Strategic Basic Research Programs

ALCA-Next

Application Guidelines for 2025

Application Period
Friday, March 7, 2025 - Thursday, May 8, 2025 at 12:00

Note: This translation is provided as a reference material. If there is any discrepancy between this translated version and the original Japanese version, the original Japanese version prevails.

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
March 2025

<Outline of the Call for Proposals>

(1) Schedule for the Call for Proposals and Selection

The schedule for Call for proposals and Selection for FY2025 is as follows.

Start of call for proposals	Friday, March 7, 2025
Application deadline (Deadline for acceptance by e-Rad)	Thursday, May 8, 2025 Noon (Japan Standard Time)
Document screening period	Mid-May to mid-June
Interview screening period	Late June to mid-July
Notification and announcement of selected proposals	Late August to early September
Start of R&D projects	Early September 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.

*4 The specific date and time of the interview will be specified by JST. In principle, the selection process for FS proposals will be based on document screening only. However, interview sessions may be held if necessary.

*5 The schedule for the interview selection process and the date of e-mail notification to those selected for interviews will be announced on the open call website as soon as details are confirmed.

ALCA-Next's open call website: https://www.jst.go.jp/alca/koubo/2025/index.html

(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: Submission

via Cross-Ministerial R&D Management System (e-Rad)"). Please allow sufficient time to complete the application process, as the e-Rad system may become busy near the deadline, slowing down page transitions, preventing proposal uploads, causing errors that return to the top page, and potentially preventing completion of the application by the deadline. **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.** Please note that if a major system failure occurs on e-Rad during the application period making it difficult to submit R&D proposals through e-Rad, countermeasures may be posted on the open call website.

Please make sure the description of e-Rad and the proposal text regarding the institution/position (in case of discrepancy, the statement in the proposal text will be treated as correct) coincide with each other. 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, omissions from each of the proposal forms (especially Form 1: Proposal Cover Page), 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.

Please refer to the open call website and "Chapter 5: Submission via Cross-Ministerial R&D Management System (e-Rad)" for application method.

(3) Target Technology Areas of the Call for Proposals

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

Technology Areas
Energy Conversion and Energy Storage (Program Officer: WATANABE Masayoshi)
Resource Circulation (Program Officer: WATANABE Masayoshi)
Green Biotechnology (Program Officer: EZURA Hiroshi)

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

* **We also expect R&D proposals that do not fall into any of the above technical areas, but are based on the free thinking of individual researchers toward the realization of carbon neutrality.**
* **We invite "Feasibility Study (FS) Proposals" in the above technical areas. FS proposals that do not fall into any of the above technical areas are also invited.**

(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 essential to 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 “Green Technologies 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. Specifically, this Program 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, 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 by the end of the R&D period.

The Program will be managed with features such as "starting small," "selection and concentration through stage-gate evaluation," and "acceleration after stage-gate evaluation" to achieve this purpose. In the stage-gate evaluation, the continuation or discontinuation of R&D is strictly evaluated not only from the viewpoint of development in science, but also from the viewpoint of "the possibility

[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/

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. In particular, the Program Director (PD), who oversees this Program, will also serve as the PD of GteX, and through active collaboration that leverages the characteristics of each program, we aim to accelerate R&D toward early practical implementation.

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 from a bird's-eye perspective. The PD receives advice from the Innovative GX Technology Promotion Committee and makes decisions on important matters related to the operation of the Program, including the formulation and review of program 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 committee is chaired by the PD and consists of outside experts.

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 PD of this program will also serve as the PD of GteX, aiming to maximize results through active collaboration.

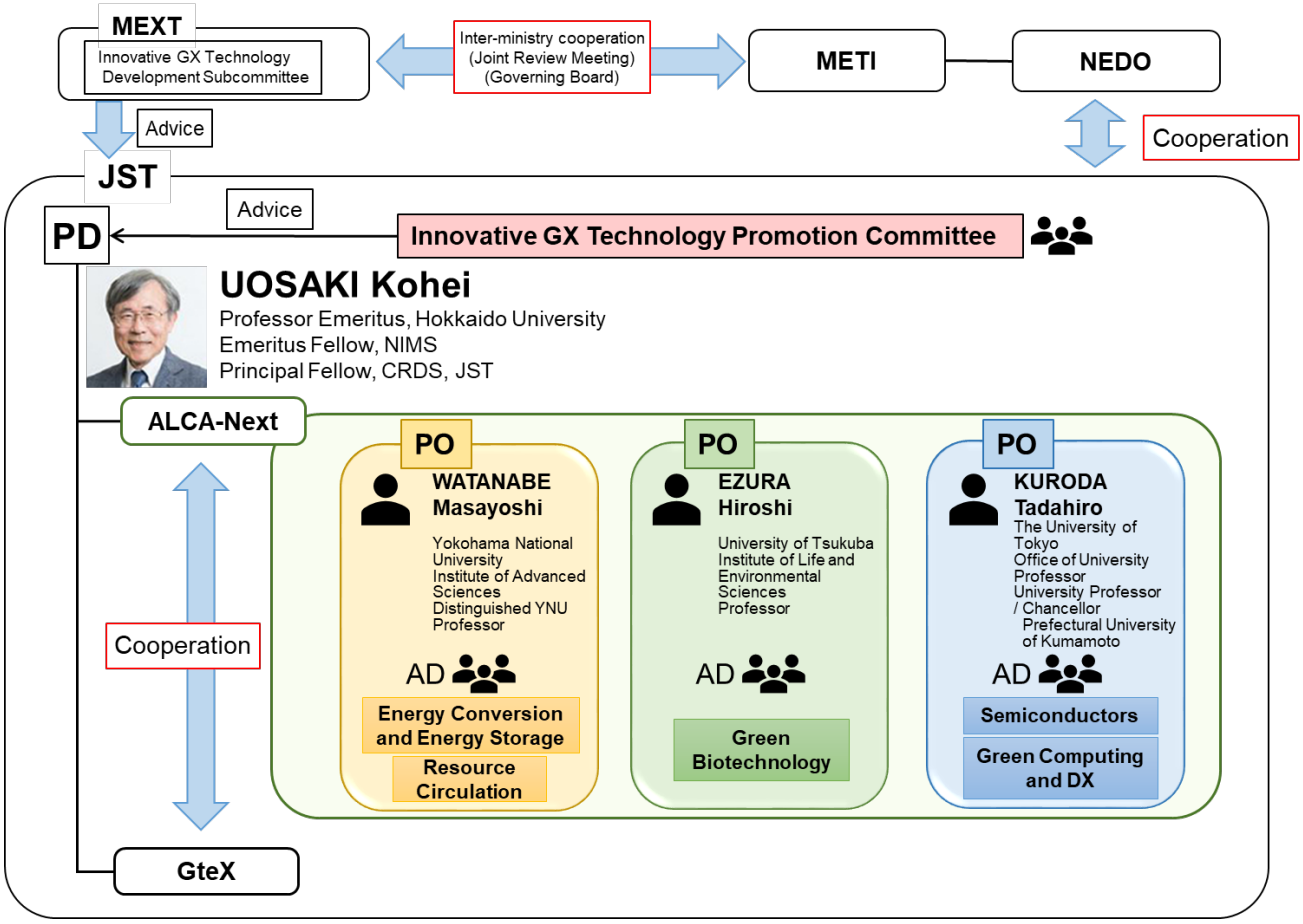


Figure Management Structure for this Program

1.1.3 Structure and Characteristics of ALCA-Next

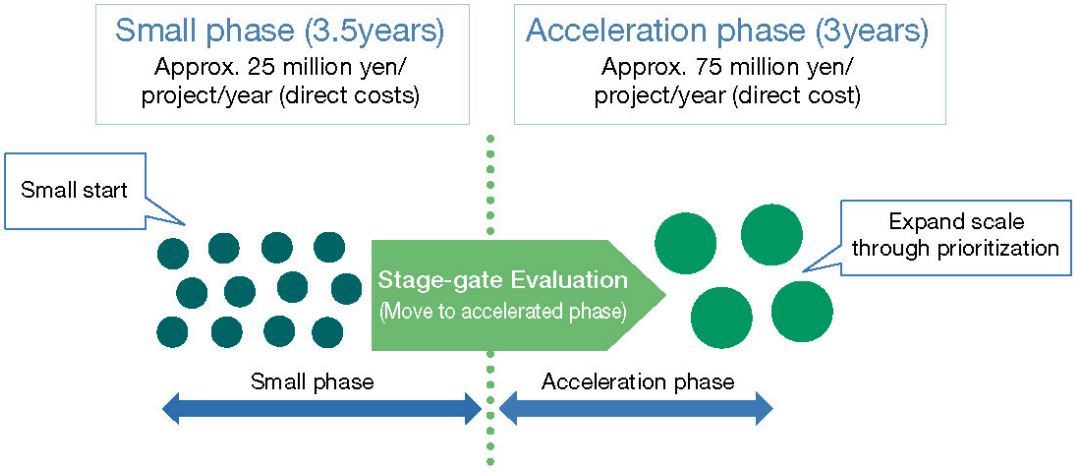
In applying for the Program and promoting R&D after being selected, you are required to take the following program design and characteristics into consideration.

