

The background of the slide is decorated with numerous circles of various sizes and colors, including blue, red, black, and grey, scattered across the white space. A solid blue horizontal band spans the width of the slide, serving as a background for the title and date.

Life Science Business Briefing

7 December 2023



1. Positioning of Lifesciences SBU in Daicel group and its structure

2. Foundation business and next generation business of Lifesciences SBU

3. Strategy for launching the medical device business



Daicel's Business Segment

FY2023 Net Sales Total

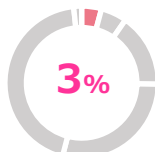
538.0 bn-yen

Japan's
market share
No.1

World's
market share
No.1

Major Products

Medical / Healthcare



Cosmetics ingredients such as polyglycerin
Naturally derived ingredients such as equol and Konjac ceramide
Chiral columns, High-purity chiral reagents, Co-processed excipients
such as orally disintegrating tablets



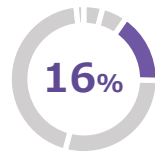
Smart



Tri-acetate cellulose(TAC) for optical films, High-performance optical films
Photoresist materials, **Solvents for electronic materials**,
Optical lens, Printed electronics materials, Organic semiconductor device



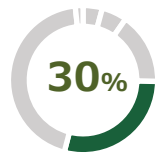
Safety



Airbag inflators for Automobiles,
micro gas generators, pyro-fuses



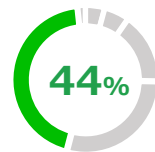
Materials



Acetic acid, Acetic acid derivatives(acetic anhydride, common solvents)
Cellulose acetate, **Acetate tow**, Alicyclic-epoxy-resin,
Caprolactone derivatives, **1,3-butylene glycol (1,3-BG)**



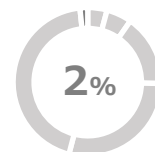
Engineering Plastics



Engineering plastics such as **POM**, PBT, PPS, **LCP**, COC
Plastics processing products such as
Coating films and packaging container, Water-soluble polymer



