

Daiichi Sankyo's Growth Strategy

Overview of 5-Year Business Plan



Challenge

Challenge 1

Growing beyond the LOE* of *olmesartan*

- Accelerate the growth of existing flagship products
- Reduce costs

* Loss of revenue and profits resulting from LOE

Challenge 2

Establish a Foundation of Sustainable Growth [Six Strategic Targets]

- Grow *Edoxaban*
- Grow as No.1 Company in Japan
- Expand U.S. Businesses
- Establish Oncology Business
- Continuously Generate Innovative Medicine Changing Standard of Care (SOC)*
- Enhance Profit Generation Capabilities

* Universally applied best treatment practice in today's medical science

Six Strategic Targets for Accomplishing Fiscal 2020 Performance Targets

<i>Grow Edoxaban</i>	<i>Grow as No.1 Company in Japan</i>	<i>Expand U.S. Business</i>
<p>Achievements and Progress</p> <ul style="list-style-type: none"> • Expanded global revenue (fiscal 2017 revenue: ¥77.1 billion) • Significantly expanded market shares in Japan, Germany, and Korea • Increased the number of countries where the drug has been approved and launched (at the end of fiscal 2017: 28 countries) 	<p>Achievements and Progress</p> <ul style="list-style-type: none"> • Ranked No.1 in sales of domestic ethical drugs for two consecutive years • Expanded revenues for six flagship products (fiscal 2017 revenue: ¥212.8 billion) • Ranked No.1 in MR evaluation for six consecutive years 	<p>Achievements and Progress</p> <ul style="list-style-type: none"> • Expanded Luitpold business (fiscal 2017 revenue: ¥105.4 billion) • Expanded <i>Injectafer</i> revenue (fiscal 2017 revenue: ¥34.3 billion) • Reviewed strategy for the pain franchise of Daiichi Sankyo, Inc.

Growth Investments and Shareholder Returns

<p>Prioritizing growth investments while also enhancing shareholder returns</p>	<p>Achievements and Progress</p> <ul style="list-style-type: none"> • Acquired own share (¥100 billion over two year period) • Maintained a total return ratio of 100% or more (169% over two year period) • Reduced cross-shareholding shares (23 different stocks for a total amount of ¥31.7 billion over two year period) • Continued R&D investments (total ¥415.7 billion over two year period [excluding special factors]) • Issued super-long-term unsecured corporate bonds (¥100 billion)
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The 5-Year Business Plan

We have positioned our 4th mid-term business plan from 2016 to 2020 as 5-year business plan to realize our transformation toward our 2025 Vision of becoming a "Global Pharma Innovator with competitive advantage in oncology." To achieve this, we have set six strategic targets with the aim of tackling two challenges of "growing beyond loss of exclusivity (LOE) of *olmesartan*, an antihypertensive agent, and "establishing a foundation of sustainable growth."

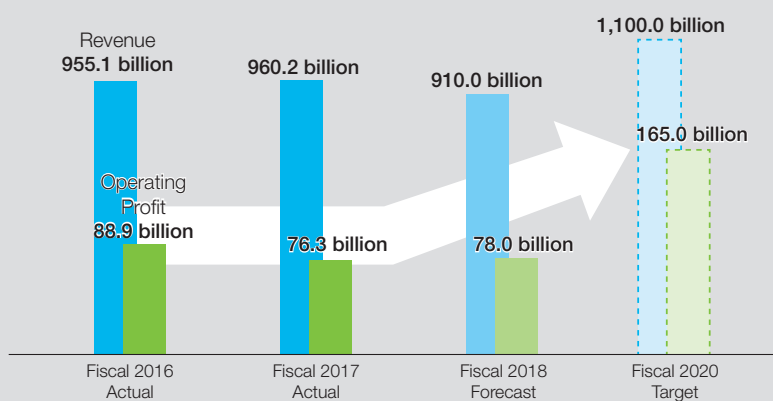
Daiichi Sankyo has set revenue of ¥1,100.0 billion, operating profit of ¥165.0 billion, and return on equity (ROE) of more than 8.0% for fiscal 2020 as numerical targets. In addition, for fiscal 2020, we aim to have three to five late-stage pipeline products that can be launched within the next five years with the potential to achieve peak annual sales exceeding ¥100.0 billion each.

Review of 5-Year Business Plan

Among the six strategic targets, *edoxaban* is growing at a pace that exceeds the initial target. Furthermore, with regard to the establishment of the oncology business, the developments of the ADC franchise and the AML franchise are progressing steadily, spearheaded by *DS-8201*. Our transformation toward our 2025 Vision of becoming a "Global Pharma Innovator with competitive advantage in oncology" is on a steady path of progress.

On the other hand, with regard to the expansion of the U.S. business, it is becoming difficult to achieve our initial targets due to the return of *CL-108*'s marketing right and the failure in the development of *mirogabalin* in the U.S. pain franchise. Although the Japan business has grown smoothly up until now, the fundamental reforms in the current NHI drug price system are bringing uncertainty to the business environment.

With the environmental changes above, we will plan to create a new set of numerical targets and more ahead toward the targets.



FY2020 Targets

- Revenue **¥1,100.0 billion**
- Operating Profit **¥165.0 billion**
- ROE of more than **8.0%**
- Increase value of late-stage pipelines
Three to five late-stage pipeline products that can be launched within the next five years with the potential to generate annual revenue exceeding ¥100.0 billion each at peak

Establish Oncology Business

Achievements and Progress

- Progressed *DS-8201* clinical studies and expanded studies toward multiple indications
- Started multiple clinical studies for ADC franchise
- Submitted an NDA for *quizartinib*

Continuously Generate Innovative Medicine Changing Standard of Care (SOC)

Achievements and Progress

- Ventured into nucleic acid drug (*DS-5141*)
- Ventured into cell therapy and regenerative medicine (CAR-T, etc.)
- Progressed open innovation

Enhance Profit Generation Capabilities

Achievements and Progress

- Optimized Sales & Marketing in the U.S. and EU (total 550 position cuts over two year period)
- Optimized global R&D (four locations closed)
- Reduced procurement costs (total ¥31.4 billion over two year period) and optimized global production systems (two locations closed)

Strategic Target

Grow *Edoxaban*

Brand name: *LIXIANA* (Japan, Europe, Asia), *SAVAYSA* (U.S.)

The growth of *edoxaban* is one of the important pillars to overcome the impact of the loss of exclusivity (LOE) for *olmesartan*. Over the past two years, we have steadily expanded our market share, mainly in Japan, Europe and Asia. Going forward, we will strengthen our efforts for life-cycle management* and to further accelerate growth.

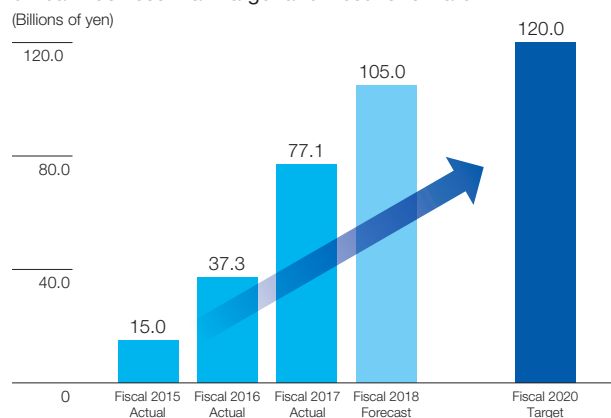
* Initiatives to bring the value of pharmaceuticals to the healthcare fields over a long period by further enhancing the product value through expanding indications and improving dosage and administration

1. 5-Year Business Plan

The annual global revenue of *edoxaban* has steadily increased from ¥37.3 billion in fiscal 2016 to ¥77.1 billion in fiscal 2017. Going forward, we will strengthen our efforts for life-cycle management and to further accelerate growth in Japan, Europe, and Asia. Even in countries and regions in which Daiichi Sankyo lacks its own sales organization, we will advance full-fledged promotional activities through collaborations with ideal partners epitomized by MSD and Les Laboratoires Servier in each region.

