FY2019 Financial Results

Company

HEALIOS K.K. (TSE 4593)

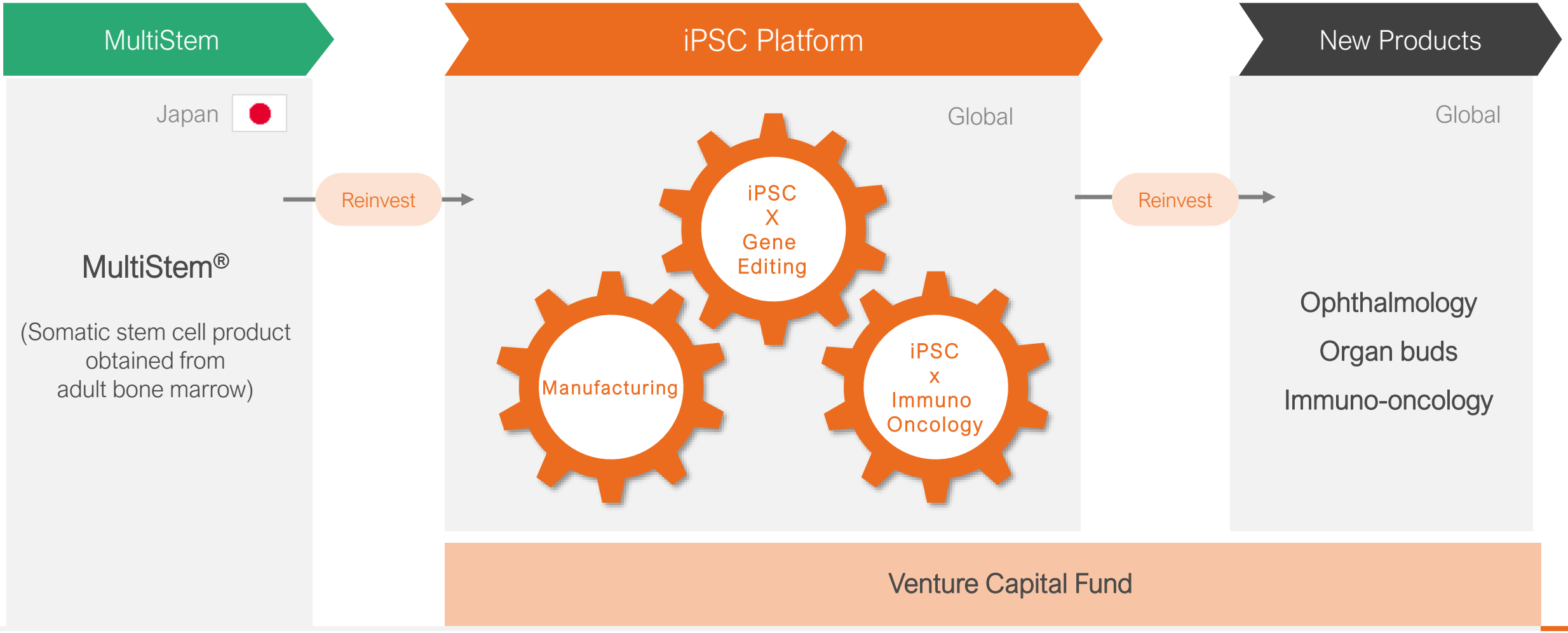
Date

February 13, 2020

Strategy

Reinvest somatic stem cell product earnings to establish next-generation stem cell platform

Expect synergistic benefit from venture capital fund

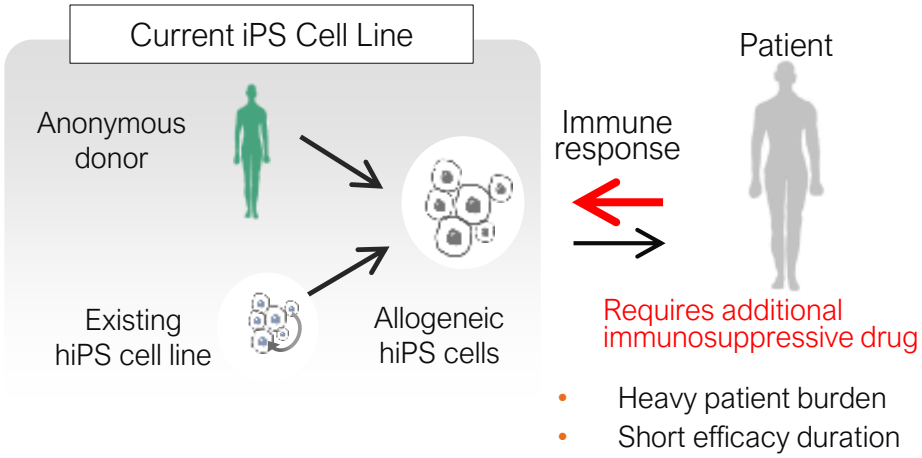


Update

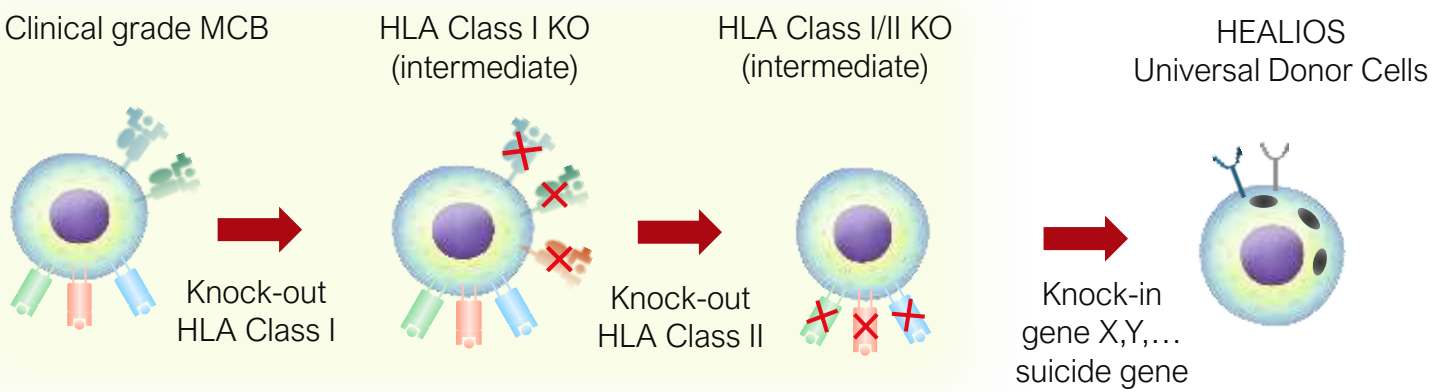
Healios

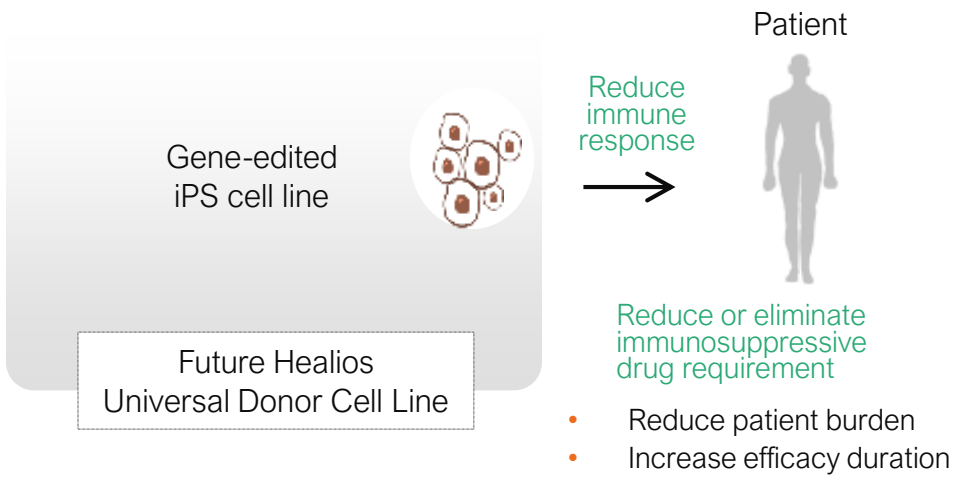
Proprietary gene-edited iPSC platform: “Universal Donor Cells”

- Generating hypoimmunogenic human pluripotent stem cells (universal donor cells or UDCs) as a starting material for allogenic transplantation
- Accelerates progress towards next-generation therapies in ophthalmology, organ buds, and immuno-oncology
- Leading the development of a clinical grade universal donor cell line in accordance with global standards.
- Initiated FDA and PMDA consultation and will distribute research cell line in the near future.

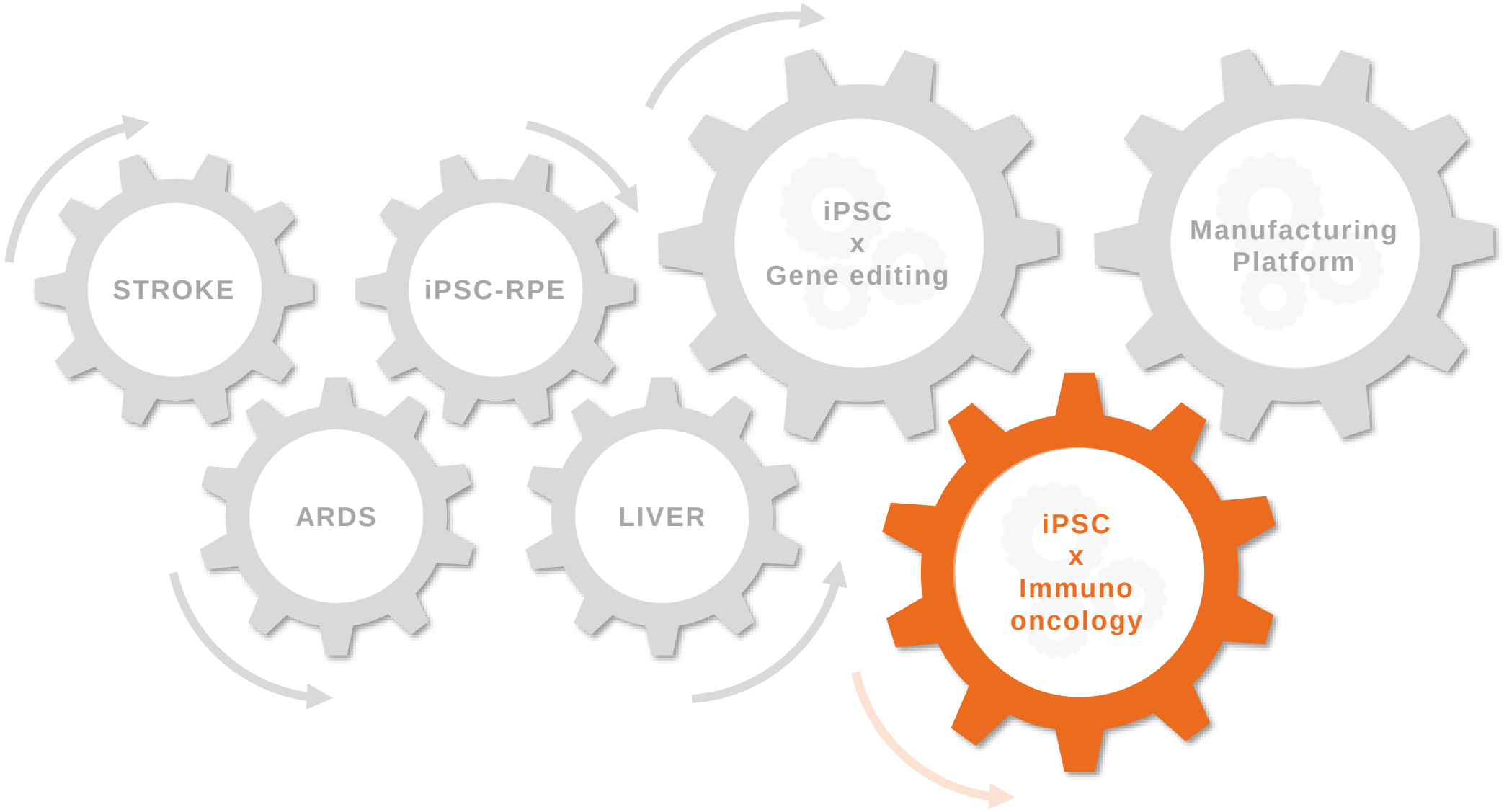


HLA knockout procedure to generate HEALIOS Universal Donor Cells





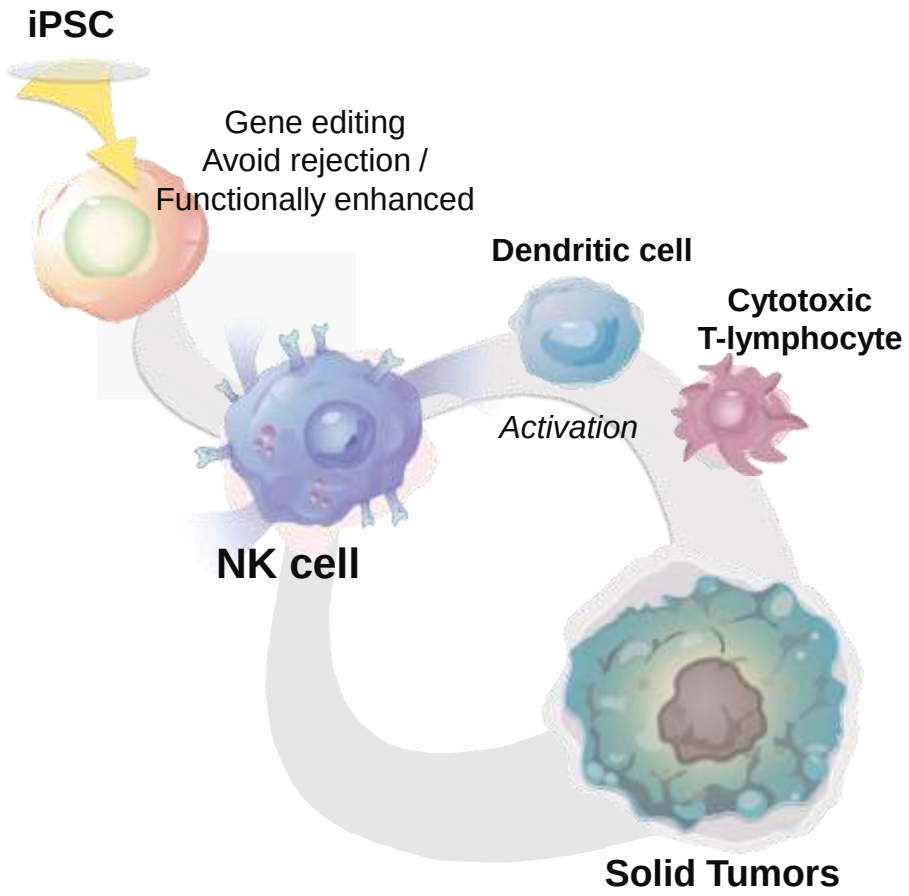
HLCN061



HLCN061　Leading the Development of iPSC Derived Gene-Modified NK Cells

Natural killer (NK) cells are a subset of lymphocytes, a type of white blood cell. NK cells play a central role in a cell mediated defense system that human bodies naturally have, and attack cancer cells and virus-infected cells.

