

# Supplement Documents for Financial Results FY12/20

Feb 9, 2021



To accelerate drug discovery and development of mAb  
for therapeutics to overcome current medical unmet-needs

**Chiome Bioscience Inc.**



- 1. Overview of FY12/20 “Financial results”**
- 2. Overview of FY12/20 “Operation highlights”**
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# **Overview of FY12/20 “Financial results”**

# Financial results: Profit and Loss



(JPY in millions)

	FY2019	FY2020	Increase (decrease)	
Net sales	447	480	33	
Drug Discovery & Development	29	3	(26)	
Drug Discovery Support	417	477	59	• Growth in business with domestic pharmaceutical companies
COS/SGA	1,849	1,764	(85)	
R&D Expense	1,299	1,156	(142)	• Decrease in the cost of study drug manufacturing and CRO in CBA-1205 program
Other costs	550	607	57	• Up in material costs due to increased business transactions
Operating Loss	(1,401)	(1,283)	(118)	
Ordinary Loss	(1,410)	(1,291)	(118)	
Net Loss	(1,403)	(1,293)	(110)	

# Financial results: Balance Sheet



(JPY in millions)

	As of Dec. 31, 2019	As of Dec. 31, 2020
Current assets	2,561	3,248
(Cash on hand in banks)	2,105	2,686
(Other current assets)	456	562
Non-current assets	247	246
Total assets	2,808	3,494
Current Liabilities	145	342
Non-current liabilities	41	41
Total liabilities	186	384
Total net assets	2,621	3,109
Total liabilities and net assets	2,808	3,494

# Financial results: Cash Flows



(JPY in millions)

	FY12/19	FY12/20
Cash flows from operating activities	(1,537)	(1,360)
Cash flows from investing activities	(26)	(3)
Cash flows from financing activities	1,341	1,944
Net increase (decrease) in cash and cash equivalents	(222)	580
Cash and cash equivalents as of the beginning of the year	2,328	2,105
Cash and cash equivalents as of the end of the year	2,105	2,686

## 【Cash flows from operating activities】

- Expenses for CMC development to manufacture CBA-1205 for clinical development.

## 【Cash flows from financing activities】

- Funds from 17<sup>th</sup> subscription rights of shares.



## **Overview of FY12/20 “Operation highlights”**



## Drug Discovery and Development Business

This is business to obtain revenues such as upfront, milestone, and royalty payments relating to out-licensing of patents of pipeline product and drug candidates, and also, income from collaborative research.

## Drug Discovery Support business

This is business to obtain revenues from antibody generation service by using platform technology that Chiome possesses to support drug discovery research at pharmaceutical companies, or for diagnostic and research purposes at academia or institutes on fee-for-service scheme.



## Drug Discovery development

- The first patient has been dosed CBA-1205 in First-in-Human Phase 1 study in July 2020.
- Amendment to the License Agreement with ADCT was executed to strengthen Chiome's position in development and licensing.
- CMC development of CBA-1535 progressed on schedule.
- License Agreement with Shanghai Henlius Biotech, Inc. for development and commercialization of LIV-2008/2008b was executed in Jan. 2021.

## Drug Discovery Support

- Sales increased by 14.4% year-on-year due to growth of business with domestic pharmaceutical companies.
- Provided technical support services to new customers, including antibody generation for COVID-19 by leveraging know-hows in protein production and ADLib® systems.

## Technology platform

- The patent of human ADLib®system was granted in Japan.
- Results of joint research with Univ. of Tokyo that verified scientific concept and assessed practicality of human ADLib®system was published in peer-reviewed international journal.

# Drug Discovery and Development -Pipeline



## Out-Licensed Product

Code	Target	Therapeutic Area	Basic research, Drug Discovery	Preclinical Study	Clinical Trials	Partner
ADCT-701 (LIV-1205 ADC)	DLK-1	Oncology /ADC				
LIV-2008 /2008b	TROP-2	Oncology	<b>New</b>	<b>Execution of License Agreement</b>		

## Pipelines

Project	Target	Therapeutic Area	Basic research, Drug Discovery	Preclinical Study	Clinical Trials	Status
CBA-1205 (ADCC enhanced)	DLK-1	Oncology		<b>First-in-Human clinical trial is on-going</b>		Phase 1
CBA-1535 (Tribody™)	5T4×CD3 ×5T4	Oncology		<b>CMC development progressing on schedule</b>		Preparing for Phase 1
BMAA	SEMA3A	DME, Others				SemaThera (Exclusive option agreement)
<b>New</b> PCDC	Undisclosed* *to be released	Oncology /ADC		<b>PCT application filed. Initiate licensing activities</b>		Licensing opportunity
Discovery PJ (5)	Undisclosed	Oncology infectious/rare diseases				—

## License Agreement with Shanghai Henlius Biotech, Inc. for LIV-2008/2008b development and commercialization

- ✓ Chiome grants an exclusive license, with sublicensing rights, to Henlius for development, manufacturing and marketing of LIV-2008/2008b and its derivatives in China (including Hong Kong Special Administrative Region, Macau Special Administrative Region, and Taiwan region) Chiome also grants to Henlius an option right to develop, manufacture and sale in the rest of the world other than the initial territory.
- ✓ LIV-2008/2008b are Humanized monoclonal antibodies targeting cell surface antigen "TROP-2" (Trophoblast cell-surface antigen 2). This target expresses on breast, colon, and lung cancer cells, etc.
- ✓ LIV-2008/2008b have exhibited potent anti-tumor activity in various in vivo mouse models.

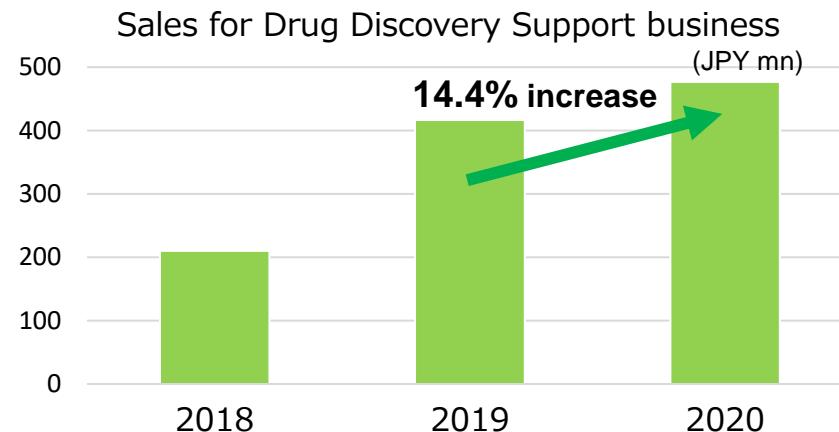
### About Henlius

Henlius is listed on the Stock Exchange of Hong Kong Limited (SEHK:2696) and is principally engaged in (i) the R&D, production and sale of monoclonal antibody (mAb) drugs and the provision of related technical services (except for the development and application of human stem cells, genetic diagnosis and therapy technology) and (ii) the transfer of its own technology and provision of the related technology consultation services.



