Application Guidelines: Appendix

Strategic Basic Research Programs

ALCA-Next

Call for proposals: Japan-UK joint opportunity in semiconductor research

Key points for application for applicants in Japan

国立研究開発法人
科学技術振興機構
Japan Science and Technology Agency

Department of R&D for Future Creation
May 2024

<Outline of the Call for Proposals>

(1) Schedule for the Call for Proposals and Selection

The schedule for soliciting and selecting R&D proposals is as follows.

Start of call for proposals	Friday, May 24, 2024
Application deadline (Deadline for acceptance by e-Rad)	Thursday, July 18, 2024 Noon (Japan Standard Time)
Document screening period	Late July to mid-September
Notification and announcement of selected proposals	Late October
Start of R&D projects	Early November or later

* 1 All information is tentative, except for the start of the call for R&D proposals and the deadline for receipt of proposals. These may be subject to change in the future.
* 2 Please check ALCA-Next's open call website for the latest information on how to apply.
* 3 The date and participation method for the briefing session will be announced on the open call website when details are confirmed.

(2) How to Apply

Please download the necessary documents for application, including the R&D proposal form, from the Open call website.

Applications must be submitted via e-Rad (https://www.e-rad.go.jp/) (see "Chapter 5 How to Apply Using e-Rad)"). Please allow sufficient time to complete the application process, as the e-Rad system may become busy near the deadline, and you may not be able to complete the application process depending on the environment in which you prepare your proposal. **Proposals that have not been submitted via e-Rad by the call deadline will not be considered for any reason. Proposals submitted after the deadline will not be accepted for replacement.**

Be aware that the acceptance times are different in Japan and the UK, and that researchers for the Japanese opportunity and the UK opportunity must submit their research proposals by the deadlines of each country. Please note that those who only apply to one institution, or those who

submit research proposals with different content in Japan and the UK will not be eligible for screening.

Please make sure the description of e-Rad and the proposal text regarding the institution/position coincide with each other (in case of discrepancy, the statement in the proposal text will be treated as correct). In addition, please note that proposals uploaded to e-Rad will be rejected if there are any deficiencies that make it difficult to review. “Deficiencies that make it difficult to review" refers to errors in the proposal format (please note that there is a specific R&D proposal form for the Japan-UK joint opportunity), omissions from each of the proposal forms, and serious omissions of items in the proposal. When garbled text that makes review difficult is found, JST may contact the applicant to confirm the contents of the garbled text.

JST will not be responsible for any defects in the proposal that occur before the call deadline, regardless of whether the proposal is accepted or rejected. Therefore, please be advised that JST will not make any corrections to proposals or request corrections from proposers after prior confirmation of such corrections by the call deadline.

(3) Target Technology Areas of the Call for Proposals

The technology areas subject to the open call are as follows:

Technology Areas
Semiconductors (Program Officer: KURODA Tadahiro)
Green Computing and DX (Program Officer: KURODA Tadahiro)

(4) Points to Keep in Mind when Applying

Please refer to the open call website and "Chapter 4: Key Points for Application" for details.

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Chapter 1 Call for R&D Proposals

1.1 About ALCA-Next

1.1.1 Overview

As countries around the world accelerate their efforts to achieve carbon neutrality, investments related to Green Transformation (GX) are expanding rapidly, and in order to realize GX, it is essentialto achieve carbon neutrality by 2050, as well as to strengthen industrial competitiveness, economic growth, and development. In order to achieve future greenhouse gas (GHG) reduction targets and create future industries, it is necessary not only to introduce existing technologies but also to create new technologies. In order to continuously create such technologies, support for R&D and human resource development in academia is required in parallel with verification and technological development in industry, and social implementation through genuine collaboration between companies and academia. In response to the demand, the Japan Science and Technology Agency (JST) has launched the "Advanced Technologies for Carbon Neutrality (ALCA-Next[1]) " (hereafter referred to as the "Program"), as one of the JST Strategic Basic Research Programs, and the “GreenTechnologies for Excellence (GteX) Program[2]" from FY2023.

This Program aims to draw on unconventional ideas from individual researchers to create game-changing technologies that will significantly shift the scientific and technological paradigm toward realizing carbon neutrality. It intends to uncover a wide range of research on important technologies that are attracting worldwide attention and are expected to develop into challenging yet innovative technology seeds, and aims to improve the technology readiness level (TRL). For these purposes, the Program has characteristics such as "starting small," "selection and concentration through stage-gate evaluation," and "acceleration after stage-gate evaluation." In the stage-gate evaluation, the continuation or discontinuation of research and development is strictly evaluated not only from the viewpoint of development in science, but also from the

[1] ALCA-Next is designed with mechanisms and features based on the knowledge and other aspects of basic research support in the "Advanced Low Carbon Technology Development (ALCA)," which started in FY2010, anticipating global trends.

[2] This program aims to create innovative GX technologies by establishing a top-down collaboration system of top researchers from across the country, across fields and organizations. See the program website for details: https://www.jst.go.jp/gtex/

viewpoint of "the possibility of contributing to carbon neutrality," which is the purpose of this Program.

In addition, the Program will actively collaborate with related institutions and related projects to maximize results. This Program and GteX will be managed by the same program director ("PD") and the two will actively collaborate with each other to accelerate research and maximize results.

This program falls under a competitive research funding system.

1.1.2 Management Structure

The Program is directed by a Project Director (“PD”) appointed by JST, who oversees the overall operation of the Program and provides overall management of R&D. The PD also receives advice from the Innovative GX Technology Promotion Committee to oversee the operation of the project from a bird's-eye view, and will make decisions on important matters related to the operation of the Program, including the formulation and review of project plans, coordination of cross-disciplinary matters including budget, selection of proposals in each area, and decisions on whether to continue or discontinue R&D proposals based on the results of the stage-gate evaluation. The Innovative GX Technology Promotion Committee is chaired by the PD and consists of external experts. The committee convenes at the request of the chairperson and advises the PD on important matters concerning the operation of the project.

A Program Officer ("PO") manages one or several technology area(s) of his responsibility, including individual R&D projects. With the cooperation of external experts such as an advisors (“Ad”) who have specialized knowledge, the PO selects candidate proposals for adoption, manage research progress through site visits and other means, provides instructions to each team, and conducts stage-gate evaluations. Based on evaluation results, the PO may increase or decrease the R&D budget, integrate projects, or terminate (cancel) a project before the end of the project period.

The same PD oversees the operations of both this Program and GteX, with the aim of accelerating research and maximizing results through active collaboration.

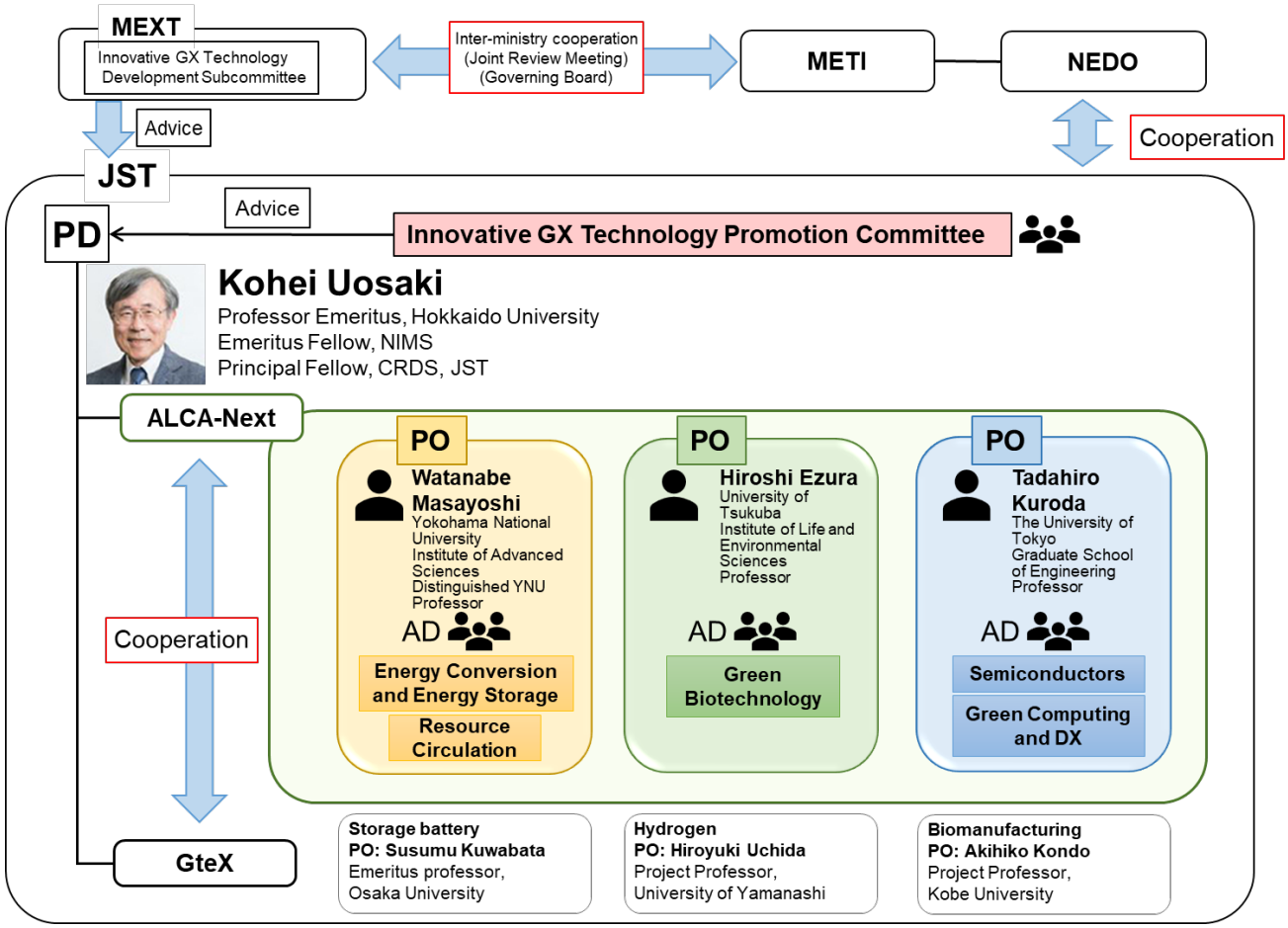


Figure Management Structure for this Program

1.1.3 Structure and Characteristics of ALCA-Next

In applying for the Program and promoting research and development after being selected, you are required to take the following program design and characteristics into consideration.

(1) Management and R&D promotion by the PD and PO

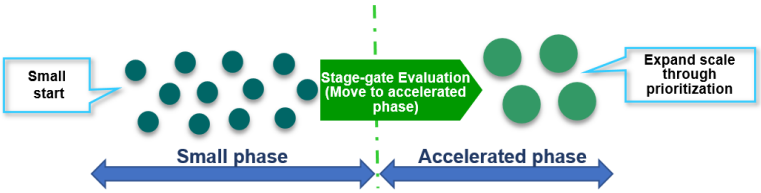
- The Principal Investigator (“PI”) of a project, who is affiliated with a university, company, or public research institution, promotes the R&D under the management of the PO. The PO will review the team structure, etc. of the R&D proposal as necessary in order to formulate an R&D portfolio in each technology area.
- Based on the preliminary evaluation and through coordination with the PD/PO and others, the R&D Principal Investigator will set R&D goals and milestones at the time of adoption, and conduct R&D aimed at achieving these goals. During R&D, the PI may flexibly revise the

R&D plan and optimize the implementation system (including the introduction of a new team) after approval of the R&D plan by the PD and PO.

(2) Stage-gate evaluation

- R&D will be conducted in stages, beginning at a small phase in which a large number of relatively small-cost proposals are adopted (“starting small”) to an acceleration phase in which those proposals are narrowed down and concentrated investment is made. In the small phase, many innovative ideas are solicited from the public and incorporated, and R&D is conducted to determine the feasibility of the ideas.
- In principle, in the fourth year after the start of research, an evaluation (stage-gate evaluation) will be conducted for the transition from the small phase to the acceleration phase. In the stage-gate evaluation, we will conduct a rigorous evaluation not only from the viewpoint of the development of science, but also from the viewpoint of "potential to contributing carbon neutrality," which is the purpose of this Program, and we expect to narrow the scope to about 1/3 of the total. Please be sure to refer to "3.4 Evaluation" for more information on stage-gate evaluation.
- R&D projects that pass the stage-gate evaluation will be required to accelerate R&D to achieve their R&D goals by expanding the scale of R&D and strengthening the R&D structure.
- In principle, PIs are expected to continue until seven years after the end of the acceleration phase.
- Ideally, R&D PIs should be of an age to continue to work on projects in the development and research phase beyond the acceleration phase.

■Small phase (3.5 years)
Approx. 25 million yen/project/year (direct costs)



*Japan-UK joint opportunity:
Approx. 45 million yen/project/year (direct cost)

■ Acceleration phase (3 years)
Approx. 75 million yen/project/year (direct cost)

(3) Research and development system

Please see the Application Guidelines (Call Text) for the R&D system for the Japan-UK joint opportunity. The following are the requirements for the Japanese system. The Japanese principal investigator may organize one optimal R&D team consisting of several researchers.

a. In addition to the "Principal Investigator's Group" led by him/herself, the PI may establish a group ("Collaborative Research Group") consisting of researchers belonging to other laboratories within the same institution or other R&D institutions, if necessary for the realization of the R&D concept. R&D proposals by individual researchers are also accepted.

b. If a joint research group is to be established, designate a representative of the group among the researchers participating in the group as the "co-principal investigator."

c. Depending on the necessity for promoting R&D, researchers, research assistants, etc. may be hired to participate in the R&D project in line with rules regarding R&D costs (within the scope of the R&D agreement of the R&D institution).

Please refer to "2.6 Application Requirements" for the requirements for the R&D system.

1.1.4 Key Points when Applying to ALCA-Next

(1) Management and R&D promotion by PD and PO

GteX aims not only to achieve results in basic research, but also to improve the technology readiness level (TRL) for social implementation by establishing an integrated all-Japan "team-type" collaboration system of top-level researchers from universities and other institutions in the priority fields defined by a top-down decision. In contrast, this Program will create game-changing technology seeds based on the unconventional ideas of individual researchers (bottom-up), which will significantly change the paradigm of science and technology in a wide range of fields. As described in Section 1.1.2, ALCA-Next and GteX are operated under the same management structure, and through the following collaborations which take advantage of the characteristics of each program, ALCA-Next aims to maximize its R&D results.

・We will work together on data sharing, international collaboration, and fostering young researchers. In addition, from the viewpoint of promoting the sharing of equipment, we plan to consider a system whereby researchers in this project can utilize the research equipment

and other equipment maintained and used at GteX.

- If the PD, PO, and other management members determine that the results generated by projects in the Program are effective as elemental technologies for GteX team-based research, the corresponding projects may participate in the R&D projects in GteX. In this way, we aim to accelerate R&D for early commercialization. Arrangements will be made flexibly not only after the acceleration phase, but also after the small-scale phase, depending on the situation.

Please be advised that in order to carry out the above-mentioned collaboration, GteX's POs in related research areas may participate in site visits or stage-gate evaluations after the adoption to confirm the R&D progress, including R&D plans and results, related to this Program.

(2) Technology readiness level (TRL) targeted by ALCA-Next

ALCA-Next is a program that promotes comprehensive R&D, beginning from the stage of basic R&D targeting elemental science and technology that will lead to the creation of new principles, concepts, and breakthroughs (TRL 0-1), to the stage where the technological seeds created are developed and expanded in order to determine whether the R&D results can be put to practical use (TRL 3).

Research and development at TRL 2 or higher is not eligible at the proposal stage, such as when a pilot project has been launched with a company.