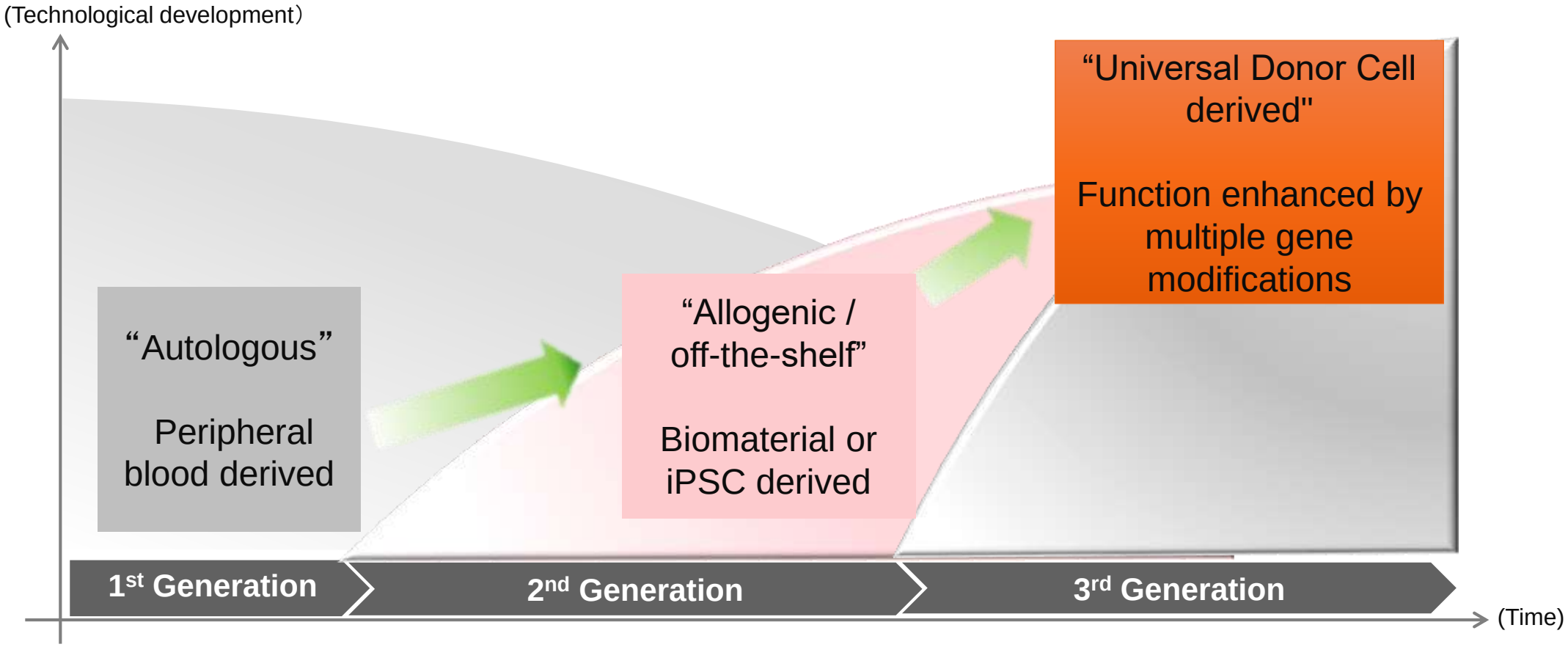
- Best in class, enhanced anti-tumor efficacy by introducing/modulating various factors related to NK cells killing activity
- Broad applicability across tumor types irrespective of specific cancer antigens
- The expected efficacy of treatments using NK cells includes life-extension, promotion of healing, relief of symptoms, and improvement of quality of life.



HLCN061　iPSC Derived Gene-Modified NK Cells

By using UDCs, graft rejection may be avoided, and sustained efficacy may be expected.

Target an off-the-shelf product: stable production and quality with lower cost of goods.



Pipeline

Update

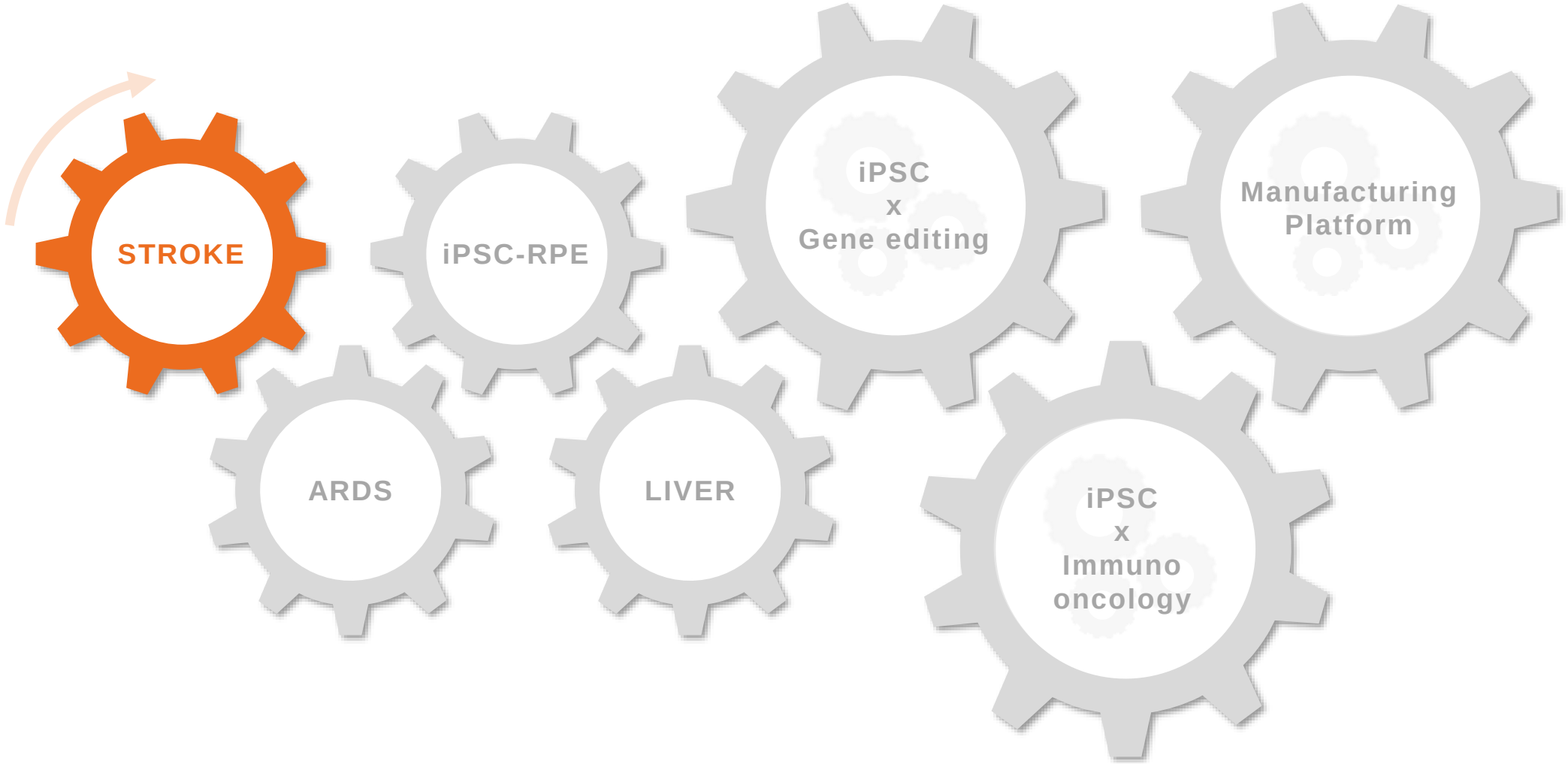
Healios

Market	Field	Development Code	Indication	Pre-clinical test	Clinical trial	Apply-approve	On Market	Progress status
Japan	Somatic Stem Cell Regenerative Medicine	HLCM051	Ischemic Stroke	→				Clinical trial ongoing
			ARDS	→				First patient enrolled in April 2019
	iPSC Regenerative Medicine	HLCR011	Wet AMD	→				Undergoing preparation for clinical trial Joint development with Sumitomo Dainippon Pharma
		HLCL041	Metabolic Liver Disease	→				Joint research with Yokohama City University
		HLCN061	Solid Tumors	→				Research and development of genetically modified NK cells(*1)

Market	Field	Development code	Indication	Pre-Clinical test	Phase 1 trial	Phase 2 trial	Phase 3 trial	Apply-approve	On Market	Progress status
US EU	iPSC Regenerative Medicine	HLCR012	Dry AMD	→						CRADA with NEI
US		HLCN061	Solid Tumors	→						Research and development of genetically modified NK cells(*1)

*1)NK Cells：Natural Killer Cells

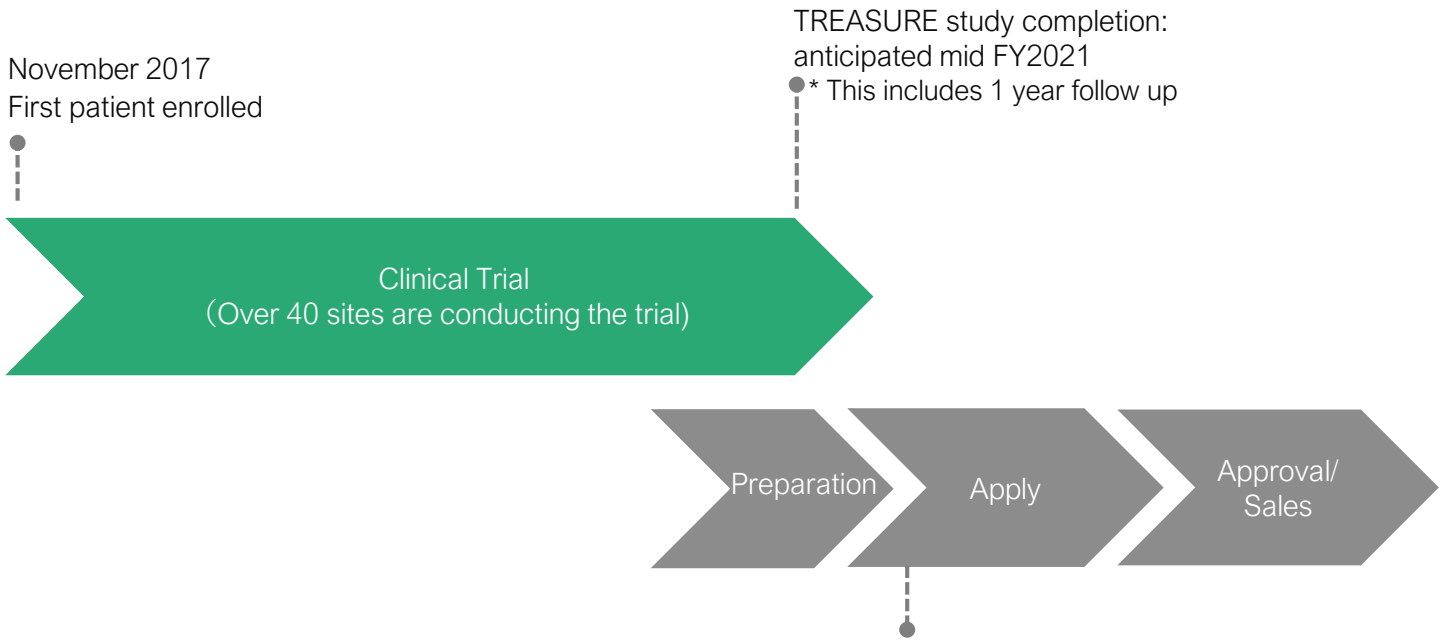
HLCM051 Stroke



HLCM051 Stroke: TREASURE Study Ongoing

Ongoing Placebo-Controlled, Double-Blind, Phase 2/3 Efficacy and Safety Trial of HLCM051 (MultiStem®) in Patients With Ischemic Stroke