## Sales increase in contract service

- Sales increased by 14.4% year-on-year due to growth of business with key clients in Japan.
- No impact by COVID-19 on sales except for the second quarter.



## ADLib®System

- Inquiries on the human ADLib®system from pharmaceutical companies increased following the publication of patent and of the paper in the 2<sup>nd</sup> quarter.
- ADLib®system is positioned as a key driver in Chiome's business, and therefore, efforts to obtain new clients are going to be made.



## Result of Financing through third-party allotment

- Exercise of series 17th subscription rights issued On Jun.12 2020 has completed on Jan.18 2021. As a result, JPY 1,941 million was raised.

Total number of shares exercised	7,000,000 shares
Total value exercised	1,941 million JPY

### <Use of funds>

- to expand pipeline for continuous deliver innovative drugs
- to reinforce Chiome's platform technology

Use of funds	Cost (million JPY)	Scheduled period of spending
① Pre-clinical study for a new ADC pipeline and research on discovery projects in oncology and infectious/rare diseases.	1,764	Jul.2020-Dec.2022
② Development of new pipeline by utilizing multispecific antibody generation technology (Tribody™)	250	Jul.2020-Jun.2022
③ Acquisition of new antibody generation technologies and new pipelines.	400	Jan.2021-Dec.2022



# Outlook for FY12/21

# Outlook for FY12/21



## Drug Discovery and Development Business – In-house Pipelines

<b>CBA-1205</b>  Humanized afucosylated anti-DLK1 antibody	<ul style="list-style-type: none"><li>✓ Dose escalation part of Phase I Study to see safety is ongoing well on track at National Cancer Center Hospital. Expect moving to Part 2 in HCC patients in 2<sup>nd</sup> half 2021.</li><li>✓ Focus on basic research on biomarker and potential expansion of indications.</li></ul>
<b>CBA-1535</b>  Humanized anti 5T4/CD3 antibody, multi-specific antibody	<ul style="list-style-type: none"><li>✓ Regulatory submission for Phase 1 initiation is expected at the end of 2021 or later. However, due to the pandemic of COVID-19 in the UK, study in Japan should be considered as an alternative plan.</li><li>✓ CMC development has made progresses on schedule to date, however, there is some uncertainty for the future schedule due to COVID-19 pandemic in Europe. Situation needs to be watched carefully.</li></ul>
<b>BMAA</b>  Humanized anti-Semphorin3A antibody	<ul style="list-style-type: none"><li>✓ Being evaluated by SemaThera Inc. under Collaborative Development License and Exclusive Option Agreement concluded in March 2018.</li></ul>
<b>PCDC</b> undisclosed, to be released	<ul style="list-style-type: none"><li>✓ A new pipeline for ADC purpose in oncology.</li><li>✓ Initiate licensing work in parallel with basic research.</li></ul>
<b>Discovery PJ</b>	<ul style="list-style-type: none"><li>✓ Continue research in each project to bring them to licensing or clinical candidate next to PCDC project.</li><li>✓ Explore possibility to create new molecule by Tribody technology.</li></ul>

# Outlook for FY12/21



## Drug Discovery and Development Business

### - Out-Licensed Products -

<b>ADCT-701</b> (ADC Therapeutics)	<ul style="list-style-type: none"><li>✓ ADC Therapeutics is continuing preparations for an IND.</li><li>✓ Amendment to the License Agreement with ADCT is executed to strengthen Chiome's position in development and licensing.</li></ul>
<b>LIV-2008</b> (Henlius)	<ul style="list-style-type: none"><li>✓ License agreement with Henlius is signed in January 2021.</li><li>✓ GMP manufacture of drug substance &amp; drug product will be planned towards clinical study.</li></ul>

## Drug Discovery Support Business

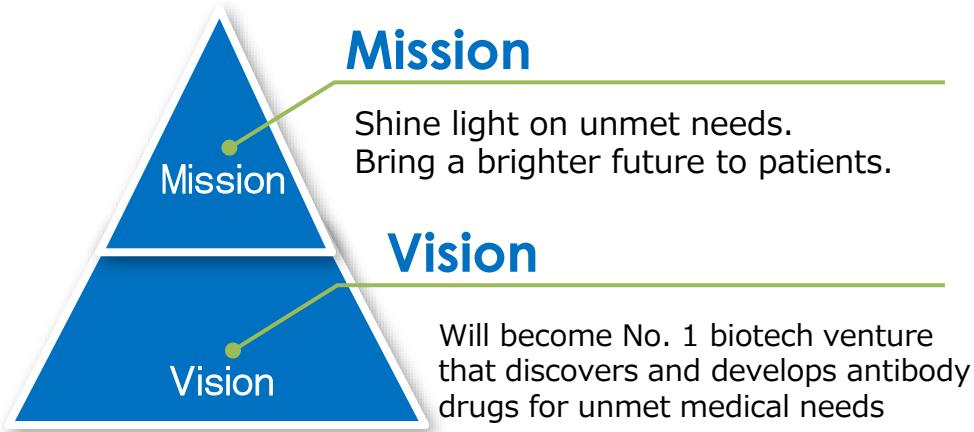
<b>Sales forecast for FY12/21</b>	<ul style="list-style-type: none"><li>✓ Sales target of 530 million JPY is set.</li></ul>
<b>Expansion of transaction</b>	<ul style="list-style-type: none"><li>✓ Develop and promote new proprietary technologies based on the ADLib®system to meet the high-level needs from existing customers and expand transactions.</li><li>✓ Further enhance the value of platforms by leveraging the proprietary Tribody technology and by applying external technologies.</li><li>✓ Secure the existing key clients.</li></ul>



## **Appendix. Corporate information**



## Biotech company dedicating to satisfy unmet medical needs



### Management principle

- Place the highest priority on sound management and credibility and aim to become a corporation that grows with society.
- With creativity and science, develop therapeutic drugs for unmet medical needs, and contribute to the health of patients.
- Achieve successive product pipelines and improvement of corporate value through collaboration with external institutions.

- Founded: February 2005
- Listed on the stock exchange: Dec.2011 (Tokyo Stock Exchange Mothers Section)
- President and Chief Executive Officer: Shigeru Kobayashi, M.E.
- Location :  
<Head Office and Research Laboratories>  
3-12-1 Honmachi, Shibuya-ku, Tokyo  
<Drug Discovery Laboratories>  
2-13-3 Nogawahonchou, Miyamae-ku,  
Kawasaki-city, Kanagawa
- Number of Employees : 55 (As of Dec. 31,2020)
- Business : Chiome Bioscience (4583.T), is a public company leveraging a proprietary monoclonal antibody generating technology, for drug discovery and development, as well as providing drug discovery supports.

