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# Health and Nutrition

## Basic Approach

We offer health and nutrition by developing and selling products that combine functionality and good taste to realize "Ever Brighter Smiles."

Morinaga Milk recognizes that its core business is the development and sale of products that contribute to health and nutrition for extending healthy longevity and the healthy development of infants.

Health and nutrition are closely tied to Morinaga Milk's commitment to contribute to people's happy lives filled with healthy "smiles." Over the years, Morinaga Milk has explored the benefits and possibilities with research into proprietary nutritious and functional ingredients such as bifidobacteria and lactoferrin, which began with in-house research on the role that breast milk plays in babies' health.

Morinaga Milk's various products, from infant and toddler milk to specialty milk as well as yogurt, foods for medical and elderly care, have helped to

## KPIs

Direction of Activities	KPIs	Progress Details for KPIs
Contribute to the extension of healthy lifespans	Launch of products incorporating nutritious functional ingredients	Launch of products that support self-management of health <ul style="list-style-type: none"> <li>● Expansion of products for meeting protein needs: Increased protein content for the <i>in PROTEIN</i> protein drink and <i>Greek Yogurt PARTHENO Plain</i> (without sugar)</li> <li>● Expansion of foods with function claims, such as <i>Bifidus Yogurt Improves Bowel Movement</i>, which contains <i>Bifidobacterium longum</i> BB536 for improved bowel movement, and <i>Maiasa Soukai Light</i>, which contains lactulose to help increase bifidobacteria in the gut. (▶ p. 28)</li> </ul>
	Share information on nutritious and functional ingredients that help to maintain health	Start of a full-fledged health seminar business with health support nutritionists, "Kenko Support Eiyoushi," that supports "happy healthfulness" <ul style="list-style-type: none"> <li>● This Bifidobacteria Training Project promotes improvement of consumer health awareness and behavioral change by disseminating health information on bifidobacteria. (▶ p. 29)</li> </ul> 15 research treatises/information on extending healthy life expectancy released at symposiums, exhibitions, etc. (▶ p. 30) 55 releases of recipes and other information
Contribute to the healthy growth of babies and infants	Provide <i>Bifidobacterium breve</i> M-16V; continue to provide to over 120 facilities in Japan and overseas	Providing <i>Bifidobacterium Breve</i> M-16V to Low Birth Weight Babies around the World <ul style="list-style-type: none"> <li>● Supplied over 150 facilities such as newborn intensive care units (NICUs) in Japan and overseas (▶ p. 32)</li> </ul>

improve health and bring smiles to people.

Looking ahead, the corporate goal is to contribute to the health of various people both in and outside of Japan. Morinaga Milk will continue to tackle challenges toward this end.

## System

Morinaga Milk Sustainability Committee meetings, which are chaired by the president, are held twice a year for monitoring and reporting on the progress of KPIs. In addition, Morinaga Milk implements PDCA cycles, with the general managers of the relevant divisions responsible for "Priority Issue: Health and Nutrition" and the general managers of the relevant departments responsible for promoting KPIs.

Based on the recognition that health and nutrition represent our core business, company research institutes, Marketing Department, Sales Department, and Manufacturing Department work together as a team to promote our initiatives in health and nutrition.

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## Contributing to Extending Healthy Longevity

Morinaga Milk is pursuing product R&D under the theme of extending healthy longevity for an era when people will commonly live to the age of 100. The company will research and develop products using nutritious and functional ingredients and supply them to consumers so that people can have healthier and more active lives.

### Bifidus Yogurt (Foods for Specified Health Uses)

Fifty years ago, Bifidobacterium longum BB536 was discovered from the large intestine of a baby.

Bifidus Yogurt includes not only lactobacillus but also Bifidobacterium longum BB536, which reaches the large intestine.

With low acidity that results in a mellow flavor, this yogurt supports everyday health.



### Bifidus Yogurt Improves Bowel Movement (Foods with Function Claims)

A food with function claims containing 2 billion Bifidobacterium longum BB536. This strain of bifidobacteria has been reported to improve the environment in the large intestine, improving bowel movements for people who tend toward constipation.



