

**FY2022 Procedures for Preparing and Entering a Research Proposal
Document (items to be entered in the Website)
(Fund for the Promotion of Joint International Research (Fostering
Joint International Research (B)))**

The confirmation of the content of the application and the preparation of the review material is based on the “Research Proposal Document”, which constitutes one part of the application documents. Consequently, it is possible that the information entered in the website will have an influence on the results of the review, or it is possible that the research project will not be accepted for review, because of the content entered. Therefore, the applicant should prepare the Research Proposal Document with care.

Also, a part of content entered (title of Proposed Research Project, information of project member, effort, etc.) will be provided to the e-Rad.

Please select “application information input” of the research category for which an application is made from the “List of Research Categories for which Applications are accepted”. On the screen of “application information input”, if the “Japanese ► English” button at the upper left of the screen is clicked, then the explanations are translated into English.

1. New proposal or continued

“New Proposal” will be automatically displayed. (The applicant cannot select “Continued”.)

2. Section Desired the Review

In “Grants-in-Aid for Scientific Research-KAKENHI-, Review Section Table” (hereinafter referred to as “Review Section Table”), please enter a Medium-sized Section which you wish to be reviewed.

3. Name of the Principal Investigator

The information on Principal Investigator which has been registered in e-Rad will be automatically displayed. Principal Investigator in question should verify whether his/her name has been displayed correctly. If there is an error, please temporarily save the input data, then contact the secretariat of your research institution and follow the instructions.

4. Research Institution, Academic Unit (School, Faculty, etc.) and Position of the Principal Investigator

The information on Principal Investigator which has been registered in advance from the

research institution will be automatically displayed. Principal Investigator should verify whether the information on his/her professional affiliation has been displayed correctly at the time he or she is preparing the Research Proposal Document. If there is an error, please temporarily save the input data, then contact the secretariat of your research institution and follow the instructions.

5. Title of Research Project

In the column “Title of Proposed Research Project”, the applicant should enter a title for the proposed research project in a manner that the title specifically expresses the content of the research until the time of the completion of the research period. (The applicant should avoid general or abstract expressions.) Applicants should note that the entire Research Proposal Document, including the title of the research project will be reviewed and will be publicized widely in the Grants-in-Aid for Scientific Research (KAKENHI) Database (KAKEN) if the research proposal is adopted. Therefore, make sure to select a title that effectively reflects the content of your research project.

If there are only double-byte characters or double-byte and single-byte characters, you can enter up to 40 letters, and if there are only one-byte characters, up to 200 letters can be entered.

The applicant should keep in mind that voiced sound symbols (*dakuten*) and semivoiced sound symbols (*handakuten*) are not counted independently as one character, but that letters of the alphabet, numbers, symbols, etc. are all counted as one character and displayed as such. The applicant should avoid the use of chemical formulas and mathematical formulas as much as possible. (Display example $\text{Ca}^{2+} \rightarrow$ input as C a 2 + (counts as 4 characters))

As a general rule, changes in the title of the research project will not be accepted.

6. Name, Institution Name, and Position of the Overseas Joint Researcher Written in the Letter of Intent Submitted in Conjunction with the Research Proposal Document

The applicant should enter the name, institution name, and position of the overseas joint researcher written in the Letter of Intent submitted in conjunction with the Research Proposal Document. It is possible to enter these in Japanese or in English. If applicants create more than one Letter of Intent, they should provide description on their overseas joint researchers in the one that will be uploaded to the electric application system. If there are only double-byte characters or double-byte and single-byte characters, you can enter up to 300 letters, and if there are only one-byte characters, up to 600 letters can be entered.

7. Site Where You Will Conduct the Research (Country, Region, visiting schedule, etc.)

The applicant should enter the site where the joint international research is to be conducted (country, region, etc.) in pursuit of the proposed research project. Please note that the research site

in Japan is not required to enter. If there are multiple sites to conduct the research, please enter the main one(s). You may enter more than one main site. You should also enter the travel plans, including the tentative ones at the time of application, per countries and regions and the duration during which you will conduct the international joint research in locations in overseas. Please make notes if scheduling has not been finalized. If there are only double-byte characters or double-byte and single-byte characters, you can enter up to 300 letters, and if there are only one-byte characters, up to 600 letters can be entered.

