

R&D Meeting  
<New Fields>

March 5, 2014

Dainippon Sumitomo Pharma Co., Ltd.

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# Today's Agenda

## ◆ Efforts in New Business Fields

## ◆ Regenerative and Cellular Medicine Business

- Cell Therapy
  - SB623
- Regenerative Medicine
  - Alliance with Healios K.K.
  - Cooperation with iPS cell projects for practical use

## ◆ Vaccine Business

## ◆ Development of the in-licensed products in the field where no approved drugs exist

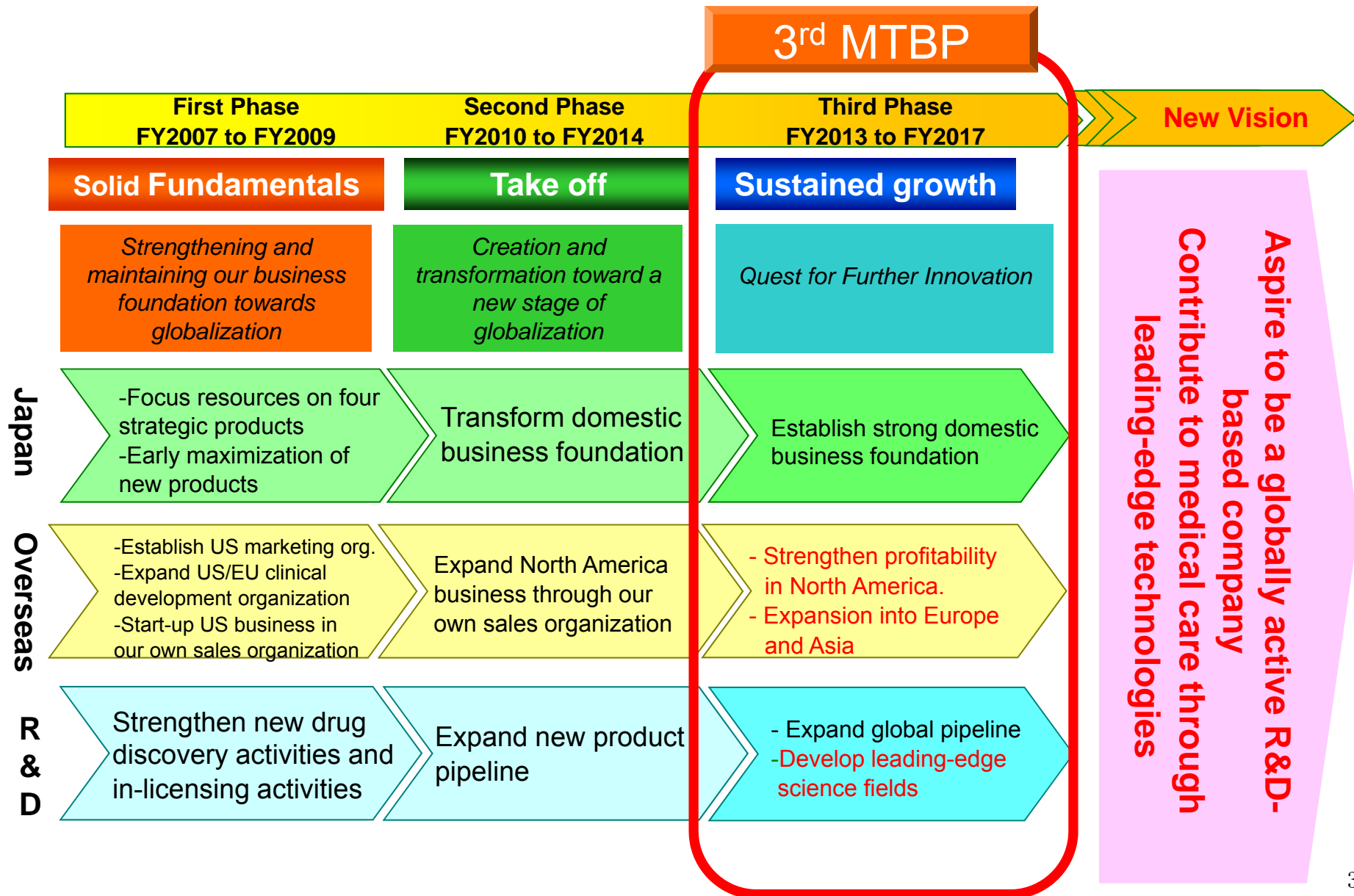
- EPI-743 (Mitochondrial Disease )
- DSP-1747 (NASH, PBC)

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# Efforts in New Business Fields

**Toru Kimura, Ph.D., Director**  
**Head of Regenerative & Cellular Medicine Office**

# Vision for the 3<sup>rd</sup> MTBP



## 3<sup>rd</sup> MTBP: R&D Strategy (excerpt)

### [Focus Therapeutic Areas]

- Psychiatry & Neurology
- Oncology

### [Explore new business fields]

- Cell Therapy / Regenerative Medicine



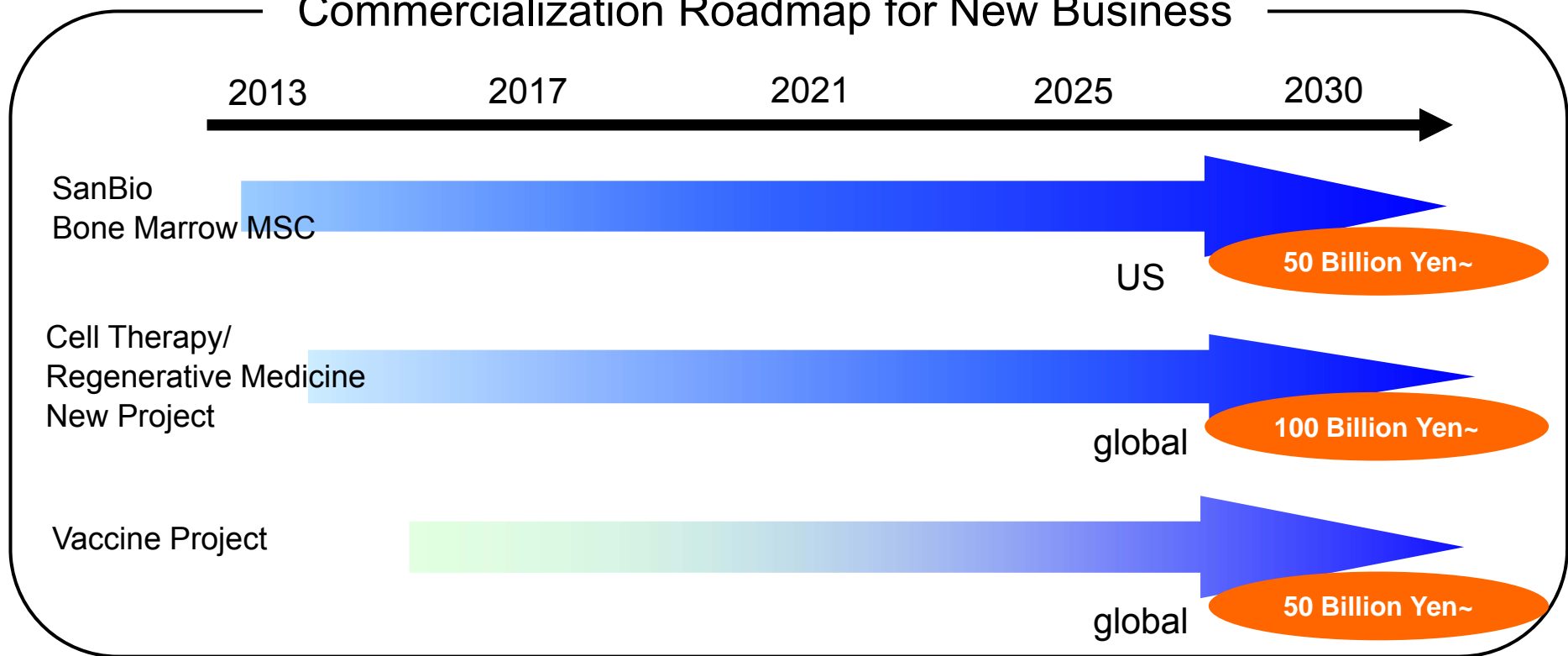
### Cell Therapy / Regenerative Medicine

- R&D for clinical application to intractable diseases

# R&D Strategy

## Explore New Business Fields

### Commercialization Roadmap for New Business



Become a company that contributes to health outcomes by commercializing cell therapy/regenerative medicine and through full-scale initiatives in preventative care such as vaccines and diagnostics

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# Regenerative and Cellular Medicine Business

# Strengths and Activities of DSP

Regenerative medicine-related research started from investigation of neurite outgrowth inhibitor, Semaphorin

- Abundant know-how and experience in regenerative medicine-related research
- Consecutive collaboration with academia  
【Joint research with Prof. Okano (Keio University) etc.】

Knowledge acquired through applied research of ES cell & iPS cell

【Joint research with CiRA\* (Director: Prof. Yamanaka) etc.】 \*Center for iPS Cell Research and Application

## Platform research using hES cell (Sumitomo Chemical)

Extensive research performance, know-how and patents in the fields of the eye

## Partnership with a biotech company (SanBio)

- Technology and know-how of cell pharmaceutical products
- Preparation for the development and regulation

## ES cell & iPS cell-related basic technology (DS Pharma Biomedical)

Sales and development of regenerative medicine-related products such as medium and culture vessel etc., and tissue culture educator

DSP is poised to become a leading company in regenerative and cellular medicine business in Japan with favorable environment

Act with speed, and take advantage of the knowledge/know-how of academia and biotech companies



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# Regenerative and cellular medicine business :

## The present situation and a future plan of the projects

- Cell therapy
  - SB623
    - Option Agreement with SanBio
- Regenerative medicine
  - HLS001
    - Alliance with Healios K.K.
  - Cooperation with iPS cell projects for practical use

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# SB623

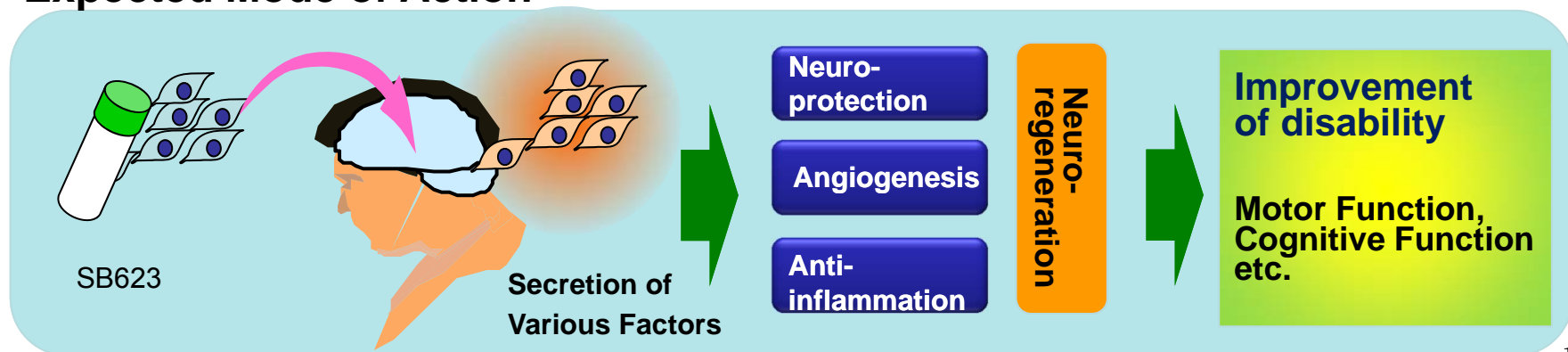
Bone marrow-derived multipotent  
mesenchymal stromal cells (MSC)-Stroke  
Option Agreement with SanBio

# Development status

## SB623 (for disabilities caused by stroke) : SanBio (U.S. )

- SB623 cells are modified bone marrow derived cells collected from healthy adult donors.
  - Expect to function by producing proteins that aid the regenerative process.
  - In preclinical studies to date, SB623 has dramatically improved function in animal models of stroke disability with no significant adverse effects.
  - SB623 is an allogeneic product that production can be scaled, enabling a more cost effective therapy for stroke patients.
  - **Ph1/2 clinical Study is ongoing (dosing finished).**
- DSP has received an option for co-development and exclusive marketing rights for U.S. and Canada (Announced on Oct. 4, 2010).