Development Plan



Overview of TREASURE study

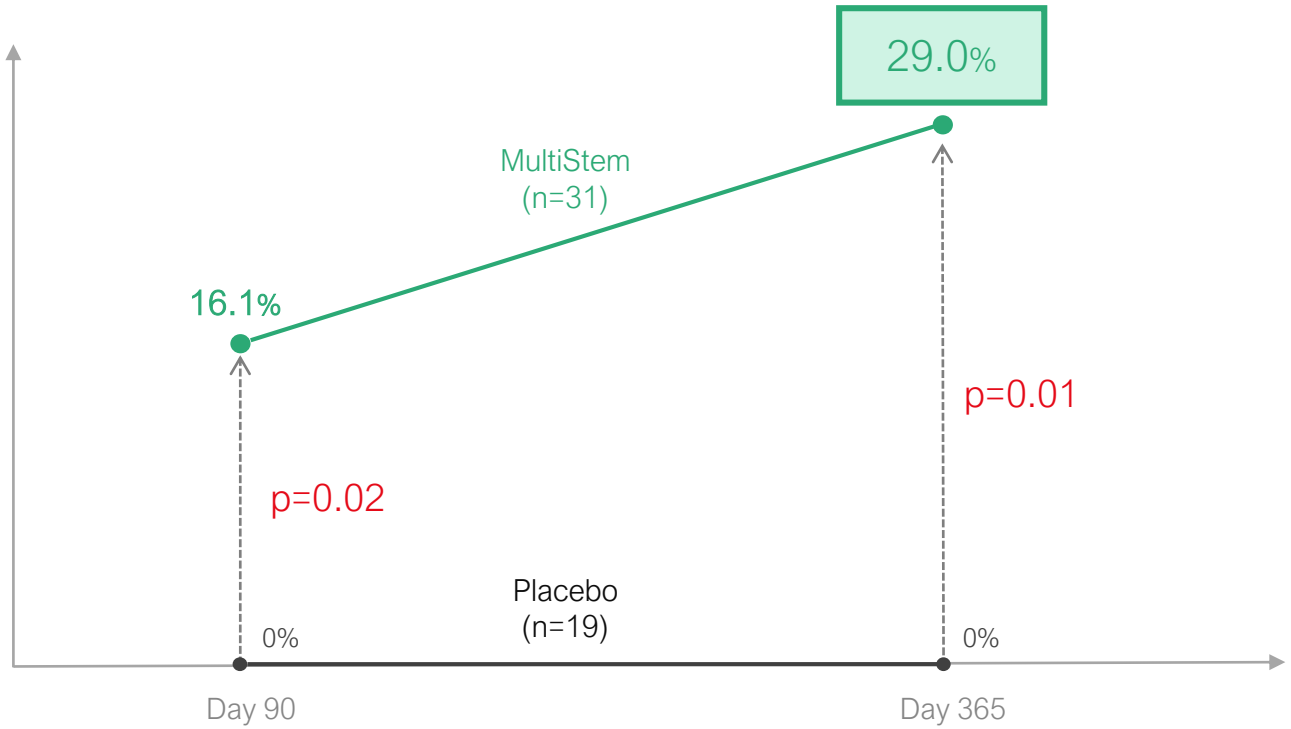
Trial	Placebo-Controlled, Double-Blind, Phase 2/3 Efficacy and Safety Trial of HLCM051 (MultiStem®) in Patients With Ischemic Stroke （TREASURE study）
Subjects	Ischemic stroke within 18 to 36 hours
Conditions	Placebo-Controlled, Double-Blind
Enrollment	220 (HLCM051 [n=110], placebo [n=110], randomized)
Primary Endpoints	Proportion of subjects with an excellent outcome defined by functional assessments [Time Frame: Day 90]

- “Excellent Outcome” is defined as achieving mRS ≤1, NIHSS ≤1, and BI ≥95. mRS, NIHSS, and BI are the three major indices of functional assessment for stroke patients.

Results of Double-blind Study Conducted by Athersys <Stroke>

The proportion of patients who achieved Excellent Outcome was statistically significant in the group of patients who received MultiStem within 36 hours of the onset of cerebral infarction

Analysis of the Double-blind study conducted by Athersys



(Source) This material was based on *Lancet Neurol*. 2017 May;16(5):360-368; 16 360–68 Supplementary appendix Table 5

Overview of the Analysis

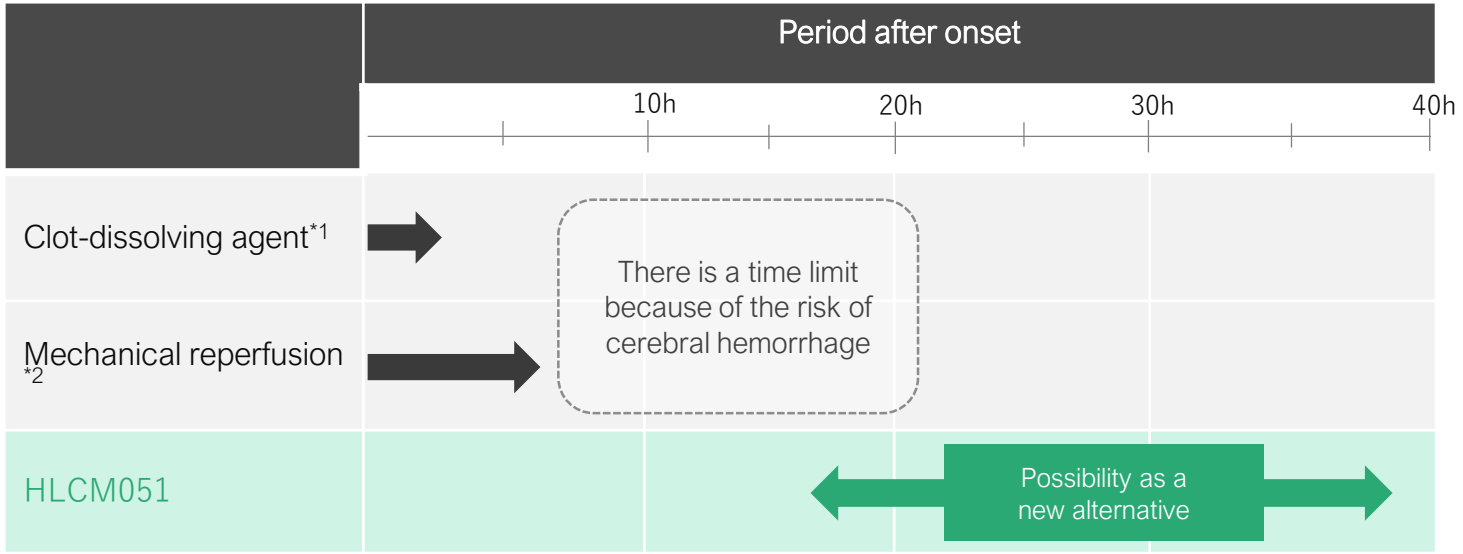
Trial	The placebo-controlled double-blind Phase 2 study conducted by Athersys in the US and the UK （MASTERS study)
Subjects	Administered MultiStem or Placebo within 36 hours of the onset of stroke
Endpoint	Proportion of subjects with an Excellent Outcome on Day 90 and Day 365

*<Excellent Outcome> is defined as mRS score of ≤1 (scale, 0 to 6), NIHSS score of ≤1 (scale, 0 to 42), and BI score of ≥95 (scale, 0 to 100).

HLCM051 Stroke: Outline of Ischemic Stroke in Japan

Expected development of a new therapy that can be applied in a longer treatment window period following the onset of ischemic stroke (ability to help more patients)

Treatment in Accordance with the Period After Onset



※1 Dissolves blood clots in the brain vessels
※2 Insertion of the catheter into a blood vessel and recovery of the thrombus directly with a wire.

(Note) This material was prepared to explicitly describe the major therapeutic options for ischemic stroke and their treatment window periods after onset. Appropriate treatments are conducted according to patients' conditions and classification of their symptoms. Experimental or investigational treatments not included in the above are also performed.

Ischemic Stroke

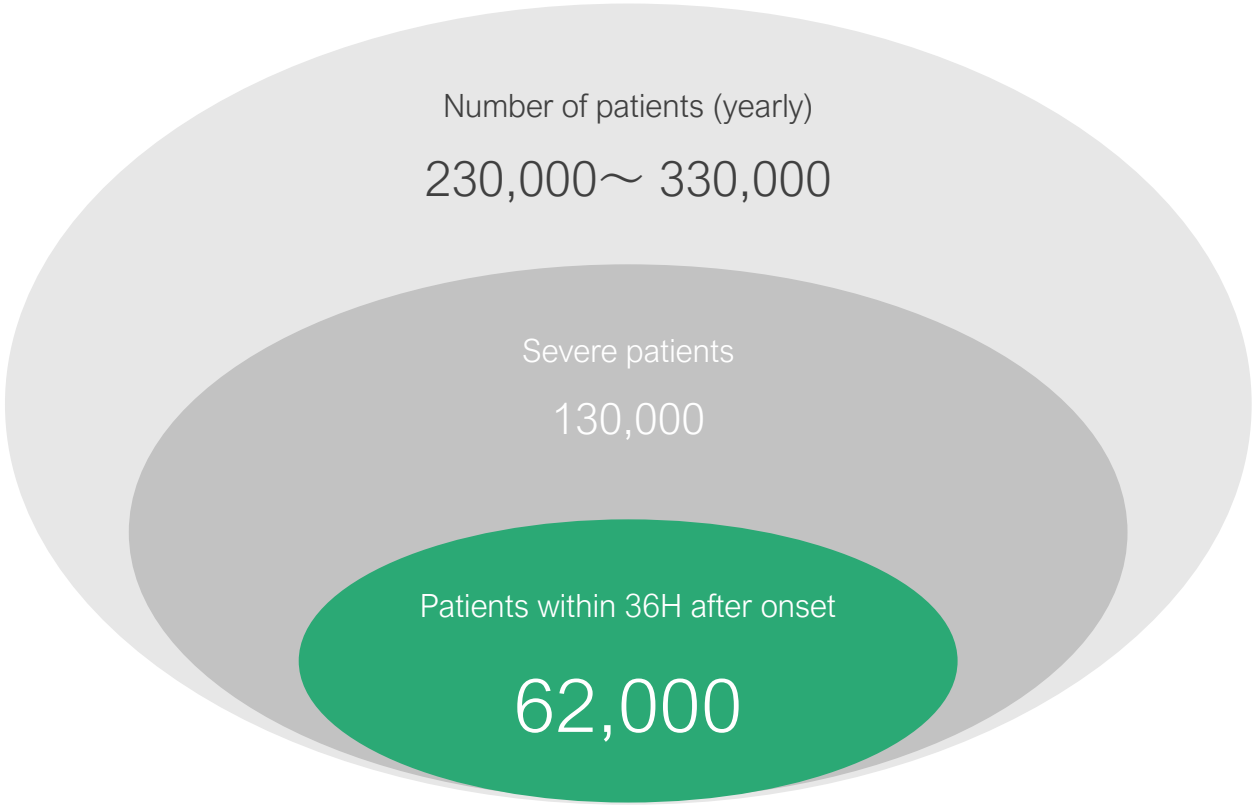
Ischemic stroke, which represents the most common form of stroke (70 - 75% of cases in Japan), is caused by a blockage of blood flow in the brain that cuts off the supply of oxygen and nutrients, resulting in tissue loss.

(Source) Athersys

It is estimated that 37.9% of bedridden patients and 21.7% of persons who were in need of care were affected by ischemic stroke.

HLCM051 Stroke: Annual number of New Patients with Ischemic Stroke in Japan

The number of patients in Japan targeted for HLCM051 is estimated to be 62,000 a year



Number of patients with ischemic stroke in Japan (yearly)

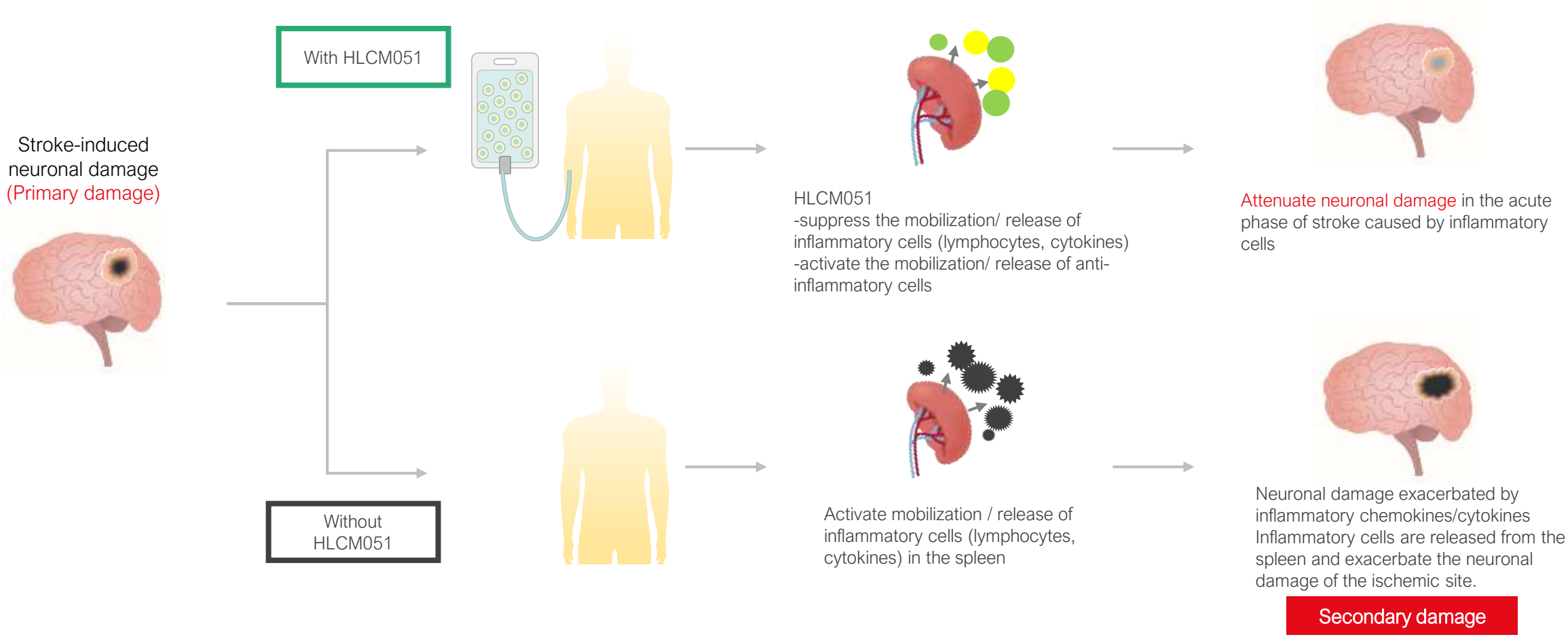
Severe patients （atherothrombotic and cardiogenic cerebral infarction)

Patients within 36 hour after onset

(Source) Healios estimated the annual number of new patients with ischemic stroke in Japan according to materials issued by the Fire and Disaster Management Agency, the Ministry of Internal Affairs and Communication, and the Ministry of Health, Labour and Welfare – DATAMONITOR epidemiological estimates also shown as upper end of range.
(Source) Healios estimated the percentage of patients who reach the hospital within 36 hours after onset at 47% according to the results of its market research.