8. Request for disclosure

The applicant should select the appropriate item from among “Request for disclosure” or “Not Request for disclosure”, for the results of the document review (first stage of the review) etc., in case his/her proposed project is not selected.

* “Disclosure” of the review results will be made only to the applicant through the electronic application system (Except for the applicant, the results cannot be viewed by anyone including the person(s) belong to the research institution).

9. About the Application as an Early-Career Researcher

At least 3 (up to around 5) domestic researchers should be involved in the Fostering Joint International Research (B) as project members including at least one early-career researcher (*). In case the early-career researcher applies as a Principal investigator, his/her project is eligible even when it is conducted by 1 or 2 early-career researchers.

* < Application Requirements of Early-Career Researcher >

(1) An applicant who is less than 8 years after the acquisition of his/her Ph.D. as of April 1, 2022.

(2) An applicant who is deemed less than 8 years after acquisition of his/her Ph.D. by exempting as of April 1, 2022(*) the period(s) of childcare leave etc. (prenatal/postpartum break, childcare leave).

(*) Calculate the sum total of the leave periods, round up the total period to the year unit and then subtract it from the number of years after Ph.D. acquisition (Example: If the applicant has taken 6-month childcare leave three times, the years to be subtracted will be 2 (1 year and 6 months → 2 years))

An applicant who is an early-career researcher and apply as Principal Investigator should check the box “I will apply as an Early-Career Researcher.” and select one of the application requirement that suits your status from (1) to (2). The requirement of your choice is automatically confirmed on the electronic application system citing the

date that you were awarded Ph.D. and your date of birth provided to the e-Rad system (The Cross-Ministerial Research and Development Management System.)

10. Project Members List

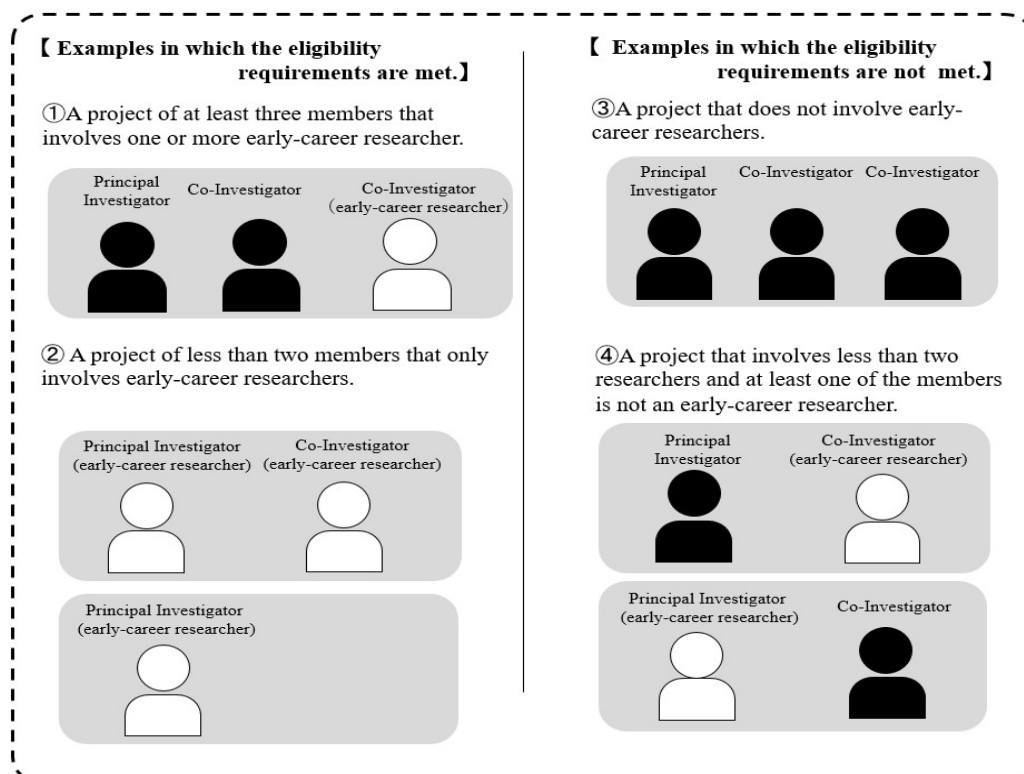
Concerning the planned research of “Fostering Joint International Research (B)”, it is possible to involve the “Co-Investigator” and the “Research Collaborator” in the research. For the definitions of “Principal Investigator”, “Co-Investigator”, “Research Collaborator”, please refer Application Procedures for Grants-in-Aid for Scientific Research.

