2025

National University Corporation

University of Tsukuba

Tsukuba -Plant Innovation Research Center

"Plant Transgenic Design Initiative (PTraD)" Joint Usage and Joint Research Project

Additional Application Guidelines

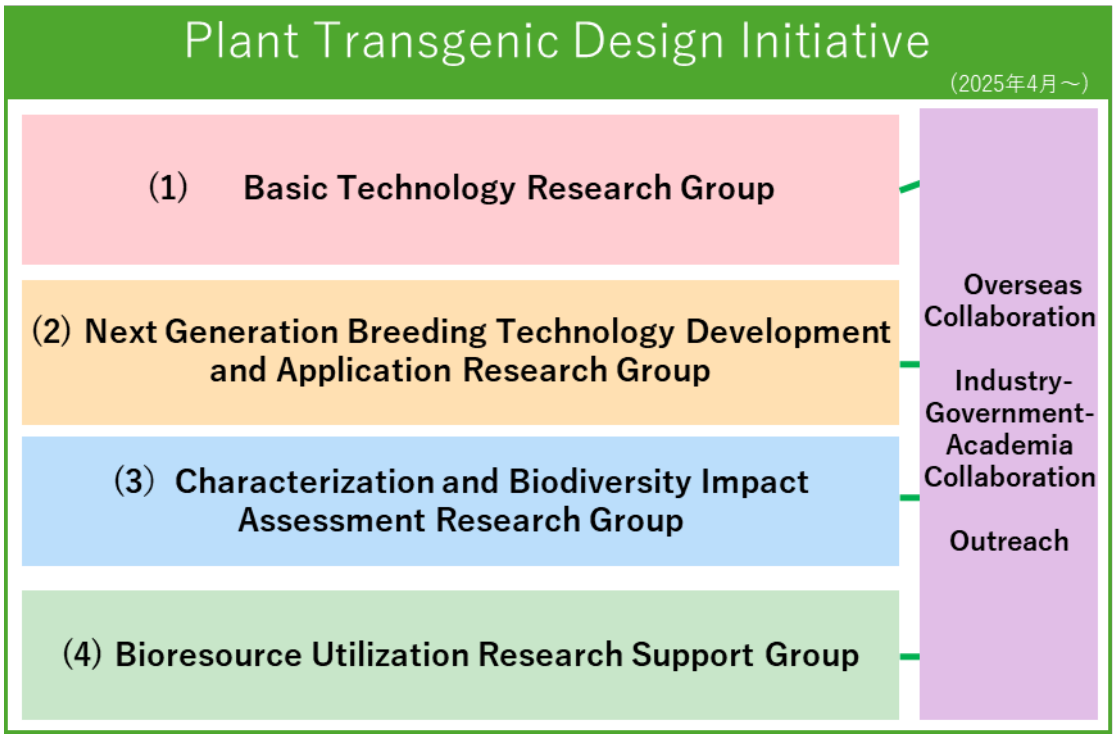
The Tsukuba Plant Innovation Research Center (T-PIRC) of the University of Tsukuba has been certified joint usage/research center project entitled "Plant Transgenic Design Initiative (PTraD)" by the Ministry of Education, Culture, Sports, Science and Technology since 2010, and has developed a transformative plant design base business that combines basic research on plants and basic technologies related to the development of genetically modified plants. In order to conduct basic research on transformation technology, which is considered a bottleneck for building collaboration and practical application between related fields, field research on transformed plants, and environmental risk assessment research in an integrated manner, joint usage/joint research projects are publicly solicited from related research communities, and are selected and implemented.

In the 3rd phase of PTraD since 2022, in addition to joint research that contributes to the further progress of basic and applied research on plant genes and the promotion of internationalization, we will work on a project for joint research on social implementation research using isolation fields, special netted-houses, and fields that T-PIRC possesses for the development of varieties using new plant breeding technologies including genome editing technology and their social acceptance.

Based on this, we are now accepting applications for joint research in FY2025.

If you have any questions, please contact us by e-mail at the following address.

E-mail: ptrad@gene.tsukuba.ac.jp



Regarding overseas collaboration, industry-academia collaboration, and outreach activities, we will provide more advanced and multifaceted support by responding in cooperation among groups , rather than limiting ourselves to specific groups.

1． Joint Usage and Joint Research Themes to be Publicly Solicited

(1) Basic Technology Research Group [Research Group Leader: Takuya Suzaki]

This research group will elucidate the mechanisms of environmental response and development in plants and search for useful genes. By promoting these studies, we aim to obtain knowledge that contributes to the realization of a carbon-neutral society from the standpoint of plant science. We will particularly focus on the analysis of the mechanisms of plant-microbe symbiosis, including the symbiotic phenomenon between plants and rhizobia, and elucidate the molecular mechanisms and evolutionary basis of this symbiosis. We will also elucidate the mechanisms of production and accumulation of functional substances in plants and search for useful genes. Furthermore, by expressing these useful proteins in plants, we will analyze their functions and apply them to practical use. We will also elucidate the functions of plant transcription factors and other factors through protein science.