### Triple Yogurt (Foods with Function Claims)

This yogurt displays three functionalities in lowering and stabilizing blood pressure, blood sugar and triglyceride levels. Tripeptide MKP® lowers high systolic pressure, while the indigestible dextrin (dietary fiber) stabilizes the blood sugar and triglyceride levels after a meal.



## Foods for Medical and Elderly Care

The Morinaga Milk Group carefully researches and develops foods for medical and elderly care in terms of taste, nutritional value, safety, and ease of eating, so that the elderly and people with illnesses can maintain their quality of life while experiencing the joy of food.

Using the opinions of medical and nursing care professionals, Clinico Co., Ltd. (a company within the Morinaga Milk Group) and Morinaga Milk's institute work together to develop and market foods for medical and elderly care. This includes liquid foods, nutritional supplement foods (drinks, jellies, etc.), probiotic foods, and thickening products.



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## Disseminating Information on Nutritious and Functional Ingredients, Our Research Findings, etc.

The Morinaga Milk Group disseminates information, including the results of our research on nutritious and functional ingredients, to our customers and various stakeholders such as suppliers.

### Bifidobacteria Training Project

Started in June 2020, this project incorporates knowledge, food, exercise, and the mind together with the idea of Bifidobacteria into daily life, aiming to create an improved large intestinal environment by addressing both body and mind.

The program welcomed top-level athletes Yuto Nagatomo (professional soccer player) and Kaho Minagawa and Chisaki Ooiwa (rhythmic gymnasts) to help communicate support for the intestinal environment and general health through Bifidobacteria.

Morinaga Milk is also developing a program for female university students to expand the base for this program from the perspective of nurturing the next generation.

We will continue to support everyone's health by communicating proper knowledge about Bifidobacteria and intestinal flora to those with an interest in a healthy life, as well as offer useful information for a healthy mind and body.



### A Seminar Business with Nutritionists to Support "Happy Healthfulness"

Morinaga Milk Group is building a foundation for a next-generation healthcare business with the theme of "healthy and happy lives for all generations." With this endeavor, the Group aims to provide products and services that address health issues from a longer-term perspective through the use of digital and e-commerce channels.

As part of this effort, in January 2021 we started a health seminar service with nutritionists, "Kenko Support Eiyoushi," in which specially trained nutritionists provide hints on how to live happily and healthfully each day. This seminar service provides companies promoting health management, local governments, and educational groups with health-related information on the intestinal flora, immunity, protein, etc.

In FY 2020, the program held seminars for about 8,000 participants at outside companies and health seminars for about 1,700 participants within the Morinaga Milk Group.

In the future, Morinaga Milk will continue to provide information cultivated from more than half a century of research on health through these easy-to-understand "happy healthfulness" seminars.



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**Symposiums and Exhibitions (In Japan)**

In FY 2020, Morinaga Milk made 25 academic conference presentations and submitted 51 papers, even though many such conferences were cancelled or postponed due to the spread of COVID-19.

In February 2021, Morinaga Milk received the President's Award of the Third Japan Open Innovation Prize from the Science Council of Japan. This award was received for our project on maternal and child health with the Hokkaido University COI in Iwamizawa City, which resulted in a reduction of low birth weight babies. This project is part of the government's Center of Innovation (COI) initiative, which aims to encourage innovative collaborations among academia, industry and government.

The Matsumoto Junior College Endowed Course, which began June 2019, is again promoting the following three initiatives this fiscal year.

- (1) In cooperation with Matsumoto City and MATSUMOTO JUNIOR COLLEGE, Morinaga Milk will proactively hold public lectures, etc. to raise health awareness among the general public.
- (2) Provide a learning program for MATSUMOTO JUNIOR COLLEGE students for understanding the effects of food in health promotion.
- (3) Collaboratively verify the effects of Morinaga Milk's proprietary ingredients on health promotion, establish reliable evidence, and communicate the results obtained in the process.

**(Outside Japan)**

Because of the COVID-19 global pandemic in 2020, all overseas symposiums and exhibitions were cancelled.

Faced with the need to drastically review our methods for disseminating information, Morinaga Milk worked with overseas partner companies to disseminate information via webinars and virtual exhibitions, as well as through SNS.