In addition, the applicant should fill in the column “Project Members List” while keeping in mind the following points.

(1) Organization of Project Members

In principle, at least three researchers should be involved in a project as members in the role as a Principal Investigator or a Co-Investigator. At the same time, at least one of the members must be an early-career researcher. (Please refer to “9. About the Application as an Early-Career Researcher”)

Note that a project whose members are less than two is eligible to apply if all of the members are early-career researchers and take the role as a Principal Investigator or a Co-Investigator.



(2) Project Members Input (Principal Investigator)

- **In the column “Distinction”**, it will be automatically displayed as “Principal Investigator”.
- **In the column “Researcher Number”, “Name (Pronunciation in katakana and Kanji etc.)”, “Age (as of April 1, 2022)”, and “Research Institution, Academic Unit (School, Faculty, etc.), Position”** of the Principal Investigator, the information on the Principal Investigator which has been registered in e-Rad will be automatically displayed. Principal Investigator should verify whether the information has been displayed correctly.
- **In the column “Academic Degree”**, Principal Investigator should fill in his/her academic degree. Enter the last educational status only.
- **In the column “Role in This Project”**, the Principal Investigator should fill in, how the Principal Investigator and the Co-Investigator(s) will cooperate to carry out the research, in a way that clarifies the respective connections between the researchers, and highlighting the allotment of research tasks in the research implementation plan FY2022. Principal Investigator should also enter those information of Co-Investigator(s).
- **In the column “Research Expenditure for FY2022”**, the share of the grant to the Principal Investigator and the Co-Investigator(s) should be entered in units of thousand yen, based on the research plan. Principal Investigator should also enter those information of Co-Investigator(s).

The total amount of all the shares of the grant to each researcher should correspond to “Research Expenditure for FY2022 (Thousand Yen)” displayed in the screen. If it does not correspond, “error” is displayed on the confirmation screen after entering.

- **In the column “Effort”**, the Principal Investigator should enter the time allocation rate (an integral number between 1 and 100), assuming that the research project for which the current application is being made would be adopted.

When determining the time allocation rate, the Principal Investigator should determine it keeping in mind the definition of “effort” by the Council for Science and Technology Policy. This definition is “the percentage of time allocation (%) necessary for the implementation of the research in question, if the entire yearly working time of the researcher is set at 100%”. Moreover, the “entire working time” does not mean time spent only on research activities, but entire actual working time, including time spent on educational activities and other activities. Moreover, when the research project for which the current application is being made is adopted, the Principal Investigator will be requested to confirm the effort anew at that time and to perform the procedure of formal application for grant delivery. If the effort is changed at that time, it is necessary to correct the effort in e-Rad before formal application for grant delivery.

(3) Project Members Input (Co-Investigator)

- **Concerning the entry column for the Project Members List (Co-Investigator)**, when pressing the button “Add” on the left side of the entry screen one time for every member of the project, the edit box in which the data need to be entered is displayed.

The Principal Investigator should delete edit boxes for data entry that are not being used (when he or she entered data but finally does not use them, or when he or she did not enter data at all), by pressing the button “Delete” on the left side.

The column “Number of Project Members”, displayed on the lowermost part of the screen is displayed automatically, according to the number of edit boxes for data entry.

