First Half of the Fiscal Year ending December 2017

Financial Results Presentation

August 4, 2017

Oncolys BioPharma Inc.

(TSE mothers: 4588)

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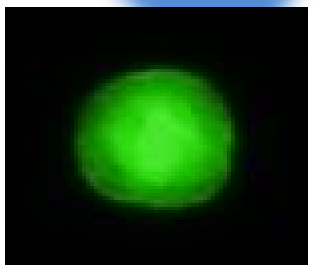
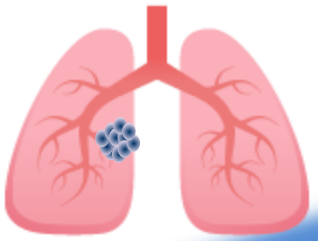
Oncolys BioPharma

Our pipeline: oncolytic virotherapy platform

TelomeScan®

Early detection



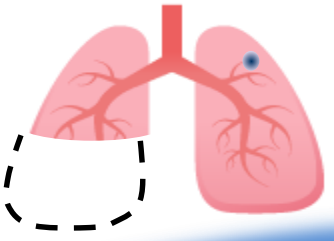


Telomelysin®

Regional treatment

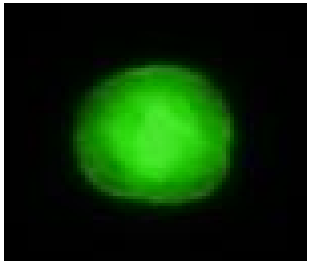
OBP-702

OBP-405



TelomeScan®

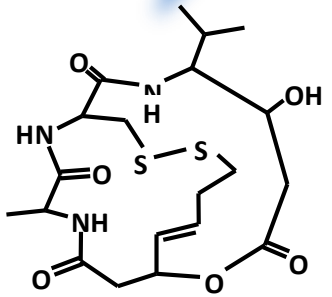
Prognosis follow-up



Telomelysin®

OBP-801

Systemic treatment



Oncolytic virotherapy platform

Financial year ending December 2017 full year forecast

JPY in million

	Sales	OP	CP	NP
Forecast FY 2017	200	△1,400	△1,400	△1,400
Results FY 2016	178	△861	△864	△931

- Sales: License fee and sales of virus
- Loss: Investment in R&D and increase in patent-related costs (JPY 0.9bn)
  foreign currency fluctuation risk (1 USD=JPY112)

First half of FY2017: earnings results

JPY in million

	Sales	OP	CP	NP
FY2017 First Half	**19**	**△509**	**△517**	**△518**
FY2016 First Half	**44**	**△410**	**△416**	**△417**
(ref.) FY 2016 full year	178	△861	△864	△931

Sales

1. License fee for TelomeScan from Wonik Cube
2. Sales of TelomeScan to Deciphera

OP

1. Cost reduction efforts
2. Delay in R&D activities

Cash and equivalents JPY 3 bn (JPY 450 million increase yoy)
R&D costs JPY 208 million (JPY 80 million increase yoy)

First half of FY2017: achievements/status

Telomelysin®
OBP-301
"Telomelysin®"

<R&D-related>

1.	Melanoma	P2	FPI
2.	Esophageal cancer	P1	FPI
3.	HCC	P1/2	Multiple administration (Cohort 5) started
4.	Solid tumors, with PD-1	P1/2	CTN submitted and a kick-off meeting held

<Business-related>

1. Hengrui's GMP facilities for virus production under plan
2. Signed a revised strategic alliance agreement with Medigen

---

TelomeScan®
Cancer Diagnosis

1. PTC: PMDA consultation underway for gastric/pancreatic cancer application
2. CTC: working on a project for process automatization while clinical testing services are temporary halted
3. Juntendo University's paper on lung cancer published in journal
4. 7 conference presentations

OBP-801
Epigenetic cancer treatment

1. Solid tumor Phase 1 Cohort 3 in progress
2. Explorative study with Kyoto Prefectural University of Medicine extending the application into ophthalmologic field

---

AI-004
Novel HBV drug

1. Compound screening at Kagoshima University in progress

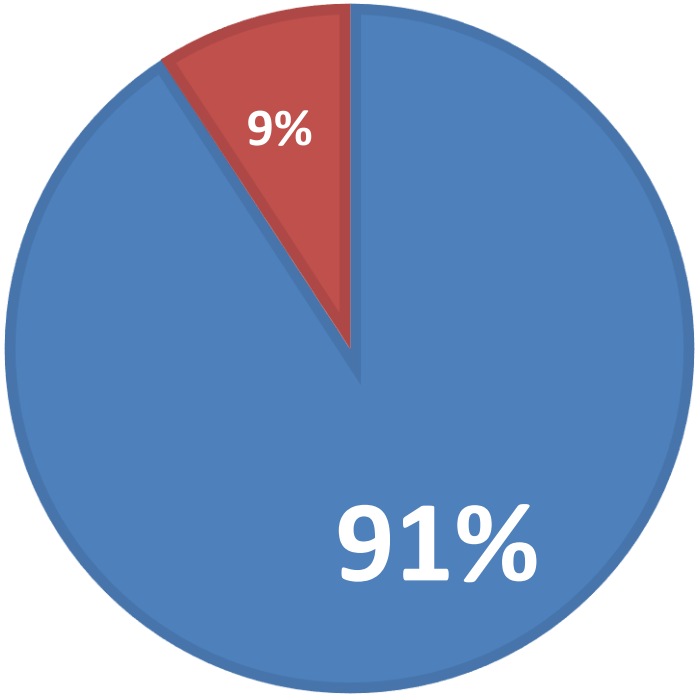
Others

1. Strategic investment in Washington University biotech venture specialized in development of vaccines for Zika and other emerging infectious diseases
2. Oncolys USA operations kicking-off

