

**World's first! \*Kirin Holdings Discovers Memory Benefits from  $\beta$ -Lactolin**  
Milk-derived peptide carries functional claim of helping consumers retain memory capacity with a stable of products soon to come

\*1The world's first discovery of a whey protein-derived peptide supporting human memory function (cued recall, among publications introduced in Pubmed and Ichushi-Web site, searched by KnowledgeWire Corporation on Feb. 28, 2021.)

**TOKYO, Tuesday March 2, 2021** - The Kirin Group and Megmilk Snow Brand Company, Limited will release food products claiming to help consumers retain their capacity for memory, which declines with age. The products include  $\beta$ -lactolin (beta-lactolin), a proprietary ingredient of Kirin Holdings Company, Limited, and will be released in succession starting in April.

New products to be released throughout Japan include  $\beta$ -lactolin by Kyowa Hakko Bio Co., Ltd. on April 20, and a *KIRIN  $\beta$ -lactolin* beverage by Kirin Beverage Company, Limited on May 11. A new product to be released in the Kanto and Tohoku regions on May 18 is *KOIWAI  $\beta$ -lactolin Milk*, a dairy-based drink from Koiwai Dairy Products Company, Limited. Kirin is also expanding collaborative efforts—Megmilk Snow Brand plans to release a *Kiokukea Yogurt  $\beta$ -lactolin* in Japan on June 8.

**■About the  $\beta$ -lactolin series**

These are foods with functional claims that contain Kirin's proprietary  $\beta$ -lactolin to support the maintenance of memory ability, which declines with age.



**■About the collaboration with Megmilk Snow Brand**

Megmilk Snow Brand endorsed the results of the Kirin Group's  $\beta$ -lactolin research and development, as well as the group's efforts toward brain health, and collaborated to realize the release of *Kiokukea Yogurt  $\beta$ -lactolin*.

**■ $\beta$ -Lactolin, Kirin's original milk-derived peptide**

$\beta$ -Lactolin is a milk-derived, functional ingredient for food products that helps retain memory capacity, which declines with age. It was discovered during cooperative neuroscientific research between Kyowa Kirin Co., Ltd., and Koiwai Dairy Products.



Kirin focused on epidemiological studies<sup>\*2</sup> that showed that daily consumption of dairy products is beneficial for retaining memory capacity and other cognitive functions, and Kirin was the first company in the world to discover the effect of milk-derived  $\beta$ -Lactolin on the maintenance of brain cognitive function<sup>\*3</sup>. Kirin then applied its expertise in fermentation to develop an ingredient that makes it easy to efficiently consume  $\beta$ -lactolin.

\*2 Ozawa M, et al. Am J Clin Nutr. 2013, (5):1076-82

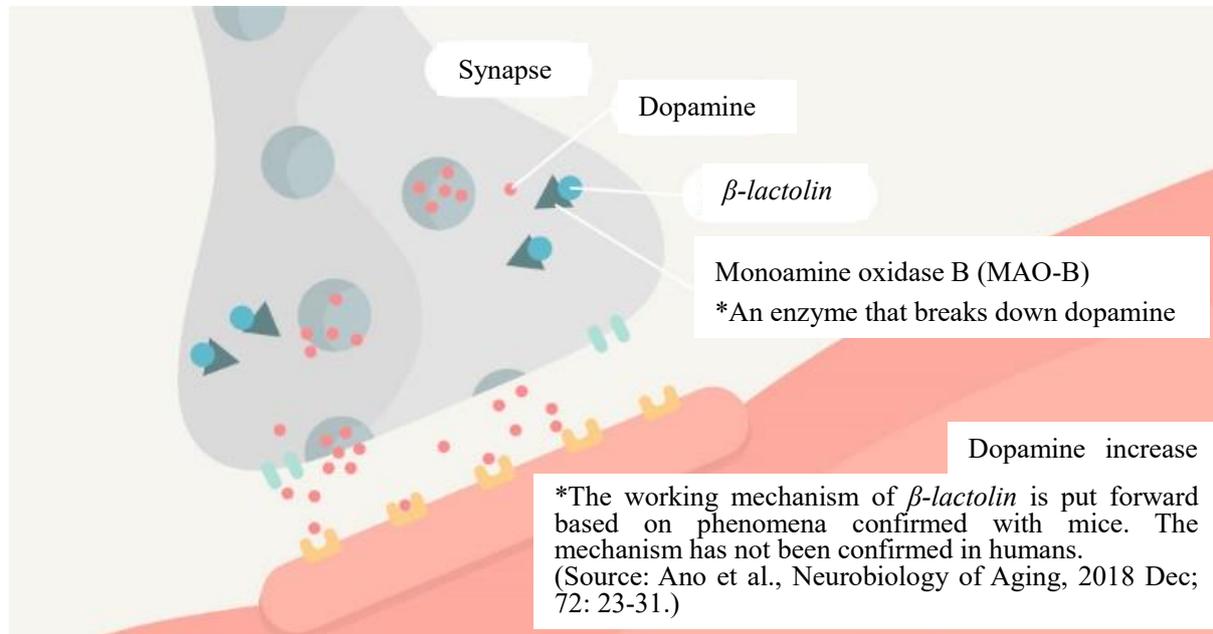
\*3The world's first discovery of a whey protein-derived peptide supporting human memory function (cued recall, among publications introduced in Pubmed and Ichushi-Web site, searched by KnowledgeWire Corporation on Feb. 28, 2021.)