For more information on TRL, please refer to the following:

https://www.env.go.jp/content/900443533.pdf#page=4

(3) Active participation and development of young researchers

In order to foster human resources who will be major players in research activities in 2050, our target year to achieve carbon neutrality, there is a strong need to develop researchers, engineers, including PhD holders, who are expected to lead Japan's future industry and academia in the targeted technology areas of the Program. It is also necessary to raise the awareness of graduate and undergraduate students who are expected to become researchers and engineers in the future. For this reason, we actively encourage young researchers to assume key positions in carrying out research and development, and to participate in discussions on the direction of research and development. We also encourage the participation of master's and doctoral students in R&D

projects under the Program. For details, see "3.5 Responsibilities of the Principal Investigator and Principal Co-Investigator, etc.," "4.13 Improving the Treatment of Doctoral Students," "4.14 Ensuring a Self-sustaining, Stable Research Environment for Young Researchers," "4.15 Promoting Initiatives Related to Gender Equality and Human Resources Development", "4.16 Voluntary Research Activities of Young Researchers Employed to Implement the Project," etc. and "4.17 Supporting Various Career Paths for Young Researchers."

1.2 Researchers considering application and participation

1.2.1 Contributing to achieving the Sustainable Development Goals

JST is contributing to the achievement of the Sustainable Development Goals!

At the United Nations Sustainable Development Summit held in September 2015, the outcome statement, "**Transforming Our World: The 2030 Agenda for Sustainable Development**," which has the Sustainable Development Goals (SDGs) at its core, was unanimously adopted as a new, more comprehensive global action goal for people, the planet, and prosperity. The 17 goals of the SDGs indicate the various sustainability issues facing humanity and call for solving these issues in an integrated and inclusive manner. It is expected that science, technology, and innovation will provide the scientific evidence necessary to resolve these social issues and suggest better policy decisions. These roles are consistent with the new responsibilities of science, "science in and for society," which were set out in the "Declaration on Science and the Use of Scientific Knowledge and the Science Agenda" (Budapest Declaration*) adopted by the International Scientific Council in 1999. As a core institution promoting Japan's science and technology policy, JST promotes cutting-edge basic research and engages in problem-solving research and development (R&D) that responds to the needs of society. The SDGs are universal goals that can encompass JST's mission, and we would like to co-create them with industry, academia, and the public and private sectors through JST programs, working together with researchers to achieve a sustainable society.

President, Japan Science and Technology Agency

*The Budapest Declaration specifies "Science for knowledge," "Science for peace," "Science for development," and "Science in society and science for society" as the responsibilities, challenges,

and obligations for science in the 21st century.

1.2.2 Promoting diversity

JST promotes diversity!

Diversity is an essential component for the promotion of scientific and technological innovations. New perspectives on science and technology can be created through collaboration and discussion with various stakeholders with different specialties and values, regardless of age, gender, or nationality. JST is promoting diversity in all its activities in science and technology to engage in issues facing our future society, strengthen our country's competitive power, and enrich the spiritual happiness of our people. The United Nations SDGs also include many targets deeply involved with topics of diversity, including gender equality, and we are contributing toward resolving issues in Japan and worldwide.

Currently, activities by women are viewed as the "largest potential of Japan" and are positioned at the core of the growth strategy of the Japanese government. Expanding the participation of women in R&D is also important, and female researchers are indispensable as diverse human resources that

support scientific and technological innovation. JST expects female researchers to apply actively. To improve the environment to allow researchers to return to work, JST is constantly improving the existing “Childbirth, childcare, and long-term care support system” by listening to the opinions of researchers who use this system.

The call for and review of new research proposals will also be conducted from a diversity perspective.

We cordially invite all researchers to respond to the call for research proposals.

President, Japan Science and Technology Agency

We are waiting for your application

JST promotes diversity based on the idea that diversity is about understanding people who think differently from you and integrating your ideas with theirs to create new value. This leads to solving domestic issues and issues common to the world. We will address global social issues such as the SDGs by promoting diversity in cooperation with international institutions.

Diversity at JST is for women and young and non-Japanese researchers. To ensure that each researcher can fully demonstrate their abilities, we will continue to provide support for childbirth, childcare, and long-term care and strive to maintain a balanced staffing structure for committees and other activities. We aim to create an environment where several people can work hard together. In particular, we welcome applications from female researchers, from whom we have received few applications in the past, and we will work to create new value.

We are sincerely waiting for your active applications, especially those form woman researchers.

Japan Science and Technology Agency
Diversity Promotion Supervisor
General Manager, Diversity
Promotion Office

1.2.3 Aiming for fair research activities

Aiming for fair research activities

Recent incidents involving misconduct and dishonesty in research activities have resulted in an alarming situation that threatens the relationship of trust between science and society and hinders the healthy development of scientific technologies. There must be a function of autonomous self-purification in the scientific community to prevent misconduct in research activities. Each researcher must be disciplined and work to create new knowledge and inventions useful for a society based on high moral standards that meet society's expectations.

As a funding agency for research, JST considers research misconduct a serious issue and makes every effort to prevent it in cooperation with relevant organizations to regain public trust.

1. JST believes that fairness in research activities is extremely important for Japan, which seeks to develop itself through science and technology.
2. JST supports honest and responsible research activities.
3. JST strictly condemns any misconduct in research activities.
4. JST will promote education in research ethics and reform its research funding system in cooperation with relevant organizations to prevent misconduct.

We must develop a healthy scientific culture based on social trust to build a society filled with hopes and dreams for a bright future. Therefore, we request the continued understanding and cooperation of the research community and related institutions.

President, Japan Science and Technology Agency

Chapter 2: Recruitment and Selection

2.1 Technical Technology Areas of the Call for Proposals

This call for proposals is to support the implementation of top-level, internationally competitive collaborative research through cooperation between Japan and the UK in the fields of “Semiconductors” and “Green Computing and DX,” which can contribute to the realization of carbon neutrality. Research teams in Japan and the UK will aim to carry out R&D by forming a consortium and constructing an international R&D system, and to create a sustainable partnership between Japan and the UK that will lead an international network in the area of semiconductors in the future. This call for applications is going ahead with matching funding from JST and the Engineering and Physical Sciences Research Council (EPSRC) under UK Research and Innovation (UKRI). JST will support Japanese researchers and EPSRC will support British researchers for the selected proposals.

Please see the Application Guidelines (Call Text) for more details about the technology area.

Technology areas of the call for proposals
Semiconductors (Program Officer: KURODA Tadahiro)
Green Computing and DX (Program Officer: KURODA Tadahiro)

* When applying through e-Rad, please select Japan-UK joint opportunity in semiconductor research for the name of the open call.

2.2 Application period and selection schedule

Start of call for proposals	Friday, May 24, 2024
Application deadline (Deadline for acceptance by e-Rad)	Thursday, July 18, 2024 Noon (Japan Standard Time)
Document screening period	Late July to mid-September
Notification and announcement of	Late October

selected proposals	
Start of R&D projects	Early November or later

* All information and dates after the application deadline are subject to change.
* Please refer to the open call website for the latest information on this call for proposals.
* There is no interview screening for the Japan-UK joint opportunity.

ALCA-Next's open call website: https://www.jst.go.jp/alca/en/koubo/2024-3/index.html

2.3 Research and Development Period

In principle, the R&D period for this project is 3.5 years for the small phase and 3 years for the acceleration phase. When applying for this Japan-UK joint opportunity, please create a 3.5-year R&D plan for the small phase after checking the Application Guidelines (Call Text). We will ask selected proposals for the creation of their acceleration phase R&D plan after R&D has started.

* There is no guarantee of an equivalent matching scheme for the acceleration phase in the UK.
* Rigorous stage-gate evaluation is performed prior to the acceleration phase. Be sure to refer to "3.4 Evaluation."

2.4 Research and Development Costs

The R&D applicant may set the R&D costs for the Japanese side of the proposing R&D project to the following maximums:

Small phase (from 1st to 4th year): up to 45 million JPY/year (direct costs)

* During the selection process, the appropriateness of the established R&D budget plan will be assessed.
* Actual R&D budgets will be determined by scrutiny and approval of the R&D plan.
* Based on research progress and other factors, separate adjustments may be made during the R&D period (for details, please refer to "3.1 Development of R&D Plans").
* JST will pay direct costs for R&D and indirect costs (up to 30% of the amount of direct costs) to the R&D institution as the total R&D costs based on the R&D agreement.

2.5 Number of Proposals to be Adopted

A maximum of three proposals will be adopted.

* This number will vary depending on the status of the R&D proposal application and the budget.

2.6 Application Requirements

Application requirements are listed in 2.6.1 through 2.6.3 below. Please note that failure to meet the application requirements will be handled as described below.

- If it is found that a proposal does not meet the application requirements by the time of selection, the R&D proposal will, in principle, be rejected or not adopted.
- If a proposal is adopted, the application requirements will be maintained during the entire R&D period for that proposal. If the requirements are not met during the R&D period due to any changes, the entire R&D proposal or part of it will, in principle, be terminated (cancelled) early.

In addition to 2.6.1 through 2.6.3 below, please be sure to understand the information in "2.7.2 Restrictions on Duplicate Applications" and "Chapter 4: Key Points for Application " before submitting your application.

2.6.1 Requirements for Applicants

a. The R&D applicant, who will be the Principal Investigator (PI) of R&D, must belong to a domestic R&D institution (including private companies, incorporated associations, foundations, etc.) and conduct R&D at the R&D institution (regardless of the nationality of the applicant).

* The following persons are also eligible as R&D applicants:

- Foreign researchers affiliated with Japanese R&D institutions.
- Researchers who are not currently affiliated with specific R&D institutions or who are affiliated with overseas R&D institutions, and who, if selected as a Principal Investigator, will be able to establish asystem to conduct research and development affiliated with a Japanese R&D institution (regardless of nationality).

* Persons belonging to R&D institutions other than universities, such as private companies, are also eligible.

b. A researcher who is able to assume responsibility for the entire R&D project as the person in charge of the R&D project.
(For details, please refer to "3.5 Responsibilities of the Principal Investigator and Principal Co- Investigator, etc.".)

c. A researcher who has completed a research ethics education program at your home R&D institution,or has completed an educational program designated by JST by the application deadline.
(For details, please refer to "4.1 Enrolling in and Completing a Research Ethics Education Program).

d. Be able to pledge the following four points:

- The applicant shall understand and comply with the contents of “Guideline on Responses to Misconduct in Research Activities (decided by the Minister of Education, Culture, Sports, Science and Technology on August 26, 2014)."
- The applicant shall understand and comply with the contents of the "Guidelines for the Management and Audit of Public Research Funds at Research Institutes (Code of Practice) (revised on February 1, 2021)."
- If the R&D proposal is adopted, the Principal Investigator and the R&D participant shall not engage in any misconduct in research activities (fabrication, falsification, or plagiarism) or misuse of research funds.
- No misconduct in research activities has been committed in past research as described in this R&D proposal.
*Please confirm on the e-Rad application information entry screen.

2.6.2 R&D Project System Requirements

a. The R&D team should be optimally structured to realize the R&D concept of the applicant who will be the Principal Investigator.

b. If a joint research group is assigned to the R&D team, the group must be indispensable for

the realization of the R&D concept and must be able to make a significant contribution toward achieving the research objectives.

c. The requirements of “5. II. Consortium composition” in the Application Guidelines (Call Text) must be fulfilled.

Please also refer to "3.6 Responsibilities of R&D Institutions, etc.” It is also necessary to be able to identify the intellectual property rights and other results of the entire research team, including the overseas research group.

2.6.3 R&D Institution Requirements

In conducting research and development, R&D institutions must be fully aware that commissioned research and development funds come from public funds, and must comply with relevant laws and regulations while striving to conduct research and development efficiently. The implementation of research and development by an R&D institution that fails to fulfill the responsibilities listed in "3.6 Responsibilities of R&D Institutions, etc." will not be approved. When applying, please make sure to obtain prior approval from the R&D institution where the R&D will be conducted.

2.7 Application Process

Please be sure to check the application requirements listed in the Application Guidelines (Call Text) when preparing your R&D proposal.

2.7.1 Instructions for Completing the R&D Proposal (Form)

Please be sure to use the specified form for your proposal form (Japan-UK joint opportunity in semiconductor research (JST-EPSRC) Application Form.docx). Download the form from the following page and prepare your R&D proposal according to the instructions (written on the R&D proposal form).

URL: https://www.jst.go.jp/alca/en/koubo/2024-3/index.html

* Please keep the file size of your proposal within 3 MB.
* Please be sure to confirm "2.8.3 Conflict of Interest Management" when preparing your

R&D proposal.

* For details on the application method, please refer to "Chapter 5: How to Apply Using e-Rad".
* Please be sure to read and understand "Chapter 4: Key Points for Application " and "2.7.2 Restrictions on Duplicate Applications" before submitting your entry.

2.7.2 Restrictions on Duplicate Applications

The following restrictions will be placed on duplicate applications. Certain measures may also be taken for other programs inside and outside of JST that are not mentioned in this section, if they are judged to constitute unreasonable duplication or excessive concentration. For details, please refer to "4.2 Measures against Unreasonable Duplication and Excessive Concentration."

(1) Applicants who have completed a regular application as a PI for ALCA-Next for FY2024 may also submit a proposal. However, if you are selected as a candidate for both the Japan-UK joint opportunity and the regular ALCA-Next, adjustments will be made to either one of the adopted projects.

(2) Those who are conducting research and development as a PI of the "Low-Carbon Society" area of the JST-Mirai Program, a PI / Principal Co-Investigator of ALCA-Next, or a PI / Principal Co-Investigator (Group Leader or group member that will serve as the contract representative for contract research) of GteX at the time of proposal are not eligible to apply.

However, you can apply if the R&D period for the R&D project in question is to end within FY2024. If an R&D project expected to finish in FY2024 is, based on evaluation results or other factors, extended or continues as fully fledged research, the PI for this project should adjust the R&D period themselves so they are only carrying out one R&D project.

(3) Applicants who have completed an application as a PI for GteX team-based research for FY2024 may also submit a proposal. However, if you are selected as a candidate for GteX and this program, we will make adjustments to either one of the adopted projects.

(4) It is possible to be a Principal Co-Investigator for GteX team-based research, however, in such cases, there must be no overlap between the research content of the project in ALCA-Next and that of GteX, and the PI must be able to allocate the appropriate amount of effort. Additionally, the PO may, at his/her discretion, make adjustments such as reducing the amount of R&D

budget.

(5) The following restrictions apply to participation in R&D projects as a Principal Co-Investigator

a. Researchers are not allowed to submit multiple applications for the same research content with the Principal Investigator and the Principal Co-Investigator interchanged.

b. If a researcher applies as a Principal Investigator or Principal Co-Investigator, and also applies as a Principal Co-Investigator in another R&D proposal, and both proposals are selected, the PO may, at his/her discretion, make arrangements to avoid unreasonable duplication and excessive concentration after considering the research content and scale. Such arrangements include reducing the R&D budget and not allowing the researcher to participate in some of the R&D proposals in which he/she is participating.

2.8 Selection Process

Please refer to "(1) Schedule for the Call for Proposals and Selection" at the beginning of this document for the dates involved in the selection process.

2.8.1 Selection Process

For the Japan-UK joint opportunity, evaluators will be jointly elected by the Japanese and British sides, and selection will take place collaboratively. The selection process is as follows. The PO may also obtain cooperation from external evaluators.

Document review: The R&D proposal will undergo a document review and evaluators will make review comments.

Document selection meeting: An evaluation committee made up of people from Japan and the UK will be formed, and candidates for selection will be determined based on the outcomes of the document review.

*There is no interview screening.

In addition, other inquiries or surveys may be conducted as necessary during the selection process. If the applicant or Principal Co-Investigator belongs to a commercial organization, the financial statements of the organization may be requested.

Based on the above selection process, JST will select the Principal Investigators and R&D proposals.

2.8.2 Special Measures for Adoption

The following arrangements or adjustments may be made by the PD and/or PO during the selection process and at the time of adoption. Please understand that the following adjustments may be made during the selection process and at the time of acceptance.

- During the selection process, the selection of R&D proposals may be coordinated across the technology areas. As a result, the R&D proposal may be selected and adopted under a different technical area from that to which the applicant has applied. In such cases, the applicant will be notified when it is decided that adjustments will be made.
- Even if a proposal is rejected, if the PO deems that a part of the R&D proposal is important for the promotion of the technology area of this project, the PO may make arrangements that include incorporating the proposed R&D as a joint research group for another adopted candidate proposal. In such cases, JST will contact the applicant and take the necessary measures.
- Even if a proposal is rejected, if the PO deems that part or all of the R&D proposal contributes to GteX, the PO may make arrangements such as having the proposed research carried out by participating in a GteX-adopted proposal. In such cases, JST will contact the applicant and take the necessary measures.
- At the time of adoption, the PO may instruct to reorganize the team or adjust the budget.