Others



Membrane separation systems

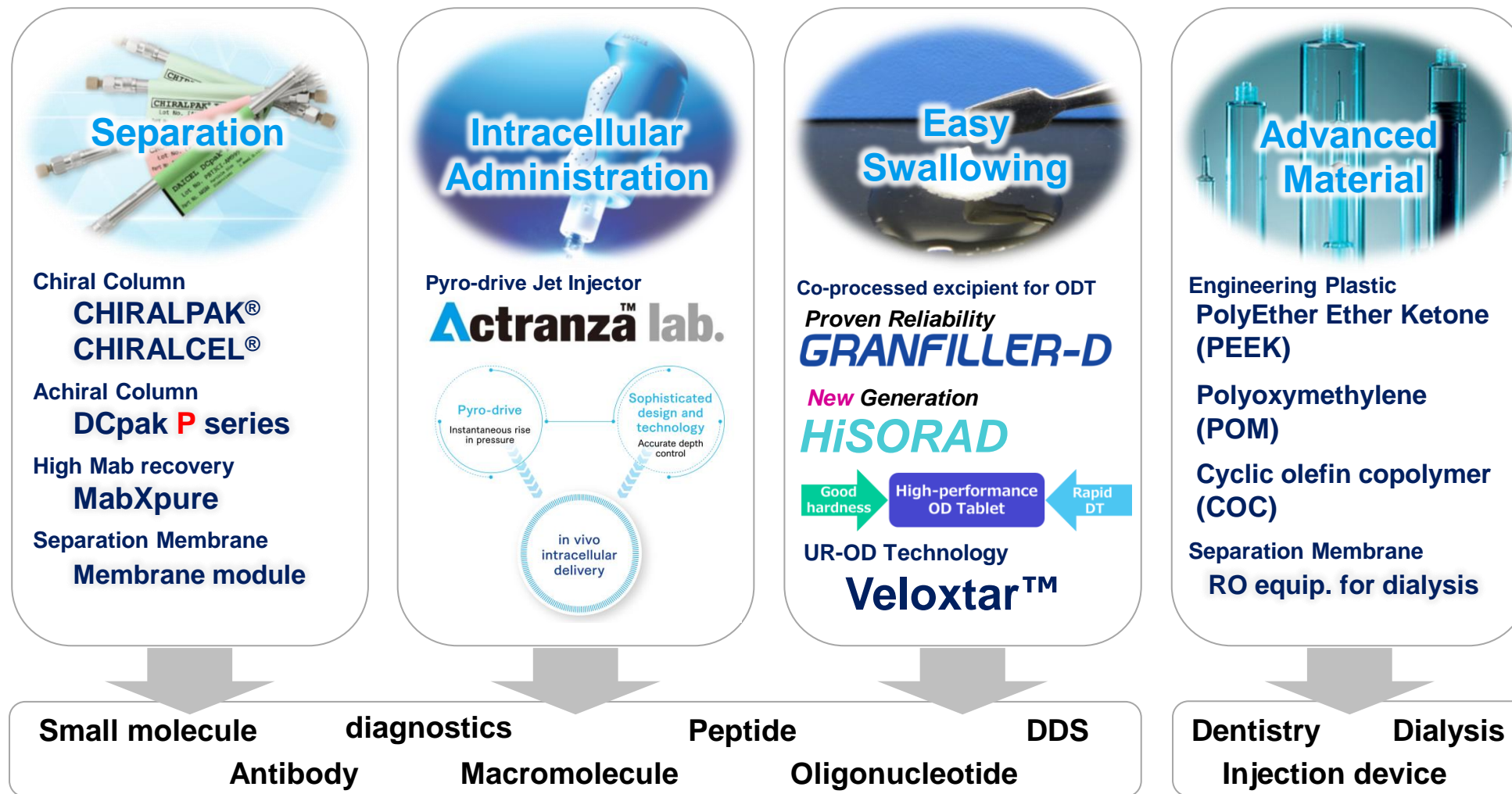


*Life science business is part of the Medical / Healthcare segment.



**Enhance
our life & QOL**

Our unique technology contributes to the improvement of people's healthy life expectancy.



1

Continuing to provide value to customers worldwide, including pharmaceutical companies, universities, and research institutions, with the chiral business as the core of our SBU and the main source of revenue.

2

Expanding our business in the growing fields of middle molecule drugs and genetic analysis, in response to the changing landscape of new drug modalities. Market-wise, expanding our service business in the continuously growing markets of India and China.

3

To enter into the medical device field, we will invest in and collaborate with PharmaJet, a US company, to advance the regulatory approval of Actranza in both Japan and the United States and accelerate the launching of the needle-free injector market worldwide.

4

We aim to conduct research and development in new fields such as exosomes as future biopharmaceuticals and launch new businesses in those areas.



Expanding our offerings in response to the diversification of new drug modalities and customer needs

For small molecule drugs



Chiral Column
Stationary phases
Separation services
Chiral reagents
Pharma Excipients

For small & middle molecule drugs



Achiral Column
Stationary phases
Purification services
Analytical services
Synthesis services

For genetic analysis



Target enrichment for NGS
Cytogenomics (ISH)
Cell-Free Protein Synthesis
Sequencing Services
Bioinformatics Services

Pyro-Drive jet injector



New drug administration
device for experiment on
animals



Global location of Lifesciences SBU

With over 40 years of business experience in the global pharmaceutical market.
Our chiral products hold the No.1 market share worldwide.



Chiral Technologies Europe SARL
Strasbourg, France
Established in 1994



Daicel Chiral Technologies (India)
Hyderabad, India
Established in 2008

DAICEL CORPORATION



Daicel Chiral Technologies (China)
Shanghai, China
Established in 2007



Daicel Arbor Biosciences
Michigan, United States
M&A in 2019



Chiral Technologies Inc.
Pennsylvania, United States
Established in 1990



1. Positioning of Lifesciences SBU in Daicel group and its structure

2. Foundation business and next generation business of Lifesciences SBU

3. Strategy for launching the medical device business



Products and services for small molecule drugs

Purpose	Analysis and purification of pharmaceuticals, both during early stage research and in commercial production.
Market	Pharmaceutical (Drug discovery and production, new drugs and generics) Global market for small molecule APIs is estimated to be around \$146.1 billion in 2022, with a CAGR of 6.8% until 2030. Source: Fortune Business Insights (Apr, 2023)
Competitiveness	Product sales, technical services, and contract allocation services at five global locations. A wide range of products due to continuous new product development
Business situation	We continue to experience high growth in emerging markets such as China and India while maintaining our market share in mature markets such as Japan and Western countries,

We contribute to the safety of drugs in various fields of research and development, production, and quality assurance in the pharmaceutical industry.

Drug discovery research

Analytical column

Confirmation of the purity of candidate compounds



Development stages

Prep column (mg~kg)

