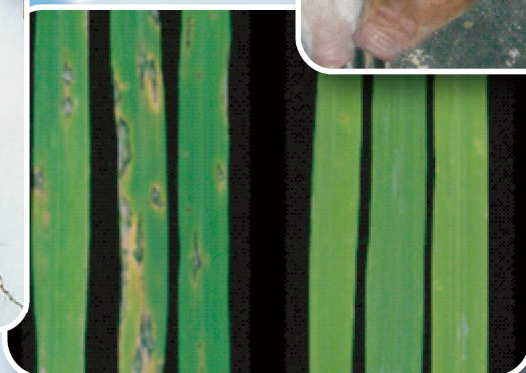




National Agriculture and Food Research Organization

Institute of Agrobiological Sciences



<http://www.naro.affrc.go.jp/english/nias/>

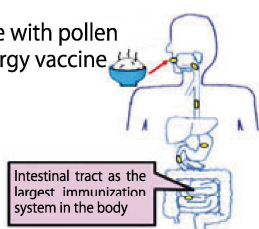
Overview of the Institute of Agrobiological Sciences

The Institute of Agrobiological Sciences aims to promote research and development on innovative technologies associated with the efficient utilization of biological resources in agriculture and related industries.

Division of Biotechnology

We are developing innovative technologies for efficient production and practical utilization of useful substances derived from genetically modified crops and insects, as well as an efficient management system for implementation in model farms located in remote islands and mountainous areas. We are also pursuing the creation and practical application of new functional biomaterials derived from silk proteins, promoting clinical research and on-site verification tests in collaboration with related organizations and private companies.

Rice with pollen allergy vaccine



Continuous intake of rice with pollen allergy vaccine can fight allergies to cedar pollen



Human osteoporosis screening agent derived from silkworm



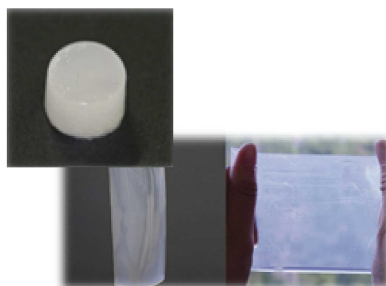
Human collagen based cosmetic products derived from silkworm



Wedding dress made of fluorescent silk
(Yumi Katsura International Co., Ltd.)



Spider-type silk



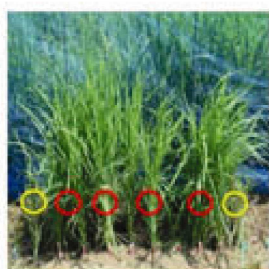
Silk protein-based sponge, tube and film



Chamber made of Collagen Vitrigel® membrane

Division of Applied Genetics

We are promoting the development of fundamental technologies as well as the application of advanced technologies such as genetic recombination and genome editing for the improvement of various crops and insects in order to maximize their potential, and thereby improve agricultural productivity and elucidate more beneficial uses.



Development of multiple disease resistance in rice by genetic recombination



Application of genetic recombination and genome editing in insect research

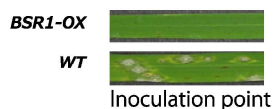


Development of herbicide resistance by genome editing technology

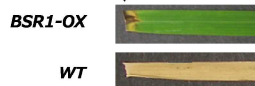
Division of Plant and Microbial Sciences

We are elucidating the functions of genes associated with growth and disease resistance in plants, as well as genes in microorganisms related to pathogenicity and increased crop yield, in order to develop new technologies aimed at mitigating severe damage to crops due to pests and diseases, and to promote sustainable agricultural productivity.

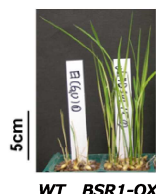
Blast resistance



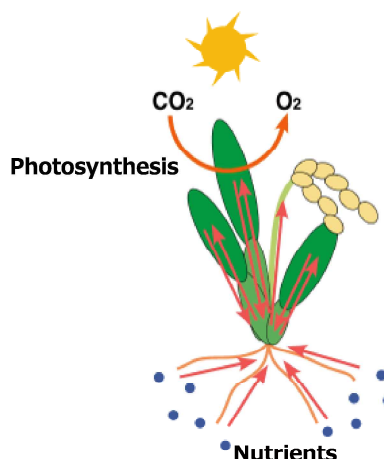
Bacterial leaf blight resistance



Bacterial seedling rot resistance



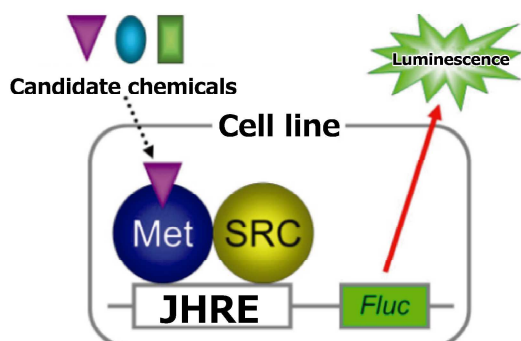
Discovery of gene (*BSR1*) whose over-expression confers multiple disease resistance in plants (*BSR1-OX*)



Discovery of genes involved in absorption and accumulation of nutrients

Division of Insect Sciences

Insect pest control is indispensable for stable agricultural production. We are elucidating the function of genes of insect pests and the interaction among insects to develop fundamental technologies that can be used for pest control with reduced environmental burden, and contribute to the alleviation of damage in agriculture caused by harmful insects.