Through these efforts, we will endeavor to grow *edoxaban* into a product with annual global revenue of more than ¥120.0 billion in fiscal 2020.

5-Year Business Plan Target and Results to Date



2. Progress to Date and Future Initiatives

(1) Market Size of Direct Oral Anticoagulants (DOACs)

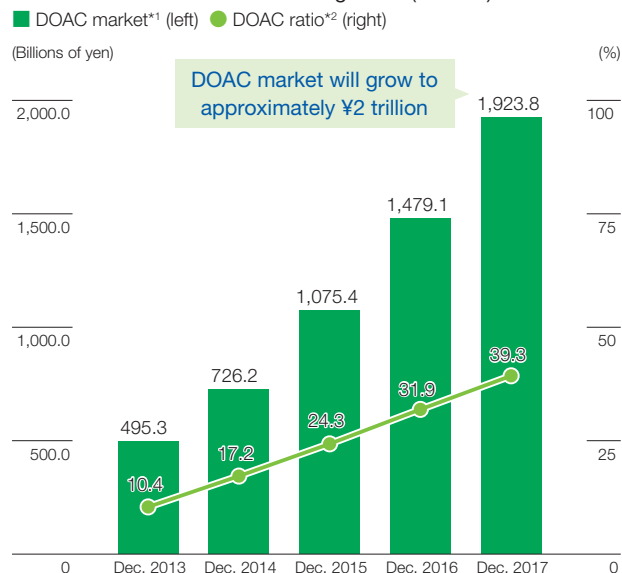
The DOAC market, which comprises four products—*dabigatran*, *rivaroxaban*, *apixaban*, and *edoxaban*—has grown to a scale of ¥2.0 trillion on a global basis.

In addition, switching from warfarin, which has been the standard treatment to date, has steadily progressed alongside the market expansion, and the DOAC prescription rate has reached about 40%.

(2) Growth of *Edoxaban* by Country

The number of countries in which *edoxaban* has launched is steadily on the rise. It has attained approval and launched in over 20 countries, approximately 90% of the DOAC market, on a sales basis. We have realized high levels of safety and convenience (once-daily formulation) at the same time, which has led to a steady increase in sales in each country, particularly in Japan, Europe and Asia, utilizing the product's capabilities supported by high-quality clinical study data. Market share on a volume basis in Japan has expanded to 21.8%. The product has been ranked No.1 since March 2017 for the prescription share among new patients, which is a leading indicator of growth. Thus, we expect *edoxaban* to gain the No. 1 market share in Japan in the near future. Looking to Europe, the market share in Germany is 11.4%, and the

Market Size of Direct Oral Anticoagulants (DOACs)



*1 Translated at rate of US\$1 = ¥110

*2 DOAC/(DOAC+warfarin) Ratio of days therapy(DOT)

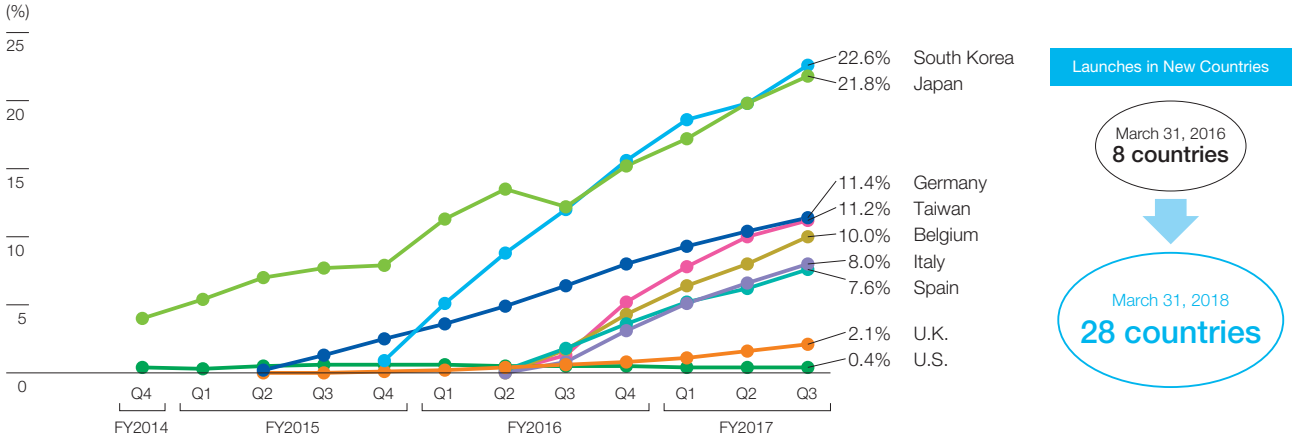
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market shares in other European countries including Belgium, Italy and Spain have steadily been growing. In Asia, the market share in South Korea has increased to 22.6%. The rapid growth of market share has also been seen in Taiwan.

Furthermore, it has received marketing approval in Brazil in March 2018, and the application has already been submitted in China. We can anticipate further accelerated growth if *edoxaban* is launched in those countries, whose DOAC markets have experienced remarkable growth.

Growth of *Edoxaban* by Country



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(3) Life-Cycle Management Initiatives

In November 2017, we launched OD tablet (orally disintegrating tablet), which is the only OD tablet in DOAC in Japan. The OD tablet, which features an easy-to-take design, has been highly appreciated by doctors, saying that it is beneficial especially for elderly patients.

Currently, we are conducting many clinical studies and clinical research aimed at maximizing *edoxaban*'s value. We have created a brand mark, EDOSURE, which collectively refers to these initiatives and activities. The name EDOSURE is derived from two words, *edoxaban* and Assurance. It signifies our hope that doctors and patients will feel more reassured by anticoagulant therapy with *edoxaban*.



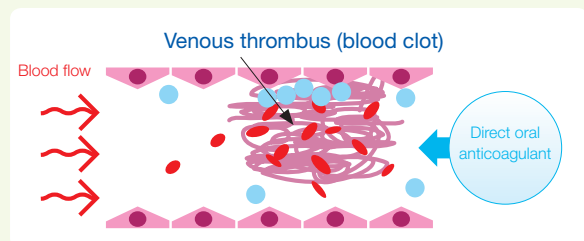
COLUMN

What are direct oral anticoagulants?

A blood clot usually forms to stop bleeding and will eventually dissolve and shrink. However, should a blood clot grow larger rather than dissolving, and consequently come to block a blood vessel, it could result in a lack of blood flow to areas of the body beyond the clot, potentially even leading to the death of the tissue therein. This condition is known as thrombosis.

Warfarin has long been the standard treatment to prevent blood clots. However, there are many restrictions to which attention needs to be paid when using *warfarin* such as periodic monitoring with blood tests, a variety of drug interactions, and

dietary restrictions. Direct oral anticoagulants including *edoxaban* have been developed to significantly improve the inconvenience of *warfarin* as mentioned above.



