

# **TAKARA BIO INC.**

## **Corporate Profile**

**March, 2019**

# Corporate Data

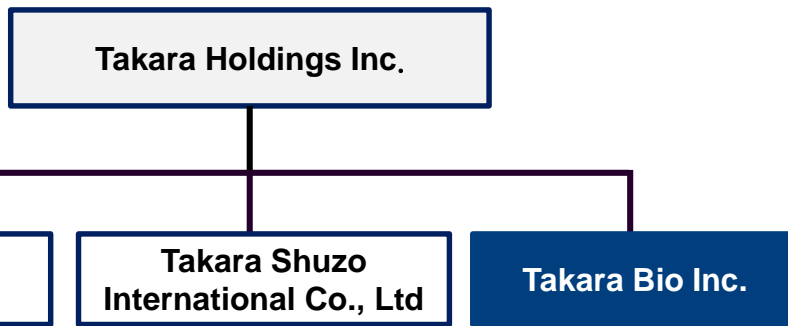
## <History>

- 1967 Started the biomedical business at TaKaRa Group
- 2002 Established Takara Bio Inc. as a result of corporate separation from Takara Shuzo
- 2004 Listed on the Mothers section of the Tokyo Stock Exchange
- 2014 Started the operation of the Center for Gene and Cell Processing
- 2015 Completed a new facility in Kusatsu, Shiga  
Moved the Headquarters office from Otsu to Kusatsu
- 2016 Listed on the First Section of Tokyo Stock Exchange

## <Corporate Data>

※as of December 31, 2018

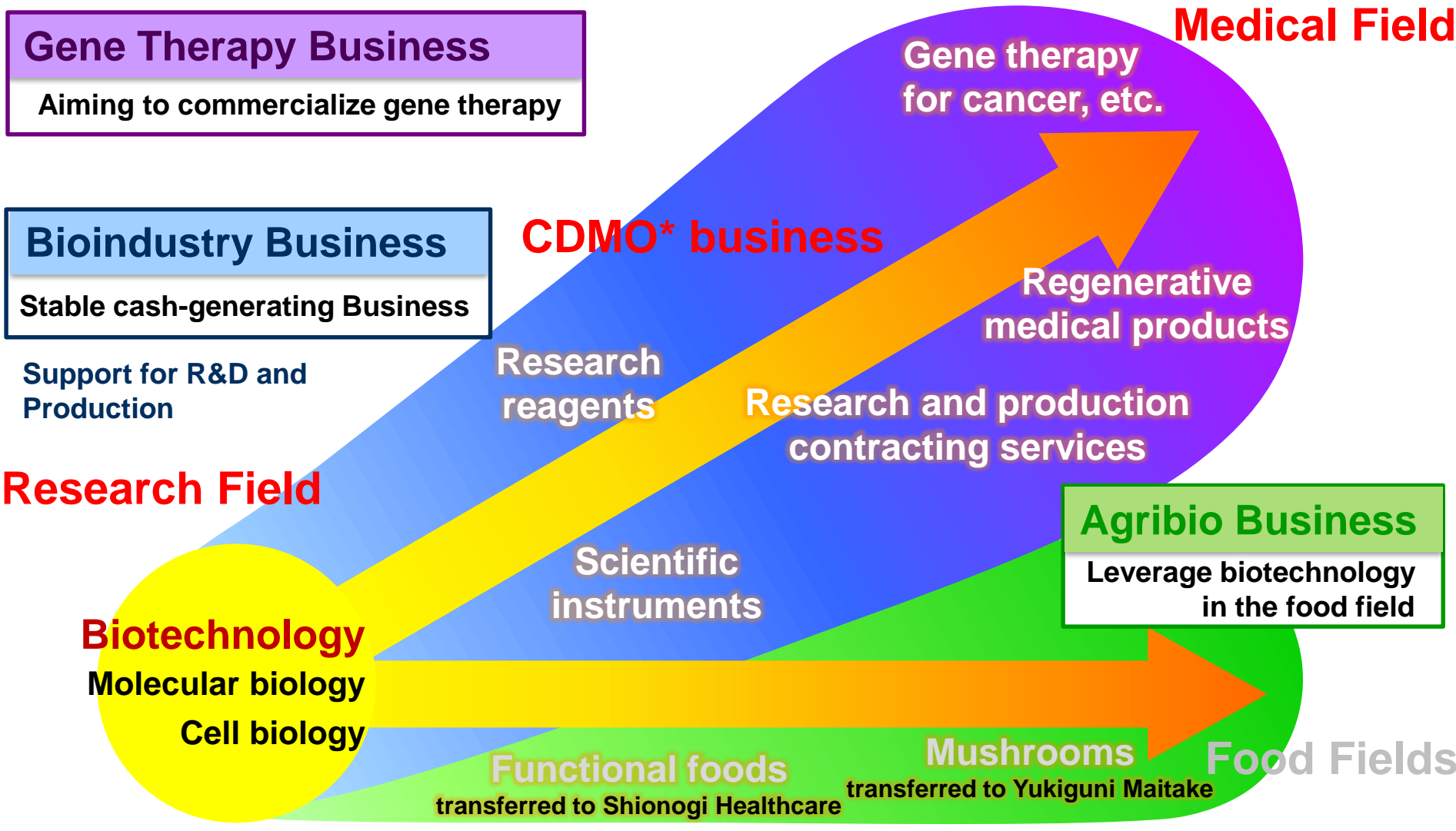
Established	April 1, 2002
Issued Capital	14,965 million yen
President	Koichi Nakao
Number of employee	1,499
Head Office	Kusatsu, Shiga
Major Shareholder	Takara Holdings Inc. (60.91%)



