5 Financial and Non-Financial Information Overview of Business Domains

Health Care Domain

In the Health Care domain, we not only work to provide treatments for diseases but also products and services that help people around the world live longer and healthier lives.



Health Care segment

Sales revenue amounted to ¥390.6 billion, a year-on-year decrease of ¥2.5 billion, and core operating income was ¥17.9 billion, an increase of ¥1.4 billion. The pharmaceuticals segment maintained the level of sales revenue of the previous fiscal year thanks to sales growth, mainly in priority products, which outweighed negative factors including the impact of National Health Insurance drug price revisions in the Japanese market.

Core operating income increased owing to a decrease in

Health Care segment

Factors underlying YoY change in core operating income



*1 Figures do not include discontinued operations.
*2 Includes differences in inventory valuation and gains/losses on equity method investment

sales costs and R&D expenditures mainly reflecting the constrained level of activities resulting from the spread of COVID-19. Note that some royalty revenue from Novartis Pharma AG for *Gilenya*, a treatment agent for multiple sclerosis, was not recognized as sales revenue in accordance with IFRS 15 (Revenue from Contracts with Customers) due to the start of arbitration proceedings in February 2019. In fiscal 2020 likewise, some royalty revenue was not recognized as sales revenue due to the ongoing arbitration proceedings.





Main businesses and products

Data on the sales revenue and core operating income of the pharmaceuticals business (Mitsubishi Tanabe Pharma Corporation (MTPC)) are published on the website. https://www.mt-pharma.co.jp/e/company/financial-information/pdf/e_presen210512.pdf

Immuno-inflammation This is a field where we have a strong business base built on a relationship of trust with medical professionals established in connection with *REMICADE*. Here, we will work to retain the leading share in the Japanese market by maximizing the respective benefits of three biopharmaceuticals—*REMICADE*, *Simponi*, and *Stelara*—whose indications include rheumatoid arthritis, Crohn's disease, ulcerative colitis and psoriasis.

Central nervous system *RADICUT* (*RADICAVA* in the United States), originated by MTPC, protects motor neurons against oxidative stress by eliminating the free radicals that persist in the body under the pathological conditions of amyotrophic lateral sclerosis (ALS). This action is thought to slow the decline of physical function and muscle atrophy in ALS patients. *RADICAVA* was launched in the United States in August 2017 as the first new ALS drug in some 20 years. The drug has received approval in seven countries around the world including Japan, South Korea, the United States and Canada. Currently, global development of an oral suspension formulation of *RADICAVA* is underway.

Diabetes and kidney In the diabetes drug market, we are seeking to maximize value with our type 2 diabetes treatments: *TENELIA* and *CANALIA*—originated in Japan by MTPC—and a combination table of the two, *CANAGLU*. Meanwhile, in August 2020 we launched sales of the renal anemia treatment *VAFSEO*. We will steadily strengthen our presence in the diabetes and kidney disease field by accumulating evidence and expanding sales channels.

Vaccines In Japan, we are marketing a vaccine developed and manufactured by Osaka University's Research Institute for Microbial Diseases (BIKEN Group). We have also established a vaccinemanufacturing joint venture with the BIKEN Group under the name BIKEN Co., Ltd., which began operations in September 2017. We will contribute to stable vaccine supply by reinforcing our production base. In North America, meanwhile, Medicago Inc. is working on vaccine development using virus-like particle (VLP) technology.

Life Science business

Next-generation healthcare CL2020 (development code) is a product based on Muse cells (Multilineage-differentiating Stress Enduring cells), which were discovered by a group of scientists led by Professor Mari Dezawa of Tohoku University. We are currently progressing with clinical trials for six indications (acute myocardial infarction, cerebral infarction, epidermolysis bullosa, spinal cord injury, amyotrophic lateral sclerosis [ALS], and acute respiratory distress syndrome [ARDS] related to SARS-CoV-2 infection). Meanwhile, LSII Tonomachi CPC* obtained a license for manufacturing of regenerative medicine products in July 2019, and is making preparations to launch products to the market. (As of August 2021) *CPC: Cell Processing Center

Healthcare and medical ICT With the aim of meeting challenges in the super-aged society, we are collaborating with academia and venture businesses in the framework of "open shared business" to create new products and services benefiting from the application of ICT and AI. Cognitive function testing programs at multiple medical institutions have confirmed its effectiveness at an exploratory level, and we are currently progressing with specified clinical research in cognitive impairment and related conditions.

Pharmaceutical development solutions Our Group company API Corporation operates a proposal-oriented business based on our technical knowledge in areas such as cost-competitive manufacturing routes for target compounds. We have developed new synthetic methods utilizing fewer reaction steps and successfully commercialized the resulting products.





Muse cells



5 Financial and Non-Financial Information Overview of Business Domains

APTSIS 25 Step 1

Policies	 Rollout of precision medicine and "around the pill" solutions Acceleration of development and commercialization of regenerative medicine products 		
Key strategies	 Realize precision medicine with the focus on central nervous system disorders and immuno-inflammatory diseases Contribute to preventive medicine through focus on the vaccine field Synergize the expertise and technology bases of Group companies to accelerate the development of established businesses and create new "around the pill" businesses. Develop a collaborative and synergistic partnership structure within the MCHC Group for the commercialization of Muse cell-based products. 		
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Growth strategies in the pharmaceuticals business

In its medium-term management plan 21-25, launched in fiscal 2021, MTPC declares its commitment to realizing precision medicine^{*1} and "around the pill" solutions^{*2} to address areas of remaining unmet medical need.