If the number in the column “Number of Project Members” and the total number of persons for whom data have actually been entered do not correspond, “error” is displayed on the confirmation screen, the data have been entered. Therefore, the applicant should always delete edit boxes for data in which no data has been entered.

- **In the column “Distinction”**, it will be automatically displayed as “Co-I(s)”.
- **In the column “Researcher Number”, “Name (Pronunciation in katakana and Kanji etc.)”, “Age (as of April 1, 2022)”, and “Research Institution, Academic Unit (School, Faculty, etc.), Position”** of the Co-Investigator, enter the researcher number of the Co-Investigator and click on the [Search] button, his/her information will be displayed, and click [OK] button.

Since the Co-Investigator may belong to more than one research institution, please ask the Co-Investigator at first to confirm which affiliation he/she wishes to list for the application.

- **In the columns “Academic Degree” and “Effort”**, the contents which the Co-Investigator entered in the consent process of Co-Investigator will be displayed.
- **In the columns “Role in This Project” and “Research Expenditure for FY2022”**, the Principal Investigator should enter the contents. (Please refer to the column “(2) Project Members Input (Principal Investigator)” for the entry method).

【About the Consent Process of Co-Investigator】

- The consent both from Co-Investigator him/herself and his/her research institution should be given on the electronic application system to list him/her on the project members as a Co-Investigator.
- To make a request for Co-Investigator(s), check the checkbox at “Request” in the “Status of Consent” row and save it temporarily. The researcher registered in the field is provisionally requested to participate in the research project as a Co-Investigator. Check the checkbox again to confirm that you want to request him/her to participate in the research project. (In addition, please contact him/her that you had made the Co-Investigator request on the system.)
- When the consent both from Co-Investigator him/herself and his/her research institution have

been given, the “Status of Consent” will be changed to “Obtained the consent from the Co-Investigator” and “Obtained the consent from the institution”.

- You cannot request the researcher to become a Co-Investigator whose status of consent is “Dissented by the Co-Investigator” or “Dissented by the Institution”. Press [Delete] button on the left hand side of that column and delete the frame into which the data is being entered.
- When you request the researchers to become a Co-Investigator, your official request should be based on the **high probability in obtaining the consent from the Co-Investigator-to-be after surely confirming the following items with the researchers.**
 - ① For this research project, the Co-Investigator has to bear responsibility for the implementation of the research project in cooperation with the Principal Investigator.
 - ② As well as the Co-Investigator understand and comply with both the KAKENHI supplementary conditions (funding conditions) and the terms stipulated in the (a), (b), and (c) below, and to receive a share of KAKENHI from the Principal Investigator and use it properly.
 - (a) The Co-Investigator has to recognize that citizens have placed trust in scientific research and that the KAKENHI are funded with their tax, and you therefore have to use the KAKENHI in a proper and efficient way and refrain from committing research misconduct during my research.
 - (b) The Co-Investigator has to fulfil the requirement for the research ethics education coursework either by reading a textbook such as “For the Sound Development of Science - The Attitude of a Conscientious Scientist –“ (“For the Sound Development of Science” Editorial Committee on JSPS), by taking an e-Learning course such as the “e-Learning Course on Research Ethics [eL CoRE] or “APRIN e-learning program (eAPRIN)”, or by participating in the research ethics education course conducted at his/her institution based on the “Guidelines for Responding to Misconduct in Research”(Adopted August 26, 2014 by MEXT), prior to the formal application for grant delivery (or, in case the grant has already been delivered, by the time the “application for approval of change for the Co-Investigator” is submitted by the Principal Investigator to JSPS).
 - (c) The Co-Investigator has to understand thoroughly and confirm on what the researchers should consider, in conducting of their researches, from amongst the contents of both the statement “Code of Conduct for Scientists -Revised Version-” by the Science Council of Japan and the booklet “For the Sound Development of Science -The Attitude of a Conscientious Scientist-” issued by JSPS, by the time of the formal application for grant delivery of the concerned research project. (Or, by the time when the “application for approval of change of the Co-Investigator” is to be submitted to

JSPS by the Principal Investigator, in case the official grant decision has been already made.)