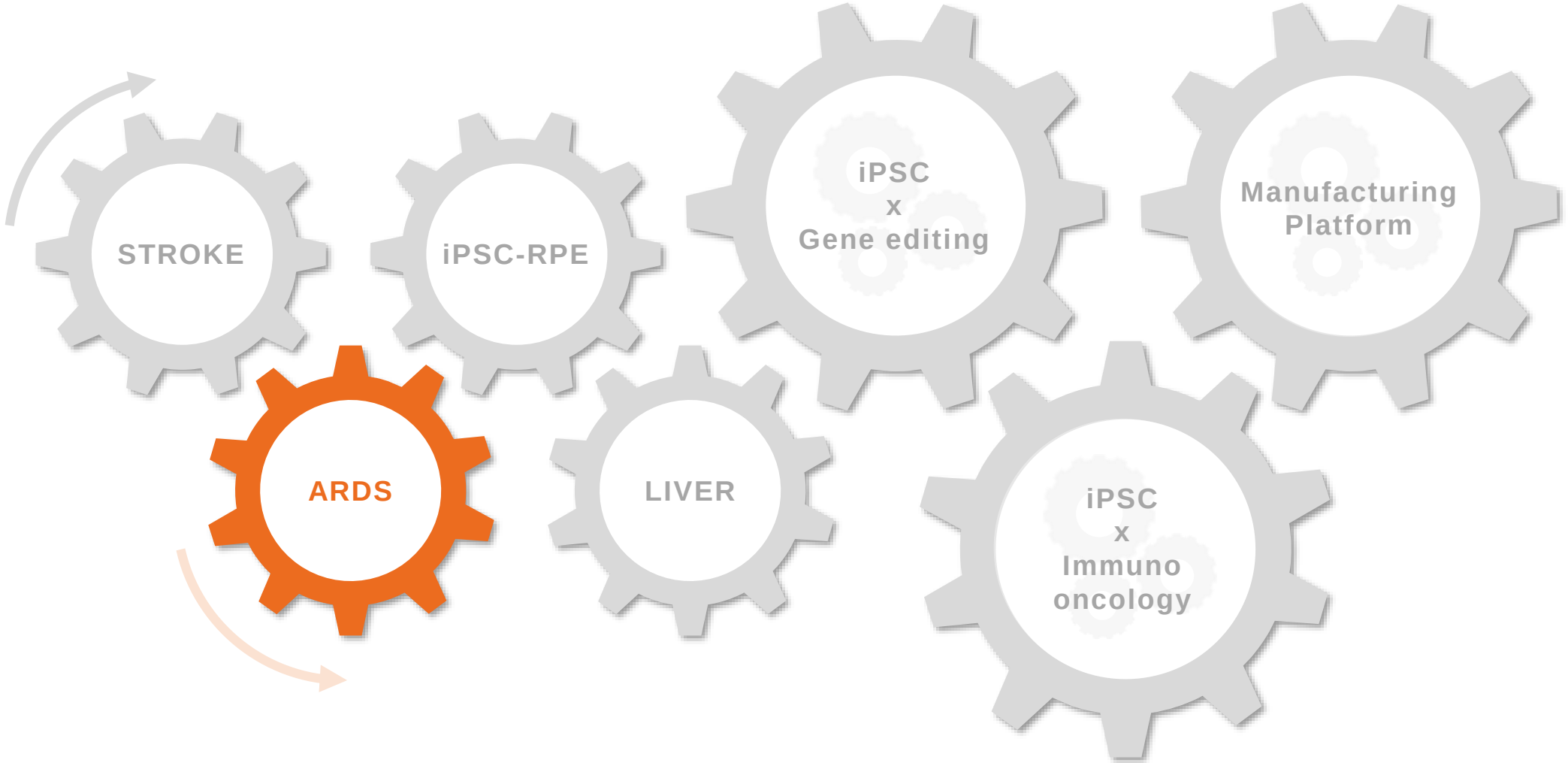
HLCM051 Stroke: Mechanism of HLCM051 Treatment

Administrated intravenously, HLCM051 distributes to the spleen downregulating the hyperinflammatory response and promotes a neuroprotective effect by releasing various cytokines and growth factors.



（Source）This figure was based on Stroke. 2018 May;49(5):1058-1065.Fig.2

HLCM051 ARDS



HLCM051 ARDS: ONE-BRIDGE Study Ongoing

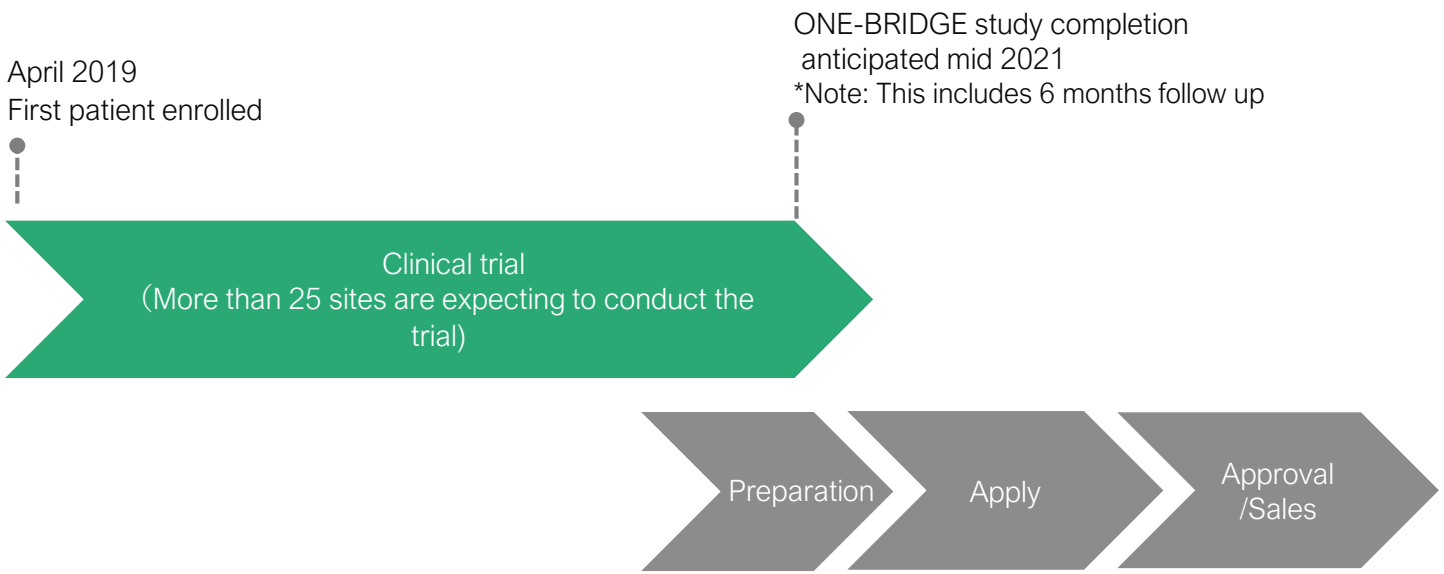
Update

Healios

Ongoing Phase 2 trial for patients with pneumonia induced ARDS in Japan (ONE-BRIDGE study)

Development Plan

On November 25, 2019, we received orphan regenerative medicine designation for the treatment of ARDS.



Overview of ONE-BRIDGE study

Clinical Trial	Efficacy and Safety Study of HLCM051 (MultiStem®) For Pneumonic Acute Respiratory Distress Syndrome (ONE-BRIDGE)
Subjects	Patients with pneumonia induced ARDS
Conditions	Open label, Standard therapy-controlled
Enrollment	30 (MultiStem20, Standard therapy 10） Randomized
Primary Endpoint	The number of days out of 28 in which a ventilator was not used for the patient (i.e. ventilator free days)

HLCM051 ARDS: About Acute Respiratory Distress Syndrome (ARDS)

There is demand for new treatments for ARDS that will lead to improvements in patients' symptoms and prognosis

About ARDS

Acute Respiratory Distress Syndrome (ARDS) is a general term for the symptoms of acute respiratory failure suddenly occurring in all seriously ill patients.
The major causes are severe pneumonia, septicemia, trauma etc.
Inflammatory cells are activated in response to these diseases or injuries, causing damage to the tissue of the lungs. As a result, water accumulates in the lungs, leading to acute respiratory failure.

（Source）Athersys

Typically, ARDS is said to occur within 24 to 48 hours of the onset of the illness or injury that caused it. The mortality rate is approximately 30 to 58%*.

(* ARDS treatment guideline 2016)

Current Treatment

Artificial respiration using an endotracheal tube or mask is used to treat for respiratory failure in an intensive care unit (ICU).
However, it is known that prolonged use of a ventilator worsens a patient's prognosis.

At present, there are no therapeutic drugs that can make a direct improvement to a patient's vital prognosis when ARDS develops.
There is demand for new treatments for ARDS that will lead to improvements in patients' symptoms and prognosis.

HLCM051 ARDS: Number of ARDS Patients

Update

Healios

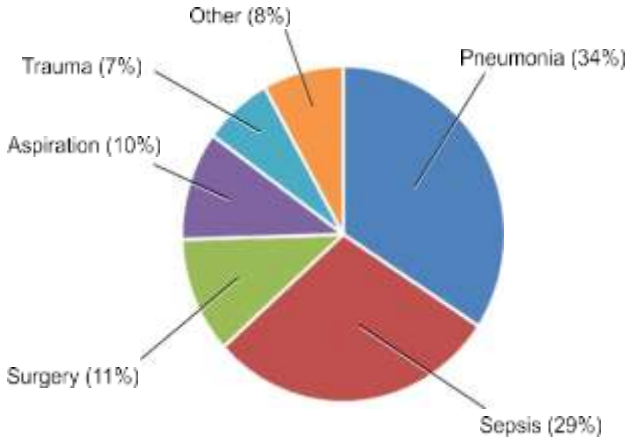
Number of ARDS patients in Japan estimated approximately 7,000～12,000 per year

Approximately 1/3 of ARDS cases caused by pneumonia

Epidemiological data

Epidemiological data	Incidence rate	The estimated number of ARDS patients in Japan＊1
Epidemiology, Patterns of Care, and Mortality for Patients With Acute Respiratory Distress Syndrome in Intensive Care Units in 50 Countries. Source：JAMA.2016; 315(8): 788-800	・0.42 cases per ICU bed ・10.4% of ICU admissions ・23.4% of patients requiring mechanical ventilation	11,937
Epidemiology of Acute Lung Injury (ALI) / Acute Respiratory Distress Syndrome (ARDS) in Chiba Prefecture Source：Journal of Japanese Association for Acute Medicine 2007; 18(6): 219-228	6.1 per 100,000 persons	7,320

Underlying diseases of ARDS



（Source） Respiratory Investigation; 55(4): 257-263

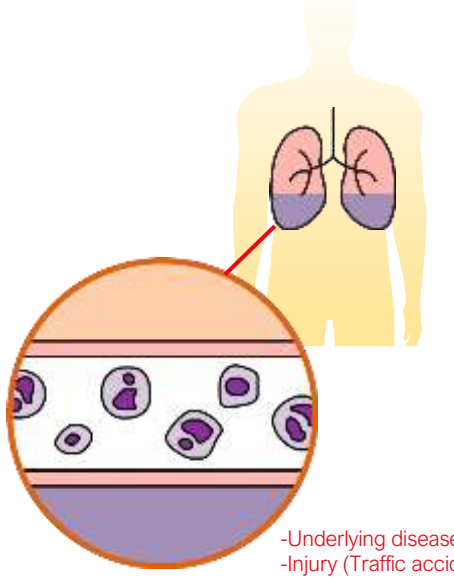
Approximately one-third of ARDS cases are caused by pneumonia. Seasonal infections may progress from pneumonia to ARDS. Some data indicate that approximately 71%[*2] of avian-origin influenza A (H7N9) and approximately 17%[*3] of novel coronavirus (2019 - nCoV) infections result in ARDS.

＊1（Source） The number of ARDS patients in Japan is estimated by Healios based on the incidence rate of epidemiological data and the total demographical population in Japan.
＊2（Source）Gao HN. et al., *N Engl J Med.* 2013 Jun 13;368(24):2277-85.
＊3（Source）Chen N . et al., *Lancet. 2020* Jan 30. pii: S0140-6736(20)30211-7

ARDS Pathological Process and HLCM051 Expected Mechanism of Action

Following intravenous administration after ARDS, HLCM051 accumulates in the lungs and controls excessive inflammation, protects damaged tissue and promotes restoration.

