities or research institutes. Please note that graduate students are not eligible to apply, but they can be a member of joint researchers.

## **3. Application**

The application must be completed via online application system called “Joint Research On-line Integrated System (JROIS)”. Please note that the application procedure is changed from last year.

JROIS: <https://jrois.rois.ac.jp/rois-dev/Rois/public/NIG>

(Instruction of operating application system can be downloaded from the above URL.)

- (1) Before submitting the application, the applicant must consult closely with the prospective NIG partner regarding project subject, title of research meeting, members, budget and other necessary matters. Research outlines and contact information of NIG researchers are described at the end of this application guideline.

- (2) When applying for this program, please be sure to obtain approval from the head of

your organization (or department). Submission of written approval is not required.

- (3) When registering the application information on JROIS, please refer to the instruction of operation and “Instruction of Registering Application Information” for further details.

#### **4. Online Application Deadline**

Applications must be submitted no later than midnight (11:59 PM JST) on December 9th, 2019.

\*Your application will not be accepted under any circumstances if you don't submit it by the above deadline.

#### **5. Selection**

The outcome of selection and amount of budget allocation are determined after screening by NIG committee and notified to the applicants via e-mail from JROIS by the end of March 2020. For applications from those who have been adopted as research representatives in the past, the past budget implementation status will be taken into considering for the selection, regardless of whether it is a new or a continuous project. If none of the budget has been spent in the past project, it will be a disadvantage to the applicant. If the unused budget is refunded, accompanied by a written statement of reasons, the budget implementation status doesn't affect the selection in the next and following years.

Please note that the allocation amounts may be reduced due to limited budget.

#### **6. Change of the Research Group**

- (1) If there is a change in applicant's or joint research member's organization or position, the said researcher must change the registered information on the “User Information” screen. If applicant's affiliation is changed, a written approval (fixed format) from new organization should be submitted. (No official seal or signature is required.)

- (2) If there is an addition or removal of joint research members, applicant must apply for the procedure from “Changing Research Member” in JROIS.

- (3) If applicant is changed, please contact NIG partner immediately.

#### **7. Expenses Provided**

- (1) The travel and research expenses are to be provided by NIG based on the rules of Research Organization of Information and Systems (ROIS). Because the expenses are allocated only to NIG, not to other organizations, they should be claimed through NIG representative. Accommodation fee for those who stay at our guest house will be 2,500JPY/night, and for those who stay at a hotel in the city will be 6,000JPY/night. (Outside researchers visiting NIG for attending meeting or conducting research are to stay at our guest house, as a general rule.) Please note that the travel expenses could not be fully provided if other business or private site visits are included in the entire trip.

- (2) Applicants are expected to spend the budget at an earlier stage. If you are not able to spend none of the budget due to unavoidable reason, please submit a statement of reasons

(free format) and refund it by the end of December. When it becomes obvious that the expenses are not used anymore, please contact Research Promotion Team at that time.

#### **8. Submission of Research Report**

The research report of Joint Research or Research Meeting should be submitted by April 30th, 2020 via JROIS.

#### **9. Publication of Research Result**

You are requested to acknowledge NIG Joint Research as follows when results based on this research project are published, and send a copy of papers (PDF file is acceptable) to Research Promotion Team.

NIG-JOINT (Reference Number)

\*Reference number **【Serial Number + Category (A,B or I) + year】** , will be issued in the Acceptance Notification which will be sent to the successful applicant.

Example: (Successful Applicant : Taro Iden, Reference Number : 1A2020)

“This work was supported by NIG-JOINT (1A2020) to T. Iden.”