* **Refer to the KAKENHI (Grants-in-Aid for Scientific Research) Electronic Application System Operation Manual**

(URL: https://www.shinsei.jps.go.jp/kaken/topkakenhi/shinsei_ka.html)

for the detailed information on the consent process of the Co-Investigator such as operating environment, operating method, and so on.

(4) **An overseas joint researcher who conducts a joint international research is a “Research Collaborators”.** While you don’t need to enter the names of overseas joint researchers’ institutions, you should mention about them to present a comprehensive and overall picture of your research project in “Research Objectives and Research Method of the Joint International Research, etc.” column. In addition, the role of each joint researcher should be specified in “Role of Overseas Joint Researchers and the state of preparation” column.

11. Research Expenditure and Their Necessity

In this column, details of research expenditure, their necessity and the basis of their estimation should be given in connection with the “Research Proposal Document (forms to be uploaded)”. In that case, please pay attention to “Target expenditure (direct expense)” and “Ineligible expenditure” described below. In addition, record the necessary costs of visits and research plans to be carried out by Principal Investigator and other investigators of the Japanese team for the research proposed in this research category. Also, please be aware that research plan with research expenditure less than 100,000 yen in any year of the research period will not be eligible for call for proposal.

“Target expenditure (direct expense)”

The expenditure necessary for the implementation of the research plan (including the budget necessary for summarizing the research achievements) is eligible.

“Ineligible expenditure”

The following expenditures are not included in the funding:

- ① Expenditure for buildings and other facilities (excluding the expenditure for installations which became necessary because of the introduction of goods that have been purchased by means of direct expense)
- ② Expenditure for handling accidents or disasters that occurred during the implementation of funded project

- ③ Personnel cost/Honoraria for the Principal Investigator or Co-Investigator(s)
- ④ Other expenditure which fall under indirect expense*

* Indirect expense is expenditure necessary for the management of the research institution and other things that arise during the implementation of the research project (corresponding with 30% of the amount of the direct expense). The expenditure is used by the research institution. This time, it is scheduled to set up indirect expense for the research categories for which a call for proposals is organized. However, the Principal Investigator does not need to state that indirect expense in the Research Proposal Document.

Research expenditure and usage breakdown are automatically calculated from the details of each expense. In the detail column of each expenditure, the data input column is displayed by pushing the necessary number of “Add” button on the left side of the input screen. For data entry fields that you do not use (if you have entered but do not use it or if you did not enter at all), please delete the data entry field by pressing the “Delete” button on the left side. Please enter the amount in thousand yen units and round off fractions smaller than one thousand yen. After completing all the details of each expense, please click the recalculate button. And the output in PDF will be the upper limit to 2 pages.

Please note the following points when entering details of each expense. However, the way to journalize each expense should be handled in accordance with such as the accounting rules of the research institutions to which you belong including but not limited to the following examples.

- Equipment Costs

When purchasing a large number of books and materials, please input to some extent, such as the contents of the books and materials, as “Western medieval political history related books” (As for the books, the same way to journalize should be applied even if they were not handled as equipment.). Also, in the case of machinery and equipment, simply enter a set of ○ ○ ○ as well as its breakdown.

- Consumables Expenses

Please enter for each product name such as chemicals, laboratory animals, glassware, etc.

- Necessity of the Equipment Costs and the Consumables Expenses

Please enter the necessity and the basis of the estimation of equipment cost and consumables expenses you entered. In any fiscal year of this research, if the “equipment costs” exceeds 90% of the total research expenditure and there is expenditure which accounts for a particularly large proportion in “consumables expenses”, you must enter the necessity of the expenditure to carry out the research. In addition, in such cases as equipment were purchased by the combined use from the grants, enter into the column of unit price the amount using for this concerned research project together with mentioning to the effect that this is the combined use.

- Domestic and Overseas Travel Expenses

As for the domestic and overseas travel expenses for Principal Investigator, Co-Investigator(s), and Research Collaborators (data collection, various investigations, meetings of research, announcement of results of research, etc.), please enter the expenditures (transportation fee, accommodation fee, daily allowance) etc. for each matter.

