# FY 2023 Application CREST Research Proposal

(CREST - Form 1)

|  |  |
| --- | --- |
| Research Area | Innovation of Life Science through Digital Transformation Focused on Data-Driven and AI-Driven Technologies |
| Application Type | CREST/mini-CREST Pease select one |
| Title of proposed research project | *When the title is in English, describe the title also in Japanese (about 20 characters) along with the English title.* |
| Name of Research Director (PI) |  |
| Affiliated Institution, Section, Title | *Describe the affiliation and title accurately without any omission.* *(i.e., describe Graduate school, Department, Majors, XX laboratory, and project/tenure/associate/assistant professor).* |
| Academic Background | ***Notes:*** ***To fill-in the form 1 to 10, please follow the “Instructions for Preparing a Proposal”. Fill in form 1 on one page of A4-size sheet (no exceptions).******You may delete notes in italics (slanting characters) in this and other forms.*** ***When information entered in e-Rad is different from that in research proposal documents, information in this document will be considered correct. Please note that research expenses are listed in units of XX thousand yen.******Research proposals need to be converted to PDF format before being uploaded to e-Rad. Please use the PDF conversion function of e-Rad for conversion.******Note: Delete this textbox of notes in submission.*** |
| Professional Appointments of Research Director (PI)(Main work history and research contents) |  |
| Information of Research Director (PI) | URL:  |
| Research Period | [Oct. 2023] – [mm. yy] (xx years) |
| Total Research Budget | Total Budget: 　　　thousand yen |

(CREST - Form 2)

# Research Proposal Overview

## Outline of Research Project

*・ In Form 2, Provide an overall description of the research proposal in one A4-size sheet (no exceptions). Use 10.5 point or larger font size (If these instructions are not followed, the research proposal might not be accepted). Unlike form 3-1 (project description), it is not allowed to cite numbers of papers that are shown in the list of achievements (form 6 and form 7).*

(CREST –Form 3-1)

# Project Description

*・Clearly state the work to be undertaken. Figures and tables (in color) may be included if necessary.*

*・For Form 3-1, do not exceed six A4-size sheets (no exceptions). Use 10.5 point or larger font size (If these instructions are not followed, the research proposal might not be accepted).*

*・In this form of project description, make effective references to the descriptions of achievements listed in Forms 6 (Research Director) and 7 (Lead Joint Researcher) to clarify the relationship between the achievement and the research being proposed by the research project applicant. In making the references, the numbers listed in the forms can be quoted in this form.*

## 1．Background and Objective

## 2．Target of proposed research project

　**(1) Target to be achieved in the middle of the research period (within 60 words)**

　**(2) Target to be achieved at the end of the research period (within 60 words)**

## 3．Research Plans and Approach

## 4．Originality and novelty of the proposed research and comparison to current state of similar studies

## 5．Preparation of fundamental technology

## 6．Future Prospect of Research

(CREST – Form 3-2)

# Project Organization and Research Schedule

***For Form3-2, describe within two or less A4-size sheets (no exceptions).*** *If this instruction is not followed, the research proposal might not be accepted.*

## 1．Project Organization

|  |  |  |  |
| --- | --- | --- | --- |
| Group Name | Name of PI / Co-PI | Affiliation and Title | Research Title (around 12 words) |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |

Please underline the name of the "researchers that can promote data-driven and/or AI-driven research with a view to application to life science in the future" described in Research Supervisor’s Policy on Call for Application, Selection, and Management of the Research Area, 4. (6).