Strategic Target Grow as the No.1 Company in Japan

We are striving to grow Daiichi Sankyo into the No. 1 company in Japan through its four businesses; the innovative pharmaceuticals* business, the generics business, the vaccine business, and the OTC related business. Although our mainstay innovative pharmaceuticals business has grown steadily, the market environment has grown increasingly severe, partly due to the effects of drastic drug price revisions in Japan. We will return back to growth trajectory in fiscal 2019 and accomplish the target.

* Pharmaceuticals still protected by the exclusivity period granted by patents

1. 5-Year Business Plan

(1) Six Major Products

In addition to *LIXIANA*, an anticoagulant developed for the global market, the innovative pharmaceuticals business is developing its operations centered around six major products: *NEXIUM*, an ulcer treatment; *Memary*, an Alzheimers disease treatment; *PRALIA*, a treatment for osteoporosis that prevents the progression of bone erosion associated with rheumatoid arthritis; *RANMARK*, a treatment for bone complications caused by bone metastasis from tumors; *Efient*, an antiplatelet agent; and *TENELIA*, a type 2 diabetes mellitus treatment.

Of these, *NEXIUM*, *Memary*, *PRALIA*, and *RANMARK* have achieved the No.1 shares in their respective markets.

* No.1 in the bone resorption inhibitor market



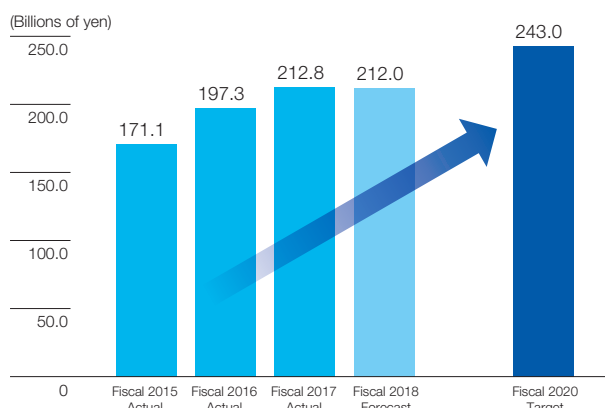
(2) 5-Year Business Plan

Total revenue from the six major products (excluding *LIXIANA*) has steadily expanded, from ¥197.3 billion in fiscal 2016 to ¥212.8 billion in fiscal 2017. However, the market environment has become more severe than was assumed at the time the 5-year business plan was announced, partly due to the significant reduction in the drug price of *NEXIUM*, the slowing of the growth of *Memary*, and the delay in the additional indication for the brain area for *Efient*. Thus, revenue for fiscal 2018 is forecast to remain flat, at ¥212.0 billion.

Daiichi Sankyo will leverage its sales capabilities, which are top-class in terms of both quality and quantity, in order to return to a growth track in fiscal 2019 and achieve over ¥243.0 billion in total revenue in fiscal 2020.

5-Year Business Plan Target and Results to Date

* Total of the 6 products above, including the impact of NHI drug price revisions.



2. Progress to Date and Future Initiatives

For our six major innovative pharmaceutical products, we have overcome the impact of the drug price revisions, and their total revenue steadily expanded up to fiscal 2017.

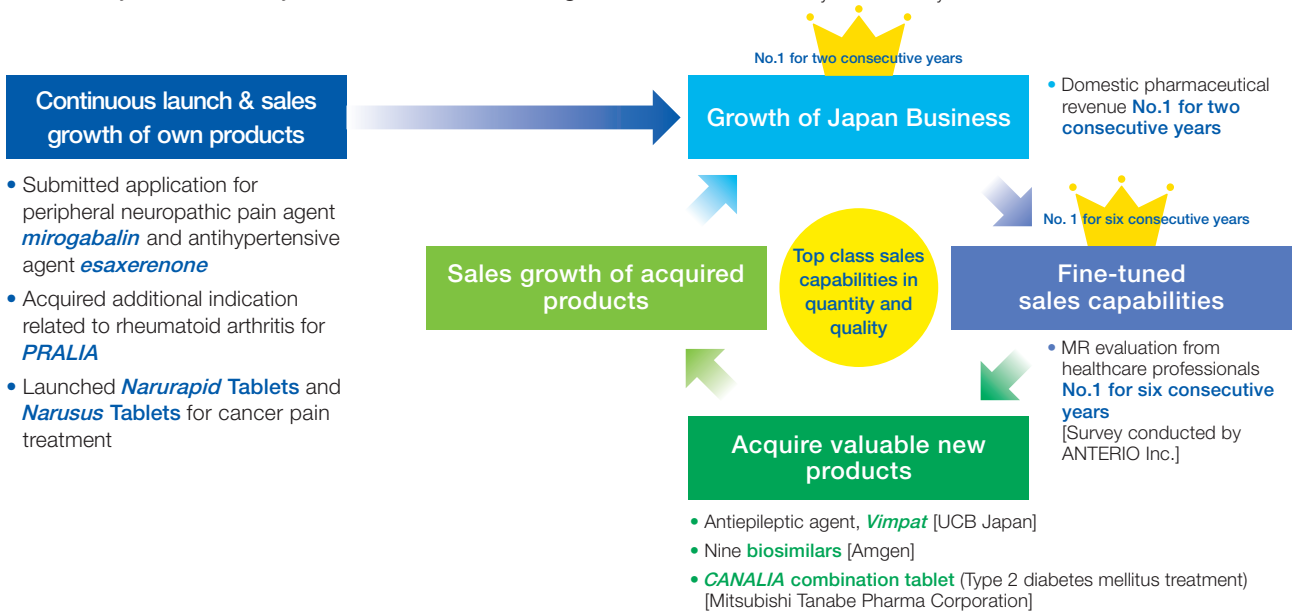
By continually launching and expanding sales of proprietary developed products, we grew the innovative pharmaceuticals business. At the same time, we utilize the Company's superb sales capabilities to acquire licenses for promising products developed elsewhere in order to sustain a virtuous cycle driving further growth. Through these efforts, we are working to strengthen Daiichi Sankyo's presence in Japan.

During the 5-year period of the plan, we have successfully achieved many feats seen below, including

acquiring the *Vimpat* antiepileptic agent, along with applying for approval for the peripheral neuropathic pain treatment *mirogabalin* and antihypertensive agent *esaxerenone*. In particular, Daiichi Sankyo has ranked No.1 both in MR evaluation*, which is an important foundation for sustainable growth, for six consecutive years, and in revenue from pharmaceutical products in Japan for two consecutive years since fiscal 2016.

As our product portfolio is expected to be upgraded with the launches of *mirogabalin* and *esaxerenone*, we will strive to firmly maintain our position as the No.1 company in Japan.

* Based on survey conducted by ANTERIO Inc.