We exhibited online at Vitafoods Europe Virtual Expo in September 2020. This exhibition is the first and only dietary supplement-related virtual event in Europe, during which we shared information about our probiotic products in collaboration with MILEI, even though they were affected by COVID-19. At the



Receiving the Science Council of Japan President's Award

Nutra Ingredients-Asia Awards sponsored by Nutra Ingredients-Asia.com, we received the Infant and Child Nutrition Initiative of the Year award for the second consecutive year.

Through such activities, Morinaga Milk strives to expand awareness of human-derived bifidobacteria and lactic-acid bacilli, and their benefits.



Received the Infant and Child Nutrition Initiative Award for the second consecutive year

**Contributing to the Healthy Growth of Babies and Infants**

Morinaga Milk began researching and developing infant and toddler milk in the 1920s with the commitment to contribute to the healthy growth and development of infants. Over the years, the company engaged in research of infant and toddler milk that combines lactoferrin, etc. with nutritional elements such as protein, fats, carbohydrates, vitamins, and minerals in order to provide products as close to mother's milk as possible.

In recent years, Morinaga Milk has developed its infant and toddler milk business mainly in Asia in order to contribute to the healthy growth and development of children not only in Japan, but also in other parts of the world.

Looking ahead, Morinaga Milk will continue its research and development on the nurturing and protective powers of breast milk.

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## Contributions to Building Nutritional Infrastructure in Asia

Emerging countries mainly in Southeast Asia are experiencing rapid population growth and urbanization. The more population concentrates in cities, the more important it is to build nutritional infrastructure to supply safe and high-quality foods. Playing an active role in solving this issue represents the social mission of Morinaga Milk as a food company.

Morinaga Milk considers the supply of infant and toddler milk as part of this nutritional infrastructure. The company manufactures infant and toddler milk at product bases in Japan and overseas, including Indonesia, and supplies products to markets in Indonesia, Pakistan, Malaysia, Vietnam, etc. Based on our Breast-Milk Substitutes (BMS) Marketing Policy, Morinaga Milk aims to create an environment in which children around the world can grow healthily.



▶ Please see the "Breast-Milk Substitutes (BMS) Marketing Policy" section (p. 94) for details.

### Overseas Launch of Infant and Toddler Milk



## Topics

### Sale and Manufacture of Infant Powdered Milk Products at NutriCo Morinaga

Morinaga Milk has been exporting infant formula milk and other products to Pakistan for more than 40 years and selling them through a local distributor. In March 2017, a new joint venture with Morinaga Milk, ICI Pakistan Limited and Unibrands (Private) Limited was established to locally manufacture and sell these products. This joint venture, NutriCo Morinaga (Private) Limited, built a plant and began operating in November 2019. NutriCo Morinaga continues to import milk products as before, but also domestically manufactures its own products for consumers in Pakistan. The company will provide safe, reliable and high-quality products to more consumers in Pakistan, contributing to their health.



NutriCo Morinaga

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## Providing Bifidobacterium Breve M-16V to Low Birth Weight Babies around the World

Normally, bifidobacteria is predominant among the intestinal flora of healthy babies. However, very low birth weight babies or super low birth weight babies with a birth weight of less than 1,500 g have delayed colonization of bifidobacteria, resulting in an increase in E. coli and S. aureus. Morinaga Milk is now pursuing



joint research with hospitals and universities in the field. By administering our proprietary developed Bifidobacterium breve M-16V to very low birth weight babies or super low birth weight babies, it was found that intestinal flora good for bifidobacteria form more quickly, preventing dangerous health conditions in newborns such as necrotizing enterocolitis and septicemia.

Currently, Morinaga Milk provides M-16V to more than 150 facilities nationwide in Japan, including newborn intensive care units (NICUs) and pediatric wards, supporting the sound development of countless babies. In addition, the effects of Bifidobacterium breve M-16V on low birth weight babies have been reported overseas through academic societies and papers, and it has been used in NICUs in Australia since 2012. Furthermore, in recent years, use has begun at NICUs in New Zealand and Singapore. Morinaga Milk will continue to support the healthy growth of babies around the world.

