



Materiality

Innovation

Our approach

We recognize that in order for the Yakult Group to continue growing sustainably, we need to not only further promote product development through the pursuit of excellence in life science but also create services that provide new value. While bearing in mind the views of our stakeholders, we will further develop our organizations and create frameworks to generate innovations that will help resolve social issues and bring about our evolution toward a healthcare company.

Risks and opportunities

Risks	Opportunities
<ul style="list-style-type: none"> ● Insufficient response to diversifying consumer needs could affect business performance ● Infringement of intellectual property, leakage of research data, new infectious diseases or natural disasters could delay development 	<ul style="list-style-type: none"> ● Development of highly safe products could lead to greater competitiveness ● Development of products responding to growing health consciousness could lead to greater competitiveness ● Promotion of joint research could lead to innovations

Policies/Guidelines/Targets

- Yakult Ethical Principles and Code of Conduct (1. Placing Customers First, 2. Compliance with Social Norms)
- Code of Practice of Yakult Honsha Pharmaceutical Business Division

Targets and achievements

Target	Achievements
<ul style="list-style-type: none"> ● Continuing research that helps resolve social issues 	<ul style="list-style-type: none"> ● Nationwide launch of <i>Yakult 1000</i> (fiscal 2020) ● Launch of <i>Y1000</i>

Challenges and solutions

Changes in social conditions have a great impact on people's ideas about and attitudes toward health and can create new social issues. As a company advocating good health, we recognize that it is both our mission and challenge to continue to respond to these changes and contribute to solving new issues.

In response to the recent growth of the health domain, we are expanding our business into the healthcare field, centered on the probiotics research in which we have developed expertise over the years. We aim to create new value by evolving into a healthcare company that provides products and services that meet the needs of people around the world.

Message from the chief officers



Fumiyasu Ishikawa

Director and Senior Managing Executive Officer
Divisional General Manager of Research & Development Division

Founded on innovation

Yakult's business was launched in the early 20th century when founder Minoru Shirota, distressed by the number of children who lost their lives to infectious diseases, decided to undertake microorganism research and pursue preventive medicine to prevent diseases rather than treating them after they occur. He focused his research thereafter on lactic acid bacteria, resulting in the creation of the fermented milk drink *Yakult*. In an era when therapeutic medicine was the norm, providing new value from the new perspective of preventive medicine was truly innovative.

This innovation was embraced not just in Japan but has continued to spread throughout the world, and today Yakult's dairy products are enjoyed in 40 countries and regions, including Japan. We are delighted and encouraged to be able to offer the value of Yakult to people around the world through our innovative products and services.

Meeting the needs of the times

We believe that one of our missions is to continue to create product value that is in demand among our customers while always taking social issues into consideration, and view this as an important way to contribute to the health of people around the world.

The "value" that people look for is always changing with the times. Just when people's interest began to grow in research on the gut-brain axis, or how the brain and intestines influence each other, we had learned from our basic research that high concentrations of *Lactobacillus casei* strain Shirota*¹ had an impact on the nervous system. Additional research led to the market launch of *Yakult 1000* in 2019 and *Y1000* in 2021. These drinks had functions that relieved stress and improved sleep quality under conditions of temporary mental stress. They provide value that was unavailable in conventional products by addressing stress- and sleep-related health problems in contemporary society.

Public support for these products exceeded our expectations. We received many positive comments from the large number of people who saw new value in these products. This feedback showed again that the benefits of our innovation are contributing to the health of people suffering from newly emerging problems of our age.

Continued commitment to creating value

One of the qualitative goals of Yakult Group Global Vision 2030, formulated in fiscal 2021, is to offer customers new value that matches their needs.

We will continue to utilize our research findings cultivated over the years on lactic acid bacteria and other beneficial microorganisms, promote microbiome research, and pursue new possibilities and innovation through collaboration with outside resources, while providing new value that leads to solutions of the mounting health and social issues throughout the world.