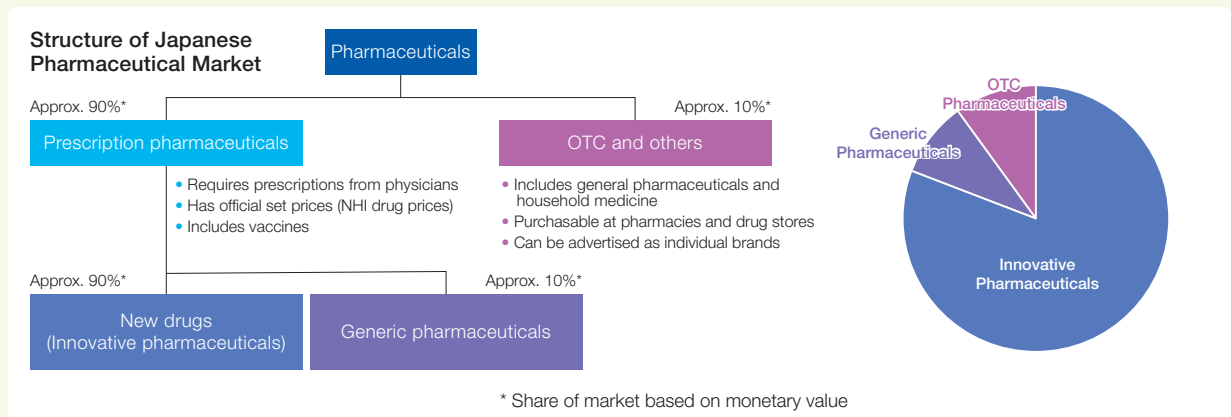
COLUMN

Pharmaceutical Market in Japan

In Japan, approximately 90% of the pharmaceutical market is comprised of prescription pharmaceuticals that require prescriptions from physicians with the remainder of the market being accounted for by general pharmaceuticals and other over-the-counter (OTC) drugs that can be freely purchased in pharmacies and drug stores. Moreover, the use of generic

drugs has been increasing in the prescription pharmaceutical market, and these drugs have recently come to represent about 66% of the market on a sales-volume basis* in September 2017.

* Generic drugs ÷ (original drugs for which generic drugs have been released + generic drugs)



Strategic Target **Expand U.S. Businesses**

In order to overcome the effects of the loss of exclusivity (LOE) for *olmesartan*, Daiichi Sankyo aimed to expand the U.S. Businesses by establishing a pain franchise through Daiichi Sankyo, Inc. (DSI) in the United States and by focusing on the business growth of Luitpold Pharmaceuticals, Inc. Although Luitpold business has been growing steadily, we have decided to review the pain franchise of Daiichi Sankyo Inc., due to environmental changes. Daiichi Sankyo has positioned the U.S. market as an important one, so we will continuously strive to expand our business in the United States.

1. Reviewing the Pain Franchise of Daiichi Sankyo, Inc.

Daiichi Sankyo Inc., in the United States has sought to establish a pain franchise that can generate revenue of more than ¥100.0 billion in fiscal 2020 under its 5-year business plan.

However, in the United States, the problems of abuse, addiction and overdoses of opioid analgesics due to usage other than their intended usage have become a major

social problem, and given such circumstances, we have returned the rights of *CL-108* to Charleston Laboratories, Inc. In addition, due to the failure of the phase 3 study of *mirogabalin* in fibromyalgia patients conducted in Europe and the United States, we have decided that it would be difficult to attain the initial goal and have decided to review the pain business in the United States.

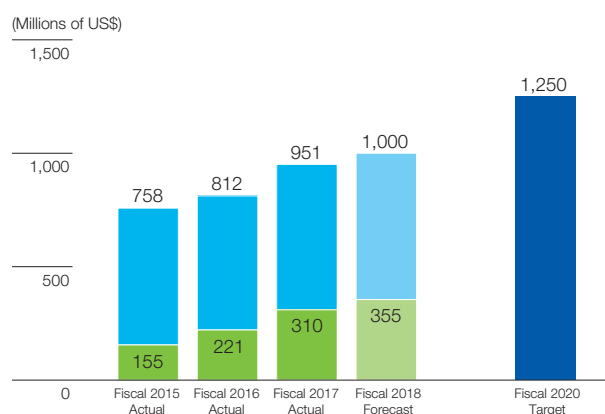
2. 5-Year Business Plan (Luitpold* Business)

The main business of Luitpold Pharmaceuticals, Inc. (LPI) is an iron injection franchise with two products, *Venofer* and *Injectafer*, for the treatment of iron deficiency anemia, and a generic injectable franchise focused on small volume vials and ampules. By growing and expanding these two franchises, LPI aims to achieve annual global revenue of US\$1,250 million (¥150.0 billion) in fiscal 2020.

* Luitpold announced it will change its legal name to American Regent in January 2019

5-Year Business Plan Target and Results to Date

■ *Injectafer* ■ LPI products other than *Injectafer*



3. Progress to Date and Future Initiatives (Luitpold Business)

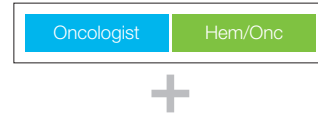
(1) Iron Injection Franchise

The iron injection franchise focuses on two products; *Venofer*, which is used to treat iron deficiency anemia (IDA) resulted from chronic kidney disease, and *Injectafer*, which can treat IDA resulted from chronic kidney disease, as well as from various other causes, but cannot be used in patients undergoing dialysis.

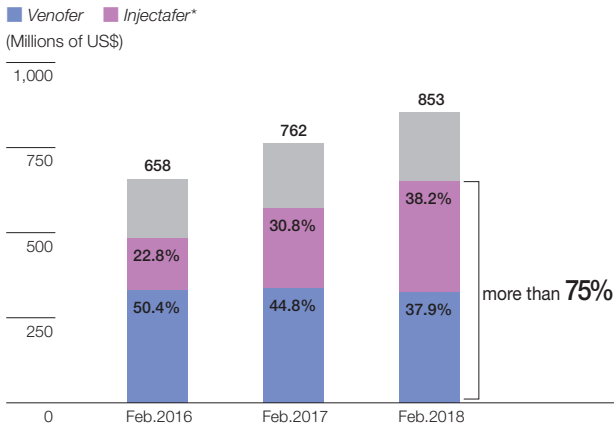
In particular, due to its ability to treat a wide range of conditions and the convenience of being able to

completely dose patients in only two administrations, *Injectafer* has enjoyed a rapid growth in market share since it was launched. These two products boast a combined share of the U.S. iron injection market of more than 75%, making LPI the undisputed leader in this market.

We are strengthening our efforts to maximize the product value of *Injectafer*. We are newly implementing promotion measures that target gastroenterology and obstetrics and gynecology specialists who treat IDA, in addition to the traditional sales targets of cancer and hematology and oncology specialists.



US IV Iron Market (includes dialysis)



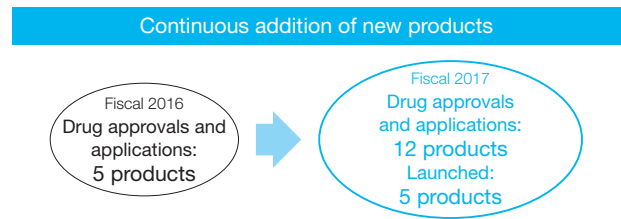
* *Injectafer* is not indicated for patients who are dialysis dependent
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 Source: IMS National Sales Perspectives FEB 2017
 (includes all US IV Iron sales in all channels including dialysis chains)

Furthermore, we are proceeding with a phase 3 study (HEART-FID) to evaluate *Injectafer* as a treatment for heart failure patients with an iron deficiency, with the aim of expanding the range of application in the future.