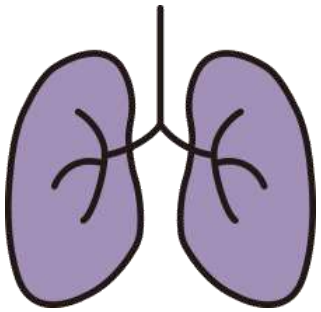
Inflammatory cells are released



-Underlying disease (pneumonia, etc.)
-Injury (Traffic accident, etc.)

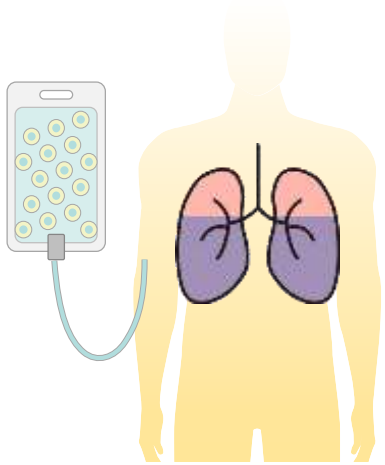
When the tissue is damaged, inflammatory cells are released in large quantities.

Inflammatory cells attack the lungs



The inflammatory cells attack the lungs. As a result, hypoxia develops and the patient falls into severe respiratory failure.

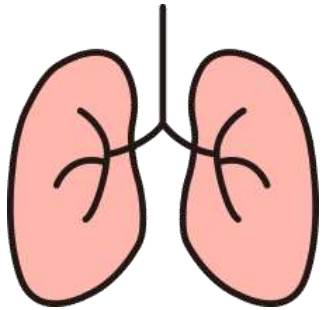
HLCM051 Administered



- Suppresses excessive inflammation in the lungs.
- Protects damaged tissue and facilitates healing.

HLCM051 accumulates in the lungs as a result of intravenous administration.

Lung function improves



We can anticipate earlier ventilator removal and a lower mortality rate.

Results of Double-blind Study Conducted by Athersys <ARDS>

Update

Healios

Based on one-year follow-up summary results, an evaluation of quality-of-life suggests further potential benefits from MultiStem treatment including faster rehabilitation.

No serious adverse events were observed.

Analysis of the Double-blind study conducted by Athersys

	MultiStem	Placebo
Mortality	25%	40%
Ventilator- free (VF) days	12.9 days	9.2 days
Intensive Care Unit (ICU) free days	10.3 days	8.1 days

Post-hoc Analysis of patients in severe condition and pneumonia-induced ARDS

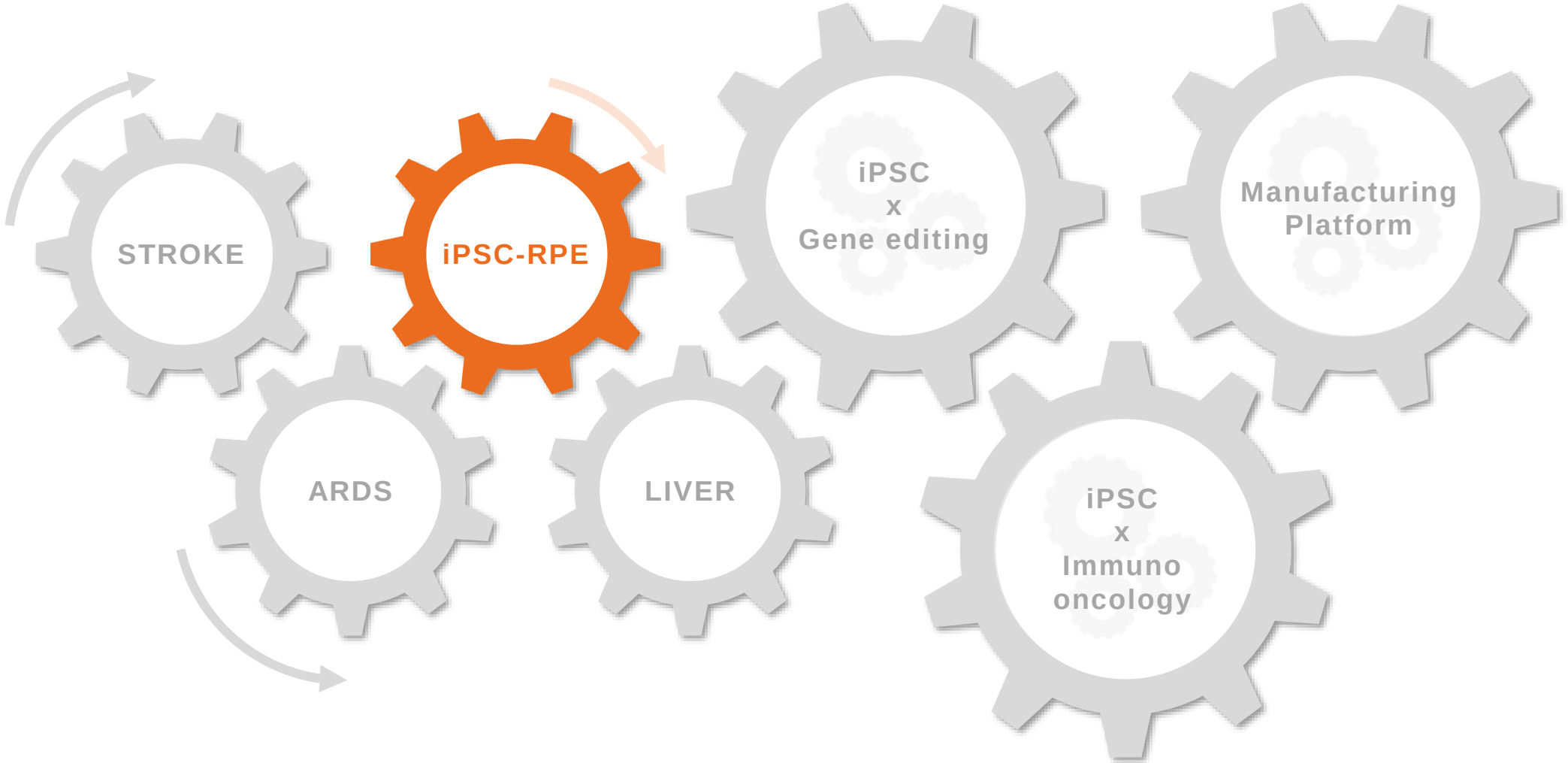
	MultiStem	Placebo
Mortality	20%	50%
Ventilator- free (VF) days	14.8 days	7.5 days
Intensive Care Unit (ICU) free days	12.0 days	5.0 days

In the above analysis based on data obtained 90 days after administration, the mortality rate and the number of ventilator-free days (VFD) within a 28-day post-administration period et al. tended to improve in the MultiStem group compared with the placebo group. The results of the 1-year follow-up after administration showed a similar trend.

Overview of the Analysis

Clinical trial	Exploratory clinical trial （Phase 1/2) conducted by Athersys in US and UK （MUST-ARDS study)
Subjects	ARDS patients administered MultiStem or Placebo intravenously（In Phase 2 trial, MultiStem 20, Placebo 10)
Endpoints	- Mortality - Ventilator Free days (The number of the days out of 28 in which a ventilator was not used for the patient) - ICU Free Days The number of the days out of 28 in which the patient was out of Intensive Care Unit

（Source）Athersys



HLCR011 AMD: Changes in Joint Development Framework

To focus our clinical development on two ongoing trials, we revised the joint development framework with Sumitomo Dainippon Pharma in relation to iPSC-RPE cells in Japan

Major changes

1. Changes in Development Roles
- Sumitomo Dainippon Pharma will lead the clinical trial going forward
- Both companies can apply for sales and manufacturing approval based on the results of the clinical trial

2. Changes in the License Agreement
- The total amount of milestone payments Healios will receive from Sumitomo Dainippon Pharma revised to 1 billion yen (of which 0.7 billion has been received)
- Development cost allocation adjusted with flexibility (the details are confidential)
- A non-exclusive overseas license is granted to Sumitomo Dainippon Pharma regarding RPE cell products

3. Changes to the Role of the Joint Venture
- Only the manufacturing of RPE cell products will be outsourced to Sighregen, a 50-50 Healios and Sumitomo Dainippon Pharma joint venture

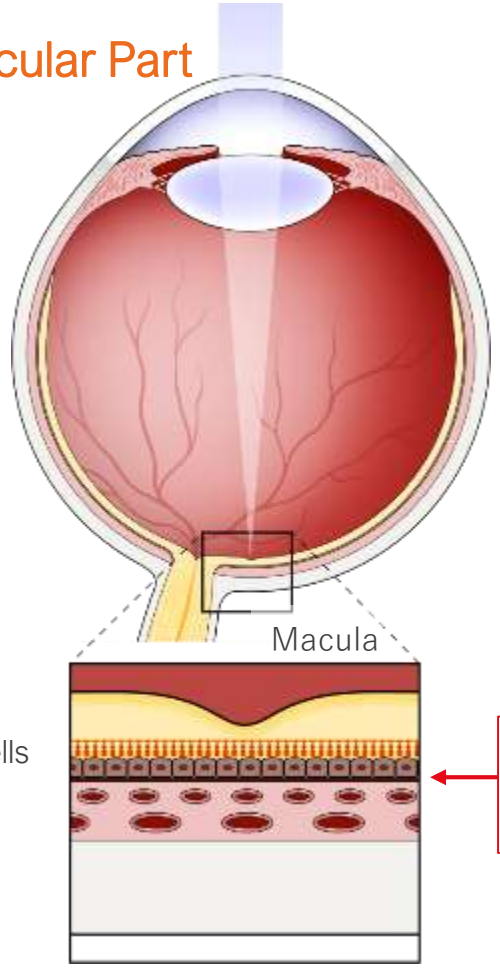
History of Joint Development

2013	Agreed to joint development with Sumitomo Dainippon Pharma
2014	Established the joint venture, Sighregen
2015	Received iPSC from CiRA
2016	Joint R&D with Sysmex and Sumitomo Dainippon Pharma related to Pre-Transplant Immune Reaction Testing Method for iPSC-RPE cells
2018	Sighregen started establishing a manufacturing facility in SMaRT, the manufacturing plant for regenerative medicine and cell therapy by Sumitomo Dainippon Pharma
2019	Agreed to change the joint development framework

HLCR011 AMD: Pathological Conditions

Age-related Macular Degeneration(AMD) causes Retinal Pigment Epithelial (RPE) cells to degenerate, which damages function

Regular Macular Part

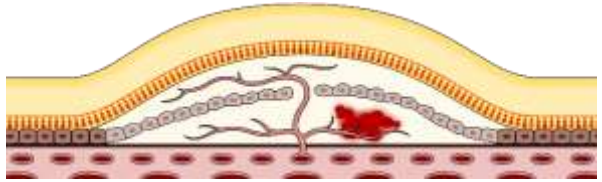


Developed Dry-AMD

Immunity barrier maintained
→ Degeneration of photoreceptor→ Dry AMD

Wet AMD

Destruction of immunity barrier → Invasion of immune cells
→ Inflammation → Wet AMD



HLCR011 AMD: Number of AMD Patients

Large number of both Wet and Dry AMD patients (including mild cases)

（Thousand patients）

	US	Japan	Others
Number of AMD Patients	10,000	9,230	13,000
Number of AMD Patients in Serious Cases	2,000	690	2,600～3,220
Wet-AMD patients in serious cases	1,000～1,500	630	1,300～1,950
Dry-AMD patients in serious cases	850～900	60	1,100～1,170

(Source) According to research by Hisayama Kyushu University Graduate School of Medicine in Fukuoka (based on a comprehensive study), the total number of patients in Japan is calculated, estimating the total number of first-stage age-related macular degeneration and latter stage of age-related macular degeneration based on population statistics (2007). Also, the Disease Information Center announced that the number of patients suffering serious cases is approximately 690,000. The total number of patients in the US, which the National Eye Institute reports, includes the total number of age-related macular degeneration patients in mild cases and patients with visual field defects. Also, our company calculated the total number of Dry/Wet patients based on the incidence rates presented by AMDF (2010). Our company calculated the total number of patients in Europe based on incidence rates in each grade of European population statistics （2010)

(Source)Prevalence of age-related maculopathy in older Europeans: the European Eye Study (EUREYE).Source: Arch Ophthalmol. 2006 Apr;124(4):529-35