We thus aim to "evolve into a healthcare company that continues contributing to the health of people around the world," as stated in our vision.



Masanori Ito

Director and Managing Executive Officer
Divisional General Manager of Pharmaceutical Business Division

Helping as many people as possible through our pharmaceuticals

Yakult's pharmaceutical research began in 1978 when we discovered that our proprietary *Lactobacillus casei* strain Shirota had anti-cancer properties via an immunostimulatory effect. This led to the start of development research of anti-cancer agents. We have since developed a number of chemotherapeutic agents widely used in Japan and overseas, such as plant-based *Campto infection* (irinotecan hydrochloride) and *Elplat* (oxaliplatin).

Nothing could be more rewarding than to be able to apply the results of our intestinal bacteria research to the treatment of diseases for which there are no simple cures.

We will continue to research and develop high value-added pharmaceuticals that utilize the microbiome. We will also seek the successful realization of a Medical Biome®*² business to manufacture and market products that help people maintain good health and facilitate medical treatment. This will enable us to contribute to people's health in the medical and pharmaceutical sectors as well.

*1 Reclassified as *Lacticaseibacillus paracasei* strain Shirota in April 2020.

*2 A registered trademark in Japan coined from "medical" and "microbiome."

Organizations that generate innovation

■ Yakult Central Institute

The Yakult Central Institute is engaged in a variety of research activities based on Shirota-ism, and the results of this research have been applied to foods and beverages, pharmaceuticals and cosmetics for the purposes of preventive medicine and health maintenance. In April 2016, the new Yakult Central Institute was completed with the facilities, organization and environment to drive evolution in core technologies and strengthen collaboration. We will further deploy core technologies related to intestinal microbiota and probiotics to a wide range of fields aimed at enhancing the health of people around the world.

Yakult Central Institute

Established: April 1955 (launched in Kyoto as the Shirota Institute)

Location: 5-11 Izumi, Kunitachi-shi, Tokyo

Employees: Around 300

Key research subjects and fields

The Institute works on the development of ingredients for food and beverages, cosmetics and pharmaceuticals that aid in the maintenance and improvement of health, and research into their applications. The fields of microbiology, nutritional science, physiological science, immunology, biochemistry, bioengineering, organic chemistry, fermentation engineering, natural products chemistry, pharmaceutical science and analytical chemistry—all form a part of the research.



Online corporate visit program for students

We introduced an online corporate visit program to promote career education for junior high and high school students. The program provides opportunities to deepen understanding of researchers and their profession, and cultivate interest among students in contributing to society through work. In fiscal 2021, 620 students from 19 schools participated, with over 90% of the students responding to a survey that they were “very satisfied” or “satisfied” with the program.

■ Yakult Honsha European Research Center for Microbiology VOF

Yakult Honsha established the Yakult Honsha European Research Center for Microbiology VOF (YHER), the Group's first overseas research base, in Ghent, Belgium, in 2005. YHER has so far conducted clinical trials in Europe using locally produced fermented milk drinks, which confirmed that *Lactobacillus casei* strain Shirota reaches the intestines alive and improves fecal properties. Other basic research by the Center has also revealed that intestinal bifidobacteria are passed on from mothers to newborns, and that certain bifidobacteria stay in the intestines for a long period of time from infancy to early childhood.

Research on bacteriology

Preventive medicine Researching the intestinal microbiota

The human intestinal tract is colonized by some 100 trillion bacteria, of which there are around 1,000 different types. In particular, a diverse array of intestinal bacteria inhabits the area from the lower section of the small intestine to the large intestine and is called the intestinal microbiota. It has been discovered that the intestinal microbiota is related to lifestyle-related diseases and stress in addition to the health of the intestines and the development and maintenance of immunity.