(2) Generic Injectable Franchise

LPI supplies generic injectable products focused on small volume vials and ampules, and it has been launching new products continuously and successfully to achieve sustainable growth. LPI submitted 5 drug approvals and applications in fiscal 2016 and 12 in fiscal 2017, and launched 5 new products. In fiscal 2018, to achieve its sustainable growth, we plan to submit 7 drug approvals and applications with the aim of launching 6 new products.

LPI will also promote capital investment to become one of the top suppliers in the U.S. generic injectable market.



COLUMN

Iron deficiency anemia and iron injections

Hemoglobin in red blood cells is responsible for carrying oxygen to other parts of the body. Iron is a vital element to the functioning of hemoglobin, and a lack of iron within the body can lead to a condition known as iron deficiency anemia (IDA). Other causes of IDA include chronic heart failure and inflammatory bowel diseases, in addition to cancer and chronic kidney disease (CKD), among various other diseases. It has been common for IDA to be treated via oral iron supplements in the past. However, such supplements required extended periods of use to be effective and the actual amount of iron absorbed by the body was low. These and other issues led to the expansion of the market shares of high-dose iron injections in Europe and the United States.

Primary Disease	% IDA
Chronic heart failure	17%
IBD	36-76%
Celiac disease	46%
Gastric bypass	24%
Cancer	7-42%
HUB*/IDA prevalent in women	100%
Postpartum anemia	15%
Pregnancy	18%
CKD Stage 3	42%
CKD Stage 4	54%
Dialysis	92%

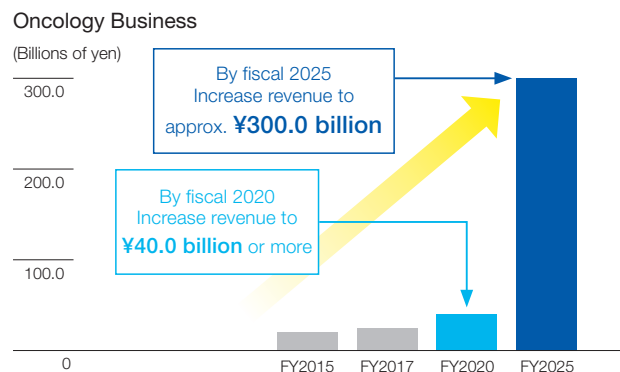
* Severe uterine bleeding
 IDA Statistics: American Regent Inc. and Vifor Pharma IDA prevalence data.

Strategic Target **Establish Oncology Business**

In our 5-year business plan, we set up the target of growing oncology business revenue to ¥300.0 billion in fiscal 2025. The development of the ADC franchise centered on *DS-8201* and AML franchise have been steadily accelerating. In fiscal 2018, we will submit applications for *quizartinib* and *pexidartinib*, and work to further accelerate the development of *DS-8201*.

1. 5-Year Business Plan

We will establish an oncology business by launching several drugs currently in late-stage development. Concurrently, we will accelerate early-stage pipeline development and evaluate the further enrichment of our oncology pipeline through the acquisition of external assets. Through the acceleration of oncology research and development by the new organization, we aim to grow oncology business revenue to more than ¥40.0 billion in fiscal 2020 and ¥300.0 billion in fiscal 2025, when this business will function as a core business.



2. Progress to Date and Future Initiatives

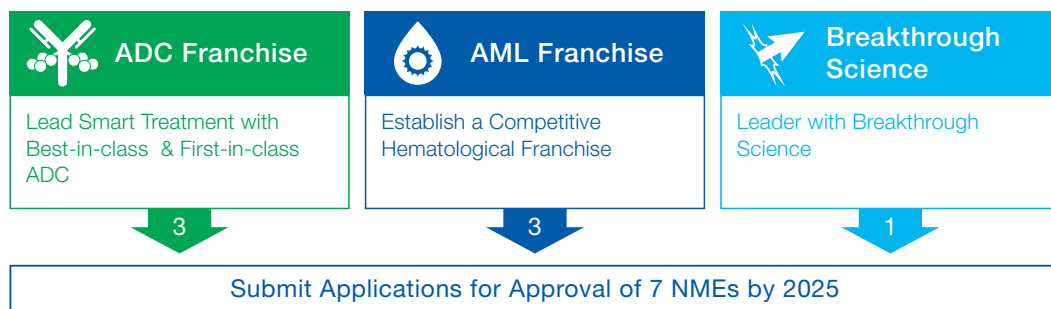
Daiichi Sankyo has been promoting organizational restructuring and strengthening human resources in order to accelerate development in the oncology area. We have completed organizational restructuring and have almost completed recruiting excellent global leaders with long years of experience in the oncology area.

We introduced the concept of Cancer Enterprise in May 2016 so that organizations such as research and development, pharmaceutical technologies, supply chain, global marketing, and global medical affairs cooperate organically under these leaders, and all employees are working together to promote a transformation to become

a “Global Pharma Innovator with competitive advantage in oncology.”

The Oncology R&D Sub Unit has established antibody drug conjugate (ADC) and acute myeloid leukemia (AML) as franchises (priority areas) that we will focus on. We have also set out a policy to actively form external alliances in order to strengthen these franchises.

In addition to the two franchises of ADC and AML, we newly set Breakthrough Science as the third pillar. We are aiming to become a world-leading science organization built on these three pillars and to deliver seven valuable new molecular entities (NMEs) over eight years by 2025.



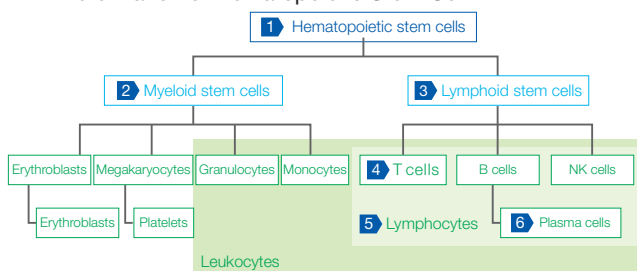
(1) ADC Franchise

For ADC, please see “Special Issue on Cancer” on page 32.

(2) AML Franchise

Leukemia, which is one of the three major blood cancers along with malignant lymphoma and multiple myeloma, is a disease in which hematopoietic stem cells in the bone marrow multiply at an abnormal rate and then become cancerous. Leukemia is classified into four types: chronic myeloid leukemia (CML), acute myeloid leukemia (AML), chronic lymphocytic leukemia (CLL), and acute lymphocytic leukemia (ALL). Although there are cancer types such as CML for which remission can be expected with molecular targeted drugs, the five-year survival rate of AML is still about 26%, which is very low. By developing multiple compounds targeting AML, we aim to solve unmet medical needs in AML.

Differentiation of Hematopoietic Stem Cell



Disease	Overview	Applicable Daiichi Sankyo Compounds
1 Myelodysplastic syndrome	<ul style="list-style-type: none"> Disease resulted from abnormality in hematopoietic stem cells 	<i>DS-3032</i>
2 Myeloid leukemia	<ul style="list-style-type: none"> Disease in which myeloid stem cells become cancerous Acute (AML) and chronic (CML) variations 	<i>Quizartinib, DS-3201, DS-3032, PLX51107</i>
3 Lymphocytic leukemia	<ul style="list-style-type: none"> Disease in which lymphoid stem cells become cancerous Acute (ALL) and chronic (CLL) variations 	
4 Adult T-cell lymphoma	<ul style="list-style-type: none"> Generic term for hematopoietic tumors derived from mature T cells. Peripheral T-cell lymphoma (PTCL), adult T-cell lymphoma (ATL), etc. 	<i>DS-3201</i>
5 Malignant lymphoma	<ul style="list-style-type: none"> Disease in which lymphocytes become cancerous Primarily categorized as Hodgkin's lymphoma or non-Hodgkin's lymphoma 	<i>DS-3032, DS-3201</i>
6 Multiple myeloma	<ul style="list-style-type: none"> Disease in which plasma cells in bone marrow become cancerous 	

Daiichi Sankyo is developing AML treatments by targeting various mechanisms. There are currently five pipelines undergoing clinical trials: *quizartinib*, an FLT3 inhibitor targeting growth factor receptor; *DS-3032*, an MDM2 inhibitor targeting transcriptional deregulation; *PLX 51107*, a BRD4 inhibitor and *DS-3201*, an EZH1/2 inhibitor both targeting epigenetic regulation. (A phase 1 study in patients with glioma is currently underway for the *DS-*

1001, an IDH1 inhibitor that may be indicated for the treatment of AML.)

