

The Guideline for Application for 2011 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, 2011 to March 31, 2012. It can be extendable up to 3 years.

① Collaborative 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 of money for the budget is up to 200,000JPY for each application of Collaborative Research(A). If the proposed budget is over 200,000JPY in your application, you are kindly requested to give the specific reason for that.

② Collaborative 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, in principle. If the budget in the application is over the limit, you are kindly requested to give a specific reason.
- About 10 applications are usually to be accepted
- When your application is not accepted in Collaborative Research(B), the application

can be considered in Collaborative Research(A),when requested. In this case, you are requested to mention it in the application form.

(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 place where the Research Meeting is held. The Research Meeting should be held with the period from April 1, 2011 to March 31, 2012.

- Based on the application, travel expenses for the Research Meeting are to be provided.
- The Research Meeting is, in principle, held in NIG. 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 an application. If the budget is beyond this limit, you are requested to state a specific reason.

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

【Collaborative Research (A)】

The applicant should be, in principle, a researcher who belongs to a university, an inter-university collaborative research institute and independent administrative organizations within Japan. A researcher who belongs to the foreign research institution can also apply for this category. (In principle, Principal Investigator)

【Collaborative Research (B)】

The applicant should be, in principle, a researcher who belongs to a university,

inter-university collaborative research institute and independent administrative organizations within Japan. (In principle, Principal Investigator)

【Research Meeting】

The applicant should be, in principle, a researcher who belongs to a university, inter-university collaborative research institute and independent administrative organizations. A researcher who belongs to the foreign research institution can also apply for this category. (In principle, Principal Investigator)

4. Application

Please submit an application form issued by NIG 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

Mailing Address

Research Promotion Team, Research Promotion 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@lab.nig.ac.jp

Application Deadline:

(Not later than) January 17th , 2011

Please note “Enc. Collaborative Research Application Form” in red on the envelope.

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 immediately 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 (2011-A* あるいは B*)

For English : NIG Cooperative Research Program (2011-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, Research Promotion Section

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411-8540 JAPAN

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E-mail: kyodo-mail@lab.nig.ac.jp

Research outline

(Update: 7st February 2011)

| Research Department | Research Division | In charge of faculty | Extension | Research outline |
|---------------------|----------------------|--|------------------------------|---|
| Molecular Genetics | Molecular Genetics | FUKAGAWA, Tatsuo /Professor HORI, Tetsuya /Assistant Professor NISHINO, Tatsuya /Assistant Professor | 6792 6744 6744 | Molecular genetic, cell biological, biochemical, and structure biological methods are employed to study the mechanism for chromosome segregation during cell division. |
| | Mutagenesis | YAMAOKA, Fumiaki /Professor | 6748 | There is targeted maintenance of chromosomal integration through DNA damage repair, recombination etc, especially with their linkage to ubiquitin or ubiquitin-like modification of the proteins involved in the process. |
| | 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 IIDA, Tetsushi / Assistant Professor | 6881 6882 | Relationship between genome instability (especially, of repetitive sequences) and cellular functions is studied. |
| | Microbial Genetics | ARAKI, Hiroyuki /Professor TANAKA, Seiji / Assistant Professor HIZUME Kohji /Assistant Professor | 6754 6758 | Genetic and biochemical approach to elucidate molecular mechanism and regulation of eukaryotic DNA replication and checkpoint control using budding yeast |

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| Developmental Genetics | Developmental Genetics | HIROMI, Yasushi /Professor | 6767 | Developmental genetics of organogenesis in Drosophila. |
| | | ASAOKA, Miho / Assistant Professor | 6811 | |
| | Developmental Genetics | HAYASHI, Takashi / Assistant Professor | 6811 | |
| | | 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. |
| Developmental Genetics | Neurogenetics | IWASATO, Takuji /Professor | 6773 | We are studying molecular and cellular mechanisms of neuronal circuit development in the mouse somatosensory system (whisker-barrel system) using mouse genetics. We are also interested in roles of alpha-chimerin in brain development and function. |
| | | MIZUNO, Hidenobu / Assistant Professor | 6777 | |
| | Molecular and Developmental Biology | KAWAKAMI, Koichi /Professor | 6740 | Genetic studies on development, morphogenesis and behaviors by using a model vertebrate zebrafish. |
| | ASAKAWA, Kazuhide / Assistant Professor | 6739 | | |
| Population Genetics | Population Genetics | SAITOU, Naruya /Professor | 6790 | We study evolution of genes and genomes, in particular human evolution. We also develop methods for study of genome evolution. |
| | | SUMIYAMA, Kenta / Assistant Professor | 6787 | |

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| | | TAKANO, Toshiyuki /Associate Professor TAKAHASHI, Aya / Assistant Professor | 6781 6782 | Studies of principles of genetic variation and evolution that can be used to make future predictions. |
| | Evolutionary Genetics | AKASHI, Hiroshi /Professor OSADA, Naoki / Assistant Professor | 6793 | Population genetic methods are employed to study natural selection in genome evolution, especially global constraints related to biosynthesis. |
| Integrated Genetics | Human Genetics | INOUE Ituro /Professor Hosomichi Kazuyoshi /Assistant Professor | 6795 | 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 SAZE, Hidetoshi / Assistant Professor | 6801 6807 | Control and function of epigenetic gene modifications in Arabidopsis. |
| | | TARUTANI, Yoshiaki / Assistant Professor | | |
| | Brain Function | HIRATA, Tatsumi /Associate Professor KAWASAKI, Takahiko / Assistant Professor | 6721 6721 | Development of the vertebrate nervous system with special focus on neuronal network formation. |