Rapid acquisition of chiral compounds



Commercial stage

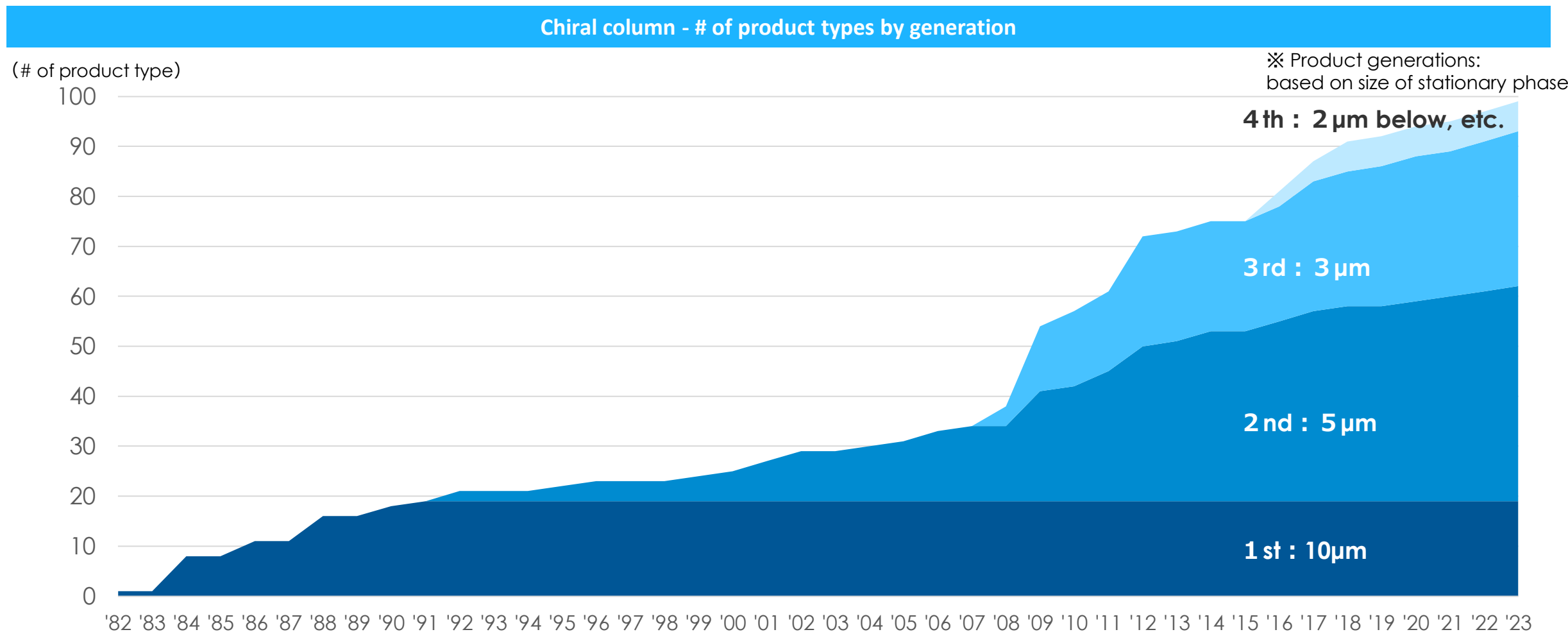
Commercial separation (ton)

Manufacturing of chiral compounds





We continue to develop high-performance and diverse products for the improvement and variety of fillers to meet the needs of customers for the separation of various compounds. We offer a wide range of column products, providing customers with diverse solutions.





Products and services for small and middle molecule drugs

Purpose	Purification, analysis, synthesis
Market	Pharmaceuticals (drug discovery and generics). Peptide therapeutics: 37.3 billion US dollars (2022), CAGR 9.6% (until 2027), Source: Global Information (2023). Nucleic acid therapeutics: 12.5 billion US dollars (2023), CAGR 3.7% (until 2029), Source: Global Information (Nov, 2023).
Business activities and strengths	<ul style="list-style-type: none">○ Achiral column & stationary phase : unique separation characteristics different from existing general-purpose products (ODS columns).○ One-stop services for small to medium molecular weight pharmaceuticals in India:<ul style="list-style-type: none">- Contract purification services utilizing advanced fractionation techniques and detection systems.- Advanced contract analysis services for critical raw materials, intermediates, active pharmaceutical ingredients (APIs), and formulations in FDA-approved facilities.- Contract synthesis services for analytical reference standards such as drug impurity standards, labeled standards, and metabolites, utilizing advanced analysis, purification, and synthesis techniques.
Business situation	<ul style="list-style-type: none">○ Contract purification services (for medium molecules, achiral): Primarily focused on the robust domestic demand in India, and offering services in other areas.○ Contract analysis and synthesis services: Strong domestic demand in India, ensuring sustained high growth by catering to the local market. Making progress in exports to the global markets.