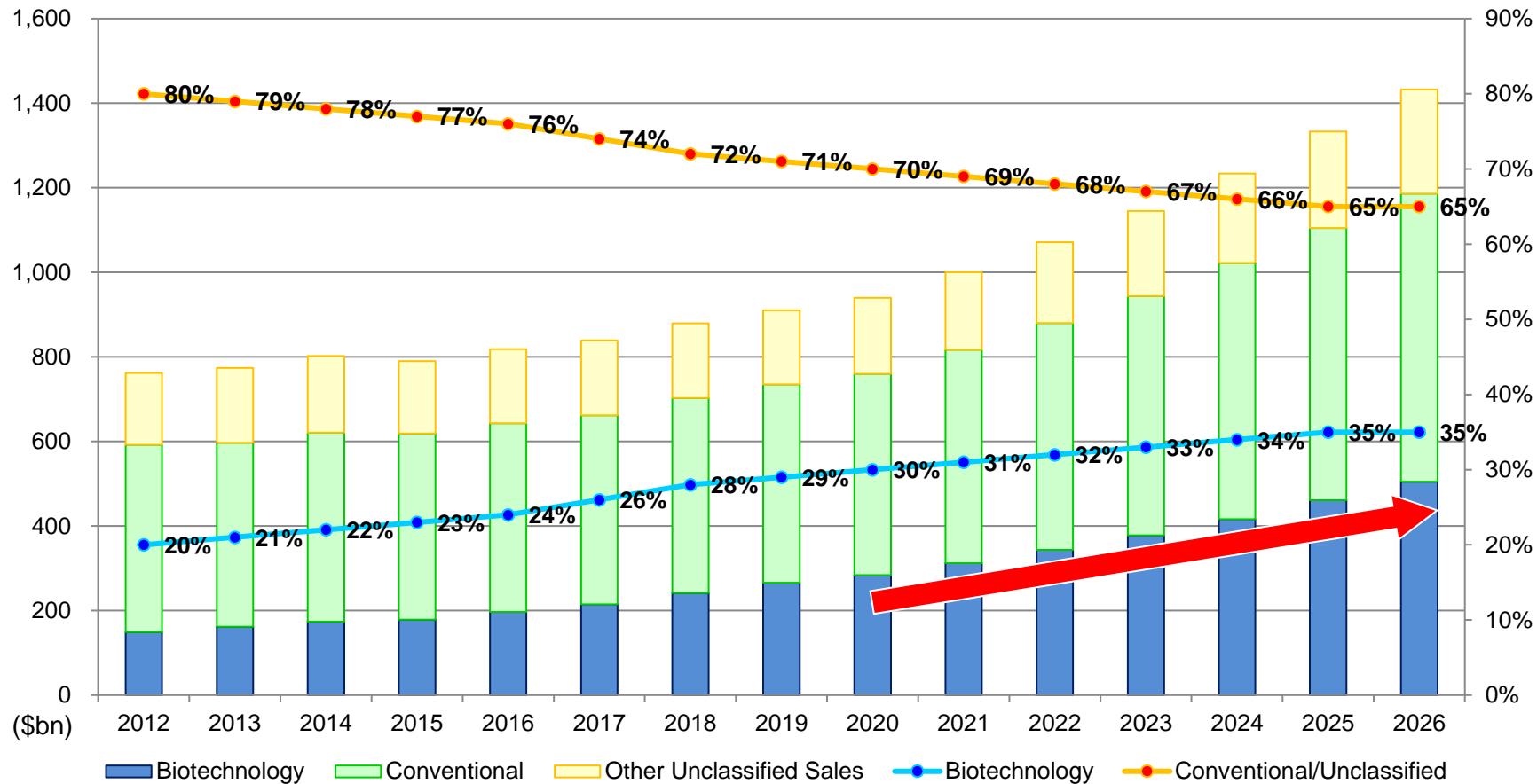




# Global Pharmaceutical Market Trends



Biotechnology, mainly antibody drugs driving growth in market



EvaluatePharma® World Preview 2020, Outlook to 2026

# Leading antibody drugs



## 4 antibodies in the top 10 selling drugs worldwide

### Sales ranking of prescribed drugs (2019)

NO	Product	Company	Main indication	Modality	Sales (\$mil.)	Sales (¥bil.)
1	Humira	Abbvie/Eisai	Rheumatoid arthritis	Antibody	19,734	2,171
2	Eliquis	BMS/Pfizer	Anticoagulant	Small molecule	12,149	1,336
3	Keytruda	Merck	Oncology	Antibody	11,084	1,219
4	Revlimid	BMS	Multiple myeloma	Small molecule	9,378	1,032
5	Imbruvica	Abbvie/J&J	Chronic lymphocytic leukemia	Small molecule	8,085	889
6	Opdivo	Ono/BMS	Oncology	Antibody	8,005	881
7	Eylea	Regeneron/Bayer/Santen	Age-related macular degeneration	Recombinant protein	7,989	879
8	Enbrel	Amgen/Pfizer/Takeda	Rheumatoid arthritis	Recombinant protein	7,194	791
9	Avastin	Roche	Oncology	Antibody	7,115	783
10	Xarelto	Bayer/J&J	Anticoagulant	Small molecule	6,934	763

(Source) : Nikkei Biotech Online, partially edited

# Differences between antibody and small molecule drugs



## Antibody drug is a product of biotechnology

	Antibody	Small molecule
<b>Side effects</b>	Antibody, in general, are safe and causes less side effect, since it specifically targets cells and tissues relating to the disease, but not normal cells and tissues.	It is safe and harmless when they are used according to the approved condition.
<b>Efficacy</b>	Antibody directly attacks targets or signals that causes the disease, i.e., antibody aims for cure of the disease, not supportive care.	Drugs, particularly molecularly targeted drugs, are designed to directly attack targets or signals that causes the disease, i.e., it aims for cure of the disease, not supportive care. Small molecule drugs are often used as supportive care such like a painkiller.
<b>Administration route</b>	In general, injection and infusion at a hospital and clinic (Self-injection is available in some cases)	Injection, Oral, dermal, nasal, or topical, etc. Many of those can be taken at home under physician's instruction.
<b>PK</b>	Longer half-life in serum, which allows less frequent dosing such as weekly or monthly.	Relatively short half-life in serum. In some cases, daily dosing, 2-3 times a day, are required.
<b>Target specificity</b>	High (It's an essential concept of antibody)	Depends on the drug
<b>Manufacturing process</b>	Culture of microorganism or animal cells	Chemical synthesis, Culture of microorganism