## 2．Research Schedule

*-Enter the schedule of the proposed research project.*

*-The name of “PI’s Group”, “Co-PI’s Group” should be same as those specified in the previous item of this form respectively.*

*-If proposed research subject consists of several research subthemes, state clearly schedules of each subtheme and the organizations to pursue the subtheme.*

*-* *Length, position and thickness of arrows can be changed.*

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Research Subjects | 2023Fiscal year(6 months) | 2024Fiscal Year | 2025FiscalYear | 2026FiscalYear | 2027FiscalYear | 2028Fiscal Year(12months) |
|  |  |  |  |  |  |  |  |  |  |  |  |  |
| ・ (　　　　 Group) |  |  |  |  |  |  |  |  |  |  |  |  |
| ・ (　　　　 Group) |  |  |  |  |  |  |  |  |  |  |  |  |
| **2．** |  |  |  |  |  |  |  |  |  |  |  |  |
| ・ (　　　　 Group) |  |  |  |  |  |  |  |  |  |  |  |  |
| ・ (　　　　 Group) |  |  |  |  |  |  |  |  |  |  |  |  |
| **3.**  |  |  |  |  |  |  |  |  |  |  |  |  |
| ・ (　　　　 Group) |  |  |  |  |  |  |  |  |  |  |  |  |
| ・ (　　　　 Group) |  |  |  |  |  |  |  |  |  |  |  |  |
| ・ (　　　　 Group) |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |
| ・ (　　　　 Group) |  |  |  |  |  |  |  |  |  |  |  |  |
| ・ (　　　　 Group) |  |  |  |  |  |  |  |  |  |  |  |  |

(CREST – Form 4-1)

# Research Project Organization 1

　 (Research Members of the PI’s Group)

*For Form4-1, describe within two or less A4-size sheets (no exceptions). If this instruction is not followed, the research proposal might not be accepted.*

## PI’s Group

|  |  |  |
| --- | --- | --- |
| **PI** | **Affiliation, Department** | **Title** |
|  |  |  |
| **Research****Participants** | **Affiliation, Department**(Omit if it is same as above) | **Title** |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |

## ○ Research Subjects and Overview

### ・Title of Research Theme：

### ・Research Subjects in Charge：

### ・Overview of the research：

### ・Role in the entire research project：

(CREST – Form 4-2)

# Research Project Organization 2

 (Research Members of the Co-PI’s Group)

*-If a Co-PI’s group (Co-PI’s institution) other than the PI is required, list them in Form 4-2 (this form) per joint research institution.*

*-* ***This form should be described within two or less A4-size sheets (no exceptions) for each Co-PI’s group*.** *(If this instruction is not followed, the research proposal might not be accepted).*

*- The research expenditures of overseas Co-PI’s groups are funded only when the participation of the groups is essential to realize the research concept. Elaborate the necessity in particular detail. Further, such funds are applicable only when the implementation of the research is difficult unless the overseas Co-PI’s groups are involved; therefore, describe the grounds. Even if the necessity of such Co-PI’s groups is recognized, the research expenditures of the overseas Co-PI’s groups may not be funded if the terms and conditions of the contract are not acceptable. In this case, describe a proposal for cooperation (the second-best option).*

## Co-PI’s Group (1)

|  |  |  |
| --- | --- | --- |
| **Co-PI** | **Affiliation, Department** | **Title** |
|  |  |  |
| **Research Participants** | **Affiliation, Department**(Omit if the same as above) | **Title** |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |

## ○ Research Subjects and Overview

### ・Title of Research Theme of the Co-PI’s Group：

### ・Research Subjects in Charge：

### ・Overview of the research：

### ・Role in the entire research project and necessity：

### ・Reason of why this group is necessary for this project (applicable only to overseas Co-PI’s groups):

* Necessity of the joint research group for achieving the goal of the project
* Availability of specific facility, equipment, environment, etc.

### ・An alternative proposal for cooperation with the applicable group, in case a contract cannot not be concluded (applicable only to overseas Co-PI’s groups):

### ・The state of enforcement of the security trade control (applicable only when an overseas Co-PI’s is involved):

## Co-PI’s Group (2)

|  |  |  |
| --- | --- | --- |
| **Co-PI** | **Affiliation, Department** | **Title** |
|  |  |  |
| **Research Participants** | **Affiliation, Department**(Omit if the same as above) | **Title** |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |

## ○ Research Subjects and Overview

### ・Title of Research Theme of the Co-PI’s Group：

### ・Research Subjects in Charge：

### ・Overview of the research：

### ・Role in the entire research project and necessity：

### ・Reason of why this group is necessary for this project (applicable only to overseas Co-PI’s groups):

### · Necessity of the joint research group for achieving the goal of the project

### · Availability of specific facility, equipment, environment, etc.

### ・An alternative proposal for cooperation with the applicable group, in case a contract cannot not be concluded (applicable only to overseas Co-PI’s groups):

### ・The state of enforcement of the security trade control (applicable only when an overseas Co-PI’s group is involved):

(CREST – Form 5)

# Research Budget

## 1．Research Budget Plan in Item (Entire Team)

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  | **1st Year**2023.10～ 2024.3 | **2nd Year**2024.4～2025.3 | **3rd Year**2025.4～2026.3 | **4th Year**2026.4～2027.3 | **5th Year**2027.4～2028.3 | **Final Year**2028.4～2029.3 | **Total**(Thousand yen) |
| **Equipment** |  |  |  |  |  |  |  |
| **Materials/****Consumables** |  |  |  |  |  |  |  |
| **Travel** |  |  |  |  |  |  |  |
| **Personnel and Services****(Number of Researchers)** | ( ) | ( ) | ( ) | ( ) | ( ) | ( ) |  |
| **Other** |  |  |  |  |  |  |  |
| **Total**(Thousand yen) |  |  |  |  |  |  |  |

## Remarks on the research budget

## 2．Research Budget plan by group

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  | **1st Year**2023.10～2024.3 | **2nd Year**2024.4～2025.3 | **3rd Year**2025.4～2026.3 | **4th Year**2026.4～2027.3 | **5th Year**2027.4～2028.3 | **Final Year**2028.4～2029.3 | **Total**(Thousand yen) |
| **PI’s Group****〇〇〇〇****（\*\*University）** |  |  |  |  |  |  |  |
| **Co-PI’s Group 1****〇〇〇〇****（\*\*University）** |  |  |  |  |  |  |  |
| **Co-PI’s Group 2****〇〇〇〇****（\*\*University）** |  |  |  |  |  |  |  |
| **Total**(Thousand yen) |  |  |  |  |  |  |  |

## List of major equipment costing 10 million yen or more (item, estimated cost）

(CREST – Form 6)

# List of Achievements/Ex-Post Evaluation Results

#  (PI： )

**【Author notation in English papers by the PI： 】**

## 1．Principal papers, books, and other publications related to this research proposal

##  -within 20 achievements

## 2．Invited lecture -within 10 achievements

## 3．Major awards -within 10 achievements

## 4．Ex-Post evaluation of research projects that the research applicant represented in other systems of competitive research funds

*Enter in the table below a list of projects that the research director represented (restricted to those disclosed in 2015 and thereafter) and for which Ex-post evaluation is disclosed. Delete the table and enter “not applicable” if no relevant project exists.*

|  |  |  |  |
| --- | --- | --- | --- |
| Number | ResearchProgram | Research Project(Fiscal Year Implemented) | URL of website with Ex-post evaluation result |
| **1** |  |  |  |
| **2** |  |  |  |

(CREST – Form 7)

# List of Achievements (Co-PI(s))

**○ Co-PI’s Group 1**

**Co-PI：Name (Affiliation)**

**【Author notation in English papers： 】**

## Principal papers, books, and other publications related to this research proposal (Co-PI 1) -within 10 achievements

**○ Co-PI’s Group 2**

**Co-PI：Name (Affiliation)**

**【Author notation in English papers：　　　　 　　　　】**

## Principal papers, books, and other publications related to this research proposal (Co-PI 2) -within 10 achievements

(CREST – Form 8)

# List of Patents (PI and Lead Co-PI (s))

## Major Patents

*List important patent applications of recent years that are related to this proposal. Do not exceed one page.*

*【Items to be entered】*

*Patent application number, inventor, title of invention, applicant, and date of application*

### 1．PI (Name (Affiliation))

### 2．Co-PI(s)

### 2.1 Co-PI’s Group 1　Co-PI 1: Name (Affiliation)

### 2.2　Co-PI’s Group 2　Co-PI 2: Name (Affiliation)

(CREST – Form 9)

