



Information Material about GTS Strategic Direction

– Challenge GTS3.0 –

June 28, 2018



Cautionary Statement

This information material is provided for understanding Gene Techno Science (“GTS”), not for soliciting investment in GTS shares.

Information provided in this material 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 success rate of R&D projects, new regulations and rules, relations with partners in the future, etc.

This material includes information on pharmaceutical products and regenerative medicine (or related products), etc., which is being developed or launched. However, this is not intended to promote our products or provide medical advices.

Company Overview

General Information	Founded	March, 2001		
	IPO	November, 2012年 (Mothers @ Tokyo Stock Exchange)		
	Shareholders Capital	100 million yen (common stock, as of August 1, 2017)		
	Location	Headquarter	1, Kita-2, Nishi-9, Chuo-ku, Sapporo	
		Tokyo Office	2-10-8 Nihonbashi, Chuo-ku, Tokyo	
			Kita-21, Nishi-11, Kita-ku, Sapporo	
		Research Lab	Inside the Center of Promotion for Platform for Research on Biofunctional Molecules, Hokkaido University Creative Research Institution	
Management	Directors	Representative Director, President & CEO	Masaharu Tani	
		Director	Ryo Noguchi (New)	
		Outside Director	Norikazu Eiki (New)	
	Corporate Officers	Chief Business Officer (CBO)	Munechika Sakabe	
		Chief Technology Officer (CTO)	Masayuki Kawakami	
Head of Administration		Masakuni Ueno		
	Head of Corporate Planning	Yasuo Sakae		
Major Shareholders	Noritsu Koki Co., Ltd. (Parent company)			
	NanoCarrier Co., Ltd., JSR Corporation, Senju Pharmaceutical Co., Ltd., ITOCHU CHEMICAL FRONTIER Corporation			
Business Description	Research and development of biologics	<ul style="list-style-type: none"> •R&D for new biologics •R&D for biosimilar •R&D for regenerative medicine 		

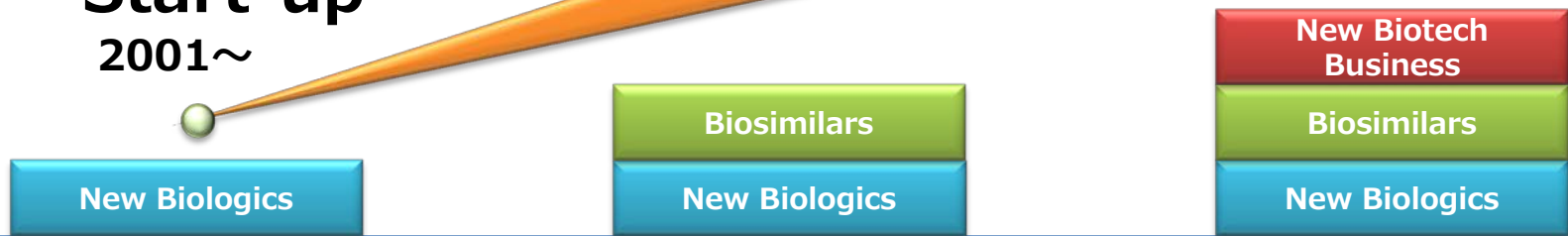
History

Business Expansion

2018~

IPO
2012~

Start-up
2001~



New Biologics

GTS1.0

-Acquisition of basic biotech technology -

Biosimilars

New Biologics

GTS2.0

-Stabilization of management through launching BS product-

New Biotech
Business

Biosimilars

New Biologics

GTS3.0

-Further Business Expansion-

Founded as a spin-out venture from Hokkaido Univ.

- Research Collaboration with Hokkaido Univ.
- Out-licensed anti- $\alpha 9$ integrin antibody to Kaken Pharmaceutical Co., Ltd.
- Signed joint development agreement for filgrastim (G-CSF) biosimilar with Fuji Pharma, Co., Ltd.