- Personnel Cost / Honoraria

Please enter the expenditures for each matter such as honoraria, compensation, wages and salaries to Research Collaborator(s) (postdoctoral researchers, research assistants (RA), researchers belonging to overseas research institutions, and others) who engaged in organizing materials, assisting in experiments, performing translation or proofreading, providing technical knowledge, distributing and collecting questionnaires and collecting information materials for research), and payment to temporary staff agencies. In addition, enter the status at the time of collaboration (such as project assistant professor, postdoctoral fellow, student in Doctoral course/Master's course) of the people to whom the personnel cost or honoraria to be paid if it is obvious.

(Example) Organizing materials: [breakdown: X (number of students in Doctoral courses) × Y (number of months)] = XXXX yen. (Refer to the Application Procedures for Grants-in-Aid for Scientific Research.)

- Miscellaneous Expenses

Except for equipment cost, consumables expenses, travel expenses, personnel cost/honoraria, please enter the expenditures to carry out the research (e.g. the costs for printing, photocopying, developing/printing, correspondence (stamps and phone calls), transport, renting or leasing the research facilities (only where the grant-aided project cannot be conducted in the facilities of the research institution), meetings (rental of the venue and meals (excluding alcohol)), equipment rental

(e.g. computers, automobiles, experimental equipment), equipment repairs, transportation other than travel expenses, presentation of the research achievements (fees for contributing to the publications of academic societies, website creation, and preparation of pamphlets to publicize the research achievements, costs of PR activities disseminating research achievements to the general public, and other matters) , experiment waste disposal cost, the cost of “buyout”, *i.e.* someone taking over a part of the duties (other than research) of the Principal Investigator or Co-Investigator(s). (Refer to the Application Procedures for Grants-in-Aid for Scientific Research)) item by item.○ Necessity of Travel Expenses, Personnel Cost / Honoraria, and Miscellaneous Expenses

Please enter the necessity and the basis of the estimation of travel expenses, personnel cost / honoraria, and miscellaneous expenses you entered. In any fiscal year of this research, if the “travel expenses” and / or “personnel cost / honoraria” exceeds 90% of the total research expenses and there is expenses which accounts for a particularly large proportion in “miscellaneous expenses”, you must enter the necessity of the expenditure to carry out the research.

12. The Status of Application and Acquisition of Research Grants

The entries in this column will be referred to by the review committee in order to ensure that the grant status would not constitute a case of “unreasonable duplication and/or excessive concentration in the grant allocation” so that the proposed research project can be duly carried out in parallel with other projects. List, at the time of submission of this KAKENHI application by Principal Investigator, please input (1) research grant application(s) in the review process, (2) research grant(s) receiving and/or adopted to be delivered, and (3) other activities.

- Please enter this research project to be entered at the head of “(1) research grant application(s) in the review process”.

- Please enter not only KAKENHI but also other Competitive Research Funds including those offered by overseas organizations in “(1) research grant application(s) in the review process” and “(2) research grant(s) receiving and/or adopted to be delivered”.

(*) The Integrated Innovation Strategy 2020 states that “Regarding the acceptance of funds from foreign countries, we [the Government of Japan] will make information disclosure of the situation, etc. as a requirement at the time of a research funds application.” In response, starting from the FY2021 call for proposals, it is clearly stated that applicants submitting KAKENHI grant applications must declare any foreign research funds in “The Status of Application and Acquisition of Research Grants” column in the Research Proposal Document. Enter all domestic and foreign competitive research funds as well as any research funding, including subsidies from private foundations, funds for contract research and joint research in the review process and/or

adopted and to be delivered.

And, Note the following points about joint research, etc. with a non-disclosure agreement will be handled.