2.8.3 Conflict of Interest Management

From the viewpoint of fair and transparent evaluation and allocation of research funds, the following conflict of interest management will be implemented in accordance with JST's regulations.

(1) Conflict of interest management for those involved in the selection process

From the perspective of conducting a fair and transparent evaluation, the following interested parties will not be included in the selection process with respect to applicants. If you have any concerns regarding those involved in the selection process, please describe them specifically on the R&D Proposal.

a. A person who has a family relationship with the applicant.

b. A person who belongs to the same department, major, etc. at a university or other research institution as the applicant; or a person who is considered to be involved in the management of the university or other research institution to which the applicant belongs; a person who is an officer or other person involved in the management of the university or other research institution; or a person who represents such institution externally. The same department, major, etc. here refers to one above the smallest research unit, i.e., a laboratory or research team.

c. A person who belongs to the same department in the same company as the applicant, a person who is considered to be involved in the management of the company to which the evaluator belongs, or a person who belongs to the parent company of the company to which the evaluator belongs.

d. A person who collaborates closely with the applicant (e.g. a person who is considered to be a member of substantially the same research group as the applicant, such as a person who carries out joint projects, writes co-authored research papers, is a research member with the same objective, or is a collaborator in the applicant's R&D proposal.)

e. A person who has a close mentor-student relationship or direct employment relationship with the applicant.

f. A person who is in direct competition with the R&D proposal of the applicant.

g. Other parties that JST deems to be in conflict.

(2) Conflict of Interest Management for Applicants

If an applicant makes an R&D proposal with an "organization related to the applicant" as a joint research group,and research funds are allocated by JST to the "organization related to the applicant," this may constitute a conflict of interest for the applicant. Therefore, the conflict of interest between the applicant and "an institution related to the R&D applicant" will be appropriately judged in consideration of the necessity, rationality, and appropriateness of the relationship, and conflict of interest management will be implemented to prevent any harmful effects caused by the conflict of interest.

The term "organization related to the applicant" refers to a joint research group in the case of any of

the following. The terms "a" and "b" refer not only to the applicant him/herself, but also to the spouse and relatives within the first degree of kinship of the applicant (hereinafter collectively referred to as the "applicant, etc.").

a. An organization established based on the R&D results of the R&D applicant, etc. (including cases where the person is not directly involved in management but only holds a title such as technical advisor, etc., or only holds shares)
b. An organization where the R&D applicant, etc. is an officer (including CTO, but not including technical advisor)
c. An institution in which the R&D applicant has an equity stake
d. Institutions from which the R&D applicant receives implementation fee income

Proposals that include "an institution related to the applicant" as a joint research group will be evaluated from the perspective of the necessity, rationality, and appropriateness of the institution concerned.

Therefore, if you wish to include "institutions related to the applicant" as a joint research group, please indicate on the R&D Proposal that "The organization related to the R&D Principal Investigator" is included in the joint research group.

In addition, separate materials may be required for conducting conflict of interest management by the applicant.

(3) Conflict of Interest Management at JST

The adoption of the companies in which JST has invested (hereinafter referred to as "funded companies") for this Program and the allocation of research funds to them may constitute a conflict of interest of JST (conflict of interest as an organization). Therefore, conflict of interest management will be implemented in order to avoid any doubt from a third party about the conflict of interest between JST and the funded company.

The PO, etc. will evaluate the necessity, reasonableness, and appropriateness of adopting the funded company with respect to the R&D proposal whose proposer, etc. is a researcher who belongs to a company funded by JST.

Therefore, if you wish to include a company funded by JST as a participating organization, please declare that the company is included in the participating organization on the R&D Proposal.

This management is conducted to ensure fairness and transparency according to JST, and being funded by the JST will not disadvantage you in the selection of this program. Please cooperate with JST's conflict of interest management.

* Please refer to the following web page for information on JST's portfolio companies. Please note that companies that have terminated their investment are not subject to conflict of interest management, and therefore do not need to report conflicts of interest.

  https://www.jst.go.jp/entre/result.html#M01

* The base date for declaration is the date of the start of the call for proposals of the program. Please report on the companies whose investment from JST has been publicly announced as of the said date. Companies that have already received an investment offer but have not yet made a public announcement are not required to submit a report for confidentiality reasons within JST. Please refer to the following web page for JST's investment announcement.

  https://www.jst.go.jp/entre/news.html

2.8.4 Notification of Selection Results

a. For R&D proposals that are selected as candidates for adoption, the terms and conditions of the R&D plan, structure, and contract R&D agreement may be adjusted. If the conditions cannot be agreed upon, the proposal will not be adopted.
b. Applicants that are selected will be notified and informed of the procedures for commencing R&D.
c. Applicants who are not selected for adoption will be notified of the results and reasons after all selection processes have been completed.

2.9 Notes on Selection

Please refer to the Application Guidelines (Call Text) for information on the selection criteria for applications for the Japan-UK joint opportunity.

Chapter 3: Promotion of Research and Development after Adoption, etc.

3.1 Development of R&D Plans

Once a proposal is adopted, the R&D PI prepares an R&D plan (R&D items, implementation plan, R&D costs, R&D system, etc.) for the entire R&D period and for each year. The R&D plan is confirmed and approved by the PO.

In addition, in determining the R&D plan, integration and collaboration among R&D subjects may be coordinated. Furthermore, the R&D budget and R&D system may be revised during the course of the R&D period, depending on the budget situation of the project as a whole.

Acceleration phase R&D plans for proposals selected for the Japan-UK joint opportunity are to be created after the research has started.

3.2 Contract Research Agreements

a. After the R&D proposal is selected, JST will conclude a research agreement with the R&D institution to which the person in charge of the research (Principal Investigator and Principal Co-Investigator) belongs.

b. If a contract research agreement cannot be concluded with an R&D institution, if the institution is unable to establish the necessary systems, etc. for the management and auditing of public research funds, or if its financial situation is extremely unstable, R&D may not be conducted at that institution. For details, please refer to "3.6 Responsibilities of R&D Institutions, etc.".

c. Intellectual property rights, such as patents, arising from research and development shall, in principle, belong to the R&D institution, subject to the R&D institution's compliance with the provisions of Article 17 (Japanese version of the Bayh-Dole Act) of the Industrial Technology Enhancement Act, in accordance with the terms of the research agreement.

3.3 R&D Costs

Based on the contract research agreement, JST pays the R&D institution the R&D costs (direct costs) plus indirect costs (up to 30% of direct costs) as contract research costs.

3.3.1 Research and Development Costs (Direct Costs)

R&D costs (direct costs) are expenses that are directly necessary for the implementation of the research and can be used for the following purposes:

a. Cost of goods: Expenses for the purchase of new equipment (*1), fixtures, supplies, etc.

b. Travel: Travel expenses for research personnel and research participants listed in the R&D plan.

c. Personnel expenses and honorarium: Salaries and honorarium for research participants (excluding(*2) main joint researchers)

d. Others: expenses for publication of research results (e.g., article submission fees, etc.), equipment leasing expenses, transferring expenses, etc.) (*2)

* 1 In purchasing new research facilities and equipment, the "research facilities and equipment sharing system for each research organization ("equipment sharing system")" should be operated as stipulated in the "Introduction of New Research Facilities and Equipment Systems Integrated with the Management of Research Organizations" (Council for Science and Technology, Subcommittee on Advanced Research Infrastructure, November 2015). The "Equipment Sharing System" is to be used. For details, please refer to "4.12 Promoting the Joint Use of Research Facilities and Equipment.

(Note) Examples of expenses that cannot be treated as research costs (direct costs):

- Costs for items which are inconsistent with research objectives
- Costs considered to be more appropriately handled as indirect costs
- Costs that are determined by JST to be unauthorized use at the time of settlement) (*)

* JST has established rules and guidelines specific to this program for some items in the research agreement, administrative manuals, and the common ministry/agency expense handling classification table. In addition, the administrative handling may differ between universities, etc. (universities, public research institutions, public-interest corporations, etc. recognized by JST) and companies, etc. (research institutions other than universities, etc., mainly private companies, etc.). For more details, please refer to the latest administrative processing instructions, etc. at the following URL:

https://www.jst.go.jp/contract/index2.html

* 2. In principle, universities and other research institutions are eligible to spend the personnel expenses of PIs and expenses related to the performance of non-research work on behalf of the PIs (buyout expenses) only when certain requirements are met. Please refer to the following list of requirements:

○ "Revision of Direct Costs to Allow Expenditures for Non-Research Activities (Introduction of the Buyout System) and Expenditures for Personnel Expenses of the Principal Investigator (PI) from Direct Costs (Liaison)" (September 17, 2020)
https://www.jst.go.jp/osirase/2020/pdf/20200917.pdf

○ “Working with the Strategic Basic Research Program for Advanced Technologies for Carbon Neutrality (ALCA-Next) regarding the ‘Revision of Direct Expenses to Allow Expenditures for Non-Research Activities (Introduction of the Buyout System)’” (August 7, 2023).
https://www.jst.go.jp/alca/dl/buyout_houshin.pdf

○ "Working with the Strategic Basic Research Program for Advanced Technologies for Carbon Neutrality (ALCA-Next) regarding the ‘Payment of Principal Investigator (PI) Personnel Expenses from Direct Costs’" (August 7, 2023).
https://www.jst.go.jp/alca/dl/pi_houshin.pdf

3.3.2 Indirect Costs

Indirect costs are those necessary for the management of the R&D institution in conducting research, etc. In principle, 30% of the research costs (direct costs) will be allocated for indirect costs. In accordance with the "Common Guidelines for the Execution of Indirect Costs of Competitive Research Funds" (Meeting of the Liaison Committee among Ministries and Agencies on Competitive Research Funds, April 20, 2001, amended on May 31, 2022), R&D institutions must prepare policies, etc. concerning the use of indirect costs, execute them systematically and appropriately, and ensure transparency in the use of such funds. Please ensure good transparency in the use of indirect costs.

3.3.3 Multi-Year Contracts and Carryover Systems

In order to achieve the best possible research results by making effective and efficient use of research funds and preventing misconduct, JST has established multi-year contracts to allow for carryover of research funds and procurement contracts that cross over from one fiscal year to the next for universities and other such organizations. (In some cases, multi-year contracts and carry-over may not be allowed depending on the administrative management system of the R&D institution, etc.).

3.4 Evaluation

Under this project, regular monitoring and evaluation of R&D will be conducted, and flexible measures will be taken as necessary, such as revising the R&D plan if it is deemed difficult to achieve the goals, or increasing the R&D budget or adjusting the transition to GteX if it is deemed necessary to accelerate R&D for early commercialization.

Acceleration phase R&D plans for proposals adopted for the Japan-UK joint opportunity are to be created after the research has started. Note that there is no guarantee of an equivalent matching scheme for the acceleration phase in the UK.

a. The PO will monitor the progress and results of R&D, and conduct stage-gate evaluation and ex-post evaluation of R&D proposals with the cooperation of ADs and others.

b. In principle, the stage-gate evaluation will be conducted in the fourth fiscal year after the start of the research to determine whether or not a project can advance to the acceleration phase from the small phase. The stage-gate evaluation will be conducted strictly from the viewpoints of the progress of R&D, such as the progress of R&D including the creation of R&D results, the degree of achievement in resolving technological bottlenecks, and the contribution to the realization of carbon neutrality, and is intended to narrow the number of projects of the same adopted year to about 1/3. In the stage-gate evaluation, not only simple narrowing down of the projects, but also reorganization by integrating multiple projects will be considered depending on the situation.

c. In cases where a project is terminated (cancelled) as a result of the stage-gate evaluation, if the PO deems that part or all of the research content would contribute to GteX, the PO may

make coordination such as having the project participate in a GteX-adopted proposal.

d. The ex-post evaluation will be conducted as soon as possible after the completion of the research and development or at an appropriate time before the completion of the research and development.

e. In addition to the above, the PO may conduct an R&D proposal evaluation at a time deemed necessary by the PO.

f. The results of the evaluation will be publicly announced, and measures will be taken to adjust subsequent R&D plans, allocate resources (including increasing or decreasing R&D budget and revision of the R&D structure), terminate (cancel) R&D proposals early, and coordinate among R&D proposals.

g. After a certain period of time has elapsed after the completion of the R&D, a follow-up evaluation may be conducted based on the status of development and utilization of the R&D results and the activities of the participating researchers.

In addition to the evaluation of R&D projects, evaluations may also be conducted for the Program, technology areas, and POs from the perspective of progress toward achieving goals, operational status, etc. To the extent deemed necessary for such evaluation, the PI will be asked to provide various types of information and to respond to interviews, etc.

Stage-gate criteria
1. Results of the small phase ・ The milestones in the small phase have been achieved. ・ R&D results generated in the small phase serve as the basis for the acceleration phase.
2. Overall concept of the acceleration phase ・ The project is expected to create technologies that can make a significant contribution to the realization of carbon neutrality. ・ The concept can reasonably be expected to lead to a practical application for a technology.

3. The superiority and uniqueness of the project ・ The project has ambitious technical content that is not an extension of conventional technologies, and is expected to lead to a dramatic development of science and technology. ・ The project has superiority and originality based on domestic and international R&D trends.
4. Research and development plan ・ The project has an appropriate R&D plan in place to achieve the goals.
5. Research and development system ・ The R&D system and the division of roles of the project are appropriate to achieve the goals. ・ The R&D leader demonstrates strong leadership and management capabilities to achieve the goals.

3.5 Responsibilities of the Principal Investigator and Principal Co-Investigator, etc.

3.5.1 Notes on R&D Promotion

(1) The Principal Investigator and Principal Co-Investigators are fully aware that JST's R&D budgets are funded by the public's important tax and are responsible for the fair and efficient handling of R&D costs for their own R&D team or for the research group as a whole.

(2) After the proposed R&D project has been adopted, the PI is required to understand the following matters through explanatory meetings, etc. conducted by JST, and submit a written undertaking of these matters to JST.

a. Comply with the requirements of the application guidelines and the rules and regulations of your institution.

b. With the understanding that the R&D budgets of JST are funded by public taxpayers' money, the project will not engage in fraudulent activities (fabrication, falsification, or plagiarism) in R&D activities, nor will it improperly use R&D funds.

c. Ensure that participating researchers are informed about research ethics education programs designated by JST to prevent misconduct in R&D activities and the improper use

of R&D funds.

(3) Principal Investigators and research participants must complete a research ethics education program designated by JST to prevent misconduct (fabrication, falsification, and plagiarism) in research and development. Failure to complete the program may result in suspension of access to R&D funds until the completion of the program is confirmed. For details, please refer to "4.1 Enrolling in and Completing a Research Ethics Education Program."

(4) Promotion and management of research and development, etc.

a. The Principal Investigator is responsible for the overall R&D, including matters related to the planning and implementation of the R&D plan. The PI is also responsible for establishing the R&D site and environment necessary for the promotion of R&D, in cooperation with the R&D institution. If the R&D site or environment is deemed to be a serious obstacle to the promotion of R&D, the R&D proposal may be cancelled or other measures be taken.

b. The PI is responsible for submitting R&D plans, research reports, etc., and for responding to R&D proposal evaluations. In addition, the PI should respond to reports on the progress of research and development as required by JST or the PO.

c. The project team is requested to provide various information and conduct interviews for the evaluation of this program and a follow-up evaluation after a certain period of time has elapsed after the completion of the research and development.

(5) The PI of R&D should appropriately manage and administer the execution of R&D tasks and R&D funds (expenditure plan and progress management, administrative procedures, etc.) together with the R&D institution. In addition, the PI should also appropriately manage those who participate in the R&D. The Principal Co-Investigator should properly manage the allocated R&D costs (expenditure plan and progress management, administrative procedures, etc.) together with the R&D institution. If students participate in the project, the faculty advisor is also required to serve as an R&D participant in the R&D agreement with JST. For example, if a student engages in misconduct, both the student and the faculty advisor will be held

responsible.

(6) The PI should give consideration to the R&D environment and working environment and conditions of the R&D participants and researchers employed with the R&D funds.

