

**The Guideline for Application for 2017 NIG-JOINT  
(Joint Research and Research Meeting)  
National Institute of Genetics,  
Research Organization of Information and Systems**

**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>, 2017 to March 31<sup>st</sup>, 2018. 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 are provided for researchers visiting NIG for the Joint Research.
- 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 collaborative 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 circle mark and fill in your budget for (A) (up to 200,000 JPY) in the appropriate spaces in the application.

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

- Eligible applicants are researchers affiliated with overseas universities or research institutes. Travel expenses are provided to researchers visiting NIG for conducting Joint Research only.
- More than 200,000JPY up to 500,000JPY can be requested by an applicant.
- Projects to be selected will be around 5.
- 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 circle mark and fill in your budget for (A) (up to 200,000 JPY) in the appropriate spaces in the application.

## (2) Joint Research Meeting

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

The meeting must be held in the period from April 1<sup>st</sup>, 2017 to March 31<sup>st</sup>, 2018.

- 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.

## **3. Application**

- (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 in the attached sheet. If you would like to call your prospective NIG partner, please dial +81-55-981-\*\*\*\* (a four-digit extension number written next to the name of faculty member)
- (2) When applying for this program, please fill out the prescribed application form and obtain approval from the head of your organization (or department). No signature or official seal is required.
- (3) Application in word format must be e-mailed to the address below. When e-mailing your application materials, please enter subject line as follows: "Application for NIG-JOINT + your name". You will be notified by our Research Promotion Team via e-mail once your application has been received. If you do not hear from us within a reasonable period of time, please make sure to contact us.

Prescribed form of application can be downloaded from the NIG website at:

<http://www.nig.ac.jp/welcome/kyoudoukenkyu/annai.html>

**【Send your application to】** [kyodo-mail@nig.ac.jp](mailto:kyodo-mail@nig.ac.jp)

### **【Contact / Inquiry】**

Research Promotion Team, General Affairs and Project Section,

Department of Administration

National Institute of Genetics, Research Organization of Information and Systems

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Phone: +81-55-981-6728

E-mail: [kyodo-mail@nig.ac.jp](mailto:kyodo-mail@nig.ac.jp)

## **4. Application Deadline**

Applications must arrive no later than midnight (12:00am) on December 20th, 2016.  
(Japan standard Time)

## **5. Notification of the Outcome of Selection**

The outcome of selection will be notified to the applicants after screening. The acceptance list will be also posted on NIG website.

## **6. Expenses Provided**

The travel and research expenses are to be provided by NIG based on the rules of Research Organization of Information and Systems (ROIS).

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.)

## **7. Submission of Research Report**

The report of Joint Research or Research Meeting should be submitted within 30 days after finishing the research.

## **8. Publication of Research Result**

Researchers 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 our 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 : 1A2017)

“This work was supported by NIG-JOINT (1A2017) to T. Iden.”

## **9. 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 after acceptance of the application.

(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.

Please contact us if you need the request form. We sincerely ask outside researchers visiting NIG to follow appropriate business trip procedures according to the rules of their affiliated institute.

Department of Administration

Research Promotion Team, General Affairs and Project Section

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## Research outline

(Updated: April 1<sup>st</sup>,2017)