(1) Wide Range of Research Fields Eligible for Support

- The Program widely supports new ideas based on the free thinking of individual researchers toward the realization of carbon neutrality.
- Support will be provided for five technology areas that have many scientifically unexplored aspects and where Japanese academia is expected to make significant future contributions: "Energy Conversion and Energy Storage," "Resource Circulation," "Green Biotechnology," "Semiconductors," and "Green Computing and DX." Support will also be provided for R&D that can significantly contribute to achieving carbon neutrality, even if it does not fall into any of these areas.

(2) Selection and Concentration through 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, innovative and challenging proposals are actively adopted, 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. In the stage-gate evaluation, not only simple narrowing down, but also reorganization through integration of multiple projects may be considered depending on the situation. 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 advance to the acceleration phase. In the acceleration phase, the R&D scale will be expanded through measures such as strengthening the R&D system, and R&D will be accelerated toward achieving the R&D goals.
- In principle, Principal Investigators are expected to continue until seven years after the end of the acceleration phase.



(3) Management and R&D Promotion by PO

- Under the detailed management of PO and others, Principal Investigators affiliated with universities, companies, and public R&D institutions conduct R&D in this Program.
- The PO's policy on the management and promotion of R&D and other details are described in Chapter 6 of the Application Guidelines (Appendix) (https://www.jst.go.jp/alca/koubo/2025/index.html).
- Based on the preliminary evaluation and through coordination with the 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 PO.
- PO and other relevant staff conduct regular monitoring and evaluation of R&D. The R&D plan will be revised if achieving goals is deemed difficult. The R&D budget may be increased if acceleration of R&D is needed for early practical implementation. Such flexible measures will be taken as necessary.

(4) Collaboration with GteX and Initiatives toward Maximizing Results

- GteX aims not only to achieve results in basic research, but also to improve the technological 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.
- A single PD oversees the operations of both this Program and GteX. Active collaboration between the programs will be pursued, such as in the examples below, utilizing the unique characteristics of each program. This aims to accelerate R&D for maximizing outcomes and achieving early practical implementation.
  - Collaborative works will be made in data sharing, international collaboration, and young researcher development. A system exists for researchers in this Program to utilize

research equipment maintained and available at GteX, promoting shared equipment use. For details on this system, please refer to the following URL:
https://www.jst.go.jp/gtex/field/pf.html

- When PD, PO and others determine that results from adopted projects in this Program would be effective as elemental technologies for GteX team-based research, arrangements may be made for participation in GteX-adopted projects.
- When proposals are submitted to this Program, if GteX POs and others determine that parts or all of the proposal would be effective for GteX, arrangements may be made for participation in GteX-adopted projects. JST will contact the applicants to discuss such arrangements.

(5) Research and development system

The PI 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.

In FY2025, we will **also call for "Feasibility Study (FS) Proposals" to identify and foster challenging and diverse proposals for the creation of game-changing technologies.** The FS Proposals can be submitted on a smaller scale than for ALCA-Next. FS Proposals are also welcome if you have a novel idea for contributing to carbon neutrality, but lack preliminary knowledge and data, or are considering joint research partners.

When applying for an FS proposal, please keep the following points in mind:

- With regard to specific research themes that are intended to be used for a regular R&D proposal to ALCA-Next, applicants will need to supplement their research data in order to scientifically validate the potential for their proposal to contribute to carbon neutrality, and then set R&D objectives accordingly. After the FS is completed, applicants will then submit a regular ALCA-Next application[3].
- Please clarify what data is missing and how you would supplement it for a regular ALCA-Next application.

In addition, POs may be approached to conduct an FS for a regular R&D proposal to ALCA-Next if the PO deems it necessary.

1.1.4 Key Points when Applying to ALCA-Next

(1) Research Phases Targeted by ALCA-Next

ALCA-Next is a program that promotes comprehensive research and development from basic R&D targeting elemental science and technology that will lead to the creation of new principles, concepts, and breakthroughs, 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.

Principal Investigators are expected, in principle, to continue their R&D for seven years. Additionally, Principal Investigators who can continue working on development research projects based on the results of this program after the acceleration phase are preferred.

(2) Sharing of Selection Information with GteX POs

As described in Section "1.1.2 Management Structure" and Section "1.1.3 Structure and Characteristics of ALCA-Next (4)", ALCA-Next and GteX will be operated as an integrated system to maximize outcomes and accelerate R&D toward early practical implementation through collaboration.

Selection information, including R&D proposals submitted to this program, will be shared within necessary scope with GteX POs in relevant fields. These POs will also participate as observers in both document screening and interview selection processes. Please note this in advance.

GteX POs from relevant fields may also participate in site visits and stage-gate evaluations after

[3] In principle, we expect applicants to submit a regular application for ALCA-Next two fiscal years after an FS of 1.5 years has been completed, but applications may be submitted after one fiscal year depending on research progress.

project adoption. They may review R&D progress including R&D plans and outcomes. Please note this in advance.

(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 R&D, and to participate in discussions on the direction of R&D. 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 Co-Principal Investigator, etc.," "4.12 Improving the Treatment of Doctoral Students," "4.13 Ensuring a Self-sustaining, Stable Research Environment for Young Researchers," "4.14 Promoting Initiatives Related to Gender Equality and Human Resources Development," "4.15 Voluntary Research Activities of Young Researchers Employed to Implement the Project, etc. and "4.16 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.

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

Based on the Green Growth Strategy, which outlines industrial policies and action plans for 14 industrial sectors with growth potential to achieve carbon neutrality by 2050, this program has identified the five technology areas shown in the table below as being those with many scientifically unexplored areas where Japanese academia can make a significant contribution in the future. Also welcomed are R&D proposals that do not fall into any of these technological areas but that contribute significantly to the realization of carbon neutrality.

For details on these technology areas, please refer to Chapter 6 of the Application Guidelines (Appendix) (https://www.jst.go.jp/alca/koubo/2025/index.html). In Chapter 6, we describe expectations for R&D proposals of each technology area and examples of bottleneck issues to be tackled, but we also invite a wide range of new ideas based on the free thinking of individual researchers toward the realization of carbon neutrality.

The technology areas will be reviewed as necessary based on future revisions of the Green Growth Strategy, industry trends, R&D trends, and other factors.

Technology areas of the call for proposals
Energy Conversion and Energy Storage (Program Officer: WATANABE Masayoshi)
Resource Circulation (Program Officer: WATANABE Masayoshi)
Green Biotechnology (Program Officer: EZURA Hiroshi)
Semiconductors (Program Officer: KURODA Tadahiro)
Green Computing and DX (Program Officer: KURODA Tadahiro)

* **We also expect R&D proposals that do not fall into any of the above technical areas,**

but are based on the free thinking of individual researchers toward the realization of carbon neutrality.