(7) PI are encouraged to actively support young postdoctoral researchers hired with R&D funds to secure diverse career paths in Japan and abroad. The activity plan to support diverse career paths for young postdoctoral researchers employed with the R&D funds[*3] may be confirmed at the interview and selection meeting.
For details, please refer to "4.13 Improving the Treatment of Doctoral Students," "4.14 Ensuring a Self-sustaining, Stable Research Environment for Young Researchers," "4.15 Promoting Initiatives Related to Gender Equality and Human Resource Development," "4.16 Voluntary Research Activities of Young Researchers Employed to Implement the Project," and "4.17 Supporting Various Career Paths for Young Researchers."

(8) Please follow the R&D agreement between JST and the R&D institution and JST's regulations.

(9) You are required to respond to accounting inspections including investigations of accounting by JST and government audits.

(10) Please be advised that JST will provide the required information, such as the title of the R&D project, participants in the R&D project, and the commissioned R&D costs, to the e-Rad system and the Cabinet Office ("4.30 Providing Information from e-Rad to the Cabinet Office"). In addition, we may ask the Principal Investigators to provide various types of information.

3.5.2 Responsibilities Regarding R&D Results, etc.

a. Since the research and development projects to be conducted under this project are government-funded, we ask that you acquire appropriate intellectual property rights and actively present the results

[*3] Part of the activities under such activity plan may be included in the research effort.

of your research and development both domestically and internationally in order to ensure the smooth transfer of research and development results to society and industry. In principle, intellectual property rights should be applied for (or filed for) by the R&D institution based on the R&D agreement.

b. When presenting the results obtained through the implementation of the research and development in the form of a paper, etc., please state that they are the results of ALCA-Next.

c. In accordance with "JST's Basic Policy on the Handling of Research Results for the Promotion of Open Science," researchers are required to submit to JST, together with the research and development plan, a "Data Management Plan" that outlines the guidelines for the storage and management of research data generated as a result, its publication and non-publication, and the operation of research data that can be made public, organized accordingly to the items listed below. In addition, please store, manage, and release (or limited release/non-disclosure) data appropriately based on the above policy. For details of the items to be filled in, please refer to "JST's Basic Policy on the Handling of Research Results for the Promotion of Open Science Operational Guideline" below.

https://www.jst.go.jp/pr/intro/openscience/guideline_openscience.pdf

<Items on the Data Management Plan>

- Policy for storage and management of research data subject to management
- Policy on publication and non-publication of research data
- Methods and systems for providing research data that can be made publicly available
- Intended use of publicly available research data
- Initiatives to promote the use of publicly available research data
- Other Special Notes

d. The researchers of the projects should participate in workshops and symposia organized by JST in Japan and abroad, as well as in cross-cutting activities and outreach activities aimed at promoting collaboration and synergy in R&D in technological areas, and present the results of your R&D activities. In addition, please actively engage in international activities and information dissemination in the course of your R&D activities.

3.6 Responsibilities of R&D Institutions, etc.

In conducting research, R&D institutions must be fully aware that the source of the research funds is public funds, while complying with relevant laws and regulations and striving to conduct research efficiently. Research by R&D institutions that cannot fulfill the responsibilities listed below will not be approved. Therefore, when applying, please ensure that you obtain prior approval from all R&D institutions where you plan to conduct research (hereinafter referred to as "participating institutions").

(1) When the R&D implementation organization is a domestic organization

a. The R&D institution must, in principle, conclude a contract R&D agreement in accordance with the contents presented by JST. In addition, the organization is obligated to properly conduct R&D in accordance with the R&D agreement, the administrative instructions, and the R&D plan. If the sponsored research contract cannot be concluded, or if it is determined that the research and development cannot be properly conducted at the relevant R&D institution, the implementation of the research and development at the relevant R&D institution will not be permitted.

* Please refer to the following web page for the latest model of the contract research agreement.

https://www.jst.go.jp/contract/index2.html

b. In accordance with the "Guidelines for the Management and Audit of Public Research Funds at Research Institutes (Implementation Standards)" (decided by the Minister of Education, Culture, Sports, Science and Technology on February 15, 2007, and revised on February 1, 2021), R&D institutions must establish a system for the management and audit of public research funds under their responsibility. R&D institutions are also required to make efforts to properly handle the commissioned research and development expenses. In addition, R&D institutions are obliged to report regularly to MEXT on the status of implementation of the system for management and auditing of public research funds, and to respond to various investigations concerning the system. (See "4.27 (1) Developing a System Based on the ‘Guidelines for the Management and Audit of Public Research Funds at Research Institutes (Implementation Standards)’.")

https://www.mext.go.jp/a_menu/kansa/houkoku/1343904_21.htm

c. R&D institutions must strive to prevent misconduct by establishing the necessary rules and

systems on their own responsibility, based on the "Guidelines Concerning Responses to Misconduct in Research Activities (decided by the Minister of Education, Culture, Sports, Science and Technology on August 26, 2014)". In addition, R&D institutions are obligated to respond to various investigations concerning the establishment of systems based on the guidelines. (See "4.28 (1) Developing a System Based on the ‘Guideline for Responding to Misconduct in Research Activities’.")

https://www.mext.go.jp/b_menu/houdou/26/08/1351568.htm

d. The R&D institution is obligated to ensure that R&D participants are fully aware of the contents of the guidelines described in items b. and c. above, and that they complete a research ethics education program designated by JST.

e. In executing the research budget, the R&D institution must appropriately spend and manage the research funds in accordance with the regulations of the R&D institution with consideration to flexibility, and must follow the rules specific to this Program as stipulated in the Administrative Instructions, etc. established by JST. (R&D institutions receiving Grants-in-Aid for Scientific Research (KAKEN) may comply with the handling of Grants-in-Aid for Scientific Research at their R&D institution with regard to matters not described in the Administrative Instructions regarding the use of commissioned research costs).

f. The R&D institution is required to make an agreement with the R&D participant to the effect that intellectual property rights arising from the implementation of the research shall belong to the R&D institution, or to establish office regulations to that effect. In particular, when a student who has no employment relationship with the R&D institution is an R&D participant, unless it is clear that the student cannot be an inventor, it is necessary to take necessary measures such as concluding a contract with the student in advance so that intellectual property rights pertaining to inventions (including devices) made by the student in the course of conducting this R&D will belong to the R&D institution. In addition, with regard to the conditions regarding the consideration for the succession of intellectual property rights, etc., consideration should be given so that the student who will be the inventor will not be disadvantaged.

In addition, when transferring or establishing an exclusive license of the intellectual property right, it is necessary, in principle, to obtain the prior consent of JST. Additionally, when filing an

application, registering establishment, or implementing or abandoning a right, it is obligatory to submit the required reports to JST.

g. The R&D institution is obligated to respond to investigations of its accounting by JST and to government inspections of its accounts.

h. The R&D institution is required to follow measures designated by JST such as changing the payment method of the research costs or reducing the research budget, based on investigations related to the administrative management system, financial status, etc.

In addition, if the evaluation of the program at the end of the JST's mid- to long-term target period calls for the dissolution or downsizing of JST, or if there is a change in the budgetary situation of Japan, JST may cancel the contract during the contract period or reduce the contracted research budget in accordance with the special provisions of the R&D agreement. Moreover, based on the results of the interim evaluation of the research project, JST may take measures such as increasing or decreasing the research budget, changing the contract period, or suspending the research. Additionally, if JST judges that it is not appropriate to continue the research, it may take measures such as contract termination even during the contract period. The R&D institution must comply with these measures.

i. If the R&D institution is a national or local government organization, the R&D institution is responsible for ensuring that the necessary budgetary and other procedures are taken prior to the start of the research contract. (In the unlikely event that the research organization is found to have failed to follow the required procedures after the contract has been concluded, the research organization may take measures such as canceling the contract or refunding the research costs.)

j. As part of its efforts to prevent misconduct in R&D activities, JST requires researchers who participate in newly adopted research and development proposals and who belong to an R&D institution to complete one of the following programs or educational courses:

- "eAPRIN" provided by the Japan Association for the Promotion of Fair Research
- "eL CoRE" provided by the Japan Society for the Promotion of Science
- "For the Sound Development of Science -The Attitude of a Conscientious Scientist-" provided by the Japan Society for the Promotion of Science
- "Responsible Research Practices to Learn from Cases - A Casebook to Instill Awareness

and Learning" provided by the Japan Agency for Medical Research and Development

- “A Compendium of Near-Miss Incidents Related to Research Integrity” provided by the Japan Agency for Medical Research and Development
- Other research ethics education programs or training deemed equivalent to the above by the R&D institution to which you belong (If the R&D institution deems it equivalent, the video teaching materials "Gaps in Ethics" provided by JST is also acceptable.)

If it is difficult for you to attend a research ethics education program at your institution due to reasons that include your institution not offering such a program, you can take eAPRIN (an e-learning course provided by the Association for the Promotion of Research Integrity (APRIN)) through JST.

Accordingly, JST will instruct the R&D institution to suspend the execution of all or part of the research budget if the researcher concerned does not fulfill the completion obligations stipulated despite JST's reminders. In addition to suspending the execution of the research funds in accordance with the instruction, please do not resume using the funds until instructed to do so.

k. Please take necessary measures, such as concluding a joint research agreement with the participating institutions, to the extent that it does not violate the terms of the R&D agreement with JST, regarding the handling of intellectual property rights, confidentiality, etc., so as not to impede the appropriate implementation of the research or the utilization of research results.

l. When carrying out contracted research, as research funds come from the government, please handle expenses appropriately to ensure good accountability, while paying sufficient attention to economy, efficiency, effectiveness, legality, and accuracy. Please also make every effort to carry out the research in a systematic manner, and be careful not to procure funds for the purpose of exhausting the budget at the end of the research period or at the end of the fiscal year.

3.7 Other Points to Note

3.7.1 Maternity, Childcare, and Nursing Care Support Systems

As part of its efforts to promote gender equality, JST offers a childbirth/childcare/nursing care support system. The purpose of this program is to enable researchers who are employed as full-

time researchers with JST research funds (excluding indirect costs) to continue their research when they experience a life event (childbirth, childcare, nursing care), or if they have to temporarily suspend their research, to enable them to continue their career when they return to their research. The "Gender Equality Promotion Grant" (maximum amount: 300,000 yen x number of months of support) is provided for research projects, etc.

For more information, please refer to the following web page:
https://www.jst.go.jp/diversity/about/research/child-care.html

3.7.2 Use of JREC-IN Portal

As one of the largest research personnel career support portals in Japan, the Japan Research Career Information Network (JREC-IN Portal https://jrecin.jst.go.jp/) is a service that allows free posting and browsing of job information for researchers, research supporters, technicians, and other personnel involved in research.

Currently, more than 140,000 users are registered with JREC-IN Portal, and more than 20,000 job openings are posted annually by universities, public research institutions, and private companies. In addition, JREC-IN Portal's web-based application function simplifies the management of application documents and reduces the burden on job seekers. If you are looking for highly knowledgeable research personnel (postdoctoral fellows, researchers, etc.) to promote your research project, please take advantage of the JREC-IN Portal.

In addition, JREC-IN Portal is linked to researchmap, and the functions for creating a resume and list of accomplishments allow you to easily create these application documents using information registered in researchmap.

3.7.3 Compliance with Related Laws and Regulations and the Submission of Written Confirmation Related to Compliance with Laws and Regulations

When undertaking international collaborative research, it is necessary to follow legally required procedures, such as security export control initiatives, compliance with biogenetic resource regulations, etc., the handling of personal information, and bioethical and safety measures.

The affiliated R&D institutions of PIs applying for this call for proposals should submit written confirmation, pledging to follow all procedures required by law and the evaluation of assumed risks,

and, if necessary, hold an internal ethics committee for approval.

Please submit the written confirmation to JST together with the R&D proposal. If there are special circumstances, such as the submission being late due to formal procedures, it may be possible to extend the submission deadline to a date specified separately by JST.

Chapter 4: Key Points for Application

4.1 Enrolling in and Completing a Research Ethics Education Program

Applicants are required to have completed a research ethics education program. Please note that failure to complete the program will be considered an incomplete application.

Please follow either (1) or (2) below for the procedures for taking a research ethics education program and declaring completion of the program.

(1) For applicants who have completed an equivalent program at their institution

If you have completed various research integrity education programs such as e-learning and training sessions conducted by your institution at the time of application, please declare that you have completed them on the e-Rad application information entry screen.

(2) For applicants who have not completed a program at their institution (including applicants at institutions where the program is not provided)

a. If you have completed eAPRIN (formerly CITI) in the past under JST programs, etc.

If you have completed eAPRIN (formerly CITI) for JST programs at the time of application, please declare that you have completed on the e-Rad application information entry screen.

b. In cases other than a. above

If it is difficult for you to attend a research ethics education program at your institution, you can take the condensed version of eAPRIN (formerly CITI) through JST. The course takes approximately one to two hours to complete, and there is no cost to attend. After completing the course at the URL below, please select/enter "Completion of condensed version" on the e-Rad application information entry screen.

Course URL: https://edu2.aprin.or.jp/ard/

▮Consultation for research ethics education programs

Research Integrity Division, Department of Legal Affairs and Compliance, Japan Science and Technology Agency

E-mail: rcr-kousyu@jst.go.jp

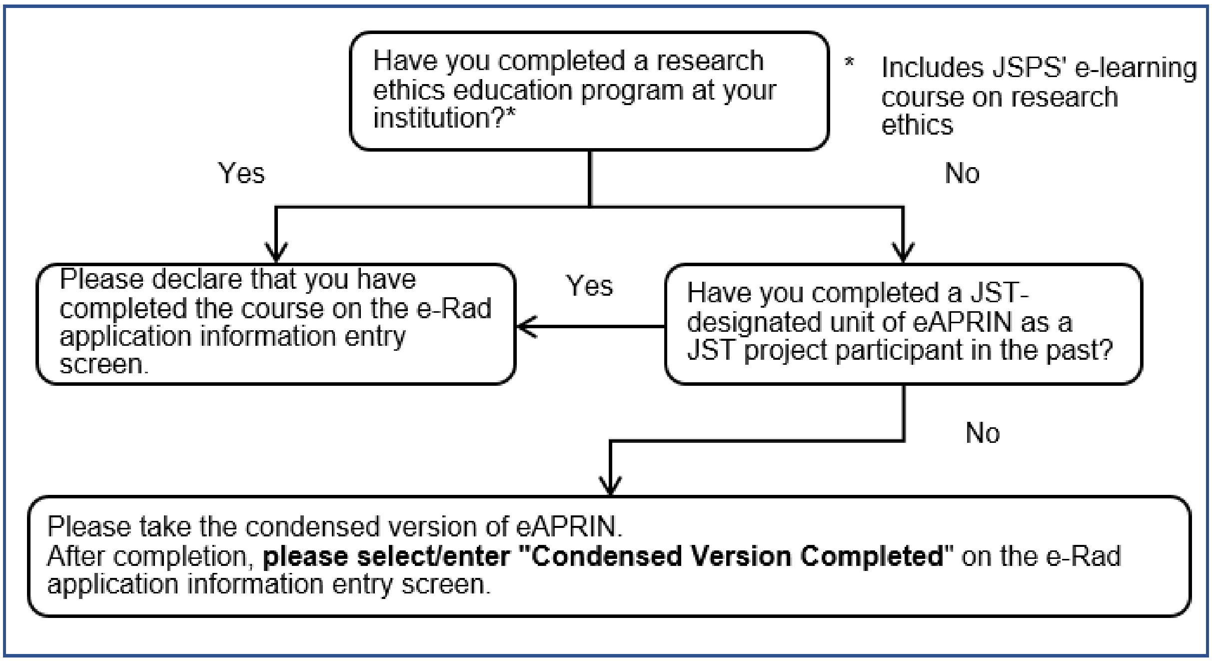
▮Contact for application

Department of R&D for Future Creation, Japan Science and Technology Agency

E-mail: alca-next @jst.go.jp

* Please include the name of the open call, the e-Rad project ID, the name of the applicant, and project name in the email.

Flowchart for Reporting Attendance and Completion of Research Ethics Education Programs



JST requires that researchers participating in this program complete one of the following programs or educational courses.