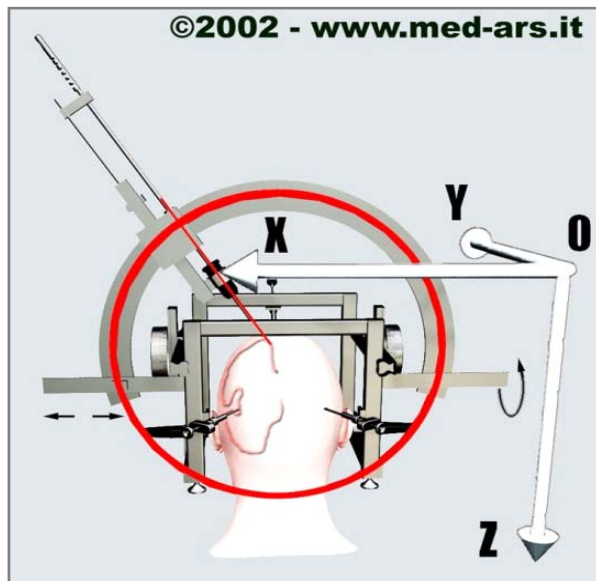
### Expected Mode of Action



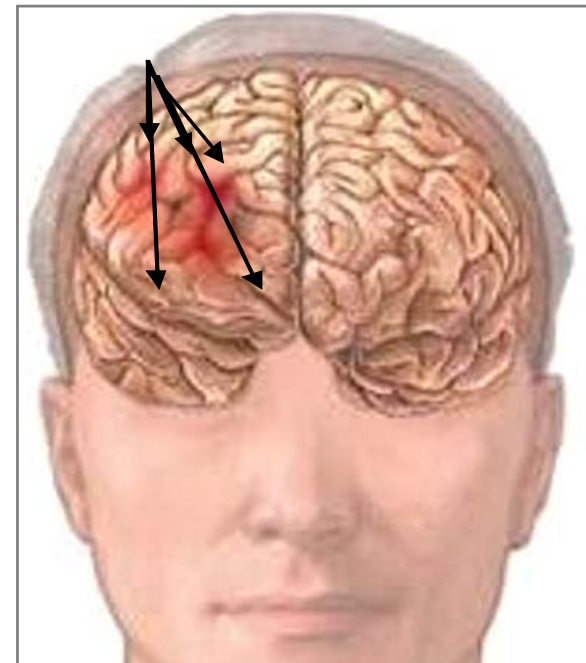
# SanBio SB623 Phase 1/2a Clinical Study

- Overall Design

- Open-label safety study
- 18 pts (3 dose levels, 6 pts each)—Stanford and Univ Pittsburgh
  - Standard, staggered escalation paradigm (2.5M, 5M, 10M)
- 6-month efficacy, 2-year follow-up



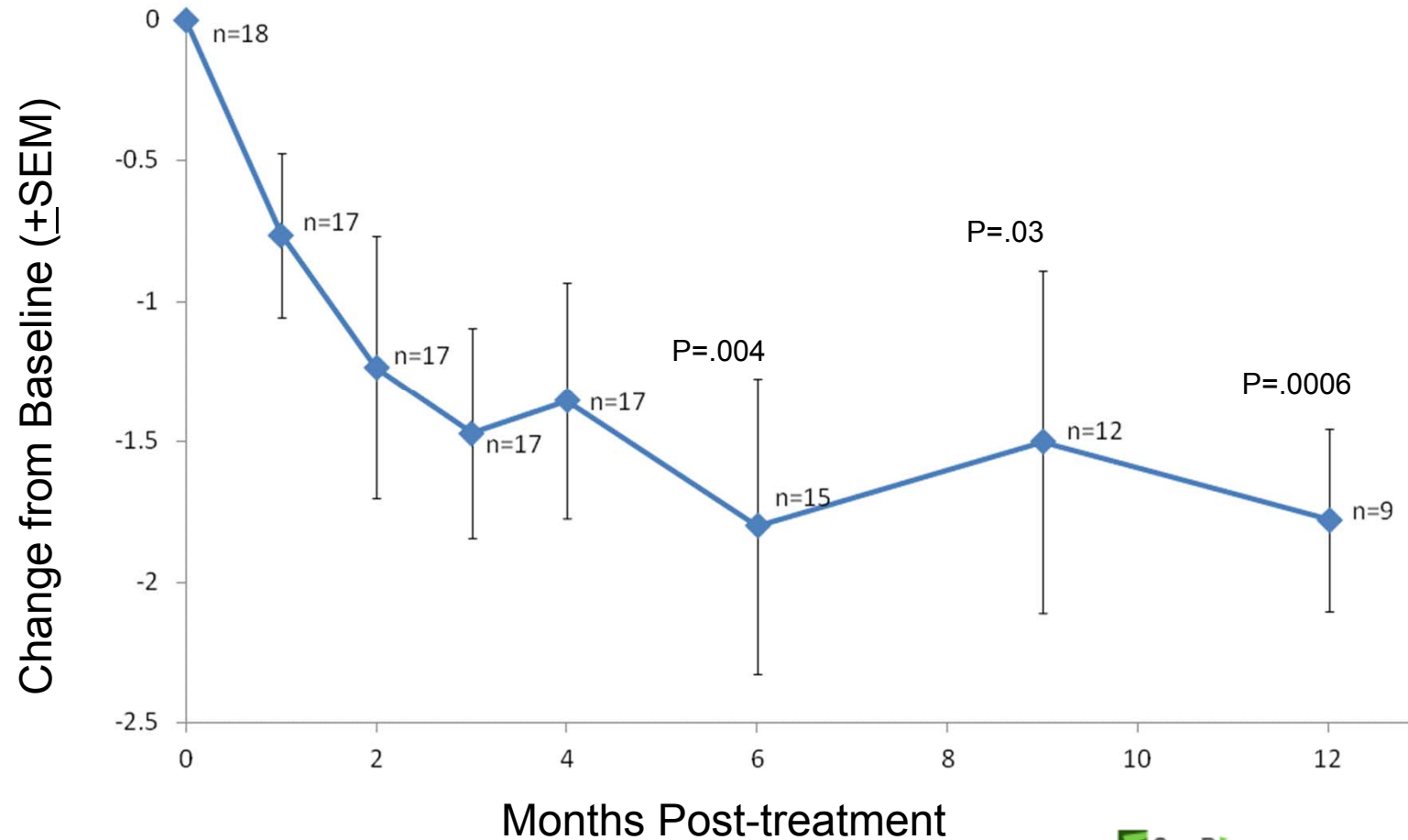
Stereotactic Frame Positioning



Needle tracks for cell implantation and implant sites

# Preliminary Unaudited Clinical Results

## NIHSS



SanBio  
Copyright © 2014

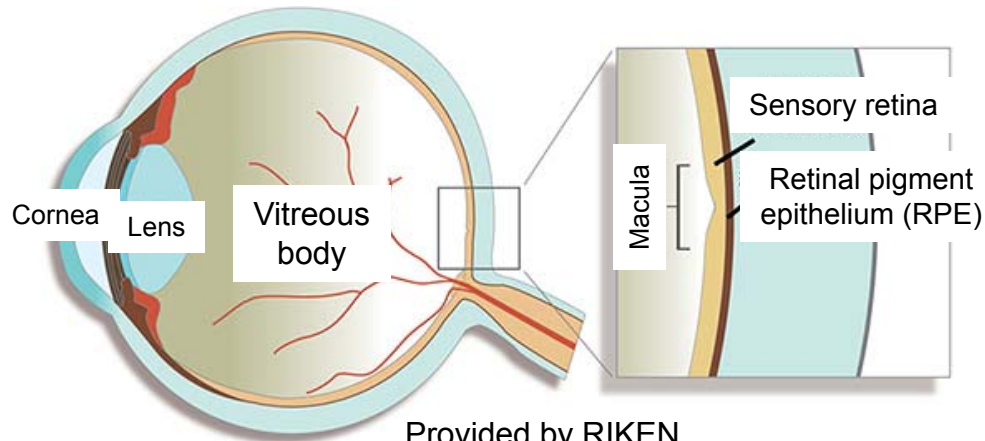
National Institutes of Health Stroke Scale (0 = no symptoms; 21 – 42 = severe symptoms)

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# HLS001

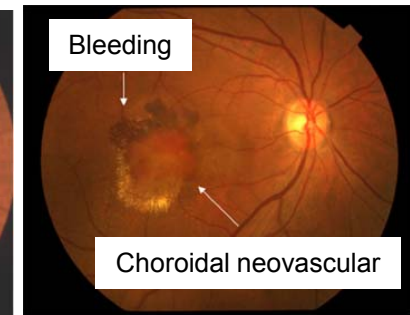
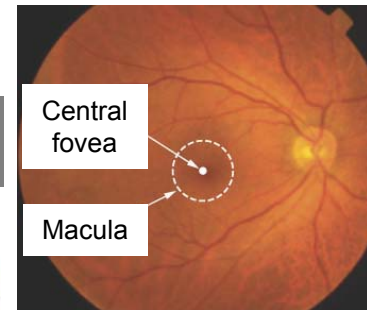
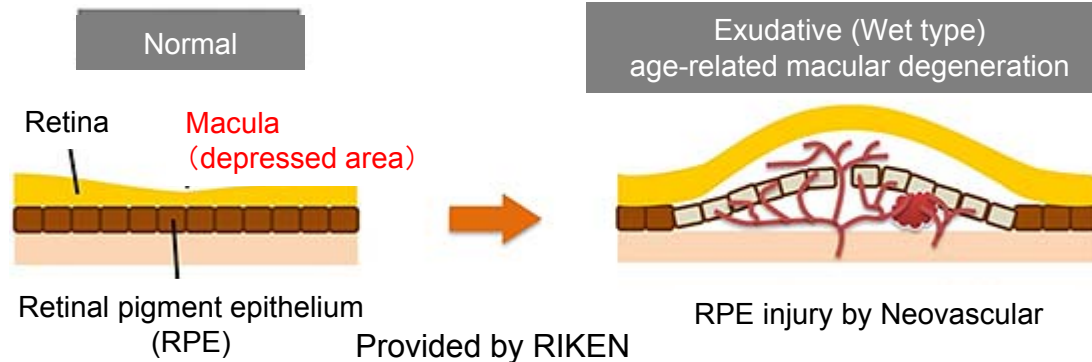
iPS cell-derived RPE cells, Eye diseases  
including age-related macular degeneration  
Joint development with Healios K.K.

