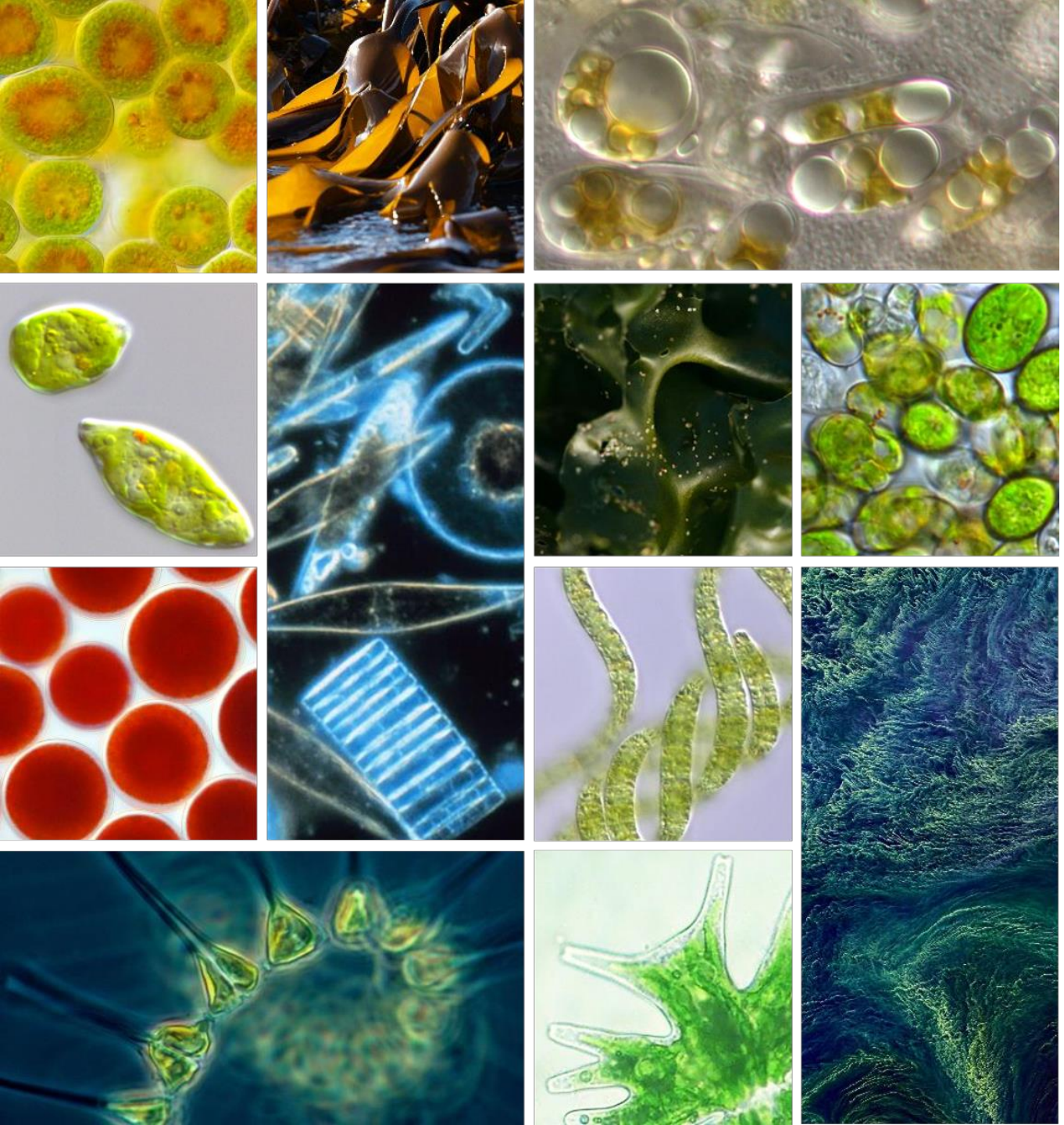
Cultivating Algae's Potential, for a Better Future

