Better Health, Brighter Future





Introduction of Regenerative Medicine Unit and Takeda-CiRA Joint Program

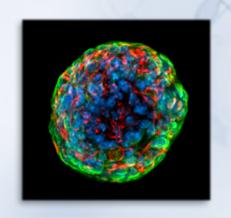
Seigo Izumo, M.D.

Global Head of Regenerative Medicine Unit

Mission of Regenerative Medicine Unit



We aspire to become an industry leader in regenerative medicine by bringing definitive therapies to patients with life threatening disease.









Takeda's External Collaborations in Cell & Gene Therapy



GI



 Cx601 for complex perianal fistula in Crohn's disease

T-CiRA Joint Program





- Kyoto University
- Yokohama City University
- Riken

Oncology





NOILE-IMMUNE BIOTECH

- Novel T cell platform for a broad range of cancers
- Yamaguchi University
- National Cancer Center

Sanford Consortium



- Salk Institute for Biological Studies
- UC San Diego

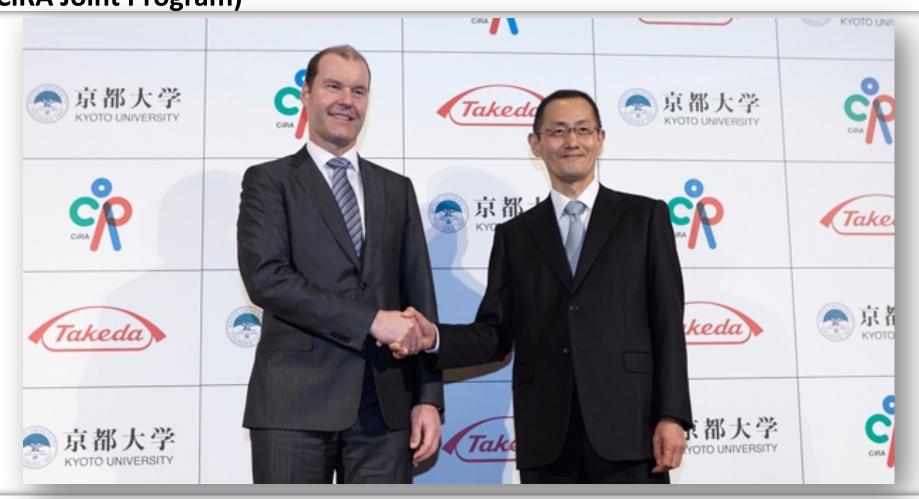
CNS



Keio University

In 2015, Takeda and Center for iPS Cell Research and Application (CiRA) at Kyoto University agreed to start a ten-year-long research collaboration (T-CiRA Joint Program)





Takeda-CiRA Joint Program: *Unique academia-industry collaboration*



- 1. Long term (10 years) commitment by both CiRA and Takeda
- 2. Over 100 researchers at one site.
- Aim: To deliver cell therapies and drug discovery using human iPS cells
- 4. "Reverse" academia-industry collaboration in the center of a drug company's research facility.
- 5. Co-ownership of Intellectual Properties (50:50)

The Framework of T-CiRA Collaboration and Clinical **Candidate Development**





- iPS cell science / Technology
- Targets / Prototype assays
- PIs / Postdoctoral researchers

- R&D Know-hows
- Facility / Equipment
- Researchers
- Drug Discovery Platforms
- Budget



IPs not exercised by Takeda

Partnerships (Co-development, New-co, Joint Venture, etc)

T-CiRA Joint Program

in Shonan Research Center

- > Cell Therapy
- ➤ Gene Therapy
- Drug Discovery
- > Drug Safety and Efficacy

Candidate Cell

Cell Therapy Gene Therapy

Candidate Compound

Drugs Biologics

Support by Takeda Group

- Screening library
- Pharmacology
- Safety
- Early clinical trial etc.

T-CiRA Collaboration

-Dedicated Space in Shonan Research Center-







- Located in Fujisawa, Japan
- Approximately 7,500m² total floor area
- More than 100 scientists from academia and Takeda
- All projects use iPSC technologies
- Considered as a branch of CiRA by Kyoto University













Principal Investigators in T-CiRA Program



Cell Therapy Group



Taro Toyoda (CiRA, Kyoto Univ.)

- Type 1 diabetes



Yoshinori Yoshida (CiRA, Kyoto Univ.)

- Heart failure



Shin Kaneko (CiRA, Kyoto Univ.)

- T-cell therapy for cancer
- Immune tolerance for organ transplantation

Drug Discovery Group



Haruhisa Inoue (CiRA, Kyoto Univ.)

 Amyotrophic Lateral Sclerosis (ALS)



Yoshinori Yoshida (CiRA, Kyoto Univ.)

- Cardiomyopathy



Hidetoshi Sakurai (CiRA, Kyoto Univ.)