Development of screening system to evaluate inhibitory activities of candidate chemicals against juvenile hormone receptor (Met) of pests



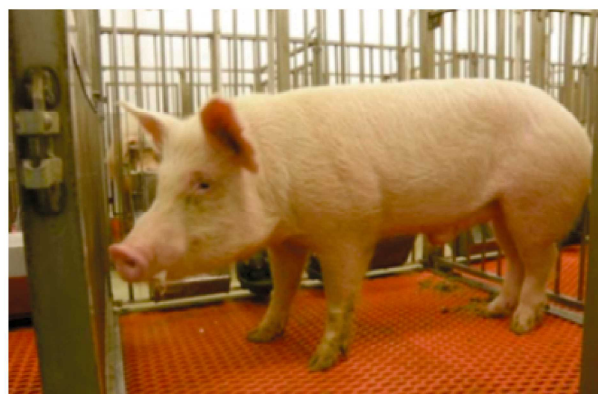
Rice plants incubated with brown planthopper (*BPH*)

Division of Animal Sciences

We are using genetic recombination and new reproductive technologies to promote the development and evaluation of model pigs for medical research, and to facilitate efficient storage and utilization of animal genetic resources. We are also exploring the application of genome editing for modification of livestock germline and conferring strong disease resistance in domestic livestock.

Development of model pig for medical research

In order to explore new fields for potential application of livestock, we are pursuing research on production of model pigs for application in regenerative medicine, hypercholesterolemia model pigs for development of therapeutic approaches, and drug discovery for human diseases.



Organizational Structure

Director-General

Department of Planning and Administration

Division of Biotechnology

- Plant Molecular Farming Unit
- Transgenic Silkworm Research Unit
- New Silk Research Unit
- Silk Materials Research Unit
- Molecular Biomimetics Research Unit

Division of Applied Genetics

- Crop Biotechnology Research Unit
- Plant Genome Engineering Research Unit
- Insect Genome Research and Engineering Unit

Division of Plant and Microbial Sciences

- Plant Function Research Unit
- Plant Physiology Research Unit
- Plant and Microbial Research Unit

Division of Insect Sciences

- Insect Gene Function Research Unit
- Insect-Plant Interaction Research Unit
- Insect Interaction Research Unit
- Insect-Microbe Research Unit

Division of Animal Sciences

- Animal Biotechnology Unit
- Reproductive Biology Unit
- Animal Bioregulation Unit

Access Guide

【By Car】

- Via Joban Expressway
10-15 min from Yatabe I.C.
- Via Ken-O Expressway
5-15 min from Tsukuba Ushiku I.C.

【By Train】

Kannondai Campus

- Joban Line (Ushiku Station): From the west exit, take the Kantetsu bus bound for Tsukuba-Daigaku-Byouin, Yatabe-Shako, or Seibutsuken-Owashi
→ Get off at Norin-Danchi-Chuo.

Tsukuba Express (Tsukuba Station): Take the Tsuku-bus 'Nambu Shuttle'
→ Get off at Norin-Danchi-Chuo.

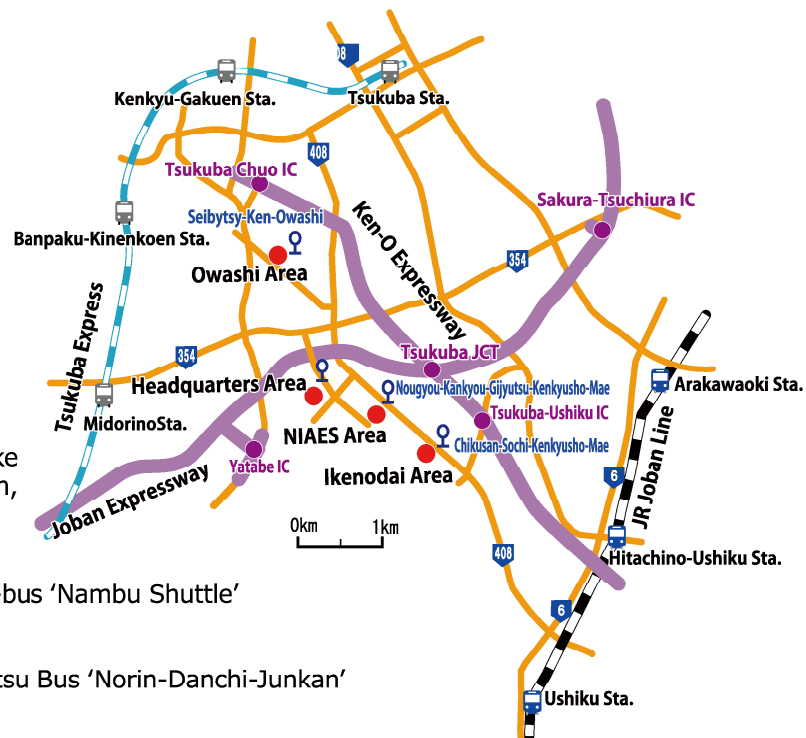
- Tsukuba Express (Midorino Station): Take the Kantetsu Bus 'Norin-Danchi-Junkan'
→ Get off at Norin-Danchi-Chuo.

Owashi Campus

- Joban Line (Ushiku Station): From the west exit, take the Kantetsu Bus bound for Seibutsuken-Owashi
→ Get off at Seibutsuken-Owashi.
- Tsukuba Express (Tsukuba Station): About 15 min by taxi.

Ikenodai Campus

- Joban Line (Ushiku Station): From the west exit, take the Kantetsu Bus bound for Tsukuba Center
→ Get off at Chikusan-Souchi-Kenkyujo-mae.
- Tsukuba Express (Tsukuba Station): Take the Tsuku-bus 'Nambu Shuttle'
→ Get off at Makizono-Chuo.



National Agriculture and Food Research Organization
Institute of Agrobiological Sciences
2-1-2 Kannondai, Tsukuba, Ibaraki 305-8602, Japan