Alliance Business

Develop a Growth Driver by Infusing Core Technologies with a New Business Model

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The market share information in this presentation is partly derived from our own independent research.

Information about products (including products currently in development) which is included in this material is not intended to constitute an advertisement or medical advice.

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“Alliance” Business within Terumo

B2B: Provides pharma w/ devices to add additional value to drug and contract manufacturing

A division of General Hospital company with annual sales of 20 BJPY

Contract manufacturing

Pharmaceutical companies

Provide device

Hospital & clinics

Sales

General Hospital 29%

Blood and Cell Technologies 18%

Cardiac & Vascular 53%

Alliance 14%
Alliance Business Trajectory

Next Mid- to Long-term Growth Strategy

Growth stage
Deploy product pipeline, prepare for next stage

FY16~

High-calorie nutrient solutions containing multivitamins

Erythropoiesis-stimulating protein

Biosimilar using PLAJEX has launched in EU

FY09~

Biologics, Drug Kit Administration Device
Develop track record and pipeline

Devices to be kitted w/ drug ample/vial

FY99~

Drug & Device
Entry into combination products

For Safety
Plus efficiency
Plus Efficacy & Diversity

Heparin in saline
Entering Growth Phase

CAGR (FY16-FY19): 18%

Drug Kit Administration Device
(primarily outside Japan)

Prefilled syringes (primarily Japan)

Provide prefillable container
(PLAJEX)

CDMO
Fully-integrated manufacturing from molding thru packing

<table>
<thead>
<tr>
<th>Year</th>
<th>Prefilled syringes</th>
<th>Drug Kit Administration Device</th>
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<tr>
<td>FY16</td>
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<tr>
<td>FY19</td>
<td>160</td>
<td>160</td>
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Unique Business Model

Traditional Model

Three-way collaboration is required

Pharmaceutical company

Contract manufacturer (filler)

Device company

CMO/CDMO

Drug discovery  Pre-clinical  Drug development  Clinical  Approval  Manufacturing  Sales  Post marketing study

Contract manufacturer

Terumo’s Model: CDMO + α

Terumo plays a double roles, device company and contract manufacturer

Pharmaceutical company

- Provide devices to add additional value to drug
- Contract manufacturing
- Regulatory affairs support

Make partnership from development phase and collaborate all the way to manufacturing

Drug discovery  Pre-clinical  Drug development  Clinical  Approval  Manufacturing  Sales  Post marketing study
Captured Emerging Needs for Change in Drug Trend

Emerging challenges

- Delicateness of biologics
- Technologies to handle small volume, high viscosity drugs
- Difficulty of regulatory affairs for combination products
- Diversified drug delivery

Terumo’s solutions

- Silicone oil-free, aseptic filling
- Filling technology for small volume, high-viscosity drugs
- Regulatory affairs support for the big three markets of US, EU, and Japan
- Diverse drug delivery options and customizability

Change in Drug Trend

Small-molecule: Orally administered drugs

Large-molecule and biopharmaceutical: Injected drugs
Next Moves for Sustainable Growth

Use core technologies to further strengthen customization capability for increasingly diverse drugs

New needs
- High viscosity
- High volume
- Patch self-injection
- Intradermal administration, etc

Core technologies
- Tapered needles
- Patch pump
- Intradermal administration device

New Drug Delivery

Steady preparation for growth outside Japan

Jul 2018
Prefilled syringe manufacturing line of biologics certified for EU GMP

Nov 2018
Premix IV solutions manufacturing certified GMP compliant by US FDA

Jul 2020
Contract manufacturing of biosimilar Hulio certified GMP compliant by US FDA
Seamlessly Expanding Development Pipeline

Deals projected from ongoing co-developments

- Erythropoiesis-stimulating protein
- Adalimumab biosimilar
- Teriparatide acetate
- 9 more drugs

12 deals ~FY19

+10 deals FY20~FY26
Expand Production Capability thru Constant Investments

CAPEX investment for production

(100 million JPY)

FY01~FY05
FY06~FY10
FY11~FY15
FY16~FY20
KSF to Secure Sustainable Growth Trajectory

- **Ample drug delivery technologies** to meet a wide variety of drugs

- **Filling and sterilization technologies** to manage sensitive drugs

- **Knowledge and experience of development, evaluation, regulatory affairs, and clinical development** for combination products

- **Track record and long-term commitment** to earn the trust of pharmaceutical companies
Extend Our Market Reach with “Alliance” Model

Capture the expansion of healthcare scene by innovation of combined technologies

Traditional model of medtech company

“Alliance” model

A diversity of core technologies

Commercialization

Hospitals, Clinics

Home and community care facilities

Individual patients

Healthy individuals

Cell therapy-, regenerative med-, or testing-related company

Other partners

IT company

Pharmaceutical company

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