Research into the intestinal microbiota from the standpoint of preventive medicine is a major pillar of activities at the Yakult Central Institute. The Institute has created an integrated database of the groups of intestinal bacteria for over 2,000 Japanese people using our proprietary intestinal microbiota analysis system known as YIF-SCAN® (Yakult Intestinal Flora SCAN).* Research is also being conducted into the differences in the intestinal microbiota of people living in various cities in the world and abnormalities in the intestinal microbiota when ill.

Going forward, we will focus on functional analysis of intestinal bacteria and contribute to the maintenance and enhancement of people's health the world over.

* YIF-SCAN is a registered trademark of Yakult

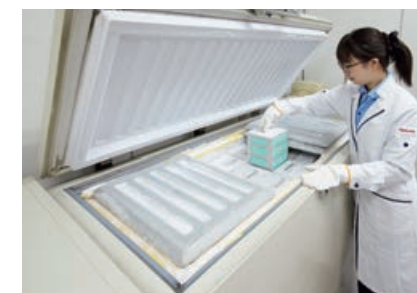


Intestinal flora analysis system YIF-SCAN®

A healthy intestinal tract leads to a long life

Probiotics research

The Yakult Central Institute has a long list of research achievements involving strains such as *Lactobacillus casei* strain Shirota, discovered by Minoru Shirota, and *Bifidobacterium breve* strain Yakult.



Collection of microorganisms such as lactic acid bacteria and bifidobacteria

Evolving into a healthcare company (Product development in response to increased health consciousness)

As people have become more health conscious in recent years, more consumers around the world are concerned about their sugar intake, and there is a growing demand for less sweet-tasting and low-sugar products. Particularly outside Japan, with the rise of lifestyle-related diseases and obesity, many countries are levying a “sugar tax” on foods containing more than a certain amount of sugar.

Mexico now requires a warning label on foods with sugar content exceeding specified standards, while in Malaysia and Singapore, the Healthier Choice Symbol (HCS) appearing on foods containing less than the specified levels of sugar is required for their sale at schools. Similar requirements in product development and labeling are expected to increase in the future, so the Yakult Group is developing and introducing low-sugar products to clear food standards and meet consumer demand in different countries and regions.

Mental healthcare is also becoming increasingly important as many people today suffer from stress. In the face of this social problem, in October 2019 we launched *Yakult 1000*, our first Food with Function Claims developed through broader research into the intestinal microbiota and probiotics to provide new health value based on its effects on stress and sleep. And in October 2021, *Y1000* was launched with the same functions as *Yakult 1000*, primarily for the retail store channel.

■ Efforts in Japan

With an increasing percentage of sales from products with lower sugar content and fewer calories (*Yakult 400LT*, *New Yakult Calorie Half*), we reduced the calories per milliliter of *Yakult 1000*, *Y1000* and *Yakult 400W* compared to *Yakult 400*. Anticipating that people's interest in reducing sugar intake will grow in the future, we will apply the technologies we developed to comply with sugar regulations in other countries to develop products in Japan.

As people's health consciousness and their preferred health solutions become more diversified, we are considering new products that provide value tailored to each individual, such as by combining the proprietary functions of our existing products with plant materials that have a healthy image, as well as by developing new categories of products that can be used in medical treatment.

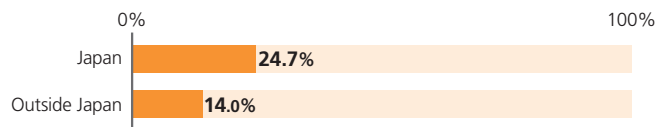
■ Sales of low-sugar, low-calorie products (outside Japan)

With the increasing health awareness of people throughout the world, we have been selling various low-sugar, low-calorie products that meet our customers' needs.

Outside Japan, we sell low-sugar, low-calorie products in 27 of the 39 countries and regions where we operate in order to respond to our customers' health needs while giving consideration to solving their health issues.

Going forward, we will continue contributing to the health and happiness of people around the world through development and sales of products that benefit the health of our customers.