### Provision of Bifidobacterium Breve M-16V



	2016	2017	2018	2019	2020
Japan (packets)	171,000	197,000	210,000	236,000	229,000
Overseas (packets)	43,000	62,000	75,000	77,000	36,000

Note: For overseas, the posted figures are an aggregate for the January 1–December 31 period.

## Japan's First\* Follow-up Formula Containing Bifidobacteria

In 2020, Morinaga Milk celebrated its 100th anniversary of manufacturing infant and toddler milk and became the first company in Japan\* to produce a follow-up formula (to supplement the nutrition that is often insufficient in weaning foods) with live Bifidobacterium breve M-16V and Bifidobacterium longum BB536. This follow-up formula also contains lactoferrin and three types of oligosaccharides to support the development of healthy bodies.



We will continue our research and development to further support the health of children from the perspective of the intestinal environment.

\* According to research by Morinaga Milk Industry Co., Ltd. done via Mintel GNPD as of July 2020, for infant formula manufactured in Japan.

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## Specialty Milk

As a company that manufactures and sells infant and toddler milk, Morinaga Milk sells infant and toddler milk in Japan that can be consumed safely by children with milk allergies, and supplies medical institutions with specialty milk matched to the individual needs of children with congenital metabolic disorders.

### Commercially Available Specialty Milk

Morinaga Milk supplies specialty milk for milk allergies, lactose intolerance, gastro-esophageal reflux and low birth weight babies.



### Commercially Available Specialty Milk

Product Name	Characteristics
Morinaga New-MA-1	Milk for milk allergies, with highly digested proteins and significantly reduced allergenicity
Morinaga MA-mi	Milk for milk allergies with improved nutritional balance, flavor and solubility with reduced allergenicity
Morinaga Non-Lactose	Lactose-free milk for children with lactose intolerance, who experience diarrhea with general infant and toddler milk
Morinaga AR Milk	Milk for children prone to gastro-esophageal reflux disease with a higher milk viscosity using a naturally derived thickening ingredient (locust bean gum)
Morinaga GP-P*	Milk for low birth weight babies

\* The product is directly delivered to hospitals and medical facilities.

### Milk for Children with Congenital Metabolic Disorders or Other Diseases

Morinaga Milk supplies medical institutions, under the guidance of the Safety Development Committee\*, with specialty milk that is a vital nutritional supplement for children with congenital metabolic disorders, etc.



Congenital metabolic disorders are a serious health condition. If identified in newborn babies at an early stage and food therapy is initiated, most children will grow properly. Therefore, milk for children with such conditions needs special processing to reduce certain components such as protein or phosphorous according to the individual child's conditions. Such specialty milk requires advanced manufacturing technologies, so the knowledge and experience of infant nutrition that Morinaga Milk has developed over many years is applied. In FY 2020, Morinaga Milk provided about 5,100 cans of specialty milk to around 180 children and patients.

\* Safety Development Committee

The Specialty Milk Joint Safety Development Project was launched in 1980 under the guidance of the (then) Ministry of Health and Welfare with public funding in order to develop and improve, and provide a steady supply of specialty milk to treat children with congenital metabolic disorders. This project defines the specific criteria for specialty milk and its quality, ingredients, and method of use, as well as implements the development, improvement, and steady supply of the specialty milk. At the same time, the Safety Development Committee was established, consisting of academic experts and the directors of research organizations at specialty milk companies to ensure the smooth operation of the project.

### Types of Specialty Milk for Children with Congenital Metabolic Disorders and Other Diseases

Category	Main Indications	Symbol	Name
Protein and amino acid metabolism disorders	Phenylketonuria	MP-11	Low phenylalanine peptide powder
	Electrolyte metabolism disorders	Adrenocortical hypofunction	MM-2
Malabsorption	Heart and kidney diseases	MP-2	Low protein, low sodium milk
	Idiopathic hypercalcemia	MM-4	Low calcium milk
	• Hypoparathyroidism • Pseudohypoparathyroidism • Kidney disease	MM-5	Low phosphorus milk
Other	Deficiency in lipid absorption	ML-1	Low fat milk
	• Cystic fibrosis • Citrin deficiency	ML-3	Proteolytic MCT milk

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## Breast Milk Additive Powder

Breast milk additive powder is intended to reinforce the nutritional elements of breast milk for very low birth weight babies. Morinaga Milk provides HMS-1 and HMS-2.

