# The Guideline for Application for 2014 Collaborative Research and Research Meeting
## National Institute of Genetics,
## Research Organization of Information and Systems

### 1. The Guidelines for Application

(1) Collaborative Research

The Purpose is to promote collaborative research between NIG faculty and researchers outside of NIG.

Based on applications from the researchers, the NIG researchers collaborate with them for conducting the research on the subject of application.

The following two categories are solicited for Collaborative Research : (A) and (B).

Collaborative Research is usually conducted during the period of time from April 1, 2014 to March 31, 2015. It can be extended up to 3 years.

①Collaborative Research (A)

- Travel expenses only are provided for conducting the Collaborative Research within the accepted budget.
- The travel expenses are, in principle, to be paid only to the researchers who visit NIG for conducting the Collaborative Research.
- A total amount for the budget is up to 200,000JPY for each application from within Japan and up to 500,000JPY for that from overseas.

②Collaborative Research (B)

- Based on an application, both travel expenses and research expenses are provided to the researchers within the accepted budget. (For research expenses, only expendable items to be used in NIG can be bought).
- Once accepted, the representative of applicants or its collaborative researchers may stay for more than 14 days at NIG.
- Travel expenses are to be paid only when the researchers visit NIG for Collaborative Research.
- For each of applications accepted, up to 1,000,000 JPY are provided for research expense including 200,000 JPY for travel expense.
- About 10 applications are usually to be accepted.
- When your application is not accepted as Collaborative Research(B), the application can be considered as Collaborative Research(A), upon applicant's request. If you wish to take this option, please indicate this in the application form (item 2).

(2) Research Meeting

The Purpose is to promote exchange of information between NIG faculty and researchers outside of NIG.

Based on applications from the researchers, the Research Meeting can be held in collaboration with the NIG researchers.

We provide travel expenses for visiting the place where the Research Meeting is held.

The Research Meeting must be held with the period from April 1, 2014 to March 31, 2015.

・Based on the application, travel expenses for attending the Research Meeting will be provided.

・The Research Meeting is to be held in NIG, in principle. The travel expenses are to be paid only to the non-NIG researchers who visit NIG for participating the Research Meeting.

・A total amount of money for the budget should be up to 500,000JPY per application.

## 2. Exceptions

There are some exceptions as below;

(1) Collaborative Research

In the Collaborative Research only when the NIG researchers need to visit a research institution where the non-NIG researchers of Collaborative Research belong to, the travel expense can be used for it (within provided travel expenses). This can be done at any time.

(2) Research Meeting

Because Research Meeting is held in NIG, in principle, travel expenses are to be paid only to the non-NIG researchers who visit NIG. However, Research Meeting can be held at the outside of NIG, (in domestic only, when necessary.)

## 3. Applicants

The applicant should be, in principle, a researcher belonging to a university, an inter-university collaborative research institute and independent administrative organizations in Japan or a researcher belonging to an overseas university or a research institute.

## 4. Application

Please send an application form by post to the administration office with the

administrative approval. (Any supervisory authority of the applicant is acceptable. In the case of the overseas applicants, the approval is exempt from this requirement.)
An application form can be downloaded from the NIG website.
http://www.nig.ac.jp/welcome/kyoudoukenkyu/annai.html

**5. Submission of the application form**

Please write "Enc. Collaborative Research Application Form" in red letters on the envelope and send it by registered or certified mail. Those affiliated with research institute outside Japan can submit an application in PDF file via e-mail. In that case, please write "Application for NIG Collaborative Research + Name" in the subject line of your e-mail. A confirmation e-mail will be sent to you once your application has been received. If you do not receive it, please contact us immediately.