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・“eAPRIN” provided by the Japan Association for the Promotion of Fair Research

・“eL CoRE” provided by the Japan Society for the Promotion of Science

・"For the Sound Development of Science -The Attitude of a Conscientious Scientist-” provided by the Japan Society for the Promotion of Science

・“Responsible Research Practices to Learn from Cases - A Casebook to Instill Awareness and Learning" provided by the Japan Agency for Medical Research and Development

・“A Compendium of Near-Miss Incidents Related to Research Integrity” provided by the Japan Agency for Medical Research and Development

・Other research ethics education programs or training deemed equivalent to the above by the

research institution to which you belong (If the research institution deems it equivalent, the video teaching materials "Gaps in Ethics" provided by JST is also acceptable.)

= =

If it is difficult for you to attend a research ethics education program at your institution due to reasons that include your institution not offering such a program, you can take eAPRIN (an e-learning course provided by the Association for the Promotion of Research Integrity (APRIN)) through JST. In the next fiscal year as well, all R&D participants will, in principle, be required to complete the above-mentioned research ethics education program or course designated by JST (except for those who have already completed the above-mentioned research ethics education program or course designated by JST at their home institutions or in JST's projects, etc.). (However, this does not apply to cases where the participant has already completed the above-mentioned research ethics education program or course designated by JST at their institution or JST project.)

4.2 Measures Against Unreasonable Duplication and Excessive Concentration

○ Measures against unreasonable duplication

In cases where multiple competitive research funds or other research funds (all current R&D funds allocated to individual R&D projects in Japan or abroad, including subsidies, grants, joint research funds, and contract research funds) are unnecessarily allocated to the same research project (the name or the content of research which receives competitive research funding) by the same researcher, and any of the following applies, the Program will reject, cancel, or reduce the allocation of the research proposal (hereinafter referred to as "rejection of the research proposal"), depending on the degree of such a situation.

- In cases where multiple applications are simultaneously submitted to multiple competitive research funds or other research funds for the same research project (including cases of substantial overlap) and duplicate applications are adopted
- In cases where there is an application for a research program that is substantially the same as a research project that is already adopted and allocated competitive research funds or other research funds
- In cases where there is an overlap in the use of research funds among multiple research projects
- Other cases equivalent to the above

Although there is no restriction on applying for other competitive research funds or other research funds at the application stage of this program, if your proposal is selected for other competitive research funds or other research funds, you are required to report it promptly to the program's public application office. Failure to do so may result in the Program's rejection of the research and development proposal.

* The following types of funding are available: basic or internal funds as allocated within the institution, commercial activities as defined by the Commercial Code of Japan, and direct or indirect financing.

○ Measures against excessive concentration

In cases where the content of the research and development proposed in the Program is different from the content of the research and development being conducted using other competitive research funds or other research funds, but the same researcher or research group (hereinafter referred to as the "Researcher, etc.") is not able to use all of the research and development funds allocated to the Program for the relevant fiscal year effectively and efficiently and within the R&D period, and if any of the following applies, the Program may reject the R&D proposal, depending on the extent of the situation.

- Excessive research funds are allocated in light of the capabilities and research methods of the researcher, etc.
- The research costs are excessive compared to the effort (the ratio (%) of the time required to conduct the research to the researcher's total work hours*) allocated to the research project
- The cost of research equipment is unnecessarily expensive
- Other cases equivalent to the above

For this reason, if any changes occur in the information provided in the application, such as the selection status of another application for other competitive research funds or other research funds after submitting the application documents for this program, please promptly report to the administrative staff of this program. Failure to do so may result in project adoption being cancelled.

*The total work time of a researcher does not refer only to the time spent on research activities, but also to the actual total work time, including educational activities and administrative work at his/her institution.

○ Methods for eliminating unreasonable duplication and excessive concentration

In order to exclude unreasonable duplication and excessive concentration of competitive research funds, and to ensure transparency in research activities while ensuring appropriate efforts, the following information must be provided at the time of application.

(i) Information on the current status of application for and acceptance of other competitive research funds and other research funds, including those from other ministries, and all current affiliations and positions

At the time of application, the Principal Investigator and Principal Co-Investigator shall providethe following information on the current status of application for and acceptance of other competitive research funds and other research funds (name of program, research topic, period of implementation, budget amount, effort, etc.; hereinafter referred to as "information on research funds"), including those from other ministries. Information on all current institutional affiliations and positions (including dual employment, participation in foreign personnel recruitment programs, emeritus professorships without employment contracts, etc.) is also required. This information is to be entered in the application documents and e-Rad. If any false information is entered in the application documents or e-Rad, the research proposal may be rejected.

Among information related to research costs, information related to joint researches, for which confidentiality agreements have been exchanged, will be handled as follows, taking individual circumstances into consideration so that industry-academia collaboration activities, etc., will not be curtailed.

- We will ask you to provide only the information necessary to confirm that the proposed research will not result in an unreasonable duplication or excessive concentration of research funds, and that the research will be conducted in a manner that ensures an appropriate level of effort (in principle, only the name of the partner institution for joint research, the amount of research funds to be received, and the information related to the effort).
- However, if submission is difficult due to unavoidable circumstances, such as when a confidentiality agreement is already in place, the application may be submitted without indicating the name of the partner institution and the amount of research funds

received. In such cases, when necessary, we may still make an inquiry to the institution to which you belong.

- In addition to the institution(s) to which the applicant belongs, information may also be shared among funding agencies and related ministries. In such cases, information is shared only among those who are obligated to maintain confidentiality.

When concluding nondisclosure agreements related to your research in the future, we strongly ask you to consider making it a prerequisite that necessary information may be provided when applying for competitive research funding. Please note, however, that it is possible to conclude an agreement that does not presuppose the submission of such confidential information if both parties to the agreement agree on the scope of information to be kept confidential and the justification for such confidentiality (e.g., information that is extremely important for corporate strategy and is considered to be particularly sensitive to confidentiality).

(ii) Provision of other information necessary to ensure transparency in all research activities in which the applicant is involved

In addition to information related to research budgets and the institution and position to which the applicant belongs, the applicant is required to pledge that all information necessary to ensure transparency regarding all research activities in which he/she is involved, is properly reported to his/her institution in accordance with relevant rules and regulations. The research activities include those by support other than funding such as donations and support for facilities and equipment (*). If it is found that you have not reported appropriately in violation of your pledge, your research proposal may be rejected.

With regard to information on the status of purchase of facilities and equipment that are not used for the applied research proposal but are used for research in which the applicant is separately engaged, in addition to the pledge, the affiliated organization will be requested to submit information on the status of understanding and management of such information from the perspective of confirming that the research project can be adequately carried out without unreasonable duplication or excessive concentration.

*Includes cases where the research facilities, facilities, equipment, and other goods and services are provided free of charge.

- Sharing of information on applications to eliminate unreasonable duplication and overconcentration

  To the extent necessary to exclude unreasonable duplication and excessive concentration, information on some of the applications will be shared among the sections in charge of other competitive research funding programs, including those of other ministries, through e-Rad and other means.

4.3 Ensuring Research Integrity against New Risks associated with Internationalization and Openness of Research Activities

In order to promote the creation of science, technology, and innovation in Japan, we must continue to strongly promote international collaborative research with a variety of partners, with open science as the fundamental principle. At the same time, in recent years, new risks associated with the internationalization and openness of research activities have raised concerns that the fundamental values of the research environment, such as openness and transparency, may be undermined and that researchers may unintentionally fall into conflicts of interest and responsibilities. In this context, it is essential for Japan to establish an internationally credible research environment in order to promote necessary international cooperation and exchanges while protecting the fundamental values of the research environment.

Therefore, it is important for universities and research institutions, etc. to develop relevant regulations and management systems, including those for conflicts of interest and conflicts of responsibility, based on the "Policy for Ensuring Research Integrity against New Risks Associated with Internationalization and Openness of Research Activities (decided by the Council for the Promotion of Integrated Innovation Strategy on April 27, 2021)," and to ensure the self-sustaining soundness and fairness of research (research integrity) conducted by researchers and universities/research institutions, etc. by taking the necessary measures.

From this perspective, we will check to see if it is possible to exclude unreasonable duplication and excessive concentration of competitive research funds, ensure transparency in research activities, and secure the appropriate level of effort. In addition, we may make inquiries to the affiliated institutions as necessary regarding the status of their rules and regulations and the status of information understanding and management.

4.4 Dealing with Misuse and Improper Payments

The following measures will be strictly applied to the improper use of research funds and the improper receipt of research funds (hereinafter referred to as "improper use, etc.").

○ Actions to be taken when an improper use of research funds is discovered

(i) Measures such as cancellation of contract

For projects that are found to have engaged in the improper use, etc. of funds, JST will cancel or modify the R&D agreement, and request that the institution return all or part of the funds. In addition, no R&D agreement may be concluded for the next and subsequent fiscal years.

(ii) Measures such as restrictions on application and participation (*1)

Researchers who have engaged in the improper use, etc. of research funds of the program (including those who conspired with the researcher; "researchers who engaged in misuse, etc.") shall be deemed to have committed the misuse, etc. of the research funds of the Program and researchers who have not conducted but have violated their duty of care (*2), will be restricted from applying for and participating in this program or will be given a strict warning, depending on the degree of misconduct, as shown in the table below.

In addition, by providing a summary of such improper use, etc. (name of the researcher who committed the improper use, project name, affiliation, research subject, budget amount, research year, details of the improper use, and details of measures taken) to other competitive research funders, including other ministries, the application and eligibility for participation in other competitive research funding systems, including those of other ministries, may be restricted.

* 1 "Application and participation" refers to proposing, applying for, or submitting a new proposal, participating in new research as a co-researcher, etc., or participating in an ongoing research project as a Principal Investigator or Principal Co-Investigator, etc.
* 2 "Researchers who have violated the duty of care" refers to a researcher who has violated the duty to conduct the project with the care of a good manager, although he/she has not been found to have been involved in improper use, etc.

<table>
<tr><th>Persons subject to application restrictions related to unauthorized use and unauthorized receipt of funds</th><th colspan="2">Degree of improper use</th><th>Application Restriction Period*3.4</th></tr>
<tr><td rowspan="4">Researchers who misused funds and those who conspired with them*1</td><td colspan="2">1 Private appropriation for personal gain</td><td>10 years</td></tr>
<tr><td rowspan="3">2 Other than 1</td><td>(1) Those with a significant impact on society and the malignancy of the act is judged to be high</td><td>5 years</td></tr>
<tr><td>(ii) Items other than (i) and (iii)</td><td>2-4 years</td></tr>
<tr><td>(iii) Those whose impact on society is deemed to be small and the malignancy of the act is deemed to be low.</td><td>1 year</td></tr>
<tr><td>Researchers who have received competitive research funds through deception or other dishonest means, and researchers who have conspired with them</td><td colspan="2"></td><td>5 years</td></tr>
<tr><td>Researchers who were not directly involved in the misuse but violated their duty of care
*2</td><td colspan="2"></td><td>Maximum of 2 years and minimum of 1 year, depending on the degree of breach of duty by the researcher who has a duty of care.</td></tr>
</table>

* 3 In the following cases, the application and eligibility will not be restricted and the applicant will be issued a severe warning.

- In the case of *1, if the impact on society and the maliciousness of the act are judged to be low, and if the amount of improper use is small.

- In the case of *2, if the impact on society is judged to be small and the maliciousness of the act is judged to be low.

* 4 In principle, the period of limitation on participation will be counted from the fiscal year following the fiscal year in which the improper use of research funds is recognized and the research funds are returned. Eligibility will also be restricted for the fiscal year in which the improper use of research funds is found to have occurred.

(iii) Disclosure of fraud cases

In principle, for researchers who have conducted improper use of research funds or violated their duty of care, and whose application and participation in this program have been restricted, a summary of the misconduct case (name of R&D institution, project name, year of misconduct, details of misconduct, amount of research funds spent on misconduct, the number of researchers involved, etc.) will be made public at JST. In principle, a report will also be made to MEXT.

In addition, according to the "Guidelines for Management and Audit of Public Research Funds at Research Institutes (Implementation Standards)," if fraud is found as a result of an investigation, the research institution is required to promptly disclose the results of the investigation.

Please refer to the following web page for an overview of the current MEXT publication on fraud cases.

https://www.mext.go.jp/a_menu/kansa/houkoku/1364929.htm

4.5 Measures for Researchers whose Applications and Eligibility are Restricted under Other Competitive Research Funding Programs

Researchers who have been restricted under other competitive research funding programs*, including those of other ministries, due to misuse of research funds, etc., will be restricted from applying for and participating in this Program for the period during which their eligibility is restricted under the other competitive research funding programs.

The "other competitive research funding programs" include those that will begin accepting applications in FY2024 or later. The programs that ended before FY2023 are also included.

*Please refer to the following web page for the specific programs that are currently covered.

https://www8.cao.go.jp/cstp/compefund/

4.6 Measures to be Taken in Case of Violation of Related Laws and Regulations

In the event of a violation of relevant laws, regulations, guidelines, etc., the researcher will be subject to disciplinary action and penalties in accordance with related laws and regulations, and the allocation of research funds may be suspended or the decision to allocate research funds may be revoked.

4.7 Carryover

In the event that it is difficult to complete its research expenditure within a fiscal year due to difficulties in determining the research method, conditions related to planning, weather conditions, difficulty in obtaining materials, or other unavoidable reasons, the budget may be carried over to the end of the following fiscal year at the latest if there is a multi-year contract that continues through the following fiscal year.

4.8 Table of Cross-ministerial Cost Categorization

This program has established a cost structure based on the cross-ministerial cost category table for each ministry and agency, which is commonly used in competitive research funds. The table is available on the following page.

https://www.jst.go.jp/contract/download/2023/2023kisokens309betsu.pdf

Currently, in response to the “6th Science, Technology and Innovation Basic Plan", the "Integrated Innovation Strategy 2023", and the "Comprehensive Package for Strengthening Research Capability and Supporting Young Researchers", institutional improvements regarding competitive research funding are underway. Based on this, in this program, the direct cost is expendable to the personnel cost of the project's Principal Investigator (hereinafter, referred to as “PI” in this section), and the cost for non-research work on behalf of the PI. In case you wish to pay for the personnel expenses of PIs and expenses related to non-research work on their behalf (buyout expenses), please refer to the necessary requirements and procedures below.

In addition, based on the "Common Guidelines for the Development of a Competitive Research Funding System from the Perspective of Gender Equality and Human Resource Development" (February 8, 2023, Liaison Committee among Ministries and Agencies on Competitive Research Funds), this program allows for the payment of direct costs for the promotion of human resource development in the science and engineering fields that will lead the next generation.

- "Revision of the Direct Costs to Allow Expenditures for Non-Research Activities (Introduction of the Buyout System) and Expenditures for Personnel Expenses of the Principal Investigator (PI) from Direct Costs (Liaison)" (September 17, 2020)
  https://www.jst.go.jp/osirase/2020/pdf/20200917.pdf

- “Working with the Strategic Basic Research Program for Advanced Technologies for Carbon Neutrality (ALCA-Next) regarding the ‘Revision of Direct Costs to Allow Expenditures for Non-Research Activities (Introduction of the Buyout System)’” (August 7, 2023).
  https://www.jst.go.jp/alca/dl/buyout_houshin.pdf

- "Working with the Strategic Basic Research Program for Advanced Technologies for Carbon Neutrality (ALCA-Next) regarding the ‘Payment of Principal Investigator (PI) Personnel Expenses from Direct Costs’" (August 7, 2023).
  https://www.jst.go.jp/alca/dl/pi_houshin.pdf

4.9 Diversion of Costs among Items

Regarding the diversion of funds between expense items, the maximum amount of funds that can be diverted without JST approval is limited to 50% of the total direct costs.

4.10 Securing the Research Period until the End of the Fiscal Year

JST is taking the following measures for all competitive research funds to allow researchers to conduct their research until the end of the fiscal year.

(1) JST will confirm completion of the project and inspect and accept the R&D results.

(2) The deadline for submission of accounting performance reports is May 31.

(3) The deadline for submission of the R&D results report is May 31.

Each R&D institution is requested to make efforts to establish the necessary systems within the organization, taking into consideration that the purpose of these responses is to secure the R&D period until the end of the fiscal year.

4.11 Indirect Costs

R&D institutions receiving allocations of indirect costs are responsible for preparing a policy on the use of indirect costs under the responsibility of the head of the R&D institution, and for executing it systematically and appropriately in accordance with the policy, while ensuring transparency in the use of indirect costs through explanations to researchers and other means. In addition, please manage indirect costs appropriately and keep receipts and other documents that prove the appropriate use of indirect costs for five years from the fiscal year following the fiscal year of project completion.