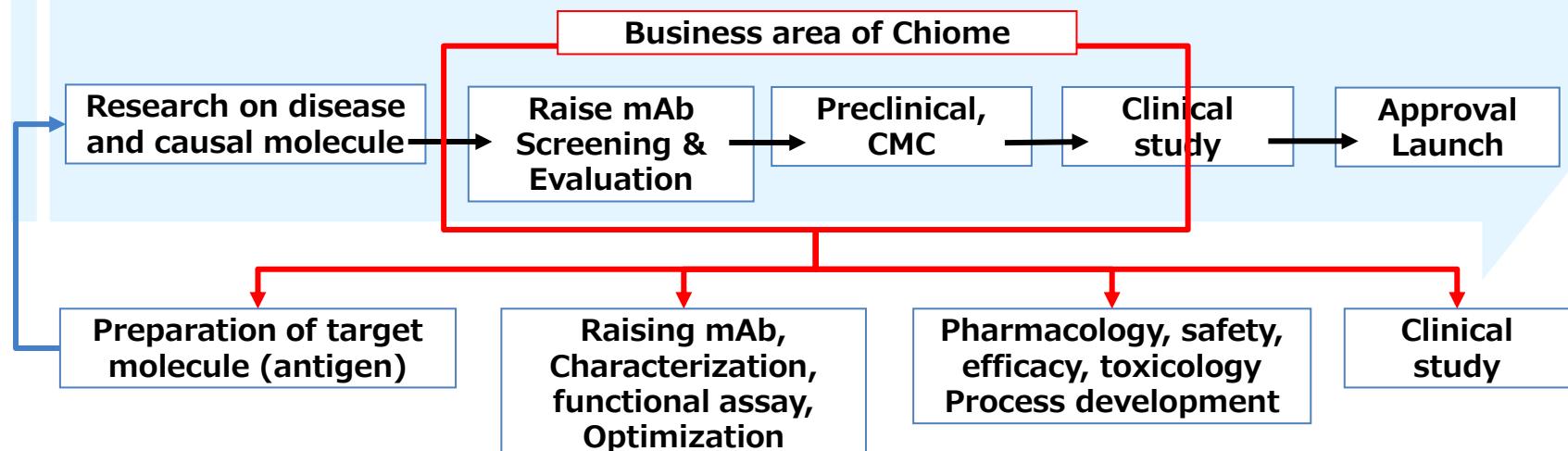
# Chiome's business



## Antibody drug discovery for diseases where high unmet medical needs exist

- Intractable diseases for which effective treatment is not available
- Diseases for which some treatments are available, but not a drug
- Effective drugs are available, but are not easy to use or accompanies with hard side effects
- Difficult for a big pharma to focus on due to small number of patient

### Process of drug discovery



### Groups responsible for the roles above

Protein Group

Antibody Discovery

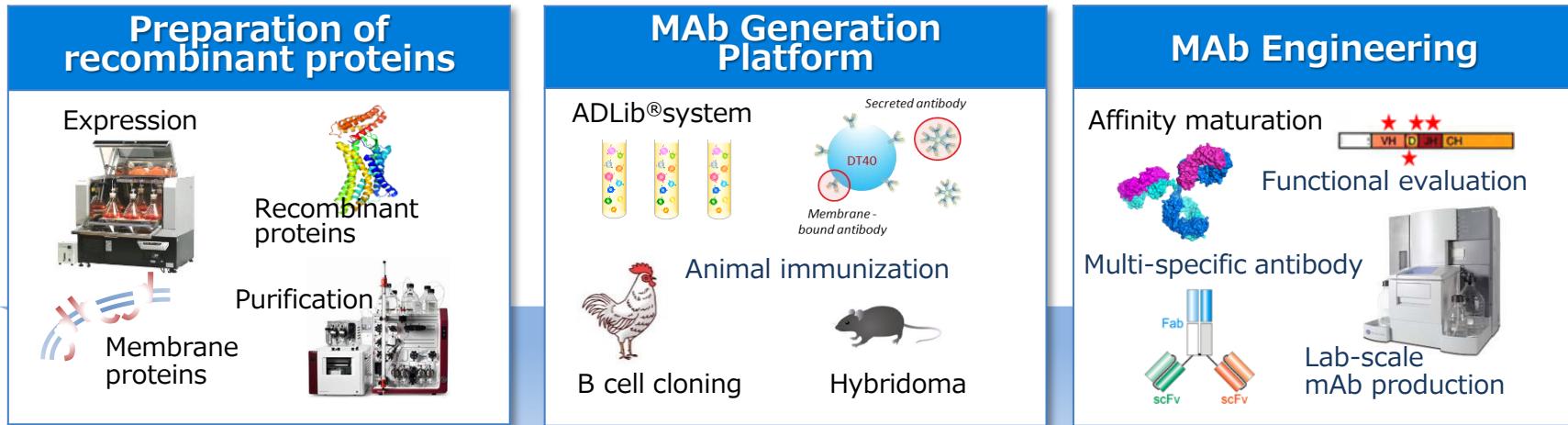
Antibody Discovery  
Labs.

Clinical  
Development

# Core competence for developing business



## Technology Platform (Chiome's mAb Discovery Engine)



Chiome possesses antibody platforms including its proprietary technology, and extensive know-hows and experiences in protein/antibody engineering to streamline the process of drug discovery.

### Advantage

Leveraging technology platforms to promote both Drug Discovery and Drug Discovery Support Businesses to Generate Sustainable Profits