Mailing Address
Research Promotion Team, General Affairs and Project Section,
Department of Administration
National Institute of Genetics, Research Organization of Information and Systems
Yata1111, Mishima, Shizuoka
411-8540 JAPAN
Phone: +81-55-981-6728
E-mail: kyodo-mail@nig.ac.jp

Application Deadline:
Applications must arrive no later than 12:00 pm on January, 20 th, 2014.
(Japan standard Time)

**6. Notification of the Outcome of Selection**

The outcome of application will be notified to the successful candidates after screening. The acceptance list will be also posted on NIG website.

**7. Expenses Provided**

Expenses will be provided by NIG within the accepted budget. The travel expenses are to be provided based on the rule of Research Organization of Information and Systems (ROIS).

**8. The Report of Research**

The report of Collaborative Research or Research Meeting should be submitted to the

Director-General of NIG within 30 days after finishing the research.
Please understand that the report might be published in an annual report of NIG.
When you write papers and make presentation within the framework of this grant, you are requested to specifically mention this grant as follows:
For Japanese： 国立遺伝学研究所共同研究（2014A＊あるいは B＊）
For English ：NIG Collaborative Research Program (2014-A＊ or B＊)
（＊：Reference number in the acceptance list）
In the case of thesis, it or its copy may also be submitted to the Director-General.

**9. Others**

(1) We strongly hope that an applicant should consult with the faculty of NIG as to the following details before submitting an application form.
(Ⅰ) Collaborative Research：Proposed Research Title, expected participants, required expenses and other necessary matters.
(Ⅱ) Research Group ：Name of the Research Group, purpose of the research, proposed conducting date, expected participants, required expenses and other necessary matters.

(2) Attached please see the document regarding the guidelines of research and the faculties in charge.
If you would like to call the faculties, please dial +81-55-981-****.
(****：extension number)

(3) NIG makes available to our facilities for the Collaborative Research and Research Group.

(4) If you experiment for gene recombination and/or animals, you are requested to submit of Experiment-on-Gene Recombination plan and/or Experiment-on-Animals plan application form through the representative of NIG after acceptance of your application. We strongly hope that you comply with regulations and conduct the research properly.

(5) If you use Radioisotope at NIG, you are requested to register for Radiation Worker after acceptance of your application.

(6) We make the researchers who visit NIG for Collaborative Research or Research

Group available to our Guest house.

(7) Regarding intellectual property created in the Collaborative Research of NIG, Ownership of the right is to be considered based on the regulations of ROIS employee invention.

(8) NIG assures that private information for this application should be used only for examining 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 a publication.

(9) Please note that NIG would not prepare the form of "business-trip request" for the Collaborative Research and Research Group because of simplicity of procedures. Please contact us mentioned below if needed.

Department of Administration
Research Promotion Team, General Affairs and Project Section
National Institute of Genetics, Research Organization of Information and Systems
Yata1111, Mishima, Shizuoka
411-8540 JAPAN
Phone: +81-55-981-6728
E-mail: kyodo-mail@nig.ac.jp

# Research outline

(Updated: September 1st,2014)

| Department | Division | Faculty | Ext. | Research outline |
|---|---|---|---|---|
| Molecular Genetics | Molecular Genetics | **FUKAGAWA, Tatsuo** / Professor<br>**HORI, Tetsuya** / Assistant Professor<br>**NISHINO, Tatsuya** / Assistant Professor | 6792<br>6744<br>6744 | Molecular genetic, cell biological, biochemical, and structure biological methods are employed to study the mechanism for chromosome segregation during cell division. |
| | Mutagenesis | | | |
| | Molecular Mechanisms | **SEINO, Hiroaki** / Assistant Professor | 6745 | I am studying molecular mechanisms of cell cycle regulation in fission yeast by genetic and biochemical approaches. |
| Cell Genetics | Cytogenetics | **KOBAYASHI, Takehiko** / Professor<br>**IIDA, Tetsushi** / Assistant Professor<br>**AKAMATSU, Yufuko** / Assistant Professor | 6881<br>6882<br>6883 | Relationship between genome instability (especially, of repetitive sequences) and cellular functions is studied. |
| | Microbial Genetics | **ARAKI, Hiroyuki** / Professor<br>**TANAKA, Seiji** / Assistant Professor<br>**HIZUME Kohji** / Assistant Professor | 6754<br>6758<br>6757 | Genetic and biochemical approach to elucidate molecular mechanism and regulation of eukaryotic DNA replication and checkpoint control using budding yeast |
| Developmental Genetics | Developmental Genetics | **HAYASHI, Takashi** / Assistant Professor | 6811 | Developmental genetics of organogenesis in Drosophila. |
| | | **SHIMIZU, Hiroshi** / Assistant Professor | 6768 | Our group is currently investigating the physiological mechanism of Hydra and other members of phylum Cnidaria and its relation to the mechanism of pattern formation e.g. regeneration and budding. |
| | 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. |