HLCR011 AMD: Market scale of anti-VEGF treatment

Sales of anti-VEGF treatment are increasing every year

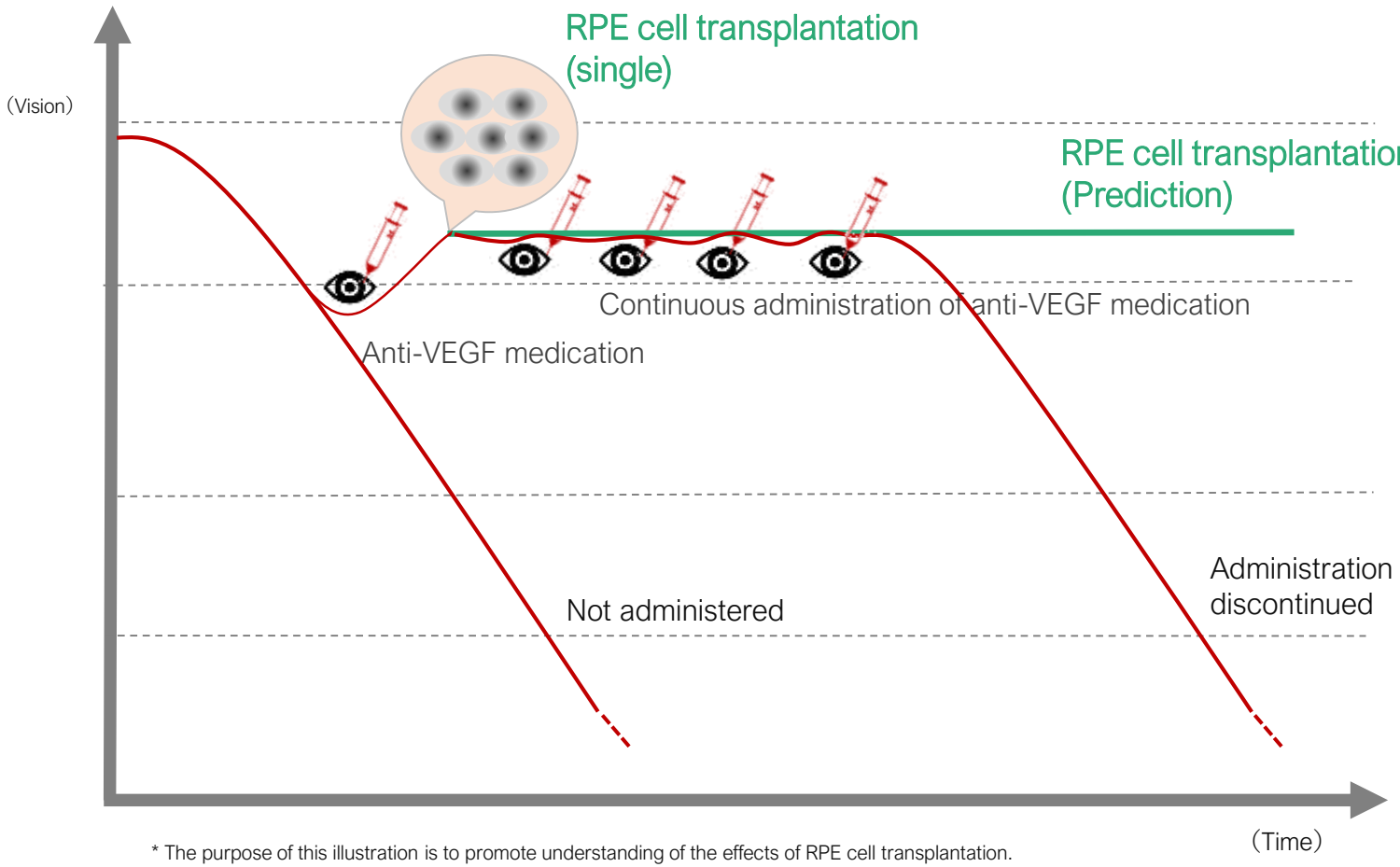
No medicine for Dry AMD

Indication	Medicine/Effect	Year	US	Japan	Others	Total
Wet AMD and other 3 diseases	Anti-VEGF treatment/ Restraint of New Blood Vessels	2016	4.729 billion USD	580 million USD	3.127 billion USD	8.436 billion USD
		2017	5.116 billion USD	632 million USD	3.483billion USD	9.231 billion USD
		2018	5.735 billion USD	713 million USD	4.001billion USD	10.45 billion USD
Dry AMD	No Medicine					

(Source) Market scale was calculated using official materials from drug companies (Roche Diagnostic, Novartis, Regeneron, Bayer HealthCare, Santen Pharmaceutical Co., Ltd).
Calculated using 2015,2016,2017 fiscal year-average exchange rates. (FY2016: $1=¥110, FY2017: $1=¥112, FY2018:$1=¥110)

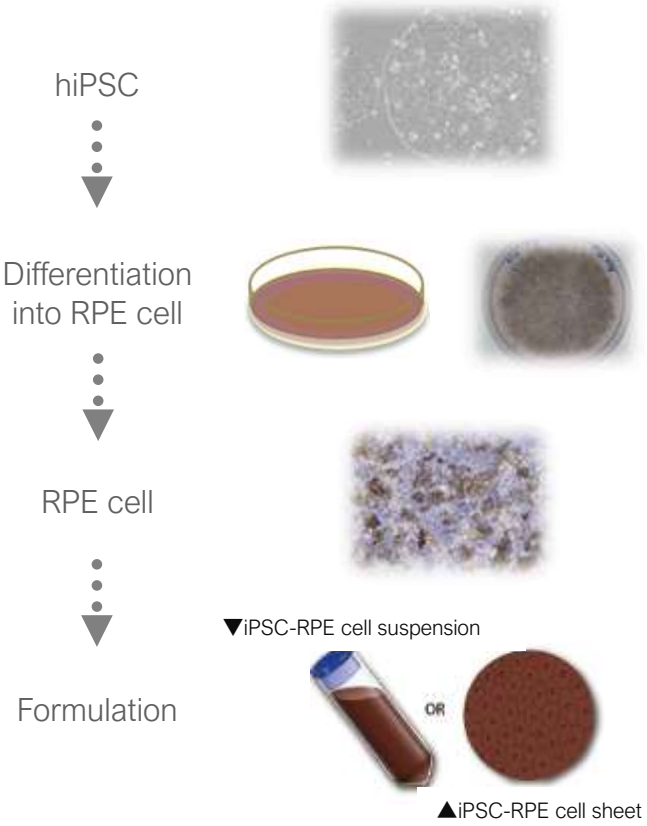
Expected Changes in Vision with iPSC-RPE Cell Products Treatment

Good vision can be maintained with early treatment



* The purpose of this illustration is to promote understanding of the effects of RPE cell transplantation.
Changes in vision with the administration of anti-VEGF medication vary according to patient symptoms and administration frequency.

iPSC-RPE Cell Differentiation



HLCR011 AMD: Guide to medicine price

Anti-VEGF medicine mostly continues from the beginning of treatment until death

Annual Medical Expense

Unit Price of Anti-VEGF + Treatment Price
160,000 yen

✖

Annual Recommended Medication Protocol
6 Times

=

Annual Medical Expense
1,000,000 yen

Estimate of Lifetime Medical Expense

On the Assumption of Average Life Span (Japan): 80 years old (Male) / 86 years old (female)

				Estimate of Lifetime Medical Expense
Continuous Treatment for 50-year old Patient Onset = approx. 30 years	✖	1 million yen	=	Approx. 30 million yen
60-year old Patient Onset = approx. 20 years	✖	1 million yen	=	Approx. 20 million yen

(source) Onset Data: National Eye Institute; Average Life Span: The Ministry of Health, Labor and Welfare; Annual Recommended Medication Protocol: Materials Presented by Institute of Physical and Chemical Research

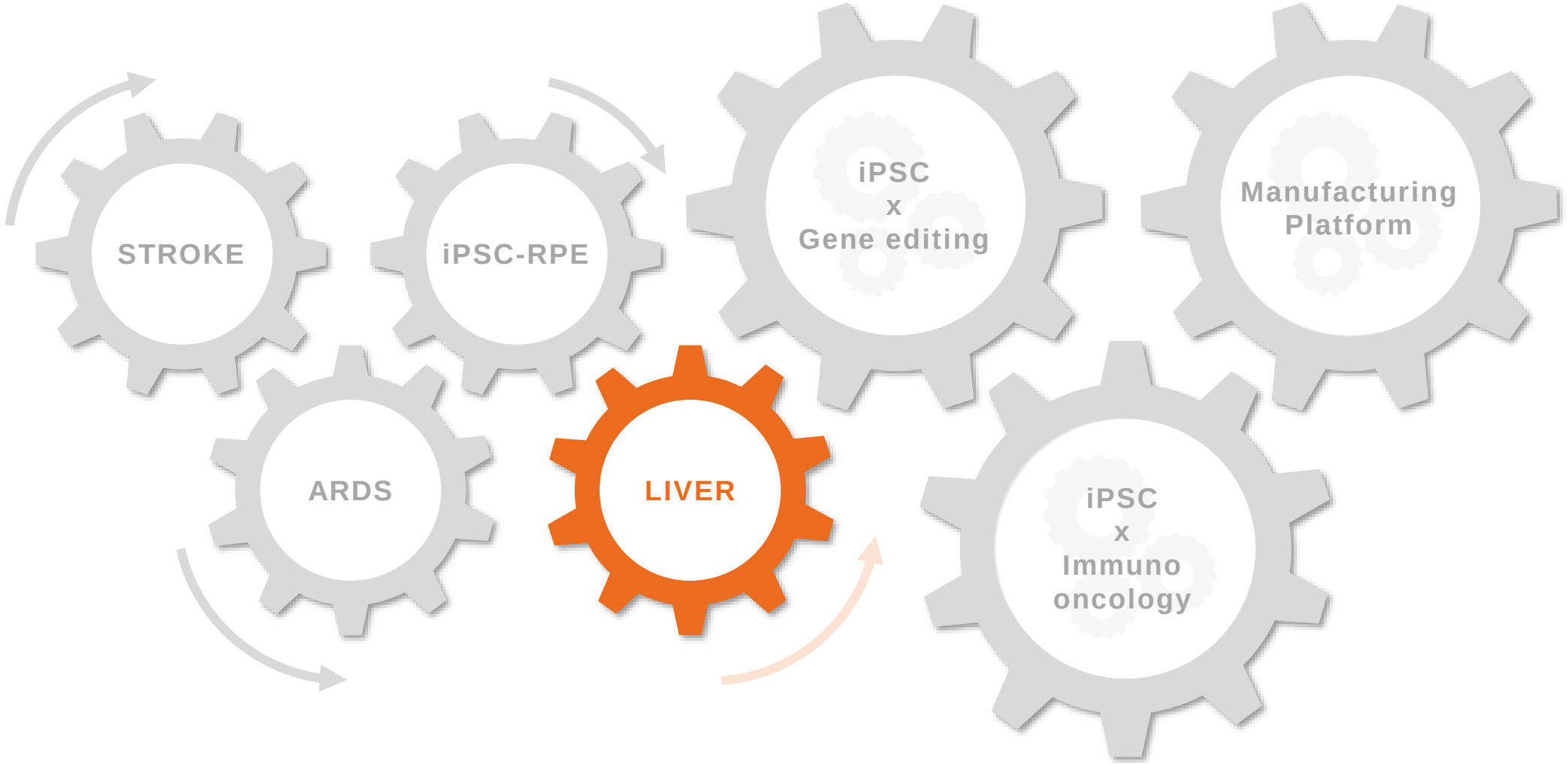
HLCR011 AMD: Manufacturing for iPSC-derived RPE products

Sighregen, a joint venture with Sumitomo Dainippon Pharma, is establishing a manufacturing facility

“SMaRT”, the Manufacturing Plant for Regenerative Medicine & Cell Therapy by Sumitomo Dainippon Pharma

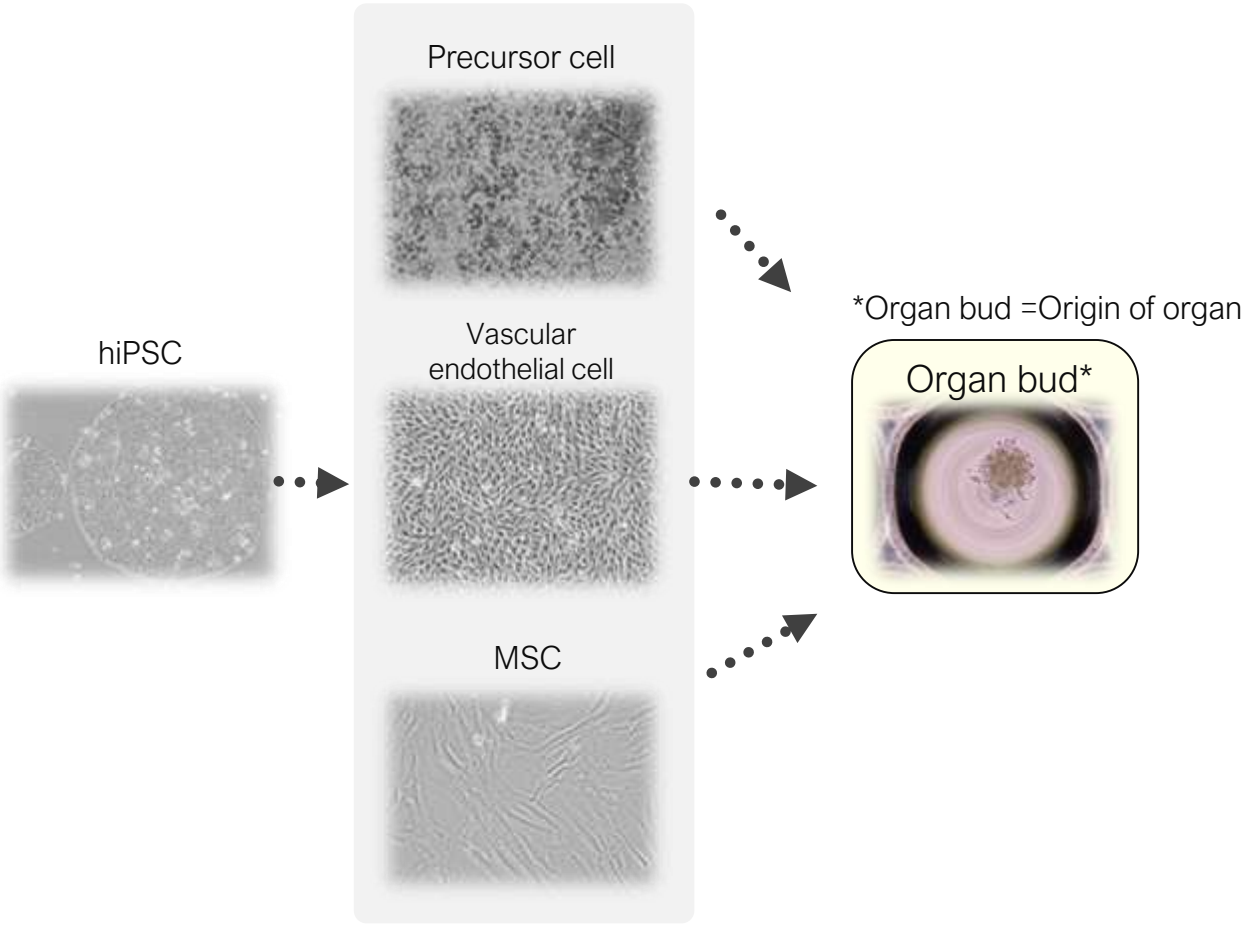
Sighregen rents the facility in SMaRT and is establishing the iPSC-RPE manufacturing system and facility for iPSC-RPE cell products