Listed at Mother Section of TSE

- Listed on the Tokyo Stock Exchange Mothers Section and obtained marketing approval for filgrastim biosimilar
- Signed joint development agreement for biosimilars with Sanwa Kagaku Kenkyusho, Senju Pharmaceutical and Mochida Pharmaceutical, respectively
- Formed capital and business alliance for biosimilars with JSR and ITOCHU CHEMICAL FRONTIER
- Formed capital and business alliance with Japan Regenerative Medicine (JRM)

Biotech Engineering Company

- Ready for challenging various biotech-related business based on the technologies and commercialization know-how acquired through BS business
- Strive for creating healthcare solutions for rare disease, intractable disease and pediatric disease by collaborating with academia and biotech ventures aggressively

Challenge GTS3.0

Financial results overview up to FY2017

		FY2011	FY2012	FY2013	FY2014	FY2015	FY2016	FY2017
Sales	(1,000 yen)	207,124	60,534	301,348	321,658	1,160,890	1,089,360	1,059,727
Ordinary Loss (△)	(1,000 yen)	△317,602	△373,657	△516,780	△790,234	△785,785	△1,176,763	△903,215
Net Loss (△)	(1,000 yen)	△320,992	△377,047	△519,301	△792,179	△787,685	△1,224,554	△904,557
Net Loss per share (△)	(yen)	△134.05	△119.10	△120.08	△165.93	△151.45	△137.01	△94.54
Total Asset	(1,000 yen)	508,070	922,429	1,886,777	1,146,755	1,694,117	3,706,224	3,025,172
Net Asset	(1,000 yen)	341,355	888,008	1,052,839	270,659	403,290	3,500,246	2,604,037
Net Asset per share	(yen)	131.96	213.35	220.80	52.07	66.22	363.39	268.74
Number of employee		8	8	13	14	19	20	21
Fund raised			783,840	1,416,830		479,990	3,921,876	
Partner/Method								
IPO			783,840					
WHIZ Partners				1,215,040		479,990	1,119,976	
Itochu Chemical Frontier				201,790			301,897	
NK							2,000,001	
JSR							500,000	

1. Net loss per share is calculated based on average of the number of outstanding shares during the fiscal year. Net asset per share is calculated based on the number of outstanding shares as of fiscal year end.
2. A share split (100 for 1) was implemented as of August 8, 2012(100 for 1) and October 1, 2016 (2 for 1).
In the table above, each "per share"-number is calculated based the assumption that a share split was implemented at the beginning of FY2012.

New Management Team

**GTS
3.0**

**Board of
Directors**

Executive Members

Business Development
Research & Development
Manufacturing
Planning & Administration

- New Management Team -

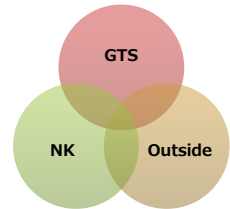
- **Quick and appropriate decision making** by directors with biotech knowledge and experience
- **Improvement of governance** by directors from GTS and NK as well as one outside directors

<Member>

Masaharu Tani President & CEO

Ryo Noguchi CEO of Japan Regenerative Medicine Co., Ltd.

Norikazu Eiki Former chairman of Bayer Yakuhin, Ltd. Outside Director



- Experts from each functions supporting new Management Team -

<Member>

Munechika Sakabe CBO

Masayuki Kawakami CTO

Masakuni Ueno Head of Administration

Yasuo Sakae Head of Corporate Planning/IR

Executive Officers

Masaharu Tani President & CEO

The Univ. of Tokyo, MSc, MBA

Joined the clinical development dept. at Suntory, implementing clinical trials and moved to Takeda Pharmaceutical, where worked at the Business Development Department and Strategic Product Planning Department. After Takeda, joined Whiz Partners, a Japanese investment company in 2013 and joined GTS in 2014. Appointed as CFO in 2015 and CEO in 2017 at GTS.

Munehika Sakabe Corporate Officer, CBO

Bachelor of Faculty of Chemical Engineering Saitama Univ.