# Wet AMD (Age-related macular degeneration)



Provided by RIKEN  
<http://www.riken.jp/pr/topics/2013/>

- ✓ Denaturation atrophy detachment RPE cell  
 => Nutrition to retina, digestion of waste, depression of barrier ability
- ✓ Accumulation of waste
- ✓ Occurrence of choroidal neovascular



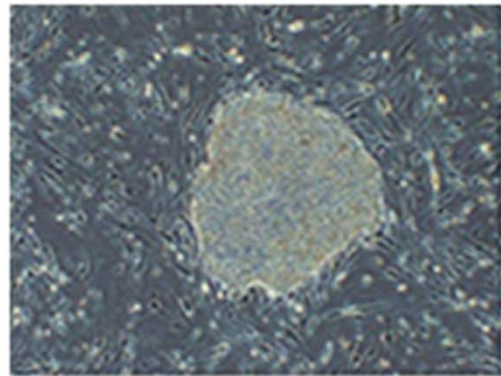
- Japan: No.4 cause of blindness. Affects about 1% of people aged 50 and over.  
 Increase with advancing age  
 (Estimated number of patients (2011): 540,000 ; source : Decision Resource)
- U.S. and Europe: No.1 cause of blindness  
 (Estimated number of patients: 1,910,000/US, 3,020,000/EU Five countries ; source: Decision Resource)



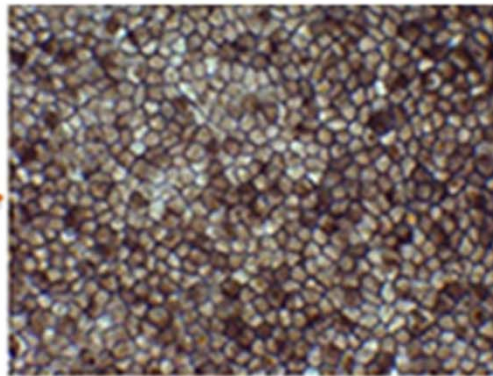
From Japanese Ophthalmological Society web site  
[http://www.nichigan.or.jp/public/disease/momaku\\_karei.jsp](http://www.nichigan.or.jp/public/disease/momaku_karei.jsp)



# Manufacture of iPS cell-derived retinal pigment epithelial cells



Human induced pluripotent stem cells (iPS cells)



Retinal Pigment Epithelium (RPE) cells derived from human iPS cells



RPE cell sheet



RPE cell suspension

Provided by RIKEN  
<http://www.riken.jp/pr/topics/2013/>



# Joint development agreement

## [Scope ]

- ◆ Products : iPS cell-derived RPE cells products (sheet or suspension)
- ◆ Indications: Eye diseases / Wet AMD, Dry AMD, others  
To be determined by Joint-development committee
- ◆ Territory: Japan

## [Sharing roles]

Healios	DSP
➤ Joint development committee: joint development policy, assigning tasks, decision making	
<ul style="list-style-type: none"> <li>➤ Examination of the quality and the stability of RPE</li> <li>➤ Non-clinical and clinical studies</li> <li>➤ Manufacturing products for studies</li> <li>➤ Post-marketing clinical studies</li> <li>➤ Obtain and maintain manufacturing and marketing approval</li> </ul>	<ul style="list-style-type: none"> <li>➤ Review of documents before submitting to authorities</li> <li>➤ Evaluation of study findings</li> </ul>

[Development costs] DSP cover maximum 5.2 billion yen

[Manufacturing, sales promotion] Contracted exclusively to the joint venture company

[Post-marketing clinical study required for approval] Contracted to DSP from Healios

[Tentative Schedule]

- ◆ (Physician-led) Clinical study: Scheduled to start in 2016
- ◆ Conditional Approval: 2018 (Fastest)

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# Joint venture

## [Purpose]

- ◆ Healios and DSP jointly establish a company
- ◆ The joint venture company acts as a contract manufacturing and sales organization for pharmaceuticals, medical equipment, regenerative medicine products in the field of eye diseases

[Company name] SIGHREGEN Co., Ltd.

## [Capital etc.]

- ◆ Co-founded by DSP and Healios
- ◆ Paid-in capital: 50 million yen (+ capital reserve of 50 million yen)
- ◆ Shareholding : 50:50

## [Directors]

- ◆ Representative director: Hardy T S Kagimoto, MD
- ◆ Directors: 4 persons (2 persons each from Healios and DSP)

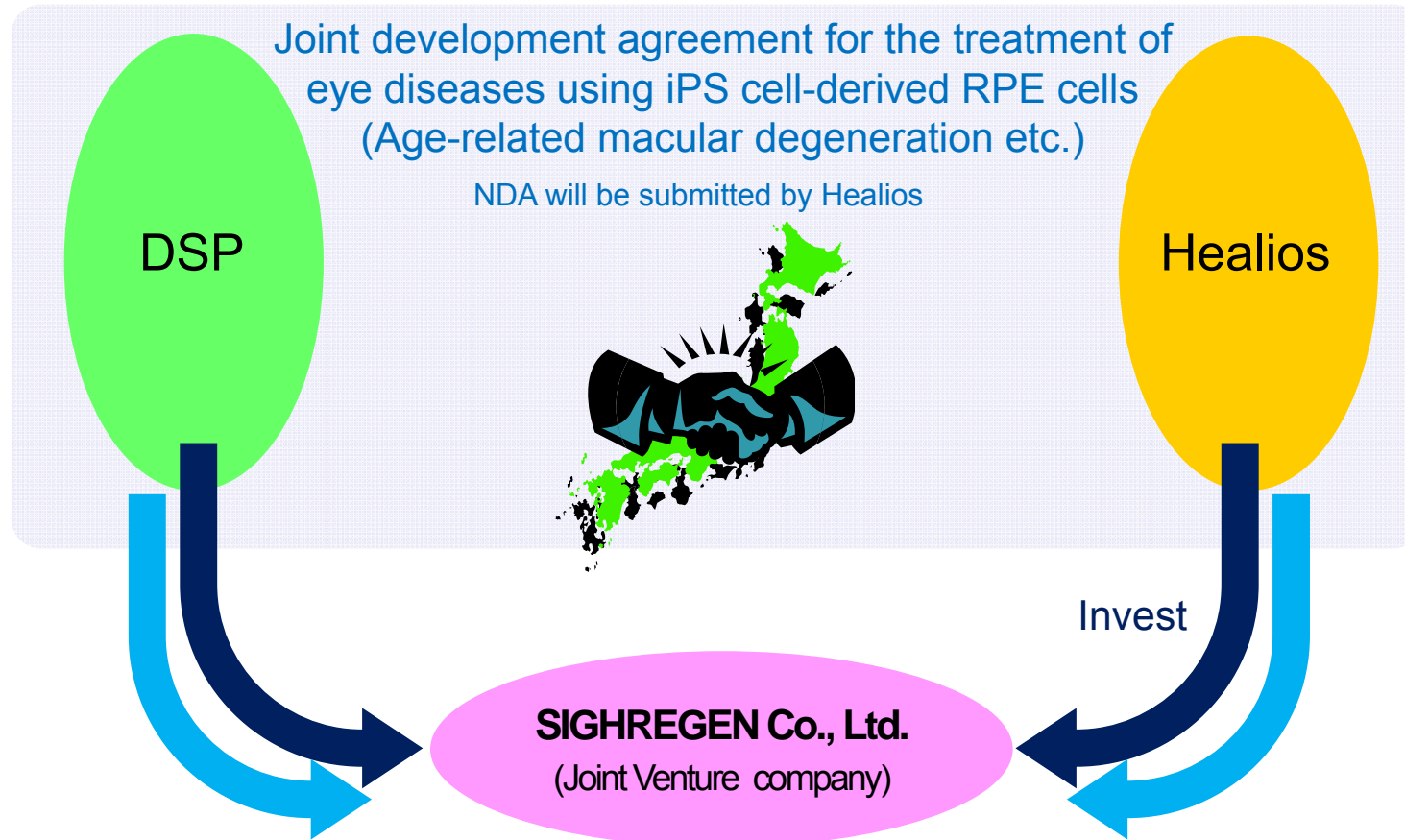
## [Others]

- ◆ Date of establishment: February 28, 2014 (under application for registration of establishment)
- ◆ Head Office: Chuo-ku, Kobe
- ◆ Business planning: to make, including the additional investment by the end of 1 year

# Outline of alliance with Healios K.K.

December 2, 2013

Signed an Alliance Agreement to put iPS cell technology into practical use for the treatment of eye diseases in Japanese market.



Entrust sales promotion and production of the product

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# Purpose of Alliance

- ◆ Start world's first regenerative medicine business based on iPS cells
  - Launch regenerative medicine business based on iPS cells
  - Build business base in a field of eye diseases
  - Establish business base in-house to develop, manufacture and set standards of regenerative and cellular medicine products
  - Expand regenerative medicine business globally utilizing patents and know-how which are licensed from Healios
- ◆ First step to becoming a leading company in regenerative medicine and cellular therapy based on iPS cells etc.

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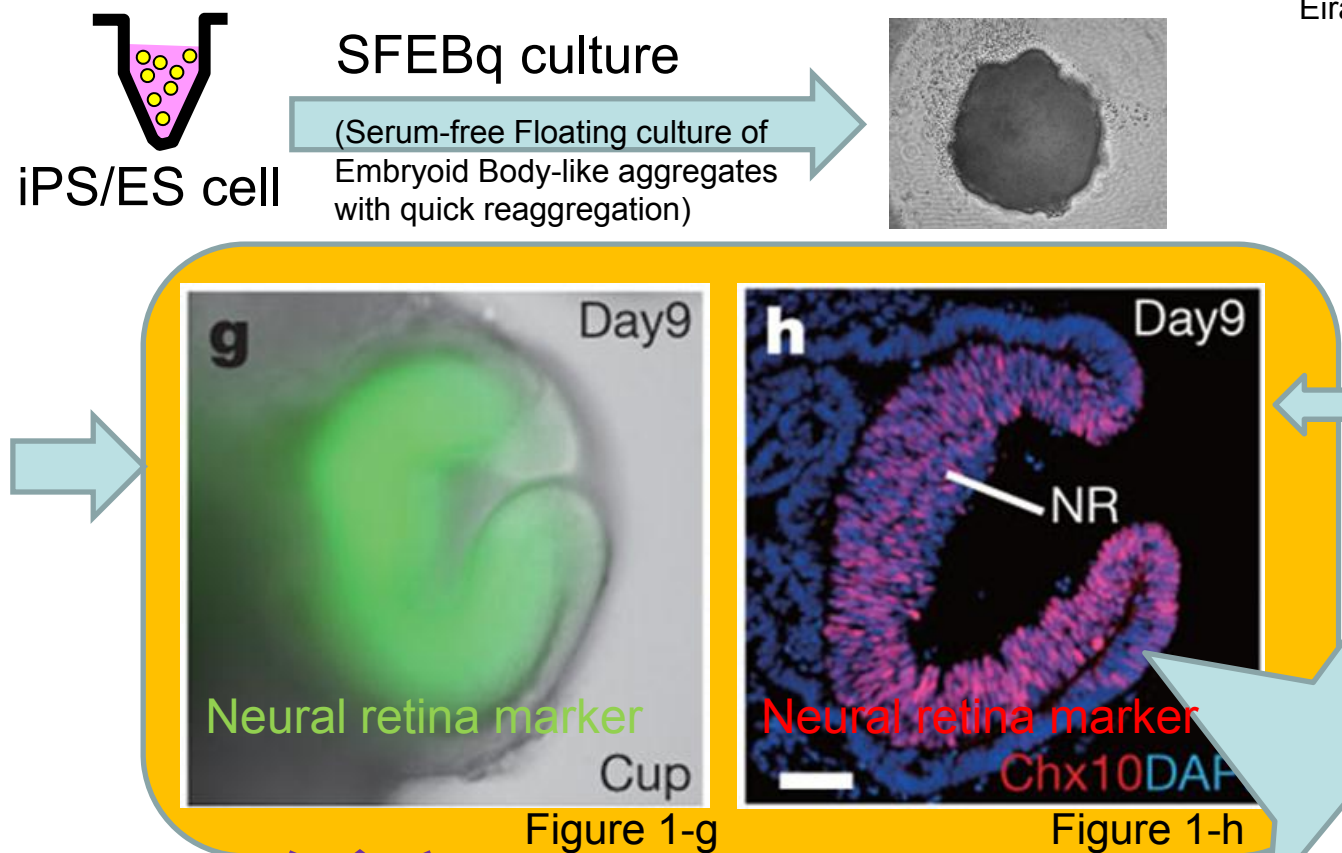
# iPS cell-derived neural retina tissue

For retinal pigmentary disease etc.  
Collaborate with RIKEN CDB

# ● Base technology: 3D culture of neural retina

## Self-formation of neural retina from iPS/ES cell

Eiraku, Sasai :Nature 472, p51-56, 2011  
doi:10.1038/nature09941  
License Number:334119225635



