

Biotechnology-related Business

Principal Companies

SBI Pharmaceuticals
SBI ALApromo
SBI Biotech



The SBI Group has defined the Biotechnology-related Business as one of its three core business segments, and is engaged in this business through SBI Pharmaceuticals, SBI ALApromo and SBI Biotech. In particular, the Group has positioned the 5-aminolevulinic acid (5-ALA) related business, which involves the research and development of pharmaceuticals and the sale of health foods and cosmetics containing 5-ALA, as its most promising growth area, and is accelerating the global expansion of this business.

The Development of Pharmaceutical Products Containing 5-ALA

The SBI Group has commercialized health foods and cosmetics containing 5-aminolevulinic acid (5-ALA), and sells them through SBI ALApromo in Japan. The company is expanding its product line, launching ALAPlus GOLD and ALAPlus in 2013, and commencing sales of ALAPlus Beauty Series, a new series of products that contain 5-ALA and ingredients that support beauty and health, in April 2014. Also, promotions are being stepped-up, including TV commercials featuring singer Hiromi Go, as well as point-of-purchase promotions at drugstores.

SBI Pharmaceuticals is also actively conducting research on the pharmaceutical potential of 5-ALA. In September 2013, the company launched the first pharmaceutical product containing 5-ALA, ALAGLIO®, an orally-administered in vivo diagnostic agent used during the surgical resection of malignant glioma. ALAGLIO® is Japan's first orally-administered

intraoperative brain tumor diagnostic agent.

Additionally, SBI Pharmaceuticals is conducting clinical trials and basic research involving 5-ALA for multiple target illnesses, utilizing a global research network consisting of domestic and overseas universities and contract research organizations. The King Abdulla Medical Center of Arabian Gulf University (AGU), established by the six Gulf Cooperation Council (GCC) countries, successfully performed the world's first surgical removal of bladder cancer using ALAGLIO® and a medical light source device developed by SBI Pharmaceuticals, and the number of successful surgeries reached seven as of June 30. SBI Pharmaceuticals has developed two types of medical light source devices for the 5-ALA diagnostic agent used in the procedure, and in April 2014 commenced sales of one of these, Aladuck LS-DLED, a bicolored medical LED light source, as its first medical device.

The development of an intraoperative diagnostic drug for bladder cancer has been granted an "orphan drug" designation

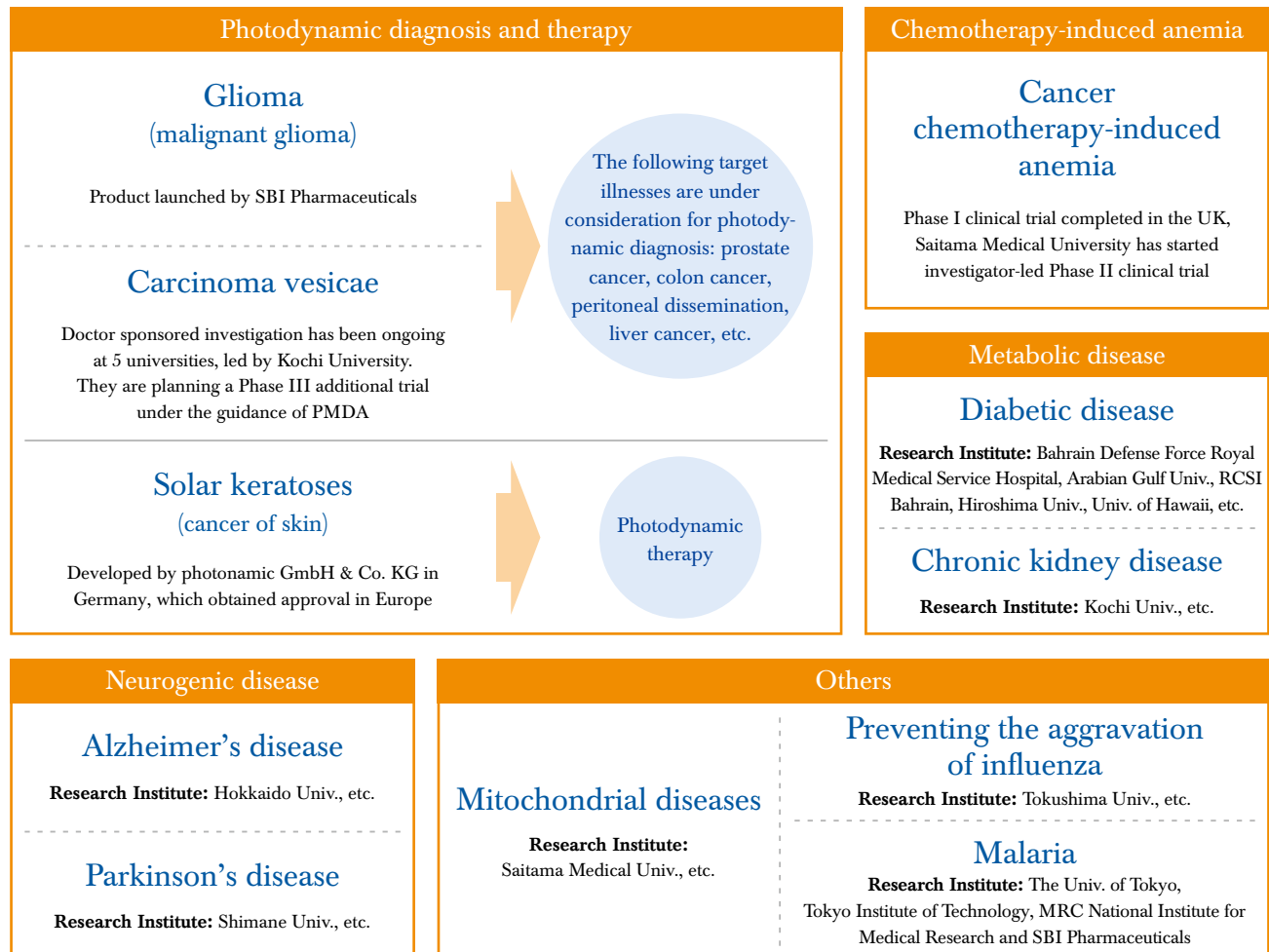
in Japan, and further development is being conducted by a consortium of five universities headed by Kochi University, where a Phase III additional trial is being planned. A patent has been granted in Japan for a bladder cancer detection method involving oral administration of 5-ALA. SBI Pharmaceuticals will seek an expanded indication of ALAGLIO® for bladder cancer, and is preparing for an application.