Service businesses in India

Offering purification, synthesis, and analysis services within the Genome Valley (IKP Knowledge Park) in Hyderabad



Purification services



Analytical services











Synthesis services





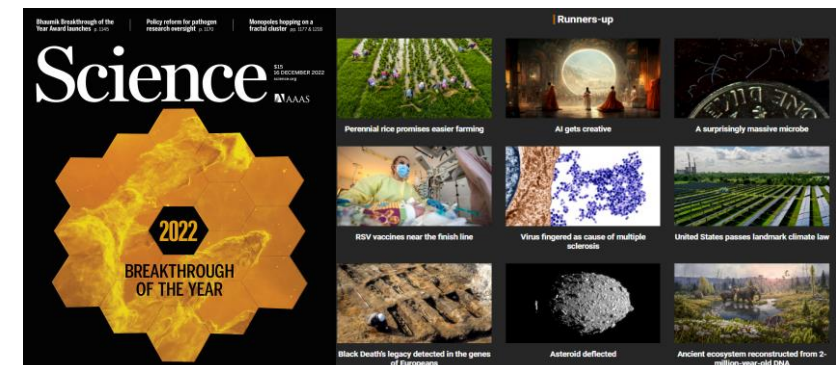
Genetic analysis-related business (Daice Arbor Biosciences)

Purpose	DNA/RNA sequence analysis and protein expression
Customers	University, Research institution, Government labs, Agri-business
Products and services	<p>In addition to having a competitive advantage in plant genomics, we also possess ancient DNA and forensic analysis kits, establishing a certain position in the field of genetic analysis.</p> <div>   <p>myBaits[®]</p> </div> <p>Synthetic oligonucleotides kit that bind to the target genomic region for DNA collection. This targeting approach allows for cost reduction in customer analysis.</p> <div>   <p>myReads[®]</p> </div> <p>A comprehensive service for sequencing the DNA collected using my Baits</p> <div>   <p>myTags[®]</p> </div> <p>Detect target sequences on the genome using fluorescently labeled oligonucleotides To determine whether the target sequence is present or not based on fluorescence</p> <div>   <p>myTXTL[®]</p> </div> <p>A kit containing reagents such as enzymes and substrates found in Escherichia coli. This allows for protein synthesis without the time-consuming process of cell culture.</p>
事業状況	We aim to further expand our market presence in the field of human genomics, building upon our expertise in plant genomics.



myBaits
ready-to-use kit

(*) **Genome analysis using myBaits on archaeological human bones**
The article "Evolution of immune genes is associated with the Black Death," published in Nature, has been selected as one of the nine winning papers in the "Breakthrough of the Year" category for the 2022 edition of Science.





1. Positioning of Lifesciences SBU in Daicel group and its structure
2. Foundation business and next generation business of Lifesciences SBU
3. Strategy for launching the medical device business



Actranza[®] lab.

ONE TIME ENERGY
daisi

- ◆ A technology driven by pyro combustion to deliver drug solutions inside a specific tissue without using a needle.
- ◆ A study using animal models has reported that, compared to injections using the conventional needles, the device showed greater accuracy of the delivered sites, and increased the efficiency of gene expression.



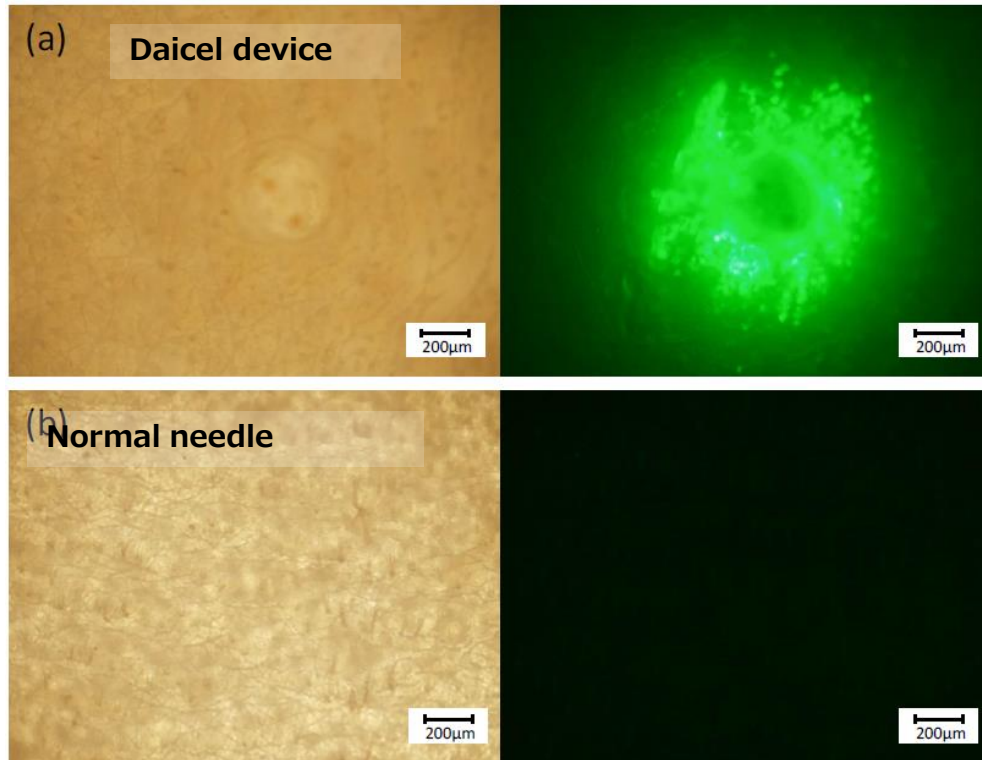
Through providing to research institutes such as pharmaceutical companies, promote research for human application, and we aim at the realization of a new drug delivery system that leads to the realization of innovative medicines such as gene therapeutics, nucleic acid medicines and DNA vaccines.