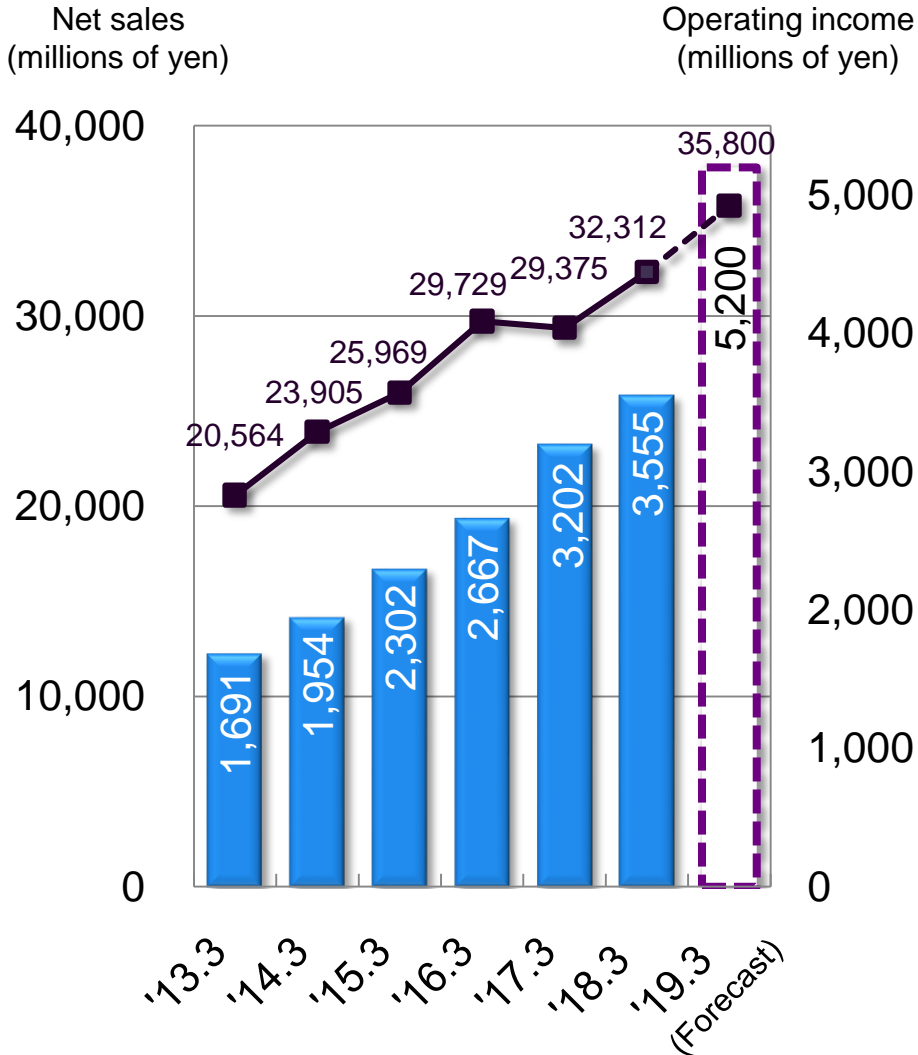
Headquarters Office and Research Laboratory

