FY 2015 Business Results

Pharmaceutical Business

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Pharmaceutical Business

Segment Overview

The Otsuka Group’s pharmaceutical business focuses on the core areas of the central nervous system and oncology in order to address unmet medical needs. Additionally, the Group is engaged in a wide range of other fields and businesses, including the cardiovascular system, gastroenterology, ophthalmology, diagnostics, and the clinical nutrition and medical device businesses in order to provide comprehensive healthcare solutions ranging from diagnosis to the treatment of disease.

Therapeutic drugs
Central nervous system, Oncology, Cardiovascular system, Gastroenterology, Respiratory system, Infectious disease, Ophthalmology, Dermatology, Allergies, Urology, Other areas

Clinical nutrition
Intravenous solutions, Enteral nutrition, Contract manufacturing

Medical devices
Apheresis devices for leukocyte adsorption, Drug-eluting stents, Spinal devices, Other products

Diagnostics
Influenza diagnostic agents, Helicobacter pylori test kit, Other products

2015 Performance

<table>
<thead>
<tr>
<th>(¥ million)</th>
<th>Net Sales</th>
<th>Operating income</th>
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<tr>
<td>2014.3</td>
<td>1,035,080</td>
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<td>2014.12*</td>
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With the expiration of the patent for the atypical antipsychotic agent ABILIFY in Europe and the U.S. in fiscal 2015, net sales in the pharmaceutical business fell 14.8% from the previous year to ¥971,843 million and operating income dropped 33.1% to ¥156,814 million. However, development and marketing of new products that will drive medium- and long-term growth are making steady progress. There are many signs that these products will ensure sustainable growth in the future.

* As a result of the adoption of a new fiscal year end, the fiscal year ended December 2014 was an irregular nine-month period. For reference, we have included consolidated profit/loss figures (not audited) for all consolidated companies for the period from January 1, 2014 to December 31, 2014. Note: Intersegment sales are included.
Global sales of the antipsychotic agent ABILIFY fell due to the impact of the loss of exclusivity in the U.S. and Europe. Sales in Asia continued to grow sharply overall on the back of higher sales in China and other markets. In Japan, sales of ABILIFY rose year on year, supported by an increase in prescriptions and sales share of orally disintegrating tablets for the three approved indications of schizophrenia, manic episodes of bipolar disorder and major depressive disorder.

In Japan, the antiepileptic drug E Keppra, which is co-promoted with UCB Japan, has achieved firm growth in market share as the top-selling brand in the domestic antiepileptic drug market. This reflected growth in prescriptions for pediatric patients and approval in February 2015 for the monotherapy treatment of epileptic partial-onset seizures. Furthermore, in December 2015 a new drip infusion formulation was launched.

The aripiprazole intramuscular depot formulation Abilify Maintena (once-monthly injection) registered significant sales growth in the U.S., supported by efforts to promote the drug’s efficacy for the treatment of acutely relapsed adults with schizophrenia, the merits of a ready-to-use prefilled syringe launched in March 2015 and an additional administration route using the deltoid muscle approved in July 2015. In Europe, sales of Abilify Maintena continued to increase as the number of countries where it has been launched there expanded to 27 as of December 31, 2015. Abilify Maintena was also launched in Australia in March 2015, while in Japan in May 2015, ABILIFY for extended-release injectable suspension for intramuscular use was released, adding to the growing number of markets worldwide where the drug is now available and significantly boosting global sales.

The new antipsychotic agent REXULTI received approval from the U.S. Food and Drug Administration (FDA) in July 2015 simultaneously for the indications of schizophrenia and adjunctive therapy in major depressive disorder. Prescriptions have been growing steadily since the drug was launched in the U.S. in August 2015.

Sales of NUEDEXTA climbed significantly. NUEDEXTA was developed by U.S. company Avanir Pharmaceuticals, Inc., which became part of the Otsuka Group in January 2015 and has strengths in drug development in the area of neurological diseases. The drug’s stronger sales reflected its increasingly recognized status as the world’s first and only treatment for the neurological disease pseudobulbar affect (PBA) on the back of the strengthened sales network in the U.S.

Neupro Patch, the world’s only transdermal dopamine agonist, benefited from increasing understanding of the use of the patch formulation and growing recognition of its effect in improving wearing-off symptoms in indications of Parkinson’s disease and restless legs syndrome, and is seeing continued strong growth in sales. It has become the top-selling brand in the dopamine agonist market in Japan.
New Antipsychotic REXULTI Approved by the FDA as Adjunctive Treatment for Adults with Major Depressive Disorder and as a Treatment for Schizophrenia

In July 2015, Otsuka Pharmaceutical and H. Lundbeck A/S received approval from the U.S. FDA to market REXULTI (brexpiprazole) as an adjunctive treatment for adults with major depressive disorder and as a treatment for schizophrenia. REXULTI was discovered by Otsuka Pharmaceutical and co-developed with Lundbeck, and this was the drug’s first approval, worldwide. It was brought onto the market in the U.S. in August 2015 and is co-marketed by the two companies. REXULTI is a new antipsychotic with a distinct pharmacological effect as a serotonin-dopamine activity modulator (SDAM). It functions through a combination of partial agonist activity on serotonin 5-HT_{1A} and dopamine D_{2} receptors, as well as antagonist activity on serotonin 5-HT_{2A} receptors.\(^*1\)

In the U.S., approximately 15 million adults suffer from major depressive disorder and about 2.4 million adults have schizophrenia. Although many use conventional treatments, there is still a need for more effective and well-tolerated alternatives.\(^*2\) The Group expects that this drug, which has a new mechanism of action, will resolve this frustration and help many patients.

\(^*1\) Maeda, K. et al. Pharmacological Profile of Brexpiprazole (OPC-34712): a Novel Serotonin Dopamine Activity Modulator. Poster presentation, American Psychiatric Association annual meeting, May 3-7, 2014.

\(^*2\) The National Alliance of Mental Illness, Mental Illness Facts and Numbers. March 2013. Available at: http://www2.nami.org/factsheets/mentalillness_factsheet.pdf

NUDEXTA—The World’s First and Only Treatment for the Neurological Disease Pseudobulbar Affect

Pseudobulbar affect (PBA) is a neurological disorder in which individuals cannot control their own feelings or actions. It is characterized by involuntary outbursts of crying in front of others for no reason or laughter in inappropriate situations, and it impedes daily life and often leads to social isolation. There are approximately two million potential PBA patients in the U.S., who have been left without treatment for many years. Avanir Pharmaceuticals released NUDEXTA, the world’s first PBA treatment, in the U.S. in 2011.

PBA patients usually have underlying conditions such as posttraumatic syndrome after head injuries, multiple sclerosis, amyotrophic lateral sclerosis, Parkinson’s disease, cerebral strokes and Alzheimer’s disease. To give patients even greater peace of mind in using this drug, evidence for various underlying conditions was built into the clinical trials.