Involved in the Japanese human genome project of Science and Technology Agency at Seiko Instruments Inc. Nihon Millipore Corporation (Merck), Applied Biosystems (Thermo), and joined in Fujifilm Corporation, worked for Business Development of Lifescience and Pharmaceutical Div. Joined GTS in 2016.

Masayuki Kawakami Corporate Officer, CTO, Research & Development Div.

Kyoto Univ. Graduate School of Engineering, Ph.D

Worked for research laboratories of FUJIFILM Corp. mainly in oncology area with Harvard Univ. and Novartis (then Sandoz). Worked for Toyama Chemical Corp. and then for FUJIFILM Pharmaceuticals USA to promote an anti-influenza drug clinical development. Joined GTS in April, 2017 and appointed as CTO in April, 2018.

Masakuni Ueno Corporate Officer, Head of Administration

Bachelor of Faculty of Science and Engineering, Kinki Univ.

Long experience in administration area including General Affairs, Accounting, etc. Involved in IPOs of two companies based in Sapporo, joined GTS in 2010 and became Corporate Officer, Head of Administration

Yasuo Sakae Head of Corporate Planning/IR

Bachelor of Faculty of Sociology, Hitotsubashi Univ.








Sales & Marketing at Commerz Securities (affiliate of Commerzbank) Tokyo Branch and HQ in Germany and then joined in Yamanouchi/Astellas, worked mainly for globalization of finance function including establishment of Corporate Venture Capital. CFO at Astellas US, VP, Procurement, VP, Corporate Finance & Control at Astellas Pharma, Japan and VP, Corporate Strategy & Communications at Astellas Europe. Joined GTS in April, 2018.