Center for Gene and Cell Processing

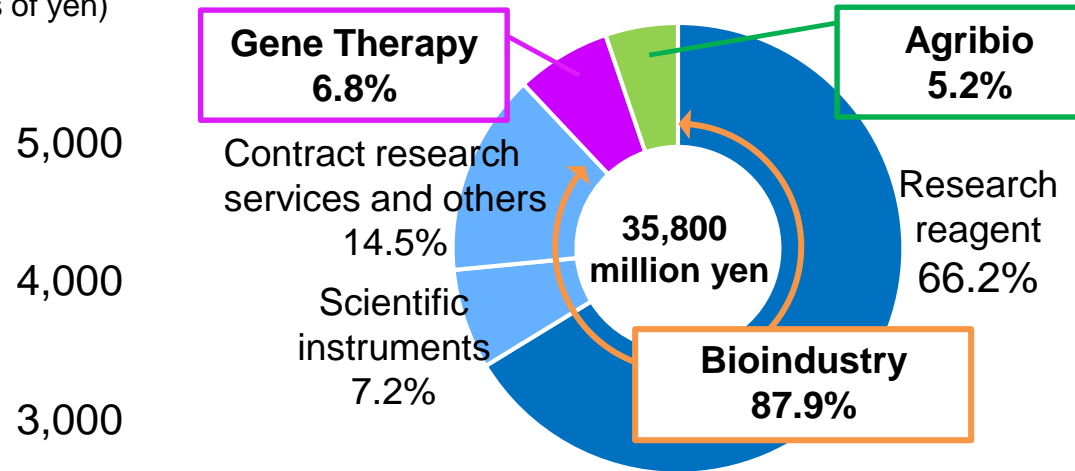
# Takara Bio Group's Business Strategy



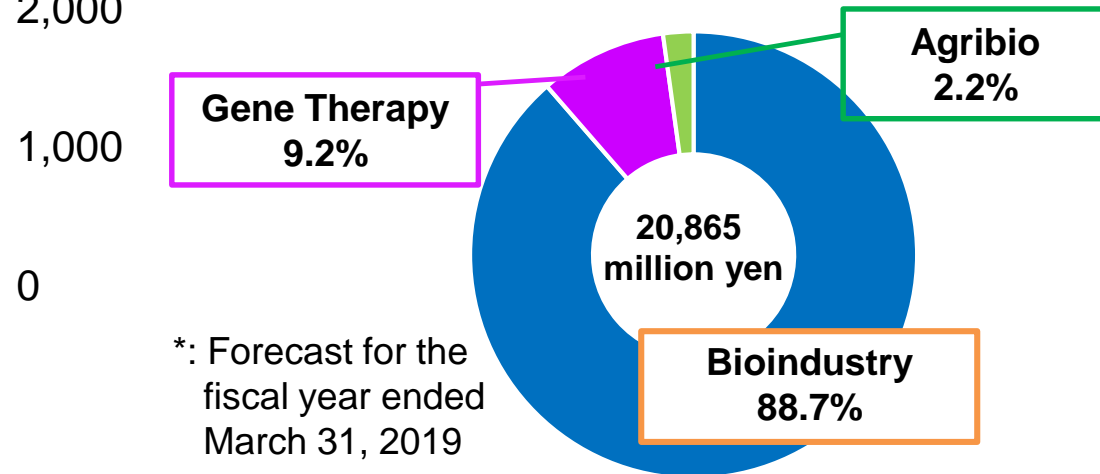
# Business Overview



## ➤ Net sales by business segment (FY2019\*)



## ➤ Gross profit by business segment (FY2019\*)



\*: Forecast for the fiscal year ended March 31, 2019

# Bioindustry Business

## ○ Research Reagents

- Gene amplification
- Gene expression
- Next Generation Sequencing etc...



## ○ Scientific Instruments

- Gene amplification
- Mass spectrometry systems
- Single-cell analysis systems

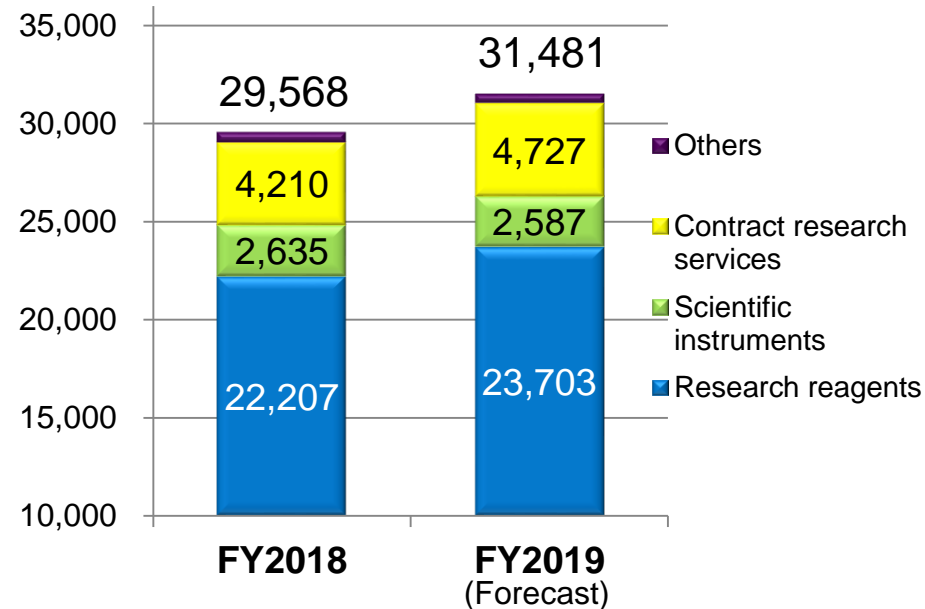


## ○ Contract Research Services

- Genome sequencing analysis
- Vector production, Cell processing
- Technical support and licensing for cancer immunotherapy in clinic etc...

(millions of yen)

### Net sales



# Major Events in the past

**1979**

Launching the first Japanese-made 7 restriction enzymes

**1988**

Commencement of providing PCR system under the exclusive distribution right in Japan

**1993**

Established Takara Biotechnology (Dalian) Co., Ltd. in China

**2005**

Acquisition of Clontech Laboratories, Inc. in the U.S.

**2014**

Acquisition of Collectis AB in Sweden

**2017**

Acquisition of WaferGen Bio-systems, Inc. and Rubicon Genomics, Inc. in the U.S.

The number of all research reagents available from Takara Bio reaches approximately 7,000



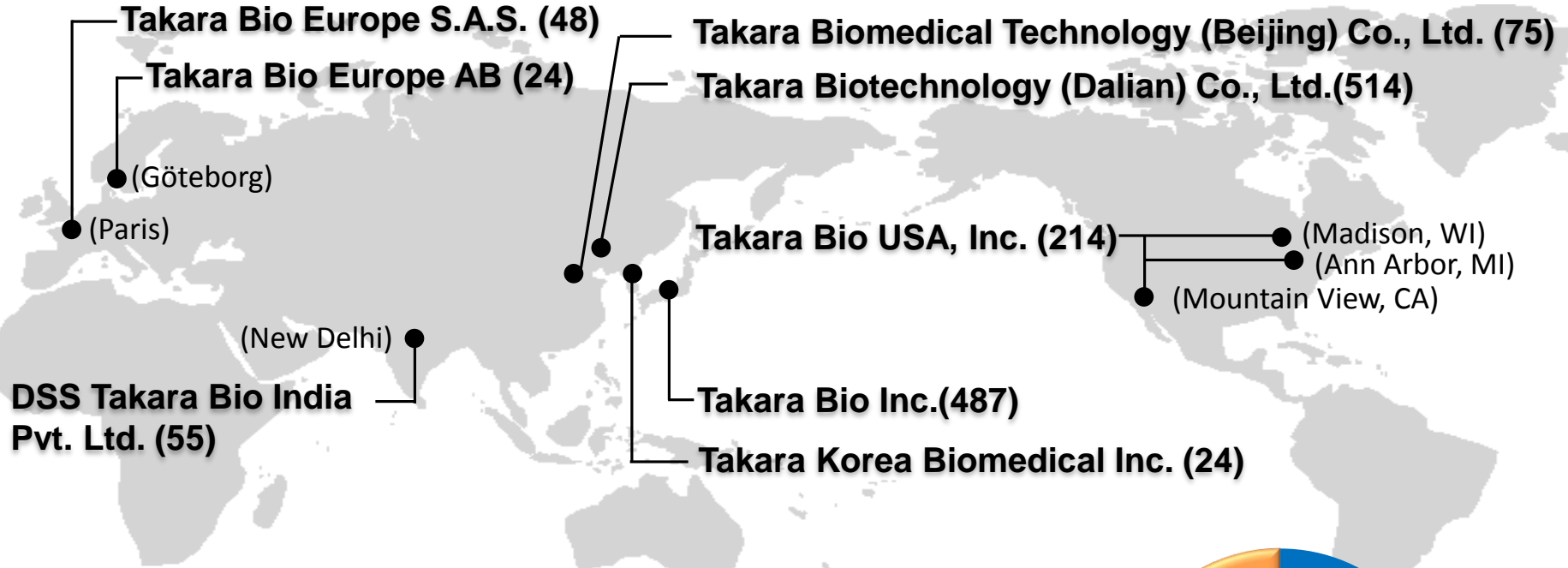
# Our Major Manufacturing Facility of Research Reagents, Takara Biotechnology (Dalian)