\(^*\) In-house data
The Otsuka Group’s oncology operations help in a wide range of fields, including blood cancer, solid carcinomas and supportive care for cancer. Constructive initiatives are underway to enhance the medical value of these products. The Group is working to maximize the product value of LONSURF as soon as possible by establishing a marketing structure in the U.S. and working with Servier in Europe.

**TS-1**
(tegafur, gimeracil, oteracil)

TS-1, a fluoropyrimidine anti-cancer agent, has indications for the treatment of gastric, colorectal, head and neck, non-small cell lung, inoperable or recurrent breast, pancreatic, and biliary tract cancers. The drug is widely used in medical fields due to its clinical efficacy and patient convenience as it is an oral therapy and has multiple formulations. Sales of the drug declined in Japan in fiscal 2015 compared with the same period of the previous year, mainly due to the impact of rival products for gastric cancer. Global sales of the drug fell compared with the same period of the previous year, despite expansion of the number of countries where it is marketed and growing overseas sales on the back of additional drug indications.

**LONSURF**
(trifluridine and tipiracil)

LONSURF, a new anti-cancer agent, was launched in Japan in May 2014. Prescriptions for the indications of unresectable advanced or recurrent colorectal cancer are rising, leading to steady growth in sales of the drug. In the U.S., LONSURF received FDA approval in September 2015 for the treatment of refractory metastatic colorectal cancer and was launched by Taiho Oncology in October 2015. In Europe, the drug was recommended by the Committee for Medicinal Products for Human Use of the European Medicines Agency (EMA) in February 2016, and approved by the European Commission in April for the same indications.

**Abraxane**
[paclitaxel (protein-bound particles for injectable suspension)]

Abraxane, a paclitaxel albumin-stabilized nanoparticle formulation, grew strongly in fiscal 2015 compared with the same period of the previous year. It was supported by an increase in prescriptions due to its approval for the additional indication of pancreatic cancer in December 2014, following breast cancer, colorectal cancer and non-small cell lung cancer.

**Sprycel**
(dasatinib)

The anti-cancer agent SPRYCEL, which is being promoted in Japan, the U.S. and Europe in collaboration with Bristol-Myers Squibb, has seen growth in prescriptions worldwide as a first-line treatment for chronic myeloid leukemia. Sales of the drug in fiscal 2015 increased compared with the same period of the previous year.

**Busulfex**
(busulfan)

Busulfex, an allogeneic hematopoietic stem cell pre-transplanting regimen now sold in more than 50 markets worldwide, has established a standard drug therapy approach as a conditioning agent administered prior to bone marrow transplants in place of total-body radiation. Sales of Busulfex in fiscal 2015 increased compared with the same period of the previous year.
LONSURF—A New Anticancer Drug
Approved in the U.S. as a Treatment for Refractory Metastatic Colorectal Cancer (mCRC) and Sold by Taiho Oncology
Licensing Agreement Signed with Servier for Europe and Other Regions

In September 2015, Taiho Oncology, Taiho Pharmaceutical’s U.S. subsidiary, received approval from the U.S. FDA to market LONSURF (nonproprietary names: trifluridine and tipiracil), an oral combination anticancer drug, as a treatment for refractory metastatic colorectal cancer (mCRC).*1 Taiho Oncology brought LONSURF onto the market in October. This is the first product for which Taiho Pharmaceutical has obtained approval in the U.S. The approval was based on results from the global Phase III RECOURSE trial, and the results were published in The New England Journal of Medicine (May 14, 2015 edition). Colorectal cancer is the third most common type of cancer and the second leading cause of cancer-related deaths in the U.S. *2 The approval of LONSURF gives patients in the U.S. a new option.

In Europe, the European Commission approved LONSURF for the same indications in April 2016. In Europe and other areas (other than North America and Asia), Taiho Pharmaceutical entered into a licensing agreement with Servier in 2015 covering development and marketing rights. This partnership between the two companies will lead to greater support for patients all over the world.

Launch of the Novel Antitumor Agent Yondelis IV Infusion

In December 2015, Taiho Pharmaceutical introduced the anti-cancer agent Yondelis IV Infusion in Japan. This drug was developed by the Spanish company PharmaMar, S.A. Taiho Pharmaceutical entered into a licensing agreement with PharmaMar in 2009 to develop and market the drug in Japan. Taiho Pharmaceutical received approval to manufacture and market the drug for the indication of soft tissue sarcoma, an orphan disease with an estimated patient number of about 5,000 in Japan.*1 The drug has been approved in 78 countries and regions, including the U.S., Europe, South America and Asia.*1 Taiho Pharmaceutical expects to make significant contributions to patient treatment by offering this new treatment option for soft tissue sarcoma, a condition with high unmet medical needs.

MSD and Taiho Pharmaceutical Enter into Co-Promotion Agreement in Japan for Pembrolizumab, MSD’s Immune Checkpoint Inhibitor (anti-PD-1 therapy)

In April 2016, Taiho Pharmaceutical concluded a co-promotion agreement in Japan with MSD K.K. for pembrolizumab (nonproprietary name, development code: MK-3475), an immune checkpoint inhibitor (anti-PD-1 therapy) for which MSD has filed an application for approval in Japan. Under this agreement, Taiho will co-promote pembrolizumab with MSD, while MSD will manufacture and sell it.

In Japan, MSD submitted an application for authorization to manufacture and sell pembrolizumab for the treatment of patients with unresectable or metastatic melanoma in December 2015, and for the treatment of patients with unresectable advanced or recurrent non-small cell lung cancer in February 2016. Clinical trials are currently underway for the treatment of bladder cancer, lung cancer, breast cancer, gastric cancer, head and neck cancer, multiple myeloma, esophageal cancer, colorectal cancer, Hodgkin’s lymphoma and advanced solid tumors. In October 2015, pembrolizumab was designated as one of the medicines included in the Japan’s Ministry of Health, Labour and Welfare’s Sakigake Fast-Track Review for the treatment of unresectable advanced or recurrent gastric cancer.

MSD and Taiho Pharmaceutical will seek to further assist patients and healthcare providers in the oncology field by building a close partnership while co-promoting pembrolizumab, a promising new option for cancer treatment.
Otsuka Pharmaceutical received approval in May 2015 to market JINARC (nonproprietary name: tolvaptan) as a treatment for adults with ADPKD. This was the first time that a pharmaceutical therapy for ADPKD had been approved in Europe. As of March 2016, JINARC had been released in Germany, the U.K., Norway, Luxembourg, and Austria, and sales continue to be extended successively into other countries.

ADPKD is a chronic and progressive genetic disease which causes cyst proliferation and growth in the kidneys, leading to an increase in kidney size. This leads to complications such as chronic and acute pain, hypertension, and kidney failure, which ultimately requires dialysis or renal transplant. An estimated 200,000 people suffer from ADPKD in Europe.