* **FS proposals will be accepted in the above technical areas. FS proposals that do not fall into any of the above technical areas are also invited.**

2.2 Application period and selection schedule

Start of call for proposals	Friday, March 7, 2025
Application deadline (Deadline for acceptance by e-Rad)	Thursday, May 8, 2025 Noon (Japan Standard Time)
Document screening period	Mid-May to mid-June
Interview screening period	Late June to mid-July
Notification and announcement of selected proposals	Late August to early September
Start of R&D projects	Early September 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.
* The specific date and time of the interview will be specified by JST. In principle, the selection process for FS proposals will be based on document screening only. However, interview sessions may be held if necessary.
* The schedule for the interview selection process and the date of e-mail notification to those selected for interviews will be announced on the open call website as soon as details are confirmed.

ALCA-Next's open call website: https://www.jst.go.jp/alca/koubo/2025/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. Please read Chapter 6 of the Application Guidelines (Appendix) and prepare a 7-

year R&D plan (https://www.jst.go.jp/alca/koubo/2025/index.html).

* Rigorous stage-gate evaluation is performed prior to the acceleration phase. Be sure to refer to “3.4 Evaluation."
* The R&D period for FS proposals will be 1.5 years.

2.4 Research and Development Costs

The R&D applicant may set the total budget of the proposing R&D project to the following maximums:

Small phase (from 1st to 4th year): up to 25 million JPY/year (direct costs)

Acceleration phase (from 5th to 7th year): up to 75 million JPY/year (direct costs)

* Up to 2.5 million JPY/year (direct costs) for FS proposals (1st to 2nd year).
* 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 R&D 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 organization as the total R&D costs based on the R&D agreement.

2.5 Number of Proposals to be Adopted

About 10 projects will be adopted.

In addition to the above, about 10 FS proposals will be adopted.

* This number will vary depending on the status of the R&D proposal application and the budget.
* Adoption of projects is not guaranteed for all categories indicated in Chapter 6.

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.

・ The application requirements must be maintained throughout the entire R&D period after adoption. 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 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 organization (including private companies, incorporated associations, foundations, etc.) and conduct R&D at the R&D organization (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 R&D 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. The researcher must be capable of taking full responsibility for the entire R&D project throughout the R&D period as a project leader.
(For details, please refer to "3.5 Responsibilities of the Principal Investigator and Co-Principal Investigator, etc.".)

c. A researcher who has completed a research ethics education program at your home institution, or have 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:

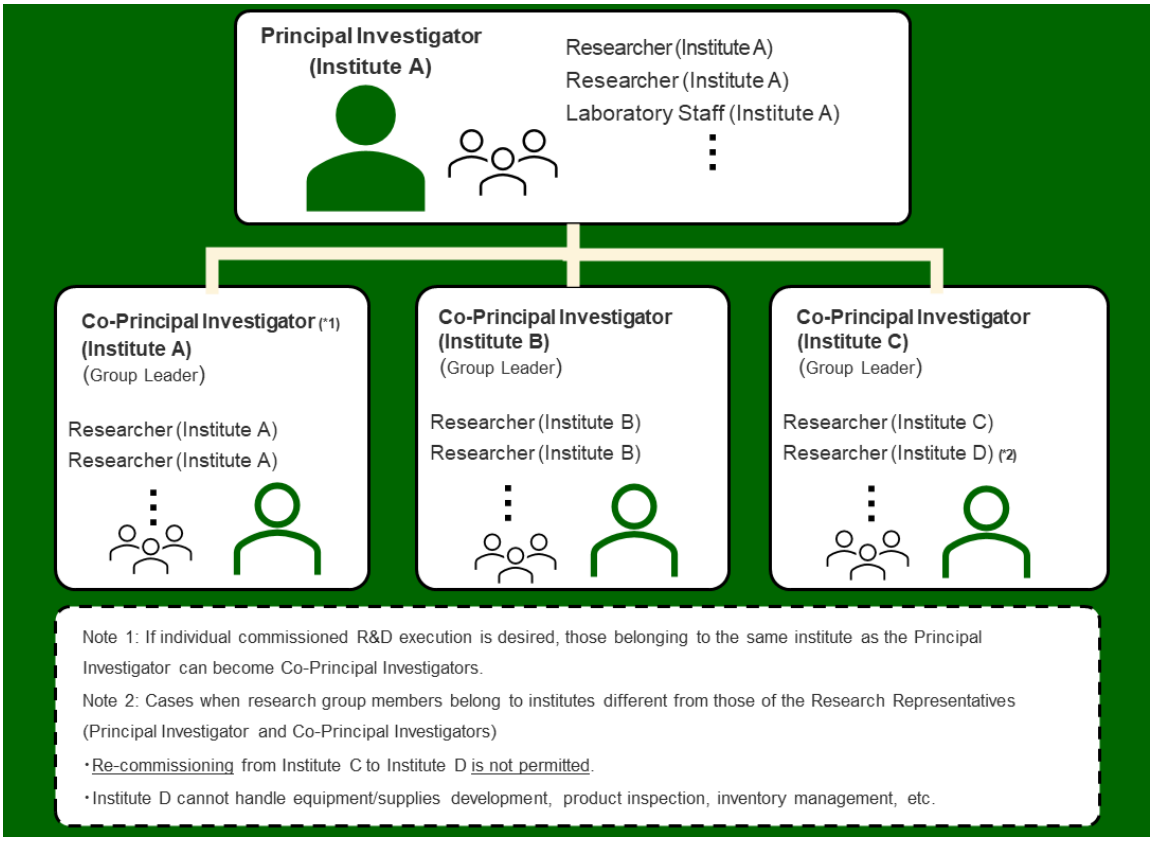
- The applicant shall understand and comply with the contents of “Guideline on Responses to Misconduct in Research Activities (decided by the Minister of Education, Culture, Sports, Science and Technology on August 26, 2014)."
- The applicant shall understand and comply with the contents of the "Guidelines 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 R&D activities (fabrication, falsification, or plagiarism) or misuse of R&D 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.

   * When establishing a joint R&D group, designate a representative from participating researchers as Co-Principal Investigator. The R&D group can be composed either only of researchers from the same institute as the Research Representatives (Principal Investigator and Co-Principal Investigators), or can include researchers from other institutes. Obtain necessary consent agreements to ensure compliance with contract terms including intellectual property rights. Reallocation of funds from one institute to another (for example, from Institute C to Institute D) is not permitted. To execute R&D funds at another institute (Institute D), that institute must directly conclude a research agreement with JST through its Co-Principal Investigator. Please refer to Section “3.6 Responsibilities of R&D Institutes, etc..”



* In principle, JST will not provide R&D funds to researchers affiliated with overseas R&D institutes. Therefore, researchers from overseas institutes generally cannot serve as Co-Principal Investigators.

As an exception, if a researcher from an overseas R&D institute is deemed essential for realizing the R&D concept as a Co-Principal Investigator, JST will provide R&D funds to that R&D group. If you wish to have an R&D team composition that includes overseas R&D institutions, please explain in the R&D proposal (Form 4-2: R&D System (FS Form 4-2 for FS Proposals)) the necessity of the joint researcher that belongs to an overseas R&D institution. In addition, for R&D proposals that anticipate the conclusion of a contract research agreement with JST, please also include in the R&D proposal (Form 4-2: R&D System (FS Form 4-2 for FS Proposals)) an alternative plan for collaboration with the relevant group in the event that no agreement is concluded. The PO will evaluate this necessity during document screening based on the provided information.

In addition, the overseas R&D organization must, in principle, conclude the research contract with the terms and conditions presented by JST. In some cases, the terms and

conditions of the contract may be adjusted for justifiable reasons, taking into consideration the characteristics of the R&D; however, in such cases, the adjustment period is limited to three months in principle from the start of negotiations by JST. Please note that the researcher him/herself may be required to provide explanations, etc. to the person in charge of the contract at the overseas R&D institution.

Before the interview selection meeting, you must include contact information for the contract manager at the overseas R&D institute in your proposal Form 4-2 (FS Form 4-2 for FS proposals) under special notes, and submit the prescribed pre-approval form showing the overseas R&D institute's contract manager has approved all contract terms for joint research. JST will follow up about these documents during the selection process.