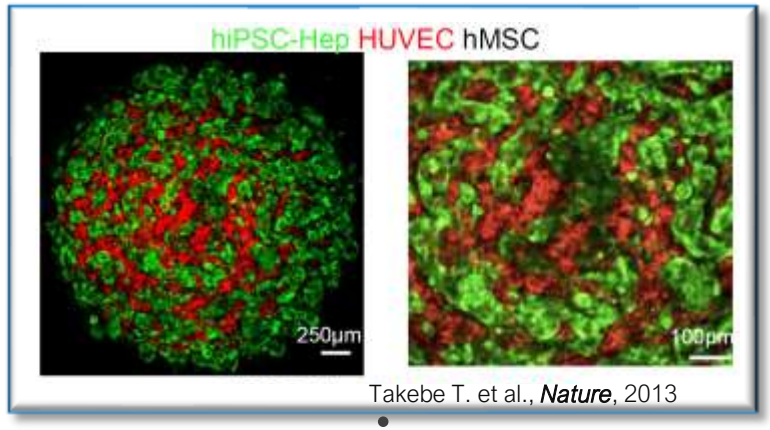
HLCL041



HLCL041 Liver Organ Bud Platform: 3D Organ Generation Mechanism

Generating “Organ buds” by co-culturing 3 types of cells





Cell Transplantation

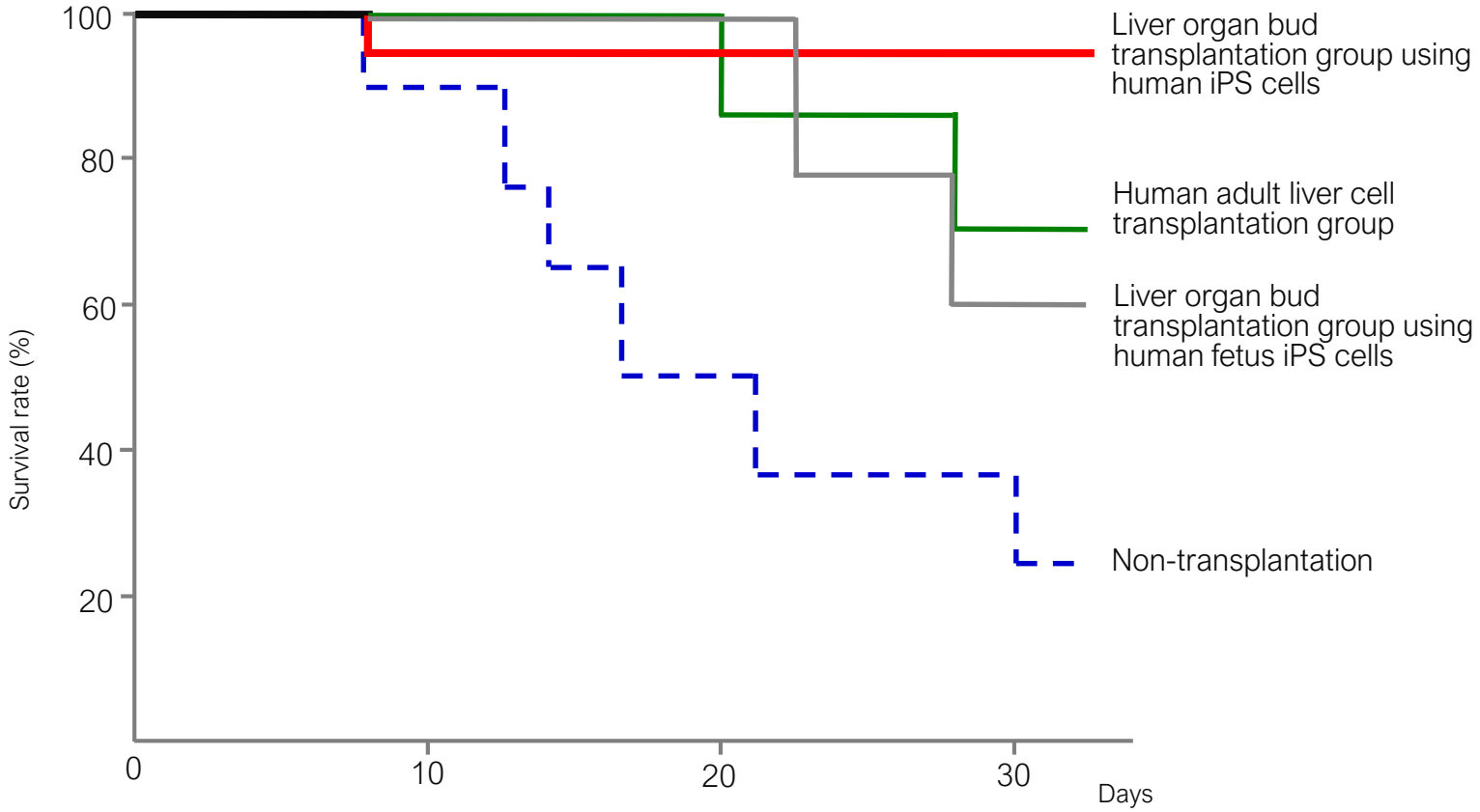
Containing blood vessels and human liver

(Source) Takebe T. et al., *Nature Protocols*, 2014

HLCL041 Liver Organ Bud Platform: Survival rate of liver failure in mouse model

Survival rate improves significantly in transplantation experiments

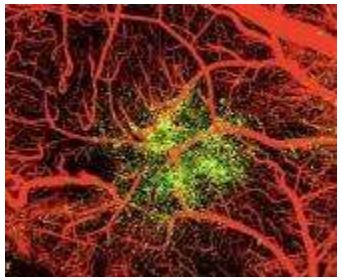
Treatment effects of liver bud transplantation to mouse using hiPSC



（Source） Adapted by Healios from Takebe. T, et al. Nature, 499 (7459),（2013）

Process

Process by which organ forms from organ bud links mouse‘s vascular network autonomously



（Source）Takebe,T., et al.
Nature Protocols, 9, 396–409 (2014)

HLCL041 Liver Organ Bud Platform: Market Opportunity

Prospecting R&D for alternative treatment for liver transplantation

Liver disease drawing attention in the future is cirrhosis

Liver Transplantation

	Liver transplantation			Total
	US	Japan	Europe	
Number of patients undergoing treatment (Annual)	Approx. 6,000	Approx. 400	Approx. 4,000	Approx. 10,000
Number of patients on waiting list (Annual)	Approx. 15,000	Approx. 400	Approx. 4,000	Approx. 20,000

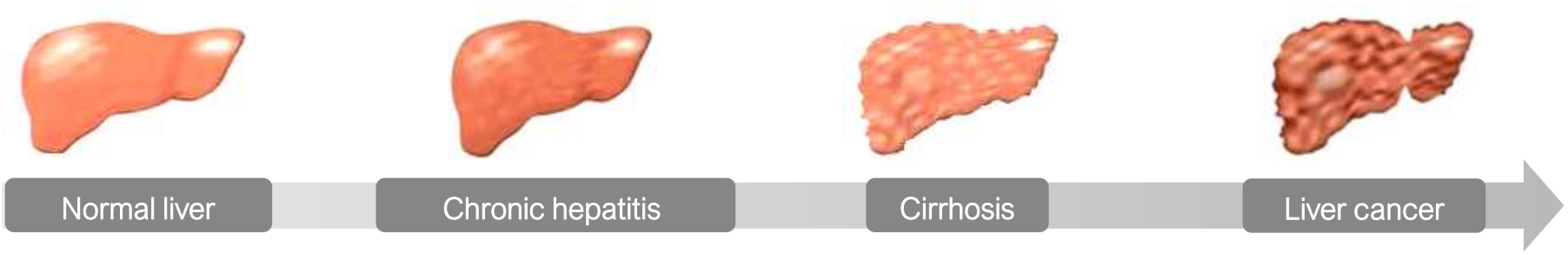
（Source）Compiled by Healios based on materials disclosed by Japanese Liver Transplantation Society, UNOS, Eurotransplan, UK Transplant, Agence de la biomédecine, and Scandia Transplant.

Patients with Cirrhosis

Cirrhosis	Number of Patients in Japan
Estimated patients with cirrhosis	400,000~500,000
Number of patients receiving treatment at medical facilities.	Approx. 56,000
Annual deaths in Japan	Approx. 17,000

（Source）Patient Survey 2011 Liver Cancer White Paper 2015

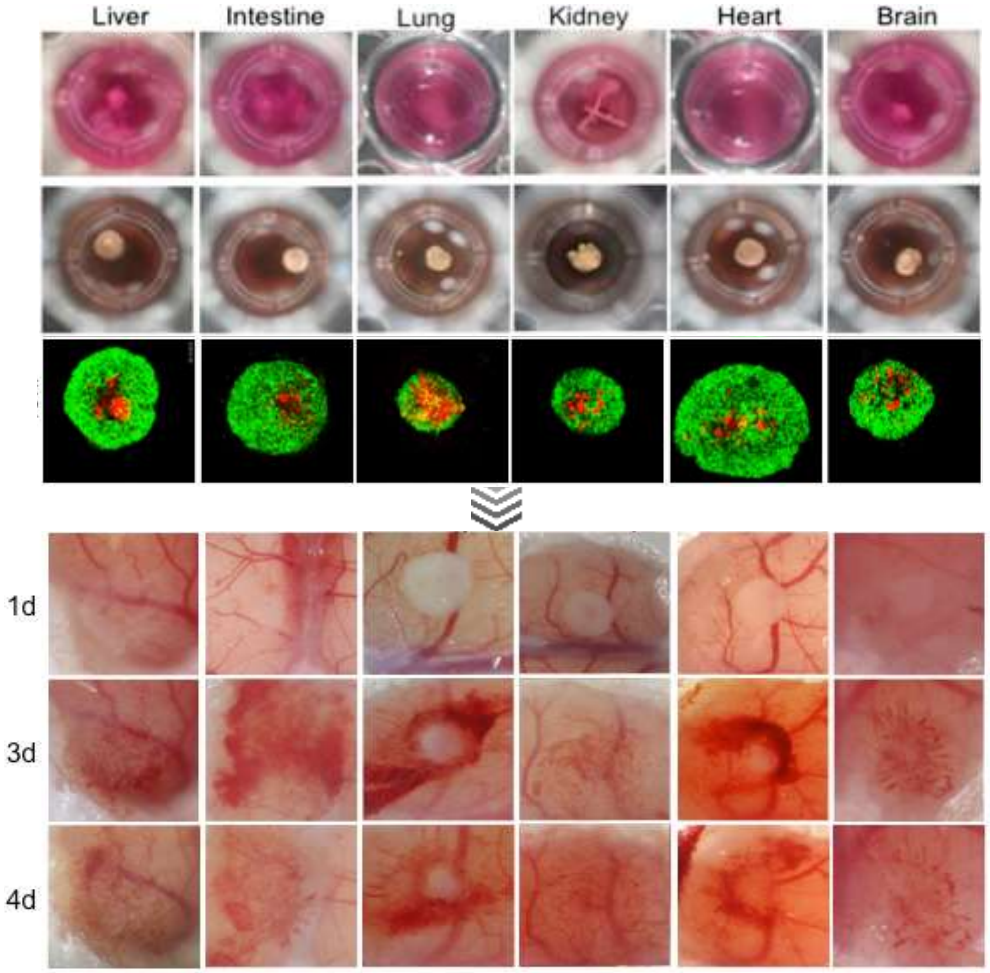
Progress of liver disease



HLCL041 Liver: Organ Bud Platform

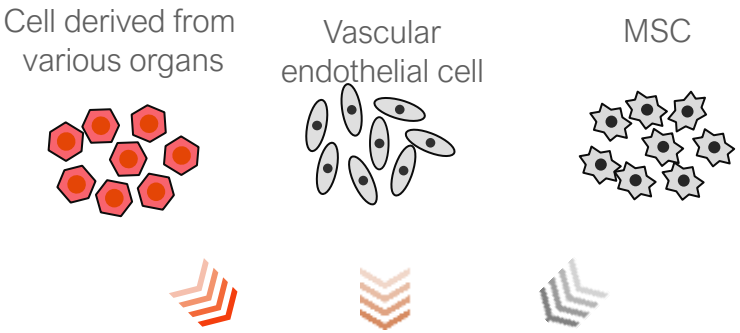
Inducing progenitor cells from iPSC will expand the possibility of development across various organs

Potential application for various organs



Green：Cells of each organ
Red：Vascular endothelial cell
Black：MSC

Transplanted to mice



Using cells derived from various organs, vascular endothelial cells and mesenchymal stem cells, achieved construction of vascularized 3D organ buds.

The vascularization was confirmed in vivo by transplantation to mice.

（Source） Modified from Takebe T. et al., *Cell Stem Cell*, 2015

Financial Highlights

Statement of income

(Units: one million US dollar)

	FY 2018	FY 2019		
			YoY variance	Main reasons for increase/decrease
Sales	—	—	—	
Operating income	-45.86	-39.18	6.67	Mainly due to decrease in R&D expenses +$9.14mn
Ordinary income	-46.06	-41.32	4.74	
Net income	-46.16	-40.45	5.71	
R&D expenses	38.66	29.52	-9.14	
Number of employees	93	109	16	

*Adopt average exchange rate (JPY/USD) over respective 12 month periods for P&L; FY2018 Q4 110.43 yen per dollar and FY2019 Q4 109.02 yen per dollar.