Funding: third party allotment

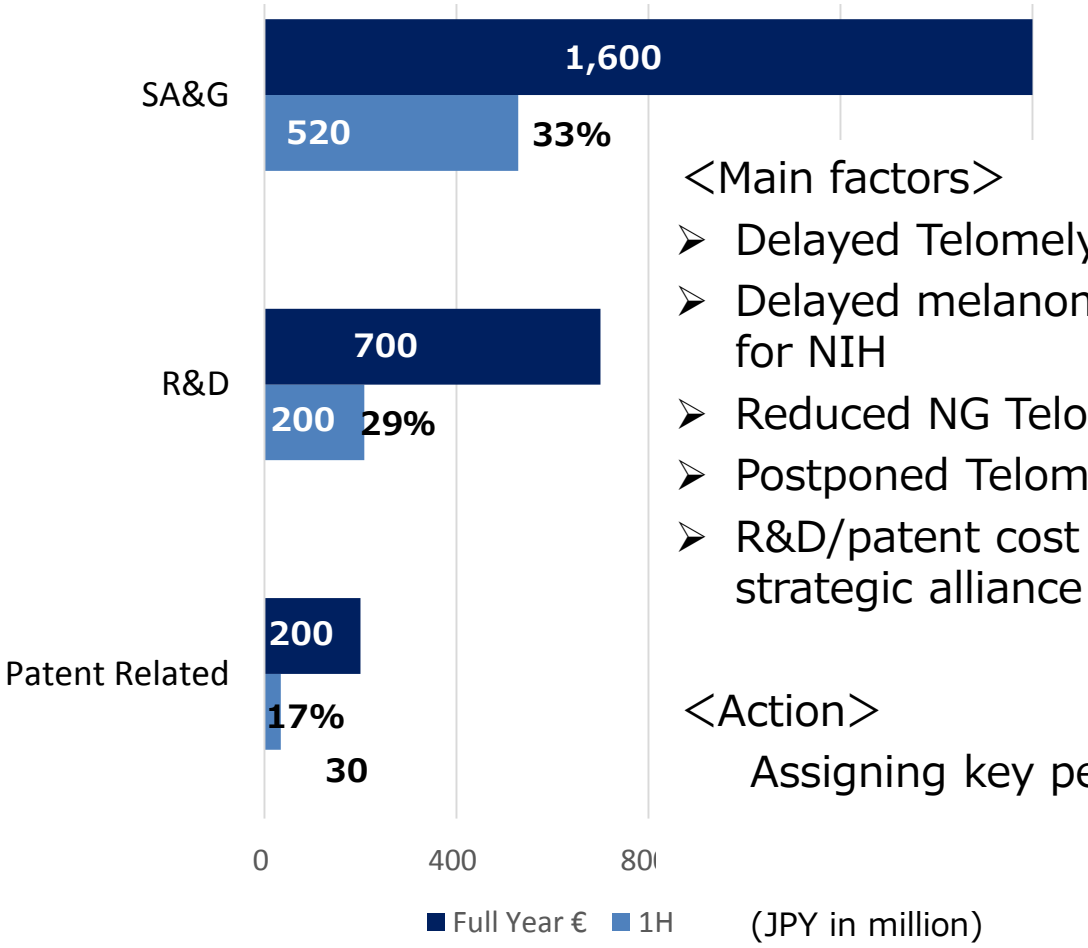
MSCB financing announced in December 2016 is almost complete.
→ About 91% executed and the total amount raised is JPY 1.3 bn (as of 31 July 2017)

<MSCB execution status>



Comparison: budget and actual expenses FY2017

<1H results vs. FY2017 full year forecasts>



(JPY in million)

<Main factors>

- Delayed Telomelysin GMP acceptance inspection
- Delayed melanoma trial due to additional documentations for NIH
- Reduced NG Telomelysin-related patent cost
- Postponed TelomeScan-related collaboration cost
- R&D/patent cost reduction as a result of revision of strategic alliance with Medigen

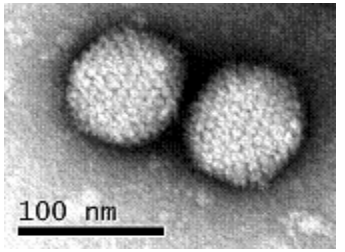
<Action>

Assigning key personnel in Oncolys USA

Business concept

1. Realizing oncolytic virotherapy

2. Developing treatments for intractable diseases



For “Good” medicine

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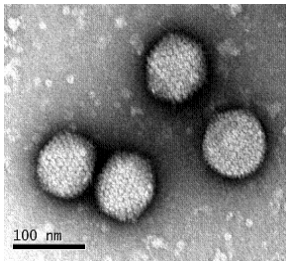
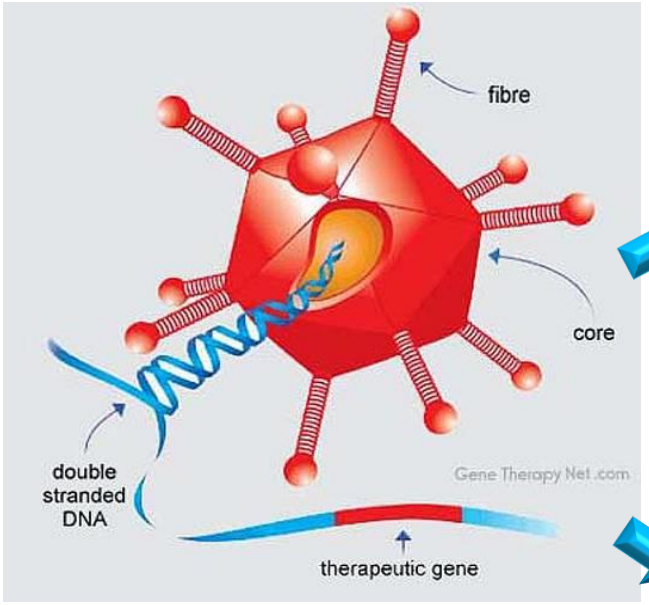
Oncolys BioPharma

Telomelysin : oncolytic virotherapy

Telomelysin®





Ref.) *The Lancet Oncology Vol. 3* Jan. 2002

Normal cell

(Telomerase activity－)

No replication

No cytophathy

Cancer cell

(Telomerase activity+)

Replication of Telomelysin

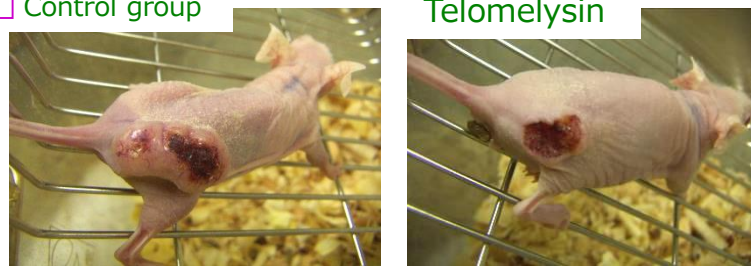
Induced cell death and diffusion of Telomelysin

Colorectal cancer

(15 days after administration)

