

# NEWSLETTER

## Tsukuba Digital-Bio International center

R&D Subject 3 "Total design of food and living environment to eliminate mild mental and physical disorders." Special Issue

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### Project Participants

#### Executive Researcher Mari Yamamoto (née Maeda)

- National Agriculture and Food Research Organization
- Research and Development Task 3 Leader

Narrowing the gap between life expectancy and healthy life expectancy is one of the most important factors in achieving the well-being of all generations of citizens. As the phrase "medicine and food have the same origin" states, it has been believed since ancient times that there is a strong relationship between food and health and this has been practiced in accordance with experience. In recent years, biotechnologies, such as comprehensive analysis of functional ingredients and breeding based on genome information, have been developing at a geometric rate. In this research project, we will focus on MHC (Minor Health Complaints), which are considered to be the onset of various diseases, and clarify how MHC occurs in each generation, designing and demonstrating food and diet (self-care) to alleviate MHC. We aim to contribute to solving social problems by creating functional agricultural products that alleviate MHC using genetic resource crops, elucidating food components and living environments related to MHC using a health survey of 1,000 healthy people, and designing and demonstrating diets and meals (self-care diets) that alleviate MHC by using the results of the survey.



#### Deputy General Manager Shoji Nakayama

- National Institute for Environmental Studies  
Health and Environmental Risk Division  
(Japan Environment and Children's Study Programme Office)
- Deputy Leader of Research and Development Project 3



We conduct research on exposomes, biomonitoring, and quantification of exposure coefficients and exposure scenarios. We will research methods for evaluating the health effects of chemical substances in collaboration with epidemiological and toxicological research, with a particular focus on the disposition of chemical substances in the body after exposure to them. We have introduced advanced analytical equipment to observe the distribution of chemical substances in the body and changes in tissues in humans and laboratory animals and to study their effects. For example, precision mass microscopy can be used to visualize the distribution of substances of *in vitro* and *in vivo* origin in tissues. We examine the distribution of chemicals in which tissues and confirm the results of epidemiological studies, such as the Japan Environment and Children's Study Programme survey, from a mechanistic point of view. We also use artificial intelligence (AI) and other advanced analytical methods to explore the factors that affect the disposition of chemicals in the body.

## Senior Research Fellow Kyoko Toda

- National Agriculture and Food Research Organization  
Genetic Resources Research Center



"Mild disorders," which are not a disease but somehow a physical or mental condition, are expected to be improved by dietary habits. The National Institute of Agrobiological Sciences (NIAS) holds approximately 230,000 plant genetic resources (the 6th

largest in the world), including domestic and foreign cultivated species, wild species, and ancestral species in its genebank and is also breeding crop varieties with enhanced functional components. The Organization is participating in COI-NEXT Research and Development Project 3 to develop and socially implement a health care diet for alleviating minor ailments that utilizes functional agricultural products. In collaboration with the National Institute for Environmental Studies, we are aiming to develop not only functional but also safe food, and with Tsukuba University, we are exploring the new potential of crops by evaluating the functionality of legume crops, including ancestral wild species, using a human cultured cell experimental system.

## President Katsuhisa Tanaka, FLOWING Co., Ltd President Hajime Shimazaki, Medical Front Corp

Flow Wing Co., Ltd. produces the NARO Style®PLUS MEAL SET, a diet for maintaining good health developed with the National Institute of Agro-Environmental Sciences, to a wide range of health management companies, while Medical Front, Inc. provides health visualization services using the Pocket Pharmacy (an electronic medication and health notebook used by 600,000 people nationwide) and wearable devices. We hope we can be of some help in improving your health.



## TOPICS

### Happiness Life Health Checkups will be launched! (Research and Development Project 2)

Tsukuba Happiness Life Research will start "Tsukuba Happiness Life Health Examination" in February. From the respondents of the "Health and Life Survey for Tsukuba Citizens" conducted last year, we will select those with cognitive decline, sleep disorder, and tendency to decline in life function, and ask them to cooperate in various examinations and surveys at the Research Center for Preventive Medicine, University of Tsukuba Hospital. Using these results, we plan to conduct joint research with companies. For more information on this study, please contact the Secretariat.



### Notice of Symposium (Research and Development Project 3)

Strategic Innovation Program (SIP) 'Consortium for the Creation of a Food-Based Health Care Industry'

"Food Health Care! Symposium - Thinking about a healthy and long-lived society where individuals can be productive and thrive"

【Date & Time】 February 28, 2023 (Tue) 13:00~17:00

【Form of the event】 Online distribution

(deadline for first 400 applicants)

【Registration】 Please click here [website](#)



### Activity Report (Research and Development Project 3)

Executive researcher Mari Yamamoto (née Maeda), Food Research Division, National Institute of Agro-Environmental Sciences (President, Self-Care Food Council), gave a lecture and panel talk at "Symposium on 'Extending Healthy Life Span through Food': 'Mild Illness' that Reduces QOL and Productivity" (December 17, 2022). For more information on the Council's activities, click [here](#).



## The Tsukuba International Center for Digital Biotechnology Public Symposium 2023: Happiness Life from Tsukuba: Toward a Well-Being Society

The Symposium for Citizen Participation at this Center will be held. Information on the Tsukuba Happiness Life Study, which aims to improve the lifestyle, health status, etc. of citizens, as well as dementia prevention by experts from Tsukuba University, will be provided. Simple exercises are also planned. We will support your wellbeing through the symposium.



【Date & Time】 March 5, 2023 (Sun.) 14:00-16:30

【Form of the event】 Tsukuba International Congress Center, Medium Hall 200 (On-site registration is [here](#)) and Online (Online registration is [here](#))

For inquiries about this office or to request an article publication, please contact us at the Tsukuba Digital-Bio International center  
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