**Numbers of employees : 514**  
**Established year : 1993**

※as of December 31, 2018

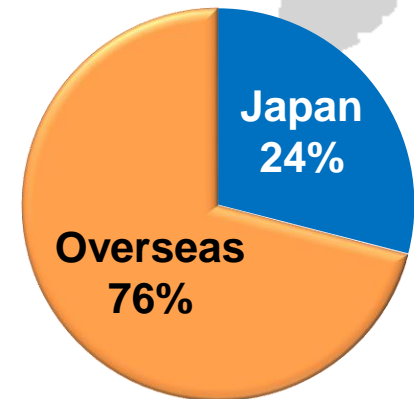
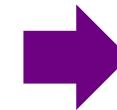
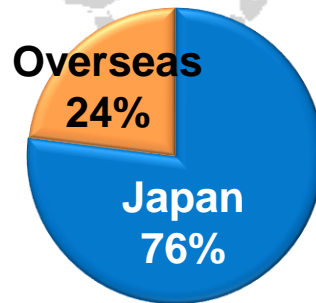


# Global Network



※Number of employees as of December 31, 2018

**Geographic turnover of Research reagents**





# Expansion of CDMO Business

**CDM  
Center**



**Center for  
Gene and Cell  
Processing**



**Genome  
Medicine**



**Regenerative  
Medicine**

# Develop the Largest Service for Genetic Analysis in Japan

**2000**

Established DRAGON GENOMICS CO., LTD  
Launched full-scale genetic analysis services

**2002**

Merged into Takara Bio

**2016**

Aggregated into new research facility in Kusatsu, Shiga  
Obtained CAP-LAP certification  
for the contracted genetic analysis business



**DORAGON GENOMICS CO., LTD 2000**  
(Yokkaichi City, Mie)



Providing various genetic analysis service

- Genome structure (Next-generation sequencing)
- Genomic variation (SNPs)
- Gene expression (Microarray)
- Gene function (Epigenetics)



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© Pacific Biosciences



© illumina



**New Research Facility 2016**  
(Kusatsu City, Shiga)

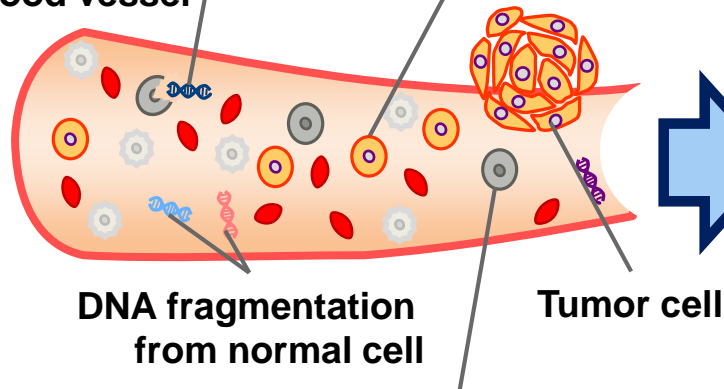
# Accelerate the Advanced Field in Clinical Sequencing

## Precision Medicine using Liquid Biopsy

DNA fragmentation from destroyed tumor cell

Circulating tumor cell in the bloodstream (Metastasis)