For overseas R&D organization / Prior Confirmation for the Application to JST's ALCA-Next Programs

https://www.jst.go.jp/alca/dl/prior_confirmation.docx

Please also refer to "3.6 Responsibilities of Research Institutes, etc." It is also necessary to be able to identify the intellectual property rights and other results of the entire R&D team, including the overseas R&D group. If a research agreement cannot be concluded within the coordination period and it is difficult to implement the proposed collaboration, the R&D will not be conducted.

* For a model research agreement for overseas organization, please refer to the following URL.

  https://www.jst.go.jp/alca/dl/collaborative_research_agreement.pdf

2.6.3 R&D Organization Requirements

In conducting research and development, R&D organizations 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 organization that fails to fulfill the responsibilities listed in "3.6 Responsibilities of R&D Organizations, 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 Restrictions on Duplicate Applications

The following restrictions apply to duplicate applications. Even for JST and non-JST programs not mentioned in this section, measures may be taken if unreasonable duplication or excessive concentration is found. See "4.2 Measures against Unreasonable Duplication and Excessive Concentration" for details.

(1) You may submit only one proposal as Principal Investigator across all technology areas during the application period.

* You cannot apply as a Principal Investigator for both a regular ALCA-Next proposal and an FS proposal.

(2) Those who currently in positions a to c cannot apply as Principal Investigator. However, they may apply if their current R&D project will end within FY2025. If a project scheduled to end in FY2025 is extended based on evaluation results or continues as full research, adjustments will be made individually to R&D periods and other aspects to ensure that the researcher participates in only one project.

a. Principal Investigator or Co-Principal Investigator of ALCA-Next

* This excludes Principal Investigators and Co-Principal Investigators of FS projects.

b. Principal Investigator or Co-Principal Investigator of GteX who serves as Group Leader or who is a group member serving as the contract representative for R&D.

c. Principal Investigator of the "Low Carbon Society" mission area of the JST-Mirai Program.

(3) The following restrictions apply for applications as Co-Principal Investigator.

a. Multiple applications are not permitted where Principal Investigators and Co-Principal Investigators switch roles. This restriction applies to all technology areas. If R&D teams are partially different or other variations exist, adjustments may still be made when unreasonable duplication or excessive concentration is found.

b. If a researcher applies as a Principal Investigator or Principal Co-Investigator, and also applies as a Co-Principal 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.

c. If a current Principal Investigator or Co-Principal Investigator of ALCA-Next applies as a new Co-Principal Investigator and is selected as a candidate, adjustments similar to those in b. above may be made.

d. Co-Principal Investigators of GteX cannot apply as Co-Principal Investigators in this call. However, they may apply if their GteX participation will end within FY2025.

Table: Eligibility for Application and Participation in ALCA-Next

Position in Current R&D Project / **Position in Proposed R&D Project**		ALCA-Next	
		Principal Investigator	Co-Principal Investigator
ALCA-Next	Principal Investigator	×Note 1, 2	○Note 3
	Co-Principal Investigator	×Note 1, 2	○Note 3
GteX	Principal Investigator	×Note 1	×Note 1
	Co-Principal Investigator	×Note 1	×Note 1
"Low-Carbon Society" mission area of the JST-Mirai Program	Principal Investigator	×Note 1	○Note 3
	Co-Principal Investigator	○Note 3	○Note 3

Note 1 Applications are permitted if the current R&D period will end within FY2025.

Note 2 Principal Investigators and Co-Principal Investigators of FS projects are eligible to apply.

Note 3: If the R&D proposal is selected as a candidate, the R&D content and scale may be examined. Based on this examination, the R&D budget may be reduced, or participation may be limited in some R&D projects.

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 each technology area, the PO will conduct document screening and interview selection with cooperation from ADs and other members. The PO may also seek assistance from external evaluators.

In principle, the selection process for FS proposals will be based on document screening only. However, an interview session may be held if necessary.

In the document screening process, a preliminary screening may be conducted prior to the document screening based on the contents of the R&D proposal (Form 2: Overall Concept of R&D Project (FS Form 2 for FS Proposals)) depending on the number of applications received for each technology area. This preliminary selection will be conducted primarily from the perspective of whether the proposal meets the objectives of the technology area (i.e., whether the proposal is expected to contribute to the achievement of the objectives of the technology area). Only those R&D proposals that meet these requirements will be subject to documentary selection. It will not be announced which technical area the preliminary selection will be conducted in.

In addition, other inquiries or surveys may be conducted as necessary during the selection process. If the applicant or Co-Principal 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, PO and others 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 and others deem that a part of the R&D proposal is important for the promotion of the technology area of this project, the PO and others 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 when a proposal is not selected, the GteX PO and others may determine that parts or all of the R&D content would benefit GteX. In such cases, we may arrange for the R&D to be conducted within GteX projects. JST will contact the applicant to make these arrangements.
- At the time of adoption, the PO and others may instruct to reorganize the team or adjust the budget.
- In cases where the PO and others deems it necessary, the PO and others may make arrangements to conduct the research as an FS proposal. In such cases, the PO and others will contact the applicant and make the necessary adjustments.

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. Additionally, the following interested parties will not be included in the selection process with respect to Co-Principal Investigators. If you have any concerns regarding those involved in the selection process, please describe them specifically on Form 8 of the R&D Proposal (FS Form 8 for FS Proposals).

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 Proposal Form 8 (FS Form 8 for FS Proposals) that "The organization related to the R&D Principal Investigator" is included in the joint research group.

In addition, in order to conduct conflict of interest management for the applicants, JST may ask the applicant to submit documents apart from the Proposal.

(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 and others 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 Form 8 of the R&D

Proposal (FS Form 8 for FS Proposals).

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 Conducting of Interviews and Notification of Selection Results

a. Applicants who are selected for interview selection as a result of the document screening will be notified and informed of the interview selection procedure, schedule, and additional materials to be submitted. At that time, we may request the application materials, R&D plans, etc. for other research funds. In addition, depending on the results of the document screening and surveys, JST or the PO may inform the applicant selected for interview of the items to be addressed or explained during the interview selection process. If the applicant or Co-Principal Investigator belongs to a commercial organization, JST or the PO may request submission of the financial statements of the organization to which he/she belongs.

   The schedule for interview selection and the date of e-mail notification to those selected for interviews will be announced on the following open call page as soon as details are confirmed.

   https://www.jst.go.jp/alca/koubo/2025/index.html

b. During the interview selection, the applicant will be asked to explain the details of the proposal. In

principle, the interview will be conducted in Japanese, but if it is difficult to conduct the interview in Japanese, the interview may be conducted in English.

c. 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.

d. Applicants that are selected will be notified and informed of the procedures for commencing R&D.

e. For researchers whose proposals are not selected, we will register the selection results in e-Rad after completing all selection processes. The project status will be shown as "Not Selected" in e-Rad. Please note that JST will not send email notifications about this registration. We will separately send you an email explaining the reasons for non-selection.

2.9 Notes on Selection

The selection criteria for this program are as follows. The proposal content must satisfy all requirements.

Selection Criteria
1. Overall concept of R&D ・ The concept meets the purpose of the Program or technology area ・ The proposal is expected to create technologies that can make a significant contribution realizing carbon neutrality.
2. The superiority and uniqueness of the proposal ・ 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 proposal has superiority and originality based on domestic and international R&D trends.
3. Research and development plan ・ The R&D has an appropriate plan in place to achieve its goals.

4. Research and development system

- The R&D system and the division of roles are appropriate to achieve the R&D goals.
- The Principal Investigator possesses strong leadership and management capabilities to achieve the goals.