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## ■ Working mechanism of milk-derived peptide $\beta$ -lactolin

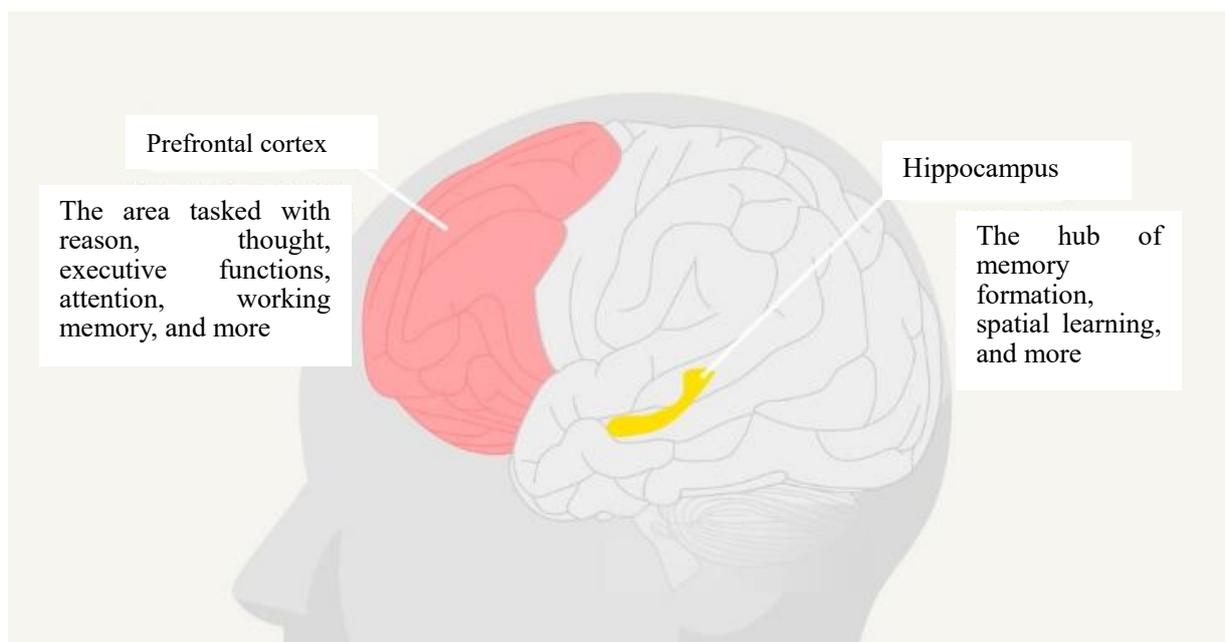
### (1) Increases the neurotransmitter dopamine

$\beta$ -lactolin stimulates neurons as it moves throughout the brain, increasing the amount of dopamine, which is a type of neurotransmitter.



### (2) Stimulates brain activity

The increase in dopamine stimulates neuronal activity in the prefrontal cortex and hippocampus, the brain regions responsible for memory. Through this mechanism,  $\beta$ -lactolin helps people retain their capacity for memory.



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### ■KIRIN Brain Research

Japan's average life expectancy has been extending ; the country has entered a super-aged society in which one in four people is elderly.\*<sup>4</sup> Given that an estimated one in five elderly people will suffer from dementia in 2025,\*<sup>5</sup> the extend of healthy life expectancy is a social issue.

