Business Strategies by Process

U.S. Business

Basic Policy

“Accelerating U.S. Business Development” is one of the four strategic priorities in Medium-Term Management Plan 16–20, and the Company has set a numerical target of ¥80.0 billion in U.S. revenue in fiscal 2020. We have outlined three steps for the roadmap toward the achievement of that target as well as sustained growth in fiscal 2021 and subsequent years.

The first step was getting the U.S. business under way with the launch of Radicava. The second step will be a focus on expanding the U.S. business through the active use of strategic investment and other measures. The current medium-term management plan calls for the implementation of more than ¥200.0 billion in strategic investment. The third step will be the continued growth of the U.S. business through initiatives in new disease areas in addition to neurological disorders and vaccines. These initiatives will be implemented on the business foundation that the Company establishes with the first and second steps.

Smooth Launch for Radicava

We took the first step in August 2017 with the launch of Radicava. In the U.S. business, we use the term “the three Ps” to refer to our key stakeholders—Patients, Physicians, and Payers. We have been working with these stakeholders to foster an understanding of Radicava’s product value, and have been taking steps to enhance the treatment.
In August 2017, Mitsubishi Tanabe Pharma took the first step in the development of its U.S. business with the launch of Radicava, an ALS treatment agent. This section explains our business strategy for developing the U.S. business into the Company’s second operational pillar following Japan, as well as our initiatives with Medicago and NeuroDerm.

environment, such as measures to provide and expand information regarding medical institutions that prescribe Radicava.

As a result of these efforts, the number of patients who have taken Radicava surpassed 3,000 in August 2018. Radicava has gotten off to a strong start, and revenue in fiscal 2017 reached ¥12.3 billion. Moving forward, we will continue working to promote appropriate usage and to increase recognition of Radicava through the provision of information to health care professionals. In addition, we will focus on measures to enhance Radicava’s accessibility and take steps to improve the ALS treatment environment, including support for at-home care. In these ways, we will advance a range of measures for the three Ps.

Moreover, at the same time we will implement Companywide initiatives to maximize the product value of Radicava. We filed an application in Switzerland in December 2017, followed by applications in Canada in April 2018 and Europe in May 2018. In the future, we will consider extending these measures to ASEAN markets and other regions. Furthermore, we are also working to advance life-cycle management strategies, such as the development of dosage forms for new administration routes. We are forecasting Radicava revenue in the U.S. of ¥31.5 billion in fiscal 2018. Going forward, we will continue working to achieve growth for Radicava and to deliver this treatment agent to as many ALS patients as possible around the world.

Taking On the Challenge of Achieving Numerical Targets through Strategic Investment

Targeting the second step—expanding our U.S. business—we will work to follow up Radicava by enhancing our pipeline in the area of neurological disorders. To that end, in October 2017 we acquired NeuroDerm, of Israel, for approximately ¥124.0 billion (approximately US$1.1 billion), and made it a wholly owned subsidiary. NeuroDerm is a pharmaceutical company with excellent capabilities in the development of new drugs and medical devices. It is advancing the development of new drugs, centered on ND0612, a treatment agent for Parkinson’s disease. In addition, in fiscal 2017 Medicago, of Canada, started phase 3 trials for MT-2271, a plant-based VLP vaccine. Plans call for an application to be filed in fiscal 2018, and this product is expected to be launched during the period of the current medium-term management plan.

We will continue to implement strategic investment, and will obtain products, drug candidates, etc., from external sources. In these ways, we will work to expand our U.S. business and achieve ¥80.0 billion in U.S. revenue in fiscal 2020.

Building a Foundation for Sustained Growth

First-step and second-step initiatives—such as maximizing sales of Radicava and rapidly developing and launching ND0612 and MT-2271—are issues that we will have to address in order to achieve the numerical targets in the medium-term management plan. On the other hand, to realize sustained expansion in our U.S. business, which is positioned as the third step, we need to further enhance our pipeline and steadily advance development of in-house products.

We believe that the most important issue in accelerating U.S. business development is the implementation of measures and the establishment of systems to foster sustained growth in fiscal 2021 and thereafter, while at the same time pursuing short-term results, including the achievement of our numerical targets. To that end, we will need to implement the principles of selection and concentration in our R&D investment, with an early-stage focus on products developed in-house. Currently, at Mitsubishi Tanabe Pharma Holdings America (MTHA), we are working to strengthen the market analysis function in order to appropriately address the needs of patients and health care professionals. We will work to maximize pipeline value, including accelerating the development of in-house products, by seamlessly linking the creation of products that meet market needs and the formulation of sales strategies. We will also strive to rapidly nurture products that have been launched and to maximize their sales.

Furthermore, in fiscal 2017 the administrative functions of Group companies in the U.S., including human resources, legal affairs, accounting and finance, IT, and general affairs, were transferred to MTHA. Going forward, we will also simultaneously advance measures to reinforce defensive functions in the U.S. business, such as further bolstering governance and compliance through changes in the organizational system.

Our role will be to make full use of the Company’s management resources and to achieve a balance between proactive initiatives (strategic investment and function reinforcement) and defensive initiatives (bolstering governance and compliance). We will take steps to ensure sustained growth in the U.S. business while also pursuing results in the short term. With the launch of Radicava, the U.S. business is expanding rapidly. I believe that society’s expectations of our business, as well as the duties and responsibilities that are our obligations to society, are expanding on a daily basis. To develop the U.S. business into Mitsubishi Tanabe Pharma’s second operational pillar following Japan, we will steadily complete the three steps.
Medicago was established in Canada in 1997—the result of a collaboration between Laval University and the Ministry of Agriculture. The Quebec-based company was publicly funded until late 2013, when Japan’s Mitsubishi Tanabe Pharma Group and Switzerland’s Philip Morris International (PMI) made a joint venture agreement to support its future development.