#### **10. Others**

- (1) NIG facilities and equipment are available to be used for the Joint Research and Research Meeting.
- (2) When holding Research Meeting, NIG representatives are requested to post the meeting program on the NIG website and give notice to all NIG members by at least one month prior to the date of the meeting.
- (3) If gene recombination and/or animal experiments are planned, NIG representatives are requested to submit Experiment-on-Gene Recombination plan and/or Experiment-on-Animals plan application form to Research Promotion Team after acceptance of the application. As for animal experiments, researchers directly handle experimental animals are requested to apply for NIG qualification screening and undergo a training regardless of their affiliation. We strongly hope that all researchers comply with regulations and conduct the research properly.
- (4) Researchers who handle Radioisotope at NIG are requested to register as Radiation Worker before starting to handle it.
- (5) Outside researchers visiting NIG for attending meeting or conducting research are to stay at our guest house, as a general rule.  
However, they can stay at a hotel in the city if the guest house is fully booked.
- (6) Ownership of intellectual property rights created in the Joint Research of NIG will be considered based on the regulations of ROIS employee invention.
- (7) NIG assures that private information for this application should be used only for screening the proposal. Regarding the accepted proposal, the representative of the research, his/her institute and the research project title will be posted on NIG website and annual reports.

(8) As a general rule, NIG would not prepare the form of “business-trip request” for the Joint Research and Research Meeting to simplify the procedures.  
We sincerely ask outside researchers visiting NIG to follow appropriate business trip procedures according to the rules of their affiliated institute.

**【Contact】**

Department of Administration

Research Promotion Team, General Affairs and Project Section

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## Research outline

(Updated: September 1<sup>st</sup>,2019)

Department	Laboratory	Faculty	Research outline
<b>Department of Informatics</b>	<b>Gene- Expression Analysis</b>	<b>OKUBO, Kousaku</b> / Professor	“How can we make use of data and information at our finger-tip in making smarter decisions in our own contexts?” Without solving this question, all analytical and descriptive efforts that digitalize the reality end up in vain. Our tentative answer/goal for this is to develop method to enhance “fluidity” and “utility”of medical knowledge among humans and machines.
	<b>Genetic Informatics</b>	<b>KAWAMOTO, Shoko</b> /Associate Professor	We are working on research and development of databases and information retrieval system for the national bio-resource project (NBRP).
	<b>Genome Evolution</b>	<b>KUROKAWA, Ken</b> / Professor <b>MORI, Hiroshi</b> / Assistant Professor	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.
	<b>Biological Networks</b>	<b>ARITA, Masanori</b> / Professor <b>KAWASHIMA, Takeshi</b> / Assistant Professor	Network analysis of metabolic pathways based on comprehensive identification and quantification of metabolites (metabolomics); Bioinformatics related to plant secondary metabolism and lipid metabolism
	<b>Genome Informatics</b>	<b>NAKAMURA, Yasukazu</b> / Professor <b>TANIZAWA, Yasuhiro</b> / Assistant Professor	Intelligent information technology for structural and functional annotations of large-scale nucleotide sequences.
<b>Department of Genomics and Evolutionary Biology</b>	<b>DNA Data Analysis</b>	<b>IKEO, Kazuho</b> / Associate Professor	Evolutionary study of genomic structure and gene expression pattern to elucidate the evolutionary mechanism of central nervous system and sensory organs. Evolutionary genomics analysis of various species. Metagenome analysis.Developing databases and computer software for biological research.
	<b>Population Genetics</b>	<b>SAITOU, Naruya</b> / Professor <b>JINAM, Timothy</b> / Assistant Professor	We study evolution of genes and genomes, in particular human evolution. We also develop methods for study of genome evolution.