Eye of mouse embryo

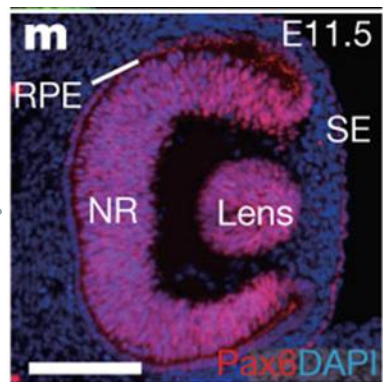
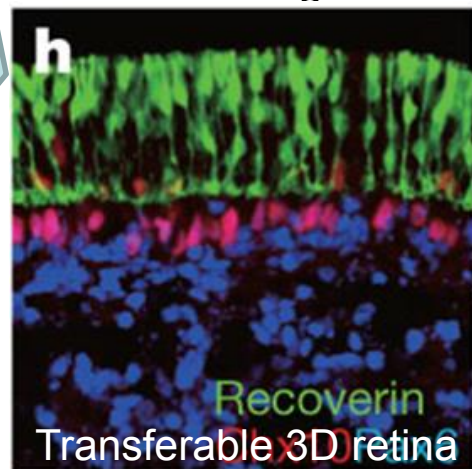


Figure 1-m

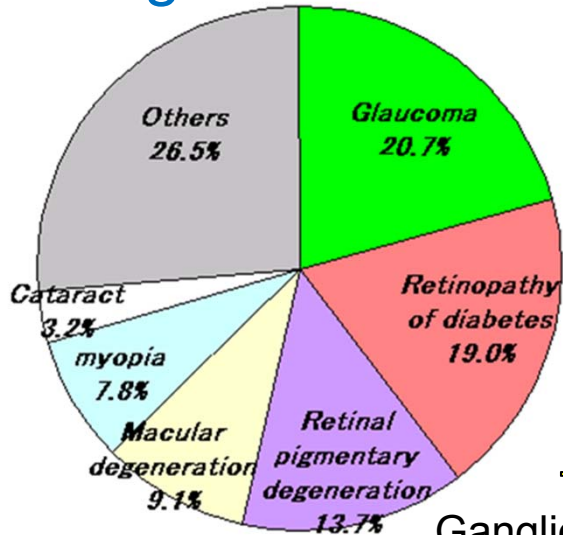
Figure 5-h



**World's first!**

Succeeded in 3D formation of neural retina containing retina-like layers and many photoreceptor cells by 3D culturing technology

# ● Target disorder and transplantation image



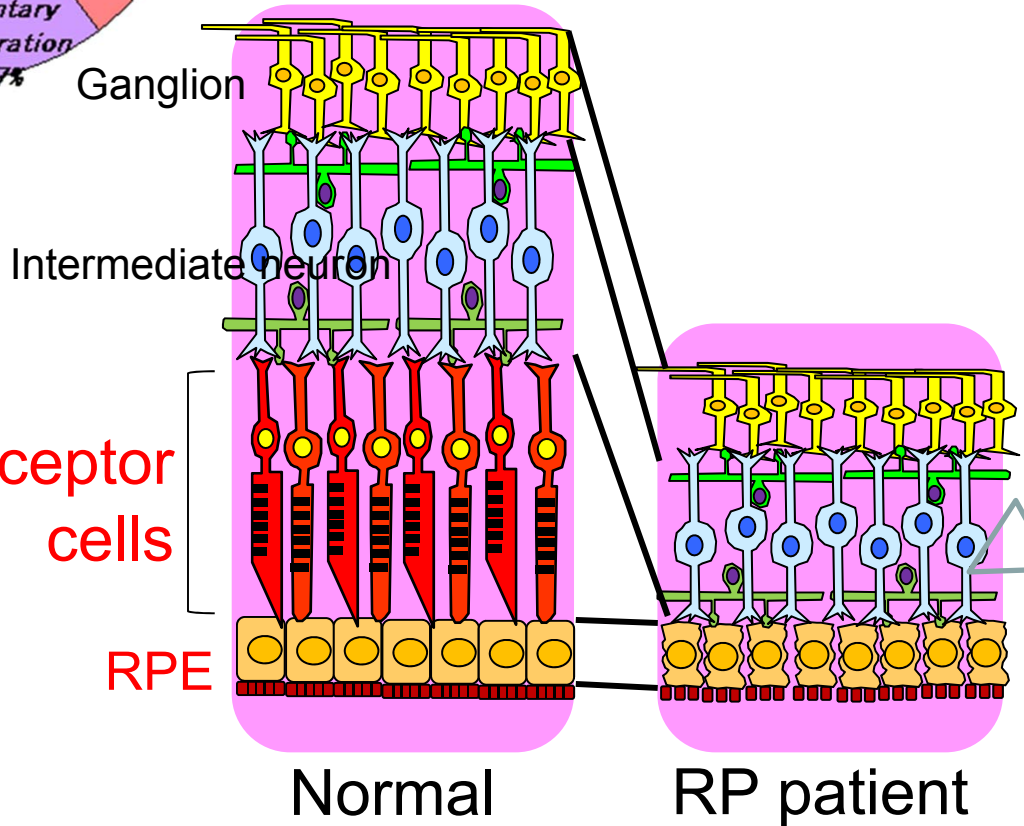
Data from Nakae K, 2005  
 Number of vision disorder patients in Japan is about 1.64 million.

Retinal pigmentary degeneration (RP)  
 → Photoreceptor cells are degenerated and lost

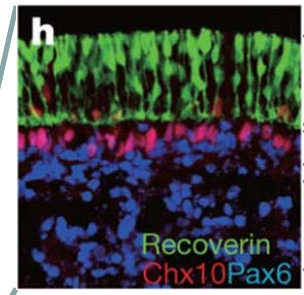


Need the transplantation of retina

Photoreceptor cells



hiPSC-derived retina



Insert cultured retina  
 ↓  
 Form neural network in host retina



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# iPS cell-derived Neural Precursor Cells

iPS cell – Spinal Cord Injury/Stroke

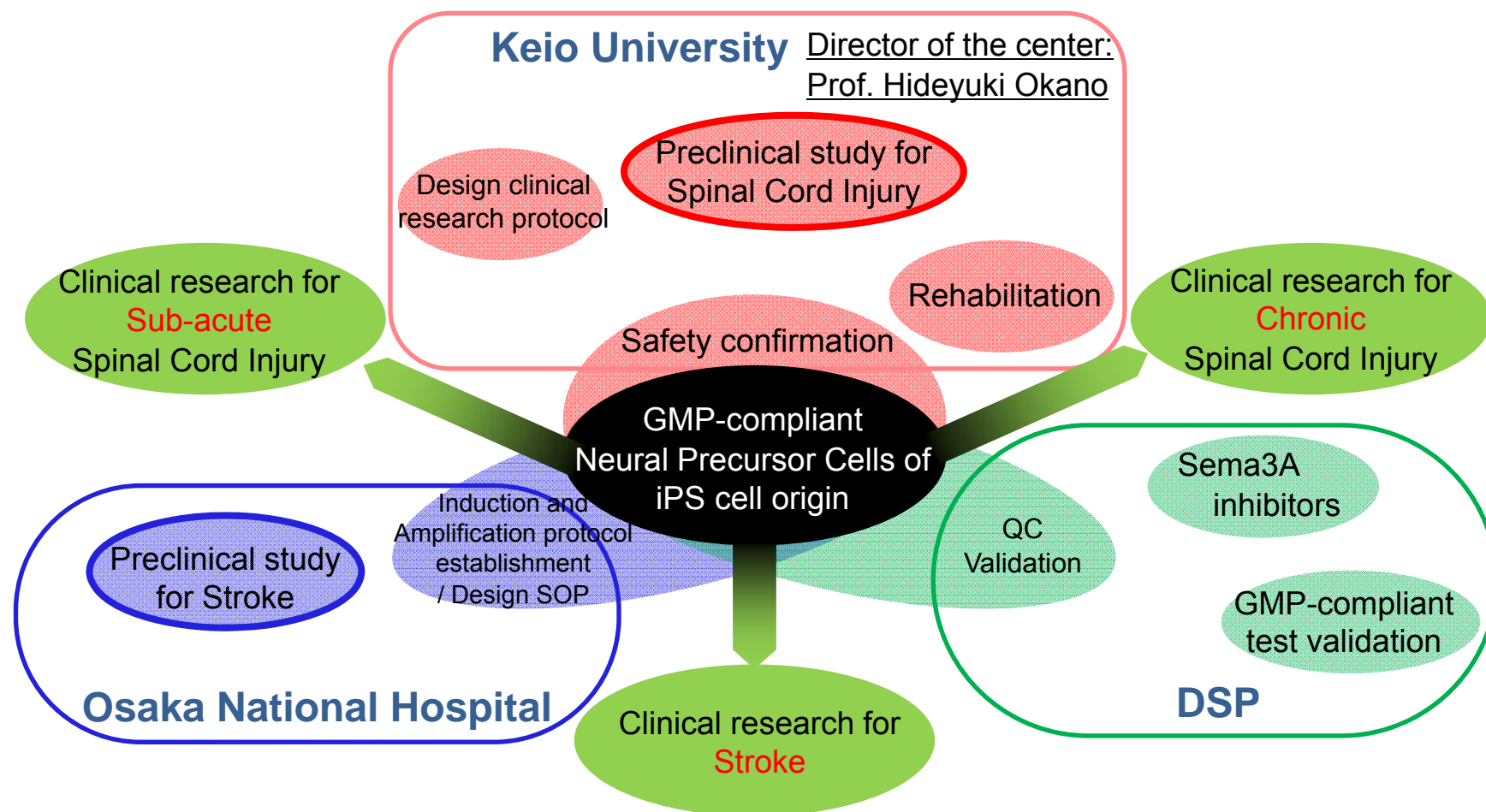
Joint Project with  
Keio University

National Hospital Organization Osaka National Hospital



# Objective / Implementation Structure

- ◆ Establishment of stocks of clinical-grade Neural Precursor Cells of iPS cell origin
- ◆ Implementation of first-in-man studies within four years on sub-acute spinal cord injury

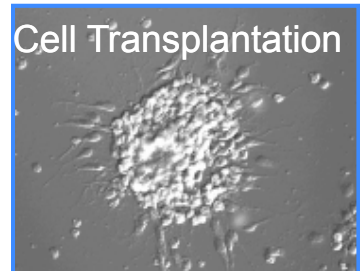
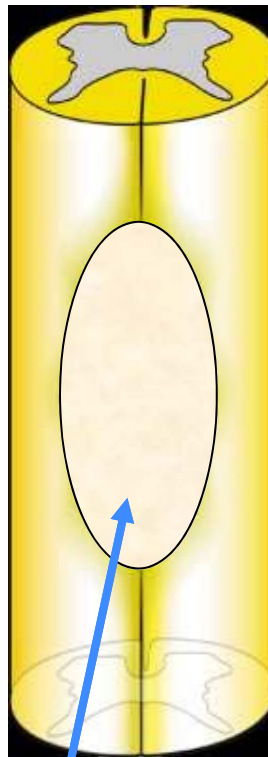