Research institutions that have been allocated indirect costs are required to report their indirect costs for each fiscal year via e-Rad by June 30 of the following fiscal year (for research institutions that have received multiple competitive research grants, please report all indirect costs associated with those competitive research grants together). If you do not know how to use e-Rad for reporting, please refer to the e-Rad operation manual (https://www.e-rad.go.jp/manual/for_organ.html) or "Frequently Asked Questions and Answers" (https://qa.e-rad.go.jp/).

Revisions to the "Common Guidelines for Indirect Costs under Competitive Funds" (Liaison Committee among Ministries and Agencies on Competitive Research Funds, April 20, 2001) allow the use of the funds for replacing depreciable assets held by independent administrative agencies based on accounting standards. This applies only for projects financed by funds or grants-in-aid for operation.

4.12 Promoting the Joint Use of Research Facilities and Equipment

With regard to “Reforming competitive research funds toward the sustainable creation of research achievements (mid-term summary)” (Committee for Reforming Competitive Research Funds, June 24, 2015), it is considered proper to make shared use of relatively large facilities and equipment while aiming to fully achieve research objectives.

In addition, the “6th Science, Technology, and Innovation Basic Plan” (approved by the Cabinet on March 26, 2021) and “Integrated Innovation Strategy 2023” (approved by the Cabinet on June 9, 2023) call for the promotion of the maintenance and sharing of research equipment and facilities, the establishment of a system for the systematic installation, renewal, and utilization of research facilities (core facilities), and the formulation and publication of sharing policies.

In March 2022, the Ministry of Education, Culture, Sports, Science and Technology formulated the “Guidelines for Promoting the Shared Use of Research Facilities and Equipment” with the aim of

promoting the strategic operation and sharing of research facilities and equipment at universities.

Based on these, R&D institutions are requested to promote joint use of research facilities and equipment purchased by this program, in particular, large and multipurpose facilities, so as not impact the performance of R&D projects. Such purchase shall be made in accordance with a joint use system at affiliated institutions. The use of facilities and equipment purchased with other research funds, within control conditions, and purchase or use with combined multiple research funds shall also be actively promoted. When doing so, it is important to be aware of the potential for sharing facilities/equipment even while projects are being carried out and considering further sharing in order to strengthen research capacity through the use of cutting-edge research facilities/equipment. Note that the management of shared facilities and equipment should be balanced with their use to achieve the research purposes of the R&D projects.

Besides the above joint use system, R&D institutions are requested to collaborate actively with joint use systems such as the “University Collaborative Research Facility Network Project” managed by the Inter-University Research Institute Corporations’ National Institutes of Natural Sciences with the aim of mutual use of equipment throughout the nation, as well as the “Program for supporting introduction of the new sharing system” and “Core facility construction support program” used by universities to promote the joint use of research facilities and equipment beyond the framework of research organizations and R&D institutions.

- “About reforming competitive research funds toward sustainable creation of research achievements (mid-term summary)” (Committee for Reforming Competitive Research Funds, June 24, 2015)
  https://www.mext.go.jp/b_menu/shingi/chousa/shinkou/039/gaiyou/1359306.htm (Japanese version only)
- “6th Science, Technology, and Innovation Basic Plan” (approved by the Cabinet on March 26, 2021)
  https://www8.cao.go.jp/cstp/kihonkeikaku/6honbun.pdf (Japanese version only)
- “Integrated Innovation Strategy 2023” (approved by the Cabinet on June 9, 2023)
  https://www8.cao.go.jp/cstp/tougosenryaku/togo2023_honbun.pdf (Japanese version only)
- “Unification of Rules for Various Office Procedures for Competitive Funds” (Agreement by the Liaison Committee among Ministries and Agencies on Competitive Research Funds,

revised on May 24, 2023)
https://www8.cao.go.jp/cstp/compefund/toitsu_rule_r50524.pdf (Japanese version only)

- “Purchase of shared facilities under multiple research funding systems (combined use)” (Agreement by Funding Agencies and Relevant Ministries and Agencies, revised on September 10, 2020)
https://www.mext.go.jp/content/20200910-mxt_sinkou02-100001873.pdf (Japanese version only)
- “Guidelines for Promoting the Shared Use of Research Facilities and Equipment” (formulated in March 2022)
https://www.mext.go.jp/content/20220329-mxt_kibanken01-000021605_2.pdf (Japanese version only)
[Reference: Overview Version on YouTube] https://youtu.be/x29hH7_uNQo
- “University Collaborative Research Facility Network”
https://chem-eqnet.ims.ac.jp/ (Japanese version only)
- “Program to Support the Introduction of the New Sharing System”
https://www.jst.go.jp/shincho/program/sinkyoyo.html (Japanese version only)
- “Core Facility Construction Support Program”
https://www.jst.go.jp/shincho/program/corefacility.html (Japanese version only)

4.13 Improving the Treatment of Doctoral Students

In order to enhance financial support for graduate students, especially doctoral students, and thereby attract excellent students and working people from Japan and abroad, the “6th Science, Technology and Innovation Basic Plan" (Cabinet decision on March 26, 2021) calls for a threefold increase in the number of doctoral students receiving an amount equivalent to living expenses (equivalent to about 30% of doctoral students receiving an amount equivalent to living expenses). It also states that “in order to promote the payment of salaries at an appropriate level as research assistants (RA) to doctoral students from competitive and joint research funds, rules for RA expenses related to employment and honorarium for RAs, etc. shall be established for each project and at each university, and implemented beginning in FY2021.” The Plan requires universities and R&D corporations to expand employment of doctoral students as RAs and improve their compensation.

Furthermore, the "Guidelines for Employment and Training of Postdoctoral Fellows" (Human Resources Committee, Council for Science, Technology and Science on December 3, 2020) state that doctoral students "are not only students but also researchers, and it is an important responsibility of universities to provide an environment for research activities and to ensure their treatment as researchers. It is particularly important to treat them in a manner that appropriately evaluates their contributions, such as by setting compensation commensurate with the nature and content of their work and paying them a salary commensurate with the hours they work under appropriate work management", and "universities and other institutions need to include the cost of hiring RAs as direct costs when applying for competitive research funds, and review their internal regulations to ensure that RAs are compensated at an appropriate level."

Based on the above, in this program, please actively employ doctoral students as RAs, etc., who are necessary to conduct research, and set a unit price appropriate to the nature and content of the work, and pay them according to the hours they work under appropriate work management. When applying for this program, please also consider the above-mentioned amount of salary for doctoral students in your budget plan.

(Notes)

- The "6th Science, Technology, and Innovation Basic Plan" stipulates that the amount equivalent to living expenses for doctoral students should be at least 1.8 million yen per year, and the amount of research grants for excellent doctoral students should be increased to 2.4 million yen per year, which is equivalent to the amount of special research fellowships (DC), so that they can concentrate on research without financial concerns.
- The "Guidelines for Employment and Training of Postdoctoral Fellows" stipulates that, with regard to the treatment of postdoctoral students hired to carry out research projects, "Taking into consideration the average salary of specially-appointed assistant professors employed with competitive research funds, etc., the payment of an hourly rate of around 2,000 to 2,500 yen* is considered standard."

  (*) Considering the average salary of specially-appointed assistant professors, etc., who are employed by competitive research funds, the standard hourly wage is considered to be 2,000 yen to 2,500 yen for doctoral students in the latter half of the doctoral course (calculated in the "Survey on the Employment Status of Faculty Members at Research Universities (Preliminary Report)" published in August 2020 for the median monthly salary of specially appointed

assistant professors in the category (between 400,000 yen and 450,000 yen): the actual working days (19 to 20 days), excluding holidays, is divided by the number of hours worked (7 hours 45 minutes to 8 hours), then multiplying by 0.8 to account for doctoral student status.

- Salary and employment period specifics are to be determined by the R&D institution, and are not limited to the above levels.
- When employing students as RAs, etc., please avoid having them work excessive hours, and balance the hours with the doctoral students' own research and study hours.

4.14 Ensuring a Self-Sustaining, Stable Research Environment for Young Researchers

With regard to terms for postdoctoral researchers, the “Guidelines for Employment and Training of Postdoctoral Fellows” (The Committee on Human Resources, Council for Science and Technology, December 3, 2020) state that “Although many postdoctoral researchers are employed for periods less than three years, employment terms that are too short can damage career development, and terms that enable postdoctoral researchers to settle down for a given period of time and concentrate on their research activities need to be secured”; and that “Taking into consideration the fact that it is desirable for researchers to advance to the next step after gaining experience as a postdoc at one or two institutions over a period of around three to seven years up to their mid-30s, it is desirable to secure terms for each post of around three to five years.

In regard to national university corporations and inter-university research institute corporations, the “Guidelines for reform of personnel and salary management in national university corporations, etc.: Toward building attractive personnel and salary management effective for improving education and research capabilities" (Ministry of Education, Culture, Sports, Science and Technology, February 25, 2019) state that ”to meet two requirements, `fostering young teachers and securing stable employment,’ there is a need to promote an institutional design that takes into account the development of researchers while maintaining mobility, for example, by securing a certain period of employment, on the order of 5 to 10 years, even in fixed-term posts using highly flexible expenses such as indirect costs or donations.”

Based on these points, when the project in this program hires young researchers such as research assistants or postdoctoral researchers, in addition to attempting to secure the period of employment up to the stage-gate as the length of term while making confirmation with the personnel and accounting staff in the administrative departments, a certain period of employment should be ensured

as much as possible by using external funds that include indirect costs, basic research funds, and donations so that the term is not too short.

4.15 Promoting Initiatives Related to Gender Equality and Human Resources Development

Through initiatives such as the "Basic Plan for Science, Technology and Innovation (approved by the Cabinet on March 26,2021)," "Basic Plan for Gender Equality (approved by the Cabinet on December 25, 2020)," and "Policy Package on Education and Human Resource Development for the Realization of Society 5.0 (decided by the Council for Science, Technology and Innovation on June 2, 2022), the government is working to create a research environment where both men and women can easily continue their research activities even after life events such as childbirth, childcare, and nursing care, and promote the appointment of excellent female researchers as project leaders. Furthermore, through efforts to convey the appeal of science and engineering to female junior and senior high school students, including their parents and teachers, efforts are being made to increase the percentage of women entering master's and doctoral programs, mainly in science and engineering, to overcome the low rate of women entering doctoral programs in the natural sciences, and to increase the number of potential bearers of knowledge in Japan.

In addition, if gender differences are not taken into account in the research and development process, which they should be, they may have inappropriate effects when attempting to use the results of that research to solve social problems. It is therefore necessary to conduct research and technological development that appropriately takes into account gender differences such as body size, structure, and functions.

In light of the above, this program will also take into consideration efforts to promote the activities of female researchers and to expand the base of human resources who will be responsible for science and technology in the future.

- Please account for gender differences when conducting research and development that, due to a failure to take into account gender differences such as those involving body size, structure, and functions, could result in inappropriate effects on society when the effects of that R&D are socially implemented.
- The cost of online classes and delivery lectures on science, physics, chemistry, etc. at elementary, junior high, and high schools by PhDs in science and mathematics, etc., can be paid from direct costs.

- Expenses for distributing R&D results as contents easily understood by junior high and high school students, etc. via SNS, etc. can be paid out of direct costs.
- The above two outreach activity results can be included in the report of research and development results and will be subject to positive evaluation. In addition, the above two outreach activities can be included in the R&D plan and will be subject to positive evaluation during the screening process.

4.16 Voluntary Research Activities of Young Researchers Employed to Implement the Project

In accordance with the "Implementation Policy on Voluntary Research Activities by Young Researchers Employed for the Implementation of Projects Funded by Competitive Research Funds" (revised on December 18, 2020, by the Liaison Committee among Ministries and Agencies on Competitive Research Funds), young researchers employed for this program may be compensated from personnel expenses for this program and a portion of their efforts toward this program may be considered voluntary research activities and efforts to improve management capabilities. This applies only when the Principal Investigator finds that such activities will advance, and not impede, the project, and that approval is obtained from the research institution to which the researcher belongs. Please refer to the following for more information.

- "Implementation Policy on Voluntary Research Activities by Young Researchers Employed for the Implementation of Projects Funded by Competitive Research Funds "[Liaison Committee among Ministries and Agencies on Competitive Research Funds (amended December 18, 2020)].
  https://www8.cao.go.jp/cstp/compefund/jisshishishin.pdf

- "Working with the Strategic Basic Research Program for Advanced Technologies for Carbon Neutrality (ALCA-Next) with regard to the ‘Implementation Policy on Voluntary Research Activities by Young Researchers Employed for the Implementation of Projects Funded by Competitive Research Funds’" (August 17, 2023).
  https://www.jst.go.jp/alca/dl/senjukanwa_houshin.pdf

4.17 Supporting Diverse Career Paths for Young Researchers

The "6th Science, Technology and Innovation Basic Plan" (approved by the Cabinet on March 26, 2021) sets forth the goal of creating "an environment in which talented young people can develop their careers in various fields, including academia, industry, and government. Furthermore, the "Guidelines for Employment and Training of Postdoctoral Fellows" (December 3, 2020, Human Resources Committee, Council for Science, Technology and Science) states that "It is essential that doctoral candidates who have acquired advanced expertise and excellent research capabilities play an active role in various fields in society, including venture companies and global companies, to create innovation, and it is important that they pursue a variety of career paths after they receive their PhD. In light of this, when young researchers such as specially-appointed professors and postdoctoral fellows are employed using public research funds (competitive research funds, other project research funds, and publicly solicited education and research funds for universities) after being selected for this call, we ask for your active efforts to support them in securing a variety of career paths.

In addition, please consider utilizing indirect costs for such initiatives.

4.18 Securing management personnel such as URA

The “6th Science and Technology Innovation Basic Plan” (Cabinet decision on March 26, 2021) indicated the importance of quality assurance and treatment improvement as professionals so that management personnel, such as URA, become an attractive job position. Furthermore, the “Comprehensive Package for Strengthening Research Capabilities and Supporting Young Researchers” (Comprehensive Council for Science, Technology, and Innovation, January 23, 2020) indicated the need to establish career paths for management personnel, URAs, and engineers.

Based on the above, when management personnel such as URAs employed or newly hired by the R&D institution are engaged in the management of the research program in this program, the R&D institution should try to secure fixed terms and avoid short terms to the extent possible by utilizing this program and other external funds, such as indirect costs, basic costs, and donations.

Simultaneously, JST requests that active efforts be made to support securing career paths for such management personnel, such as having them participate in URA training. Institutions should also consider using indirect costs in these efforts.

Additionally, this program requires efforts toward autonomous operation after the end of the R&D period. Therefore, if a fixed-term employment contract has been concluded with the relevant

management personnel, a system should be introduced that allows relevant management personnel to obtain stable employment, such as an indefinite employment contract based on appropriate evaluations.

4.19 Security export control (measures against overseas technology leaks)

Many advanced technologies are studied at R&D institutions. In particular, at universities, there is a heightened risk of leakage of advanced technologies and research-related materials/equipment or misuse in the development/manufacture of weapons of mass destruction owing to the increased number of international students and foreign researchers due to internationalization. Therefore, an organizational response by the R&D institution is required when an R&D institution conducts research activities, including the relevant commissioned research, so that research results with potential military applications are not passed to groups or individuals considering activities of concern, such as terrorist groups and developers of weapons of mass destruction.

In Japan, export controls (*1) are imposed based on the Foreign Exchange and Foreign Trade Act (Act No. 228 of 1949; hereinafter, “Foreign Exchange Act”) to maintain international peace and security. Accordingly, as a general rule, a license from the Minister of Economy, Trade and Industry is necessary when attempting to export (provide) goods or technologies controlled under the Foreign Exchange Act. All those participating in this program must comply with the Foreign Exchange Act and all other laws, ordinances, guidelines, and notifications of the national government. In addition to legal action and penalties, the distribution of research funds may be halted, and the decision to allocate research funds may be canceled if research is conducted in violation of the relevant laws, ordinances, and guidelines.