Among these, we will explain the details of *quizartinib* with the results of the phase 3 study for relapsed/refractory AML and *DS-3201* with the interim results of the phase 1 study for relapsed/refractory non-Hodgkin's lymphoma presented at the American Society of Hematology (ASH) in 2017.

AML Franchise Pipelines

Target-class	Products under development (Targets)	Development status			Mechanism of action
		Pre-clinical	Phase 1	Registration Trial	
Growth factor receptor inhibition	<i>Quizartinib</i> (FLT3)	[Progress bar: Pre-clinical to Phase 1]			FLT3 inhibitor. <i>Quizartinib</i> displays a potent inhibitory activity against mutated gene called FLT3-ITD, which is present in around 30% of AML patients. Granted Breakthrough Therapy Designation (BTD) by the FDA.
	<i>DS-3032</i> (MDM2)	[Progress bar: Pre-clinical to Phase 1]			MDM2 inhibitor. <i>DS-3032</i> activates p53, a tumor suppressor gene, by inhibiting MDM2, which suppresses wild-type p53 activity.
Epigenetic regulation	<i>PLX51107</i> (BRD4)	[Progress bar: Pre-clinical to Phase 1]			BRD4 inhibitor. <i>PLX51107</i> suppresses the expression of cancer-related genes by inhibiting binding between BRD4 and histone acetylated lysine.
	<i>DS-3201</i> (EZH1/2)	[Progress bar: Pre-clinical to Phase 1]			EZH1/2 inhibitor. Both EZH1 and EZH2 are an enzyme to suppress gene expression. <i>DS-3201</i> inhibits both EZH1 and EZH2 which facilitating the inactivation of tumor suppressor genes.
	<i>DS-1001</i> (IDH1)	[Progress bar: Pre-clinical to Phase 1]			A selective inhibitor of mutant isocitrate dehydrogenase IDH1. <i>DS-1001</i> inhibits mutant enzyme expressed by IDH1 gene mutation frequently seen in malignant brain tumors (glioma), acute myeloid leukemia, cholangiocarcinoma, chondrosarcoma and other malignant tumors. * AML at pre-clinical stage, glioma at phase 1.

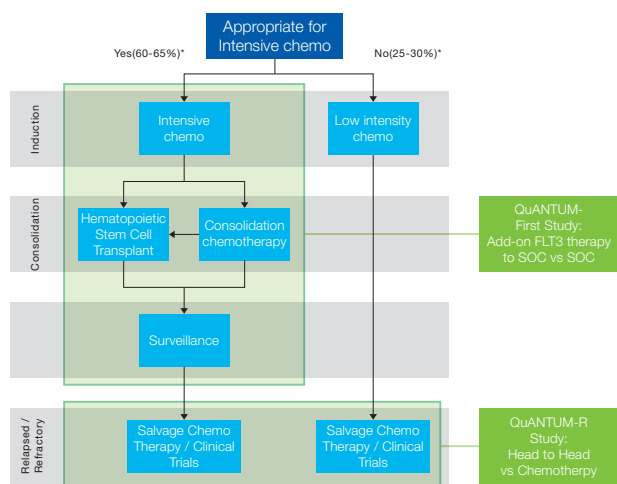
Daiichi Sankyo's Growth Strategy

Progress of 5-Year Business Plan

a) Quizartinib (FLT3 inhibitor)

AML is a disease with a high mortality rate, and it is said that the 5-year survival rate after being diagnosed is about 26%. In particular, AML patients with mutated FLT3, which is a receptor tyrosine kinase involved in the proliferation of cancer cells, are known to have a particularly high degree of malignancy and extremely poor prognosis with a rate of recurrence two years after bone marrow transplants that is three times higher than that of other forms of AML.* *Quizartinib* is a tyrosine kinase inhibitor that displays specific potent inhibitory activity against FLT3-ITD. In the general AML treatment algorithm shown below, we are conducting two phase 3 studies of *quizartinib* in the patients circled in green.

* Leukemia & Lymphoma Society, NCCN Guidelines, Brunet-S et al., J. Clin. Oncol. 2012; 30: 735-741, Dohner-H et al., NEJM 2015; 373: 1136-1152



* Patients who can not treated by intensive/low intensity chemo (5-10%)

We have obtained the results of the QUANTUM-R study in patients with relapsed/refractory AML.

Regarding the efficacy of the drug in this study, *quizartinib* significantly prolongs overall survival (OS) compared to salvage chemotherapy. *Quizartinib* had a 24% statistically significant reduction in the risk of death compared to salvage chemotherapy. The median overall survival was 6.2 months with *quizartinib* and 4.7 months with salvage chemotherapy.

The estimated survival probability at 1 year was 27% with *quizartinib* and 20% with salvage chemotherapy.

	<i>Quizartinib</i> N=245	Salvage chemotherapy N=122
Median overall survival	6.2 month	4.7 month
Estimated survival probability at 1 year (%)	27	20
Transplant rate (%)	32	12

Regarding the safety of the drug in this study, no new concerns were seen.

Based on the result of this study, we plan to submit regulatory applications globally in the second half of fiscal 2018.

Registration of participants is proceeding smoothly in the QUANTUM-First study to evaluate the efficacy and safety of *quizartinib* in combination with the standard of care as a first line treatment for AML as well as in continuation therapy.

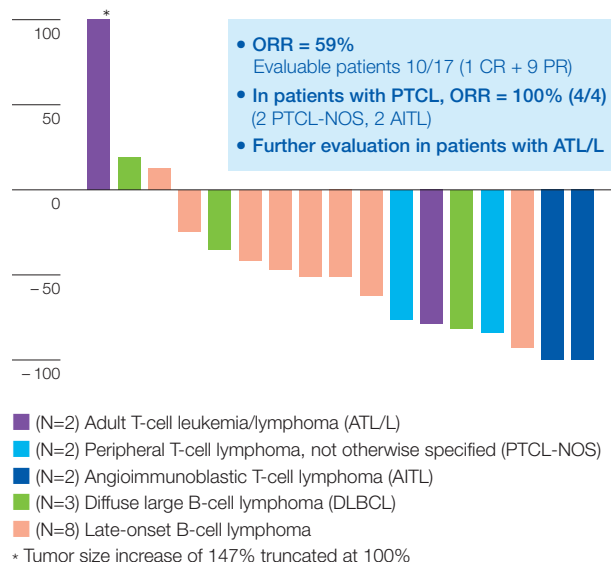
b) DS-3201 (EZH1/2 inhibitor)

Malignant lymphoma is commonly known to have a poor prognosis. One cause of this is thought to be the fact that the cancer stem cells, which have the ability to regenerate cancer cells, survive after the treatment. However, cancer stem cells require histone methylation enzymes EZH1 and EZH2 to sustain themselves. Accordingly, by inhibiting these enzymes, it may be possible to eradicate cancer stem cells and breakdown a cancer's resistance to treatments, effectively preventing recurrence.