# Stage-dependent Progression of Spinal Cord Injury and Optimal Timing for Cell Transplantation

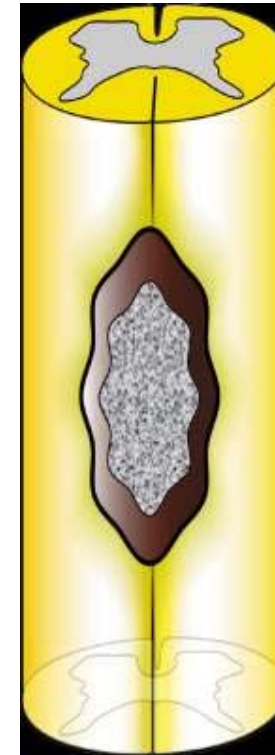
Acute Phase



Sub-Acute Phase



Chronic Phase



**Significant Axon Degeneration  
Glial Scar/Cavity Formation  
Permanent Functional Loss of  
Spinal Cord**

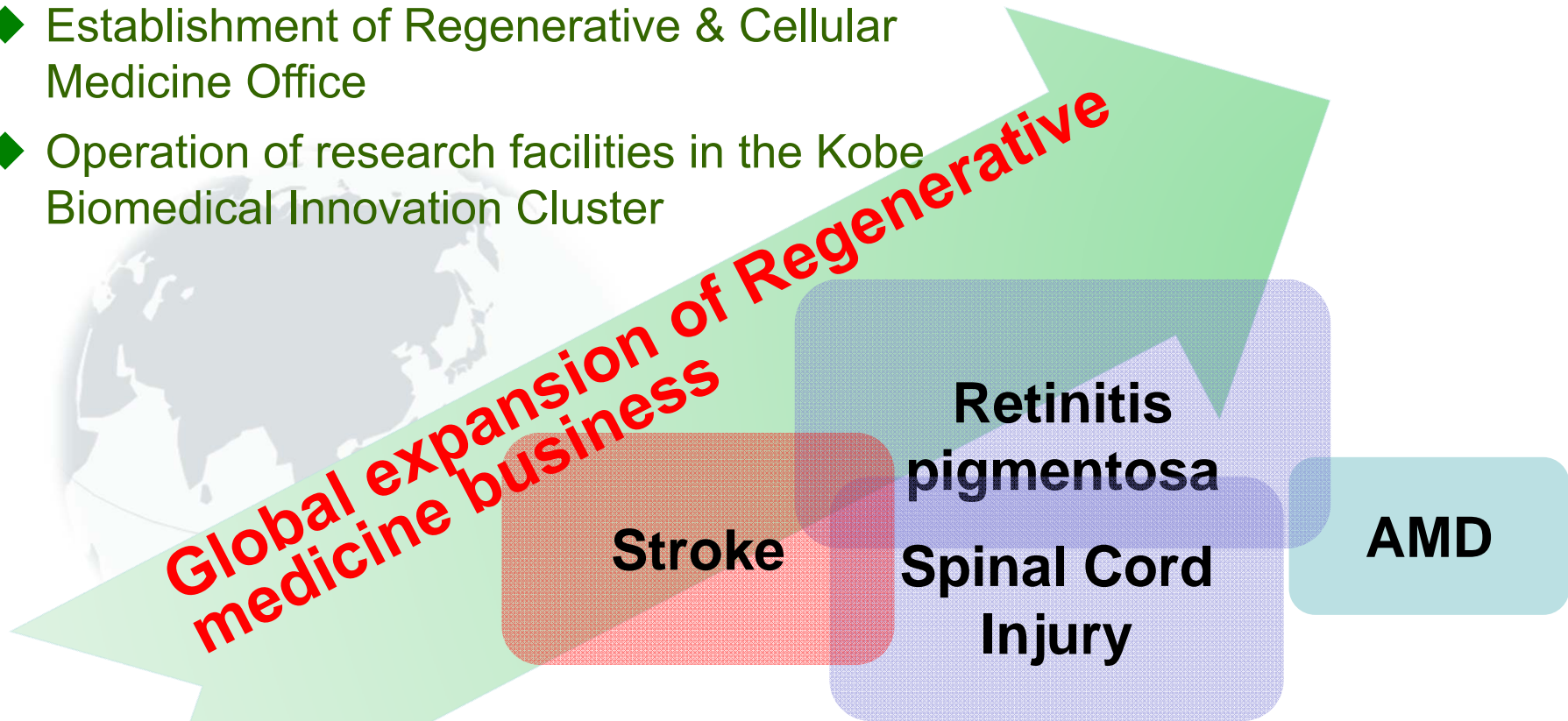
Functional recovery in  
animal models

# Regenerative Medicine/Cell Therapy of DSP Business Plan

	Partnering	Region	cell type	Schedule for practical use						
				2014	2015	2016	2017	2018	2019	
Stroke	SanBio	North America	Allo MSC	Ph1/2	Ph3		Approval			
AMD (age-related macular degeneration)	Healios RIKEN	Japan	Allo iPS cell			Investigator initiated clinical trial		Conditional Approval		
Retinitis pigmentosa	RIKEN	global	Allo iPS cell					Investigator initiated clinical trial		
Spinal Cord Injury	Keio Uni, Osaka National Hospital	global	Allo iPS cell						clinical research	

## DSP's Efforts in Regenerative Medicine and Cell Therapy

- ◆ Establishment of Regenerative & Cellular Medicine Office
- ◆ Operation of research facilities in the Kobe Biomedical Innovation Cluster



- ◆ Execution of option agreement for therapeutic agents of stroke with SanBio (in North America area)
- ◆ Alliance with Healios K.K., aiming for the world's first regenerative and cellular medicine business (AMD etc.) using iPS cell
- ◆ Aggressive alliance and collaboration with academia and biotech companies

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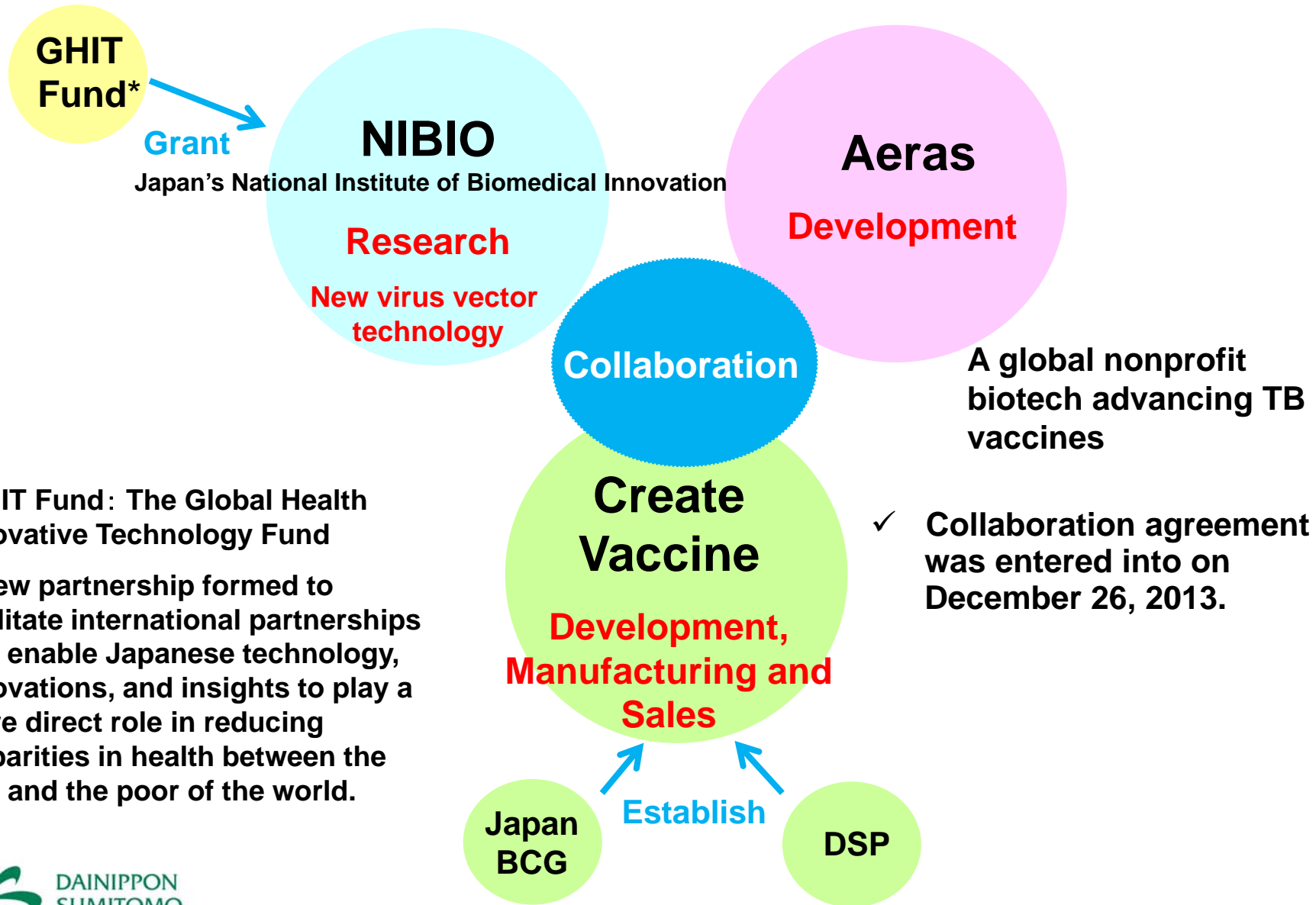
# **Vaccine Business**

**- New Tuberculosis (TB) Vaccines -**

**Koichi Kozuki**

**Director, Global Strategy**

# Partnership for New TB Vaccines



\*GHIT Fund: The Global Health Innovative Technology Fund

A new partnership formed to facilitate international partnerships that enable Japanese technology, innovations, and insights to play a more direct role in reducing disparities in health between the rich and the poor of the world.



# Significance of the Participation

## ➤ Medical needs

- ✓ **TB is one of the world's Big Three infectious diseases. It is widespread, particularly in Asia and Africa.**
  - **World: Some 8.6 million people become infected every year, while some 1.3 million patients are fatally victimized.**
  - **Japan: More than 20,000 people contract TB and more than 2,000 die from it.**
- ✓ **It exacts its greatest toll on individuals during their most productive years, from ages 15 to 44 and causes serious social losses.**
- ✓ **The global emergence and spread of multidrug-resistant TB are imposing enormous personal costs and a significant economic burden on national health systems.**
- ✓ **Although the currently available BCG vaccine provides some protection in infants, it is ineffective against adolescent and adult pulmonary TB.**

**Contribution to global health with a central focus on emerging and developing countries**



# Significance of the Participation

## ➤ Technology

- ✓ NIBIO's human parainfluenza type-2 (rhPIV2) vector technology – The first TB vaccine using this technology in the world.

### rhPIV2 vector technology

- A human respiratory virus of extremely low pathogenicity.
  - Infects respiratory tract including upper airway and expresses inserted genes efficiently.
- ✓ The vaccine is designed to target mucous membranes to keep TB from entering the lungs.
  - ✓ Intranasal Vaccine – easy to apply, safer medical waste without needles
  - ✓ Global collaboration formed by Aeras's expertise, NIBIO's technology, JBL's know-how in TB vaccine fields