Control group

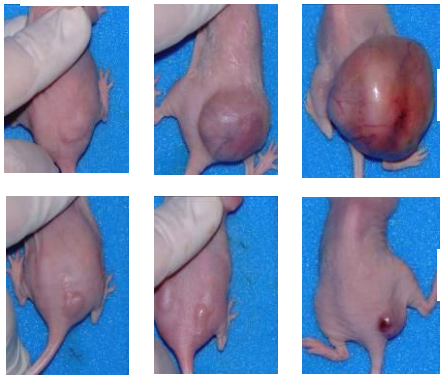
Telomelysin



Ref) *Curr. Cancer Drug Targets*, 7: 191-201, 2007

Lung cancer

Day 0 Day 14 Day 28



Control group

Telomelysin

Telomelysin®

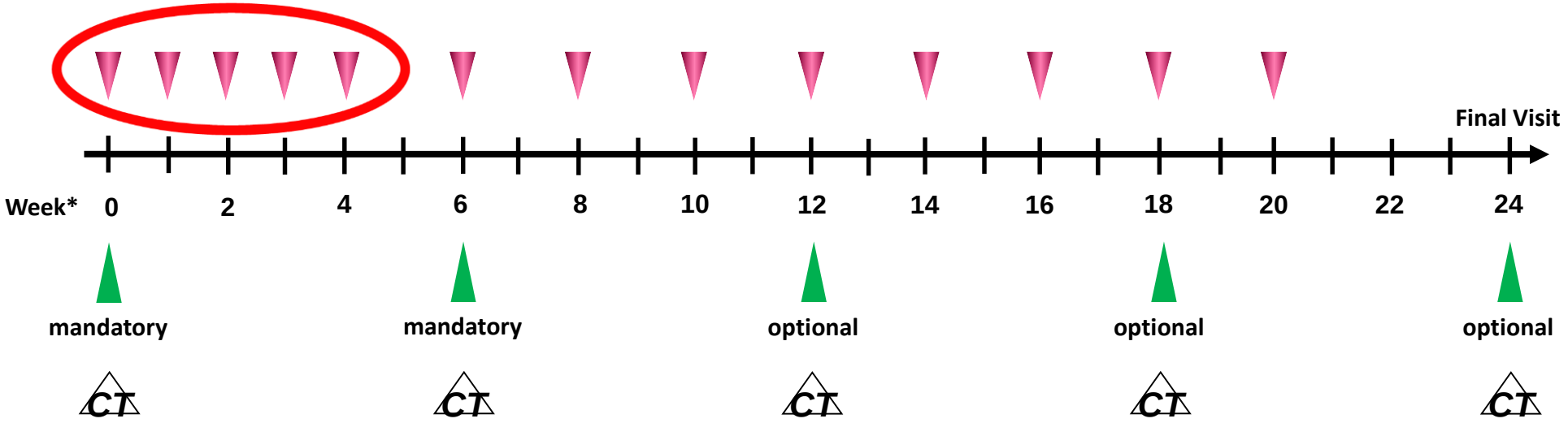
Clinical trials updates

Oncolys BioPharma

Melanoma : FPI in the US

Telomelysin®

- FPI achieved in Atlantic Cancer Center on 28 July
- Oncolys pushing ahead to speed up the enrollment of patients in 5 sites



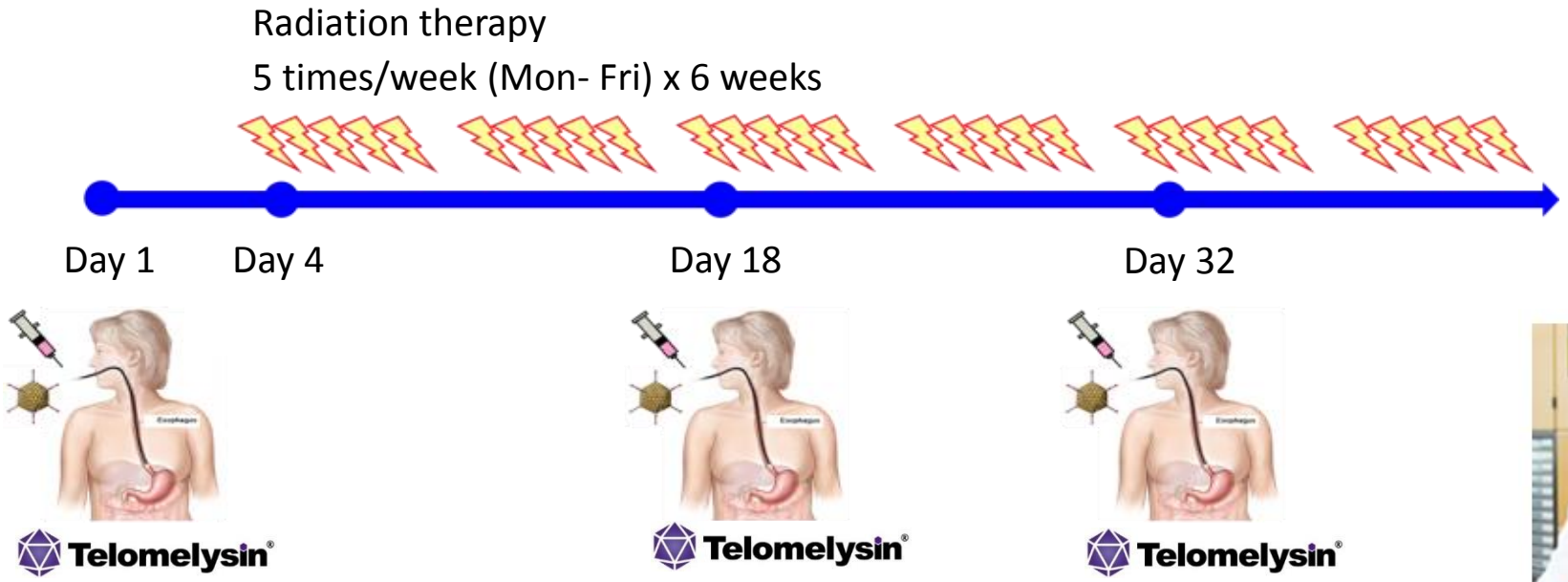
Investigators	Clinical trial sites
Dr. Eric Whitman	Atlantic Health Systems
Dr. Robert Andtbacka	Huntsman Cancer Institute
Dr. Mohammed Milhem	University of Iowa
Dr. Sanjiv Agarwala	St. Luke's University Health Network Inc.
Dr. Sunil Reddy	Stanford University

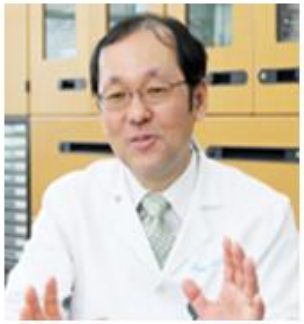
Oncolys BioPharma JPX

Esophageal cancer : Investigator-led clinical research

Telomelysin®

6 CR in 10 cases: interim data presented at JSGCT 2017 and JSMO 2017





Toshiyoshi Fujiwara, M.D., Ph.D.
Professor & Chairman
Department of Gastroenterological Surgery, Okayama University Graduate School of Medicine, Dentistry, and Pharmaceutical Sciences

JSGCT: Japan Society of Gene and Cell Therapy
JSMO: Japanese Society of Medical Oncology

Oncolys BioPharma JPX

Ref.) Press Release, Okayama University etc.