Very low birth weight babies (who weigh less than 1,500 grams) tend to have complications such as underdeveloped physical functions for digestion and absorption. Such infants need to have adequate nutritional intake to quickly develop their physical functions. However, breast milk alone is relatively lacking in calories or various nutritional elements for such babies. HMS-1 and HMS-2 reinforce protein and trace elements such as calcium and phosphorous, which cannot be sufficiently provided by mother's breast milk alone, while HMS-2 provides increased calorific value, promoting faster development in babies. In FY 2020, Morinaga Milk sold around 15,000 boxes of HMS-1 and around 10,000 boxes of HMS-2, for a total of 25,000 boxes.

Note: HMS-1 is sold in 100 packets/box and HMS-2 in 60 packets/box



## Enhancing Public Health

### Contributing to Health with PURESTER

PURESTER, a slightly acidic electrolyzed water generator, is a hygiene control apparatus developed by Morinaga Milk that aims to have both high anti-bacterial effect and safety. In more than 20 years on the market, PURESTER has sold more than 7,500 units as of March 31, 2021.

PURESTER devices can generate hypochlorous acid water within the prescribed range needed for sterilization of food additives. Unlike the alcohol disinfectants and sodium hypochlorite commonly used for sterilization, PURESTER has been confirmed to have minimum effect on the skin and to be safe in various aspects. It has been verified having a bactericidal effect against various bacteria that cause food poisoning, and microorganisms that threaten food hygiene, and is therefore an effective tool in places where hygiene management is required.

Customers who are already using PURESTER have provided highly positive feedback explaining that PURESTER water can be used easily in the same way as municipal water despite being a disinfectant, making PURESTER indispensable for on-site hygiene management.

Morinaga Milk is committed to providing its long-standing hygiene management technology to society to help protect the healthy lives of people. Continuing efforts are made to develop new and innovative ways to realize this commitment.

In addition, we put out a public call for "research to solve various social issues using slightly acidic electrolyzed water (hypochlorite water)." Morinaga Milk is actively working to contribute to society in collaboration with universities and research institutes. In FY 2020, we provided subsidies for one theme.



Slightly acidic electrolyzed water generator  
PURESTER μ-Clean II



Contributes to maintenance of food hygiene



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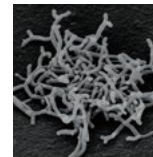
**Morinaga Milk's Nutritious and Functional Ingredients**

Morinaga Milk has been researching ingredients for maintaining health for over 50 years.

As a result, these ingredients were found to improve the health of people from all generations, from babies to the elderly.

**Bifidobacteria**

Morinaga Milk has a long history researching breast milk, infant nutrition, and intestinal flora for the healthy growth of infants. We discovered *Bifidobacterium longum* BB536 in 1969 and successfully used bifidobacteria in dairy products in 1971. Bifidobacteria are sensitive to acid and oxygen. However, it has been reported that, among the various bifidobacteria that live in the human intestinal tract, *Bifidobacterium longum* BB536 is resilient against acid and oxygen and reaches the large intestine alive.



Morinaga Milk maintains three strains, *Bifidobacterium longum* BB536, *Bifidobacterium* MCC1274 and *Bifidobacterium breve* M-16V, has published a wide range of research results on bifidobacteria, and is proud of being a bifidobacteria research pioneer in Japan. We develop a range of bifidobacteria products—not just such as yogurt but also supplements such as powdered bifidobacteria. Our technological know-how for keeping powdered bacteria alive and stable for long periods of time at room temperature is one of our major strengths.

The U.S. Food and Drug Administration (FDA) has affirmed *Bifidobacterium longum* BB536 and *Bifidobacterium breve* M-16V as GRAS (Generally Recognized As Safe) under its safety review system and these two strains are now used around the world, including the U.S., Europe, and Southeast Asia.

**Main Bifidobacteria**

*Bifidobacterium longum* BB536 reaches the large intestine and can be used for various health benefits such as excellent regulation of intestinal function by improving intestinal flora.

*Bifidobacteria* MCC1274 has the potential to improve cognitive function, and research into this bifidobacteria continues.