By concentrating and increasing R&D expenditures on precision medicine, focusing on central nervous system disorders and immuno-inflammatory diseases, we aim to increase the number of products brought to market starting from fiscal 2025. We are also contributing to infectious disease prevention with a focus on the vaccine field. In the vaccine business, our target is to achieve sales revenue of ¥100 billion in fiscal 2025.

In the central nervous system disorders field, we will take as our entry point ALS, where there is a wealth of drug discovery data. In this area, we will address intractable neurological diseases that are caused by the same genes and have a common pathophysiology to rapidly identify the relevant genes and develop new modalities.

Next, in the immuno-inflammatory field, we will focus on systemic scleroderma and systemic lupus erythematosus, diseases showing diverse pathologies for which there is as yet no effective drug treatment. Here, we will work on phenotype drug discovery based on appropriately stratified patient groups.

In the vaccine field, at the global level we will address the social challenge of preventing COVID-19 infection by working on a plant-derived VLP vaccine. In Japan, meanwhile, we will collaborate with the BIKEN Group on infection prevention in children and adults and on stable vaccine supply.

*1 Providing the appropriate healthcare to the appropriate patient at the appropriate time taking account of the differences in people's genes, environment and lifestyle.
*2 An approach that takes drug therapies as the starting point to offer solutions

2 An approach that takes drug therapies as the starting point to oller solutions ranging from prevention to prognosis to contribute to improving the quality of life of patients and their families

Creation of Group synergies

In December 2019, to coincide with the integration of MTPC as a wholly owned subsidiary, the Group established a committee to discuss the creation of synergies from three viewpoints: Business operations, corporate cooperation and DX. The committee will work to create synergies by bringing together the technologies and expertise of the different MCHC Group operating companies.

Core operating income targets

Performance Products Chemicals Industrial Gases Health Care Others

(Billions of yen)



"Precision medicine" and "around the pill solutions"



Major development pipeline list

Research areas	Code and indications	Region	Stage
Central nervous system	MT-1186 (ALS/oral suspension)	Global	Phase 3
	ND0612 (Parkinson's disease)	Global	Phase 3
mmuno- inflammation	MT-7117 (EPP/XLP*3)	Global	Phase 3
	MT-7117 (systemic sclerosis)	Global	Phase 2
	MT-2766 (prophylaxis of COVID-19)	Global	Phase 3
Vaccines	MT-2654 (prophylaxis of seasonal influenza/elderly)	Global	Phase 1
	MT-2355 (5 combined vaccine)	Japan	Phase 3
*3 EPP: Erythropoie	(As of August 2021)		

3 EPP: Erythropoietic protoporphyria XLP: X-linked protoporphyria

Examples of themes addressed by the committee to explore ways to generate synergies



FOCUS Contributing through vaccines to infectious disease prevention Development of a VLP vaccine to prevent COVID-19 infection

In March 2021, Medicago Inc., a subsidiary of MTPC, began the Phase 3 portion of Phase 2–3 clinical trials of a plantderived VLP vaccine (MT-2766) aimed at prevention of COVID-19 infection. Phase 3 global clinical trials are ongoing in countries including Canada, the United States, the United Kingdom and Brazil, with the aim of commercialization in Canada before the end of 2021.

The VLP vaccine is a new type of vaccine produced using VLP manufacturing technology. With an external structure that is similar to the virus, the vaccine is expected to display strong efficacy in providing immunity. Moreover, as it does not contain genetic information, it does not result in virus proliferation within the body. It has therefore attracted interest as a promising vaccine technology that should offer excellent safety. The manufacturing technology for the

Plant-based VLP vaccine manufacturing process (utilizing transient gene expression)

Starting materials	2 Infiltration	3 Incubation (7-10 day
enes/plants	The vector is inserted into the leaf tissue	The recombinant produc created by the infiltrated plant cells accumulate
Extraction	5 Purification	6 Vaccine





The recombinant products H are released into the is solution

lucts Highly pure product is obtained



Solutions to environmental and social issues

Developing Muse cell-based products in response to unmet medical needs

Muse cells are endogenous pluripotent repair stem cells that are naturally present in the bone marrow, peripheral blood, and connective tissues of all body organs. They normally accumulate in injured organs where they replace and replenish injured cells by differentiating into the damaged cell type, and exert pleiotropic effects including antiinflammatory actions and vascular protection over an extended period of time, without the need for HLA-matching test or long-term immunosuppressive drug administration for the use of donor Muse cells. Donor Muse cells, administered by simple intravenous drip, accumulate in the injured tissue to exert their tissue repair effects by spontaneously differentiating into healthy cells corresponding to the damaged tissue. Because the donor Muse cells that engraft into the injured tissue are maintained as living, functional cells over an extended period of time, the anti-inflammatory, vascular-protective, tissue protective, and anti-cell-death

plant-based VLP vaccine is expected to allow large-volume production in a short timespan and at low cost.

Medicago Inc., which is headquartered in Canada, has concluded an agreement with the Canadian government under which it will receive a grant of 173 million Canadian dollars (approximately ¥13.7 billion) for the development of a VLP vaccine for COVID-19 prevention and in return supply the government with up to 76 million doses of the vaccine. Currently, we are using the grant to speed up development and are putting in place a supply system.

Going forward, we will proceed steadily with development to deliver the VLP vaccine to society as soon as possible, contributing further to the prevention of COVID-19, a pressing social issue.



Healthy and vibrant lives

effects continue to be exerted for a long time. Administration of Muse cells is significantly more effective than administration of another type of stem cell, human mesenchymal stem cells, for the repair of damaged tissue.

LSII is working to achieve the successful approval and commercialization of a Muse cell-based product (CL2020) as soon as possible.

