

## **Kirin Holdings Announces Results of Clinical Trial of "*Lactococcus lactis* strain Plasma" Postbiotic Originally Discovered by Kirin Holdings at the 20th International Congress for Tropical Medicine and Malaria**

- In Vietnam, Clinical Trials Confirm Suppression of Improvement of Cold-like Symptoms and decrease the number of days of school absence in Elementary School
- Research results presented at the 20th International Congress for Tropical Medicine and Malaria, one of the world's largest tropical medicine conferences

On Tuesday, October 25, at The 20th International Congress for Tropical Medicine and Malaria (ICTMM) in Bangkok Thailand, the National Institute of Nutrition of Vietnam, conducted a joint project with the Kirin Central Research Institute (Director: Hiroaki Yajima) of Kirin Holdings Company (President: Yoshinori Isozaki), had delivered a presentation about the results of basic and applied research on the effects of continuous intake of *Lactococcus lactis* strain Plasma (LC-Plasma) on infectious diseases and dengue fever-like symptoms.

It was confirmed that in Vietnamese elementary school students, the number of days of school absences and the cumulative number of cold-like symptoms (fever, diarrhea, etc.) were significantly reduced in the group that consumed beverages containing "LC-Plasma (about 100 billion cells)".<sup>1</sup> LC-Plasma has increased R&D efforts in Southeast Asia by Kirin Central Research Laboratories of Kirin Holdings.

In Southeast Asian countries, one of the social issues is that many children are absent from school due to colds and viral gastroenteritis because of the difficulty in taking sufficient public health measures and the nutritional status of children compared to those in Europe and the United States. Therefore, it is recognized that reducing this problem is very important not only for maintaining children's health and preventing learning delays, but also from a medical and economic point of view, such as treatment and caregivers' absence from work.

Therefore, in Vietnam, where Kirin Holdings are engaged in the beverage sales business of LC-Plasma, the Kirin Central Research Institute have conducted a joint project to provide about 1,000 first-to third-grade students of elementary schools in Vietnam with beverages containing about 100 billion LC-Plasma at lunchtime, in cooperation with the National Institute of Nutrition of Vietnam. As a result, it was confirmed that the cumulative number of days of cold-like symptoms (fever, diarrhea, etc.) and the cumulative number of days of school absence significantly decreased in the group that consumed beverages containing " LC-Plasma (about 100 billion pieces)".



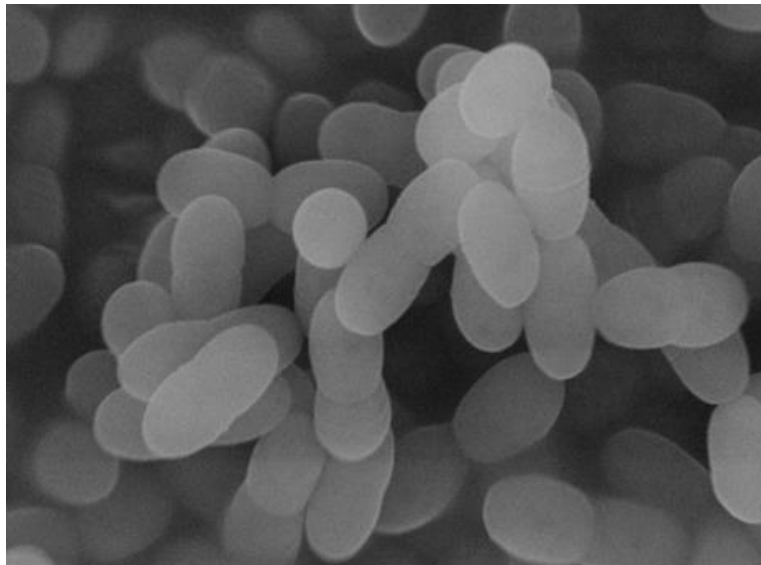
*Elementary school students in Ninh Binh drinking beverages containing LC-Plasma*

The research result is one of the key elements to prove why a beverage brand KIRIN iMUSE sold by Interfood, which is responsible for the Kirin Group's soft drink business in Vietnam, containing 100 billion LC-Plasma, is favored amongst Vietnamese consumer and the sales grows 698% year -on-year in the first nine month of the year.