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| Genetic Strains Research Center | Mammalian Genetics | SHIROISHI, Toshihiko / Professor TAMURA, Masaru / Assistant Professor TAKADA, Toyoyuki / Assistant Professor | 6818 6816 6820 | 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 KOKUBO, Hiroki / Assistant Professor MORIMOTO, Mitsuru / Assistant Professor | 6829 6815 | 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 TAKAHASHI, Aki /Assintant 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 SHINYA, Minori / Assistant Professor | 5848 5849 | We establish reliable protocols for genetically modification of zebrafish using sperm, and analyze the molecular mechanisms of spermatogenesis and early development in zebrafish. |
| | Plant Genetics | KURATA, Nori / Professor KUBO, Takahiko / Assistant Professor | 6808 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. |
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| | Microbial Genetics | NIKI, Hironori / Professor FURUYA, Kanji / Assistant Professor | 6870 6827 | We investigate higher order structure of chromosomes and their dynamics in yeast and bacteria through genetic and cell biological analysis. |
| | Invertebrate Genetics | UEDA, Ryu / Professor | 6823 | Genome-wide RNAi mutant fly library is established to study genome function in a variety of biological traits of fly development. |
| Center for Genetic Resource Information | 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 / Professor ANDACHI, Yoshiki / Assistant Professor | 6854 | 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. |
| | | | 6860 | |
| Comparative Genomics | TOYODA, Atsushi /Project Associate Professor | 6788 | Our group aims at understanding of the evolutionary view on species, and genomic structure of human population/ individual through large-scale comparative genomics. | |
| Structural Biology Center | Biological Macromolecules | MAESHIMA, Kazuhiro / Professor HIRATANI Ichiro /Assistant Professor | 6864 | 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. |
| | Molecular Biomechanism | | | |

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| | Multicellular Organization | SAWA, Hitoshi /Professor IHARA, Sinji /Assistant 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> . |
| | Biomolecular Structure | SHIRAKIHARA, Yasuo /Associate Professor ITO, Hiroshi / Assistant Professor | 6887 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 KURUSU, Mitsuhiro / Assistant Professor | 6812 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. |
| Center for Information Biology and DNA Data Bank of Japan | DNA Data Analysis | GOJOBORI, Takashi /Professor IKEO, Kazuho /Associate Professor FUKUCHI, Satoshi / Assistant Professor | 6847 6851 6852 6837 | Evolutionary study of genomic structure and gene expression pattern of animals to elucidate the evolutionary mechanism of central nervous system, including the brain and eyes. Molecular evolutionary analysis of viruses through developing methods for detecting natural selection. Research and development of databases and programs related to biological information. |
| | Gene Function Research | | | |

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| | Genome Informatics | NAKAMURA, Yasukazu /Professor KAMINUMA, Eli / Assistant Professor | 6859 6836 | Research to integrate Life Science Databases based on the International Nucleotide Sequence Databases in DDBJ. Intelligent information technology for structural and functional annotations of genomes. |
| | Research and Development of Biological Databases | TAKAGI, Toshihisa / Professor | 5821 | |
| | Gene Expression Analysis | OKUBO, Kousaku / Professor OGASAWARA, Osamu /Assistant Professor | 5838 5836 | 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 |
| Center for Frontier Research | Cell Architecture | KIMURA, Akatsuki /Associate Professor | 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. |
| | 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. |
| | Multicellular Society | HORIKAWA, Kazuki /Associate Professor | 6799 | For the better understanding of principles in multi-cellular networks, cellular activities in 100-100,000 cells are analyzed with the help of quantitative Ca ²⁺ imaging and mathematical simulations. |

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| | 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. |
| | 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 <i>C. elegans</i> embryos and human cell culture as model systems. |
| Experimental Farm | | NONOMURA, Ken-ichi / Associate Professor MIYAZAKI, Saori /Assistant Professor | 6872 6874 | We aim to elucidate the regulatory system of plant germ-cell development and chromosome kinetics, mainly using seed-sterile rice mutants. |

| Research Department | Research Division | In charge of faculty | Extension | Research outline |
|----------------------------|-------------------------------|---|------------------|--|
| Adjunct Faculty | Nucleic Acid Chemistry | NATSUME, Tohru /Professor | 6748 | Protein networks and chemical biology |
| | | IWAI, Kazuhiro / Professor | 6748 | Regulation of NF- κ B signaling by ubiquitination |
| | Cytoplasmic Genetics | BOCCARD, Frédéric / Professor | 6870 | Dynamics of Bacterial Chromosome |
| | | UEDA, Hiroki / Professor | 6754 | Systems Biology of "Time" |
| | Physiological Genetics | STERN, David L / Professor | 6767 | Genetic causes of evolution of morphology and behavior |
| | | KIMBLE, Judith E. / Professor | 6767 | Controls of germline stem cells and their niche |
| | Theoretical Genetics | HARTL, Daniel L. /Professor | 6790 | Process about organisms evolve and new species come into being |
| | | CLARK, Andrew G /Professor | 6793 | Genetic basis of adaptive variation in natural populations |
| | Applied Genetics | COLOT, Vincent / Professor | 6801 | Arabidopsis Epigenetics and Epigenomics |
| | | TSUJI, Shoji / Professor | 6788 | Next Generation Genome Medicine |