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Biosimilars Business

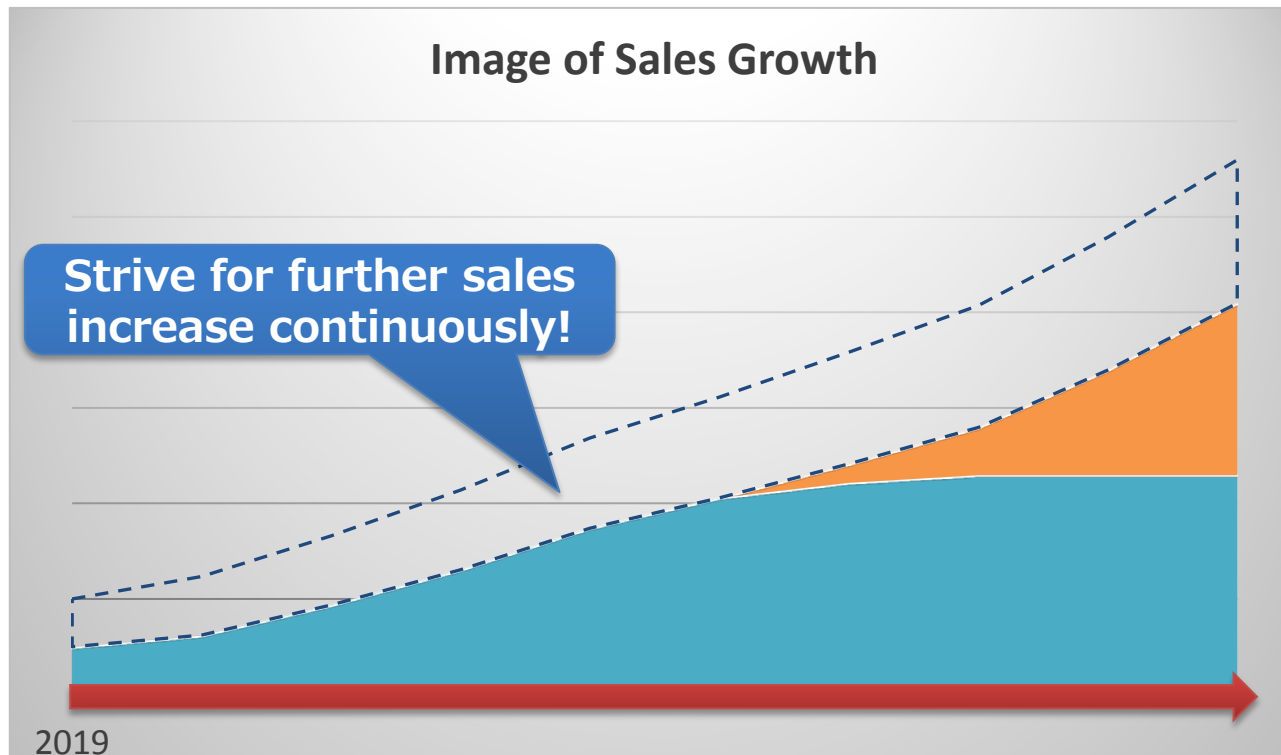
Overview of R&D Pipeline

Development Code	Target disease	Research	Clinical trial		Application Submitted/Reviewed Approved/Launched	Partners
			Phase I	Phase III		
GBS-001 Filgrastim	Oncology					Fuji Pharma Co., Ltd. Mochida Pharmaceutical Co., Ltd.
GBS-004 Bevacizumab	Oncology					
GBS-005 Adalimumab	Immunological diseases					Changchun Changsheng Life Sciences Limited (China)
GBS-007	Ophthalmic diseases					Senju Pharmaceutical Co., Ltd.
GBS-008 Palivizumab	Infectious diseases					
GBS-010 Pegfilgrastim	Oncology					
GBS-011 Darbepoetin alfa	Kidney disease					Sanwa Kagaku Kenkyusho Co., Ltd.
GBS-XXX New Biosimilar						
GBS-YYY New Biosimilar						
⋮						

Strengthen mid, long-term business foundation

Action Plans

- Maximize sales of Filgrastim and launch 3 products from existing pipeline for achieving sales target
- Launch 1- 2 products from new pipeline for strengthening our business foundation further
- Pursue out-licensing opportunities to overseas partners