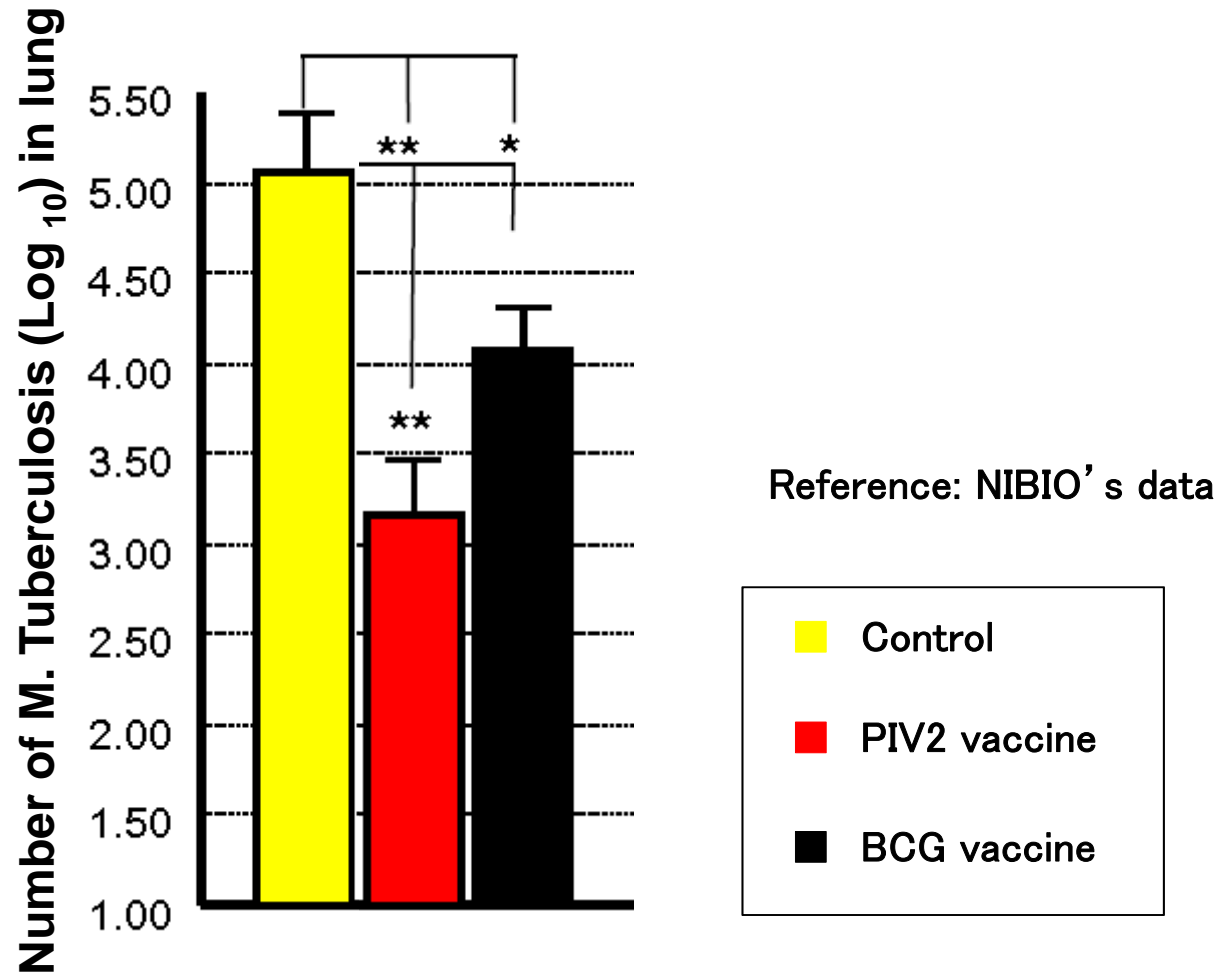
**Establishment of vaccine business base with original and leading-edge technologies**



# rhPIV2-Ag85B vaccine prevents *M. tuberculosis* infection

Vaccinated or control mice were challenged by Mtb infection.

Eight weeks later, the numbers of Mtb in the lung were determined.



# Future Plan for New TB Vaccines

- **Advance vaccine candidates based on the rhPIV2 technology through preclinical stages with a goal to advance to safety and immunogenicity testing in clinical studies**
- **Characterization of new vaccine constructs with a variety of antigens, the conduct of immunology studies to identify the most promising novel vaccines and the establishment of manufacturing process complying with cGMP**

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# **Development of the in-licensed products in the field where no approved drugs exist**

Hideo Tomiya

Deputy Executive Director, Drug Development Division;  
Director, Project Management

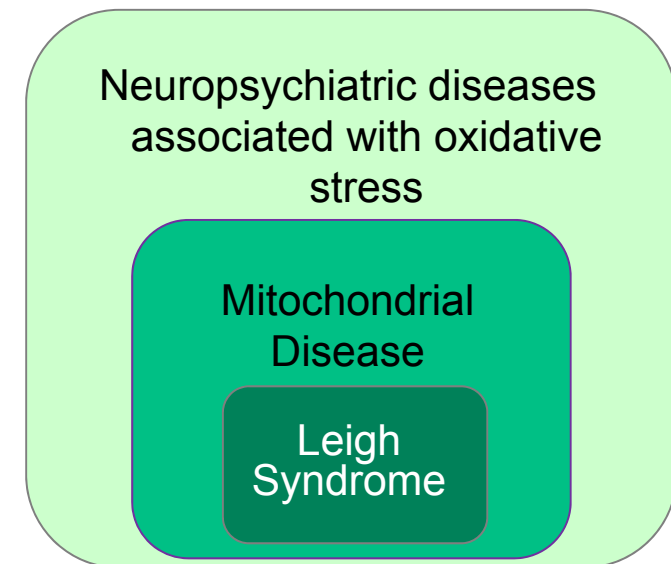
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# EPI-743 (Mitochondrial Disease)

# EPI-743

- Licensor: Edison Pharmaceuticals, Inc
- Licensed Territory: Japan
- Mode of Action: Synchronize energy generation in the mitochondria with the counterbalancing of redox stress
- Development stage(Japan): Phase 2b/3 clinical study for Leigh syndrome ongoing
- Development stage(outside Japan; conducted by Edison): Phase 2b clinical study for Leigh syndrome and clinical studies for various diseases ongoing
- Advantages
  - Expected to be a first-in-market efficacious agent against mitochondrial diseases such as Leigh Syndrome, which currently has no treatments
  - Expected to contribute to the treatment of neuropsychiatric indications that share as a common etiology disorders of redox biochemistry

## Extension of the target diseases



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# Mitochondrial diseases

- Mitochondria are organelles with functions such as producing energy for cells. Diseases caused by mitochondrial dysfunction are collectively referred to as “Mitochondrial disease.”
- Mitochondrial dysfunction can cause decrease in ATP (adenosine triphosphate) and increase in ROS (reactive oxygen species). As a result, organs that require a lot of energy such as nerves, muscles, the heart, etc. are affected most often. This is associated with a decrease in GSH (reduced glutathione) and can eventually cause degeneration of mitochondria and cell death.
- 1,087 mitochondrial disease patients were registered in the Specified Disease Treatment Research Program (“Tokutei Shikkan Chiryō Kenkyū Jigyo”) in Japan in 2012.

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# Leigh syndrome

- Leigh syndrome is a rare inherited neurometabolic disorder that affects the CNS.
  - Mutations in mitochondrial DNA or nuclear DNA account for the majority of Leigh disease.
- Signs and symptoms
  - Psychomotor regression
  - Muscular hypotonia
  - Feeding disorder
  - Eye movement abnormality, etc
- Prognosis
  - Leigh syndrome is poor-prognosis refractory chronic progressive disease. Most of patients with Leigh syndrome die during childhood.
- Treatment
  - There is no approved treatment for now.

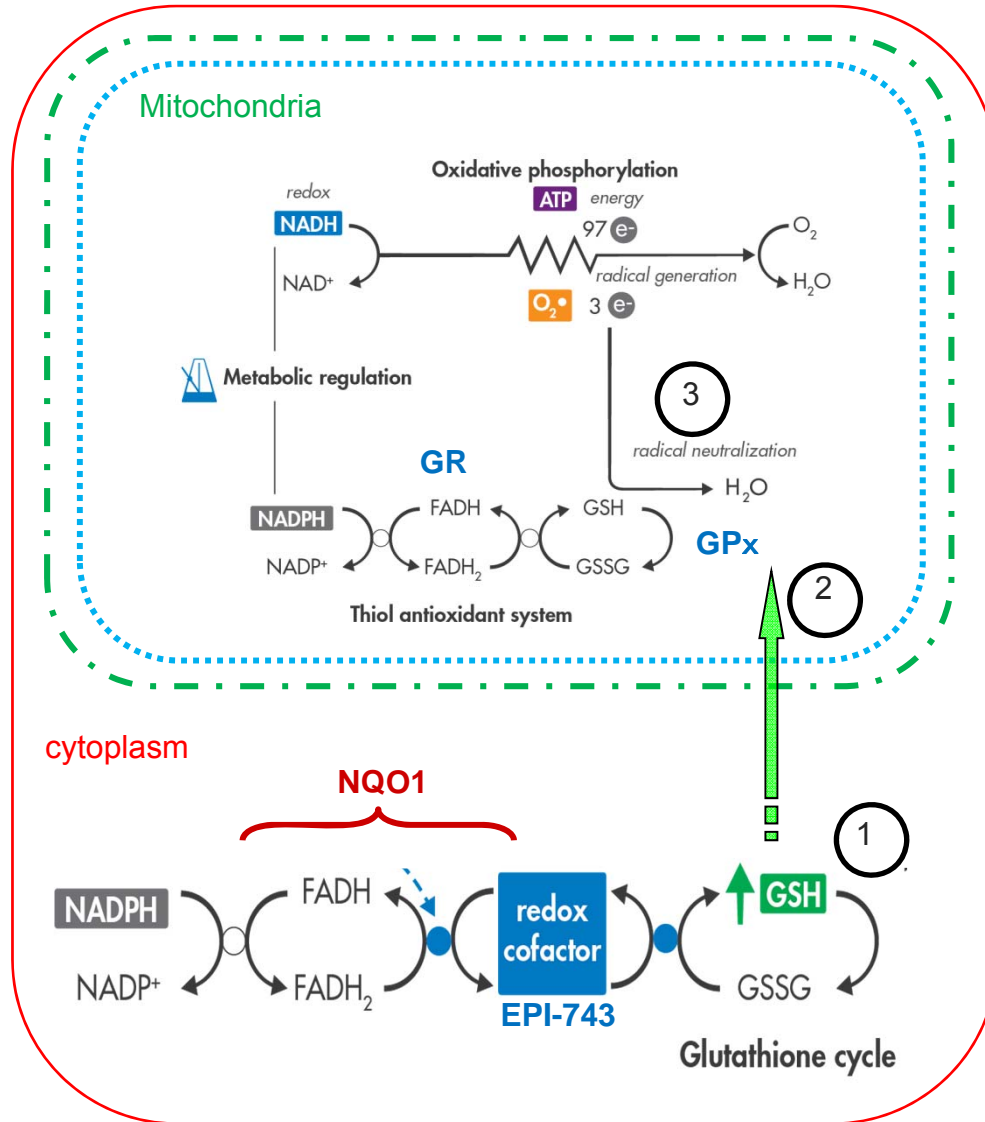
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## EPI-743 features

- Antioxidant treatments have been tried over the years, but great effectiveness has not been demonstrated.
- Principal factor responsible for the failure of antioxidant treatment is their inability to enter the mitochondria.
- EPI-743 acts as a cofactor of NQO1 (NAD(P)H quinone oxidase 1) and promotes GSH production. GSH improves cellular function and prevents cell death by eliminating ROS.