Contributing to the future of people and the Earth through research and development of algae

algal bio

Company Introduction



300,000 species in nature

Shaping the Unseen Potential of Algae

algal bio

Algal Bio Key Figures

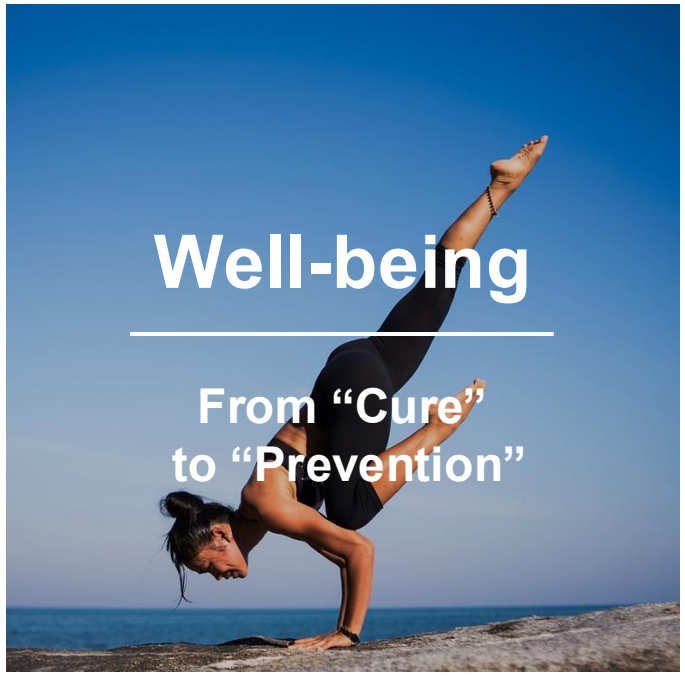
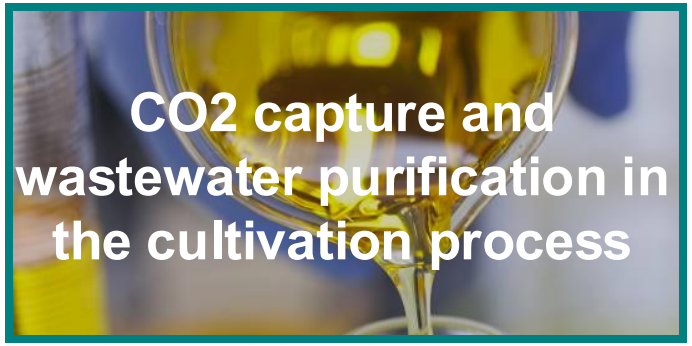
algal bio

R&D startup based on more than 20 years of research at the University of Tokyo, aiming for industrial applications of a wide variety of algae

Established	Employees (including board members)	Locations
2018	51	4
7th Fiscal year	PhD #:12	Tokyo, Kashiwa, Yokohama, Hiroshima

Annual Project #	Total amount raised	Preserved Algae Species
28	1.4 billion JPY	100 species 1,260 strains
FY2023 results	Up to Series B	Initial establishment： 70 species and 500 strains

Social Issues Solved by Algae

Social Issue	Expectations of Algae
 **Well-being** From “Cure” to “Prevention”	 Novel functional materials of natural origin
 **Food Crisis** Nutrient supply limits	 Sustainable alternative foods and colorants
 **Global Warming** Action on Environmental Issues	 CO2 capture and wastewater purification in the cultivation process

World's First Algae Bio-foundry Platform

Algal Bio's Uniqueness in the Algae Industry

Conventional Algae Company	 Single algae species (about 1 species 2 strains)	Product-out business model relying on single algae
algal bio	 Based on more than 20 years of research at the University of Tokyo **100 species 1,260 strain Algae Library**	Market-in business model to meet needs and utilize the most suitable algae

Algal Bio's Algae Biofoundry

Library

100 species
1,260 strains

Proprietary microalgae library

×

Researcher

70% of the total employees

Expertise in microalgae (12 PhDs)