Towards GTS3.0

Our Strategic Direction



**GTS
3.0**

**Biotech Engineering Company,
striving for value creation**

**Aiming at providing comprehensive
healthcare solutions for patients as well as
families and caregivers**



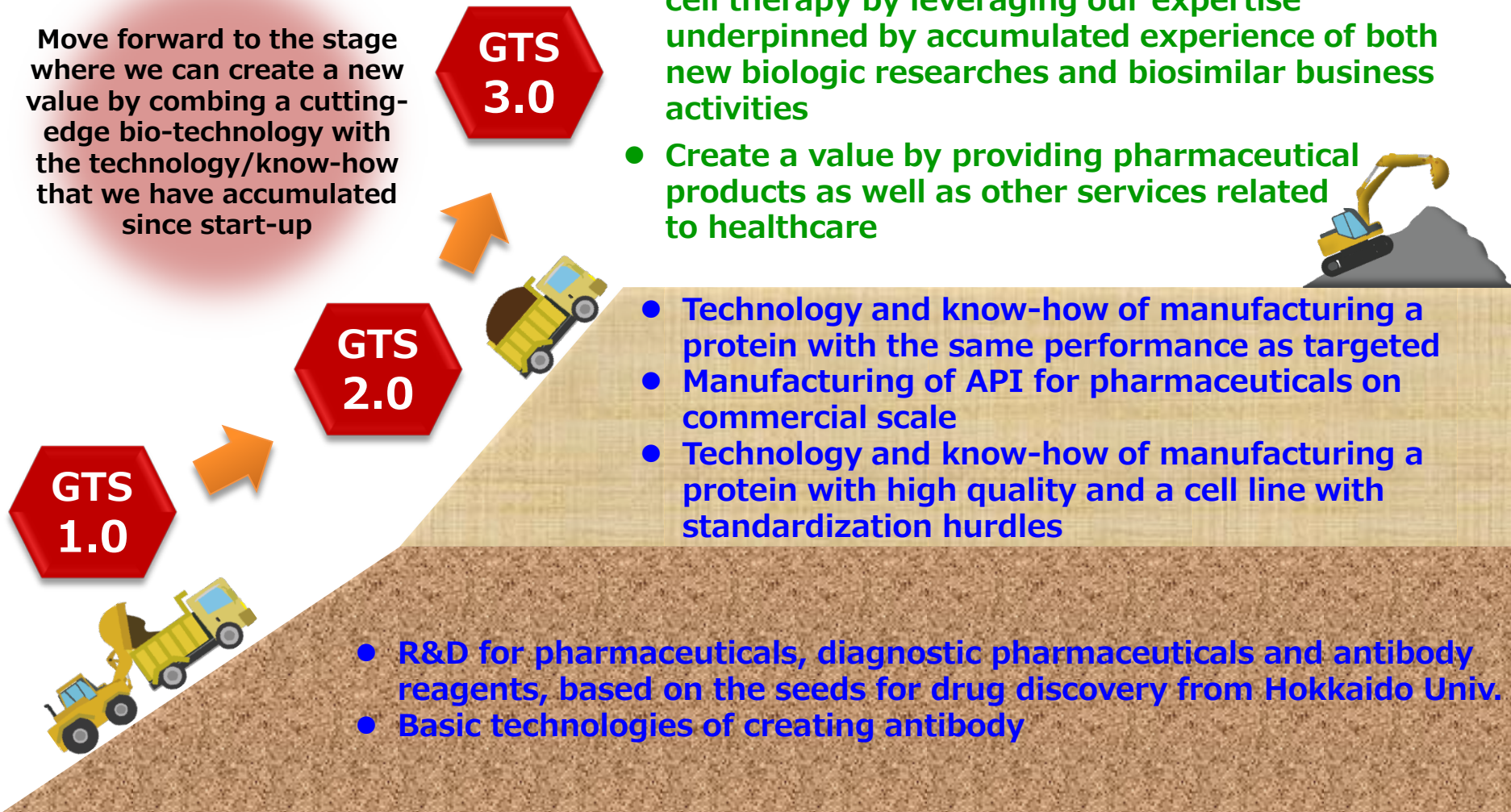
**Explore a new business opportunities by
providing a healthcare solution for the
therapeutic area where a current
solution is insufficient**

Our Focus

- ❖ Pediatric disease
(including juvenile one)
- ❖ Rare disease
- ❖ Intractable disease
- ❖ Asia-endemic disease