Esophageal cancer : Phase I

Telomelysin®

1. FPI in Okayama University Hospital (7 July)

2. Kick-off meeting with key investigators (15 July)

Interim data from clinical research by Okayama University

Dose	Case	Age	Stage	Response
Level 1 $1x10^{10}$vp	001	82	cStage I	CR
	002	85	cStage I	CR
	003	92	cStage II	PR
	004	68	cStage Iva	SD
	005*	79	cStage III	PD
	006	88	cStage I	CR
	007	53	cStage II	CR
Level 2 $1x10^{11}$vp	001	89	cStage I	PR
	002	75	cStage II	CR
	003	85	cStage I	CR

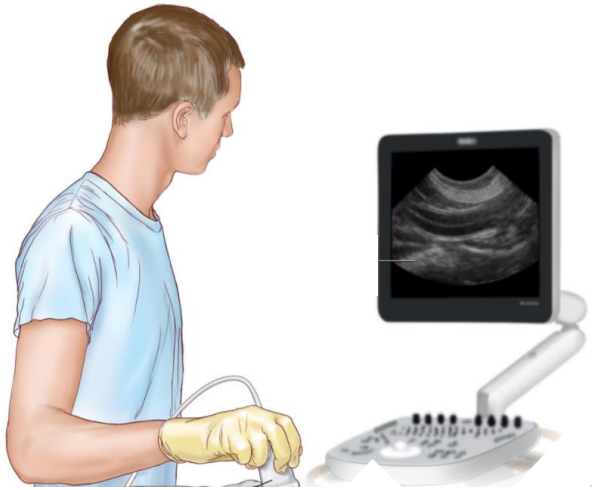
(＊Level 1 005 dropped out as the enrollment was cancelled

Ref.): presentation materials by Okayama University and the Company, etc.

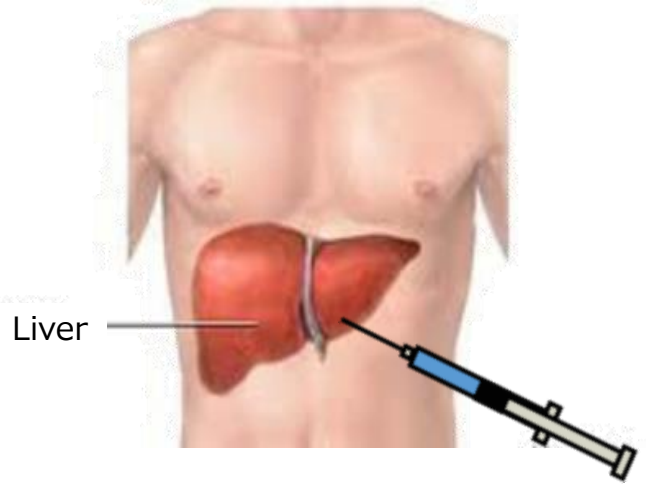
HCC : Phase I/II in Taiwan and Korea

Telomelysin®

1. Cohort 4 administration completed
2. Cohort 5 multiple administration(2 x 10^{12}vp x 3) started



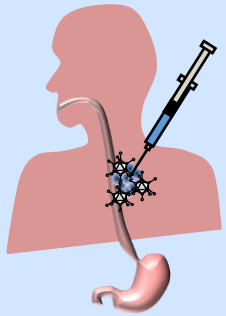
Areas for injection are monitored by use of sonogram.



Directly injected to cancer cells

Telomelysin: Development status

Telomelysin®



Esophageal cancer

Clinical Research

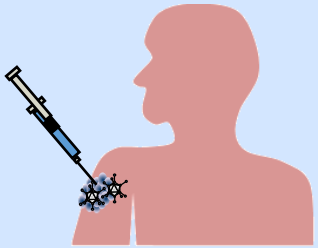
Phase 1

Investigator-led clinical trial

10 patients enrolled（C 3 started）

With radiation　FPI

With pembrolizmab　CTN submitted



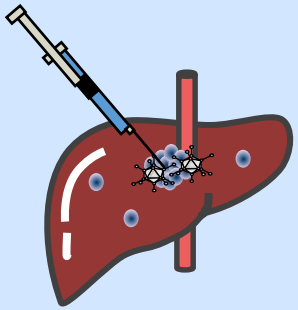
Melanoma

Phase 2a

Phase 2b

FPI

CPI combination in preparation



HCC

Phase 1/2

Phase 2

C5 started

CPI combination under consideration

Jiangsu Hengrui

Telomelysin®

- GMP tech-transfer of Telomelysin in progress
- GMP facilities for virus production under plan

CFDA to ease rules: acceptance of clinical trial data collected overseas is on the table

Jiangsu Hengrui Medicine（江蘇恒瑞医薬股份有限公司）

Sales: approx. JPY180 Bn Employees: approx. 13,000 (as of 2016)

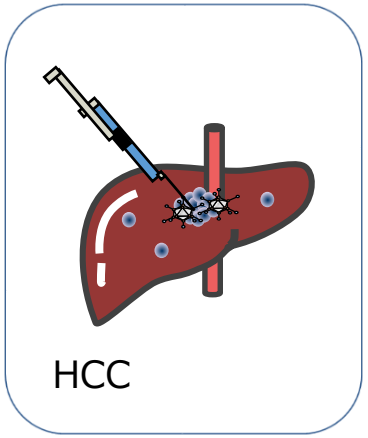
Major pipelines related to cancer treatment		indications	Development Stage*
YN-968-D1 (Apatinib)	VEGFR2 inhibitor	Gastric cancer	Launched
SHR-1210	Anti-PD-1 antibody	Lung cancer, esophageal cancer, NPC	Phase 3
SHR-1258 (Pyrotinib)	RTK inhibitor	HER2 +ve metastatic breast cancer	Phase 3
SHR-1020 (Famitinib)	RTK inhibitor	CRC, lung cancer	Phase 3
HTI-1403	RTK inhibitor	RTK +ve cancer	IND
HTI-1316	Anti-PD-L1 antibody	PD-L1 +ve advanced tumor	IND

*The most advanced development stage regardless of therapy type (mono,combination etc.) for each drug candidate is shown in this table.