The phase 1 study of *DS-3201* is currently underway in patients with relapsed/refractory non-Hodgkin's lymphoma in Japan, and the interim results were presented at the American Society of Hematology (ASH) in 2017.

Also, the phase 1 study is ongoing in the U.S. in patients with relapsed/refractory acute myeloid leukemia and acute lymphatic leukemia.

<DS-3201 Phase 1 study> Interim results in patients with relapsed/refractory non-Hodgkin's lymphoma



c) Promotion of combination therapy for AML

In the treatment of AML, by using molecular targeted drugs with a wide range of activation mechanisms in combination, it is said that there is the possibility of improving the therapeutic effect (improvement in response to each drug, response duration, transplant rate, and survival rate) as well as the avoidance of resistance mechanism. In addition to the AML franchise products under development, we will proactively confirm the effects

of combination therapy with standard drugs developed by other companies. From fiscal 2018, we plan to start a phase 1 study to confirm the effects of the combination use of *quizartinib* and *DS-3032* (MDM2 inhibitor), as well as *DS-3032* and *azacytidine* (approved for the treatment of myelodysplastic syndromes, and many studies in AML patients are underway).

As part of the initiative, we have entered into an agreement with the University of Texas MD Anderson Cancer Center (MDACC) in the U.S. in September 2017 for research and development of AML treatment.

MDACC is one of the world's largest and most important academic research centers on leukemia, and we believe that it is an ideal partner for the development of our AML portfolio. Under this agreement, in order to accelerate the development of new drugs for the treatment of AML, we will evaluate a variety of combination effects using our AML franchise products under development through pre-clinical and clinical studies. We will also conduct translational research such as exploring novel biomarkers.

(3) Breakthrough Science

Breakthrough Science was launched in December 2017 as the third pillar, with the goal of creating first-in-class or best-in-class compounds with breakthrough mechanism

of action or modality.*

* The foundation of drug development and therapeutic approaches such as protein drugs including low molecular compounds, peptide (medium-sized molecule) drugs, and antibody drugs, nucleic acid drugs, cell therapy and regenerative medicine.

Breakthrough Science Pipelines

Products (Targets)	Indication	Development status			Mechanism of action
		Pre-clinical	Phase 1	Registration Trial	
<i>Pexidartinib</i> (CSF-1R)	TGCT (tenosynovial giant cell tumor)	▶			<ul style="list-style-type: none"> Receptor tyrosine kinase inhibitor showing specific inhibitory activity against CSF-1R, KIT and FLT3-ITD Granted Breakthrough Therapy Designation (BTD) by the FDA
<i>DS-1647</i> P54 (oncolytic virus)	Glioblastoma	▶			<ul style="list-style-type: none"> A third-generation strand of oncolytic herpes simplex virus 1 (HSV-1) created by using genetic modification technologies to modify HSV-1 so that it only multiplies in cancer cells
<i>Axicabtagene ciloleucel</i> (CD19 CAR-T) P55	B-cell lymphoma	▶			<ul style="list-style-type: none"> A cell therapy (chimeric antigen receptor T cell: CAR-T) targeting CD19 expressed on the surface of B cells
<i>DS-1205</i> (AXL)	NSCLC (non-small cell lung cancer)	▶			<ul style="list-style-type: none"> AXL receptor tyrosine kinase inhibitor High expression of AXL is said to be associated with resistance to EGFR tyrosine kinase inhibitors in EGFR-mutant non-small cell lung cancer

a) *Pexidartinib* (CSF-1R/KIT/FLT3 inhibitor)

Pexidartinib is a receptor tyrosine kinase inhibitor showing specific inhibitory activity against CSF-1R/KIT/ and FLT3. Since 2015, we have been moving forward with a placebo-controlled phase 3 study (ENLIVEN) in patients with tenosynovial giant cell tumor and presented the results at the American Society of Clinical Oncology (ASCO 2018) in June 2018.

The overall response rate for *pexidartinib* was 39.3% (0% for placebo). Concerning the safety, although the drug was generally tolerated, 8 patients discontinued the medication due to adverse events involving liver function, and 4 patients suffered from non-fatal serious liver toxicity. In addition, in a separate clinical studies in which this drug was administered to patients with malignant tumors, two cases of serious liver toxicity including a fatal case were reported.

Tenosynovial giant cell tumor is a type of benign tumor occurring in joints. It is known that there is no treatment

method other than surgery and it causes extreme inconvenience in daily life. The recurrence rate is also high, and in some cases, limb amputation may be unavoidable. This drug was granted Breakthrough Therapy Designation (BTD) and Orphan Drug Designation by the U.S. FDA. Based on the results of this study, we plan to apply for approval to the U.S. FDA in the second half of fiscal 2018 so that we can deliver a new treatment option as soon as possible to patients awaiting this medicine.

Extreme Example of Effective Treatment from Phase 3 Study (ENLIVEN Study)



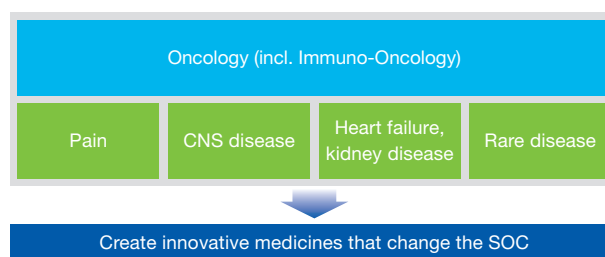
Strategic Target **Continuously Generate Innovative Medicine Changing SOC (Standard of Care)**

In the 5-year business plan, we set the goal of continuously generating innovative medicines changing SOC. Research and development of medicines with new modalities, such as oncolytic viruses, nucleic acid drugs, cell therapy, have been proceeding smoothly since then. We are also exploring the possibilities of drug discovery beyond our own laboratory by collaborating with various organizations, including companies and academia, mainly in the oncology area. We will continue to work on similar initiatives in fiscal 2018 and aim to generate innovative medicines as soon as possible.

1. 5-Year Business Plan

Daiichi Sankyo aims to continuously generate innovative medicines changing SOC^{*1}. SOC stands for “Standard of Care,” indicating universally applied best treatment practice in today’s medical science. Our target therapeutic areas for research and development include oncology, which will be positioned as a primary focused area, as well as pain, central nervous system diseases, heart failure/ kidney disease, and rare diseases, which we define as new horizon area. Research and development of treatments in these areas will be accelerated going forward. We will strive to continuously generate innovative medicines changing SOC by utilizing partnering, open innovation^{*2}, and translational research^{*3}.

- *1 SOC: SOC stands for “Standard of Care,” indicating universally applied best treatment practice in today’s medical science.
- *2 Open innovation: a development method in which external development capabilities and ideas are used to overcome internal development challenges and create innovative new value
- *3 Translational research: the research, method, and process of deepening the understanding of diseases and drug interaction mechanisms through the mutual use of information and samples in clinical and non-clinical studies.