History of our Expertise

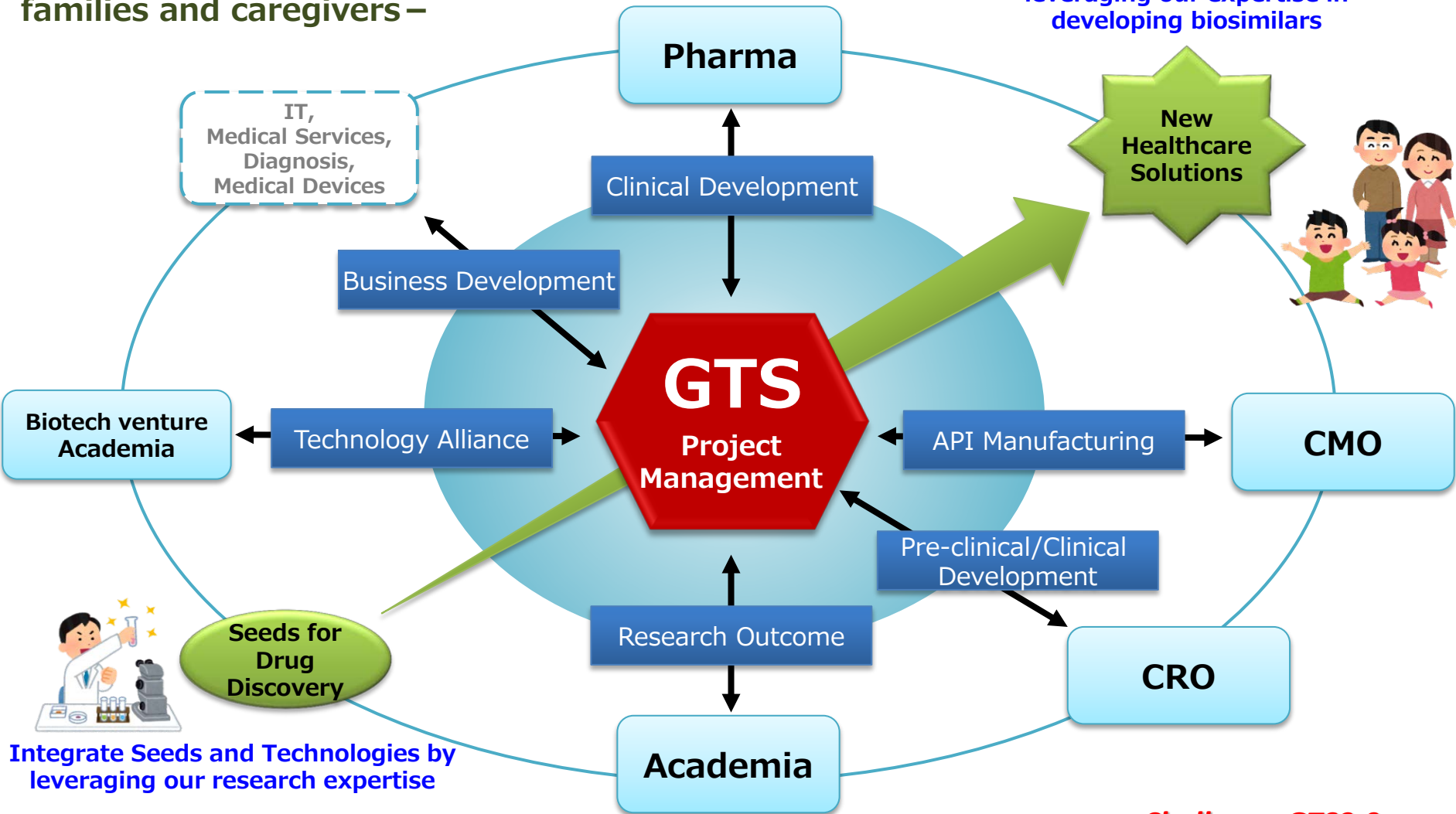
Move forward to the stage where we can create a new value by combing a cutting-edge bio-technology with the technology/know-how that we have accumulated since start-up



Providing New Healthcare Solutions

– Aiming at providing comprehensive healthcare solutions for patients as well as families and caregivers –

Drive commercialization of new healthcare solutions by leveraging our expertise in developing biosimilars



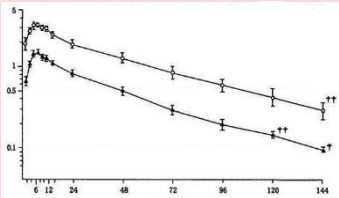
Integrate Seeds and Technologies by leveraging our research expertise