*Bifidobacterium breve* M-16V was developed for its function in promoting normalization of intestinal flora in infants. Administering it to low birth weight babies, who have premature intestinal function, speeds up colonization of bifidobacteria and promotes normal development of the intestines.

WEB

Morinaga Milk's Bifidobacteria Research

▶ [https://www.morinagamilk.co.jp/english/research/r\\_and\\_d/bifidobacteria/](https://www.morinagamilk.co.jp/english/research/r_and_d/bifidobacteria/)**Topics****Recognized as Safe for Baby Food in the U.S.**

*Bifidobacterium longum* BB536 and *Bifidobacterium breve* M-16V have been certified as GRAS\* for general foods and infant foods under the U.S. Food and Drug Administration (FDA) safety review system. Although *Bifidobacterium longum* BB536 was already recognized as GRAS for general foods; it was also recognized as GRAS for infant foods from December 2019. Morinaga Milk is the only Japanese company that has acquired GRAS for bifidobacteria (current as of May 19, 2021).

\* GRAS (Generally Recognized as Safe)

For a food ingredient newly used in the U.S., specialists evaluate the safety of the ingredient as a food by considering its material characteristics, manufacturing processes, quality control, product specifications, actual use, clinical test results, etc. Since 1958, new food ingredients in the U.S. must be GRAS before they can be sold.

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## Lactoferrin

Morinaga Milk has been studying lactoferrin since the early 1960s. Lactoferrin is a protein found in the milk, tears, and saliva of many mammals and is believed to protect babies from a variety of infectious diseases. The name is derived from lacto (milk) and ferrin (iron) because of the protein's ability to easily bind with iron.

In terms of lactoferrin products, Morinaga Milk released an infant and toddler milk, called *Morinaga BF-L Dry Milk* in 1986. Today, Morinaga Milk sells lactoferrin products to support the daily health of people at all ages from babies to the elderly—from infant and toddler milk to lactoferrin yogurt and supplements.



**WEB** Morinaga Milk's Lactoferrin Research  
 ▶ <https://www.morinagamilk.co.jp/english/research/ingredients/>

## Topics

### MILEI: Manufacturing High-Quality Lactoferrin

MILEI GmbH, headquartered in Leutkirch, Germany (near the Swiss border) was founded in 1972. A half-century later, the company supplies milk materials such as whey protein, milk protein, lactose, and lactoferrin to manufacturers in Europe, Asia, and other parts of the world. MILEI has established a strong reputation among many users for its stable manufacturing and sales of high-purity lactoferrin since beginning such production in 1989. Interest in lactoferrin has been increasing worldwide in recent years. As the world's top manufacturer of lactoferrin\*, we are actively working to further increase production to ensure a stable supply.

\* From 2020 data from Absolute Reports.

## Peptide

Cow's milk contains good quality protein, and is used in products such as infant and toddler milk. However, it cannot be used for babies with milk allergies. Therefore, Morinaga Milk developed a peptide (milk protein degradant) that has been digested by enzymes.

In 1977, Morinaga Milk released *MA-1*, containing peptide for babies and infants with allergies. In 1994, the company released another product called *Morinaga Peptide Milk E-Akachan*, which combines more than a half century of Morinaga Milk's technologies, knowledge and experience in the development of infant and toddler milk, especially for the allergenicity of milk.

Having focused on the physiological functionality of peptides in recent years, Morinaga Milk developed MKP® (methionine-lysine-proline), a casein-derived tripeptide (a peptide in which three amino acids are linked). It has been confirmed that MKP lowers blood pressure (systolic pressure) of adults with relatively high blood pressure and improves some cognitive function in persons with dementia.



**WEB** Morinaga Milk's Peptide Research  
 ▶ <https://www.morinagamilk.co.jp/english/research/ingredients/>

## Lactulose

Lactulose is a saccharide made from the lactose contained in cow's milk. Morinaga Milk was a pioneer on the effects of lactulose in increasing bifidobacteria in the intestines, and launched the lactulose-containing infant and toddler milk *Morinaga G Dry Milk* in 1960. Lactulose is also widely used worldwide as a medicine for constipation.



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