* FS proposals will be evaluated in terms of whether they have the potential to meet the above selection criteria by implementing FS, and whether the content of the proposal complements the data and other information that would enable a more accurate evaluation of the selection criteria.
* For more information on the selection perspectives and policies specific for each technical area, please refer to Chapter 6 of the Application Guidelines (Appendix) and to the following website (https://www.jst.go.jp/alca/koubo/2025/index.html).
* In addition to the criteria above, and "unreasonable duplication" and "excessive concentration" is also considered in the selection process. For details, please refer to "4.2 Measures against Unreasonable Duplication and Excessive Concentration."

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.

3.2 Contract Research Agreements

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

c. Intellectual property rights, such as patents, arising from R&D shall, in principle, belong to the R&D Organization, subject to the R&D Organization'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.

d. A “Joint Research Agreement” will be concluded with overseas institutes in exceptional cases where the PO determines that participation of researchers from these institutes as Co-Principal Investigators is essential to realize the R&D concept. In this case, intellectual property rights will be shared equally with JST, on the condition that the costs required for application, maintenance, etc. are borne equally by both parties. (If these terms and conditions cannot be agreed upon, the intellectual property rights will belong to JST.)

For details on other responsibilities, etc., please refer to "3.6 (2) When the research is conducted by an overseas organization."

3.3 Contract R&D Costs

Based on the contract research agreement, JST pays the R&D organization the R&D costs (direct costs) plus indirect costs (up to 30% of direct costs) as contract R&D 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 R&D 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 R&D personnel and R&D participants listed in the R&D plan.

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

d. Others: expenses for publication of R&D 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 "4.11 Promoting the Joint Use of Research Facilities and Equipment.

(Note) Examples of expenses that cannot be treated as R&D costs (direct costs):

- Costs for items which are inconsistent with R&D 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 R&D institutions, public-interest corporations, etc. recognized by JST) and companies, etc. (R&D 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 R&D 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 ‘Payment of Principal Investigator (PI) Personnel Expenses from Direct Costs’" (revised on February 7, 2025).
https://www.jst.go.jp/alca/dl/pi_houshin.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)’” (revised on February 7, 2025).
https://www.jst.go.jp/alca/dl/buyout_houshin.pdf

3.3.2 Indirect Costs

Indirect costs are those necessary for the management of the R&D institution in conducting R&D, etc. In principle, 30% of the R&D 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 R&D results by making effective and efficient use of R&D funds and preventing misconduct, JST has established multi-year contracts to allow for carryover of R&D 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.

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 R&D 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) because of the stage-gate evaluation, if the GteX PO and others deem that part or all of the research content would contribute to GteX, the GteX PO and ohers 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 R&D and development or at an appropriate time before the completion of the R&D.

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 this program and each technology areas 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 Co-Principal Investigator, etc.

3.5.1 Notes on R&D Promotion

(1) The Principal Investigator and Co-Principal 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 R&D 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 R&D participants must complete a research ethics education program designated by JST to prevent misconduct (fabrication, falsification, and plagiarism) in R&D. 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 organization. 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 R&D as required by JST or the PO.

c. To ensure appropriate research promotion and evaluation, it is a principle that PI cannot engage in collaborative research with the PO and AD on the adopted projects. Should a new conflict of interest arise due to collaborations other than those related to the adopted projects, it is imperative to conduct conflict of interest management and report to JST in advance. For details on the management, please refer to "2.8.3 Conflict of Interest Management."

d. 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 R&D.

(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 organization. In addition, the PI should also appropriately manage those

who participate in the R&D. The Co-Principal 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[*4] may be confirmed at the interview and selection meeting.
For details, please refer to "4.12 Improving the Treatment of Doctoral Students," "4.13 Ensuring a Self-sustaining, Stable Research Environment for Young Researchers," "4.14 Promoting Initiatives Related to Gender Equality and Human Resource Development," "4.15 Voluntary Research Activities of Young Researchers Employed to Implement the Project," and "4.16 Supporting Various Career Paths for Young Researchers."

(8) Please follow the R&D agreement between JST and the R&D Organization 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 ("4.32 Provision of information from e-Rad to Cabinet Office"). In

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

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 resultsof your research and development both domestically and internationally in order to ensure the smoothtransfer 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 organization based on the research 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 detailed information on required items, please see "Implementation Guidelines: JST Policy on Open Access to Research Publications and Research Data Management" on the following page.

https://www.jst.go.jp/EN/about/strategy.html

<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 Institutes, etc.

In conducting R&D, R&D institutions must be fully aware that the source of the R&D funds is public funds, while complying with relevant laws and regulations and striving to conduct R&D efficiently. R&D 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 R&D (hereinafter referred to as "participating institutions").

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

a. The R&D Organization 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. The R&D institution is 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 "4.25 (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, the R&D organization is obligated to respond to various investigations concerning the establishment of systems based on the guidelines. (See "4.29 (1) System implementation based on 'Guideline for Responding to Misconduct in Research'.")

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 R&D budget, the R&D organization must appropriately spend and manage the R&D funds in accordance with the regulations of the R&D organization 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 institutions with regard to matters not described in the Administrative Instructions regarding the use of commissioned R&D costs).

f. R&D institutions need to conclude contracts with researchers who are going to participate in the R&D and are to be an inventor of intellectual properties regarding the R&D, to ensure the properties be transferred from the researchers to the institutions. In particular, when a person who is not subject to the service invention regulations of a R&D institution such as a student who

is not in an employment relationship with the R&D institution is a R&D participant, it is necessary to take appropriate action, such as concluding an contract with the student in advance to ensure that intellectual property rights pertaining to the invention (including conception) made by the student in the course of conducting the R&D belong to the R&D institution, except in cases where it is clear that the student cannot become the inventor. Regarding the conditions of compensation for transfer of intellectual property rights, those concerned are asked to act in a way that is not unfavorable to the student who is the inventor.

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 institute is obligated to respond to investigations of its accounting by JST and to government inspections of its accounts.

h. The R&D organization is required to follow measures designated by JST such as changing the payment method of the R&D costs or reducing the R&D 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 R&D budget in accordance with the special provisions of the R&D agreement. Moreover, based on the results of the interim evaluation of the R&D project, JST may take measures such as increasing or decreasing the R&D budget, changing the contract period, or suspending the R&D. Additionally, if JST judges that it is not appropriate to continue the R&D, it may take measures such as contract termination even during the contract period. The R&D organization must comply with these measures.

i. If the R&D organization is a national or local government organization, the R&D organization 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 R&D organization is found to have failed to follow the required procedures after the contract has been concluded, the R&D

organization may take measures such as canceling the contract or refunding the R&D costs.)

j. As part of its efforts to prevent misconduct in R&D activities, JST requires researchers who participate in newly adopted R&D proposals and who belong to an R&D organization 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 R&D budget if the researcher concerned does not fulfill the completion obligations stipulated despite JST's reminders. In addition to suspending the execution of the R&D 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 R&D or the utilization of R&D results.

l. When carrying out contracted R&D, as R&D 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 R&D in a systematic manner, and be careful not to procure funds for the purpose of exhausting the budget at the end of the R&D period or at the end of the fiscal year.

(2) When the R&D is conducted by an overseas organization

a. In principle, the R&D organization must conclude an agreement using the "Joint Research Agreement" template provided by JST (there are a few cases in which the contract clauses may be adjusted for items that are deemed reasonable, taking into consideration the characteristics of the R&D content and others). Indirect costs are limited to 30% of direct costs. In addition, the applicant is obligated to properly conduct R&D in accordance with the Joint Research Agreement* and the R&D plan. If the agreement cannot be concluded, or if it is determined that the R&D will not be properly conducted at the relevant R&D institution, the implementation of the R&D at the relevant R&D institution will not be approved.

* Please refer to the following URL for a model research agreement for overseas organization.

https://www.jst.go.jp/alca/form/index.html

b. The R&D organization is obliged to assume responsibility for appropriately spending and managing R&D budgets in accordance with the Joint Research Agreement and the guidelines, and other policies separately specified by JST if any, and to prepare and submit a detailed statement of costs (equivalent to a balance sheet for domestic organizations) in English, showing the details of R&D costs spent. In addition, the R&D Organization is required to respond to various investigations on the execution status of the R&D costs at the request of JST even during the term of the contract.

c. For other details of the terms and conditions, please refer to the latest "Joint Research Agreement" template.