| Department             | Division                            | Faculty  | Ext.                 | Research outline  |
|------------------------|-------------------------------------|--|----------------------|---|
| Molecular Genetics     | Centrosome Biology                  | KITAGAWA, Daiju / Professor<br>TAKAO, Daisuke /Assistant Professor<br>YOSHIBA, Satoko /Assistant Ptofessor   | 5828<br>5828<br>5828 | We mainly focus on understanding the mechanisms of centrosome duplication by using the combination of innovative and multi-disciplinary approaches. We are utilizing <i>C. elegans</i> embryos and human cell culture as model systems. |
|                        | Molecular Cell Engineering          | KANEMAKI, Masato / Professor<br>NATSUME, Toyoaki / Assistant Professor                                       | 5830<br>5866         | 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. |
| Cell Genetics          | Microbial Genetics                  | ARAKI, Hiroyuki / Professor<br>HIZUME, Kohji / Assistant Professor   | 6754<br>6757         | Genetic and biochemical approach to elucidate molecular mechanism and regulation of eukaryotic DNA replication and checkpoint control using budding yeast   |
|                        | Symbiosis and Cell Evolution        | MIYAGISHIMA, Shin-ya / Professor<br>FUJIWARA, Takayuki / Assistant Professor                                 | 9411<br>9414         | 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.                                    |
| Developmental Genetics | Neurogenetics                       | IWASATO, Takuji / Professor<br>MIZUNO, Hidenobu / Assistant Professor  | 6773<br>6777         | We are studying molecular and cellular mechanisms of neuronal circuit development in the mammals, using mouse genetics and other related methods.   |
|                        | Molecular and Developmental Biology | KAWAKAMI, Koichi / Professor<br>ASAKAWA, Kazuhide / Assistant Professor<br>MUTO, Akira / Assistant Professor | 6740<br>6739<br>6739 | Genetic studies on development, morphogenesis and behaviors by using a model vertebrate zebrafish.  |
| Population Genetics    | Population Genetics                 | SAITOU, Naruya / Professor<br>JINAM, Timothy / Assistant Professor   | 6790<br>6787         | We study evolution of genes and genomes, in particular human evolution. We also develop methods for study of genome evolution.  |
|                        | Evolutionary Genetics               | AKASHI, Hiroshi / Professor<br>MATSUMOTO, Tomotaka / Assistant Professor                                     | 6793<br>5820         | Mechanisms of genome evolution. Especially weak selection and biosynthetic constraints.   |
|                        | Ecological Genetics                 | KITANO, Jun / Professor<br>ISHIKAWA, Asano / Assistant Professor   | 9415<br>9416         | We use threespine stickleback fishes to investigate the genetic and molecular mechanisms underlying adaptation and speciation.  |

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| <b>Integrated Genetics</b>             | <b>Human Genetics</b>                 | INOUE, Ituro / Professor<br>NAKAOKA, Hirofumi / Assistant Professor   | 6795<br>6796         | 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>Agricultural Genetics</b>          | KAKUTANI, Tetsuji / Professor<br>TARUTANI, Yoshiaki / Assistant Professor<br>INAGAKI, Soichi / Assistant Professor  | 6801<br>6807<br>6807 | Control and function of epigenetic gene modifications in Arabidopsis.   |
|  | <b>Brain Function</b>                 | HIRATA, Tatsumi / Professor<br>KAWASAKI, Takahiko / Assistant Professor<br>YAN, Zhu / Assistant Professor           | 6721<br>6721<br>6721 | Development of the vertebrate nervous system with special focus on neuronal network formation.  |
| <b>Center for Frontier Research</b>    | <b>Cell Dynamics and Organization</b> | ODA, Yoshihisa / Associate Professor  | 6800                 | To understand the mechanism underlying plant cell wall patterning, we study the dynamic behavior of cortical cytoskeletons and small GTPases in xylem cells.  |
|  | <b>Quantitative Mechanobiology</b>    | SHIMAMOTO, Yuta / Associate Professor   | 6784                 | 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 Xenopus egg extracts, are quantitatively analyzed. |
| <b>Genetic Strains Research Center</b> | <b>Mammalian Genetics</b>             | SHIROISHI, Toshihiko / Professor<br>TAKADA, Toyoyuki / Assistant Professor<br>AMANO, Takanori / Assistant Professor | 6818<br>6820<br>6816 | In order to understand genetic regulation of complex traits, such as morphogenesis and energy metabolism, we are conducting genetic analyses using mouse spontaneous mutants (variants) and genetically modified mutants.   |
|  | <b>Mammalian Development</b>          | SAGA, Yumiko / Professor<br>KATO, Yuzuru / Assistant Professor<br>AJIMA, Rieko / Assistant Professor                | 6829<br>6832<br>6832 | 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.  |