### Drug Discovery and Development

Development of therapeutic drug and diagnostic agent

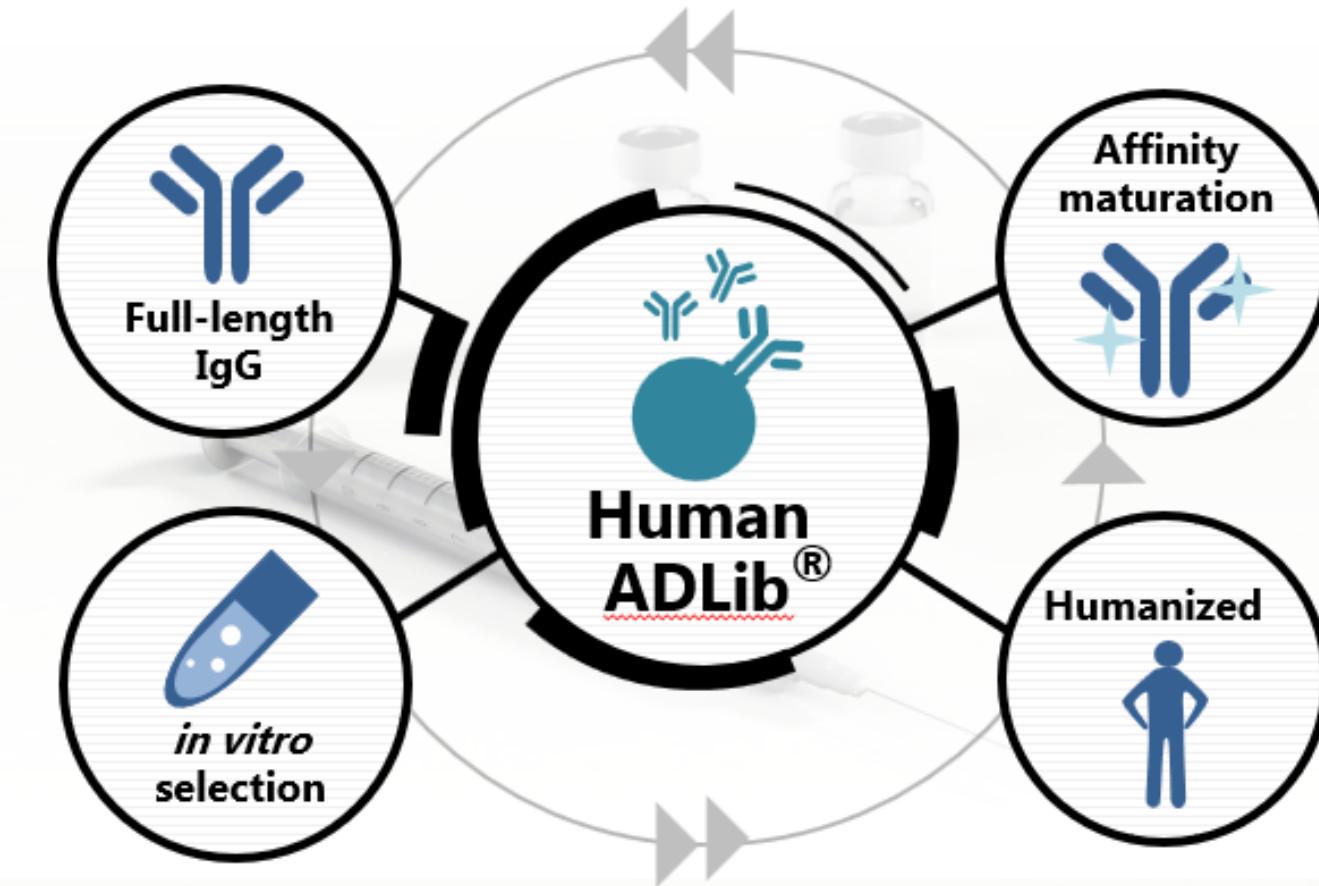
### Drug Discovery Support

Contract service for drug discovery

# Core technology : Human ADLib®System



One-stop-order platform for antibody drug discovery

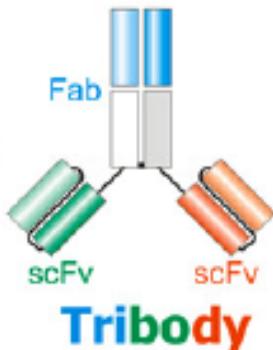


The ADLib®system offers a platform library with unique array space that adds seamless Affinity maturation function. It is a one stop order drug discovery and research tool that can complete all the steps necessary for antibody drug discovery such as selection, full-length IgG expression, humanization, and affinity maturation on 1 platform.

# Core technology : Tribody™

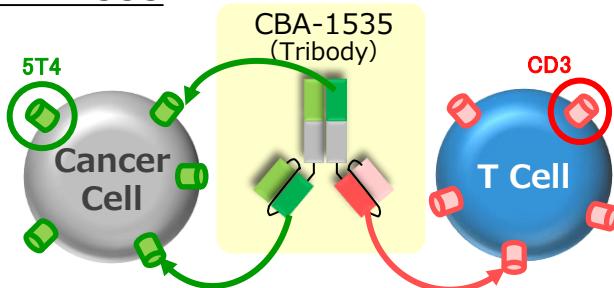


## Tribody™



[Discover drug candidates utilizing Tribody technology](#)

## CBA-1535



The Tribody technology enables the generation of multi-specific antibody products. This unique technology overcomes the key shortcomings of conventional mono- as well as of currently developed bi-specific antibody formats.

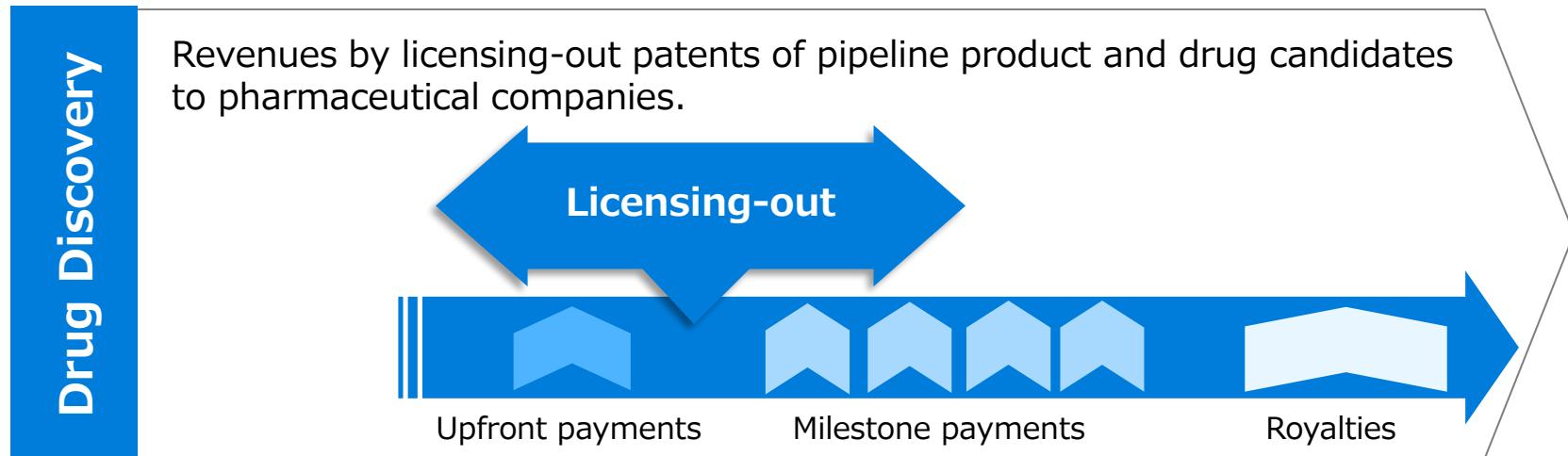
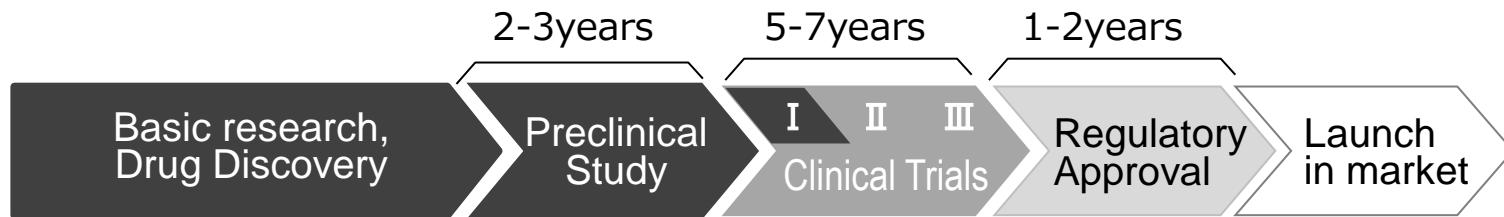
One of the binding sites can be designed to recruit immune cells (effector cells) with cytotoxic activity, such as T cells and NK cells, and the remaining 2 sites can be designed to bind to different epitopes of a cancer-specific antigen or to recognize different antigens expressed on the cancer cell surface.