* There may be cases in which JST determines that a contract research agreement should not be concluded from the viewpoint of security trade control, such as institutions listed on the "Foreign User List[*5] " published by the Ministry of Economy, Trade and Industry.

[*5] In order to improve the effectiveness of catch-all regulations for WMD-related cargo, etc., the Ministry of Economy,

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

Trade and Industry (METI) has published a "Foreign User List" that provides information on organizations located in foreign countries where concerns about the development of WMDs, etc. cannot be dispelled.
https://www.meti.go.jp/policy/anpo/law05.html#user-list

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. For application instructions using e-Rad, please refer to "Chapter 5: Submission via Cross-Ministerial R&D Management System (e-Rad)".

(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 in the past under JST programs, etc.

If you have completed eAPRIN 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 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 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

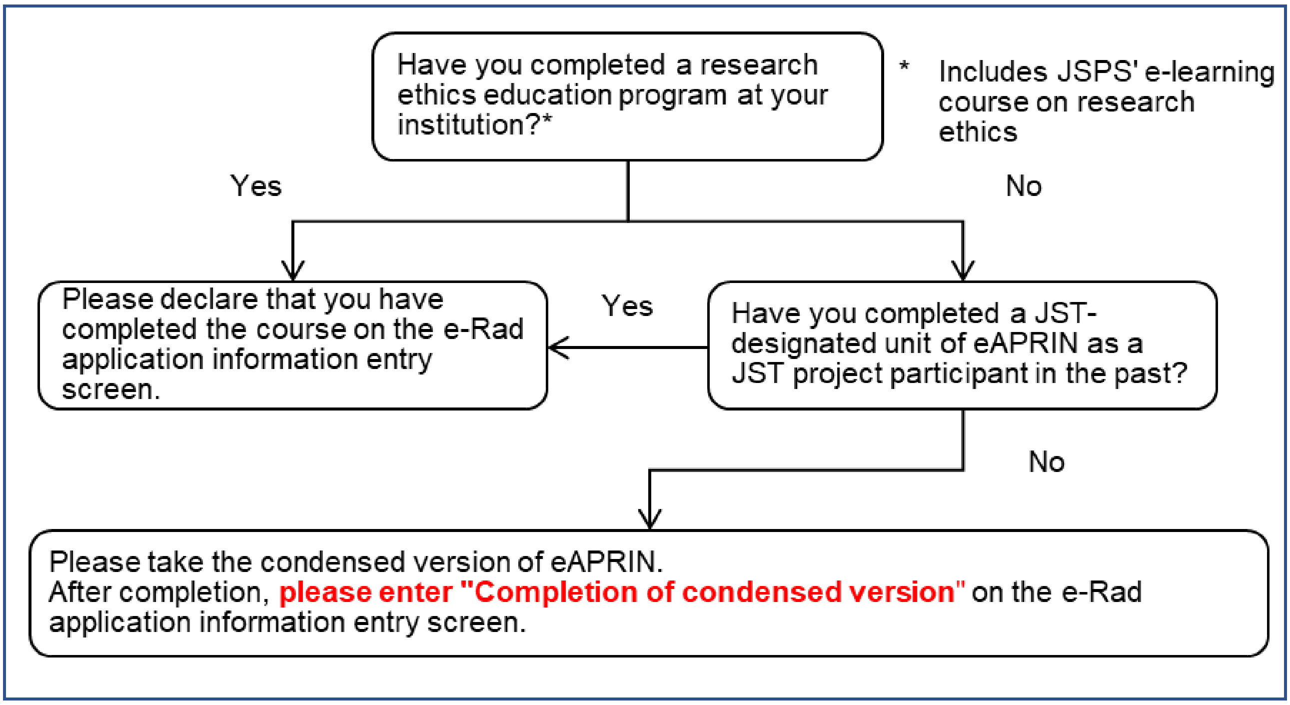
▮Contact for application

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 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.)

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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

○ <u>Measures against unreasonable duplication</u>

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 R&D 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 R&D 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 R&D 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 R&D funds among multiple R&D 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 R&D 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 R&D proposed in this Program is different from the content of the R&D being conducted using other competitive research funds or other research funds, but the same researcher or R&D group (hereinafter referred to as the "Researcher, etc.") is not able to use all of the R&D 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 R&D funds are allocated in light of the capabilities and R&D methods of the researcher, etc.
- The R&D costs are excessive compared to the effort (the ratio (%) of the time required to conduct the R&D to the researcher's total work hours*) allocated to the R&D 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 R&D 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 Co-Principal 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 R&D 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 R&D will not result in an unreasonable duplication or excessive concentration of research funds, and that the R&D 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 R&D proposal may be rejected.

With regard to information on the status of purchase of facilities and equipment that are not used for the applied R&D 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 R&D 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.

○ <u>Sharing of information on applications to eliminate unreasonable duplication and</u>

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 and Research Security 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.

According to "Directional Guidance for Specific Measures in MEXT Related Policies for Ensuring Research Security at Universities and Other Institutes" (December 18, 2024, Science and Technology

Policy Bureau, MEXT), ensuring research security is necessary not only to meet Japan's economic security requirements but also to protect an open research environment based on common values such as academic freedom, independence, openness, reciprocity/mutual benefit, and transparency, and to promote international collaboration at universities and institutes. The principle of research security measures is to advance research and international collaboration in a healthy manner by appropriately "mitigating" potential risks, rather than pursuing zero risk or imposing broad restrictions on research. Implementation will begin with trial measures in selected R&D programs and research fields.

In this call for proposals, JST will implement trial research security measures in line with the above guidelines in consultation with Principal Investigators and R&D institutes. Risk mitigation measures may be requested at selection or after adoption, depending on the R&D content. If these measures are insufficient, JST may suspend R&D funds for concerning parts until appropriate measures are implemented by the relevant institutes. JST may also consult with Principal Investigators in advance about methods for external presentation of R&D results generated during the R&D period.

(JST may share relevant proposal information with government ministries within the necessary scope to support risk mitigation measures, including advice to proposers.)

※Scope of Implementation

Target Areas: "Semiconductors" and "Green Computing and DX"

Target Projects: Applicable to projects adopted in this call for proposals

Target Institutes: Research institutes recognized as "Universities" or "Companies" in the commissioned research agreement

○"Directional Guidance for Specific Measures in MEXT Related Policies for Ensuring Research Security at Universities" (Science and Technology Policy Bureau, MEXT, December 18, 2024)
https://www.mext.go.jp/content/20241218-mxt_kagkoku-000039402_1-1rrr.pdf

4.4 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 R&D activities, including the relevant commissioned R&D, so that R&D 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 R&D funds may be halted, and the decision to allocate R&D funds may be canceled if R&D 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 list regulation system requiring permission from the Minister of Economy, Trade and Industry when exporting or providing cargo or technology with specifications and functions above certain levels, such as carbon fiber and numerically controlled machine tools; 2. A catch-all regulation system requiring ministerial permission when exporting or providing goods or technology not under list regulations, if specific requirements are met regarding usage, users, or information.

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.

Please note that students receiving funding from foreign governments for study may be subject to export control under the Foreign Exchange Act as specific-type residents, even if they are residents in Japan. Host institutes must therefore properly track scholarship and funding status of international students.

*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 R&D 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.

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:

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

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

Regarding the Japanese Version of the Bayh-Dole Act

[Transfer of Intellectual Property Rights to Foreign Countries for National Commissioned R&D to which the Japanese Version of the Bayh-Dole Act Applies]

The Expert Meeting on Economic Security Legal System on June 4, 2024, compiled "Recommendations on Technology Outflow Prevention Measures for Important Technologies in Economic Security: Response in Government Supported R&D Programs". This report examined necessary technology outflow prevention measures and risk management in government-supported R&D programs. All relevant ministries and institutes must now work together to implement these prevention measures.

The recommendations include matters related to the operation of the Japanese Version of the Bayh-Dole Act based on Article 17 of the Industrial Technology Enhancement Act.