Capability of Actranza[®] lab. for Nucleic acid delivery

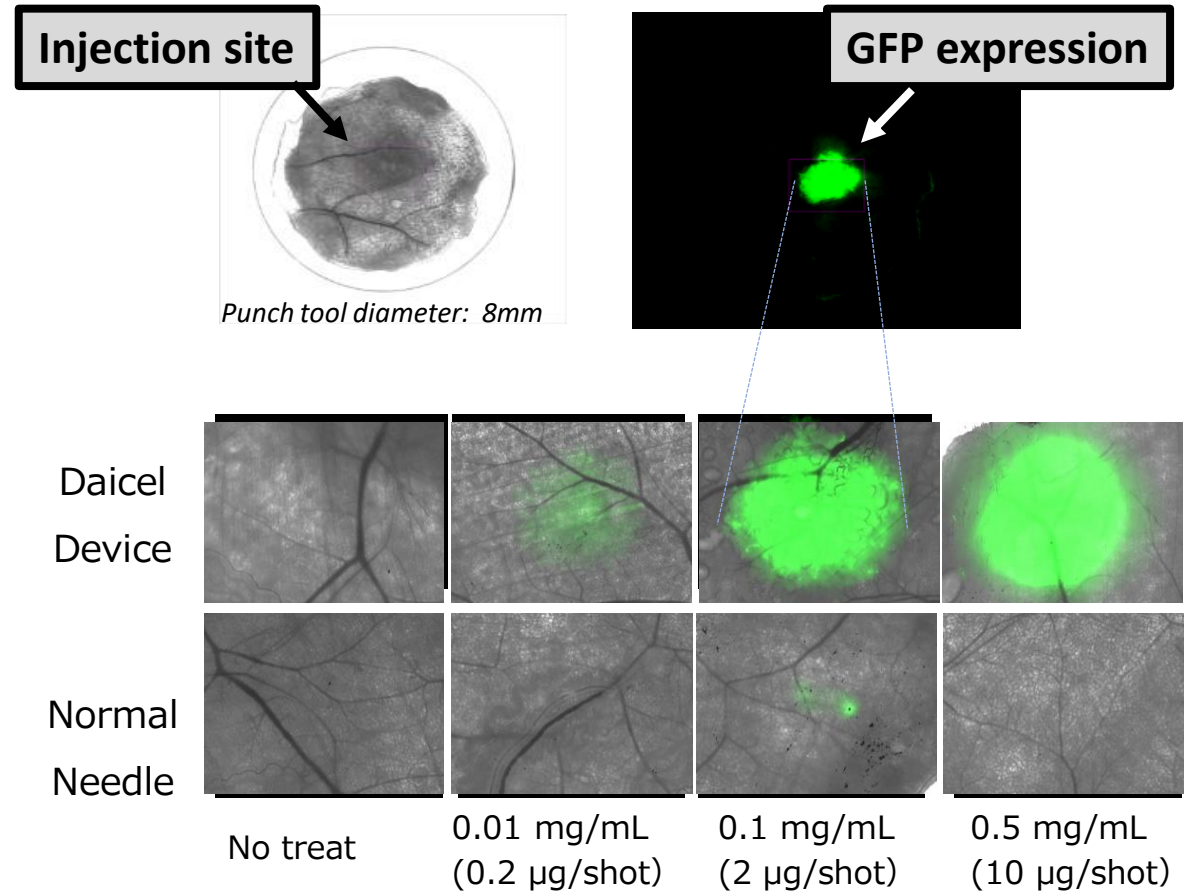
- Able to deliver Plasmid DNA without adjuvant and naked mRNA into the cell
- Observed better gene expression in comparison with normal needle injection

GFP expression of plasmid DNA



Resource : Osaka University

GFP expression of mRNA



Resource : Daicel's date



Strategy of Medical Device Business

- 1) Accelerate Daicel Medical Business with the strategic collaboration with PharmaJet, a global leader in needle-free injections
- 2) Establish Daicel Medical Limited, a dedicated company for medical devices and proceed with regulatory clearance activities

Create new DDS device field

DAICEL



PharmaJet®

Stratis®





Strategic collaboration with PharmaJet

- Executed strategic investment in PharmaJet on October 13th
- Discuss future collaboration areas including FDA regulatory clearance support for Daicel devices, joint marketing and joint development