×

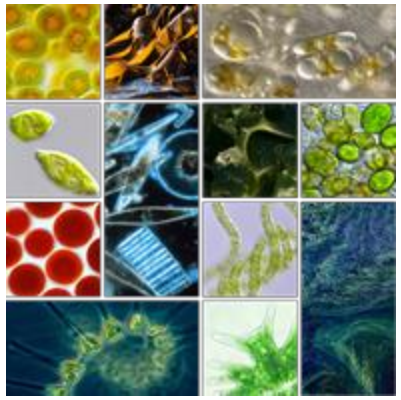
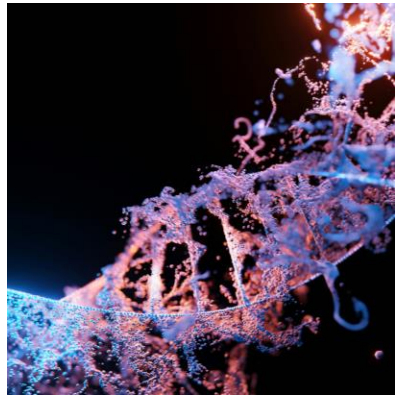
Database

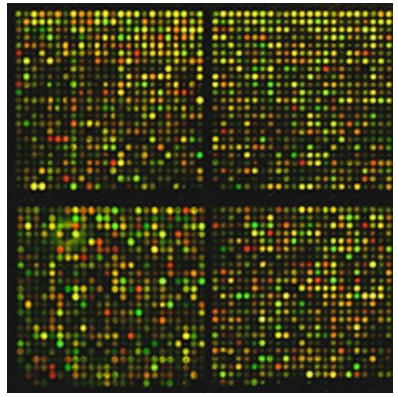
55 projects

Projects utilizing microalgae (cumulative total)

DBT(OS)L Cycle of Algal Bio

Establishment of a biofoundry that can quickly take microalgae from exploration to commercialization



Design	Build	Test	Omics	Scale-Up	Learn
Proprietary Algae Library	**Algae Breeding and Selection Know-How**	**Accumulation of know-how on basic cultivation conditions**	**Improve productivity through integrated analysis**	**Study of actual production conditions in a pilot plant**	**Creation of results Accumulation of know-how**
☑ High commercial use value held in library ☑ Expansion from nature	☑ Specialized in algae Breeding know-how ☑ Evaluation system for each target product	☑ Establishment of basic cultivation conditions for various algae ☑ Accelerate culture evaluation based on basic data	☑ Database construction combining Genomics and Phenomics ☑ Strain-level identification	☑ Establishment of a 5,000L commercial scale cultivation environment ☑ Partnership building for commercial production	☑ Creating High Productivity ☑ Market-in Application Development

Advantages of using Algal Bio's platform

① Reduction of initial R&D costs

From algae discovery to production scale validation, Algal Bio provides all demonstration phases

② Creating Unique Value

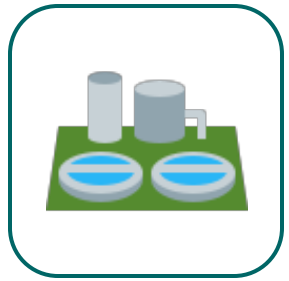
A unique platform that can handle a variety of algae will create business value beyond the existing algae industry