Tribody™ enables creation of unique antibody by building multi-binding sites that bind to different antigen or epitope, which differentiate from conventional antibody. Chiome strives for developing an antibody drug with greater safety and higher efficacy.

# Revenue Model



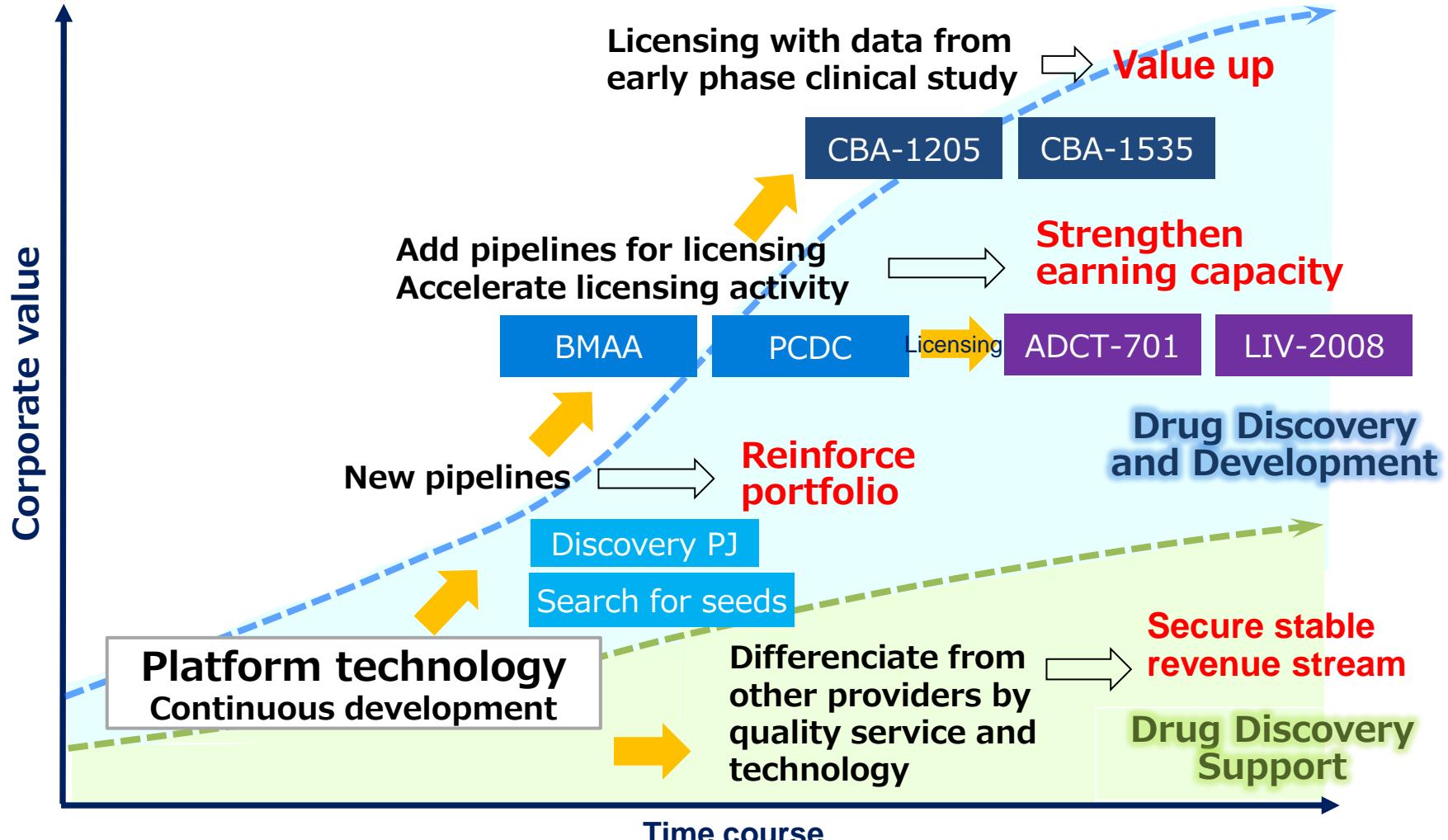
## Drug development process and Chiome's revenue model



# Business strategy for the future growth



Create candidate of innovative antibody drugs for unmet medical needs and pay maximum efforts to increase the corporate value by developing and licensing highly valuable antibodies.





## Appendix. Pipeline information



## ADCT-701\* (Humanized anti-DLK1 antibody ADC)

- ✓ An Antibody Drug Conjugate (ADC) form of LIV-1205 that was licensed out to Switzerland-based ADC Therapeutics SA in September 2017.
- ✓ ADCT has completed pharmacology and toxicology studies required for an IND submission and is continuing preparations for an Investigational New Drug Application (IND).

\*Chiome granted ADCT a worldwide exclusive license with a right to sublicense, develop, manufacture, and commercialize an ADC format of LIV-1205, which is coded "ADCT-701".





## LIV-2008 (Humanized anti-TROP2 antibody)

- ✓ LIV-2008 is a humanized monoclonal antibody targeting cell surface antigen "TROP-2" which is overexpressed in breast cancer, colon cancer, lung cancer and several types of solid cancers and also expected to play a key role in the proliferation of cancer cells.
- ✓ Therapeutic Area : Breast cancer (TNBC), lung cancer, colorectal cancer etc.
- ✓ Patent : Granted in Japan, US, EU, China etc.