Collaborative research in this research group includes screening of mutants mainly using

Arabidopsis, tomato, and Lotus japonicus, creation of knockout plants, gene expression analysis, mass expression of proteins in E. coli and plant cells, metabolomic analysis, cell wall component analysis, and imaging analysis. In addition, we can provide technical support for protein-protein and protein-DNA interaction analysis, and protein structure determination.

(Specific joint usage/joint research)

① Search for practical genes related to the regulation of plant morphology and environmental response, and - interactions
② Search for useful genes related to the production of functional substances in plants
③ Mass expression of proteins in plants and their purification

(2) Next Generation Breeding Technology Development and Application Research Group [Research Group Leader: Satoko Nonaka]

This research group conducts research related to high value-added to crops by adding new functions, with the advanced utilization of new plant breeding technologies including novel plant transformation technologies and genome editing technologies. Specifically, we will introduce and control the expression of various useful genes isolated and identified in plants, microorganisms, animals, and other organisms into crops and evaluate their traits. We aim to expand the possibilities of using transformation technology in active collaboration with industry.

The joint use and collaborative research in this research group enables us to provide support for the use of new plant breeding technologies, including transgenic technology and genome editing technology for various plants. In addition, support for regulation of gene expression, analysis of gene expression levels, and basic evaluation tests of transgenic plants is also available.

(Specific examples of joint usage/joint research)

① Development of efficient and effective gene transfer and expression control technologies for plants
② Development of new plant breeding technologies, including genome editing technology
③ Creation of new crop varieties that accumulate useful substances and evaluation of safety and characteristics
④ Creation of new crop varieties with high value-added traits related to yield, disease resistance, suitability for cultivation and processing, etc.

(3) Characterization and Biodiversity Impact Assessment Research Group [Research Group Leader:

Taichi Oguchi]

This research group conducts evaluation research on the characteristics and biodiversity impact of biotechnology-derived plants, including transformation technologies, utilizing T-PIRC's recombinant evaluation facilities such as specific net rooms and isolated field sites. In addition, we will develop evaluation methods and cultivation/management systems for biodiversity impact according to the individual characteristics of biotechnology-derived plants. Based on the accumulation of the scientific knowledge base necessary for evaluation and management technologies for biotechnology-derived plants, we will also provide know-how for regulatory compliance, regulatory formulation, and research promotion related to Type I use of biotechnology-derived plants.

In joint use and joint research by this research group, we can provide technical support for cultivation tests in specified net rooms, comprehensive evaluation and documentation for applications for approval of Type I use regulations, etc., biodiversity impact assessment and characterization in isolated fields, and so on.

(Specific examples of joint usage/joint research)

① Construction of examples of cultivation and management methods for genetically modified plants in specific reticence rooms and isolated fields
② Development of case studies of cultivation and management methods for genetically modified plants with outdoor planting in mind
③ Development of technologies such as new applications and simplification of biodiversity impact assessment
④ Research on establishing a foundation for biodiversity impact assessment and management technology for transforming plants
⑤ Research on environmental diffusion risk assessment of transgenes and development of technologies to prevent diffusion
⑥ International comparison and dissemination of information on environmental impact assessment of genetically modified plants
⑦ Development and practice of effective methods for promoting social acceptance of biotechnology-derived plants

(4) Bioresource Utilization Research Support Group [Research Group Leader: Naoya Fukuda]

This research group is responsible for the development, maintenance, conservation, and genome analysis of various biological and genetic resources owned by the Center, such as tomatoes and melons, as well as research and development using these resources. In the joint use/joint research

of this research group, we will conduct research on the improvement of important traits (fruit enlargement characteristics and fruit set rate, production and accumulation of functional metabolites, environmental response, resistance to pathogenic microorganisms, plant hormone response, etc.) by utilizing the biogenetic resources we have, and develop new technologies such as digital phenotyping for trait improvement, or support genome analysis research. The group can also support the development of new technologies for trait improvement (e.g., digital phenotyping) or genome analysis research. The group also provides a variety of information and materials related to biogenetic resources.

(Specific joint usage/joint research)

① Analysis of important crop traits using model crop genetic resources
② Development of tools to utilize model crop genetic resources
③ Development of new resources for model crops

(5) Others

Joint usage/joint research on other research topics related to the design of biotechnological plants, including transformation techniques.

2. Application category

A-1 type (general type)
Joint Usage and Joint Research Projects with a maximum of 400,000 yen per project
A small number will be recruited and adopted after the start of the fiscal year (around the end of May).

A-2 type (general type, young type)
Among Joint Usage and Joint Research projects with a maximum cost of 400,000 yen per project, the principal investigator is a young researcher (a researcher who is 40 years old or younger as of April 1, 2024).
A small number will be recruited and adopted after the start of the fiscal year (around the end of May).

Type B (specialized for the use of special facilities and equipment)
Joint Usage and Joint Research Project Specializing in the Use of Special Facilities and Equipment of the Tsukuba -Plant Innovation Research Center with a maximum cost of 50,000 yen per project.