#  Information on Other Supports

[Notes]

・When PI or Co-PI are receiving, apply for, or plan to apply for competitive funding programs (including CREST / PRESTO / ACT-X, AMED-CREST, PRIME) or other research funds (all current research funds for individual research subjects, such as subsidies, grants, joint research funds, contract research funds, etc., including those from overseas), fill in the research project name, research period, role, amount of research expenses received by the individual, and effort. Please refer to” 8.1 Measures against Unreasonable Duplication and Excessive Concentration” and “9 Limitations on Multiple Applications within the Strategic Basic Research Programs” of the application guidelines. In the case that it is difficult to enter due to unavoidable circumstances such as being unable to enter based on the contents of the confidentiality agreement that has already been concluded, it is possible to submit this research proposal without filling in any items other than effort. Please noted that this information will be provided to the reviewers at the time of proposal selection.

・If the information entered in the research proposal differs from reality, the research project may be rejected.

・We may ask for application and plan documents submitted to other systems when a proposal reaches the interview screening.

・Enter this proposed CREST project first, followed by other research projects in a descending order of the amount of research funds (for the whole period, only direct cost) the applicant receives.

・Add rows if needed.

## PI：Name (Affiliation)

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **No.** | **Program****(Name of Institution)** | **Status** | **Title of Project****（Name of Principal investigator）** | **Research Period** | **Role****(Principal Investigator or co-Principal Investigator)** | **Research Fund Received****(1) Allocated Budget****(For entire period)****(2) FY 2024 (planned)****(3) FY 2023 (planned)****(4) FY 2022 (actual)****（Thousand yen/unit）** | **2023****FY****Effort****(％)** |
| - | CREST(This Application) | Sub-mitted |  | 2023.10－ | Principal Investigator | (1) (2) (3)  |  |
| (1) |  |  |  | － |  | (1) (2) (3) (4)  |  |
| (2) |  |  |  | － |  | (1) (2) (3) (4)  |  |
| (3) |  |  |  | － |  | (1) (2) (3) (4) - |  |

## Co-PI (1)：Name（Affiliation）

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **No.** | **Program****(Name of Institution)** | **Status** | **Title of Project****（Name of Principal investigator）** | **Research Period** | **Role****(Principal Investigator or co-Principal Investigator)** | **Research Fund Received****(1) Allocated Budget****(For entire period)****(2) FY 2024 (planned)****(3) FY 2023 (planned)****(4) FY 2022 (actual)****（Thousand yen/unit）** | **2023****FY****Effort****(％)** |
| - | CREST (This Application) | Sub-mitted |  | 2023.10－ | Co-Principal Investigator | (1) (2) (3)  |  |
| (1) |  |  |  | － |  | (1) (2) (3) (4)  |  |
| (2) |  |  |  | － |  | (1) (2) (3) (4)  |  |
| (3) |  |  |  | － |  | (1) (2) (3) (4)  |  |

## Lead Joint Researcher (2)：Name（Affiliation）

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **No.** | **Program****(Name of Institution)** | **Status** | **Title of Project****（Name of Principal investigator）** | **Research Period** | **Role****(Principal Investigator or co-Principal Investigator)** | **Research Fund Received****(1) Allocated Budget****(For entire period)****(2) FY 2024 (planned)****(3) FY 2023 (planned)****(4) FY 2022 (actual)****（Thousand yen/unit）** | **2023****FY****Effort****(％)** |
| - | CREST (This Application) | Sub-mitted |  | 2023.10－ | Co-Principal Investigator | (1) (2) (3)  |  |
| (1) |  |  |  | － |  | (1) (2) (3) (4)  |  |
| (2) |  |  |  | － |  | (1) (2) (3) (4)  |  |

(CREST – Form10)

# Other Special Remarks

*In Form 10, Provide an overall description of other special remarks in less than three A4-size sheets (No exceptions. If this instruction is not followed, the research proposal might not be accepted). For items that have check boxes, please check the applicable ones.*