	<b>Plant Genetics</b>	<b>SATO, Yutaka</b> / Professor <b>TAKAHASHI, Misuzu</b> / Assistant Professor <b>SUZUKI, Toshiya</b> / Assistant Professor	The goal of our research is to understand molecular mechanisms governing early processes of plant development using a series of rice embryogenesis defective mutants. Currently we are focusing on the mechanism of regulating the cell division pattern and plasticity in cellular differentiation in rice embryo.
	<b>Evolutionary Genetics</b>	<b>AKASHI, Hiroshi</b> / Professor <b>MATSUMOTO, Tomotaka</b> / Assistant Professor	We infer mechanisms of genome evolution using population genetic and comparative genomic approaches. Current interests include global forces such as biosynthetic constraints that underlie weak selection.
	<b>Human Genetics</b>	<b>INOUE, Ituro</b> /Professor <b>NAKAOKA, Hirofumi</b> / Assistant Professor	Medical genomic study using high-throughput sequencing data is a promising procedure to create an innovate healthcare system and open a new aspect of population genetics.
	<b>Ecological Genetics</b>	<b>KITANO, Jun</b> / Professor <b>ISHIKAWA, Asano</b> / Assistant Professor	We use threespine stickleback fishes to investigate the genetic and molecular mechanisms underlying adaptation and speciation.
	<b>Comparative Genomics</b>	<b>TOYODA, Atsushi</b> / Project Professor	We have been conducting advanced genomics research on the plasticity of genome structure and functions using most advanced genome technology such as New-Generation Sequencers.
<b>Department of Gene Function and Phenomics</b>	<b>Gene Network</b>	<b>SUZUKI, Emiko</b> / Associate Professor ※To be retired on March 31st, 2020	Combinations of molecular genetics of Drosophila and high-resolution light and electron microscopy are employed to study functional implication of structural and molecular organization of cells.
	<b>Symbiosis and Cell Evolution</b>	<b>MIYAGISHIMA, Shin-ya</b> / Professor <b>FUJIWARA, Takayuki</b> / Assistant Professor	In order to understand endosymbiotic evolution of eukaryotes, we are studying coordinating mechanisms of eukaryotic cell and organelle/endosymbiont proliferation using algae, plants, and protists.
	<b>Model Fish Genetics</b>	<b>SAKAI, Noriyoshi</b> / Associate Professor <b>KAWASAKI, Toshihiro</b> / Assistant Professor	We establish reliable protocols for genetically modification of zebrafish using sperm, and analyze the molecular mechanisms of spermatogenesis and early development in zebrafish.

	<b>Cell Dynamics and Signaling</b>	ODA, Yoshihisa / Professor	We study the dynamic behavior of cortical cytoskeletons and small GTPases during cell differentiation and cell division to understand the mechanism underlying cell wall patterning in plant cells.
	<b>Plant Cytogenetics</b>	NONOMURA, Ken-ichi / Associate Professor TSUDA, Katsutoshi / Assistant Professor	We aim to elucidate the regulatory system of plant germ-cell development and chromosome kinetics, mainly using seed-sterile rice mutants.
	<b>Mammalian Neural Circuits</b>	IWASATO, Takuji / Professor NAKAGAWA, Naoki / Assistant Professor	We are studying molecular and cellular mechanisms of neuronal circuit development in the mammals, using mouse genetics and other related methods.
	<b>Multicellular Organization</b>	SAWA, Hitoshi / Professor NEGISHI, Takefumi / Assistant Professor	We are studying the mechanisms that produce a variety of cell types through asymmetric cell divisions using the nematode <i>C.elegans</i> .
	<b>Brain Function</b>	HIRATA, Tatsumi / Professor KAWASAKI, Takahiko / Assistant Professor ZHU, Yan / Assistant Professor	Development of the vertebrate nervous system with special focus on neuronal network formation.
	<b>Molecular and Developmental Biology</b>	KAWAKAMI, Koichi / Professor	Genetic studies on development, morphogenesis and behaviors by using a model vertebrate zebrafish.
	<b>Mammalian Development</b>	SAGA, Yumiko / Professor KATO, Yuzuru / Assistant Professor AJIMA, Rieko / Assistant Professor	We study the early developmental events and the regulatory mechanisms during mouse embryogenesis through generation and analyses of gene-knockout and transgenic mice. We are especially interested in the organs derived from mesoderm (heart, lung, somite), and the germ cell system.
	<b>Microbial Physiology</b>	NIKI, Hironori / Professor AOKI, Keita / Assistant Professor	We investigate higher order structure of chromosomes and their dynamics in yeast and bacteria through genetic and cell biological analysis.
	<b>Mammalian Genetics</b>		
	<b>Mouse Genomics Resource</b>	KOIDE, Tsuyoshi / Associate Professor TAKANAMI, Keiko / Assistant Professor	For understanding genetic basis of behavioral diversity, behavioral and genetic analyses are applied on a variety of mouse resources including wild-derived strains. We are developing genome editing methods in mice for analyzing function of genes.