Tolvaptan was developed by Otsuka Pharmaceutical over 26 years, and was released in 2009 as an aquaretic with vasopressin V2 receptor antagonist effects. In addition Otsuka Pharmaceutical discovered that vasopressin V2 receptor antagonists also slowed the progression of ADPKD, which had no treatment at that time, and decided to develop it as an ADPKD treatment. It was first approved for use in Japan in 2014, followed by other countries.

Samsca/JINARC is gaining more acceptance among medical specialists due to its value as an oral aquaretic agent, supporting a large increase in global sales in fiscal 2015 compared with the same period of the previous year. Globally the drug (Samsca/JINARC) has also started to be used as the world’s first drug for autosomal dominant polycystic kidney disease (“ADPKD”), an intractable kidney disease. In Japan, the drug was approved for this additional indication in March 2014, and prescriptions have increased as understanding of the drug has increased. The drug was also approved for the treatment of ADPKD in Europe in May 2015. As of March 2016, Samsca/JINARC was available for both indications in 22 markets worldwide.

Samsca/JINARC, a vasopressin receptor 2 antagonist, is the world’s first therapeutic drug for autosomal dominant polycystic kidney disease (ADPKD), for which treatment was previously unavailable. In addition to growth as an aquaretic, its contribution as an ADPKD treatment will spur global expansion.

In the field of the digestive system, prescriptions for TAKECAB, which has been co-promoted in Japan with Takeda Pharmaceutical Co., Ltd. since February 2015, are steadily increasing. In the ophthalmic field, sales of Mucosta Ophthalmic Suspension UD 2%, a treatment for dry eyes, are also growing. In the infectious disease field, Deltyba, a new anti-tuberculosis drug, is now available in Europe, Japan, and South Korea.

**Otsuka Releases JINARC, the First-Ever ADPKD Treatment Approved in Europe**

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**Samsca/JINARC (tolvaptan)**

Samsca/JINARC (tolvaptan)
In February 2016, Otsuka Pharmaceutical formed a public-private partnership with Stop TB's Global Drug Facility (GDF). Deltyba (nonproprietary name: Delamanid) is an anti-bacterial drug developed by Otsuka Pharmaceutical. It has a novel mechanism of action that impedes the generation of mycolic acid, a major constituent of mycobacterium tuberculosis cell walls. This bactericidal agent is used in Europe, Japan and South Korea against multidrug-resistant tuberculosis (MDR-TB). The global partnership aims to improve access to delamanid in countries in which TB is epidemic.

In this partnership, any country that is eligible for TB financing from the Global Fund to Fight AIDS, TB and Malaria and follows the World Health Organization (WHO) Guidelines for the proper management of MDR-TB can apply to GDP to use delamanid in their treatment programs. This means that over 100 countries may now be eligible to access delamanid. This public-private partnership goes beyond the supply of delamanid and provides a framework to provide education and training support, technical assistance and treatment infrastructure to ensure that delamanid is appropriately incorporated in MDR-TB treatment programs.

The WHO published the policy guidelines, The Use of Delamanid in the Treatment of Multidrug-Resistant Tuberculosis in 2014, and in 2015 delamanid was added to the WHO’s Essential Medicines List. The Stop TB Partnership is made up of international organizations such as the WHO, government organizations, private companies and patient groups, and was established in 2001 to eradicate TB. GDF was established as a sub-organization to supply anti-tuberculosis drugs to developing countries in which TB is epidemic.

Otsuka Group’s therapeutic drug business is demonstrating the value of its unique approach while respecting the diversity of cultures in which it operates. We are determined to keep contributing to better health for people worldwide.

Global Operation of Otsuka Group’s Therapeutic Drug Business

Otsuka America Pharmaceutical Inc. (Rockville, Maryland, U.S.)
Founded in 1989, Otsuka America Pharmaceutical performs marketing and sales of pharmaceuticals and medical devices in the U.S. The company currently sells products such as the antipsychotic drugs ABILIFY, Abilify Maintena and REEFLT, the aquaretic Samsca, the hematopoietic stem-cell pre-transplanting regimen Busulfex, the BreathTek kit for diagnosing Helicobacter pylori infection, and the antiplatelet agent Pletal.

Otsuka Pharmaceutical Europe Ltd. (Wexham, United Kingdom)
Founded in 1998, Otsuka Pharmaceutical Europe Ltd. is the central office for European marketing and sales of pharmaceuticals and medical devices. The company currently sells products such as the aquaretic Samsca, the ADPKD treatment JINARC, the antipsychotic drugs ABILIFY and Abilify Maintena, the antiplatelet agent Pletal, and the apheresis device for leukocyte adsorption Adacolumn.

Taiho Oncology, Inc. (Princeton, New Jersey, U.S.)
In 2002, Taiho Pharmaceutical established Taiho Oncology in the U.S. to serve as its global development hub and in-house marketing platform for anti-cancer drugs. The new anti-cancer drug LONSURF was approved in September 2015 by the FDA, and was introduced in the U.S. market by Taiho Oncology in October 2015.
Clinical Nutrition Business

The clinical nutrition business is handled primarily by Otsuka Pharmaceutical Factory, whose mission is to be the best partner of patients and healthcare professionals in the field of clinical nutrition. The achievements of this business include Japan’s first plastic bottles utilizing advanced sterilization technology, aseptic, easy-use bags for administration of high-calorie infusion solutions, antibiotic solution kits, and a range of other products that accurately meet the needs of healthcare professionals.

ELNEOPA, a high-calorie TPN solution, has seen a steadily growing market share. This can be attributed to its recognition as a pharmaceutical preparation for TPN kits containing the essential trace elements recommended in the 2013 JSPEN Guidelines and to the acclaim it has earned for its effect in reducing the risk of infection and time required to prepare TPN mixtures.

Outside Japan, intravenous solution manufacturing bases have been established in eight countries, primarily in Asia,* as part of the Group’s global expansion.

China Otsuka Pharmaceutical Co., Ltd.
(Tianjin, China)  (Affiliated company)
The Otsuka Group has a long history in China, beginning with the establishment of China Otsuka in 1981 as China’s first pharmaceutical joint venture with a foreign company. China Otsuka currently has approximately 1,400 employees and handles basic intravenous solutions, preparations in ampoule, and ophthalmic solutions.

Claris Otsuka Ltd. (Ahmedabad, India)
On July 31, 2013, Otsuka Pharmaceutical Factory, Mitsui & Co., and Claris Life Sciences, a major manufacturer and marketer of intravenous solutions and pharmaceuticals in India, jointly established Claris Otsuka, a new company in the intravenous solutions business. The Indian market for intravenous products is expected to benefit from increasing demand driven by economic growth and the improvement in middle-class incomes, combined with the development of insurance systems and the increase in the number of medical institutions. In the future, India is expected to become one of the world’s biggest users of these products. Otsuka Pharmaceutical Factory has identified India, which is achieving rapid economic development, as a priority country for its expansion outside Japan. By providing high-quality basic solution products, and in the future introducing new value-added clinical nutrition products, the company aspires to contribute to the advancement of medical care in India.