This research is being recruited at any time outside of this application period depending on the budget situation.

Type C (Information Dissemination Technology Research *Including holding symposiums and workshops)
Limited to the Information Dissemination Technology Research Group, we will support the holding of the event on the premise that it will be held in collaboration with faculty members of the Tsukuba - Plant Innovation Research Center.

We do not allocate research funds directly to applicants, but please consult with us in advance about necessary expenses.
This research is being recruited at any time outside of this application period depending on the budget situation.

Type D (used by overseas collaborative research institutions)
Joint Usage and Joint Research Projects Using Overseas Research Institutions Affiliated with the University of Tsukuba and the Tsukuba - Plant Innovation Research Center (Please contact us in advance for details))

3. Eligible Applicants
The principal investigator who submits the application must be a faculty member or researcher who belongs to a national, public, or private university, public research institute, or private company, etc., and is engaged in research related to transformative plant design. Graduate students are not allowed to apply as principal investigators, but they can participate as research members.

4. Research Period
After Date of notification of adoption to March 31, 2026

It is also possible to reapply for research projects conducted before 2024

5. How to apply
(1) Please download and use the application form from the website of the Tsukuba - Plant Innovation Research Center (Genetic Research Division).

Homepage: https://gene.t-pirc.tsukuba.ac.jp/joint/recruitment/

(2) When applying, please consult with the constituent faculty members of the Plant Transgenic Design Initiative of the Tsukuba- Plant Innovation Research Center in advance and fill in the corresponding column on page 1 of the application form 1.

List of Members: https://gene.t-pirc.tsukuba.ac.jp/joint/members/

6. Application Submission Deadlines and Methods
One copy of Form 1 “Application for Joint Usage/Collaborative Research
One copy of the Agreement

Upload the above required documents as electronic files (PDF) from the following URL by May 2, 2025 (Fri.).
https://utos.tsukuba.ac.jp/public/iAJUAV6AUDADwwzdASjr8y-r5Zh2gkBLyUITPouTKVOe

■How to write the file name
Please write your affiliation and name at the beginning of the file name.
(Example: ○○University_Taro Yamada_R7 Application Form)

■Deadline for use
The system is valid until May 2 , 2025 (Friday).
After the deadline, access will not be available, so please submit your application as soon as possible.

If you have any questions or problems with uploading, please feel free to contact us.
Contact: E-mail: ptrad@gene.tsukuba.ac.jp　(Please keep the original in a safe place)

7. Where to send the application form
E-mail：ptrad@gene.tsukuba.ac.jp
Please keep the original in a safe place.

8. Number of Projects Adopted

A-1 type (general type) and A-2 type (general type, young researchers): A few (Young researchers are welcome to apply.)
Type B (specialized for special facilities and equipment use): A few
Type C (Research on Information Dissemination Technology): A few
Type D (used by overseas collaborative research institutions): A few

9. Notification of results

Adoption or rejection of joint research projects will be decided by the Plant Transgenic Design Initiative Steering Council, which includes academic experts from outside the university, Applicants will be notified directly after Friday, May 23, 2025. In addition, depending on the acceptance review of the application documents, there may be conditions for changing the application category or research group. The principal investigator of the Joint Research Project will be required to submit the prescribed documents separately instructed. In addition, in implementing the Joint Usage and Joint Research Project, the person in charge of the project conducting genetic modification experiments at the Tsukuba -Plant Innovation Research Center will be required to attend a training course for genetic recombination experiment workers sponsored by University of Tsukuba in accordance with the university's Regulations for Safety Management of Genetic Recombination Experiments.

10. Required expenses

(1) Only expenses necessary for joint usage/research (research consumables and travel expenses) will be paid.

(2) Travel expenses required for joint usage/research shall be calculated and reimbursed in accordance with the University's Travel Expenses Regulations.

11. Reporting of Research Results

The principal investigator of a joint research project must submit a joint research report in the prescribed format to each host faculty member between the end of the research period and April 3, 2026,15:00UTC/GMT.

In addition, during or after the research period, we may request a report on the research results of the joint usage/joint research project at the research report meeting hosted by this center.

12. Submission of papers

When presenting the results of a joint usage/joint research project as a paper, etc., the acknowledgment should be given as "Joint Usage and Joint Research in the Plant Transgenic

Design Initiative of the Tsukuba - Plant Innovation Research Center (T-PIRC), University of Tsukuba (English: This research was supported in part by Cooperative Research Grant #XXXX of the Plant Transgenic Design Initiative (PTraD) by Tsukuba-Plant Innovation Research Center (T-PIRC), University of Tsukuba).
In that case, please let us know the publication page, etc.

13. Handling of Intellectual Property Rights

The University of Tsukuba Intellectual Property Regulations (https://www.tsukuba.ac.jp/images/pdf/2004hks12.pdf) apply mutatis mutandis, but please contact us by e-mail if you have any requests.