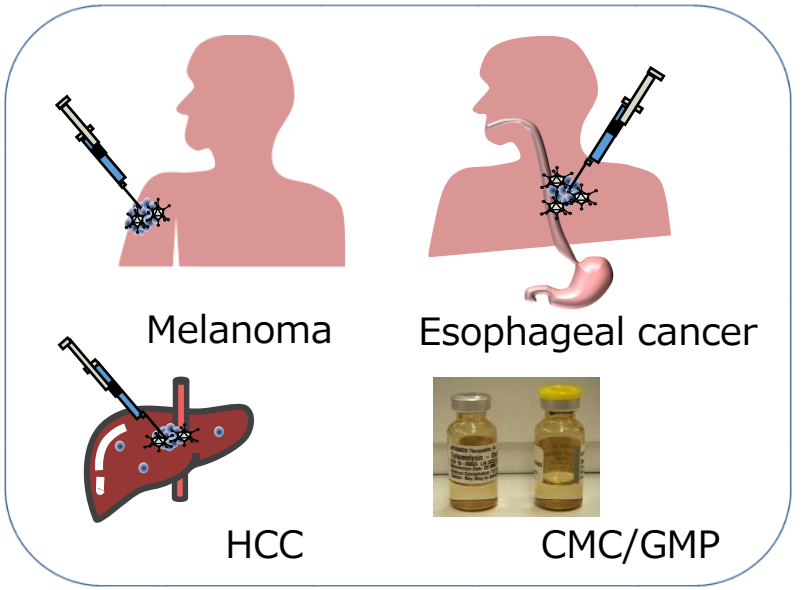
Ref.) ClinicalTrials.gov and other public data as of July 2017

Revised strategic alliance agreement with Medigen

Telomelysin®



Expanded cost-split agreement



Constant cost saving on Telomelysin-related R&D expenses

基亞生物科技股份有限公司
MEDIGEN BIOTECHNOLOGY CORP.

Listed on Taiwan Stock Exchange（3176）
HQ: Taipei, Taiwan
Representative: Stanley Chang, CEO

Telomelysin®

Telomelysin: what's next?

Oncolys BioPharma

Esophageal cancer treatment perspectives in Japan

Telomelysin®

- Number of patients: approx. 31,000 in 2014
- Estimated incidence: approx. 22,000 between 2015 - 2019

(Incidence worldwide: approx. 456,000 in 2012)

Application for Sakigake Designation Scheme

Operation/chemotherapy inapplicable patients
Stage Ⅰ・Ⅱ

Telomelysin® + Radiation

Operation applicable
Stage Ⅰ・Ⅱ・Ⅲ

Telomelysin®
+
Pre-operative chemotherapy/radiation

Stage Ⅰ・Ⅱ・Ⅲ・Ⅳ

Telomelysin®
+
Post-operative CPI

Ref.) PMDA 2014 Patient Report (2014), NCC Center for Cancer Control and Information Services, Cancer today IARC website.

Oncolys BioPharma JPX

Next Generation Telomelysin: concept (1)

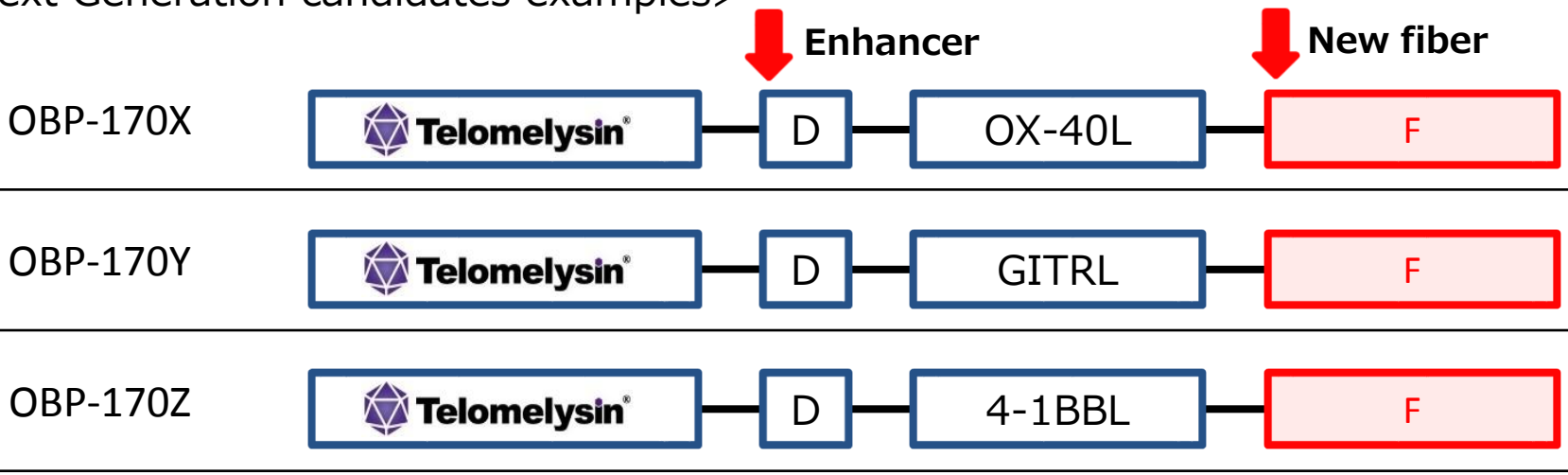
Telomelysin®

- ✓ Regionally administrable/ abscopal effect
- ✓ Good tolerability
- ✓ Established GMP/QC

Next Generation Telomelysin®

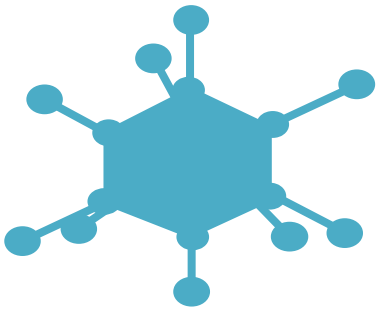
- ✓ Further immunity enhancing effect
- ✓ Intravenously injectable
- ✓ Stable at 4°C