Otsuka Ateco Pharma Egypt
(El Obour City, Egypt)  (Unconsolidated subsidiary)
In June 2014, Egypt Otsuka Pharmaceutical acquired Ateco Pharma Egypt, a company involved in the manufacture and sales of intravenous solutions in Egypt. In order to meet demand in this growing market, the company is working with Otsuka Pharmaceutical Factory to provide high-quality intravenous solutions to countries in the Middle East and Africa.

First Novel Antiseptic for External Use in over 50 Years
Otsuka Pharmaceutical Factory Launches Olanedine, an Antiseptic for External Use

In September 2015, Otsuka Pharmaceutical Factory launched Olanedine Antiseptic Solution 1.5%, Olanedine Solution 1.5% Antiseptic Applicator 10 mL, and Olanedine Solution 1.5% Antiseptic Applicator 25 mL, three antiseptics for external use.

In recent years, resistance to marketed antiseptics for external use has been reported in bacteria including methicillin-resistant Staphylococcus aureus (MRSA), vancomycin-resistant enterococci (VRE) and Pseudomonas aeruginosa, and the development of new antiseptics for external use effective against such bacteria has been sought. Olanedine is a novel biguanide-based antiseptic with olanexidine gluconate as the active ingredient. Studies of in vitro efficacy show that it exerts a significant bactericidal effect against bacteria deemed to be antiseptic-resistant, such as MRSA, VRE, Pseudomonas aeruginosa, Serratia marcescens, and Burkholderia cepacia, in addition to various Gram-positive and Gram-negative bacteria. In addition, Otsuka Pharmaceutical Factory used its own technology to improve the applicators widely used in U.S. medical institutions and succeeded in developing Japan’s first applicator-type antiseptic. This product was launched as a simple, sanitary applicator, and won the 2015 Good Design Award. Otsuka hopes that this lineup will be used in medical care to help prevent infection in patients.
The diagnostics business focuses on the research, development, manufacture, and sale of intracorporeal and extracorporeal clinical diagnostic agents and research-use reagents. Released in December 2002, UBIT is a diagnostic agent which can detect the presence of Helicobacter pylori in the stomach. It is used widely in medical facilities. In February 2013, UBIT was approved for the additional indication of gastritis caused by Helicobacter pylori infection and significantly expanded market share.

The popularity of the influenza virus test kit Quick Navi-Flu is also on the rise due to growing demand for the early identification of colds and influenza now that more anti-influenza drugs are available. In addition, the Major BCR-ABL mRNA Measurement Kit, approved for health insurance coverage in Japan starting in April 2015, is utilized as an external testing kit which meets international standards to assist with diagnosis and monitoring of treatment effectiveness for chronic myeloid leukemia.

**Core products**

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<th>Brand name</th>
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<tr>
<td>Quick Navi-Flu</td>
<td>Influenza virus test kit</td>
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<tr>
<td>Major BCR-ABL mRNA Measurement Kit</td>
<td>A Marker to Monitor Treatment Effectiveness For Chronic Myeloid Leukemia</td>
<td>Otsuka Pharmaceutical</td>
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**Highlight**

**Lilium α-200, a Continuous Urine Volume Sensor, Launched in Japan**

Otsuka Medical Device established Lilium Otsuka in January 2015 to develop products for incontinence care, an area in which there are significant social and medical needs. In November 2015, the Lilium α-200, a continuous, non-invasive bladder urine volume sensor, was released. This product makes it possible to continuously monitor urination schedules for patients who have lost the urge to urinate for various reasons. This is expected to give patients independence in urinating and allow them to return home. The spread of this product will raise quality of life for many people, as well as reduce workload and improve efficiency for those involved in nursing and caregiving. This product contributes to medical care that increases dignity for patients.
Research and Development

**Otsuka Pharmaceutical**

Ever since Otsuka Pharmaceutical established its research & development (R&D) division in 1971, the company has been carrying out R&D to create new pharmaceuticals for the global market. The company continues to pursue total innovation in R&D, with the development of treatments for diseases of the central nervous system and oncology given the greatest priority. Cardiovascular, gastrointestinal and respiratory ailments, infectious diseases and the areas of ophthalmology and dermatology are also key areas for the company. Researchers in the company’s laboratories make the most of their own strengths and individuality and refine their skills with one another in an open discussion. The compounds produced in the drug discovery laboratories, based primarily in Tokushima, are developed via Otsuka Pharmaceutical’s own global clinical development network, which reaches across Japan, the U.S., Europe and Asia. The company is also proactive in forming alliances with major pharmaceutical companies and venture companies to capitalize on mutual strengths, then carrying out R&D with world-class quality and speed while complementing its partner’s operations. New drug development aimed at unmet needs is also moving forward in the fields of Alzheimer’s disease and chronic/acute myeloid leukemia.

**Tokushima Research Institute**

The Tokushima Research Institute, located in the region in which Otsuka Pharmaceutical was established, carries out research in the areas of the central nervous system, gastrointestinal and respiratory ailments, cardiovascular system, and infectious diseases to produce creative and innovative drugs.

**Astex Pharmaceuticals, Inc.**

Astex Pharmaceuticals consists of its research headquarters in Cambridge, England, known for its fragment-based drug design technology, and its California clinical oncology R&D department, which focuses on methylation inhibitors. Astex became a subsidiary of Otsuka Pharmaceutical in October 2013.

**Avanir Pharmaceuticals, Inc.**


**Taiho Pharmaceutical**

Taiho Pharmaceutical is a global specialty pharmaceutical company that carries out research and development in the areas of oncology, allergy/immunology, and urology. The company’s Discovery and Preclinical Research Division (Tsukuba Area, Japan) functions as a base for drug discovery and building an R&D network focused on new medical processes. This division closely coordinates with the Discovery and Preclinical Research Division (Tokushima Area, Japan) and the Clinical Development Division. In the field of oncology, which is the company’s main focus, Taiho Pharmaceutical carries out global development of its mainstay anticancer agents in Japan, the U.S., Europe and Asia, and engages in R&D with the aim of providing innovative new drugs to the world.

**Discovery and Preclinical Research Division (Tsukuba Area/Tokushima Area, Japan)**

In the Tsukuba Area, the Discovery and Preclinical Research Division analyzes unmet medical needs, conducting basic research to discover innovative new drug candidates. At its Tokushima Area’s facilities, the company evaluates the effectiveness and safety of the new drug candidate compounds it has identified, bridges to clinical trials, and carries out the research needed to ensure that its treatments suit individual patients, and are highly effective and have few side effects.