Under the Japanese Version of the Bayh-Dole Act, intellectual property rights generated from national commissioned research and development can be assigned to contractors including private companies. However, any transfer of such intellectual property rights to third parties requires prior national approval, except for transfers to subsidiary or parent companies.

Therefore, the outflow of national commissioned research and development results to foreign countries may be unavoidable in the following cases: 1. when a Japanese subsidiary of a foreign company transfers intellectual property to its parent company; 2. when a subsidiary of a domestic company becomes a subsidiary of a foreign company through M&A and subsequently sells or transfers its business to that foreign company; 3. when a domestic

company headquarters relocates overseas and becomes a foreign company, or in other cases where the subsidiary or parent company receiving the transfer is a foreign company.

Based on this, the recommendations stipulate that when transferring intellectual property to a foreign parent company or subsidiary, the contractor must provide prior notification to JST. JST must then confirm this notification and ensure coordination between contracting parties.

In this program, about these recommendations, you must notify JST in advance and obtain approval when transferring intellectual property to foreign companies, as specified in the contract terms.

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

For strict adherence to United Nations Security Council resolutions, as requested in the "Administrative Notice from the International Affairs Division, Minister's Secretariat, MEXT regarding Strict Implementation of United Nations Security Council Resolution 2321" (June 25, 2024), section 11 of the main text of Resolution 2321 specifically stipulates that scientific and technical cooperation involving persons or groups officially sponsored by or representing the North Korean shall be suspended in principle.

When writing international co-authored papers involving multiple countries, please take appropriate measures such as thorough verification during manuscript preparation and before submission, as there is a possibility of unintentional co-authorship with North Korean researchers even when there is no direct collaborative relationship between researchers from your institute and North Korean researchers.

For details on Security Council Resolution 2321, please refer to the following.

Ministry of Foreign Affairs of Japan: United Nations Security Council Resolution 2321, Japanese translation
(Ministry of Foreign Affairs Notice No. 463, issued on December 9, 2016)
https://www.mofa.go.jp/mofaj/files/000211409.pdf

4.6 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.

4.7 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/2024/2024kisokens309betsu.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 ‘Payment of Principal Investigator (PI) Personnel Expenses from Direct Costs’" (revised on February 7, 2025).

https://www.jst.go.jp/alca/dl/pi_houshin.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)’” (revised on February 7, 2025).
  https://www.jst.go.jp/alca/dl/buyout_houshin.pdf

4.8 Diversion of Costs among Items

The maximum amount that can be diverted between expense items without JST approval is limited to 50% of total direct costs or 5 million JPY.

Please note that diversion between direct and indirect costs is not permitted.

4.9 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 organization 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.

4.10 Indirect Costs

R&D organizations 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 organization, 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.

R&D organizations 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 organizations 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.

4.11 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, June24, 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 2024” (approved by the Cabinet on June 4, 2024)
  https://www8.cao.go.jp/cstp/tougosenryaku/togo2024_zentai.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 ᵾse)” (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)

4.12 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 R&D, 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 research 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.

4.13 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.

4.14 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 lighthttps://www8.cao.go.jp/cstp/tougosenryaku/togo2024_zentai.pdf 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.

Research and development must appropriately consider both biological sex differences, such as

physical build, body structure and functions, and social gender differences.

- R&D conducted without considering these factors may have inappropriate effects when implemented in society. Therefore, please examine sex and gender implications and consider these differences in your R&D implementation as needed.

4.15 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 R&D organization 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

4.16 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.

4.17 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 R&D 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.

4.18 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/

4.19 Promotion of Open Science

（1）JST's Open Science Policy

JST established its basic policy for open science promotion in April 2017, with revisions in April 2022 and March 2025. This policy sets forth the basic concept of making research papers open

access and storing, managing, and disclosing research data in the research activities of this program.

This policy requires research papers from this program to be published through institutional repositories or open access publications. 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 R&D activities, submit it to JST upon request, and undertake the R&D 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. For certain nationally designated programs, immediate open access to academic papers as shown in (2) below must be provided.

Please see the following for details:

○ “JST’s Basic Policy Regarding the Handling of Research Results for Open Science Promotion”

○ “JST’s Basic Policy Operation Guidelines Regarding the Handling of Research Results for Open Science Promotion”

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

https://www.jst.go.jp/all/about/houshin.html#houshin04

○ Research DX Digital Transformation Open Science (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 January, 2025):

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 "4.21 Data disclosure from National Bioscience Database Center."

(2) Immediate Open Access to Academic Papers and Other Materials

There is a progressing international movement toward making research results openly available in pursuit of global knowledge sharing. Through the promotion of open access via academic paper publication and related activities, research results are expected to be widely returned to the public and to contribute to the creation of S&T and innovation and to solving challenges on a global scale.

Under Japanese government policy, peer-reviewed academic papers and supporting data (*3) created with funding from Strategic Basic Research Programs (*2) and the Fusion Oriented REsearch for disruptive Science and Technology Program (FOREST), which are calling for new proposals from FY2025, must be included in "institutional repositories and other information infrastructure" immediately (*4) after publication in an academic journal, in accordance with the Basic Policy on Promoting Open Access to Publicly Funded Scholarly Publications and Scientific Data (Decision by Integrated Innovation Strategy Promotion Council, February 16, 2024) (hereinafter "Basic Policy") and the Specific Measures for the Implementation of the Basic Policy on Promoting Open Access to Publicly Funded Scholarly Publications and Scientific Data (Decision by Integrated Innovation Strategy Promotion Council, February 16, 2024) (Revised October 8, 2024, Agreement among Related Ministries) (hereinafter "Specific Measures").

Here, "institutional repositories and other information infrastructure" refers to systems that enable academic papers and supporting data to be searchable on the NII Research Data Cloud (*5). Research outcome information entered in performance reports and related documents submitted after the fiscal year has finished will be provided to the NII Research Data Cloud through e-Rad. When necessary information is included, this enables the research outcome information to become searchable on the NII Research Data Cloud.

Additionally, to track the status of open access implementation, items of research outcome information included in performance reports and related documents are being added and modified. In addition to existing items, it is necessary to enter information about whether the work is subject

to immediate open access requirements, whether immediate open access has been implemented, reasons why immediate open access is difficult (if it has not been implemented), and identifiers such as URLs for the landing pages of "institutional repositories and other information infrastructure" that include academic papers and supporting data.

○ Basic Policy on Promoting Open Access to Publicly Funded Scholarly Publications and Scientific Data (Decision by Integrated Innovation Strategy Promotion Council, February 16, 2024)
URL：https://www8.cao.go.jp/cstp/oa_240216.pdf

○ Specific Measures for the Implementation of the Basic Policy on Promoting Open Access to Publicly Funded Scholarly Publications and Scientific Data (Decision by Integrated Innovation Strategy Promotion Council, February 16, 2024) (Revised October 8, 2024, Agreement among Related Ministries)
URL: https://www8.cao.go.jp/cstp/openscience/r6_0221/hosaku.pdf

○ FAQ on the Basic Policy on Promoting Open Access to Publicly Funded Scholarly Publications and Scientific Data and the Specific Measures for Its Implementation
URL: https://www8.cao.go.jp/cstp/oa_houshin_faq.pdf

When complying with the immediate open access of academic papers and related materials, if your institute does not have an institutional repository, please utilize repositories operated by JST, such as Jxiv and GRANTS Data (scheduled for release in FY2025).

(*2) Excludes this program and the Cutting-edge Research and Development on Information & Communication Sciences (CRONOS) among the Strategic Basic Research Programs.

(*3) The Basic Policy states that "Immediate open access applies to peer-reviewed academic papers (peer-reviewed research papers published in electronic journals, including author final manuscripts) and supporting data (research data required to be published from the perspective of ensuring transparency and reproducibility, as specified in the journal's submission guidelines, publication rules, and other such requirements)."