***\* Please refer to “Chapter 5, 5.1.2 (2)” in the application guidelines and state whether or not you have a conflict of interest****. If there is a conflict of interest that corresponds to the application guidelines "Chapter 5 5.1.1", it will be excluded from the selection.*

## Conflict of interest between the applicant and evaluators (Please be sure to

## refer to “Instructions for Preparing a Proposal”)

(1) Conflict of interest between the research applicant (research director) and evaluators (research supervisor, assistant supervisor, research area advisor)

(a) Conflict of interest between the research applicant and the research supervisor(as an evaluator):

□YES　　 □NO

　 *If YES, state the reason.*

The research applicant conducted joint research with the research supervisor on ○○project (20xx-20xx). It comes under condition (f) for conflict of interest stipulated in 5.1.2(2)①.

(b) Conflict of interest between the research applicant and the assistant supervisor and research area advisor(s):

□YES　　 □NO

 *If YES, write the name of assistant supervisor/research area advisors with conflict of interest and state the reason.*

Assistant supervisor/research area advisor with conflict of interest: (The Advisor’s Name)

Reason: The research applicant is conducting joint research with the research area advisor in \*\*

project. It comes under conditions (c) for conflict of interest stipulated for 5.1.2(2)①.

1. Conflict of interest between the Co-PIs and evaluators (the research supervisor/ assistant supervisor/ research area advisors)

 (a)Co-PI (1): (Name), (Affiliation)

　 1) Conflict of interest with the research supervisor (as an evaluator):

□YES　　 □NO

　 If YES, state the reason.

Reason: He/She is conducting joint research with the research supervisor in \*\* project (20xx-

20xx). It comes under conditions (f) for conflict of interest stipulated for 5.1.2(2).

2) Conflict of interest with the assistant supervisor/research area advisor(s):

□YES　　 □NO

 If YES, write the name of assistant supervisor/research area advisors with conflict of interest and state the reason.

Assistant supervisor/research area advisor with conflict of interest: (The Advisors’ Name)

Reason: He/She is conducting joint research with the research area advisor in \*\* project.

It comes under conditions (c) for conflict of interest stipulated for 5.1.2(2).

(b) Co-PI (2): (Name), (Affiliation)

　 1) Conflict of interest with the research supervisor (as an evaluator):

□YES　　 □NO

　 If YES, state the reason.

Reason: He/She is conducting joint research with the research supervisor in \*\* project (20xx-

20xx). It comes under conditions (f) for conflict of interest stipulated for 5.1.2(2).

2) Conflict of interest with the assistant supervisor/research area advisor(s):

□YES　　 □NO

 If YES, write the name of assistant supervisor/research area advisors with conflict of interest and state the reason.

Assistant supervisor/research area advisor with conflict of interest: (The Advisors’ Name)

Reason: He/She is conducting joint research with the research area advisor in \*\* project.

It comes under conditions (c) for conflict of interest stipulated for 5.1.2(2).

## Co-PI’s group organization that is related to the PI (organizations etc.

## established based on R&D achievements by the PI etc*.)*

##   *(Please be sure to refer to “Instructions for Preparing a Proposal”)*

Organization that is related to the research director:

□YES　　 □NO

 If YES, write the name of the organization and the Co-PIs as well as state the reason.

　　The name of the organization (the lead joint researcher’s name participating): XX Corporation (Taro Kagaku)

Reason: This organization was established based on R&D achievement by the research

director, which conforms to Item (a) among the requirements defined in 5.1.2 (2) ②.

## Participation by a research group of a company financed by JST

##  *(Please be sure to refer to “Instructions for Preparing a Proposal”)*

Participation by a company financed by JST:

□YES　　□NO

 If YES, write the name of the organization and the PI / the Co-PIs.

　　The name of the organization (the PI): XX Corporation (Taro Kagaku)

The name of the organization (a Co-PI): XX Corporation (Taro Kagaku)

## (Only for those relevant) The contact of the manager at the department or the division in charge of the research agreement at the overseas research institute

*Enter name, affiliation, e-mail address, and telephone number.*

## (Only for those relevant) Special notes for efforts by a research director

If the research director (Managers such as the Dean of the Graduate School) requires work time(efforts) for a special task, please indicate so.