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| | **Evolutionary Genetics** | **AKASHI, Hiroshi** / Professor<br>**OSADA, Naoki** / Assistant Professor | 6793<br>5820 | Mechanisms of genome evolution. Especially weak selection and biosynthetic constraints. |
| **Integrated Genetics** | **Human Genetics** | **INOUE, Ituro** /Professor<br>**HOSOMICHI, Kazuyoshi** / Assistant Professor | 6795<br>6797 | 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. |
| | **Agricultural Genetics** | **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. |
| | **Brain Function** | **HIRATA, Tatsumi** / Professor<br>**KAWASAKI, Takahiko** / Assistant Professor | 6721<br>6721 | Development of the vertebrate nervous system with special focus on neuronal network formation. |
| **Center for Frontier Research** | **Molecular Function** | **KANEMAKI, Masato** / Associate Professor | 5830 | We aim to understand the mechanism of chromosome replication and the cell cycle regulation in animal cells by analyzing conditional cell lines using molecular genetic and cell biological methods. We also develop techniques for the construction of cell lines required for the studies of animal cells. |
| | **Motor Neural Circuit** | **HIRATA, Hiromi** / Associate Professor | 5825 | Genetic and physiological analysis on motor development by using a vertebrate model zebrafish. Specific aim is to understand and regulate intrinsic and acquired synaptogenesis, circuit formation and muscle development. |
| | **Symbiosis and Cell Evolution** | **MIYAGISHIMA, Shin-ya** / Project Associate Professor | 9411 | 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. |
| | **Ecological Genetics** | **KITANO, Jun** / Project Associate Professor | 9415 | We use threespine stickleback fishes to investigate the genetic and molecular mechanisms underlying adaptation and speciation. |
| | **Centrosome Biology** | **KITAGAWA, Daiju** / Project Associate Professor | 5828 | We mainly focus on understanding the mechanisms of centrosome duplication by using the combination of innovative and multi-disciplinary approaches. We are utilizing *C. elegans* embryos and human cell culture as model systems. |

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| | **Cell Dynamics and Organization** | **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. |
| | **Quantitative Mechanobiology** | **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. |
| **Genetic Strains Research Center** | **Mammalian Genetics** | **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. |
| | **Mammalian Development** | **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. |
| | **Mouse Genomics Resource** | **KOIDE, Tsuyoshi** / 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. |
| | **Model Fish Genomics Resource** | **SAKAI, Noriyoshi** / Associate Professor | 5848 | We establish reliable protocols for genetically modification of zebarafish using sperm, and analyze the molecular mechanisms of spermatogenesis and early development in zebrafish. |
| | **Plant Genetics** | **KURATA, Nori** / Professor<br>**KUBO, Takahiko** / Assistant Professor | 6808<br>6802 | We perform analyses of genetic programs of reproductive and embryonic developmental process, as well as studies on the mechanism of reproductive isolation in rice. Wild species resources of rice are also used for evolutionary and diversity studies. |
| | **Microbial Genetics** | **NIKI, Hironori** / Professor<br>**AOKI, Keita** /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. |