Services provided by Algal Bio

Lab-scale Cultivation

Cultivation Process Development

Pilot-scale Cultivation



Equipment Selection and Installation Support

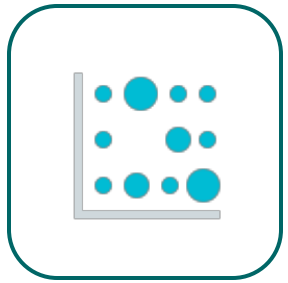
Raw Material Production

Document Research

Algae Seminar

Environmental Strains Collection

Identification and Isolation



Genetic Analysis

Breeding

Screening

Application Development

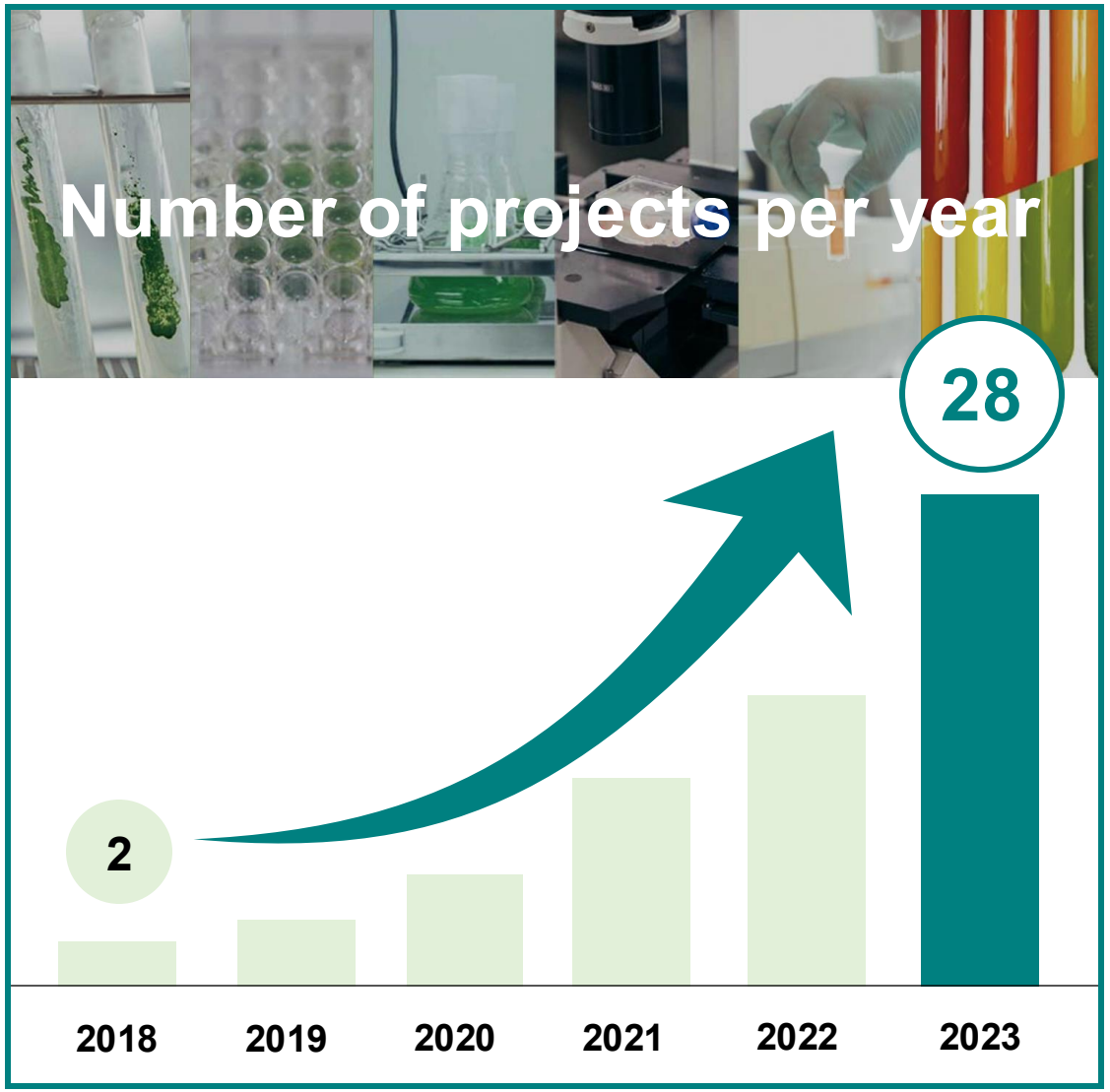
Education Showrooms

Provide a wide range of services for all phases of development

Drive projects step-by-step through to commercialization

Development Phase	Survey	Research and Development			Commercialization
	Step 0 Preliminary investigation	**Step 1** Laboratory Verification	**Step 2** Process Development	**Step3** Commercialization Preparation	**License out**
Period	3 months	6 months	1.5～2 years		Technology Licensing
Scale	～1L	1～10L	100～5000L		5000L～
Items	Theme Survey	Concept Verification Experiment Selection and breeding of target algae	Cultivation Process Development Scale-up verification	Demonstration experiment at Demo-plant Launch Manufacturing plant	Manufacturing plant in operation
Services provided	Researchers with expertise in each phase lead project implementation				
	Document Research Algae Seminar Environmental Strains Collection Identification and Isolation	Lab-scale cultivation Genetic analysis Breeding Screening	Cultivation Process Development Pilot-scale Cultivation Application Development Equipment Selection and Installation Support		Raw Material Production