<b>Department of Chromosome Science</b>	<b>Epigenomics</b>	<b>KAKUTANI, Tetsuji</b> / Professor <b>TARUTANI, Yoshiaki</b> / Assistant Professor	Control and function of epigenetic gene modifications in Arabidopsis.
	<b>Genome Dynamics</b>	<b>MAESHIMA, Kazuhiro</b> / Professor <b>IDE, Satoru</b> / Assistant Professor <b>HIBINO, Kayo</b> / Assistant Professor	Our research interest lies in determining how a long string of genomic DNA is three-dimensionally organized in living cells, 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 human genome chromatin.
	<b>Cell Architecture</b>	<b>KIMURA, Akatsuki</b> / Professor <b>TORISAWA, Takayuki</b> / Assistant Professor	To understand the three-dimensional architecture of the cell and its dynamics, quantitative imaging and modeling approaches are employed. Specific targets of the research are size and shape of organelles, the mechanics of cytokinesis, and cytoplasmic streaming in the <i>C. elegans</i> embryo.
	<b>Microbial Genetics</b>	<b>ARAKI, Hiroyuki</b> / Professor ※To be retired on March 31st, 2020	Genetic and biochemical approach to elucidate molecular mechanism and regulation of eukaryotic DNA replication and checkpoint control using budding yeast
	<b>Physics and Cell Biology</b>	<b>SHIMAMOTO, Yuta</b> / Associate Professor	Our laboratory studies mechanisms of force-based regulation in the mitotic spindle and the cell nucleus. Using our expertise of controlled mechanical manipulation and high-resolution fluorescence imaging, the micro-mechanics of these intracellular structures, assembled in <i>Xenopus</i> egg extracts, are quantitatively analyzed.
	<b>Molecular Cell Engineering</b>	<b>KANEMAKI, Masato</b> / Professor <b>NATSUME, Toyoaki</b> / Assistant Professor	To understand DNA transactions in human cells, we generate conditional cells using the auxin-inducible degron technology for genetic and cytological analyses. We also develop new technologies for construction of mutant human cells.
	<b>Invertebrate Genetics</b>	<b>SAITO, Kuniaki</b> / Professor <b>KONDO, Shu</b> / Assistant Professor <b>MIYOSHI, Keita</b> / Assistant Professor	We investigate molecular mechanisms of <i>Drosophila</i> gene expression and repression through biochemical and genetic techniques. Especially, we are focusing on the small RNA pathways and chromatin regulation during germ cell development.

<b>Center for Frontier Research</b>	<b>Systems Neuroscience</b>	<b>KUBO, Fumi</b> / Associate Professor	We study how visual information generates goal-directed behavior. We aim to understand the neural circuit mechanisms underlying this process using a combination of genetic, optic and behavioral approaches in zebrafish.
	<b>Chromosome Biochemistry</b>	<b>MURAYAMA, Yasuto</b> / Associate Professor	We investigate molecular mechanism underling regulation of chromosome organization and dynamics by recapitulating their biochemical reactions using purified proteins. We now especially focus on SMC complexes.
<b>Advanced Genomics Center</b>		<b>NOGUCHI, Hideki</b> / Project Professor	Development of new algorithms for <i>de novo</i> sequence assemblies, and analytical tools for comparative genomics employing massive data produced from next generation sequencers.
<b>Radioisotope Unit</b>		<b>ANDACHI, Yoshiki</b> / Assistant Professor	We study microRNA-mediated post-transcriptional regulation in <i>C. elegans</i> using our original methods for the detection of microRNAs and target genes.