Low-calorie products:
Percentage of total
dairy sales
(fiscal 2021)



Effective use of resources

In the design and development of containers and packaging, we are continually studying the possibilities of adopting environmentally responsible materials and saving (reducing) resources in existing products, such as by developing technologies for transitioning to materials that are easy to recycle.

At plants, we have been continuing with our efforts to save energy and resources, such as reviewing work methods that lead to reductions in electricity and water in the manufacturing and production processes, and adopting high-efficiency equipment when upgrading installed equipment.

Related information [p. 32 Plastic containers and packaging >>>](#) [p. 36 Water >>>](#) [p. 39 Resource recycling >>>](#)

Expanding joint research

To encourage innovation that addresses social issues, we have been engaging in joint research with outside research institutions to achieve our goals through partnerships.

■ Joint research with JAXA

In joint research with the Japan Aerospace Exploration Agency (JAXA) we have scientifically verified the effects of the regular intake of probiotics (*Lactobacillus casei* strain Shirota) on the immune functions and intestinal environment of astronauts on long-term stays aboard the International Space Station (ISS). Before carrying out this research in space, we confirmed that *Lactobacillus casei* strain Shirota maintains its probiotic properties after long-term storage in a space environment.



International Space Station (ISS)

■ Joint research with the National Center of Neurology and Psychiatry

An intervention trial conducted in collaboration with the National Center of Neurology and Psychiatry confirmed that consumption of fermented milk drinks containing *Lacticaseibacillus paracasei* strain Shirota relieved depression symptoms and improved the sleep quality of patients suffering from major depressive or bipolar disorders. The results were reported in the journal *Microorganisms* (published on May 10, 2021).

■ Joint research with the Tokyo Metropolitan Institute of Gerontology

In joint research carried out with the Tokyo Metropolitan Institute of Gerontology, we conducted an epidemiological survey of elderly people in the town of Nakanojo, Gunma Prefecture that confirmed that habitual intake of dairy products containing *Lacticaseibacillus paracasei* strain Shirota may contribute to the stabilization of the intestinal microbiota in the elderly. The results were reported in the journal *Scientific Reports* (published on June 17, 2021).*

* R. Amamoto et al. "Yearly changes in the composition of gut microbiota in the elderly, and the effect of lactobacilli intake on these changes." *Scientific Reports*. 2021, 11:12765.

■ Research grant program with Nature Research

Since 2018 we have operated the Global Grants for Gut Health program jointly with Nature Research, the publisher of the science journal *Nature*, to advance basic and clinical research into the influence of intestinal microbiota on human health.

Ethical compliance

The Yakult Central Institute has departments that specialize in research and assurance related to product safety and reliability. The departments collect highly reliable research data following Yakult's strict proprietary standards and criteria. The Safety Research Department evaluates the safety of materials and products according to government standards. Independent from other organizations, the Quality Assurance Unit audits research data and activities from a third-party perspective. We also actively run research ethics training (information security, legal compliance, etc.) for our researchers.

From the viewpoint of animal welfare, we perform only the minimum necessary number of tests on animals during our research and development, based on internal regulations and certifications from public organizations.

Except where there are legal requirements or guidelines from the relevant authorities in each country, our food and cosmetics research does not involve testing on animals.

Protection of intellectual property

We work actively to acquire the intellectual property rights (patents, designs, trademarks, etc.) in and outside Japan for new products and technologies, and by using these rights appropriately, we work to maintain and improve our brand value (number of patents held in and out of Japan: about 1,000).

In addition, Yakult Honsha centrally manages the intellectual property rights in all countries and regions where the Yakult Group conducts business, thereby creating an optimal intellectual property strategy for the entire Group.

When introducing new products and services, we conduct a careful prior review of third-party intellectual property rights and take appropriate measures to avoid any infringements.

In recent years, we have been building up our monitoring system in collaboration with outside experts particularly for imitation products, which are rapidly increasing overseas. We also conduct employee training on intellectual property to cultivate awareness and respect for the intellectual property rights of third parties.