2. Progress to Date and Future Schedule

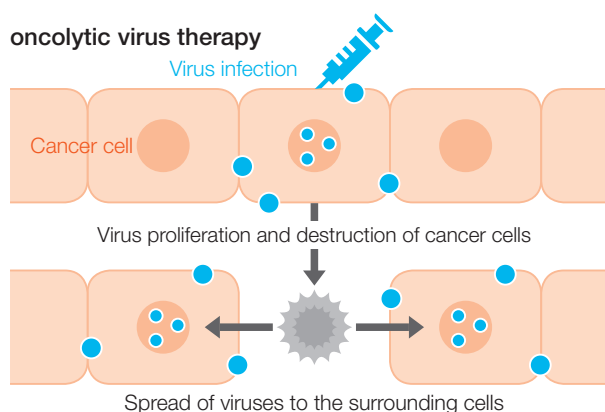
(1) DS-1647 (oncolytic virus G47Δ)

G47Δ (delta), developed by Professor Tomoki Todo of the Institute of Medical Science of the University of Tokyo, is oncolytic virus therapy—a new modality of cancer treatment that sets itself apart from conventional agents. For instance, molecular-targeted agents pinpoint proteins and genes on the surface of cancer cells, while oncolytic virus therapy targets the cancer cell itself.

G47Δ, which is a third-generation strand of oncolytic herpes simplex virus 1, is controlled by deleting or inactivating three genes γ 34.5, ICP6, and α 47, making it only proliferate in cancer cells. By deleting α 47 in addition to second generation, G47Δ inactivates immunological escape mechanism of the virus. G47Δ is believed to be a relatively safe treatment as it does not proliferate in normal cells, and if any adverse event occurs, it can be dealt with antiviral agents.

This drug has received SAKIGAKE Designation, and a phase 2 investigator-initiated study is currently underway

in malignant gliomas. Although this is the first attempt of oncolytic virus therapy by Daiichi Sankyo, but based on future results, we will aim for a speedy approval of the drug for the treatment of malignant gliomas through in-depth discussions with Professor Tomoki Todo and regulatory authorities.



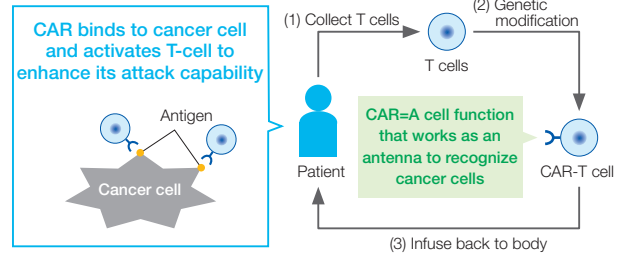
(2) *Axicabtagene ciloleucel* CAR-T (cell therapy)

Axicabtagene ciloleucel is a form of chimeric antigen receptor T (CAR-T), which is a cell therapy directed against CD19, an antigen expressed on the surface of B-cell malignant lymphoma cells. Applied via intravenous injection, this therapy is expected to have therapeutic effects on relapsed or refractory malignant lymphoma. Kite Pharma, Inc., has already obtained marketing approval for *axicabtagene ciloleucel* in the U.S. and it was launched in 2017 under the product name of *Yescarta*.

In Japan, the main consultation with the regulatory authorities prior to the initiation of clinical study has been

completed, and we will start a phase 2 study in the second half of 2018 in patients with refractory or relapsed diffuse large B cell lymphoma. We are also building a production and distribution system in Japan.

How CAR-T cell therapy works



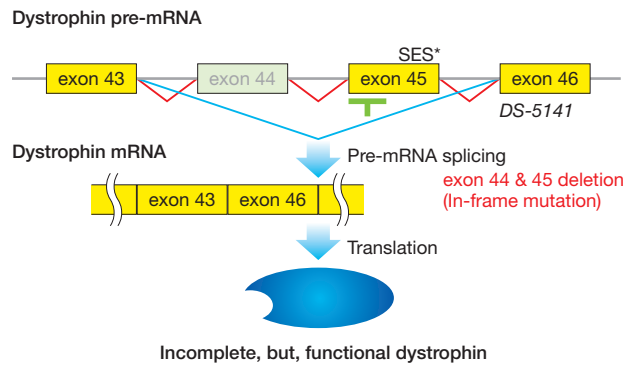
(3) *DS-5141* (nucleic acid drug)

Duchenne muscular dystrophy (DMD) is progressive muscular atrophy with an X-linked recessive inheritance pattern, and is known to occur in roughly 1 out of every 3,500 newborn boys. Muscle weakness progresses with age, and many patients do not survive past their 20s or 30s due to respiratory failure or heart failure. DMD is caused by the lack of the dystrophin protein, which is not produced due to abnormalities in the dystrophin gene.

We have obtained the results of the phase 1/2 clinical studies conducted in Japan for DMD drug *DS-5141*. There were no safety concerns, and after 12 weeks of subcutaneous administration, the production of messenger RNA obtained by skipping exon 45 of the dystrophin gene in muscle tissue was clearly confirmed in

all seven cases. The expression of dystrophin protein was also observed in some patients.

Based on this result, we started extension study.



* SES: splicing enhancer sequence

(4) Strategic alliance for research and development

We are collaborating with various organizations including academia and companies beyond our in-house R&D to further advance our competitive pipelines. As shown in the figure below, we have progressed research and development alliances mainly in the oncology area. With

the intensified competition for new drug development, we believe that partnering with other academia and companies beyond the framework of our own laboratories will lead to the discovery of seeds that will be new-drug candidates in the future.

Key collaborations started by June 2018

Japan Asahikawa Medical University	Open innovation of capillary stem cells (CapSCs) April, 2016
U.K. Celixir Ltd.	<i>Heartcel</i> for ischemic heart failure May, 2016
Japan Astellas Pharma Inc. Takeda Pharmaceutical Co., Ltd.	Establish basis of biomarker May, 2016
Canada Zymeworks Inc.	Progress in the Bispecific Antibody Collaboration September, 2016
U.S. AgonOx, Inc.	Research alliance related to lung cancer October, 2016
U.S. Dana-Farber Cancer Institute, Inc.	Cancer research and development alliance December, 2016

U.S. Kite Pharma, Inc.	<i>Axicabtagene ciloleucel</i> (CAR-T) Development in Japan January, 2017
U.K. Heptares Therapeutics Limited	Alliance related to small molecule drugs for cancer pain treatment March, 2017
Germany Max Planck Innovation GmbH	Target Exploration July, 2017
Japan Institute of Medical Science of the University of Tokyo	<i>G47Δ (DS-1647)</i> Development of Oncolytic Virus July, 2017
U.S. Bristol-Myers Squibb Co.	<i>DS-8201</i> plus <i>Nivolumab</i> Combination Study August, 2017
Japan Cuorips Inc.	iPS cell-derived cardiomyocyte sheet August, 2017

U.S. MD Anderson Cancer Center	Broad AML Collaboration, multiple pipeline products September, 2017
Germany GlycoTope GmbH	ADC Collaboration October, 2017
U.K. Vernalis	Research Collaboration December, 2017
U.S. Puma Biotechnology, Inc.	Combination of <i>DS-8201</i> + <i>Neratinib</i> December, 2017
U.S. Memorial Sloan Kettering Cancer Center	Research Collaboration December, 2017
Japan Nagoya City University Chubu University Mitsubishi UFJ Capital Co., Ltd.	New hyperthermia treatment for cancer March, 2018