Number of projects increased since establishment



Use Case of Algae Industrial Applications

Use Case

KEPCO & NEDO Project

CCUS

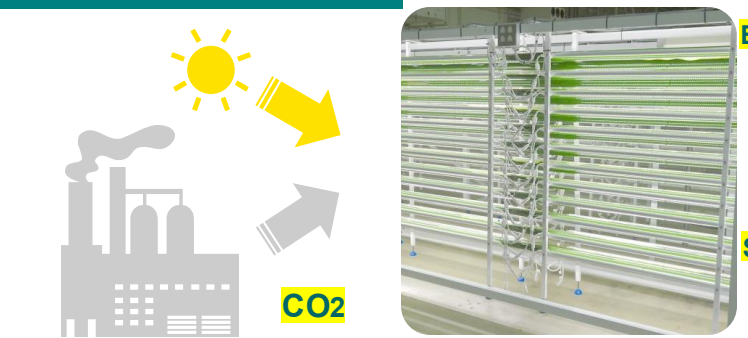
Adopted Project: NEDO Development of Technologies for Carbon Recycling and Next-Generation Thermal Power Generation”

Want to fix CO_2 originating from thermal power plants and utilize biomass

Selection of algae species suitable for CCUS / High CO_2 fixation and functional component productivity

Lab-scale Cultivation | Cultivation Process Development | Pilot-scale Cultivation | Breeding | Screening | Application Development

Image of Algae Utilization



1) Functional Chemicals

EPA
Fucoxanthin

2)Bio-plastics

Synthesized from extraction residue

Use Case

Japan's major electronics manufacturer

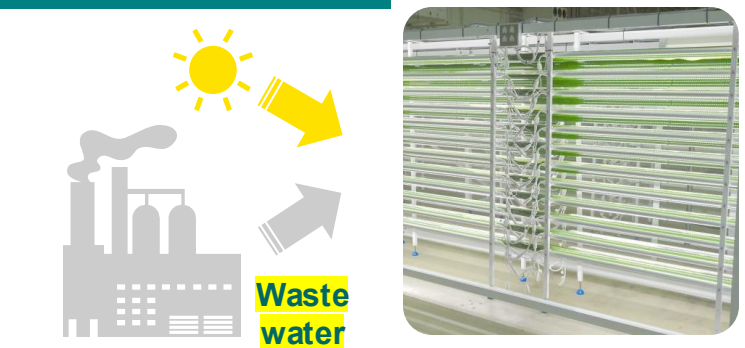
Wastewater Purification

Want to bioremediate groundwater and wastewater at a former manufacturing plant site.

Identification and selection of algae species capable of adsorbing and purifying specific compounds

Lab-scale Cultivation → Cultivation Process Development → Pilot-scale Cultivation → Screening → Pilot-scale Cultivation

Image of Algae Utilization



Use Case

Japan's major machinery manufacturer

Lubricating oil

Want to produce and commercialize algae-derived lubricants.

Identification and selection of algae species suitable for lubricant production / Feasibility study

Lab-scale Cultivation | Cultivation Process Development | Pilot-scale Cultivation | Breeding | Screening | Application Development | Document Research

Image of Algae Utilization

Selection and breeding of algal strains

High oil accumulation condition study

Verification of production volume and business feasibility

Provide technical expertise

Use Case

Overseas chemical manufacturer

Functional ingredients

📣 **Improve the production** of functional ingredients derived from algae

🧪 Development of algal strains with high production of target ingredients / Development of unique cultivation methods

Document Research → Breeding → Screening → Lab-scale Cultivation → Cultivation Process Development → Pilot-scale Cultivation → Equipment Selection and Installation Support

Image of Algae Utilization

Selection and breeding of algal strains

Development of proprietary culture process

300% Productivity improvement compared to conventional

Use Case

In-house Development

Algae-derived colorants

📣Want to replace synthetic colorants with naturally derived colorants

🖌️Control of pigments produced by algae species and culture conditions

Document Research | Screening | Lab-scale Cultivation | Cultivation Process Development | Application Development | Education Showrooms

Image of Algae Utilization

Utilized as crayon and other color materials

Development of culture process focusing on pigments

Use Case

In-house Development

Improvement of Sleep Quality

📢Want to improve the quality of sleep and rest

🧪Developed a supplement using selected strains of algae, focusing on the causes of reduced quality of rest.