Blood vessel



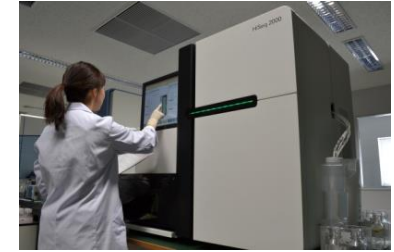
DNA fragmentation from normal cell

Tumor cell

Destroyed tumor cell



**WaferGen instrument**  
“SMARTer<sup>®</sup> ICELL8<sup>®</sup>cx” for single cell system analysis



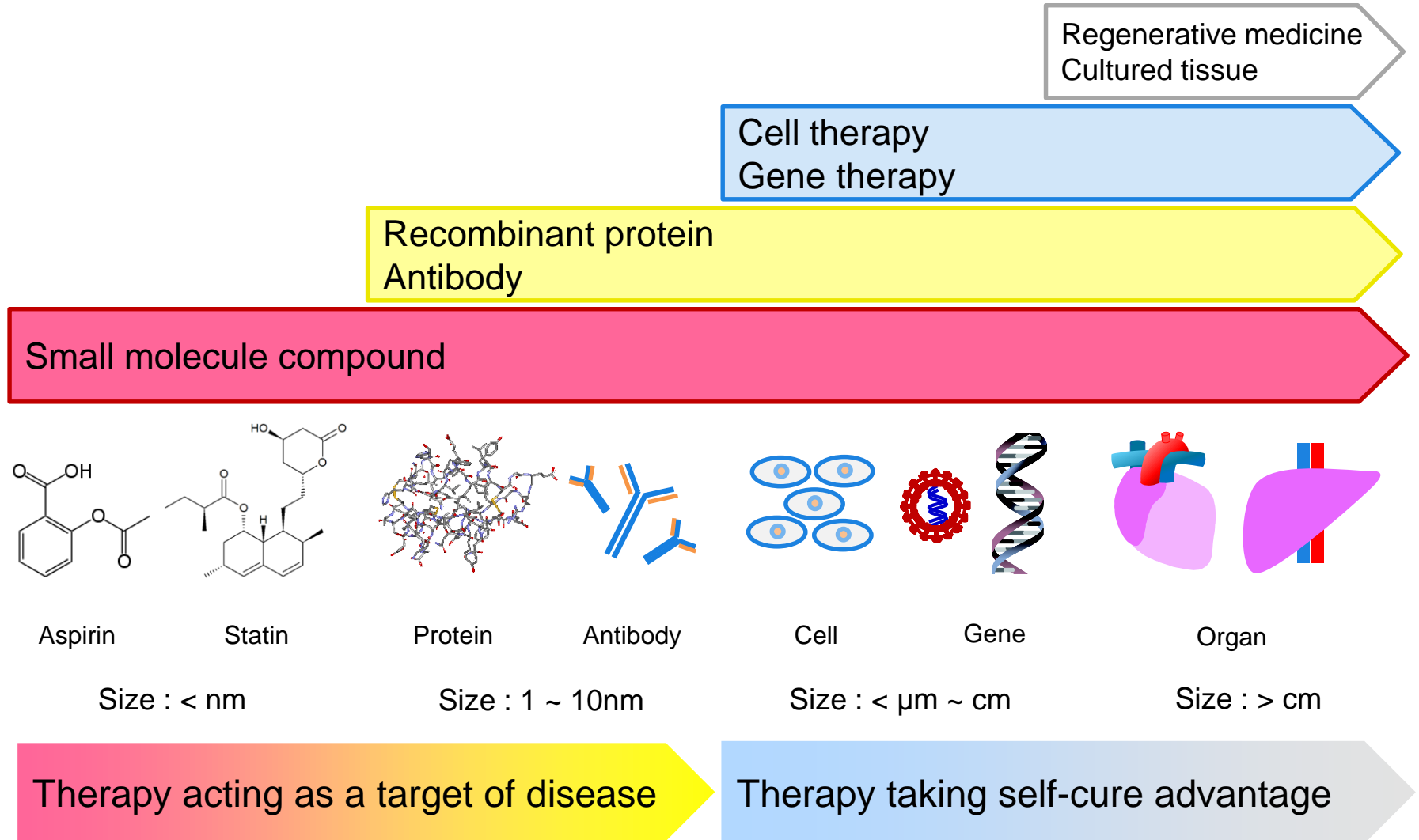
**Contracted service**  
Next-generation sequencing (Genetic mutation and aberration)



**Rubicon product**  
DNA/RNA extraction and purification

**Approaching a promising therapy via genetic evaluation**

# Paradigm shift in Pharmaceuticals Emerged as Bio Pharmaceuticals



# Business Environment for Regenerative Medicine in Japan

## Revised Pharmaceutical Affairs Law

- ◆ Designated for
  - Pharmaceuticals, medical instruments, and regenerative medicine products
- ◆ “Regenerative medicine products”
  - Defined as a gene therapy, a therapeutic gene transduced into cells and infused into the patients
- ◆ Conditional/time-limited marketing authorization
  - Established for regenerative medicine products