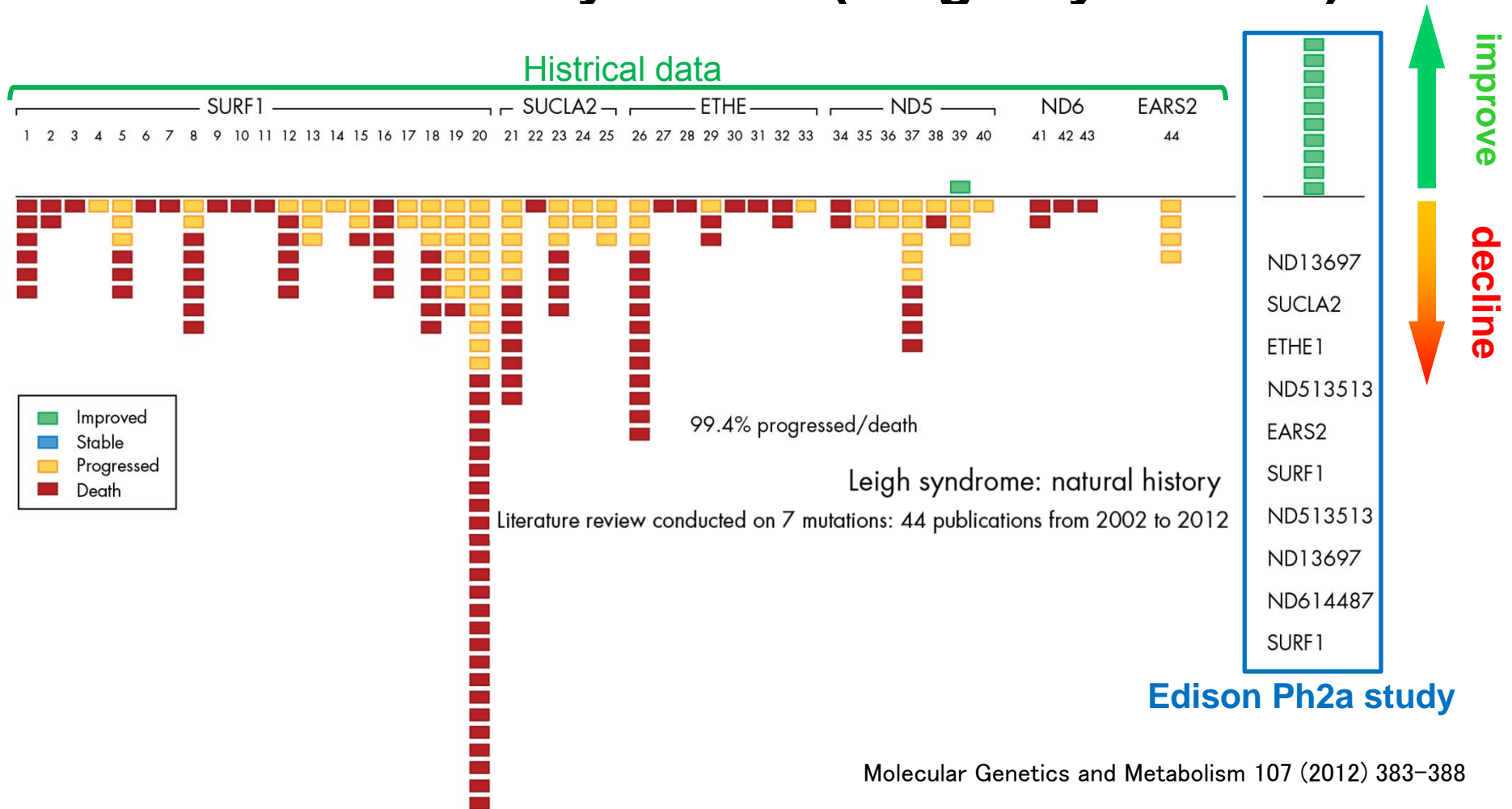
# EPI-743 mode of action



- ① EPI-743 acts as a cofactor of and promotes GSH production
- ② GSH enters the mitochondria through the intermediary of the transporter.
- ③ GSH eliminates ROS. GSSG reduced to GSH by GR and GSH is reutilized.

- GR: glutathione reductase
- GPx: glutathione peroxidase
- GSSG: glutathione disulfide (oxidized glutathione)

# Phase 2a Study Result (Leigh Syndrome)



The clinical results obtained in this study were compared to an historical cohort obtained from the published natural history of Leigh syndrome. In contrast to the frequency of the combined disease progression and mortality (179/180=99.4%), 100% (10/10) of the EPI-743 treated subjects reversed disease progression and improved.

## Phase 2b/3 study of EPI-743 in Patients with Leigh Syndrome

Study objectives	To evaluate the effects and safety of EPI-743 in patients with Leigh syndrome
Study patients	Patients with Leigh syndrome (up to 17 Years)
Study design	Multicenter, Open-label (non-comparative and non-blinded)
Target enrollment	5 and more
Dosage	15 mg/kg up to 200 mg three times daily
Primary endpoint	Amount of change in NPMDS (Pediatric Newcastle Pediatric Mitochondrial Disease Scale) (Sections 1-3)
Secondary endpoint	Glutathione cycle biomarkers, etc

Aim to submit application for approval in Japan: Fiscal 2015

## Clinical development status of EPI-743

Clinical indication	Phase	Location
Leigh syndrome	2b	U.S.
Leigh syndrome	2b/3	Japan (DSP)
MELAS(Mitochondrial myopathy, Encephalopathy, Lactic Acidosis, Stroke-like episodes)	2a	Japan (NCNP)
Friedreich's ataxia	2b	U.S.
Friedreich's ataxia point mutation	2b	U.S.
Rett syndrome	2a	Italy
Cobalamin C Defect	2a	Italy
NIH undiagnosed disease of redox and metabolism	2a	U.S.
Parkinson's disease	2a	U.S.
Tourette syndrome	2a	U.S.

Clinicaltrials.gov, JAPIC clinicaltrials information, UMIN Clinical Trials Registry

Additional indication for EPI-743 in Japan to be considered based on the result of these clinical studies.

# Strategic Alliance with Edison Pharmaceuticals

Deepen cooperation with a biotech company who leads the world in the research on therapeutics for mitochondrial diseases

## 1. Amendment of the License Agreement for EPI-743 and EPI-589

Product Code	Licensed Rights	Territory
EPI-743	Exclusive research, development and commercial	Japan
<b>EPI-589</b>	<b>Exclusive research, development and commercial</b>	<b>Japan/ North America</b>

Added exclusive rights for EPI-589 in North America for indications in adults

## 2. Joint Research Agreement

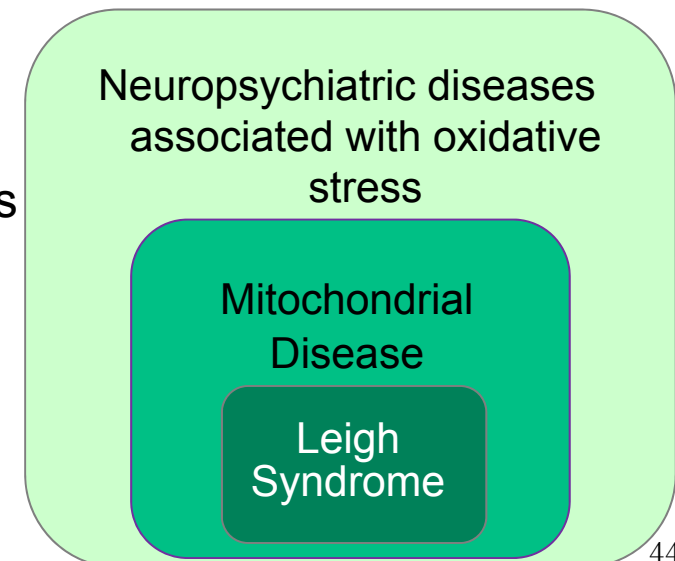
Development of the novel candidate pharmaceutical compounds on mitochondrial and other cellular energy metabolism

Aiming to discover 10 candidates over the next five years



DSP will have exclusive development and commercial rights in Japan and in North America on three novel compounds of DSP's choice from among those resulting from the joint research.

Extension of the target diseases of EPI-743/EPI-589



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# DSP-1747 (NASH, PBC)

# DSP-1747

Licensors	In-licensed from Intercept Pharmaceuticals, Inc.
Compound Name	Obeticholic acid
Territories	Japan and China
Indication	<ul style="list-style-type: none"><li>• NASH (Non-Alcoholic Steatohepatitis)</li><li>• PBC (Primary Biliary Cirrhosis)</li></ul>
Mode of Action	FXR agonist (FXR is a nuclear receptor activated by bile acid)
Development Stage	<ul style="list-style-type: none"><li>• NASH: Ongoing Ph2 study in Japan, Ph2 in the US (FLINT study, sponsored by NIDDK*)</li><li>• PBC: Under consideration in Japan (Ongoing Ph3 study in US/EU, conducted by Intercept)</li></ul>



\*NIDDK: National Institute of Diabetes & Digestive & Kidney Diseases, a part of the National Institutes of Health (NIH)

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# Non-Alcoholic Steatohepatitis (NASH)

## <Disease condition>

- ◆ NASH is the most extreme form of NAFLD\*, and shows inflammation, hepatocellular ballooning, and fibrosis by liver biopsy
- ◆ Typical cases of NASH show fibrosis and have the potential to progress to hepatocellular carcinoma, eventually

## <Definitive diagnosis>

- ◆ Tissue examination of liver biopsy sample is required

## <Treatment>

- ◆ There is no approved drug for NASH treatment; primary therapy is mainly diet therapy and exercise
- ◆ To treat the complications, drugs, for instance, insulin sensitizer, fibrates, statins, and vitamin E, are prescribed to NASH patients.

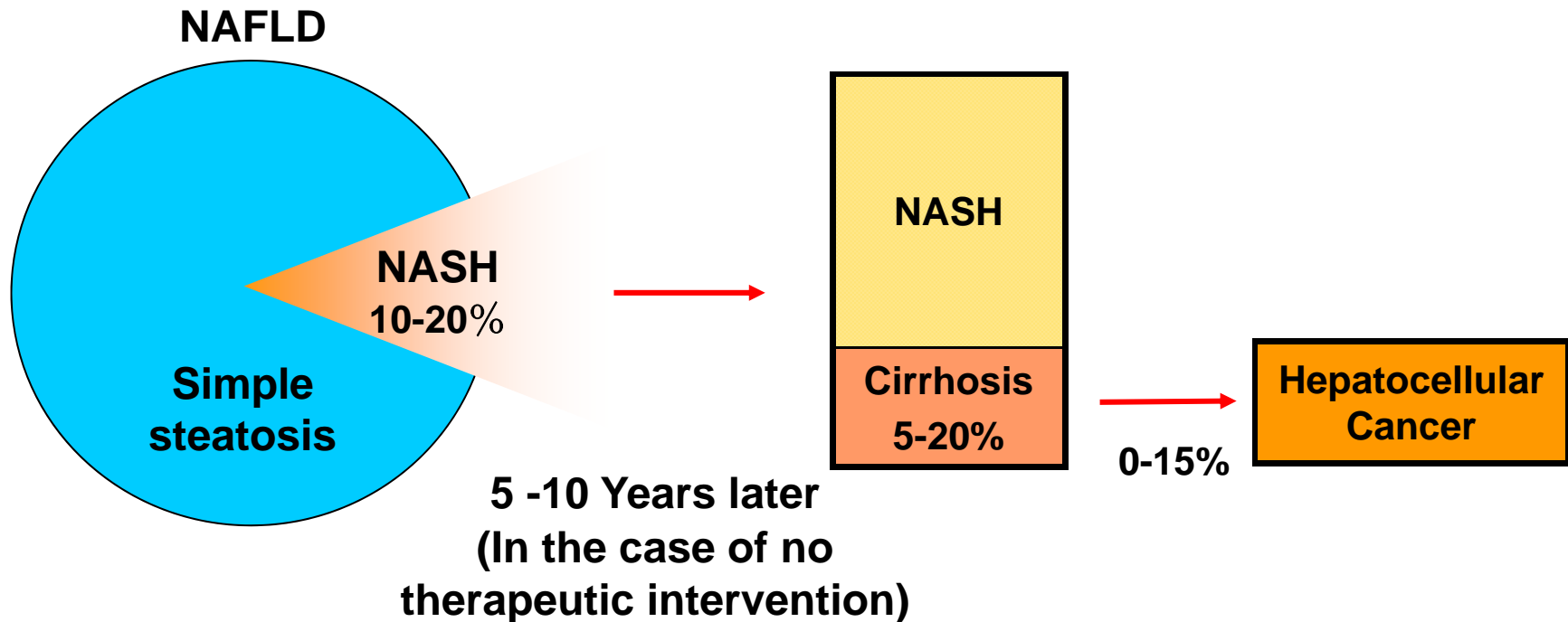
## <Number of patients>

- ◆ Morbidity of NASH is projected at least 1% of adults in Japan (i.e., one to two million)