Screening → Raw Material Production → Application Development → Moneru

Sold as a supplement

Image of Algae Utilization

Sleep/Stress Realization of improvement 60%

Algae strain screening

Algae Powder Raw Material

Supplementation / Sold at clinics

*Based on a survey of 250 people after taking a 3-day sample.

Use Case

In-house Development

Health Management and Labor Productivity Improvement

✨ Algae Supplement "Moneru" Improves Sleep Difficulties

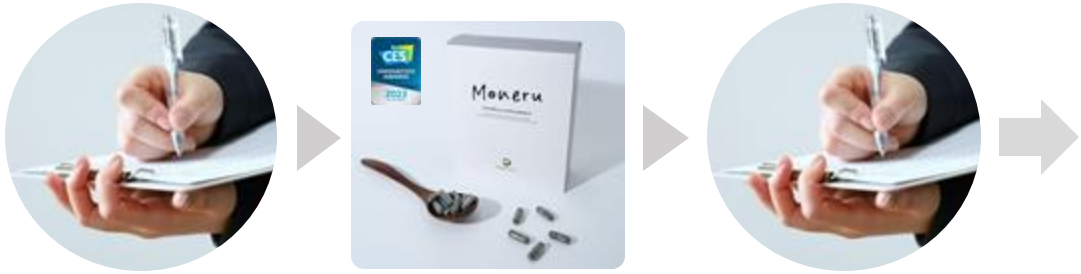
→ Increased Labor Productivity

💡 Providing supplement + measurement of effectiveness as a health management package service for companies

ITOCHU Corporation, AZX Law Firm, Logistics companies,introduced at major law firms, gyms, etc.

https://www.itochu.co.jp/en/news/press/2023/231120.html

Program Image



Pre- and post-survey to quantify performance improvement

Improvement rate of sleep issues

78%

Business Productivity Improvements

1.5 million yen/Y

Examples of Improvement Effects in Demonstration

Use Case

In-house Development

Seasoning with Umami flavor of algae

📢 want to eat **delicious and healthy food.**

🧪 Basic seasoning with Umami flavor of algae powder (under development)

Screening → Raw Material Production → Application Development

Image of Algae Utilization

Algae Powder Raw Material

Fermentation mixed with seasonings

Sugar syrup, Salt based sauce, Vinegar, Soy sauce, Miso

Basic seasoning with both Umami flavor and low-sodium effect

Use Case

In-house Development

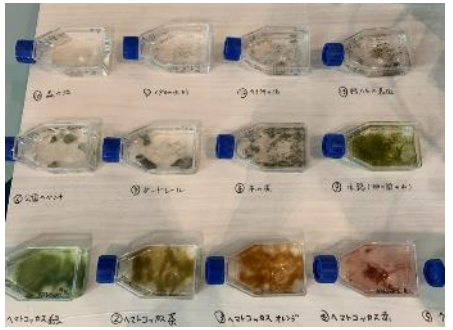
Biodiversity Workshop

📢Want children to be exposed to biodiversity.

🧪Planning and operation of workshops and exhibitions to observe various algae

- Algae Seminar
- Environmental Strains Collection
- Identification and Isolation
- Education Showrooms

Image of Algae Utilization



Showcasing bioreactor cultivation

Algae observation workshop

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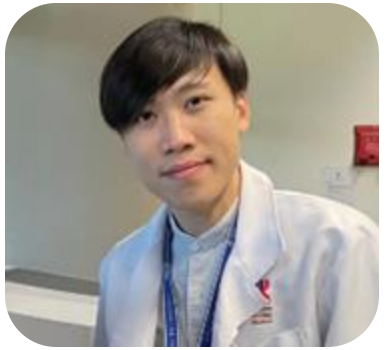

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Create a sustainable planet once again with the power of algae,

which has been alive for 3 billion years.

algal bio