*Kirin iMUSE product*

The presentation included not only the results of research on prevention of infectious diseases in elementary school students in Vietnam, but also findings in joint research with the Tropical Infectious Diseases Research and Education Center (TIDREC, Director: Prof. Sazaly AbuBakar) of the University of Malaya (Vice Chancellor Dr. Mohd Hamdi Abd Shukor), Malaysia that the continuous intake of LC-Plasma also significantly reduced the cumulative number of days of onset of the main symptoms of dengue fever, such as fever, muscle pain, joint pain, and pain behind the eyes. <sup>2</sup>



## LC-Plasma

Based on the research results, the common mechanism of action of the two has been also mentioned. The clinical research results confirming the prevention of infectious diseases and symptom reduction through food products that have no safety issues and does not depend on medical infrastructures are groundbreaking achievements and have the potential to provide solutions to social issues in Southeast Asia.

<sup>1</sup> News Release: New Clinical Study Shows *L. lactis* strain Plasma Shows Reduction Of Cold-like Symptoms And Sick Days In Vietnamese Elementary Schoolers

[https://www.kirinholdings.com/en/newsroom/release/2022/0418\\_02.html](https://www.kirinholdings.com/en/newsroom/release/2022/0418_02.html)

<sup>2</sup> News Release: Study Suggests Food Can Suppress Main Dengue Fever-Like Symptoms

[https://www.kirinholdings.com/en/newsroom/release/2021/0917\\_01.html](https://www.kirinholdings.com/en/newsroom/release/2021/0917_01.html)

1. Name of academic meeting	The 20th International Congress for Tropical Medicine and Malaria
2. Place of presentation	Bangkok International Trade & Exhibition Centre (BITEC), Thailand.
3. Date of presentation	October 25, 2022
4. Presenter / Title of presentation	<p>①. Ryohei Tsuji, Kirin Central Research Laboratories, R&amp;D Headquarters, Kirin Holdings Company, Limited Dengue fever Basic research: The prophylactic effects of <i>Lactococcus lactis</i> strain Plasma against dengue virus infections via the activation of plasmacytoid dendritic cells in vitro and in vivo.(IJMM, 43; 426 (2019), Anti-Viral Res, 160; 101 (2019))</p> <p>②. Khor, Tropical Infectious Diseases Research &amp; Education Centre Dengue fever Clinical trials: <i>Lactococcus lactis</i> Strain Plasma Intake Suppresses the Incidence of Dengue Fever-like Symptoms in Healthy Malaysians: A Randomized, Double-Blind, Placebo-Controlled Trial(Nutrients, 13 4507 (2021))</p> <p>③. Dr.Mai, National Institute of Nutrition in Vietnam Clinical trial for elementary school students in Vietnam : Impact of Infectious Disease after <i>Lactococcus lactis</i> Strain Plasma Intake in Vietnamese Schoolchildren: A Randomized, Placebo-Controlled, Double-Blind Study(Nutrients, 14 552 (2022))</p>

## **About Kirin Holdings**

Kirin Holdings Company, Limited is an international company that operates in the Food & Beverages domain (Food & Beverages businesses), Pharmaceuticals domain (Pharmaceuticals businesses), and Health Science domain (Health Science business), both in Japan and across the globe.

Kirin Holdings can trace its roots to **Japan Brewery** which was established in 1885. Japan Brewery became **Kirin Brewery** in 1907. Since then, the company expanded its business with fermentation and biotechnology as its core technologies, and entered the pharmaceutical business in the 1980s, all of which continue to be global growth centers. In 2007, Kirin Holdings was established as a pure holding company and is currently focusing on boosting its Health Science domain.

Under the [\*Kirin Group Vision 2027\*](#) (KV 2027), a long-term management plan launched in 2019, the Kirin Group aims to become “A global leader in CSV\*, creating value across our world of Food & Beverages to Pharmaceuticals.” Going forward, the Kirin Group will continue to leverage its strengths to create both social and economic value through its businesses, with the aim of achieving sustainable growth in corporate value.

\* Creating Shared Value: combined added value for consumers as well as for society at large.

## **About The 20th International Congress for Tropical Medicine and Malaria**

ICTMM, where the research results had been presented, is one of the world's largest tropical medicine conferences, gathered thousands of researchers, experts, policy makers, officials, and international authorities in the fields of tropical medicine and malaria. More than 3,000 participants from around the world attended the conference, which covers topics and updates in tropical medicine, including malaria, infectious and non-communicable diseases, neglected diseases, drug resistance, parasitology, zoonotic diseases, travel medicine, and other public health issues. Since this is a conference dedicated to tropical infectious diseases, the results of research on LC-Plasma against dengue fever, one of the most serious viral infections among tropical infectious diseases, has been also presented, in addition to a clinical trial on elementary school students in Vietnam.

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