<Next Generation candidates examples>



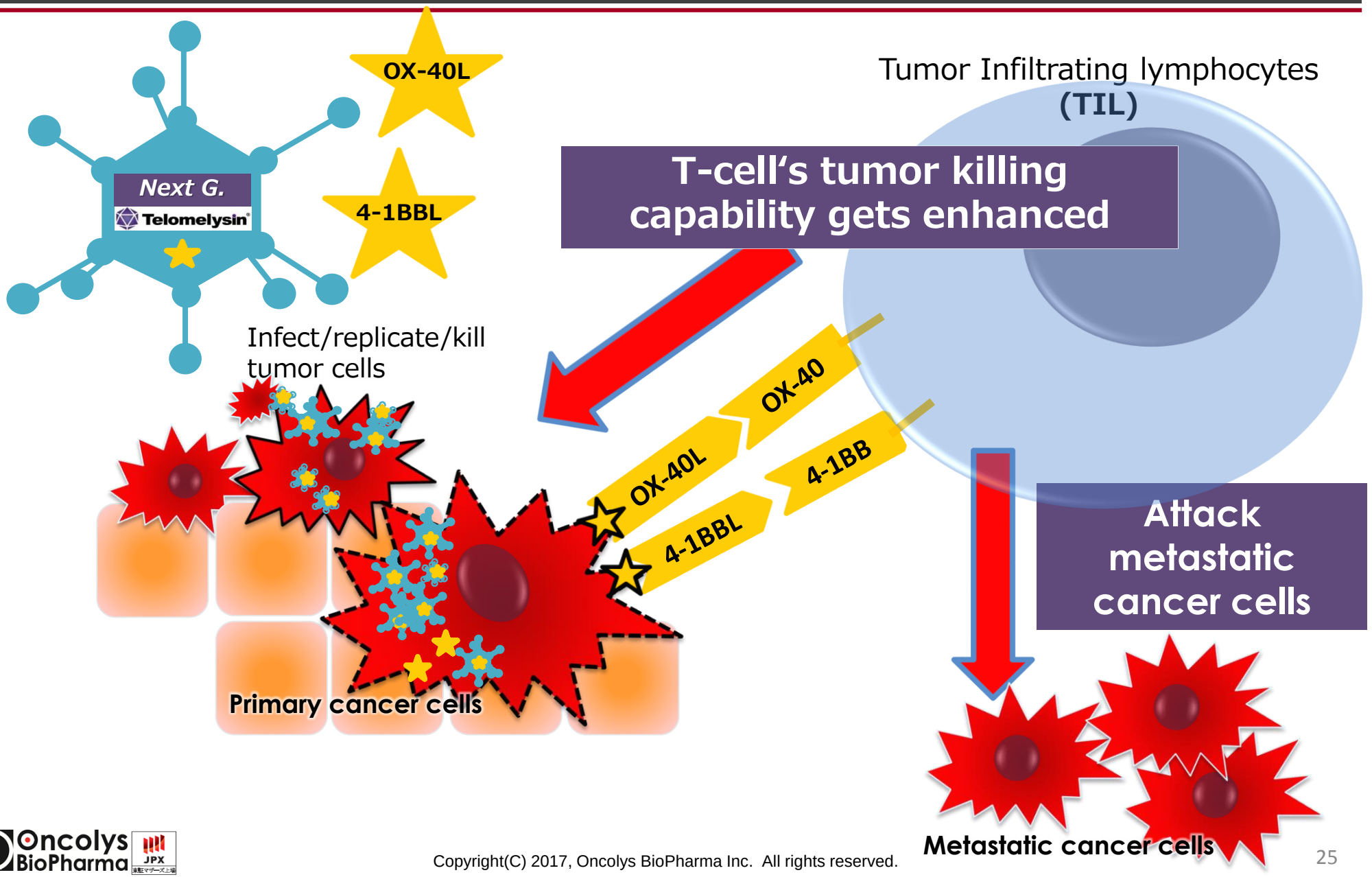
Next Generation Telomelysin: concept (2)

1. A specific gene inserted in NG Telomelysin is delivered to a tumor cell.
2. Target molecule is expressed on the tumor cell surface.
3. Replication of NG Telomelysin and an adjunctively used tumor antibody induce stronger anti-tumor activities.



Targets	
OX40	GSK Pfizer AZ Roche Incyte etc.
GITR	Novartis AZ MSD Incyte etc.

Next generation Telomelysin: concept (3)



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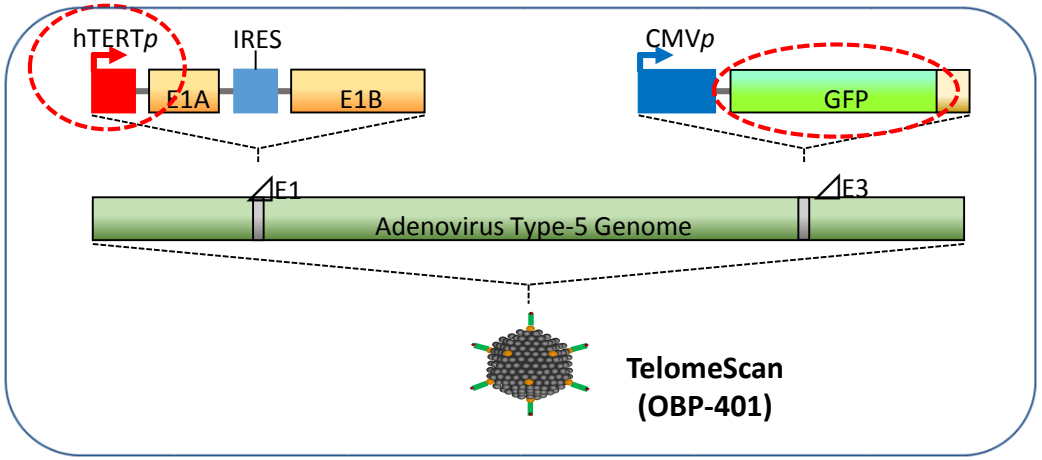
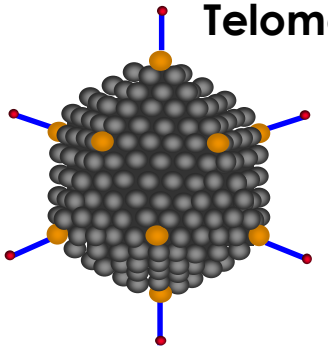
TelomeScan overview

TelomeScan is a gene-modified adenovirus which replicates and express GFP when infected to telomerase activity-positive tumor cells.