**Taiho Oncology, Inc.**

In 2002, Taiho Pharmaceutical established Taiho Oncology in the U.S. to serve as its global development hub for anticancer drugs. The team of experts here works together with Japanese staff and develops new drugs that can enhance cancer treatment around the world, collaborating with medical professionals and organizations in the U.S. and Europe.
Otsuka Pharmaceutical Factory carries out R&D for products that create new value and will fulfill unmet needs in the perioperative field and regenerative medicine field, as well as pharmaceuticals in the clinical nutrition business, such as the mainstay intravenous solutions, which are vital to the practice of medicine. For example, the company develops products that prevent adhesion, which frequently occurs after surgery and can cause abdominal pain and intestinal obstructions, and has developed the Bioengineered Pancreas Islet, which has potential to become a basic treatment for diabetes patients. With such products, the company always takes the patient’s point of view and develops innovative pharmaceuticals and medical devices under the mantra of JISSHO (“Proof through Execution”) and SOZOSEI (“Creativity”).

The company also focuses on the development of medical foods used in medical settings. This includes the development of safe and effective products that meet the needs of patients and medical professionals, such as OS-1, Japan’s first oral rehydration solution that is compatible with the approach to oral rehydration therapy advocated by the World Health Organization (WHO). The company will continue its work with the aim of contributing to the public’s health.

Research and Development Center

The company established the Naruto Research and Development Center in Naruto City, Tokushima where the Otsuka Group has its origins. The Center conducts R&D for pharmaceuticals and medical devices in clinical nutrition, the perioperative field and regenerative medicine while working with the research center responsible for clinical research in Tokyo.

Medical Foods Research Institute

In June 2013, the Medical Foods Research Institute was formed to focus on developing products for the global market, particularly Asia. In May 2014, the Medical Foods Research Institute Building was opened on headquarters premises in Naruto, Tokushima. This move consolidated research and formulation development functions in one location, creating an R&D structure ready to develop new products rapidly.
## Pipeline Information

(As of March 31, 2016)

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<td>JP, U.S, EU</td>
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### Oncology

<table>
<thead>
<tr>
<th>Code / Brand name</th>
<th>Generic name</th>
<th>Origin</th>
<th>Category</th>
<th>Indication / Dosage form</th>
<th>Country / Region</th>
<th>Development status</th>
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<tbody>
<tr>
<td><strong>S-1</strong></td>
<td>Selgare, gimeracil, oteracil</td>
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<td>Anti-cancer (Anti-metabolite)</td>
<td>Uterine cervical cancer / Oral</td>
<td>JP, Asia</td>
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<tr>
<td><strong>TAS-102</strong></td>
<td>Eflornitidine, spinacil</td>
<td>Taiho Pharmaceutical</td>
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<td><strong>TAS-118</strong></td>
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<tr>
<td><strong>&lt;SATIVEX®&gt;</strong></td>
<td>Nabiximols</td>
<td>GW Pharmaceuticals</td>
<td>Cannabinoid (THC, CBD)</td>
<td>Cancer pain / Oral spray</td>
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<td>Guadecitabine</td>
<td>Astex</td>
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<tr>
<td>Code / &lt;Brand name&gt;</td>
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**Cardiovascular**

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<td>Dry eyes / Eye drops MD (Multi Dose)</td>
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**Other areas**

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<td>bilastine</td>
<td>Eisai Farma</td>
<td>Histamine H1 receptor antagonist</td>
<td>Allergic rhinitis / Oral</td>
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<td>OPC-676E3</td>
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<td>Protein and amino acid preparation</td>
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<td>Protein and amino acid preparation</td>
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<td>emixustat</td>
<td>Acucella</td>
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<td>OPC-1085EL</td>
<td>carteolol, latanoprost</td>
<td>Otsuka Pharmaceutical</td>
<td>β2 receptor antagonist / PGF2α analogue</td>
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**Diagnostics**

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<td>C13-CAC</td>
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</table>

Note: In general, Otsuka discloses compounds that are in Phase II or later stage of development, but some compounds in Phase I are disclosed in the above table.
* Product names used outside Japan.
** Events after March 31, 2016: TAS-102/Colorectal cancer: approved in April in EU.
# Nutraceutical Business

The Otsuka Group’s nutraceutical business focuses on functional beverages and foods that help maintain and promote day-to-day well-being.

## Segment Overview

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<th>Functional beverages and foods</th>
<th>Cosmedics*</th>
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<td>OTC products, Quasi-drugs</td>
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## 2015 Performance

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<th>Net Sales (¥ million)</th>
<th>Operating Income (¥ million)</th>
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<td>2014.3</td>
<td>25,363</td>
<td>20,641</td>
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<td>2014.12*</td>
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<tr>
<td>2015.12</td>
<td>330,203</td>
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In fiscal 2015, the nutraceutical business achieved steady growth in sales of Pocari Sweat and Calorie Mate in Japan, and also made major contributions to the continuing growth of the vitamin business in the U.S. and to higher earnings for nutritional products and others in Europe. As a result, sales rose 11.9% over the previous year to ¥330,203 million, and operating income climbed 51.5% to ¥31,267 million.

* As a result of the adoption of a new fiscal year end, the fiscal year ended December 2014 was an irregular nine-month period. For reference, we have included consolidated profit/loss figures (not audited) for all consolidated companies for the period from January 1, 2014 to December 31, 2014. Note: Intersegment sales are included.
Sales volume of the Pocari Sweat electrolyte supplement drink increased compared with the same period of the previous year, despite a weak domestic market for sports drinks. The result reflected demand from users, stimulated in part by efforts to provide health information based on scientific evidence.

Total brand sales volume for the carbonated nutritional drink Oronamin C Drink declined slightly year on year, despite steady growth in the number of stores that stock Oronamin C ROYALPOLIS, which was relaunched in March 2015.

Sales volume for the balanced nutrition food Calorie Mate increased compared with the same period in the previous year. This reflected enhanced efforts to increase consumer understanding of the product and secure new users, mainly targeting students preparing for entrance exams and office workers.

The Otsuka Group operates its soy-related business in 11 markets worldwide, based on the concept of “Soylution,” which sees soy as a solution to various health and environmental issues. As new items in the SOYJOY baked soy bar range, the Group relaunched Strawberry and Blueberry in March 2015, followed in September 2015 by the relaunch of Raisin, Apple and Hawthorn Berry in Japan. Operations are gradually deploying overseas as well.

Sales of EQUELLE, a food product containing equol to support women’s health, have progressed steadily, reflecting the Group’s efforts to provide information with a focus on the relationship between equol and physical and emotional changes in women.
In the cosmedics business, the Group launched new products in Japan in the UL-OS men’s skincare brand, UL-OS Adult Body Sheet and UL-OS Adult Facial Sheet in March 2015, followed by UL-OS Medicated Skin Whitening, a new pen-type skin treatment that inhibits dark spots and freckles, in August 2015. Sales of the new products have been growing steadily.

Sales of the women’s skincare brand InnerSignal increased year on year as a result of new customers and an expanded base of loyal users.

Sales volume for the oral rehydration solution OS-1 increased year on year due to greater awareness of the product. This reflected focused activities targeting medical personnel and healthcare professionals to encourage recommendation to patients, the product’s mention in the Japanese Association for Acute Medicine’s heat stroke medical treatment guideline, support activities to the Hidden Dehydration Committee and active sales promotion efforts such as television commercials and sampling.