The Kirin Group understands that the joys and concerns in a daily life are intimately associated with brain activity, and thus launched KIRIN Brain Research to develop the new solutions mainly in food to promote brain health and create joy.

KIRIN Brain Research based on Kirin's distinct technology and ways of thinking contributes to promote brain health in an effort to help resolve social issues and will create a society conducive to psychologically prosperous living, where everyone has confidence and ambition and feels free to experience their emotions.



\*<sup>4</sup>Annual Report on the Aging Society, 2020

\*<sup>5</sup>Grants-in-Aid for Scientific Research, MHLW Special Research Project. Research on Future Trends in the Prevalence of Dementia Among Elderly People in Japan. 2014 Report on General/Specialized Research, 2015.

The Kirin Group aims to become “a global leader in CSV,\*<sup>6</sup> creating value across our world of Food & Beverages to Pharmaceuticals” as indicated in Kirin Group Vision 2027, the group's Long-Term Management Vision. Toward that end, the group is moving ahead with efforts to launch and develop a Health Science domain (Health Science Businesses) to contribute to human health. The new domain is based on the group's advanced fermentation and biological technology cultivated over many years, and joins the existing domains of Food & Beverages (Alcoholic and Non-Alcoholic Beverages Businesses) and Pharmaceuticals (Pharmaceuticals Businesses). One aim of the new domain is to use original Kirin ingredient *β-lactolin* to help consumers retain their cognitive functions, thereby providing “the most trustworthy and most needed brain care services.”

\*<sup>6</sup>CSV: Creating Shared Value. Combined added value for consumers as well as for society at large.

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## ●Product overview

Product Name	<i>KYOWA HAKKO BIO β-Lactolin</i>	<i>KIRIN β-Lactolin</i>	<i>KOIWAI β-Lactolin milk</i>	<i>Kiokukea Yogurt β-lactolin</i>
Release date	Tuesday, April 20, 2021 *Available through the Kyowa Hakko Bio online store	Tuesday, May 11, 2021	Tuesday, May 18, 2021 *Available only in the Tohoku and Kanto regions	Tuesday, June 8, 2021
Volume/container	30 bags, 10 grains in each bag (30-day supply @ 10 grains/day)	100 mL/Transparent bottle	200 mL/Microcarton	90 g/Paper cup
Price (suggested retail price without consumption tax)	5,500 yen	200 yen	170 yen	120 yen
Source	Kyowa Hakko Bio	Kirin Beverage	Koiwai Dairy Products	Megmilk Snow Brand Co., Ltd.
Product attributes, flavors	Brain function support supplement that supports the problems of people who, as they age, are experiencing more and more situations such as careless forgetting, not being able to remember what they just did, and not being able to decide forever.	•Yogurt-flavored to facilitate everyday consumption •Single-serving size (100 ml)	•The unmistakable sweetness and richness of milk in a crisp, clean, easy-to-drink beverage for a natural taste that never gets old	90-g design to facilitate everyday consumption •Standard yogurt flavor
Number on application for approval	F1	E798	E837	F458
Product image				
Label on application for approval	This product contains <i>β-lactolin</i> , and thus helps middle-aged and elderly consumers who are healthy, but have <ul style="list-style-type: none"> <li>started to notice that they are forgetting the names of people and objects or making careless mistakes, retain their capacities for memory (the ability to recall associations of multiple properties, such as shape and color, and important information in response to triggers) and</li> <li>attention (the ability to quickly and accurately notice what is important amid an abundance of information when performing tasks that require concentration), two of the cognitive functions that decline with age.</li> </ul>	This product includes <i>β-lactolin</i> , a substance reported to be beneficial for retaining capacity for memory (the ability to recall things based on prompts), which declines with age.	This product includes <i>β-lactolin</i> , a substance reported to be beneficial for retaining capacity for memory (the ability to recall things based on prompts), which declines with age.	This product includes <i>β-lactolin</i> , a substance reported to be beneficial for retaining capacity for memory (the ability to recall things based on prompts), which declines with age.
Functional component	<p><i>β-lactolin</i>: 1.6 mg</p> <p><u>Foods with function claims</u></p> <ul style="list-style-type: none"> <li>• Consumers are responsible for the balance of their diets, which should include staples, main dishes, and side dishes.</li> <li>• This product has not been approved by the government of Japan.</li> <li>• This product is not intended to diagnose, treat, or prevent illness or diseases.</li> </ul>			