(*4) The Specific Measures state that "The word “immediate” in “immediate open access” in the Basic Policy means there is no embargo period after the publication in academic journals of academic papers and supporting data created with applicable competitive research funding. Here, “publication in academic journals” refers to the publication of academic

papers in electronic form in academic journals; when an academic paper is published electronically ahead of determination of the journal volume, issue, and page numbers, that point in time constitutes “publication in academic journals.” Additionally, there are no specific regulations regarding the time required for the procedures to include a paper, etc. in institutional repositories and other information infrastructure after journal publication, as this varies depending on institutional systems. However, as a guideline, availability in institutional repositories and other information infrastructure is desirable within approximately three months of journal publication."

(* 5) "Overview of NII Research Data Cloud" (National Institute of Informatics Research Center for Open Science and Data Platform) (https://rcos.nii.ac.jp/service/)

4.20 Inclusion of systematic numbers in paper acknowledgments

When presenting the R&D 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.

4.21 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 R&D 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 Office of NBDC Program, Department for Information Infrastructure) 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.dbcls.jp/

4.22 National BioResource Project

The National BioResource Project has contributed to Japanese life science research by collecting and preserving essential bioresources at core facilities and providing them to universities and research institutes. To maintain this contribution, continuous collection of useful bioresources is necessary.

Please deposit* any available bioresources developed in this program that fall under NBRP coverage.

We recommend using existing NBRP bioresources including animals, plants, microorganisms, cells, genetic materials and information for efficient research.

*Deposition means a procedure that allows the use, storage and distribution of resources in this program without transferring related rights. Specific conditions for provision can be set in the deposit agreement, allowing conditions such as restrictions on use and paper citation requirements to be applied to users.

NBRP Core Facility Programs: List of Covered Bioresources and Core Institutes

https://nbrp.jp/en/resource/

4.23 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. Twelve services have been certified as of January 2024. 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

4.24 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.

4.25 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)”

R&D institutes receiving or expecting to receive public research funds must comply with the Guidelines for Management and Audit of Public Research Funds in Research Institutes, revised

on February 1, 2021*.

The 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 "Guidelines for the Management and Audit of Public Research Funds in Research Institutes (Practice Standards)"

To conclude an agreement for this program, each R&D institute must establish a management and auditing system for R&D funds based on these guidelines and submit a Self-Evaluation Checklist reporting the system status. (Agreement will not be approved unless the Checklist is submitted.)

Therefore, after April 1, 2025, please review the MEXT website content below, download the Checklist form from e-Rad, complete all required sections, and submit (upload) it through e-Rad to the Research Environment Division of MEXT Science and Technology Bureau before concluding the research agreement.

R&D institutes that have submitted the FY2024 Checklist may proceed with agreements. However, they must complete the FY2025 Checklist procedures by December 1, 2025.

This procedure must continue throughout the period when institutes receive and manage competitive research funds from MEXT and its administrative agencies.

Institutes not receiving competitive funding from MEXT or its administrative agencies, such as cooperative institutions not receiving research funds, do not need to 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

*The above website contains information on the checklist for the FY2024. Please refer to the website the Ministry of Education, Culture, Sports, Science and Technology after April 1, 2025 for information on the checklist for the FY2025.

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.

4.26 Dealing with Misuse and Improper Payments

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

- Actions to be taken when an improper use of R&D 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 R&D 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 R&D 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 Co-Principal 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 R&D 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 researcher, project name, affiliation, research year, details of misconduct, and details of measures taken) will be made public at JST. In principle, 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 R&D institute 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

4.27 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 FY2025 or later. The programs that ended before FY2024 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/

4.28 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 R&D funds may be suspended or the decision to allocate R&D funds may be revoked.

4.29 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 R&D 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 organizations 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, 2025, researchers should check the contents of the website below and download the FY2025 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 FY2024 version of the Research Misconduct Checklist will be approved for an agreement regardless of the above. Nevertheless, in this case, then please submit the FY2025 version of the Research Misconduct Checklist by September 30, 2025.

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

*The above website contains information on the checklist for the FY2024. Please refer to the website the Ministry of Education, Culture, Sports, Science and Technology after April 1, 2025 for information on the checklist for the FY2025.

(*1) An environment in which e-Rad can be used is necessary for submission of the Research Misconduct Checklist. The R&D institutional 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 R&D 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 R&D

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 (henceforth referred to as “othrer 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="5">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>
<tr><td colspan="2">3. Person who engaged in specified misconduct other than those of 1. and 2.</td><td></td><td>2–3 years</td></tr>
</table>

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 FY2025 onward. This also covers systems that ended before FY2024.

(iv) Public announcement of case of specified misconduct

In the event of misconduct in R&D 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 R&D organization, measures taken by funding institution, etc.)

Additionally, the abovementioned guidelines stipulate that the R&D organization 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

4.30 Duty to complete education on research ethics and compliance

Researchers who participate in the R&D 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.”

After project selection, during the agreement process, the Principal Investigator must ensure that all researchers participating in the R&D project in this program are informed about and complete both research ethics and compliance education.

4.31 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 R&D institution name, PI name, researcher number, 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. This information will be published on the program website, JST Project Database ("PDB," https://projectdb.jst.go.jp/) and Research Project Integrated Search (GRANTS, https://grants.jst.go.jp/) operated by JST. It may also be used as public information in other JST information systems as public information. Moreover, research result reports submitted by researchers that can be made public may be publicized in the PDB.

4.32 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 R&D 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 R&D outcomes and accounting performance records, will be provided to the Cabinet Office.

4.33 Registration of researcher information on researchmap

researchmap (https://researchmap.jp/) is one of the largest researcher information databases in Japan with more than 370 thousand registerers and helps publicize registered achievement information. Further, researchmap is linked to e-Rad and many university faculty databases. Thus, the registered information can be used in other systems, eliminating the need to register the same achievements repeatedly in various application forms and databases and improving efficiency.

For this program, researchers are required to submit R&D plans and reports of R&D results using JST's research project management system (R3; R-Cube*), which is linked to researchmap. 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 on researchmap supports research and statistical purposes in academic and science and technology policy planning by the government. We ask for your cooperation in actively registering and updating this program on researchmap.

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

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://guide.researchmap.jp/index.php/Researchmap 利用者マニュアル (in Japanese)

4.34 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.

4.35 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/suishinhou/patent/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.

- Application for registration of R&D institution

  Please appoint one administrative representative for e-Rad for the R&D organization and complete the procedures from “Application for Registration of R&D 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.

- 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 (1), 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) Obtaining and Completing the R&D Proposal Form

Please be sure to use the FY2025 R&D Proposal Form. Download the form from the following page and prepare your R&D proposal according to the instructions (written in blue letters on the R&D proposal form).

URL: https://www.jst.go.jp/alca/koubo/2025/index.html

The list of documents to be submitted is as follows

Form number *( ) indicate FS proposal form numbers	Document Name
Form 1 (FS Form 1)	Research and Development Proposal - Cover Page
Form 2 (FS Form 2)	Overall Concept of R&D Project
Form 3 (FS Form 3)	R&D Structure and Schedule (for the Entire 7-year period) *FS proposals are for the entire 2 years

Form 4 (FS Form 4)	R&D Implementation System
Form 5 (FS Form 5)	R&D Budget Plan (for the Entire 7 years) *FS proposals are for the entire 2 years
Form 6 (FS Form 6)	List of Achievements
Form 7 (FS Form 7)	Subsidies and fundings from other programs
Form 8 (FS Form 8)	Special note

* 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.
* Please be sure to read and understand "Chapter 4: Key Points for Application " and "2.7 Restrictions on Duplicate Applications" before submitting your entry.

(3) 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. 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 "Pending" by the deadline, the application has been successfully submitted.

Precautions

(1) The application information must be entered online, and the proposal form must be attached

to apply.

The proposal form can be uploaded as a single electronic file with a target file size of 3 MB. Please pay attention to the file size if using image data in the file.

(2) Proposals with deficiencies or irregularities will not be considered for selection. Please read the Application Guidelines and R&D Proposal Instructions carefully and fill out the documents.

5.3 Others

(1) 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/koubo/2025/index.html

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

(2) 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.