PharmaJet®

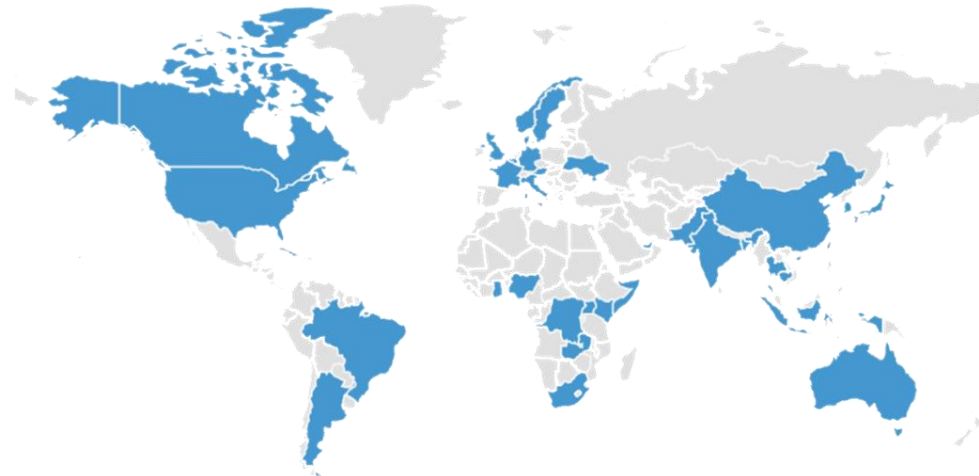
PharmaJet is a global leader in novel biopharmaceutical administration.

Developed a **commercially scaled** technology that **enhances performance** of nucleic acid vaccines and therapeutics as well as **optimizes the delivery** of current vaccine technologies.

of syringes supplied:
10's of millions



Partners: over 80 in the world



Our Precision Delivery Systems™ (PDS) overcome the challenges of our vaccine and biopharmaceutical partners

Stratis®

IM/SC



Precision 0.5 ml Intramuscular or Subcutaneous Delivery System

Clinical Response

Better immune response, indicative of a more effective clinical performance.

Expanding Partnerships

High tolerability in human trials with over 80 partnerships

Enabling

Increased vaccination coverage with Tropis intradermal.

Ease of Use & Differentiation

Higher patient and health care worker acceptability versus traditional method of administration (N/S).

Tropis®

ID



Precision 0.1 ml Intradermal Delivery System

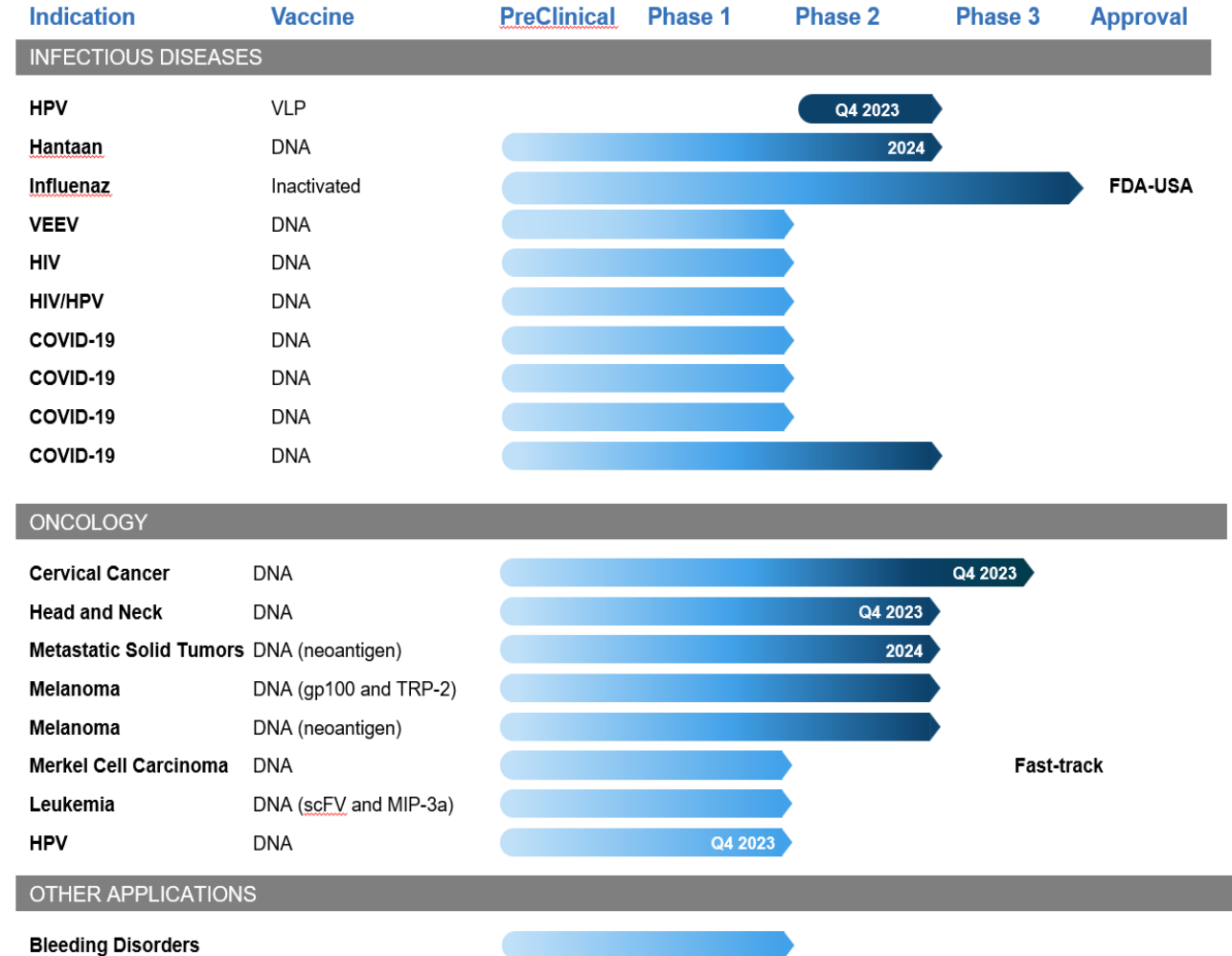
Precision Delivery Systems (PDS) deliver a spring-powered injection in 0.1 second by means of a narrow stream of fluid that penetrates the skin with a precise dose and depth.