*1: Currently, Japan’s security export control system is mainly based on international agreements and comprises two systems: (1) a system in which permission from the Minister of Economy, Trade and Industry is required when exporting (providing) cargo (technology) with specifications and functions above a certain level, such as carbon fiber and numerically controlled machine tools (list regulation); (2) a system that requires permission from the Minister of Economy, Trade and Industry if specific requirements (usage requirements/user requirements or information requirements) are met when exporting (providing) goods (technology) that do not fall under list regulations (catch-all regulation).

The export of cargo and the provision of technology is subject to the regulation of the Foreign

Exchange Act. Advance permission is required when providing list-regulated technology to non-residents (including residents who fall under a specific type (*2)) or when providing it in a foreign country. The provision of technology encompasses technical information, such as blueprints, specifications, manuals, samples, and prototypes, in paper, email, and storage media, such as CDs, DVDs, and USB memory drives, and work knowledge through technical guidance and skill training, as well as technical support at seminars.

Acceptance of international students from abroad and activities such as joint research may include many exchanges of technologies that may be subject to the regulations of the Foreign Exchange Act. The regulations may also apply if attempting to provide technology acquired through this program or when attempting to provide technology that has already been acquired by utilizing this program.

*2: Refers to the type of resident who is strongly influenced by non-residents and refers to the specific types specified in “Transactions or Acts that Provide Technology and that Require Permission based on the Foreign Exchange and Foreign Trade Act Article 25, Paragraph 1, and Foreign Exchange Order Article 17, Paragraph 2” 1. (3) k (1) - (3).

Additionally, based on the Foreign Exchange Act, it is necessary for research institutions to establish a security trade management system when exporting list-regulated cargo or providing list-regulated technology to foreign countries (*3). Therefore, by the time the agreement is concluded, it may be necessary to confirm whether this program plans to provide cargo and technology subject to export regulations under the Foreign Exchange Act. If there is an intention to provide the information, a management system in place may be confirmed through the Cross-Ministerial R&D Management System (e-Rad). If intending to provide cargo or technology and there is no management system, a system must be put in place until the cargo or technology is provided or by the end of this program, whichever comes first. The confirmation status may be reported at the request of the Ministry of Economy, Trade and Industry. Moreover, if the technology acquired through this program violates the regulations related to the Foreign Exchange Act, the agreement may be canceled partially or entirely.

*3: Exporters must comply with the “Exporter Compliance Standards” stipulated in Article 55-10, Paragraph 1 of the Foreign Exchange Act. Further, the security trade management system here is based on the management system in the “Exporter Compliance Standards” and refers to an organization’s internal management system for preventing illegal exports by correctly

exporting list-regulated goods or providing list-regulated technologies to foreign countries.

Details of security trade management are available on the website of the Ministry of Economy, Trade and Industry. Please see the following for details:

(i) Ministry of Economy, Trade and Industry: Security export control (in general):
   - https://www.meti.go.jp/policy/anpo/

(ii) Ministry of Economy, Trade and Industry: Security Export Control Handbook:
   - https://www.meti.go.jp/policy/anpo/seminer/shiryo/handbook.pdf

(iii) Ministry of Economy, Trade and Industry: Guidance on Sensitive Technology Management Related to Security Trade (for universities and research institutions):
   - https://www.meti.go.jp/policy/anpo/law_document/tutatu/t07sonota/t07sonota_jishukanri03.pdf

(iv) Center for Information on Security Trade Control:
   - https://www.cistec.or.jp/export/jisyukanri/modelcp/modelcp.html

(v) Transactions or Acts that Provide Technology and that Require Permission based on the Foreign Exchange and Foreign Trade Act Article 25, Paragraph 1, and Foreign Exchange Order Article 17, Paragraph 2:
   - https://www.meti.go.jp/policy/anpo/law_document/tutatu/t10kaisei/ekimu__tutatu.pdf

4.20 Strict Adherence to United Nations Security Council Resolution No. 2321

In response to the nuclear test and repeated launching of ballistic missiles by North Korea in September 2016, the United Nations Security Council ("Security Council") adopted Security Council Resolution No. 2321 on November 30, 2016, which substantially increased and strengthened sanctions against North Korea. Accordingly, the Ministry of Education, Culture, Sports, Science and Technology issued the Request for Strict Adherence to United Nations Security Council Resolution No. 2321 (2016 MEXT document No. 98) on February 17, 2017.

"Scientific and technical cooperation" in section 11 of the main text of the Resolution is not limited to technologies regulated under the Foreign Exchange and Foreign Trade Act but includes all cooperation, except medical exchange. Accordingly, the R&D institution must adhere to this resolution in all research activities, including the relevant commissioned research.

See the following link for more information on Security Council Resolution No. 2321:

○ Ministry of Foreign Affairs of Japan: United Nations Security Council Resolution No. 2321,

Japanese translation (Ministry of Foreign Affairs Notice No. 463 (issued on December 9, 2016)):
https://www.mofa.go.jp/mofaj/files/000211409.pdf

4.21 Promotion of dialogue and collaboration with public stakeholders

The Promotion of “Science and Technology Dialogue with the People” (Basic Initiative Policy) (decision by the Minister of State for Science and Technology Policy and expert members of Council for Science and Technology on June 19, 2010) stated that passing on the results of science and technology to the people, gaining the understanding and support of the people, and working together to promote science and technology are essential for producing excellent results continually in science and technology and developing the country’s science and technology. If selected in this call for applications, and annual public research funding of 30 million JPY or more is received, JST requests that the researchers actively engage in “science and technology dialogue with the public,” such as public lectures on research results, symposiums, continuous distribution of research results on the Internet, and roundtable discussions involving diverse stakeholders.

(Reference) Promotion of “Science and Technology Dialogue with the People” (Basic Initiative Policy):
https://www8.cao.go.jp/cstp/stsonota/taiwa/taiwa_honbun.pdf

Additionally, the “6th Science and Technology Innovation Basic Plan” (Cabinet decision on March 26, 2021) states the need for the co-creation of knowledge and strengthening of science and technology communication through the participation of diverse entities such as citizen participation. The following examples provided by JST are “interactive dialogue and cooperation among diverse subjects.”

- Science Agora:
  https://www.jst.go.jp/sis/scienceagora/
- National Museum of Emerging Science and Innovation (Miraikan):
  https://www.miraikan.jst.go.jp/

4.22 Research data management

JST announced the “Basic Policy Regarding the Handling of Research Results for Open Science

Promotion" in April 2017 and revised it in April 2022. This policy stipulates the basic concept of making research papers, having open access, and storing, managing, and disclosing research data in the research activities of this program.

Generally, researchers participating in this program are requested to publish their research papers through institutional repositories or as publications premised on open access. In particular, peer-reviewed papers must be published within 12 months. Moreover, based on the data policy of the R&D institution, researchers must create a Data Management Plan (*1) that describes the policy and plan regarding the storage/management and disclosure/non-disclosure of research data generated through the research activities, submit it to JST together with the protocol, and undertake the research activities after implementing the storage, management, and release of research data based on this plan. The plan may be modified during the research process. Furthermore, metadata (*1) specified by JST must be assigned to the data to be managed as specified in the Data Management Plan. Managed data to which metadata has been added must be appropriately included in the institutional repository specified by each R&D institution or the research data infrastructure system operated by the National Institute of Informatics. Please see the following for details:

○ "JST's Basic Policy Regarding the Handling of Research Results for Open Science Promotion": https://www.jst.go.jp/all/about/houshin.html#houshin04

○ "JST's Basic Policy Operation Guidelines Regarding the Handling of Research Results for Open Science Promotion":
https://www.jst.go.jp/pr/intro/openscience/guideline_openscience_r4.pdf

(*1) Items to be included in the Data Management Plan and metadata items are described in this guideline.

○ "Management and Utilization of Publicly Funded Research Data" (Cabinet Office):
https://www8.cao.go.jp/cstp/kenkyudx.html

○ "Basic Approach to Management and Utilization of Publicly Funded Research Data"
(Integrated Innovation Strategy Promotion Council):
https://www8.cao.go.jp/cstp/tyousakai/kokusaiopen/sanko1.pdf

○ "Common metadata items in 'Basic Approach to Management and Utilization of Publicly Funded Research Data'" (as of March 31, 2023):
https://www8.cao.go.jp/cstp/common_metadata_elements.pdf

JST analyzes statistical data, such as the number of data modules, the type of data, the type of disclosure, and the location of storage, to understand the contents of the description, support researchers, and reflect (revise) the basic policies. The statistical data analyzed will be made public, but no information that allows identification of the names will be disclosed.

*As for life science data, please also refer to “4.23 Data disclosure from National Bioscience Database Center.”

4.23 Data disclosure from National Bioscience Database Center

The National Bioscience Database Center (NBDC) of JST has proceeded with the Integration of Life Science Database Project (https://biosciencedbc.jp/) to promote the integrated use of databases in the life sciences field created by various research institutions and others.

Further, the “Progress and Future Direction of the Integration of Life Science Database Project” (January 17, 2013) states that the NBDC (currently the NBDC Program Promotion Department) will play a central role in expanding the target programs for which data and databases will be provided.

Based on these points, program participants are asked to cooperate in disclosing the following types of data and databases related to the life science field obtained from this Program.

No.	Type of data	Site of disclosure	URL for the site of disclosure
1	Overview of public databases that have been built	Integbio Database Catalog	https://integbio.jp/dbcatalog/
2	Data recorded in public databases that have been built	Life Science Database Archive	https://dbarchive.biosciencedbc.jp/
3	Of the items in 2., data related to human beings	NBDC Human Database	https://humandbs.biosciencedbc.jp/

4.24 Inclusion of systematic numbers in paper acknowledgments

When presenting the research outcomes obtained through this program, please indicate the receipt of the grant through this program.

If mentioning in the Acknowledgment of the paper that it was funded by this Program, please include “JST-ALCA-Next Program Grant Number (10-digit systematic number).” The same applies when submitting a paper. The 10-digit systematic number in this program is in the form of JPMJ + AN + four-digit alphanumeric. A notification of the systematic number will be made at the time of selection.

Examples of how to use the systematic number in the Acknowledgement of the paper are

illustrated below:

[English]

This work was supported by JST-ALCA-Next Japan Grant Number JPMJANxxxx.

[Japanese]

本研究は、JST 戦略的創造研究推進事業 ALCA-Next JPMJANxxxx の支援を受けたものです。

*If you have two programs or more in relation to a paper, list all the names of the programs and the systematic numbers.

4.25 Accreditation of Partnership on Research Assistance Service

The Ministry of Education, Culture, Sports, Science and Technology established the Accreditation of Partnership on Research Assistance Service (A-PRAS) in 2019 to improve the research environment for researchers, accelerate the promotion of science, technology, and innovation in Japan, and provide support for the development of various initiatives related to research support services. Under this system, research support services provided by private business operators that meet specific requirements are accredited as a “Research support service/partnership” by the Minister of Education, Culture, Sports, Science and Technology. Eight services have been certified as of April 2023. Various services, including searching for co-researchers, publicizing and programming research results, and procuring research funds and equipment, are available. Therefore, please do not hesitate to use them.

Details of each certified service can be found on the Ministry of Education, Culture, Sports, Science and Technology website:

https://www.mext.go.jp/a_menu/kagaku/kihon/1422215_00001.htm

4.26 Reformation of competitive research funds

Currently, the systems of competitive research funding are being discussed by the government of Japan under the scope of the “6th Science and Technology Innovation Basic Plan”, “Integrated Innovation Strategy 2023”, and the “Comprehensive Package for Strengthening Research Capabilities and Supporting Young Researchers” to enable the efficient and effective use of research funds. If, within the call period, policies common to other competitive research funding programs are presented regarding the improvement and operation of these systems, JST will notify the researchers again when this policy is applied to calls and operations of this program.

4.27 Guidelines for the Management and Audit of Public Research Funds in Research Institutions (Practice Standards)

(1) System implementation of the “Guidelines for the Management and Audit of Public Research Funds in Research Institutions (Practice Standards)”

When applying to this program and conducting research, R&D institutions must strictly observe the “Guidelines for the Management and Audit of Public Research Funds in Research Institutions (Practice Standards)” (decision by Minister of Education, Culture, Sports, Science and Technology; revised on February 11, 2021) (*).

R&D institutions, having implemented a system for managing and auditing public research funds, are responsible for making every effort to disburse the research funds appropriately in line with the aforementioned guidelines. If the Ministry of Education, Culture, Sports, Science and Technology decides that the system of the R&D institution for managing and auditing is insufficient, based on an investigation according to the said guidelines, measures may be taken, such as a reduction of indirect costs, including all competitive research funds allocated by the Ministry of Education, Culture, Sports, Science and Technology and independent administrative agencies under the jurisdiction of the Ministry of Education, Culture, Sports, Science and Technology.

*Please refer to the Ministry of Education, Culture, Sports, Science and Technology website for the “Guidelines for the Management and Audit of Public Research Funds in Research Institutions (Practice Standards)”:
https://www.mext.go.jp/a_menu/kansa/houkoku/1343904_21.htm

(2) Submission of the “Self-Evaluation Checklist for Implementation of Proper Systems” based on the “Guidelines for the Management and Audit of Public Research Funds in Research Institutions (Practice Standards)”

In concluding an agreement for this Program, each R&D institution must prepare a management and auditing system for research costs based on the abovementioned guidelines and submit a Self-Evaluation Checklist for Implementation of Proper Systems (“Checklist”), which is a report on the status of the system (agreement will not be approved unless the Checklist is submitted).

Therefore, after April 1, 2024, please check the contents of the Ministry of Education, Culture,

Sports, Science and Technology website below, and respond and submit the checklist according to the website's contents before concluding the R&D agreement.

Additionally, research institutions that have already submitted the FY2023 version of the Checklist will be approved for an agreement regardless of the above. However, if this applies, please complete the response/submission procedures for the FY2024 version of the Checklist by December 1, 2024.

This response/submission procedure must be continued during the period when competitive research funds are allocated by JST and the funds are being managed.

Organizations that do not accept any competitive funding or the like or any provision from the Ministry of Education, Culture, Sports, Science and Technology or an independent administrative agency in the jurisdiction of the Ministry of Education, Culture, Sports, Science and Technology need not submit a Checklist.

Please refer to the Ministry of Education, Culture, Sports, Science and Technology website below for more information on this matter, including the above points:

https://www.mext.go.jp/a_menu/kansa/houkoku/1324571.htm

As the guidelines include the perspective of "promotion of information dissemination and sharing," JST requests that efforts to prevent misconduct be posted on the applicable R&D institution's website and that the information be actively disseminated.

4.28 Guidelines for Responding to Misconduct in Research

(1) System implementation based on "Guidelines for Responding to Misconduct in Research"

In applying to this Program and conducting research activities, R&D institutions must adhere to the "Guidelines for Responding to Misconduct in Research" (decision by the Minister of Education, Culture, Sports, Science and Technology on August 26, 2014) (*).

If the Ministry of Education, Culture, Sports, Science and Technology decides that the system of the R&D institution for managing and auditing is insufficient, based on an investigation according to the guidelines, measures may be taken, such as a reduction of indirect costs, including all competitive research funds allocated by the Ministry of Education, Culture, Sports, Science and Technology and independent administrative agencies under the jurisdiction of the Ministry of Education, Culture, Sports, Science and Technology.

Please refer to the Ministry of Education, Culture, Sports, Science and Technology website for

the “Guidelines for Responding to Misconduct in Research”:
https://www.mext.go.jp/b_menu/houdou/26/08/1351568.htm

(2) Submission of the “Checklist regarding the Status of Efforts based on the Guidelines for Responding to Misconduct in Research”

When concluding an agreement for this program, R&D institutions must submit a Checklist regarding the Status of Efforts (“Research Misconduct Checklist”) based on the “Guidelines for Responding to Misconduct in Research” (agreement will not be approved unless the Research Misconduct Checklist is submitted).

Accordingly, after April 1, 2024, R&D institutions should check the contents of the website below and download the FY2024 version of the Research Misconduct Checklist form from e-Rad, fill out the necessary sections, and submit it (upload it) via e-Rad to the Research Integrity Promotion Office, Research Environment Division, Science and Technology Bureau, Ministry of Education, Culture, Sports, Science and Technology before the conclusion of the R&D agreement.