## Act on the Safety of Regenerative Medicine

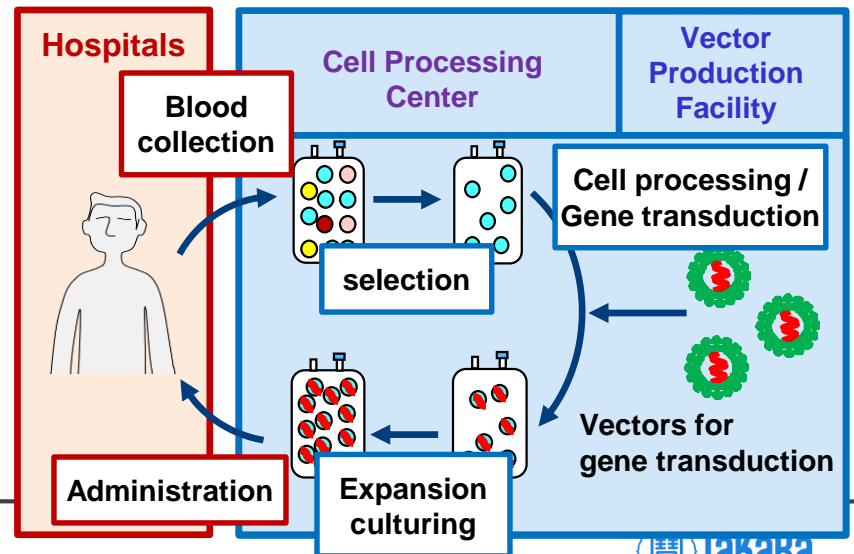
Before

Therapeutic cells can only be processed in hospitals



After November 25, 2014

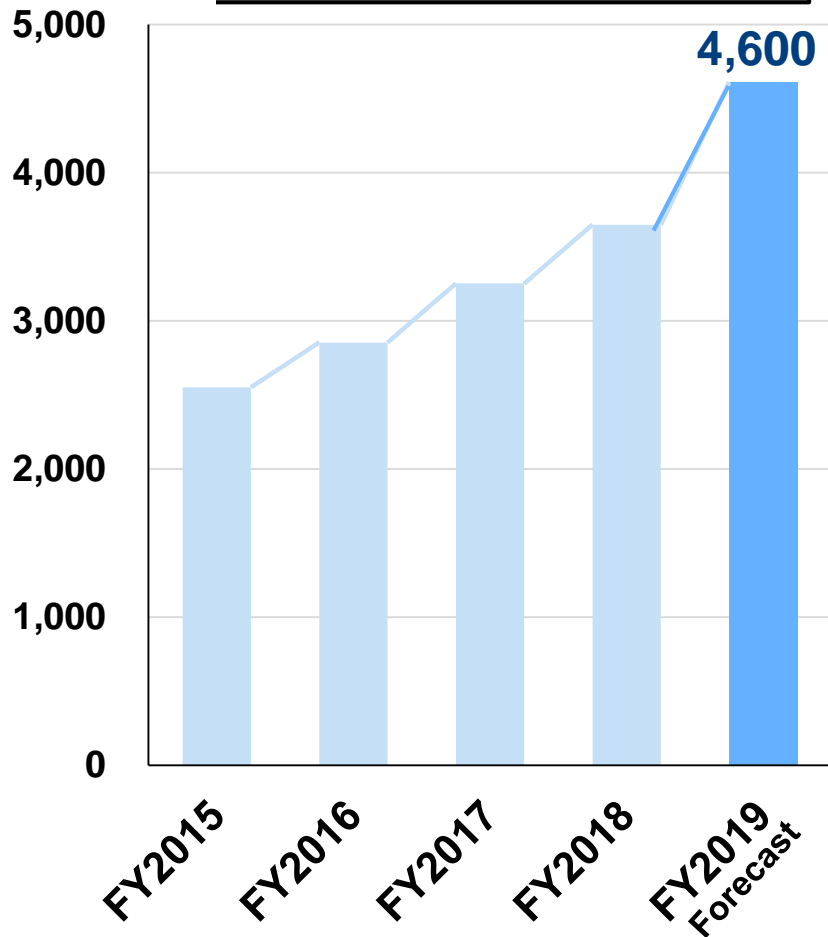
Cell processing services can be provided by third party companies



# Future Prediction for Regenerative Medicine and Cell Therapy Related Market in Japan

## Changes in Net sales of CDMO business

(Millions of yen)



## Vector manufacturing/ Cell processing service

- Established research and manufacturing facility newly for regenerative medicine products (Scheduled for completion in December 2019)
- Develop Vector manufacturing
- Develop Cell processing
- Develop quality testing for regenerative medicine products
- Provide partner with therapeutic products for a fee

## Genetic analysis/ Genetic testing service

- Develop service menu for genetic analysis such as whole genome sequencing
- Strengthen the fields of single cell analysis and clinical sequencing

# Center for Gene and Cell Processing



Launch : October 2014

Location : Kusatsu City in Shiga, Japan

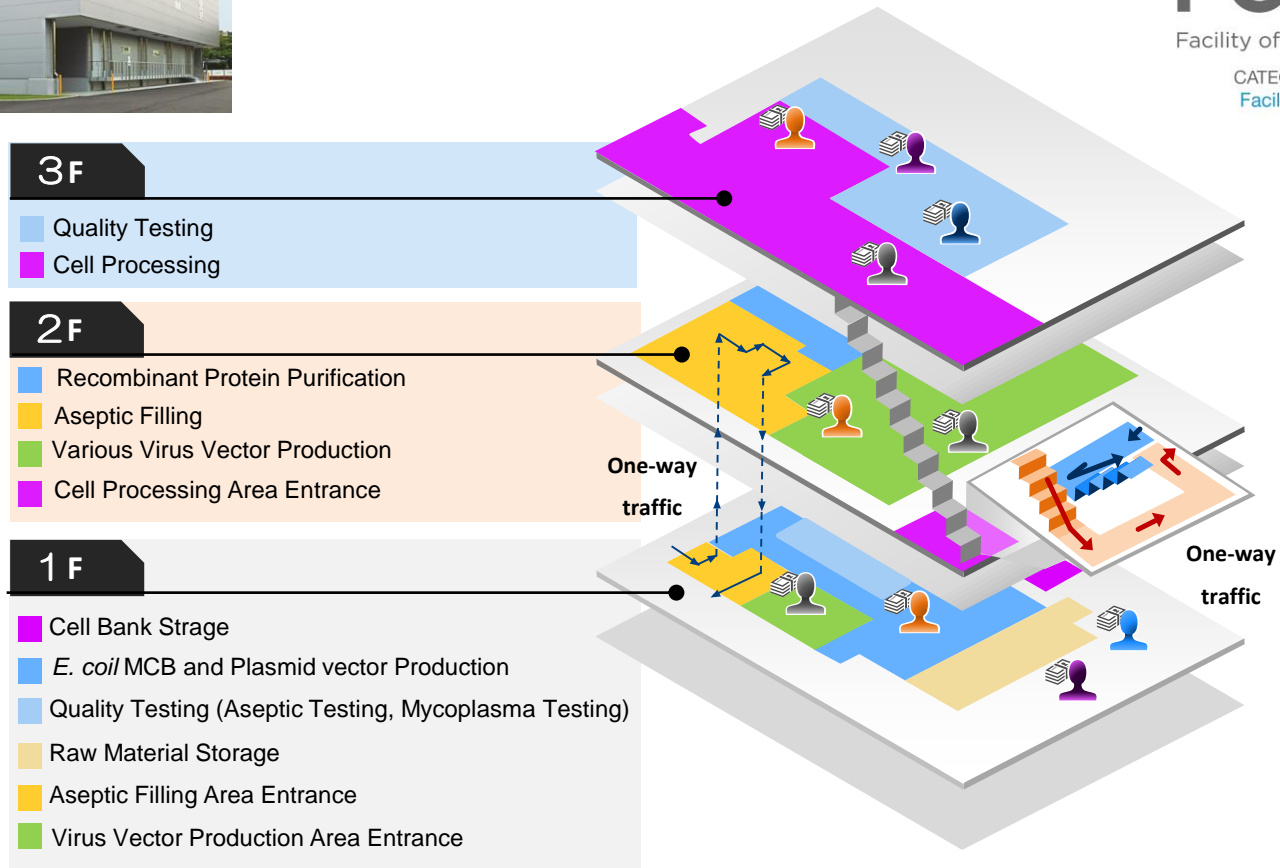
Full floor space : approx. 6,600 m<sup>2</sup>