## The other special remarks

## Differences from the previous application (in case of applications that have been made to the research area two times or more), Change of research institute affiliation, other special notes

# Proposal Preparation Checklist

(CREST – Attachment)

**※This checklist should be deleted in submission※**

|  |  |  |
| --- | --- | --- |
| Check | Reference Material |  Check |
| Have you completed e-Rad researcher registration? (Co-PIs as well)  | Chapter 10 | □ |
| Have you completed the educational program on research integrity? | Section 8.31 | □ |
| Have you checked if you do not fall under the Limitation on the Multiple Application (AMED program included)?  | Chapter 9 | □ |
| Conflict of interests with the Research Supervisor\* | Section 5.1.1 |  |
| A | The research project applicant is a relative of the Research Supervisor. | No □ |
| B | The research project applicant and the Research Supervisor are both affiliated with the same smallest organizational unit (e.g. same research lab) of a university, national or other national government-funded research and experiment institution. Or, the research project applicant and the Research Supervisor are affiliated with the same company. | No □ |
| C | The research project applicant and the Research Supervisor are presently working in close cooperation on the same joint research project. Or, have done so within the past three years.(Existence of close cooperation will be judged by the facts that, for example, the research project applicant and the Research Supervisor are working together on the same research project, are performing different parts of the same research project, or are co-authors of a research paper. If you have any questions, please contact JST) | No □ |

**\***When it is unclear whether any of the above conditions apply, please download and fill the Inquiry Form via the following URL: http://www.jst.go.jp/kisoken/boshuu/teian/koubo/inquiry.docx

 Please send it via email to rp-info@jst.go.jp.

**○ Deadline for Submission**

Immediately before the deadline, e-Rad may suffer high system burden. As a result, the application may take a long time, and troubles, including the failure to complete the application, may occur. Try to complete the application well in advance.

**○Forms**

Check the proposal documents for possible omissions before submission. A proposal application may not be accepted if relevant forms have been filled out incorrectly. Also, when converting to PDF format, please use the PDF conversion function of e-Rad.

|  |  |  |  |
| --- | --- | --- | --- |
|  | Item | Main Check Point | Check Column |
|  | Input of general information on the applicant to e-Rad | All necessary information is provided. File sizes should not exceed 3MB in total in PDF format. | □ |
| Form　1 | Cover of research proposal documents | All necessary information is provided.Information is matched with e-Rad data.The form 1 is within one page when converted to PDF | □ |
| Form　2 | Research Proposal Overview | When converted to PDF format, the form 2 is in one page long? 10.5 point or larger font? | □ |
| Form　3-1 | Project Description | The form 3-1 is within six pages when converted to PDF. | □ |
| Form 3-2 | Project Organization and Research Schedule | The form 3-2 is within two pages when converted to PDF. | □ |
| Form　4-1 | Research Project Organization 1 (within two pages) | All necessary information is given. The form 4-1 is within two pages when converted to PDF. | □ |
| Form　4-2 | Research Project Organization 2 (within two pages for each group) | All necessary information is given.The form 4-2 is within two pages for each joint research group when converted to PDF. | □ |
| Form　5 | Research Budget | Total Sum is matched with the research budget given in Form 1. | □ |
| Form　6 | List of Achievements / Ex-Post Evaluation Results (Research Director) | The number of principal achievements listed is no more than 20. The number of the other achievements listed is also no more than 20. | □ |
| Form　7 | List of Achievements (Lead Joint Researcher(s)) | The number of achievements listed is no more than 10 for each lead joint researcher. | □ |
| Form　8 | List of Patents (Research Director & Lead Joint Researcher) | The Form 8 is described in around one page. | □ |
| Form 9 | Information on Other Supports | All necessary information is given (Especially the efforts). | □ |
| Form 10 | Other Special Remarks | The form 10 is within three pages when converted to PDF. | □ |