New drug pipeline with PharmaJet's devices

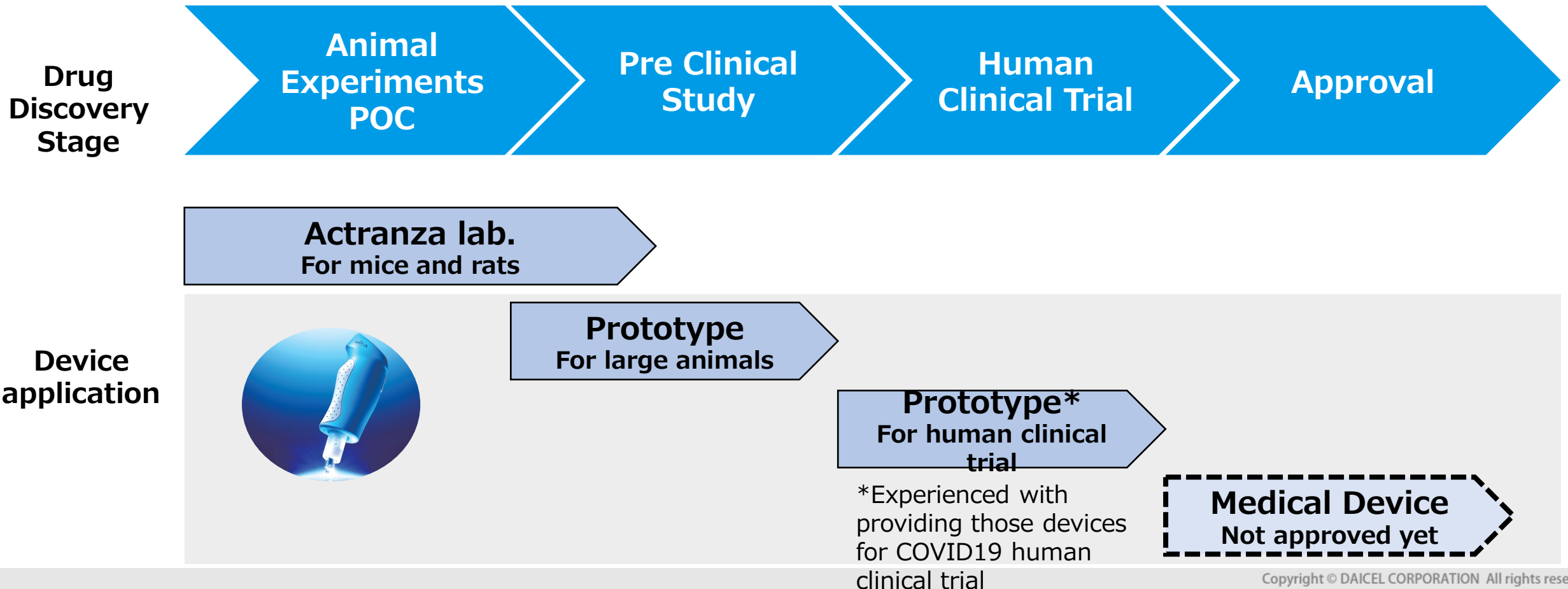
Flexible business models to support drug discovery by Pharmaceutical companies and research institutions