Sales volume for the vitamin tonic Tiovita declined year on year, due mainly to the shrinking market for nutrient tonics and the impact of rival products.

Sales of Oronine H Ointment increased year on year. In Japan, this was supported by efforts to promote the benefits of a new laminated tube product launched in August 2015.

**UL-OS**

This total body care brand for middle-aged men is based on Otsuka’s unique cosmedics concept for skin health.

**InnerSignal**

A skincare brand for women that employ the active ingredient Energy Signal AMP™. This ingredient has received new indication approval for complexion whitening as a quasi-drug.

**OS-1**

A rehydration drink for balancing electrolytes and glucose that is based on the approach behind the oral rehydration therapy advocated by the World Health Organization (WHO). This is a drink for patients suited for supplementing and maintaining hydration and electrolytes in people with light to moderate dehydration.

**Tiovita Drink (Designated quasi-drug)**

A long-selling product that celebrates its 52nd anniversary in 2016. This vitamin health drink contains Vitamin B and other B-group vitamins to help relieve physical exhaustion, as well as the active ingredient taurine and the digestive aid carnitine chloride.

**Oronine H Ointment**

An ointment for the treatment of skin ailments and injuries, formulated with chlorhexidine gluconate. This long-selling brand has 12 effects and efficacies including acne, cuts, moderate burns, chapped skin, frostbite and cracked skin.

**Gerblé**

A brand of health products originating in the south of France and featuring good nutrition and natural ingredients such as wheat germ. Since its foundation in 1928, Gerblé has been a much-loved brand of health products.

**Kenja no Shokutaku Double Support**

This Japanese government-approved Food for Specified Health Use has the double function of suppressing absorption of both sugars and lipids. The product is a powder of digestion-resistant dextrin that dissolves instantly in any beverage, making it easy for consumers to take in meals at home or dining out. It comes in single-use stick type packets for easy-to-carry convenience.

**Solmack Digestive Drink Plus (Designated quasi-drug)**

Alleviates symptoms such as upset stomach associated with excessive eating or drinking. This drink contains selected natural ingredients with bitter and aromatic properties to improve stomach function.
Foods with Function Claims are foods labeled with nutrient function claims based on scientific evidence. The producer takes responsibility for the claims and notifies Japan’s Consumer Affairs Agency. The Food with Function Claims system was established in Japan in April 2015 to increase the number of products with packaging clearly labeled with the functions they offer to consumers, thereby enabling consumers to make decisions based on accurate product information.

As a corporate group closely involved with healthcare, the Otsuka Group utilizes the expertise it has built up in the pharmaceutical business to develop health products based on scientific evidence to help maintain and enhance health on a daily basis. With the launch of the new Food with Function Claims system, Otsuka hopes to provide customers with even more opportunities to choose safe, appropriate products based on clear, simple labeling.

Otsuka aspires to help all people, regardless of age and gender, to enjoy healthier lives, and to improve healthy longevity, as well. Otsuka will continue to work to provide customers with even better products based on scientific evidence.

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**Seven Products from the Nature Made and OMUGI SEIKATSU brands Improved for More Nutrition and Newly Released as Foods with Function Claims**

Foods with Function Claims are foods labeled with nutrient function claims based on scientific evidence. The producer takes responsibility for the claims and notifies Japan’s Consumer Affairs Agency. The Food with Function Claims system was established in Japan in April 2015 to increase the number of products with packaging clearly labeled with the functions they offer to consumers, thereby enabling consumers to make decisions based on accurate product information.

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**Nature Made**

Nature Made is a brand specializing in supplements that was launched in 1972 by Pharmavite, a company established in California in 1971. Nature Made supplements are free of food coloring and preservatives, and are subject to rigorous quality standards covering every step from the procurement of raw materials to quality inspections. The products are manufactured to meet Good Manufacturing Practices in the U.S. and other standards in the countries and regions in which they are sold. Currently, they are sold in nine countries and regions, and all products for the Japanese market are manufactured on dedicated production lines.

Five products in the Nature Made line have been improved and re-released as Foods with Function Claims: Lutein, Astaxanthin, Fish Oil Pearl, Super Fish Oil and Gingko Biloba (the first Food with Function Claims in the field of cognitive function). The release of these Foods with Function Claims makes it easier for customers to select products that help them achieve their goals. Going forward, Nature Made products are poised to make even greater contributions to better health.

<table>
<thead>
<tr>
<th>Food with Function Claims</th>
<th>Granted label</th>
<th>Ingredients associated with function</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nature Made Lutein</td>
<td>This product contains Lutein. Lutein is reported to support contrast sensitivity in the eyes (the eye’s ability to distinguish increments of light and dark).</td>
<td>Lutein</td>
</tr>
<tr>
<td>Nature Made Astaxanthin</td>
<td>This product contains Astaxanthin. Astaxanthin is reported to support the eye’s ability to focus on objects at different distances.</td>
<td>Astaxanthin</td>
</tr>
<tr>
<td>Nature Made Ginkgo Biloba</td>
<td>This product contains flavonoid glycosides and terpene lactones extracted from Gingko Biloba. Gingko Biloba flavonoid glycosides and terpene lactones have been reported to improve certain aspects of cognitive function (perception and recall of perceived objects).</td>
<td>Gingko Biloba flavonoid glycosides, Gingko Biloba terpene lactones</td>
</tr>
<tr>
<td>Nature Made Fish Oil Pearl</td>
<td>This product contains EPA and DHA. EPA and DHA have been reported to inhibit the elevation of neutral fats in the bloodstream.</td>
<td>EPA, DHA</td>
</tr>
<tr>
<td>Nature Made Super Fish Oil Pearl</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**OMUGI SEIKATSU**

The OMUGI SEIKATSU line, launched in 2013, was developed with a focus on barley beta-glucans, found in high levels in barley and rich in soluble fiber. Two products in this line, Omugi Gohan and Omugi Gohan Japanese-Style, have now been upgraded and released as Foods with Function Claims. These products are approved to claim that they may help control absorption of glucose, reduce blood cholesterol and balance the intestinal environment. They are the first products in rice form submitted and approved in the Foods with Function Claims system.

<table>
<thead>
<tr>
<th>Food with Function Claims</th>
<th>OMUGI SEIKATSU Omugi Gohan</th>
<th>OMUGI SEIKATSU Omugi Gohan Japanese-Style</th>
</tr>
</thead>
<tbody>
<tr>
<td>Granted label</td>
<td>This product contains barley beta-glucans (dietary fiber). Barley beta-glucans have been reported to be effective in controlling absorption of glucose, reducing blood cholesterol in individuals with elevated cholesterol levels and balancing the intestinal environment.</td>
<td>Barley beta-glucans</td>
</tr>
<tr>
<td>Ingredients associated with function</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Global Expansion


The Otsuka Group is convinced that products developed based on scientific evidence help to bridge differences in language, culture and customs and can earn broad appeal among people all around the world. Otsuka aspires to contribute to the health of people all over the world with innovative products.