Furthermore, in the research and development project for a therapeutic agent for anemia, a side effect of cancer chemotherapy, a Phase I clinical trial to evaluate safety was completed in May 2013 in the U.K. A Phase II clinical trial to evaluate the efficacy and safety of the therapeutic agent was begun in Japan as an investigator-led trial, owing to Japan's cost advantages for clinical trials.



Aladuck LS-DLED, a bicolor medical LED light source

Target Illnesses for which Basic Research and Clinical Research of 5-ALA and Porphyrin are Proceeding



Source: Compiled by the Company from research related materials by 5-ALA and Porphyrin Research Society

Biotechnology-related Business

Expansion of the 5-ALA Related Business in Bahrain, the Base of Operations in the Middle East

SBI Pharmaceuticals has a close partnership with the government of Bahrain to promote the 5-ALA related business in Bahrain and other GCC countries, and has made Bahrain an important base of operations in the Middle East for the 5-ALA related business, and is conducting clinical research projects with a number of partner institutions.

SBI Pharmaceuticals has partnered with AGU Hospital, the Diabetes Department of the Bahrain Defense Force Royal Medical Service Hospital, and the Royal College of Surgeons in Ireland - Medical University of Bahrain (RCSI Bahrain) in clinical research on diabetes using 5-ALA. In particular, AGU has implemented a clinical development structure for pharmaceuticals that complies with Good Clinical Practice (GCP), and has selected a nutritional supplement used in diabetes therapy having 5-ALA as its main component as its first model

for clinical research. It has also obtained approval from the National Health Regulatory Authority, and begun clinical research on Type 2 diabetes using 5-ALA at the Bahrain Defense Force Royal Medical Service Hospital.

SBI Pharmaceuticals has partnered with AGU Hospital, King Hamad University Hospital, which is operated by the Bahrain Defense Force, and RCSI Bahrain, concerning clinical research on photodynamic diagnosis of colorectal cancer using 5-ALA.

SBI Pharmaceuticals has also begun selling health foods in Bahrain. In addition to health foods, for which marketing



Satofumi Kawata

Representative Director and
COO of SBI Pharmaceuticals
Co., Ltd.

Contributing to Society through 5-ALA and Establishing the Business as a Major Source of Earnings for the SBI Group

Although 5-ALA (5-aminolevulinic acid) is a natural amino acid whose existence has long been known, in recent years it has become the focus of attention as a critical life-supporting substance involved in respiration and energy production in plants and animals. In 1999, a Cosmo Oil research team led by Toru Tanaka (currently CTO of SBI Pharmaceuticals) established a method for mass producing 5-ALA at a low cost, and Cosmo Oil commercialized plant fertilizers containing 5-ALA. The SBI Group investigated 5-ALA's involvement with the human body, and in order to further the research into pharmaceuticals and health foods, in 2008 jointly established SBI Pharmaceuticals (SBI's shareholding: 73.2% as of June 30, 2014) with Cosmo Oil.