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| | **Invertebrate Genetics** | **UEDA, Ryu** / Professor<br>**KONDO, Syu** / Assistant Professor | 6823<br>6824 | Genome-wide RNAi mutant fly library is established to study genome function in a variety of biological traits of fly development. |
| | **Genetic Informatics** | **YAMAZAKI, Yukiko** /Associate Professor | 6885 | As the information center of the genetic resources, we have been constructing databases and continuously inventing better way to distribute data in order to utilize the resources to its fullest potential. |
| | **Genome Biology** | **KOHARA,Yuji** / Project Professor<br>**ANDACHI, Yoshiki** / 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. |
| **Structural Biology Center** | **Biological Macromolecules** | **MAESHIMA, Kazuhiro** / Professor<br>**IDE, Satoru /** Assistant Professor | 6864<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. |
| | **Cell Architecture** | **KIMURA, Akatsuki** / Associate Professor<br>**KIMURA, Kenji** / 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 *C. elegans* embryo. |
| | **Multicellular Organization** | **SAWA, Hitoshi** / Professor<br>**IHARA, Shinji** / Assistant Professor | 6845<br>6844 | We are studying the mechanisms that produce a variety of cell types through asymmetric cell divisions using the nematode *C.elegans*. |
| | **Biomolecular Structure** | **SHIRAKIHARA, Yasuo** / Associate Professor<br>**ITO, Hiroshi** / Assistant Professor | 6887<br>6862 | We determine the three dimensional atomic structure of proteins, nucleic acids or their complexes by x-ray diffraction analysis in order to understand the working mechanism of the targets. |
| | **Gene Network** | **SUZUKI, Emiko** / Associate Professor<br>**TAMORI, Yoichiro /** Assistant Professor | 6812<br>6813 | 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 neuronal cells, with particular focus on neuronal network formation. |

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| Center for Information Biology | DNA Data Analysis | **IKEO, Kazuho** / Associate Professor<br>**NOZAWA, Masafumi** / Assistant Professor | 6851<br>6852 | 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 *Drosophila* and viruses. Aquatic metagenome analysis. Developing databases and computer software for biological research. |
| | Biological Networks | **ARITA, Masanori** / Professor | 9449 | Network analysis of metabolic pathways based on comprehensive identification and quantification of metabolites (metabolomics); Bioinformatics related to plant secondary metabolism and lipid metabolism |
| | Genome Informatics | **NAKAMURA, Yasukazu** / Professor<br>**KAMINUMA, Eli** / Assistant Professor | 6859<br>6859 | Intelligent information technology for structural and functional annotations of large-scale nucleotide sequences. |
| | Research and Development of Biological Databases | **TAKAGI, Toshihisa** / Professor | 5821 | Studies on applying distributed database software technology and/or parallel-distributed computing software technology to huge Life Science Databases such as DDBJ.<br>Studies on analyzing biological data with using Supercomputer. |
| | Gene- Expression Analysis | **OKUBO, Kousaku** / Professor<br>**OGASAWARA, Osamu** / Assistant Professor | 5838<br>9450 | Representation of Bio Medical knowledge Analysis of gene expression data and construction of integrated databases, construction of a database of data analysis methods, and construction of theoretical models of gene expression evolution |
| | Comparative Genomics | **FUJIYAMA, Asao** / Professor<br>**TOYODA, Atsushi** / Project Associate Professor | 6788<br>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. |
| Experimental Farm | | **NONOMURA, Ken-ichi** / Associate Professor | 6872 | We aim to elucidate the regulatory system of plant germ-cell development and chromosome kinetics, mainly using seed-sterile rice mutants. |
| Center for Advanced Genomics | | **NOGUCHI, Hideki** / Associate Professor | 9459 | Development of new algorithms for *de novo* sequence assemblies, and analytical tools for comparative genomics employing massive data produced from next generation sequencers. |