Asia

Following the release of Pocari Sweat in 1982 in Hong Kong and Taiwan, the Otsuka Group has expanded the sales area of the drink, which is now produced outside Japan in China, South Korea, Taiwan and Indonesia. As of 2015, Pocari Sweat is sold in 20 countries and regions. In fiscal 2015, sales volume in Indonesia declined due to the impact of competing products and other factors, but in China sales volume increased due to efforts to educate consumers and enhance product value.

Oronamin C Drink was introduced to markets outside Japan via sales agents in 1985, and was launched in South Korea and Hong Kong in February and May 2015, respectively.

SOYJOY, developed under the “Soylution” concept, has provided new ways to enjoy soybeans ever since it was first released in Japan, the U.S. and China in 2006. SOYJOY products are tailored to the culture of the target country and region, but sometimes regional products go global. One new flavor originating in China, for example, is now marketed worldwide.

Otsuka Pharmaceutical’s first product launch outside Japan in its cosmedics business was UL·OS, launched in South Korea in March 2012. Sales have steadily increased, thanks to successful efforts to strengthen the brand while integrating local culture and customs.

After Pocari Sweat’s debut in 1980 in Japan, the Otsuka Group began marketing it outside Japan in earnest in 1982, with a focus on Southeast Asia. Most recently, in 2015, the product was introduced to the market in East Timor, Myanmar and Cambodia, all of which have seen steady economic growth. The Group attributes the broad name recognition of Pocari Sweat outside Japan to promotional activities that convey the importance of rehydrating and replenishing electrolytes with an approach tailored to each country’s culture and lifestyle. In Indonesia, road-side educational activities have led to the widespread recognition of Pocari Sweat as a drink essential for rehydration.

Pocari Sweat Ion Water, a refreshing spin on the original drink with a light sweetness, was launched in 2013 in Japan, and then in Taiwan in 2014, getting started on its global expansion. Focusing on the concept of a beverage to support the body when sweating, Otsuka Pharmaceutical will accelerate the global expansion of Pocari Sweat and continue to communicate the importance of rehydration to people all over the world.

Oronamin C Drink is a carbonated nutritional drink that is a convenient, delicious source of Vitamin C. Even now, over 50 years since it was launched in 1965, this drink is well-loved by many people. Since 1985, the drink has been provided via agents in six countries in the Middle East. In the UAE especially, it has gained a reputation as a national drink. In February 2015, the Otsuka Group began manufacturing and selling the drink in South Korea, and launched it in Hong Kong in May 2015. Now available in nine countries and regions, the Otsuka Group is working to strengthen this global brand leveraging the “full of vitality” product concept.

Kenja no Shokutaku Double Support, a Japanese government-approved Food for Specified Health Use has the double function of suppressing absorption of both sugars and lipids. It was first released outside Japan in April 2015 in Hong Kong. The restaurant industry is quite advanced in Hong Kong, and while it is one of the world’s most important areas for foods that promote beauty and longevity, the market for diet foods is also expanding. Otsuka will play up the distinct features of this product that make it great for use in a wide range of culinary scenes and focus on further product development.

Highlight

Pocari Sweat Now Sold in Twenty Countries and Regions

Oronamin C Drink Now Sold in Nine Countries and Regions

Kenja no Shokutaku Launched in Hong Kong

Asia

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N&S concluded an agreement in October 2015 to acquire BIOCENTURY, a leading Spanish health and functional foods company.

BIOCENTURY was established in 1980 to put into practice the philosophy that “eating well helps people to improve their health and beauty.” In the 35 years since then, the company has expanded sales of health and slimming foods in Spain. In 1992, BIOCENTURY launched the first meal-replacement cereal bars in Spain, followed by a line of rice cake products offering breakfast alternatives, both of which have achieved broad popularity among consumers in Spain. This acquisition will make N&S the top purveyor of slimming foods in Spain’s supermarkets. BIOCENTURY’s plant located at Quart, which is near Girona close to the Spanish-French border, has proprietary production facilities, including technologies for producing puffed foods. The acquisition of this plant will enhance N&S’s own production capacity and help accelerate its European business expansion plans.
China

1985
Launched Oronamin C Drink
(U.A.E., Kuwait, Bahrain, Oman, Saudi Arabia, Qatar)

Europe

2009
Nutrition & Santé joined the Otsuka Group

Middle East

1985
Launched Oronamin C Drink
(U.A.E., Kuwait, Bahrain, Oman, Saudi Arabia, Qatar)

South Korea

1987
Launched Pocari Sweat

2007
Launched SOYJOY

2015
Launched Oronamin C Drink

China

2003
Launched Pocari Sweat

2006
Launched SOYJOY

Middle East

Countries where Pocari Sweat is sold and years launched
- Bahrain, Saudi Arabia, Oman (1983)
- Kuwait (1986)

2011
Launched SOYJOY
(France, Spain, Belgium, Italy)
Taiwan

1982 Launched Pocari Sweat
2007 Launched SOYJOY
2014 Launched Pocari Sweat IONESSENCE

Indonesia

1989 Launched Pocari Sweat
2007 Launched SOYJOY
2015 Launched Pocari Sweat IONESSENCE

ASEAN

Countries where Pocari Sweat is sold and years launched
- Singapore (1983)
- Thailand (1998)
- Malaysia (1999)
- Philippines (2007)

2008 Launched SOYJOY in Singapore

Hong Kong

1982 Launched Pocari Sweat
2007 Launched SOYJOY
2015 Launched Kenja no Shokutaku and Oronamin C
2016 Launched Tiovita 3000

U.S.

1989 Pharmavite joined the Otsuka Group
2007 Launched SOYJOY
2014 FoodState joined the Otsuka Group

Brazil

2014 Jasmine joined the Otsuka Group
Segment Overview

The Otsuka Group’s Consumer Products segment focuses on delivering familiar food and beverages that are delicious, safe, reassuring, and healthy.

Consumer Products Business

The Otsuka Group’s food products business has been going strong since the 1968 launch of Bon Curry, the world’s first commercially available food product in a retort pouch. Then came Mannan Hikari, My Size, and many other products that were all ahead of their time. In the My Size line, which is based on the concept of “a meal that’s just the right size,” the Group now markets the My Size: line! Plus series in pharmacies across Japan. This is the first series for people who are worried about their intake of salt and protein. Otsuka Foods has also launched new products under the brand Shizen Shokkan, which draws on the concept of using delicious and fun ingredient textures to make the body happy.

In the beverages business, Otsuka Foods offers a product line suited to a variety of lifestyles and tastes. These include Berry Match, a drink with the flavor of five mixed berries, part of the Match lineup, a carbonated vitamin drink range nearing its 20th anniversary. The company also markets the longtime best-seller Sinvino JAVA Tea Straight and CRYSTAL GEYSER, a soft mineral water bottled directly from a spring at the base of Mt. Shasta in the U.S.