Medicago is a biopharmaceutical company specializing in the research and development of new vaccines and other therapeutic proteins. To produce vaccines, Medicago has developed an innovative technology that uses plants as mini factories to produce VLPs. VLPs have the same external structure as viruses; when administered as a vaccine, they stimulate the human immune system and are expected to provide strong protection against the viruses they imitate. However, because VLPs do not include any genetic material, there are no risks of replication and infectious disease. Medicago’s proprietary technology uses transient gene expressions in non-genetically modified plants. The plant species used is *Nicotiana benthamiana*.

Typically, in the case of producing the influenza pandemic, egg-based vaccines take around five to six months to manufacture a vaccine with this technique. In contrast, Medicago’s plant-based VLP methods require just five to six weeks. With such a short production timeline, Medicago could make a real difference if another influenza pandemic, such as the 2009 H1N1 pandemic, were to occur. The rapid availability of a vaccine during such a devastating event could help reduce the number of people infected, reduce overall morbidity and mortality, and minimize the socio-economic disruptions of a pandemic.

In addition, it is well known that the chicken-egg manufacturing process can cause the virus to mutate suddenly, meaning that the strain in the vaccine no longer exactly matches the target strain. When that happens, the effectiveness of the seasonal egg-based vaccine is reduced and the risk of infection increases. The social and economic losses can be substantial. This problem does not exist in plant-based vaccines; the VLP produced by Medicago’s manufacturing process always matches the circulating strain.

Under its current medium-term management plan, Mitsubishi Tanabe Pharma has positioned the vaccine business as a priority disease area, both in Japan and overseas. Moving forward, we will take steps to advance new vaccine development through Medicago’s VLP vaccine technology, with a focus on the U.S.

**MESSAGE**

To achieve the launch of plant-based VLP vaccines, we want to make sure that all employees have a clear view and understanding of Medicago’s short- and long-term goals.

In the short term, we need to begin preparing for the early New Drug Application for MT-2271, which will be Medicago’s first product. This involves maintaining focus and motivation across all departments. We will also encourage a culture of entrepreneurship and efficient decision-making at all management levels to maximize effort and minimize distractions.

Medicago’s technology platform represents a truly disruptive approach not only to vaccine development and production, but also to many biologics. The VLP platform is incredibly versatile and efficient. Our goal at Medicago is to become the global leader in innovative product development using plant-based technology. We initially intend to demonstrate our capability through our VLP vaccine development program. However, our platform also has the potential to develop new therapies that combine vaccines and antibodies, both of which can be produced with the same VLP technology.
NeuroDerm, a pharmaceutical company that was established in Israel in 2003, has joined the Mitsubishi Tanabe Pharma Group. NeuroDerm has proprietary production technology for liquefying insoluble compounds, and through combinations of pharmaceuticals and devices, the company is developing treatment agents with high clinical value that offer increased effectiveness in addressing unmet medical needs and reduced side effects.

ND0612, for example, is under development in the U.S. and Europe with an expected indication of Parkinson’s. Parkinson’s is a progressive neurodegenerative disorder, with the onset of symptoms typically occurring when patients are in their 40s, 50s, or thereafter. The number of patients is said to be approximately 1 million in the U.S., 1.4 million in Europe, and 0.1 million in Japan. Furthermore, accompanying the aging of society, the number of patients is increasing.

Parkinson’s disease occurs due to a deficiency of dopamine, a neurotransmitter that works in the brain. Accordingly, drug therapy is widely used to compensate for the dopamine deficiency through the administration of levodopa as an oral preparation. Patients are generally prescribed a combination drug that includes carbidopa, which inhibits the breakdown of levodopa. However, oral levodopa has a short half-life and, as Parkinson’s disease progresses, it becomes difficult to stabilize the blood levodopa concentration, and as a result the number of administrations per day has to be increased while the clinical effect of the treatment deteriorates. In addition, as the disease progresses to moderate and severe stages, treatment with drug therapy becomes difficult, and treatment methods that involve surgical intervention and place a larger physical burden on patients must be selected.

Through proprietary formulation technology, NeuroDerm achieved a world first with the successful liquefaction of levodopa and carbidopa, which are oral treatment agents. ND0612 is a treatment agent that can be administered through subcutaneous injection in a sustained manner for 24 hours through the combination of liquified levodopa and carbidopa with a mobile pump. There are high expectations for ND0612 as a new drug that addresses unmet medical needs for Parkinson’s by making it possible to stabilize the blood concentration of levodopa in patients with moderate to severe symptoms.

MESSAGE

The acquisition of NeuroDerm by Mitsubishi Tanabe Pharma marks an important milestone in NeuroDerm’s long road to develop a new pharmaceutical product, a road that involves hard work, dedication, ingenuity, creativity, and above all, integrity and commitment to do good in this world. But we are not there yet; we have a lot more to do. And now we will do it as part of a large, global group that shares our values.

Mitsubishi Tanabe Pharma has shown incredible vision and courage when deciding to add NeuroDerm to the Group. We will do our best to prove that we can make a big change in the lives of Parkinson’s patients; that we can generate new combination “Designed Pharmaceuticals” drug-device combination products, more rapid and less risky to develop, that have great impact on the lives of patients; and that we can change the world for the better. Wishing all of us the best of success in our mutual journey!