## CBA-1205 (Humanized afucosylated anti-DLK1 antibody)

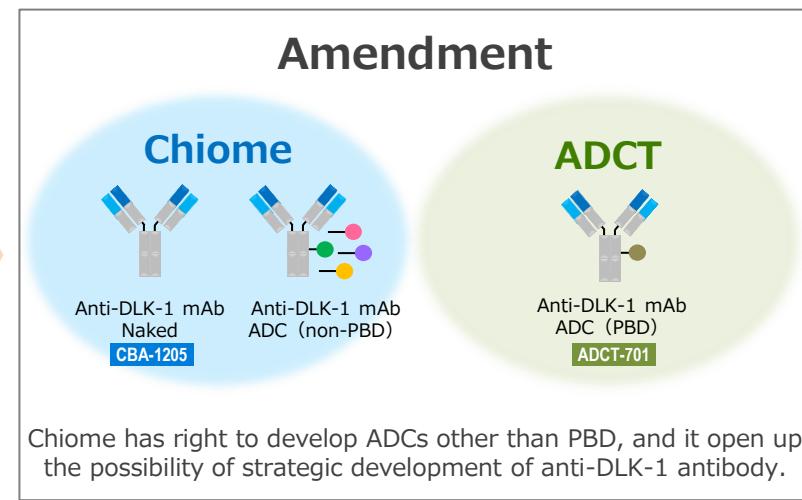
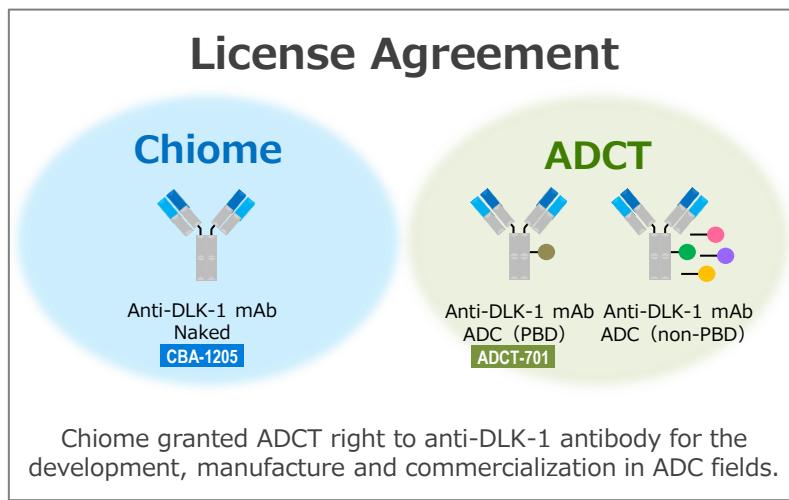
First in class

- ✓ A humanized antibody generated by hybridoma technology in Livtech which Chiome acquired in 2015.
- ✓ Therapeutic Area : Liver cancer, lung cancer, neuroblastoma etc.
- ✓ Patent : Granted in Japan, US, Europe, China etc.
- ✓ Unmet needs that we should satisfy : Providing new therapeutics for highly malignant tumors without effective therapeutic drugs including hepatocellular carcinoma.



## Amendment to the License Agreement with ADCT to increase the licensing opportunity and business potential of CBA-1205

- ✓ By ensuring broader rights, Chiome obtains greater flexibility in advancing strategic drug development of anti-DLK-1 antibody, also increase the licensing opportunity and business potential of CBA-1205.

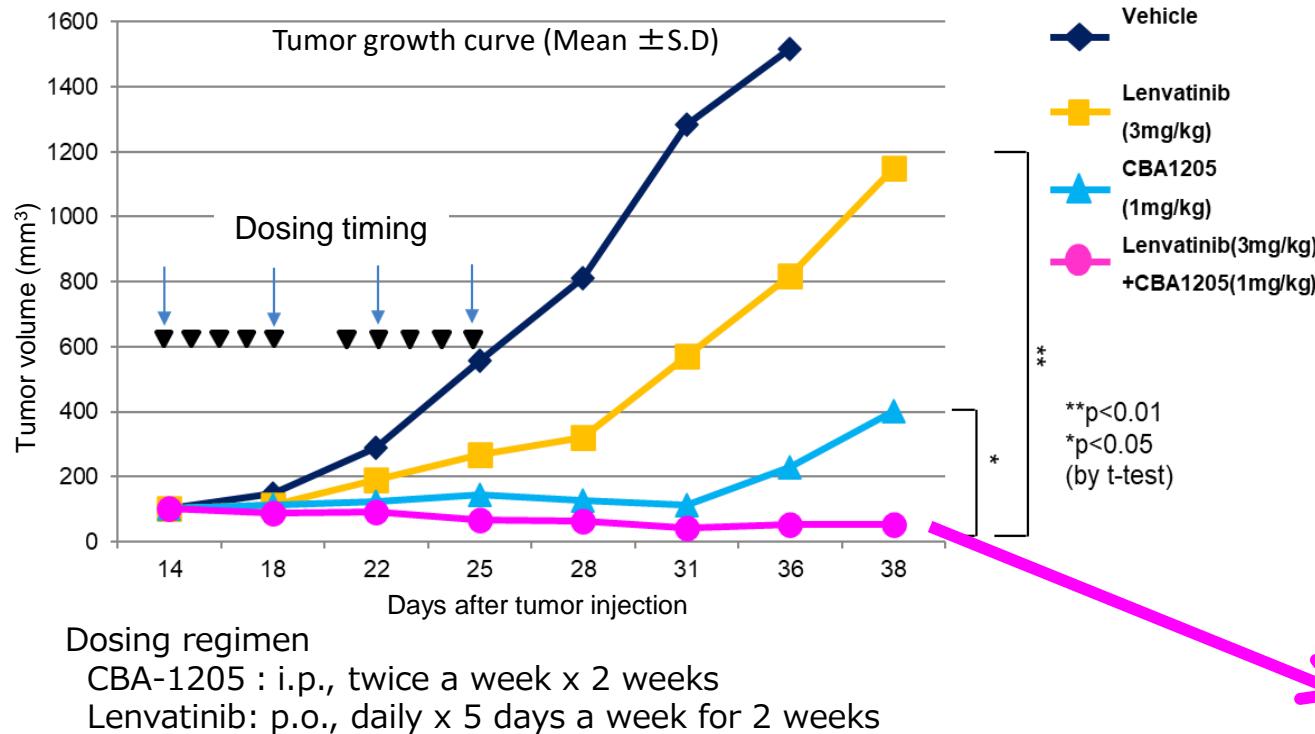


- ✓ Implementation of combination study with anticancer drugs for CBA-1205 and file patent applications.