SBI Pharmaceuticals has commercialized health foods, cosmetics, and other products that contain 5-ALA in Japan, and in September 2013 launched ALAGLIO®, the first pharmaceutical agent made containing 5-ALA.

Overseas, primarily in Bahrain in the Middle East and in China, in collaboration with prominent local partners, the research and development of pharmaceuticals containing 5-ALA, and the manufacturing and sales of health foods containing 5-ALA are being developed, and health foods containing 5-ALA are already being sold in Bahrain.

Research involving 5-ALA is being conducted in various fields, but rather than adopting the usual venture business model of licensing out products during development, we would like to create a new framework, in which we are deeply involved until the final stage of development. While striving to contribute to the well being and fulfilling lives of as many people around the world as possible, we will endeavor to make the 5-ALA related business a major source of earnings for the SBI Group.

approval was already obtained, in January 2014 it also obtained a marketing approval for health foods with a high 5-ALA content of 25 milligrams, and commenced their sales at pharmacies and other outlets as a mainstay product.

Preparations for an IPO at SBI Biotech, a Company with Multiple Drug Discovery Pipelines

SBI Biotech was primarily engaged in projects to discover drugs for cancer and autoimmune diseases through its research institute in Kawasaki, in partnership with domestic and overseas bioventures and research institutes. However, the company is currently reviewing its new drug development projects by implementing a selection and concentration process to engage in innovative drug discoveries focused on antibodies and functional nucleic acids, agents that control plasmacytoid dendritic cell (pDC), which is an existing technology at the Kawasaki institute.

SBI Biotech has already granted the development and commercialization rights of a molecularly targeted drug which was developed for the treatment of systemic lupus erythematosus (SLE), an autoimmune disease, to U.S. based MedImmune, a subsidiary of AstraZeneca of the U.K., which has a global reputation for the development of antibody drugs.

U.S. based bioventure Quark Pharmaceuticals, a wholly owned subsidiary of SBI Biotech, is a company with excellent technologies in the field of short-interfering RNA (siRNA), which is attracting attention at a time of exhaustion of low-molecular drug discovery. Quark has multiple promising new drug candidates, and has already concluded license and other agreements with Pfizer Inc. and Novartis International AG. PF-655, a therapeutic agent for diabetic macular edema and age-related macular degeneration, is at the clinical trial stage (Phase IIb), and Quark has a licensing agreement with Pfizer for PF-655, which stipulates milestone and royalty payments. QPI-1002 is a candidate therapeutic agent for the prevention of acute kidney injury and prevention of delayed graft function in kidney transplant patients, conditions for which no promising therapeutic agent currently exists. Quark granted Novartis an option to obtain a license for QPI-1002, which is also at the clinical trial stage (Phase II). More recently, Quark has concluded an out-licensing and technical cooperation agreement with Biocon, a leading pharmaceuticals company in India, for QPI-1007, a second-generation siRNA drug candidate for which it is applying a new technology to conduct research and development in the fields of non-arteritic anterior ischemic optic neuropathy (NAION), and acute angle-closure glaucoma.



Hiroshi Matsumori

Representative Director and
President of SBI Biotech
Co., Ltd.

Enhancing the Earnings Structure to Increase Corporate Value

SBI Biotech is a global bioventure that has assembled multiple drug discovery pipelines from Japan, the U.S., Israel, China, South Korea, and other countries through a global researcher network.

A challenge that Japanese drug discovery bioventures face is that even if they have succeeded in a drug development, they find it difficult to subsequently secure new drug discovery seeds to maintain sustained growth. By acquiring Quark, a global leader in the research and development of nucleic acid drugs, as a wholly owned subsidiary in 2012, SBI Biotech has reinforced its pipelines and R&D structure, to put in place a framework that makes it possible to continuously secure drug discovery seeds through mutually complementary activities with Quark. SBI Biotech's current task is to review the R&D structure and pipeline priority to increase synergies with Quark, and the two companies are working to create mutual synergies by focusing on partial sharing of R&D methods, and the exchange of information on governance.

While steadily moving ahead with these initiatives, SBI Biotech is preparing for a near-future IPO. In order to realize an IPO, by bringing developed products to the market at an early stage to further enhance the earnings structure, and by accelerating the development of a global management structure, the company will endeavor to increase its corporate value.