Application Procedures for Joint Research Program with IDAC Tohoku University

Continuous challenges have been made by the Institute of Development, Aging and Cancer (IDAC) for comprehensive understanding of normal and pathological aging and underlying molecular mechanisms. Our goal is to decipher the developmental nexus between birth and death through growth, maturation and senescence and to clarify the defense mechanism from miscellaneous exogenous and endogenous insults that affect the aging process. Now that Japan is experiencing a super-aging society, more and more attention is being attracted to this field of medicine, "medical science for achievement of healthy aging". As a core research center focusing on the medical science of aging, IDAC welcomes 1-year joint research proposals on a wide-variety of themes relating to aging, which will be conducted by researchers and/or graduate students belonging to institutes outside of IDAC in cooperation with faculty members of IDAC. For accepted proposals, IDAC supports necessary expenses for the joint research and provides access to various kinds of facilities and biological materials in IDAC.

Research Categories:

(1) Development and analysis of model organisms for aging research

The ultimate goal of aging research is the achievement of healthy aging. In order to clarify molecular mechanisms underlying aging, model organisms provide very powerful approaches. IDAC has been utilizing various organisms including mouse and zebrafish for aging research, and accumulating plenty of skills and knowledge on these animal models. We welcome research plans that make use of the model organisms or developing new animal models for aging study. In particular, we have started providing 24 month-old and 4 month-old wild-type mice for this joint research program. If you wish to use the mice, please describe your experimental plans in detail so that the mice can be shared by multiple researchers. Information on the mice is attached as a supplementary table.

(2) Basic researches on aging processes and stress response

Impairment of stress response is one of the critical factors accelerating the aging processes and causing many aging diseases. IDAC has been dedicating its efforts to clarify how functional defects in stress response, genome integrity and protein quality control cause cell senescence and individual aging. IDAC has also been providing many useful biological materials including cell lines, DNA clones, antibodies and mutant mice. Recently, a facility for proteomic analysis has been available in IDAC. We welcome research plans that make use of these facilities and biological materials for deciphering underlying mechanisms of aging.

(3) Cancer research in clinical and basic medicine

Carcinogenesis is one of the major diseases in senile populations. IDAC has been at the frontier of cancer research in Japan, establishing a cancer biobank and founding a specialized department for cancer chemotherapy, both of which are the first example in Japan. Based on the long history of cancer studies a large number of clinical samples and case information are available at IDAC. Recently, IDAC is making efforts, particularly in formulating personalized anti-cancer therapies based on the genetic diagnosis, and developing new targets for anti-cancer therapies such as regulators of tumor angiogenesis. We welcome research plans taking advantage of these clinical, pharmacological and biological heritage of IDAC cancer research.

(4) Brain research in development and aging

IDAC is equipped with multiple high-quality imaging systems for brain research, such as super-high magnetic field MRI. Utilizing these systems, IDAC has been carrying out interdisciplinary joint research on morphological and functional changes of human brain during aging and exploration of rational protocols for prevention and early diagnosis of dementia. Two newly founded departments, focusing on gerontology and pediatric neurology, have cooperatively set up the system for recruitment of children and senile people. We welcome research proposals on

development and/or aging of brain taking advantage of these facilities and systems. We also welcome proposals in the field of cultural sciences and AI science.

(5) Preclinical Research for Medical Devices and Healthcare Systems

PreClinical Research Center is the center for preclinical studies, evaluation of medical devices of healthcare systems, making sure researchers and customers have the examination support, quality management they need, with the good laboratory skills and simulation technologies for promoting preclinical research and innovation. We will provide research and development activities support using large animal models as well as mock bench testers based on IDAC research networks.

1. Research Categories

A. Topics

(1) Development and analysis of model organisms for aging research
(2) Basic researches on aging processes and stress response
(3) Cancer research in clinical and basic medicine
(4) Brain research in development and aging
(5) Preclinical research for medical devices and healthcare systems

B. Available facilities

Machines in the IDAC core facilities,
Cell lines, DNA clones, antibodies, mutant mice, other model organisms,
Irradiation system for cells with microbeam
Proteomics analysis platform
3T MRI
Near Infrared Spectroscopy (NIRs)
7T MRI for small animals

2. Eligibility for Application

Faculty members, researchers and graduate students who belong to a university or public research institute.

3. Research Period

April 1, 2027 ～ March 31, 2028
Project under the same title can be extended for a maximum of 3 years.

4. How to Submit the Application

Download the application form from the IDAC website.
Make arrangements with a host researcher at IDAC before you submit your application.
You can get information on research areas being studied at IDAC from the IDAC website (http://www.idac.tohoku.ac.jp/site_ja/)
For applying for the joint research, send the following documents to the address below.
(1) Application form for joint research program

5. Deadline for Submission

January 8, 2027

6. Address for Submission

Please submit the application form via the Google Form at the following URL:
https://forms.gle/Uwo9G8ERrc5k4n2t9

7. Decision of Adoption or Rejection

Applicants will be notified of the screening panel's decision by March 31, 2027.
When the application is adopted, principal investigators and their co-investigators are appointed to be joint researchers of IDAC.

8. Research Expenses

IDAC provides research funding up to 200,000 yen for consumable items and travel expenses, which are necessary for executing joint research.

9. Submission of Research Achievement Report

Principal investigators are requested to submit research achievement reports, which should be no longer than 2 pages of A4 size paper, to the IDAC office at the address above (6) by March 31, 2028.
The copyright of research achievement reports belongs to IDAC, Tohoku University.

10. Publication of the Joint Research Outcome

When results of joint research are published, IDAC will be acknowledged as follows: This work was partly supported by the Joint Research Program of Joint Usage/Research Center at the Institute of Development, Aging and Cancer, Tohoku University. One copy of reprints needs to be submitted to the IDAC office at the address above (6).

11. Intellectual Property Right

Regulations of Tohoku University collaborative research are applied for intellectual property rights as a result of the joint research program.

12. Accidents and Emergency

Researchers who visit IDAC for this joint research need to carry an insurance that covers accidents in Japan. Students who participate in the joint research should conduct experiments under the supervision of faculty members at IDAC or those at their affiliation.

Contact:
Section for Joint Research Program
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Institute of Development, Aging and Cancer
Email : ida-sen@grp.tohoku.ac.jp

Supplementary Table: Wild-type mice (C57BL/6J) that are going to be provided in June, September, December 2027, and March 2028.

Birthday	Sex	Number	Comment
2025/6	Male	10	Used at 24 months old
2027/2	Male	10	Used at 4 months old
2025/9	Male	10	Used at 24 months old
2027/5	Male	10	Used at 4 months old
2025/12	Male	10	Used at 24 months old
2027/8	Male	10	Used at 4 months old
2026/3	Male	10	Used at 24 months old
2027/11	Male	10	Used at 4 months old