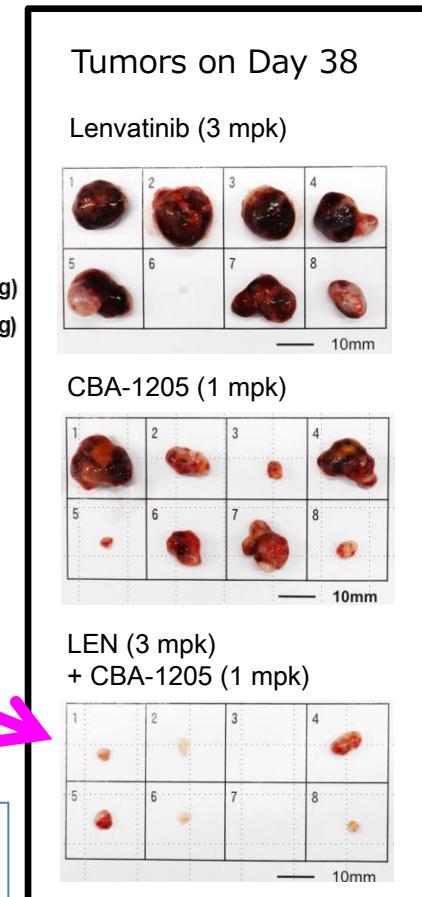


## A patent application, “Combination of CBA-1205 and Lenvatinib” filed in 2019 is published

### Mouse xenograft study: Hep3B hepatoma model CBA-1205 + Lenvatinib



Patent: WO/2020/204033



**Remarkable tumor regression was observed in combination of CBA-1205 and Lenvatinib in HCC xenograft treatment model.**

# Market analysis of Liver Cancer



No. of patient <sup>※1</sup>	840,000 new cases worldwide in 2018 The second leading cause of cancer-related deaths. High incidence in Africa and Asian region.
DLK-1 expression <sup>※2</sup>	Ca.20% of liver cancer patients and ca. 50% of lung cancer patients express DLK-1
Standard treatment <sup>※3</sup>	<p>Surgery is the first choice if it is resectable</p> <ol style="list-style-type: none"><li>1. Surgery : Resection of tumor</li><li>2. Ablation : percutaneous ethanol injection, Radiofrequency ablation</li><li>3. Embolization</li></ol> <p>Drug therapy is applicable for post-surgery, unresectable advanced stage.</p>
Competitor	Sorafenib, Lenvatinib, Atezolizumab - Bevacizumab
Market	Combination therapy of anti-PD-L1 antibody and anti-VEGF antibody was approved in September 2020.

※1: <http://www.wcrf.org/int/cancer-facts-figures/data-specific-cancers/liver-cancer-statistics>

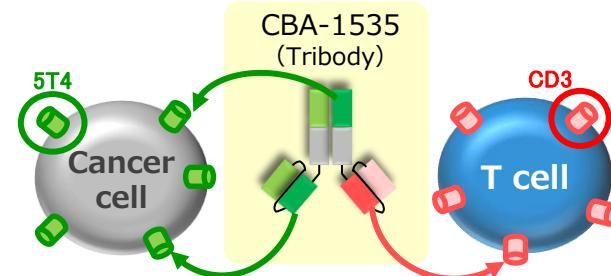
※2: J. Biochem.: 148, 85-92 (2010)

※3: <https://ganjoho.jp/public/cancer/liver/treatment.html>



## CBA-1535 (Humanized anti 5T4 antibody, multi-specific antibody)

- ✓ CBA-1535 is a T-cell engager, trispecific antibody, directed against the 5T4 tumor antigen, a protein found on various solid tumors and is thought to be involved in metastasis.
- ✓ Therapeutic Area : Malignant mesothelioma, small cell lung cancer, non small cell lung cancer, TNBC etc.
- ✓ Patent : Granted in Japan, UK, US. Pending in Europe etc.





## BMAA (Humanized anti-Semaphorin3A antibody)

First in class

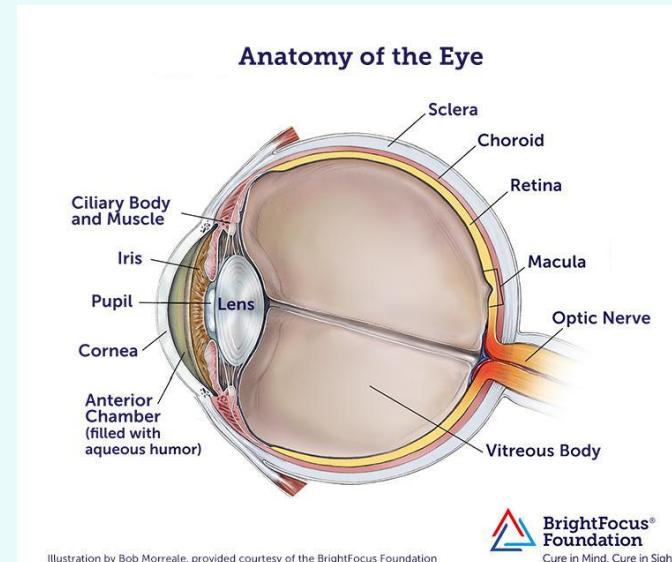
- ✓ A humanized antibody generated using the ADLib® System.
- ✓ Chiome has granted SemaThera Inc. an exclusive option right to obtain a worldwide exclusive license to develop the antibody as a therapeutic and/or diagnostic agent.
- ✓ Therapeutic Area : Diabetic macular edema (DME)
- ✓ Patent : Granted in Japan, US and Europe etc.





## Diabetic retinopathy (DR) and diabetic macular edema (DME)

- DR is one of the three most popular diabetic complications alongside diabetic nephropathy and neurosis, and a leading cause of blindness in Japanese adults.
- DR is the result of damage or clogging of blood vessels in the retina due to a continued state of a high blood sugar level. DR progresses without subjective symptoms.
- DME is a state in which microaneurysms are developed in blood vessels of the retina, or blood components leak from blood vessels and remain within the retina. Macular edema occurs regardless of the extent of the retinopathy and causes serious blurred vision along with the progress. (The macula is the central portion of the retina having highly sensitized visual power.)





# Shine light on unmet needs. Bring a brighter future to patients.

To accelerate drug discovery and development of mAb  
for therapeutics to overcome current medical unmet-needs





- Materials and information provided during this presentation may contain so-called “forward-looking statements.” These statements are based on current expectations, forecasts and assumptions that are subject to risks and uncertainties, which could cause actual outcomes and results to differ materially from these statements.
- Risks and uncertainties include general industry and market conditions, and general domestic and international economic conditions such as interest rate and currency exchange fluctuations.
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