Integrate Seeds and Technologies

– Technologies to be focused –

Enhance

Enhance a function which cannot work sufficiently

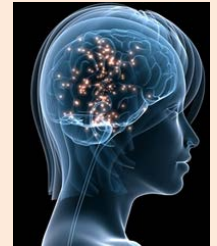


Efficacy ↑

Deliver

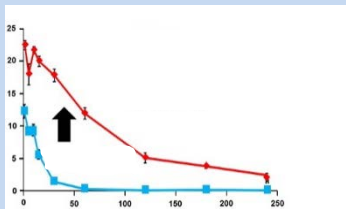
Deliver a drug to the unreachable area

Expansion of treatment area



Protein
Nucleic acid, Cell

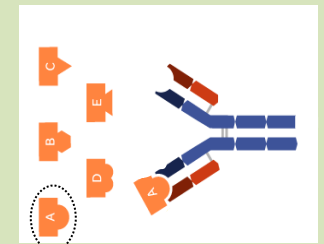
Drug
Compliance
Improvement



Sustain the effect which is eliminating immediately

Sustain

Adverse
effect ↓



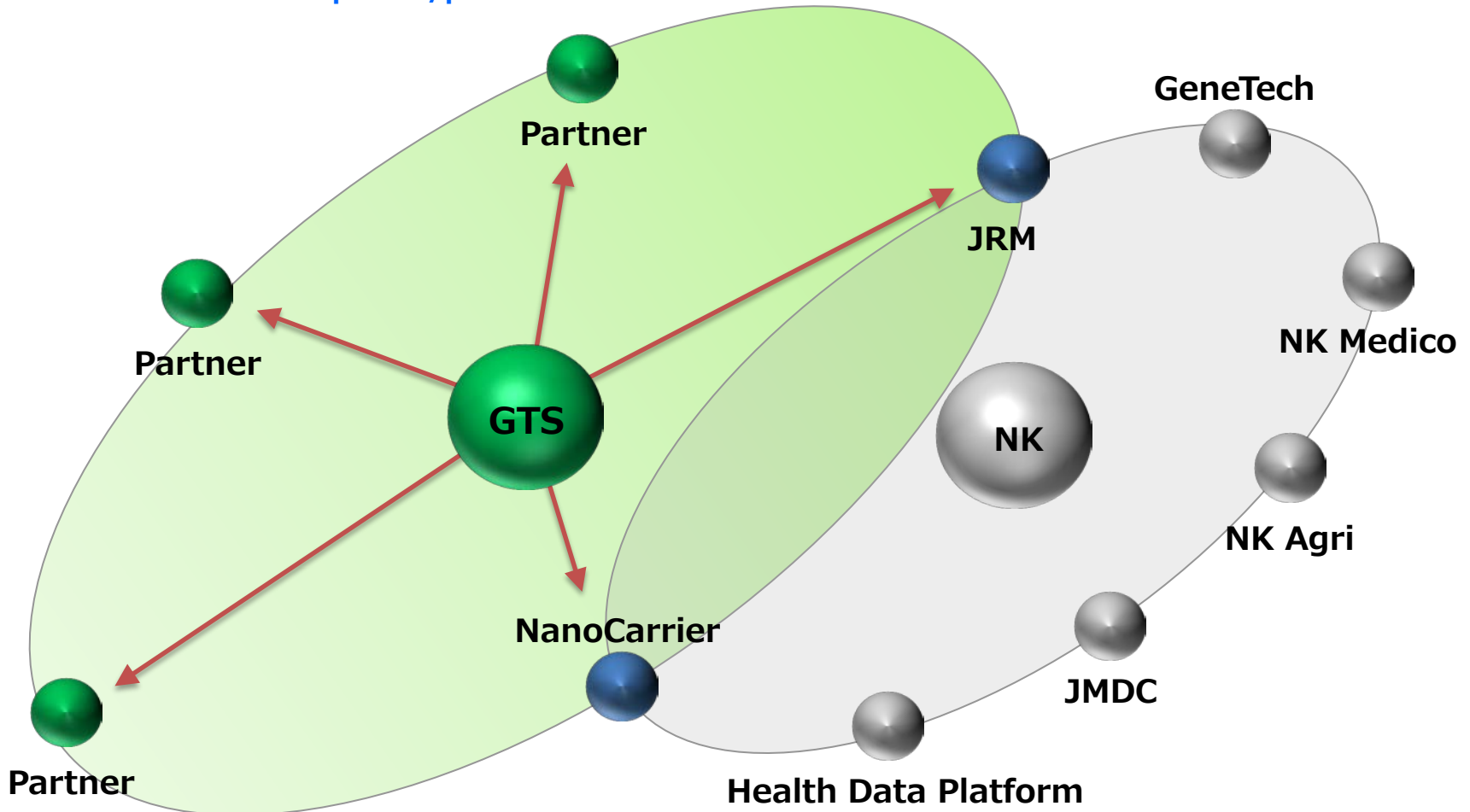
Distinguish molecules which are difficult to be differentiated