Furthermore, R&D institutions that have already submitted the FY2023 version of the Research Misconduct Checklist will be approved for an agreement regardless of the above. Nevertheless, in this case, then please submit the FY2024 version of the Research Misconduct Checklist by September 30, 2024.

Institutions not receiving competitive funds from the Ministry of Education, Culture, Sports, Science and Technology or administrative agencies under its jurisdiction through a budget allocation or budgetary measures need not submit the Research Misconduct Checklist.

Please refer to the Ministry of Education, Culture, Sports, Science and Technology website below for more information on the Research Misconduct Checklist:
https://www.mext.go.jp/a_menu/jinzai/fusei/1420301_00005.html

(*1) An environment in which e-Rad can be used is necessary for submission of the Research Misconduct Checklist. The research institution registration process for e-Rad requires approximately two weeks. See the URL below for details of the procedure related to the use of e-Rad:
https://www.e-rad.go.jp/organ/index.html

(*2) Institutions that conduct research activities that receive budget allocations or measures from the Ministry of Education, Culture, Sports, Science and Technology and the

independent administrative agencies under its jurisdiction must submit a Research Misconduct Checklist by September 30 of each fiscal year (or the immediately preceding business day if September 30 falls on a Saturday, Sunday, or holiday) while conducting the relevant research activities.

(3) Measures Taken for Misconduct in Research Activities based on the “Guidelines for Responding to Misconduct in Research”

Misconduct in research activities in this program is treated strictly as described below.

(i) Measures to cancel agreements

If the specified misconduct (fabrication, falsification, and plagiarism) is identified in the research project of the program, the commissioned agreement is canceled or altered, and a refund of all or part of the commissioned funds is requested. Agreements from the following fiscal year onward may not be concluded.

(ii) Measures to restrict application and participation eligibility

Measures given in the table below, depending on the level of inappropriateness and responsibility of the specified misconduct, to restrict application to and participation in this program are imposed upon researchers involved in specific misconduct in research papers or reports of this program and those whose involvement has not been established but who are found responsible to an extent for the violation of due care as a prudent manager of pertinent papers and reports.

Further, if measures to restrict application and participation eligibility are taken, information is provided to pertinent sections of competitive research funding systems distributed by the Ministry of Education, Culture, Sport, Science and Technology and independent administrative agencies of the ministry (“competitive research funding systems related to the Ministry of Education, Culture, Sport, Science and Technology”) and pertinent sections of competitive fund systems distributed by other ministries and their independent administrative agencies (henceforth referred to as “competitive research funding systems related to other ministries and agencies”), which may similarly restrict application and participation eligibility in other competitive research funding systems related to the Ministry of Education, Culture, Sport,

Science and Technology and other ministries.

(*) “Application and participation” refers to proposing, applying for, or submitting a new proposal, participating in new research as a co-researcher, or participating in an ongoing research project (ongoing project) as a PI or co-researcher.

<table>
<tr><th colspan="3">Classification of people with submission restriction due to involvement with specified misconduct</th><th>Extent of specified misconduct</th><th>Submission restriction period*</th></tr>
<tr><td rowspan="4">People involved in specific misconduct</td><td colspan="2">1. Particularly malicious person who, from the beginning of the research, intended to commit specified misconduct</td><td></td><td>10 years</td></tr>
<tr><td rowspan="3">2. Author of the paper that is the product of research with specified misconduct</td><td rowspan="2">Authors of the paper responsible for its content (supervisor, representative author, or others identified to be equally responsible for the paper)</td><td>Misconduct has a large impact on the development of research in the relevant field, or the maliciousness of the misconduct is judged to be high</td><td>5–7 years</td></tr>
<tr><td>Misconduct has a small impact on the development of research in the relevant field, or the maliciousness of the misconduct is judged to be low</td><td>3–5 years</td></tr>
<tr><td>Authors other than the above</td><td></td><td>2–3 years</td></tr>
</table>

	3. Person who engaged in specified misconduct other than those of 1. and 2.		2–3 years
Author who was not involved in the specified misconduct but was responsible for the paper of the research involving specified misconduct (supervisor, representative author, or others identified to be equally responsible for the paper)		Misconduct has a large impact on the development of research in the relevant field, or the maliciousness of the misconduct is judged to be high	2–3 years
		Misconduct has a small impact on the development of research in the relevant field, or the maliciousness of the misconduct is judged to be low	1–2 years

* As a general rule, the submission restriction period is calculated as starting from the fiscal year following the fiscal year in which the specified misconduct is identified. The researcher is also ineligible in the fiscal year in which the specified misconduct is identified.

(iii) Measures against researchers whose application and participation eligibility has been restricted under other competitive research funding systems

For researchers whose application and participation eligibility has been restricted due to specified misconduct in research activities in other competitive research funding systems related to the Ministry of Education, Culture, Sports, Science and Technology, grants for operating expenses to national university corporations, inter-university research institute corporations, and independent administrative agencies under the jurisdiction of the Ministry of Education, Culture, Sports, Science and Technology, basic expenses such as private school

grants, and competitive research funding systems related to other ministries, this restriction period will also apply as the application and participation eligibility restriction period for this program.

Notably, “other competitive research funding systems related to the Ministry of Education, Culture, Sports, Science and Technology” and “competitive research funding systems related to other ministries and agencies” include systems that will newly start calling from FY2024 onward. This also covers systems that ended before FY2024.

(iv) Public announcement of case of specified misconduct

In the event of misconduct in research activities in this program, as a general rule, JST will publicly announce the contents of the applicable case (name of misconduct, type of misconduct, program name, summary of misconduct case, measures taken by JST). The Ministry of Education, Culture, Sports, Science and Technology will also make a public announcement concerning the contents of the pertinent misconduct (the name of misconduct, kind of misconduct, research field of misconduct, name of expense account of misconduct, summary of misconduct, measures taken by the research institution, measures taken by the funding institution, etc.)

Additionally, the abovementioned guidelines stipulate that the research institution shall promptly disclose the investigation results when misconduct has been identified. Therefore, each institution should respond appropriately.

https://www.mext.go.jp/a_menu/jinzai/fusei/1360483.htm

4.29 Duty to complete education on research ethics and compliance

Researchers who participate in the research project of this program shall receive training on research ethics education for the prevention of misconduct in research activities as per the “Guidelines for Responding to Misconduct in Research” and compliance education as per the “Guidelines for the Management and Audit of Public Research Funds in Research Institutions.”

During the process of concluding an R&D agreement after the proposed research project is selected, the PI must submit a document confirming that all researchers participating in research projects in this program have taken the research ethics education and compliance education and have understood the content.

4.30 Handling of information on projects and other items on e-Rad

Information on e-Rad regarding each selected project (program name, research project name, affiliated research institution name, PI name, budget amount, implementation period, summary of project) is handled as “information scheduled to be made public” stipulated in the Act on Access to Information Held by Independent Administrative Agencies (Act No. 140 of 2001) Article 5, Item 1, B. After selection, this information will be made available on the program’s website and the JST Project Database (“PDB,” https://projectdb.jst.go.jp/) and Research Project Integrated Search (GRANTS, https://grants.jst.go.jp/) operated by JST. Moreover, research result reports submitted by researchers that can be made public may be publicized in the PDB.

4.31 Provision of information from e-Rad to Cabinet Office

The “6th Science and Technology Innovation Basic Plan” (Cabinet decision on March 26, 2021) stipulates that evidence-based policy making (EBPM) will be thoroughly implemented in the science, technology, and innovation administration, and the information registered in the Cross-ministerial R&D Management System (e-Rad) will be used for appropriate evaluation of government-funded R&D, planning of effective and efficient comprehensive strategies, and resource allocation policies.

Therefore, researchers are requested to input information on research outcomes, accounting performance records, and indirect cost execution records for competitive grants for each fiscal year for the selected project in the e-Rad. The information necessary for macro analysis, including information on research outcomes and accounting performance records, will be provided to the Cabinet Office.

The information necessary for macro analysis, including information on research outcomes and accounting performance records, will be provided to the Cabinet Office.

4.32 Registration of researcher information on researchmap

For ALCA-Next, researchers are required to submit research plans and reports of research results using JST's research project management system (R3; R-Cube*2), which is linked to JST's researcher information database (researchmap*1). Since registration in researchmap of Researchers, PIs and Co-PIs whose proposals have been selected for interview is mandatory for this purpose, those who have not yet registered are recommended to register as soon as possible

before interview selection. The information in researchmap is utilized effectively for surveying national academic or science and technology plans, as well as for statistical purposes. Registration at researchmap and updating of achievement information are requested.

（*1）Researchmap (https://researchmap.jp/?lang=english) is a Japanese researcher information database which has more than 300 thousand researcher registrations, and registered achievement information can also be administrated and disclosed. In addition, researchmap is linked with e-Rad and faculty databases of many universities, and the registered information can be used in other systems, so the same achievements can be registered many times in various application forms and databases. It also leads to efficiency, such as eliminating the need to do it.

（*2）R3 (R Cube) is an electronic application system for research plans and results reports that is used by researchers selected for ALCA-Next.

For new registrations, method to confirm your registration status, method to login or to reissue your password, please see the Quick-start Guide for Registration and login to the following website:

https://researchmap.jp/outline/rr_manual/quickguide.pdf (in Japanese)

https://researchmap.jp/public/account/?lang=en (in English, for new registration only)

For methods to register or update of your achievement information or to output your information on researchmap,

refer to the following website (in Japanese):

https://researchmap.jp/public/FAQ-1/

4.33 Patent applications by JST

If an R&D institution does not acquire rights to an invention, JST may acquire those rights in some cases. Therefore, if an R&D institution does not foresee acquiring rights to an invention, the researcher should notify JST promptly, providing information concerning the said invention in any appropriate format (the above “information concerning the said invention” means information necessary for JST to determine whether an application for intellectual property rights is possible, for example, a copy of the notification of invention used in the R&D institution).

JST will conduct a study based on the received notice, and if JST judges, based on the results, that an application for the said invention is possible, a separate Patent Rights Transfer Agreement

will be concluded between the R&D institution and JST.

*Patent application non-disclosure system

The patent system grants patent rights and uniformly discloses inventions for which patent applications have been applied, promoting further technological improvements and eliminating duplicative research and development. Meanwhile, before the establishment of the patent application non-disclosure system, Japan's patent system was such that once a patent application was filed, even if the invention was not to be disseminated for security reasons, the government had a system in which the contents of the application were made public after one year and six months had elapsed. The systems of other countries commonly keep patent applications related to such inventions private. Therefore, Japan, under its Act on the Promotion of Ensuring National Security through Integrated Implementation of Economic Measures (Act No. 43 of 2022) ("Economic Security Promotion Act"), established a patent application non-disclosure system in which, under certain cases, procedures such as application disclosure are suspended, and measures are taken to prevent the spread of patent applications.

Under the Economic Security Promotion Act, if the specification of a patent application describes an invention that, if made public, is likely to cause a situation in which external acts will harm the security of Japan and its citizens, through a procedure called "preservation designation," patent procedures such as publication of application, the decision to grant a patent, and the decision to refuse will be suspended. During this period, the disclosure of the contents of the invention in general, including publication and the implementation of inventions that may lead to similar results, is prohibited as a general rule. Additionally, the removal of the patent application by withdrawing it is prohibited. Please ensure compliance with national laws, guidelines, and notifications, including the Economic Security Promotion Act.

Details of the patent application non-disclosure system are available on the Cabinet Office website. Please see the following for details:

・"Cabinet Office: Patent application non-disclosure system":
https://www.cao.go.jp/keizai_anzen_hosho/patent.html

Chapter 5: Submission via Cross-Ministerial R&D Management System (e-Rad)

5.1 Cross-Ministerial R&D Management System (e-Rad)

The Cross-ministerial R&D Management System (e-Rad) is a cross-ministerial system that provides a series of online processes (acceptance of applications → selection → adoption → management of adopted projects → reporting of research results) to manage the publicly funded research projects under the jurisdiction of ministries and agencies.

* “e-Rad” is the abbreviation of the Cross-ministerial R&D Management System, which is created by adding the capital letter “e” of “Electronic” to the capital letters of “Research and Development” for science and technology.

5.2 Application method using e-Rad

Applications must be submitted through the e-Rad (e-Research and Development Management System).

When applying, please refer to the e-Rad portal site (hereinafter referred to as the “portal site”) (https://www.e-rad.go.jp/en/).

* Regarding various application processes necessary for using e-Rad, as a general rule, applications using paper documents are not accepted. Therefore, be sure to conduct each process using the e-Rad portal site. Additionally, please pay particular attention to the following points when applying.

(1) Pre-registration for using e-Rad (https://www.e-rad.go.jp/organ/index.html)

Pre-registration of the R&D institution and affiliated researchers is required by the time of application.

(i) Application for registration of research institution

Please appoint one administrative representative for e-Rad for the R&D institution and complete the procedures from “Application for Registration of Research Institution” (https://www.e-rad.go.jp/organ/entry.html).

Please allow at least two weeks to complete the procedure.

Once registered, researchers need not register again when applying for programs/projects administered by other ministries or agencies.

Re-registration is unnecessary if you have already registered for a program or project administered by another ministry or agency.

(ii) Registration of departmental information, administrative staff information, position information, and researcher information

The administrative representative will log in to e-Rad with the ID and password obtained in (i), register departmental information, the administrative staff (if any), position information, and researcher information, and issue IDs and passwords for the administrative staff and researcher.

For the registration procedure, please refer to “10. Procedures for Research Institutions,” “11. Procedures for Research Institution Administrative Members,” and “12. Procedures for Researchers” in the “Manual for Research Institution Administrative Representatives” on the portal site (https://www.e-rad.go.jp/manual/for_organ.html (Japanese only)).

(2) Application through e-Rad

・Proposal submission by researchers

Please refer to the Researcher’s Manual on the portal site (https://www.e-rad.go.jp/manual/for_researcher.html). Applications that have not been “Processed” or “Accepted” by the submission deadline will be considered invalid. Please check the status of your application on the “Proposal List” page. If a researcher’s application is submitted by the submission deadline date and time but does not reach one of these statuses, please contact the program staff. Although the proposal must be “accepted” by the funding agency to manage the submitted proposal, this status is not required in terms of completion of the application process by the researcher. If the status of the submitted proposal is “Applying,” and the application type (status) is “Allocation Agency Processing Application” by the deadline, the application has been successfully submitted.

Precautions

(1) The application information must be entered online, and the application form must be attached to apply.

The application form can be uploaded as a single electronic file with a maximum file size of 3 MB. Please pay attention to the file size if using image data in the file. If exceeding the upper limit is unavoidable, please contact the program staff before applying.

(2) The created application form file can be uploaded only in PDF format. e-Rad has a PDF conversion function from WORD and Ichitaro files. The use of this conversion function is not required to convert the submitted form file to PDF, but if you use this, please make sure to refer to the Researcher's Manual for instructions and precautions.

(3) Incomplete application forms will not be considered for selection. Please read the application guidelines and research proposal instructions carefully. (Do not change the format of the application form.) Proposals submitted after the deadline will not be accepted for replacement.

5.3 Others

(1) How to operate e-Rad

Manuals on how to operate e-Rad can be viewed or downloaded from the e-Rad portal site (https://www.e-rad.go.jp/en/) .

(2) Contact information regarding the e-Rad operation method

Inquiries regarding the program will be handled by the program staff. For inquiries regarding the e-Rad operation method, please contact the e-Rad Help Desk. Please carefully check the website for the call for proposals for this program and the e-Rad portal site before making an inquiry. **JST cannot respond to any inquiries regarding the selection status or acceptance/rejection of proposals.**

Inquiries regarding the program and procedures for creating and submitting application documents	Department of R&D for Future Creation, JST	Please send inquiries by e-mail E-mail: alca-next@jst.go.jp
Inquiries regarding the e-Rad operation method	e-Rad Help Desk	0570-057-060 (Navi Dial; available within Japan) 9:00–18:00 *Excluding Saturdays, Sundays, holidays, and New Year’s holidays

○ Page for calls for proposals of this program: https://www.jst.go.jp/alca/en/koubo/2024-3/index.html

○ e-Rad portal site: https://www.e-rad.go.jp/en/

(3) e-Rad available hours

As a general rule, e-Rad operates 24 hours a day, 365 days a year, but service may be suspended due to system maintenance. If service is to be suspended, users will be notified in advance on the e-Rad portal site.