Balance sheet

Update

Healios

（Units: one million US dollar）

		December 31, 2018	December 31, 2019		
				Variance	Main reasons for increase/decrease
	Current assets	111.05 (82.3%)	169.21 (87.9%)	58.16	Mainly due to increase in cash equivalents +$59.05mn (cash equivalent balance at 12/31/19 was $163.80mn)
	Non-current assets	23.91 (17.7%)	23.39 (12.1%)	-0.51	
Total assets		134.96 (100.0%)	192.60 (100.0%)	57.64	
	Current liabilities	14.62 (10.8%)	5.45 (2.8%)	-9.17	Mainly due to decrease in advances received -$5.00mn and accounts payable -$3.59mn
	Non-current liabilities	23.20 (17.2%)	105.22 (54.6%)	82.02	Mainly due to the issuance of convertible bonds $82.15mn
Total liabilities		37.82 (28.0%)	110.67 (57.5%)	72.85	
Total net assets		97.14 (72.0%)	81.93 (42.5%)	-15.21	Mainly due to net loss -$40.45mn and the issuance of new shares +$28.90mn
Total liabilities and net assets		134.96 (100.0%)	192.60 (100.0%)	57.64	

*Adopt spot rate (JPY/USD) at end of fiscal period for B/S ; FY2018 Q4 111.00 yen per dollar and FY2019 Q4 109.56 yen per dollar.

Appendix

Overview of Healios

Update

Company Overview

About us

Company Name	HEALIOS K.K.
Representative	Hardy TS Kagimoto, MD, Chairman and CEO
Establishment	February 24, 2011
Paid in Capital	12,822 million yen (As of December 31, 2019)
Head office	World Trade Center Building 15F 2-4-1 Hamamatsucho Minato-ku, Tokyo Japan 105-6115
Number of Employees	109 (As of December 31,2019)
Business	Research, development and manufacturing of cell therapy/ regenerative medicine products
Research Institution	Kobe and Yokohama
Affiliated Company	Sighregen Co., Ltd. (Joint Venture with Sumitomo Dainippon Pharma Co., Ltd.)
Subsidiary	・Healios NA Inc. (Established in February 2018) ・Organoid Neogenesis Laboratory Inc. (Established in June 2018 to promote the practical use of organ bud technology)

HEALIOS K.K. Leadership

Management Team

Since July 2019

Jun Narimatsu	Richard Kincaid	David Smith	Michael Alfant	Gregory Bonfiglio	Yoshinari Matsuda	Seigo Kashii
Accountant Supporting various venture companies in the field of IT/ Healthcare	**Executive Officer CFO** Experienced at Nezu Asia Capital Management (hedge fund)	**Executive Officer Manufacturing field** Served at Lonza Extensive experience in cell manufacturing	Group Chairman & CEO, Fusion Systems, Co., Ltd. Presidents Emeriti, ACCJ	Founder & Managing Partner of Proteus, LLC. (Investment in RM ventures)	Attorney-at-Law, Senior Management Partner of Uruma Law Offices Legal Professional Corporation	Ex-corporate auditor of Astellas Pharma

Masanori Sawada	Hardy TS Kagimoto	Kouichi Tamura	Michihisa Nishiyama	Koji Abe
Executive Vice President, CMO (Chief Medical Officer) MD, PhD, MBA	**Chairman and CEO** MD, Founder	**Executive officer Research field** Ex-Astellas US Director of Laboratories Expertise in Immunosuppressant Research	**Executive Officer Development field** Constructed network for Tacrolimus approval and sales at Astellas in the US and Europe	**Executive Officer HR & GA field** Over 30 years experience in HR

Research and Manufacturing Capabilities

Update

Healios

Kobe Research Institute

Total Number of Staff	81 (As of end of Dec 2019) in the below Div. Research / Quality/ Manufacturing/Project Management/ Clinical Development
Ph.D. Holders	Over 30 people

Affiliate company for Manufacturing: Sighregen

Sighregen, a joint venture with Sumitomo Dainippon Pharma, is establishing a manufacturing facility Sighregen rents the facility in SMaRT and is establishing the iPSC-RPE manufacturing system and facility for iPSC-RPE cell products.

Expansion of Business and Capital Alliance with Nikon

Expanded the alliance with Nikon to pursue regenerative medicine growth opportunities

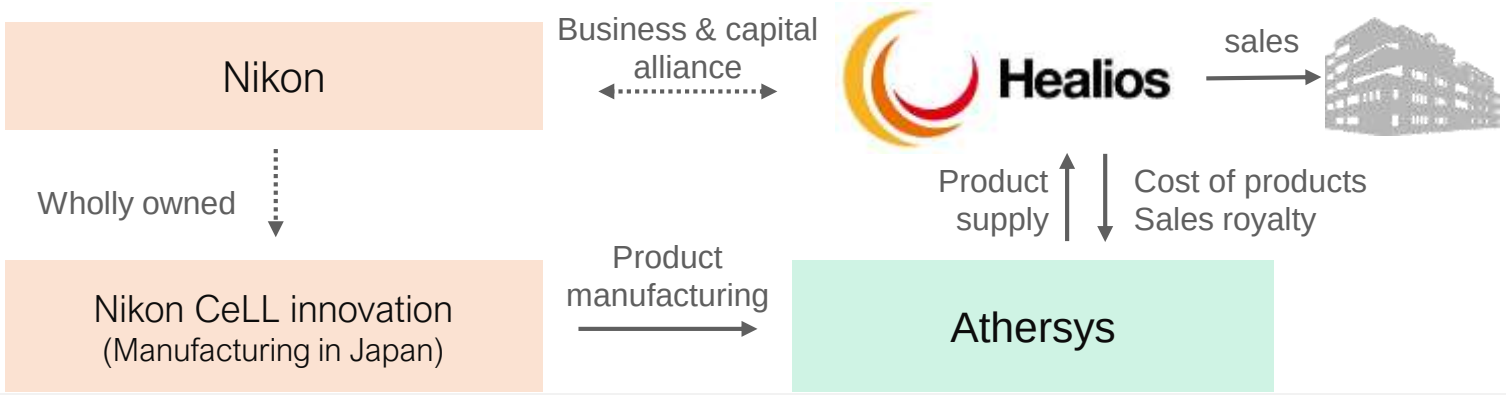
Nikon invested additional 4 billion yen via convertible bonds

Overview of the Business Alliance

<Healios>
- Promoting the search and development of new seeds in the regenerative medicine field
- Cooperating in relation to manufacturing currently being undertaken by Nikon
- Beginning of discussions to consider cell contract manufacturing for various products Healios is developing in house

<Nikon>
- Supporting the development from the perspective of cell contract manufacturing and image evaluation for cells

HLCM051 Manufacturing Framework



History of Partnership with Nikon

2013
Started R&D using Nikon's image evaluation technology
Allotted 500,000 shares of Healios stock and received 500 million yen from Nikon

2017
Concluded the business and capital alliance
Allotted 1,037,400 shares of Healios stock and received 2 billion yen from Nikon

2017
Nikon CeLL innovation entered into Agreement to support MultiStem commercial manufacturing efforts in Japan

2019
Expanded the business and capital alliance
Allotted 40 units of convertible bonds and received 4 billion yen from Nikon

Fund Raising

In July 2019, raised 11.6 billion yen (total net proceeds) though an international offering issuing new shares and convertible bonds, in addition to the funding from Nikon

Overview of Fund Raising

Issuance of New Shares through an International Offering	
Number of issued shares through the offering	1,948,100 shares
Total amount to be Paid	2,833,316,640 yen

Issuance of Zero Coupon Convertible Bonds through an International Offering	
Amount to be paid	5 billion yen
Conversion price	1,771 *The conversion price shall be revised under certain conditions
Interest rate and maturity date	Interest rate: 0.0% Maturity date: July 26, 2022
Number of potential shares by the issuance(*1)	2,823,263 shares of common stock (5.51%)

Issuance of Convertible Bonds through a third party allotment to Nikon	
Amount to be paid	4 billion yen
Conversion price	2,037
Interest rate and maturity date	Interest rate: 1.0% per annum Maturity date: July 29, 2024
Number of potential shares by the issuance	1,963,672 shares of common stock (3.83%)

(Note) The ratio of the number of potential shares by the issuance is calculated as follow: the number of shares to be issued in case that all convertible bonds are converted at the initial conversion price divided by 51,232,352 (the total number of common stocks which sums the current number of issued shares as of June 30, 2019 and the number of issued shares through the offering 1,948,100.)

Use of Proceeds

Use of Proceeds	Amount (million yen)
Development costs of HLCM051	2,987
Fees in related to the introduction of new seeds	1,000
Funds from Nikon	3,987
Development of pipeline (including acquisition of new seeds)	3,533
The establishment of/ investment in the Venture Capital Fund	2,500
General working capital	1,600
Funds from International Offering	7,633

Company History

Update

Healios

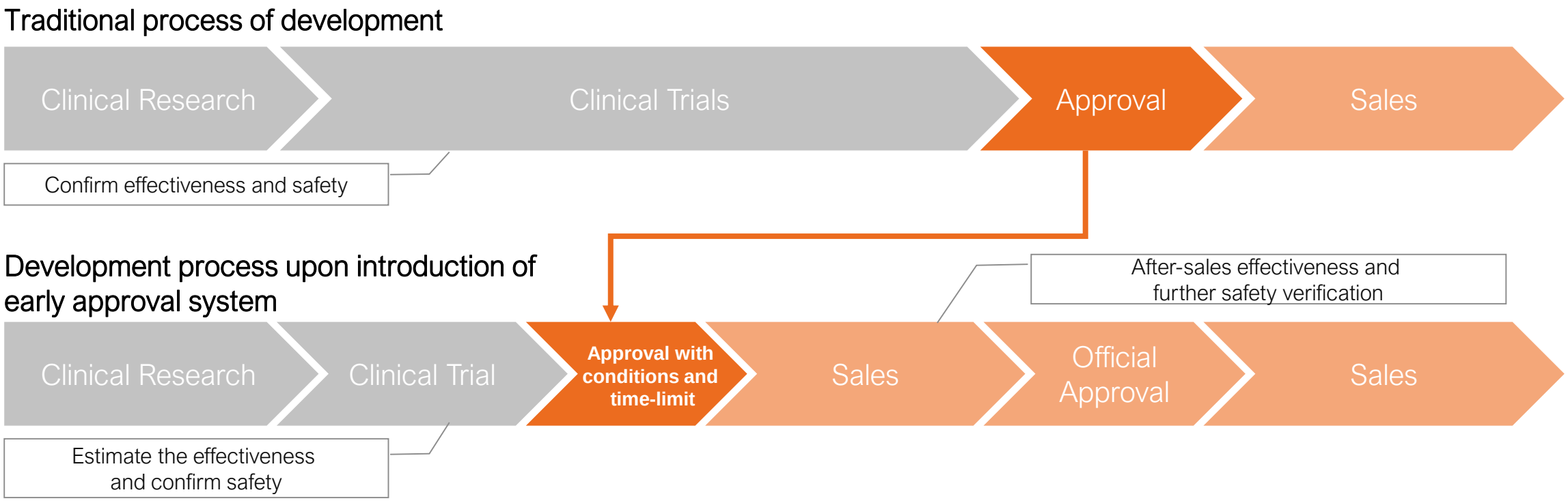
	Company	In the field of iPSC Regenerative Medicine	In the field of Somatic Stem Cell Regenerative Medicine
2011	Establishment of the company		
2012	Tokyo office opened		
2013		A patent licensing agreement concluded with RIKEN Joint Development Agreement with Sumitomo Dainippon Pharma Co., Ltd.	
2014		Joint research with Yokohama City University on Organ buds	
2015	Listed on Tokyo Stock Exchange (MOTHERS)		
2016		Start universal donor cell research	HLCM051 license agreement with Athersys, Inc. Clinical trial for ischemic stroke initiated
2017	A business and capital alliance with Nikon BBG250 Business transfer		
2018	Establishment of Healios NA, Inc. in the US Establishment of Organoid Neogenesis Laboratory Inc	CRADA with National Eye Institute Sighregen establishes a manufacturing facility in SMaRT	Strategic investment and collaboration expansion with Athersys ARDS development & clinical trial initiated
2019	Expansion of alliance with Nikon	Changes in joint development framework with Sumitomo Dainippon Pharma	
2020		Establishment of proprietary universal iPSC line	

Historical relaxation of Japanese regulations

Drastic reduction in the trial time period and number of patients with “Conditional and Time-limited Authorization System”.

Insurance is listed at ‘Conditional and Time-limited Authorization ’ stage.

Conditional and Time-limited Authorization System



About Orphan Regenerative Medicine Designation

Orphan regenerative medicine designation is available in cases of rare diseases with small patient numbers and no existing direct treatments.

【Criteria for designation as a rare disease】

1． Number of patients with this disease in Japan is lower than 50,000

2． Unmet medical needs

- A serious target disease with very high medical needs
- No alternative drug, medical device, regenerative medicine, or therapy exists
- A significantly higher efficacy and safety than that of existing drugs, medical devices, or regenerative medicines can be expected

3． A theoretical basis for using regenerative medicines exists and the developmental plan is considered appropriate

【Benefits of receiving orphan designation】

- Granting of subsidies to reduce development expenses
- Tax measures, priority advice and consultations and priority review
- Longer Reexamination period

ARDS is also a rare disease with an estimated incidence of 7,000 to 12,000 patients per year.

((source)Definition of the Ministry of Health, Labour and Welfare：https://www.mhlw.go.jp/stf/seisakunitsuite/bunya/0000068484.html

Important note on future events, etc

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