Infection

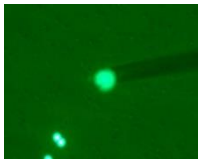
Normal cell

Telomerase activity -

Tumor cell

Telomerase activity +

GFP



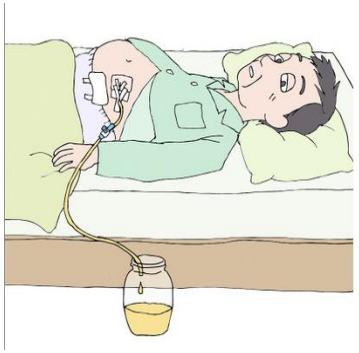
Fluorescent emission by GFP

Possible application for liquid biopsies

PTC *
gastric & pancreatic cancer

Osaka University
Okayama University

*PTC ; Peritoneal Tumor Cell



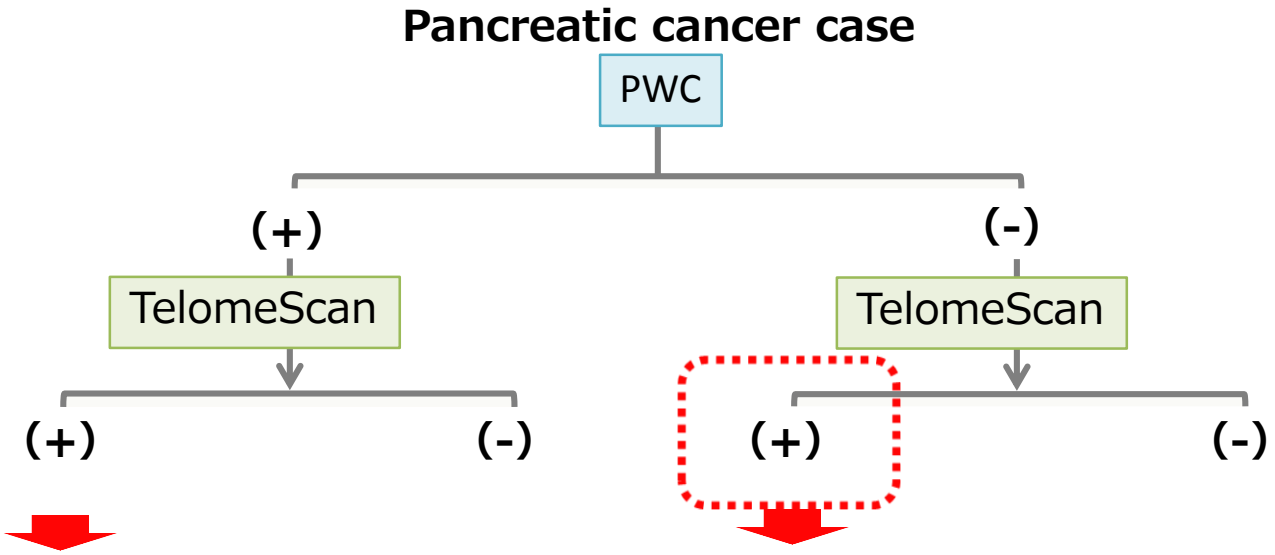
CTC
Lung & prostate cancer

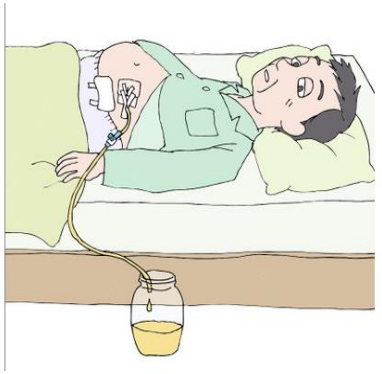
Juntendo University

Application for companion diagnostics

PTC: collaborative project with Osaka University

Pancreatic cancer
peritoneal washing cytology (PWC)





⇒ Intraperitoneal chemotherapy

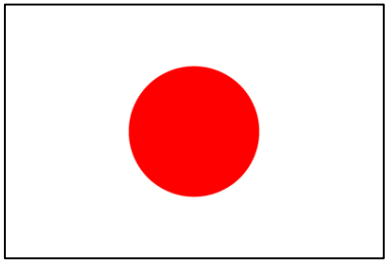
Business development outlook

N. America in 2015

Europe and China

TelomeScan

Korea in 2014



Corporate businesses &
academic institutions

License agreement

BD activities in progress

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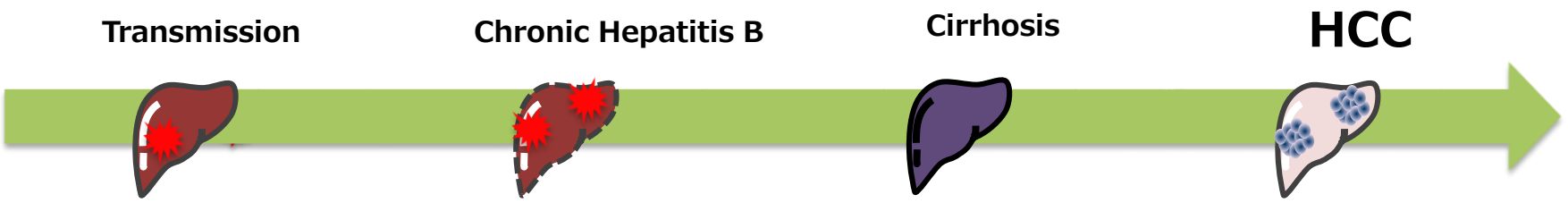
Oncolys BioPharma

Hepatitis B (HBV)

- HBV is a member of the small DNA virus.
- Its DNA considered to activate tumor DNA within infected liver cells



10% of HBV transmission leads to HCC

In the world, 350 million patients have persistent HBV infection
- Of which 70% are in Asia Pacific region
- 1.5 million patients in Japan