Highlight

Bon Curry’s Great Taste

Bon Curry is a curry packaged in a retort pouch made with no preservatives or artificial coloring, so consumers can have peace of mind. Some products, such as Bon Carry Neo and The Bon Curry, only use vegetables grown in Japan. In 2016, Otsuka Foods began to use Japan-grown vegetables for its ingredients in Bon Curry, the standard product in this retort pouch lineup, further enhancing the taste.

In February 2016, Otsuka Foods released Bon Curry for Children, a curry especially for children, developed based on the opinions of mothers who are raising children today. This mild and slightly sweet chicken curry uses 10 types of Japan-grown vegetables and provides the nutrients that children tend to lack. As a pioneer in retort-packaged foods, Otsuka Foods will continue to adapt Bon Curry to the changing times.
Otsuka Foods was established in 1955 with the philosophy that companies start with people and food comes from the heart. All employees work to create delicious tastes and provide safety, peace of mind and good health. Development starts with the goal of bringing this food from the heart to the people the company values most. Otsuka Foods manufactures, sells and imports food and beverages.

Shanghai Otsuka Foods was established in 2003 to disseminate and establish curry culture in China. The company manufactures and markets products such as curry in retort pouches, curry paste, and curry powder and is striving to develop a broad-reaching market by introducing products. Shanghai Otsuka Foods cooperates with the adjoining Otsuka (Shanghai) Food Safety Research & Development team to provide safe, reliable, and high-quality products.

With bottling plants at natural springs across Europe, this company handles many brands including CRISTALINE and COURMAYEUR mineral water.

Otsuka Foods Co., Ltd.

Crystal Geyser Water Company

(Orne, France) * Affiliated company

Crystal Geyser Water Company was established in 1977 as a manufacturing plant for sparkling mineral water. Its flavor development has made this company a pioneer in the sparkling mineral water segment. Other products include Tejava Premium Iced Tea (sold as JAVA Tea Straight in Japan). In the 1990s, this company joined the Otsuka America Inc.

Shanghai Otsuka Foods Co., Ltd.

(Shanghai, China)

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In the Chemicals business, the Otsuka Group constantly pursues technological innovation, aiming to create products based on real materials that enrich the lives of consumers. The hydrazine business, the inorganic materials and composite materials business, and the medical intermediate business take the central role in providing products globally to the automotive, electrical and electronic, housing-related and pharmaceutical fields. With a focus on organic and inorganic synthetic technology, the R&D division of this business researches and develops new products that make the most of its proprietary technology and pursues research and development in completely new, next-generation fields.

**Operating Companies**

<table>
<thead>
<tr>
<th>P.T. Lautan Otsuka Chemical</th>
<th>Zhangjiagang Otsuka Chemical Co., Ltd.</th>
</tr>
</thead>
<tbody>
<tr>
<td>(Jakarta, Indonesia)</td>
<td>(Zhangjiagang, China)</td>
</tr>
</tbody>
</table>

Lautan Otsuka Chemical produces and markets foaming agents and is currently working to develop environmentally friendly inorganic foaming agents for use in automobiles, pallets, and building materials. The company marked its 25th anniversary in 2014.

This company produces and markets potassium titanate (TERRACESS), a frictional material used mainly in brake pads, as well as special engineering plastic compounds (POTICON). The company is also involved in research and development and has been certified as a high-tech company by the Jiangsu Science and Technology Department. Zhangjiagang Otsuka Chemical marked its 10th anniversary in 2014.

**Highlight**

The Otsuka Group Completes Plant in North America to Manufacture Materials for Auto Brakes, Shifting to Three-Hub Production System Based in Japan, China and North America

Otsuka Chemical America Inc., established in February 2014 by Otsuka Chemical, completed construction in July 2015 of a plant to manufacture TERRACESS, a product available in magnesium potassium titanate, lithium potassium titanate, and several other titanates. This plant will be the company’s third manufacturing base, joining plants in Japan and China. Demand for TERRACESS, a material used in automotive brake pads, has been growing. The completion of this plant will enable the company to sell TERRACESS in the North and South American markets, particularly in the U.S., which has a robust market for new automobiles and is home to many brake pad development facilities. In addition, Otsuka Chemical America Inc. will function as Otsuka Chemical’s regional headquarters in the U.S.

**About TERRACESS**

TERRACESS is a titanate material that has been developed in a flaky (platelet) microparticle form. This material is used in applications such as micro-reinforcement and friction. For over 30 years, Otsuka Chemical has researched and developed technology to control the shape of this titanate material, and has successfully produced a wide variety of different shapes and compositions. By using TERRACESS, customers can minimize brake squeal and variability in wear between pads, thereby enabling long-term stable brake performance.
Otsuka Warehouse, which distributes products to market for the Otsuka Group and other firms, has shifted from its previous warehouse management approach, which was based on "instinct and experience," to an original data-driven "ID Warehouse and ID Transport" concept that leverages data and IT. Tablet terminals have been introduced at its distribution centers to facilitate smooth navigation of the processes involved in tracking the arrival of products at the warehouse, carrying out inventory management, and facilitating the shipping of products to market. This approach has raised the efficiency of operations in the logistics center. Otsuka Warehouse has also built a truck allocation system called ID Transport to mitigate driver shortages in the logistics industry. This system received the fiscal 2015 Logistics Award from the Japan Institute of Logistics Systems, the most coveted award in the logistics industry.

Transportation and Warehousing

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Highlight

Pharmaceutical Distribution Center Completed; Operation of BCP*-Compliant Center to Strengthen Stable Supply System for Pharmaceutical Products

In October 2015, Otsuka Warehouse completed its West Japan Logistics Center, a logistics center exclusively for pharmaceutical products located in the north of Kobe in Hyogo Prefecture. This new center is ideal for BCP because it is located on low ground where the risk of earthquakes is low, it is equipped with its own power source, and it was built with an anti-seismic structure. In addition, the facility was built to raise the quality of pharmaceutical products by introducing new features such as full-scale security management, automatic temperature management systems and insect prevention equipment. Moreover, the company has shifted from its previous warehouse management approach, which was based on "instinct and experience," to an "ID Warehouse" concept, resulting in warehouses that can be managed by anyone. As a logistics company for manufacturers of pharmaceuticals that help people lead richer and healthier lives, Otsuka Warehouse will take the opportunity presented by the completion and launch of this center to advocate for the creation of joint platforms. The company will continue to carry out joint distribution with manufacturers and improve the efficiency of distribution while also developing platforms that can contribute to society.

Electronic Equipment

Otsuka Electronics develops, manufactures, and markets optical evaluation/inspection equipment for LED light-source luminance and liquid crystal display panel materials and finished products, as well as medical equipment and clinical diagnostic equipment. With the recent expansion in the application of electronic and lighting equipment fitted with LEDs, the company’s LED evaluation/inspection equipment is widely used.