Background of Daicel Medical Limited establishment

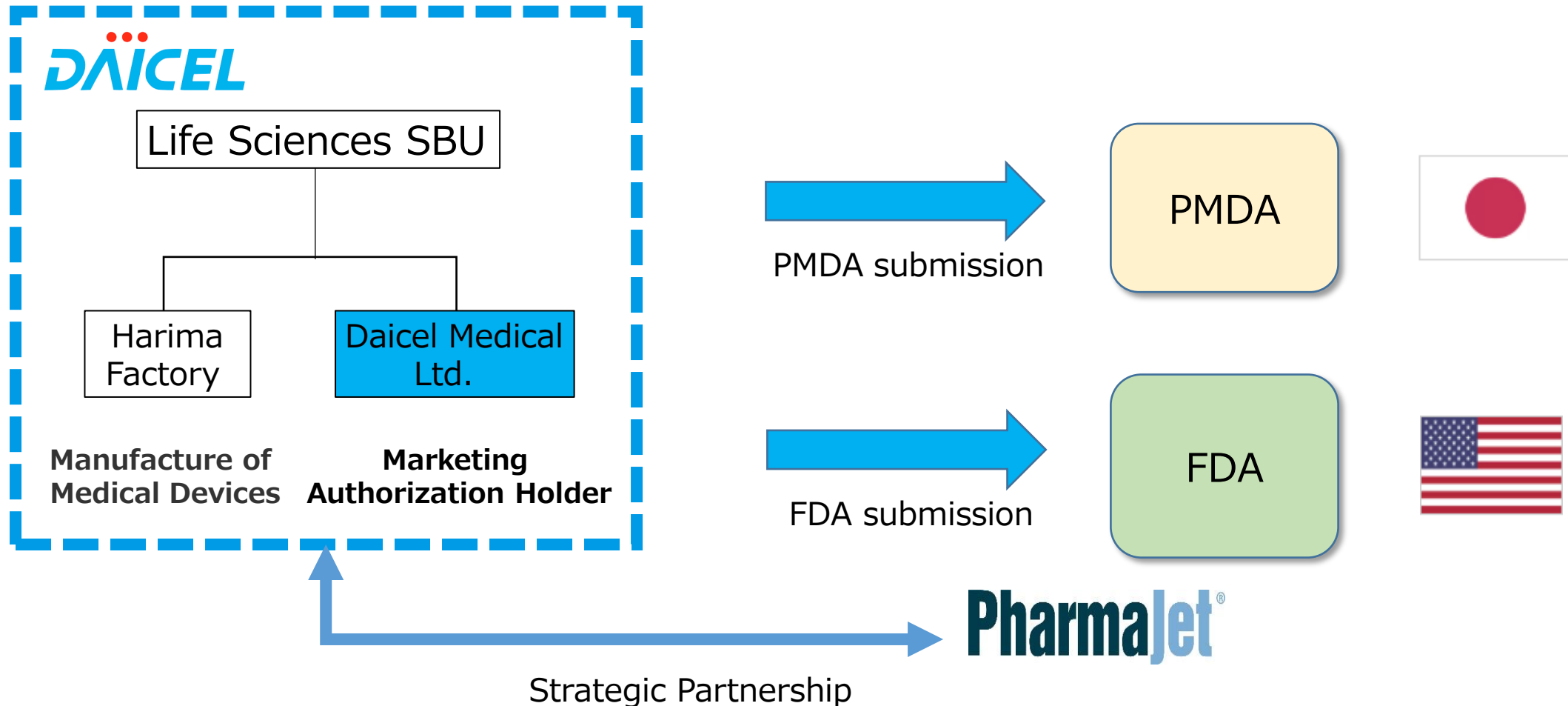
- Launched Actranza lab. as animal experiments tool in the US, Europe and Japan as of June 2022
- Set up flexible business model to support drug discovery by Pharmaceutical companies and research institutions
- Established Daicel Medical Limited to be approved as a Marketing Authorization Holder to support drug discovery





Direction of Daicel Medical Business

- Daicel Medical Limited to be approved as a **Marketing Authorization Holder** in FY24
Daicel Corporation to be approved as a **Manufacture of Medical Devices** in FY24
- Prepare FDA submission with the strategic partnership with PharmaJet



Notes Regarding Forward-Looking Statements

- **The purpose of this document is to provide information and not to persuade any individual to take any action in response to the information contained in this document. Daicel has made the greatest possible effort to prepare this document with accurate information. The information in this document, however, may include risks or inaccuracy, and we do not guarantee the accuracy or reliability of this information.**
 - **The reader is advised that the use of the information in this document is at your own risk. Any investment according to the prospects, target values, etc. appearing in this document might result in a loss. Daicel accepts no responsibility for such an eventuality.**
- **All rights reserved by Daicel Corporation.**
 - **This document shall not be copied or distributed to a third party without the permission of Daicel Corporation.**