\*NAFLD: Non-alcoholic Fatty Liver Disease



# Prognosis of NASH/NAFLD<sup>1)</sup>



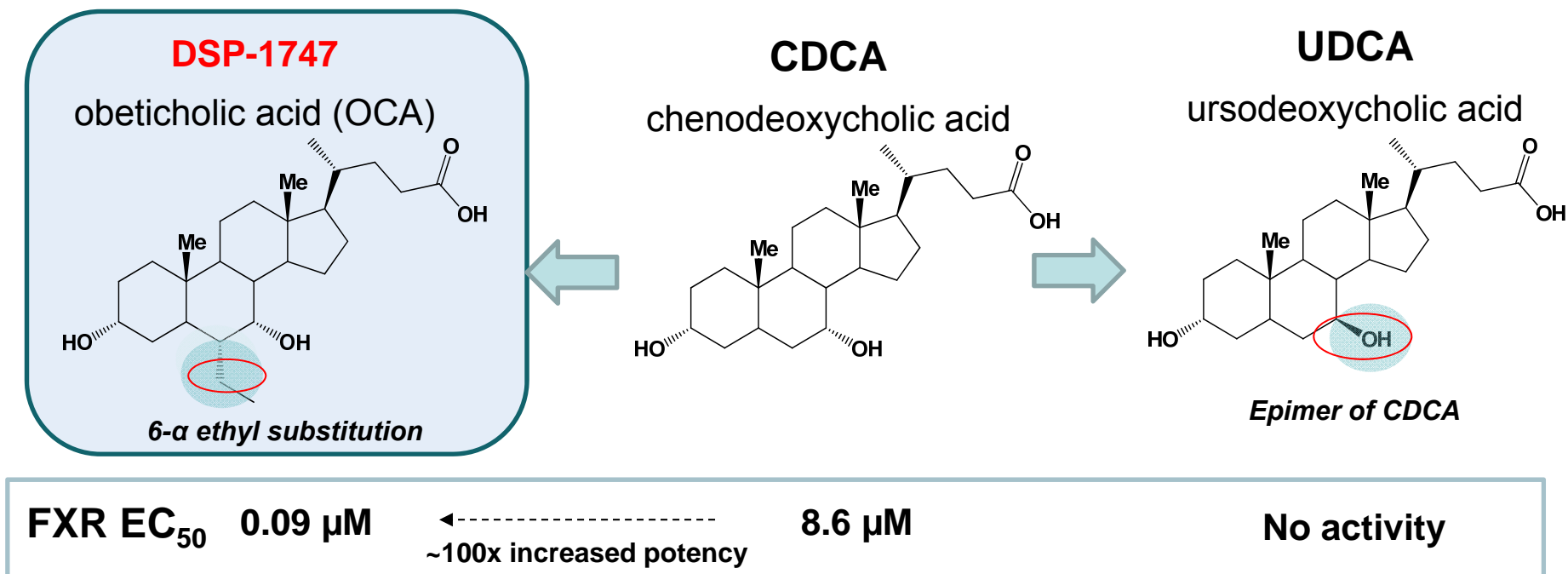
## NAFLD

- Most simple steatosis does not progress

## NASH

- Five to 20 % of NASH progress to cirrhosis in 5 to 10 years.
- The 5-year survival rates of NASH cirrhosis is comparable to that of Hepatitis C <sup>2)</sup>

# DSP-1747: First-in-Class FXR Agonist



## DSP-1747

- **100x more potent** than CDCA on FXR
- First-in-class with novel mechanism of action

## CDCA

- Endogenous FXR agonist

## UDCA (Ursodiol)

- **No FXR activity**
- Only product approved for PBC

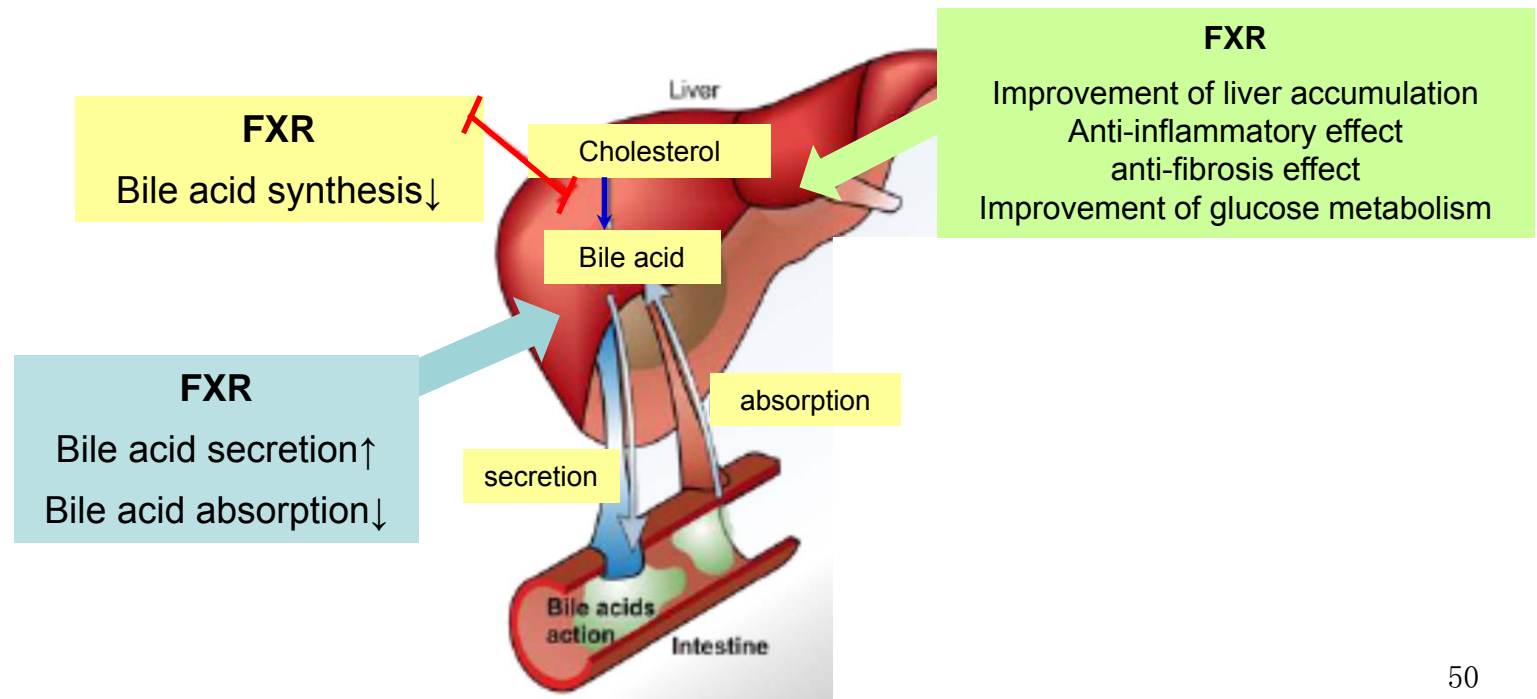
# Mode of Action: FXR agonist

## ◆ NASH:

- Improvement of fatty liver mediated by lipid metabolism regulation
- Improvement of liver function mediated by potent anti-fibrosis effect
- Anti-inflammatory effect

## ◆ PBC:

- Bile acid synthesis ↓, Bile acid secretion ↑, Bile acid absorption ↓
- Bile acid pool in the liver ↓; improvement of liver function



# FLINT trial : The Farnesoid X Receptor Ligand Obeticholic Acid in NASH Treatment Trial

- ◆ Sponsor: NIDDK
  - NIDDK selected OCA for next CRN trial (FLINT) based on data from preclinical animal models and Phase 2 trial in diabetic NAFLD patients (NCT00501592, sponsored by Intercept).
- ◆ Interim analysis has been done when approximately 50% of the patients of the 283 enrolled had completed end of treatment 72 week biopsies.
- ◆ Primary endpoint met the stopping criteria of efficacy -> treatment phase stopped early for efficacy (Jan. 2014)
  - Primary endpoint: improvement in NAFLD Activity Score (NAS)\* by  $\geq 2$  points with no worsening of fibrosis in comparison with placebo after 72 weeks administration
  - ITT interim analysis result:  $p=0.0024$  vs. stopping threshold of  $p<0.0031$
- ◆ FLINT interim results also found disproportionate lipid abnormalities in patients on OCA.
  - Increased total cholesterol with increased LDL, and decreased HDL cholesterol (no detailed information available yet)

\* Total NAS score represents the sum of scores for steatosis, ballooning, and lobular inflammation in liver biopsy samples (Kleiner DE., et al.: Hepatology 2005; 41: 1313-1321)

## NASH Phase 2 study in Japan

Objective	To investigate dose-relationship of efficacy and safety of DSP-1747 in NASH patients
Design	Multi-center, Placebo-controlled, Randomized, Double Blind, Parallel group, exploratory Study
Target patients' #	200
Inclusion criteria	<ul style="list-style-type: none"> <li>- Patients who are diagnosed with NASH in the pathological evaluation</li> <li>- Male and female of 20 - 64 years of age</li> </ul>
Endpoint	<p>Primary: Improvement of histology</p> <p>Secondary: Liver enzymes, markers related to NASH</p>
Study period	Oct. 2012 - Mar. 2016
Progress	Jan. 2014: Completion of enrollment (Target: 200 patients)
Topline result	Expected by the end of 2015

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# Future Plan

## ◆ NASH

- Detailed FLINT results: expected to be available 4Q 2014
- Discussions on NASH between Intercept and FDA expected to start in 2014
- Topline results of NASH Phase 2 study in Japan: to be available by the end of 2015
- DSP continues pursuing early NDA for NASH in Japan, while watching the outcome of the discussion between FDA and Intercept

## ◆ PBC

- Intercept POISE Phase 3 results: expected to be available 2Q 2014
- DSP considers clinical development plan in Japan after reviewing the result of POISE study
- File NDA and MAA for PBC by Intercept: 4Q 2014

# 3rd MTBP: Product Launch Plan (Updated March 2014)

	FY2013~FY2015	FY2016~FY2017	After FY2018 (not all)	
Japan	SUREPOST® <repaglinide> (Type 2 diabetes/ Combination therapies with DPP-4 inhibitors)	SM-13496 <lurasidone hydrochloride> (Schizophrenia)	Japan	
	METGLUCO® <Metformin hydrochloride> (Type 2 diabetes/ Pediatric usage)	SM-13496 <lurasidone hydrochloride> (Bipolar disorder)		LONASEN® <blonanserin> (Schizophrenia/ Patch, Pediatric usage)
	MEROPEN® <meropenem hydrate> ★ (Bacterial meningitis/ 6g daily)	AS-3201 <ranirestat> (Diabetic neuropathy/ neuropathy)		WT4869 (Hematologic cancer/ Solid cancer)
US	LATUDA® <lurasidone hydrochloride> ★ (Bipolar I Depression)	BBi608 (Colorectal cancer)	DSP-5990 <ceftaroline fosamil> (MRSA Infection)	
	LATUDA® <lurasidone hydrochloride> (Bipolar Maintenance)	BBi503 (Solid cancer)	DSP-1747 (NASH)	
	APTiom® <eslicarbazepine acetate> ★ (Epilepsy-Adjunct)	EPI-743 (Leigh syndrome)	DSP-6952 (IBS with constipation, Chronic idiopathic constipation)	
	APTiom® <eslicarbazepine acetate> (Epilepsy-monotherapy)	SB623 (Stroke)	DSP-3025 (Asthma/ Allergic rhinitis)	
	BBi608 (Colorectal cancer)	SUN-101 (COPD)	iPS cell-derived RPE cells HLS001 (Age-related macular degeneration)	
China	LONASEN® <blonanserin> (Schizophrenia)	BBi503 (Solid cancer)	Global	
	CALSED® <amurubicin hydrochloride> (Small cell lung cancer)	SM-13496 <lurasidone hydrochloride> (Schizophrenia)		DSP-2230 (Neuropathic pain)
UK	SM-13496 <lurasidone hydrochloride> (Schizophrenia)	SM-13496 <lurasidone hydrochloride> (Bipolar disorder)	SEP-225289 (ADHD)	
			DSP-1053 (Depression)	
			SEP-363856 (Schizophrenia)	
			WT2725 (Solid cancer/ Hematologic cancer)	

: P&N    
  : Diabetes    
  : liver/ digestive    
  : Respiratory    
  : Infection    
 New Chemical Entities    
 New Indication etc.

★ Approved    
 ● Newly added

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The statements made in this presentation material are forward-looking statements based on management's assumptions and beliefs in light of information available up to the day of announcement, and involve both known and unknown risks and uncertainties.

Actual financial results may differ materially from those presented in this document, being dependent on a number of factors.

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