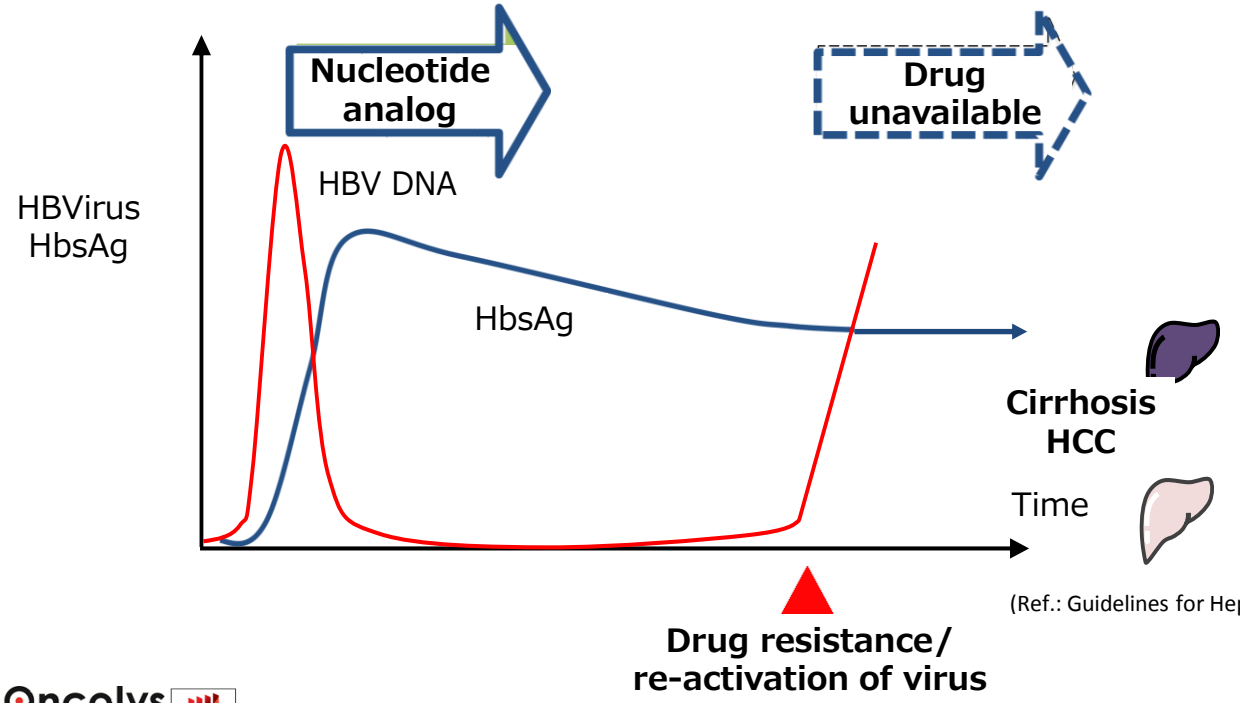
Ref.) Articles on *"Nikkei Biotech"*, Nikkei BP,17032014, etc.

Long-term goal of HBV treatment: HBsAg elimination

The Japan Society of Hepatology's official guidelines for Hepatitis B treatment sets the elimination of HBs antigen (HBsAg) as a long-term goal.

- Chronic hepatic failure has a obvious risk factor associated with HCC incidence.
  → Persistent HBV infection
- HBV treatment may eliminate the risk factor therefore reduce the cancer risk.

No treatment available for recurring HBV after the existing drug administration



HBsAg implied as HBV risks factor

(Ref.: Guidelines for Hepatitis B Treatment, Ver. 2.2., The Japan Society of Hepatology; PMDA HP)

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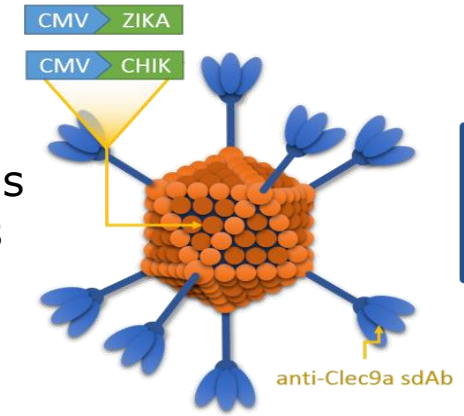
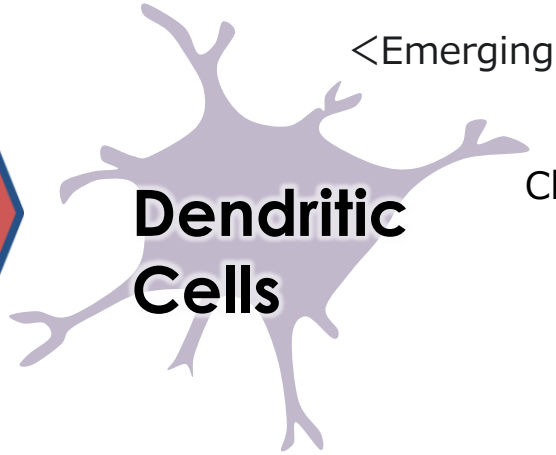
Oncolys BioPharma

Investment in Washington University biotech venture

Investment agreement with Precision Virologics signed in March 2017, to enhance OBP's infectious disease pipeline and for broader business opportunity.

① Modified adenovirus
② Camelid antibodies
③ Zika DNA





<Emerging infectious diseases>

Zika
Chikungunya
Dengue
West Nile
Ebola
TB

Oncolys BioPharma

First Refusal Right in Asia

Board member
USD 500,000

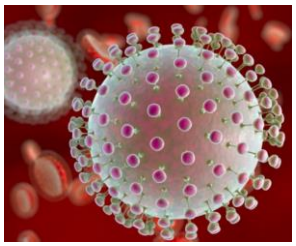
PRECISION VIROLOGICS
Targeted Vaccines

Dr. David T. Curiel
Founder & CSO

Potential Market for Zika Virus Vaccines

Zika virus transmission through the mosquito bite

Microcephaly

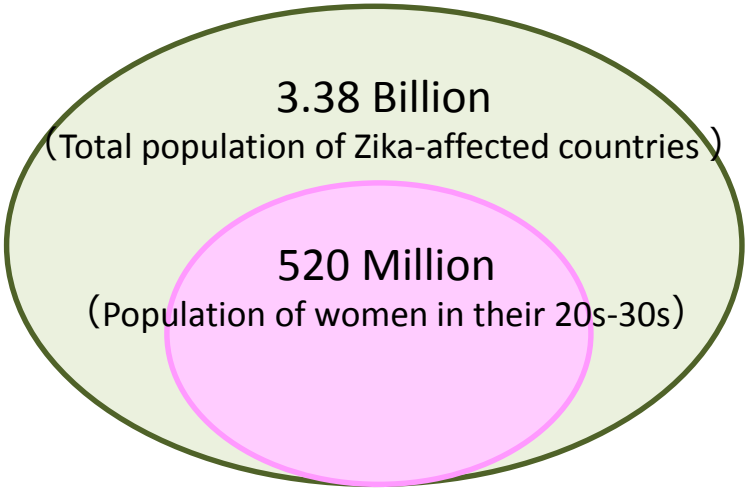


Zika virus in blood

Zika transmission has been identified in 84 countries and regions in total so far.*1

*1 World Health Organization

Women of reproductive age needs vaccination



Ref) Yellow fever vaccine price: JPY10,000 (Japan), JPY2,500 (Thailand)