- Intractable muscular disease



Tadashi Suzuki (RIKEN)

- Drug discovery for NGLY1 deficiency

Platform Technology



Makoto Ikeya (CiRA, Kyoto Univ.)

- A new research platform with neural crest cells



Takanori Takebe (Yokohama City Univ.)

- Organoid technology



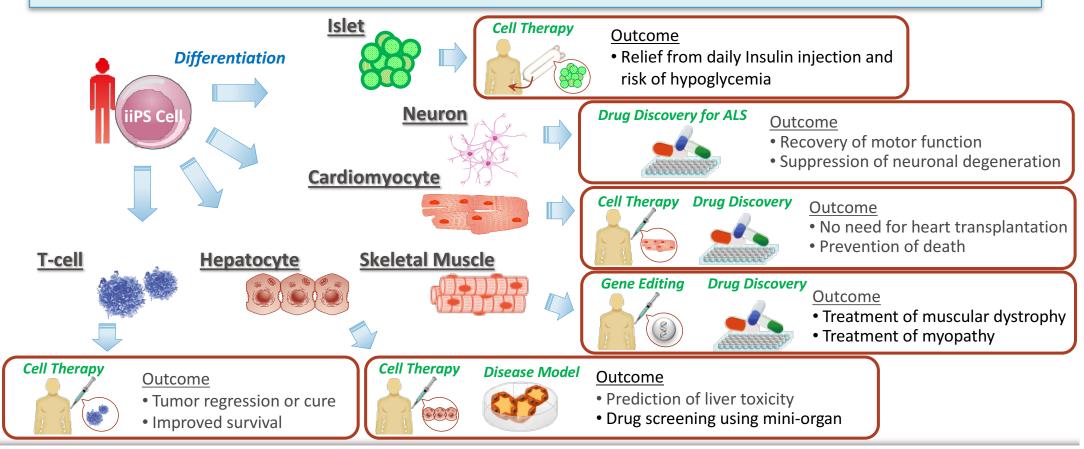
Akitsu Hotta (CiRA, Kyoto Univ.)

 Genome editing therapy for Duchenne muscular dystrophy

Game-Changing Therapeutics to be Delivered from the T-CiRA Program



T-CiRA aims to enter clinical trials within 3-4 years and submit approval applications within 9 years.



Transformation of Shonan Research Center into an Open Innovation Hub



2017.3

Shonan Research Center

CNS Research

Regenerative Medicine Unit

T-CiRA

Platforms and Pre-Clinical Support Functions



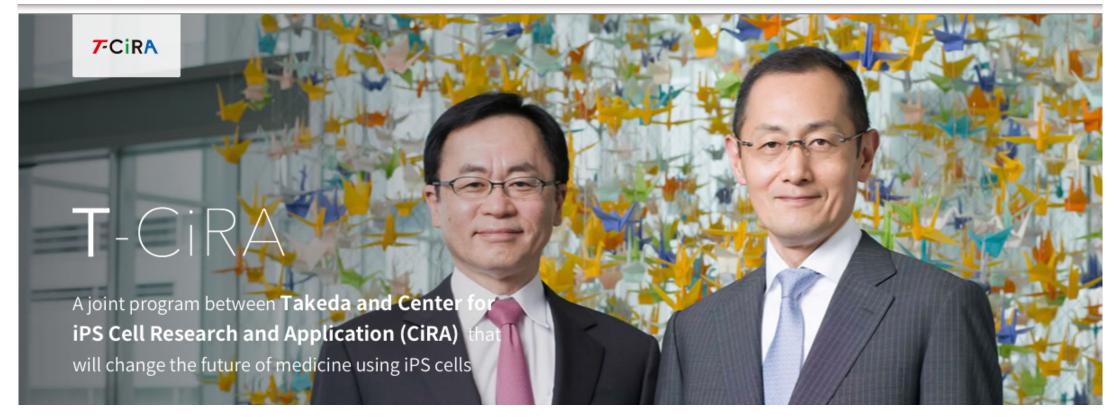
Transformation of Shonan Research Center into an Open Innovation Hub



2017.10 2017.3 **Shonan Research Center Shonan Health Innovation Park CNS Research** Takeda **Regenerative Medicine Unit** Research **CNS Research Pharma Science** T-CiRA Regenerative Medicine Unit **Axcelead Drug Discovery Partners** ScohiaPharma, Cardurion EVPs: Seedsupply, ChromaJean, etc Open Noile-Immune, K-Pharma T-CiRA **Innovation** Hub **Open Labs: Other tenants** Platforms and **Pre-Clinical Support Functions Business Support** (e.g. legal,IP, Finance, IT etc.)

T-CiRA: A New Form of Academia-Industry Collaboration at Shonan Health Innovation Park





URL:https://www.takeda.com/t-cira/



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