• For the time being, you can submit without entering the name of the partner institution and the amount of research expenses accepted, if it is difficult to submit due to unavoidable circumstances such as when it is difficult to submit based on the contents of the confidentiality agreement that has already been concluded, etc. And it should also be noted that when concluding a confidentiality agreement, etc. in the future, it is assumed that only necessary information may be submitted when applying for competitive research funds. Provided, if the parties to the agreement mutually agree on the scope of information to be kept confidential and reasonable grounds for such confidentiality (e.g., in case the such information is materially important to corporate strategy and is deemed extremely confidential), the agreement can be formulated beforehand with consent to submit such confidential information.

※ The submitted information may be shared among the funding agencies and related ministries as well as information that has not been subject to a confidentiality agreement, but even in this case, the information will be shared only with those who have confidentiality obligations.

• There is no need to enter the fundamental research grants that are allocated so that research activities etc. can carry out as duties within their research institution in “(1) research grant application(s) in the review process” or “(2) research grant(s) receiving and/or adopted to be delivered”. The effort of the research activities that utilize such grants is included in “(3) other activities”.

In the detail column of “(1) research grant application(s) in the review process” and “(2) research grant(s) receiving and/or adopted to be delivered”, the data input column is displayed by pushing the necessary number of “Add” button on the left side of the input screen. For data entry fields that you do not use (if you have entered but do not use it or if you did not enter at all), please delete the data entry field by pressing the “Delete” button on the left side.

○ “ Role in this Project”

Please select “PI” if the role of the researcher is a Principal Investigator or select “Co-I” if the role of the researcher is a Co-Investigator.

○ “ Funding Scheme, Grant Category (Funding Organization)”

In case of KAKENHI, please select the research category. For cases other than KAKENHI, please select “Other” and enter the name of the research grant and the name of the funding organization in the lower row.

○ “Research Period”

Please enter the research period.

○ “Title of Proposed Research Project”

Please enter the title of proposed research project.

○ “Name of Principal Investigator”

If applicant select “Co-I” in the column of Role in the Project, please enter the name of the Principal Investigator (or equivalent) of the research subject.

○ “Research Expenditure for FY2022 (Research Expenditure for the whole period) (Unit: thousand yen)”

Enter the amount of direct expense of research expenditure to be received and used by himself / herself in FY2022 (items under application is the applied amount) in the upper row, and at the same time enter the total amount (planned amount) to be used by himself / herself during the whole period in the lower row.

If applicant select “Co-I” in the column of Role in the Project, please enter the amount of contribution (planned amount) to be received and used by himself / herself in FY2022 in the upper row, and at the same time enter the total amount of contribution (planned amount) to be used by himself / herself during the whole period in the lower row. (Please enter "0" if contributions are not distributed in the upper row.

○ “Effort Percentage in FY2022 (%)”

Based on 100% of the total working hours for “(1) research grant application(s) in the review process”, (2) research grant(s) receiving and/or adopted to be delivered” and “(3) other activities” to be entered in this column, please enter the allocation rate (%) of the time required for conducting activities etc. The “total working hours” does not mean time spent only on research activities, but entire actual working time, including time spent on educational activities and other activities.

In KAKENHI, please enter “-” (hyphen) if applicant enter a research category (such as Specially Promoted Research) that can be duplicated but not adopted in duplicate.

In addition, when conducting research by the Competitive Research Funds please be sure to enter

the effort related to the research activity. When the research project for which the current application is being made is selected, the applicant will be requested to confirm the effort anew at that time and to perform the procedure of formal application for grant delivery. If the effort is changed at that time, it is necessary to correct the effort it e-Rad before formal application for grant delivery.

- “Distinction of the research contents and reason for submission of this KAKENHI application in addition to the other projects”

Please explicitly enter the items focusing on the research grant application(s) in the review process or research grant(s) receiving and/or adopted to be delivered, distinction of the research contents, and reason for submission of this KAKENHI application in addition to the other projects of the research project.

Also, enter the affiliated institution and your title/position under which you will be submitting the application or receiving grant delivery for this research project.

You must enter the affiliated institutions and titles/positions for each and all of the projects, even if they are the same as the affiliated institution and your title/position under which you are submitting this application.

If applicant is a Principal Investigator of KAKENHI, please enter the total amount of direct expense for the whole research period including the shared amount to the Co-Investigators in this column.