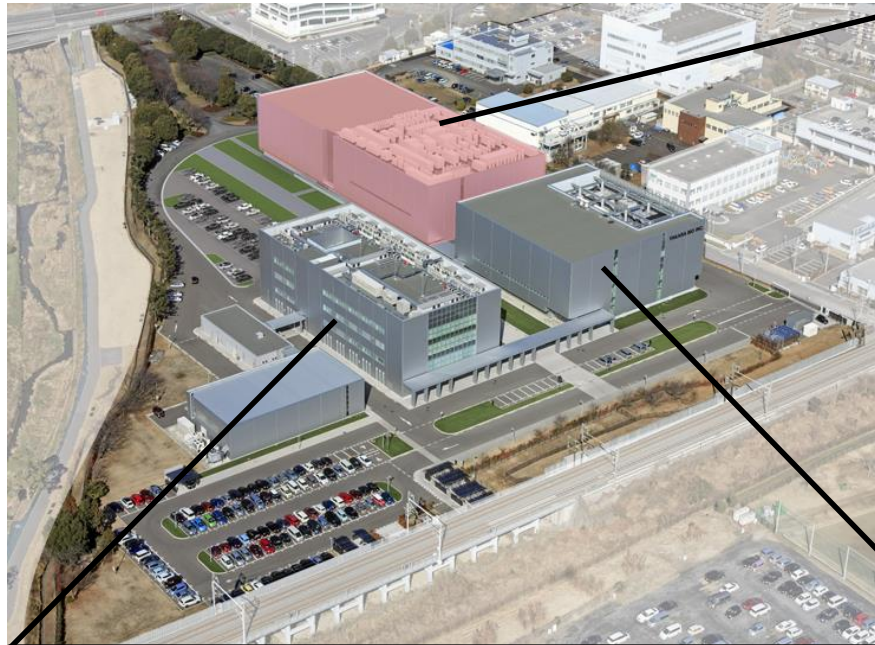
**FOYA** | 2016

Facility of the Year Awards

CATEGORY WINNER  
Facility Integration



# Construct a New Research and Manufacturing Facility for Regenerative Medical Products



## New Facilities

**Operated in December 2019 (Scheduled)**

**About 14,500 m<sup>2</sup> (Not installed space 4,600 m<sup>2</sup>)**

**Services for manufacturing of regenerative medical products and its quality testing, Research to develop new technology for regenerative medical products, Technology development and manufacturing for research reagents, Vector manufacturing, Cell processing, Cell banking, Aseptic filling, etc.**

## Headquarters office and Research Laboratory

**Operated in August 2015**

**About 1,200 m<sup>2</sup>**

**Genetic testing related-work,  
Basic research area**

## The Center for Gene and Processing

**Operated in October 2014**

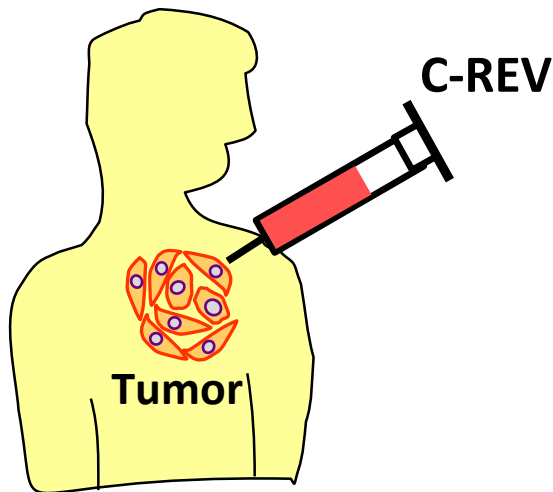
**About 6,700 m<sup>2</sup>**

**Vector manufacturing, Cell processing,  
Cell banking, GMP aseptic filling,  
Cell testing, etc.**



# Clinical Development of the gene therapy for cancers Oncolytic Viurs

## C-REV Anti-cancer Therapy



## Clinical development Conference presentation

- ◆ Malignant melanoma (Japan)
  - Phase II clinical trial in progress
  - Data presentation in ESMO2018
  - Preparation underway for approval application
- ◆ Malignant melanoma (USA)
  - Combination with Nivolumab (Investigator initiated trial in progress)
- ◆ Pancreatic cancer (Japan)
  - Phase I clinical trial (Expansion cohort) in progress
  - Presentation of preliminary data in ASCO-GI 2019

## Licensing agreement

- ◆ Otsuka Pharmaceutical, Co., Ltd (December 15, 2016)
  - Exclusive in Japan, All indications
- ◆ Dong-A ST, South Korea (August 22, 2018)
  - Exclusive in Korea, All indications