|                                  |                                     |   |                      |  |
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|                                  | <b>Mouse Genomics Resource</b>      | <b>KOIDE, Tsuyoshi</b> / Associate Professor  | 5843                 | 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>Model Fish Genomics Resource</b> | <b>SAKAI, Noriyoshi</b> / Associate Professor<br><b>KAWASAKI, Toshihiro</b> / Assistant Professor                                   | 5848<br>5849         | We establish reliable protocols for genetically modification of zebrafish using sperm, and analyze the molecular mechanisms of spermatogenesis and early development in zebrafish.   |
|                                  | <b>Plant Genetics</b>               | <b>SATO, Yutaka</b> , / Professor<br><b>TAKAHASHI, Misuzu</b> / Assistant Professor<br><b>SUZUKI, Toshiya</b> / Assistant Professor | 6808<br>6802<br>6803 | 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>Microbial Genetics</b>           | <b>NIKI, Hironori</b> / Professor<br><b>AOKI, Keita</b> /Assistant Professor  | 6870<br>6827         | We investigate higher order structure of chromosomes and their dynamics in yeast and bacteria through genetic and cell biological analysis.  |
|                                  | <b>Invertebrate Genetics</b>        | <b>SAITO, Kuniaki</b> / Professor<br><b>KONDO, Shu</b> / Assistant Professor  | 6823<br>6824         | We investigate molecular mechanisms of Drosophila 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>Genetic Informatics</b>          | <b>KAWAMOTO, Shoko</b> /Associate Professor   | 6885                 | We are working on research and development of databases and information retrieval system for the national bio-resource project(NBRP).  |
|                                  | <b>Genome Biology</b>               | <b>KOHARA, Yuji</b> / Project Professor<br><b>ANDACHI, Yoshiki</b> / Assistant Professor  | 6854<br>6860         | We are performing a systematic analysis of expression and function of the genome of the nematode C.elegans, aiming at understanding of the gene network for development.   |
| <b>Structural Biology Center</b> | <b>Biological Macromolecules</b>    | <b>MAESHIMA, Kazuhiro</b> / Professor<br><b>IDE, Satoru</b> / Assistant Professor<br><b>HIBINO, Kayo</b> / Assistant Professor      | 6864<br>6878<br>6878 | Our research interest lies in determining how a long string of genomic DNA is three-dimensionally organized in mitotic chromosomes and the nucleus, 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. |

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|                                       | <b>Cell Architecture</b>                                | <b>KIMURA, Akatsuki</b> / Professor<br><b>KIMURA, Kenji</b> / Assistant Professor           | 5854<br>5854 | 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 <i>C. elegans</i> embryo.  |
|                                       | <b>Multicellular Organization</b>                       | <b>SAWA, Hitoshi</b> / Professor  | 6845         | We are studying the mechanisms that produce a variety of cell types through asymmetric cell divisions using the nematode <i>C.elegans</i> .  |
|                                       | <b>Gene Network</b>                                     | <b>SUZUKI, Emiko</b> / Associate Professor<br><b>TAMORI, Yoichiro</b> / Assistant Professor | 6812<br>6813 | Combinations of molecular genetics of <i>Drosophila</i> and high-resolution light and electron microscopy are employed to study functional implication of structural and molecular organization of cells, currently focusing on nervous tissue, imaginal discs and follicle epithelia.   |
| <b>Center for Information Biology</b> | <b>DNA Data Analysis</b>                                | <b>IKEO, Kazuho</b> / Associate Professor   | 6851         | Evolutionary study of genomic structure and gene expression pattern of animals to elucidate the evolutionary mechanism of central nervous system and sensory organs. Evolutionary genomics analysis of various species such as <i>Drosophila</i> and viruses. Aquatic metagenome analysis. Developing databases and computer software for biological research. |
|                                       | <b>Biological Networks</b>                              | <b>ARITA, Masanori</b> / Professor<br><b>KAWASHIMA, Takeshi</b> / Assistant Professor       | 9449<br>9449 | 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<br><b>KAMINUMA, Eli</b> / Assistant Professor         | 6859<br>6859 | Intelligent information technology for structural and functional annotations of large-scale nucleotide sequences.  |
|                                       | <b>Research and Development of Biological Databases</b> | <b>TAKAGI, Toshihisa</b> / Professor  | 5821         | We are researching to apply distributed database software technology and/or parallel-distributed computing software technology to huge life science databases including DDBJ. Studies on analyzing biological data with using supercomputer.   |



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|                                     | <b>Gene- Expression Analysis</b> | <b>OKUBO, Kousaku</b> / Professor<br><b>HARA, Kazuo</b> / Assistant Professor                     | 5838<br>5836 | “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>Comparative Genomics</b>      | <b>TOYODA, Atsushi</b> / Project Professor  | 6788         | 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>Genome Evolution</b>          | <b>KUROKAWA, Ken</b> / Professor<br><b>MORI, Hiroshi</b> / Assistant Professor                    | 9437<br>9438 | 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>Experimental Farm</b>            |                                  | <b>NONOMURA, Ken-ichi</b> / Associate Professor<br><b>TSUDA, Katsutoshi</b> / Assistant Professor | 6872<br>6874 | We aim to elucidate the regulatory system of plant germ-cell development and chromosome kinetics, mainly using seed-sterile rice mutants.   |
| <b>Center for Advanced Genomics</b> |                                  | <b>FUJIYAMA, Asao</b> / Project Professor<br><b>NOGUCHI, Hideki</b> / Project Professor           | 6788<br>9459 | 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.  |