# Clinical Development of the gene therapy for cancers Engineered T-cell Therapy

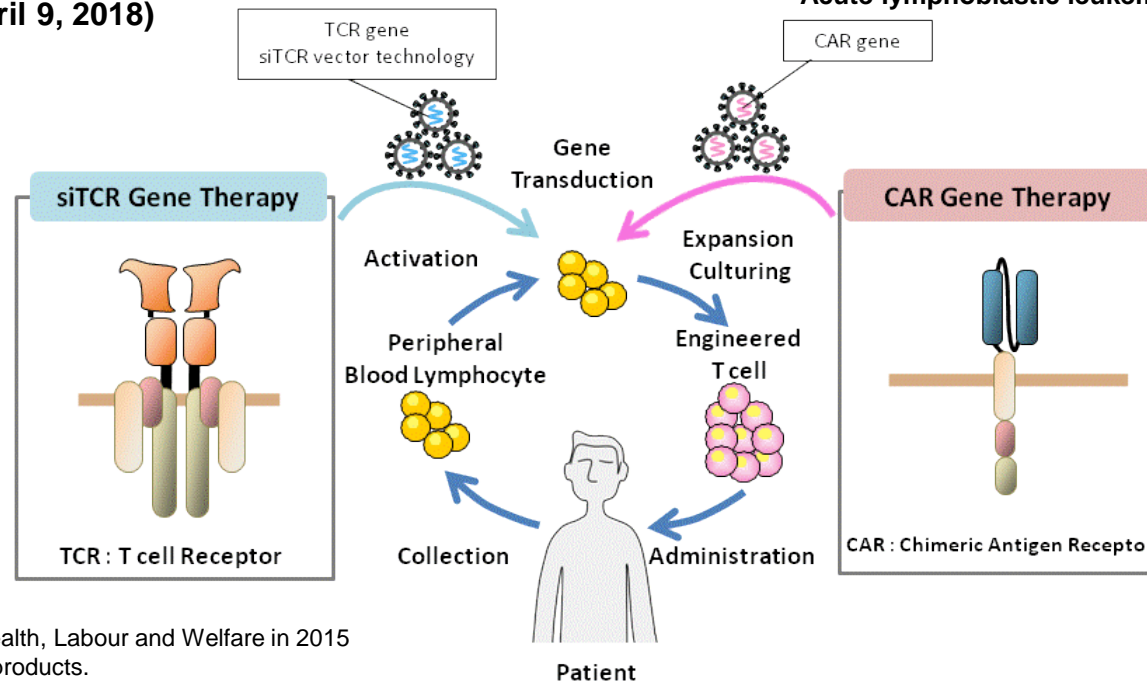
## NY-ESO-1 • siTCR™

- ◆ Synovial sarcoma (Japan)
  - Phase I/II clinical trial in progress
  - Designated as a SAKIGAKE\* product
- ◆ Solid cancer (Canada)
  - Phase Ib investigator initiated trial in progress
- ◆ Licensing
  - Co-development and exclusive sales agreement with Otsuka Pharma (April 9, 2018)

## CD19 • CAR

- ◆ Adult ALL \*
- Phase I/II clinical trial in progress
- ◆ Licensing
  - Co-development and exclusive sales agreement with Otsuka Pharma (April 9, 2018)

\*Acute lymphoblastic leukemia



\*System introduced by the Ministry of Health, Labour and Welfare in 2015 aiming at early launching of advanced products. The designation has been succeeded by Otsuka as of Feb, 2019.

# Pipeline Status for developing in Gene Therapy Business

Joint projects		Indications	Status	Partnership		
Oncolytic Virus	C-REV (TBI-1401)		Japan	Malignant melanoma	Phase II in progress Preparation underway for application	Otsuka Pharma
			Japan	Pancreatic cancer	Phase I in progress	Otsuka Pharma
			South Korea	All indications	Under review	Dong-A ST
			USA	Malignant melanoma	Phase II Investigator initiated trial in progress	Under review
Engineered T cell Therapy	siTCR™	NY-ESO-1 (TBI-1301)	Japan	Synovial sarcoma	Phase I/II in progress	Otsuka Pharma
			Japan	Expand indication	Under review	Otsuka Pharma
		Canada	Solid cancer	Phase Ib Investigator initiated trial in progress	Preparation underway	
	CAR	CD19 (TBI-1501)	Japan	Adult ALL*	Phase I/II in progress	Otsuka Pharma
			Japan	Expand Indication	Under review	Otsuka Pharma

\* ALL : Acute lymphoblastic leukemia

# Takara Bio Medium-Term Management Plan FY2020 (Upward revision in May 2019)

**Revised Medium-Term Management Plan FY2020**

FY2020 Takara Bio consolidated results  
Net sales 38.5 billion yen  
Operating income 6.0 billion yen

## Business goal

## Status of measures

<b>Bioindustry</b>	Regenerative medical products-related CDMO business No.1	<ul style="list-style-type: none"> <li>• In construction currently for research and manufacturing facility (Scheduled for completion in December 2019)</li> <li>• Synergistic maximization through businesses with two overseas companies acquired</li> </ul>
<b>Gene therapy</b>	Approval acquisition of gene therapy products	<ul style="list-style-type: none"> <li>• Preparation underway for C-REV approval application</li> <li>• Clinical development of genetically-engineered T cell therapy</li> </ul>
<b>AgriBio</b>	<b>Business operation into Bioindustry business and Gene therapy business</b>	<ul style="list-style-type: none"> <li>• Mushroom business : <b>Business transfer to Yukiguni Maitake</b></li> <li>• Functional food business : <b>Business transfer to Shionogi Healthcare</b></li> </ul>

# Forward-Looking Statements

Statements in this news release, other than those based on historical fact, concerning the current plans, prospects, strategies and expectations of the Company and its Group represent forecasts of future results. While such statements are based on the conclusions of management according to information available at the time of writing, they reflect many assumptions and opinions derived from information that includes major risks and uncertainties. Actual results may vary significantly from these forecasts due to various factors. Factors that could influence actual results include, but are not limited to, economic conditions, especially trends in consumer spending, as well as exchange rate fluctuations, changes in laws and government systems, pressure from competitors' prices and product strategies, decline in selling power of the Company's existing and new products, disruptions to production, violations of our intellectual property rights, rapid advances in technology and unfavorable verdicts in major litigation.

<inquiry>

Takara Bio Inc.

PR・IR Department

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