Distinguish

For Comprehensive Healthcare Solutions

- Create an environment which allows us to collaborate with the best partner -

- Provide a new healthcare solution by integrating each technology
- Foster an environment for a new healthcare solution (Support/Improve environment surrounding patients)
- Leverage capabilities within NK group
- Collaborate with other companies/partners



Financing for Supporting Strategic Direction

Overview of this financing;

- The number of dilutive shares; 1,500,000 shares (100 shares per stock acquisition rights), dilution ratio is 15.68%
- Amount of funds raised (Estimated amount of net proceeds calculated assuming all of the stock acquisition rights is exercised at the initial exercise price.): 3,059,455,000 yen
- Allotment date: June 19, 2018
- Exercise period: 2 years (July 2, 2018 to July 2, 2020)

Purpose	<ul style="list-style-type: none"> ● Raise funds for enhancing enterprise value in line with strategic direction, focusing on rare and intractable disease, especially, pediatric disease <ul style="list-style-type: none"> ➢ Drive development plan for biosimilars pipeline for next 2- 3 years robustly ➢ Drive both new biologics business and regenerative medicine business which have high growth potential ● Improve market liquidity by expanding investors number and diversity (Maximize the effect with share split implemented as of July 2, 2018) 						
Basic Policy	<ul style="list-style-type: none"> ● Manage this financing in a flexible and controllable manner by using our right to accelerate/suspend Daiwa's execution, considering our business plan, cash balance, cashflow forecasts and equity market trends ● Buy back and cancel the outstanding stock options in case no financing is necessary at our discretion 						
Use of Proceeds	<table border="0"> <tr> <td data-bbox="411 1011 1622 1120">1. Finalization of manufacturing method, preparation for supplying products for commercialization and preparation of application for the marketing authorization for three products among GBS-002 – 011</td> <td data-bbox="1622 1011 1854 1120">1,350 million yen</td> </tr> <tr> <td data-bbox="411 1153 1622 1225">2. Development of manufacturing process, quality test and pre-clinical studies for new biosimilars (1-2 products)</td> <td data-bbox="1622 1153 1854 1225">650 million yen</td> </tr> <tr> <td data-bbox="411 1239 1622 1310">3. Research and development of existing new biologics portfolio, in-licensing of new biologics and exploring new biotech business including regenerative medicine</td> <td data-bbox="1622 1239 1854 1310">1,059 million yen</td> </tr> </table>	1. Finalization of manufacturing method, preparation for supplying products for commercialization and preparation of application for the marketing authorization for three products among GBS-002 – 011	1,350 million yen	2. Development of manufacturing process, quality test and pre-clinical studies for new biosimilars (1-2 products)	650 million yen	3. Research and development of existing new biologics portfolio, in-licensing of new biologics and exploring new biotech business including regenerative medicine	1,059 million yen
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Trends in Pharma/Healthcare Industry

- From a disease with mass patients to the one with more segmented (smaller number of) patients
- From “blockbuster” (Worldwide sales more than 100 billion yen) to “personalized” products.
- Worldwide pharmaceuticals market : more than 100 trillion yen

Vitamins/Antibiotics

Drugs for intestinal disease/Lifestyle disease

Drugs for Autoimmune disease/Immunosuppressive

Drugs for Oncology/CNS

Drugs for Intractable/Rare disease

Drugs for Pediatric/Juvenile disease



✓ Disease with **mass patients**
 ✓ **Blockbuster products**



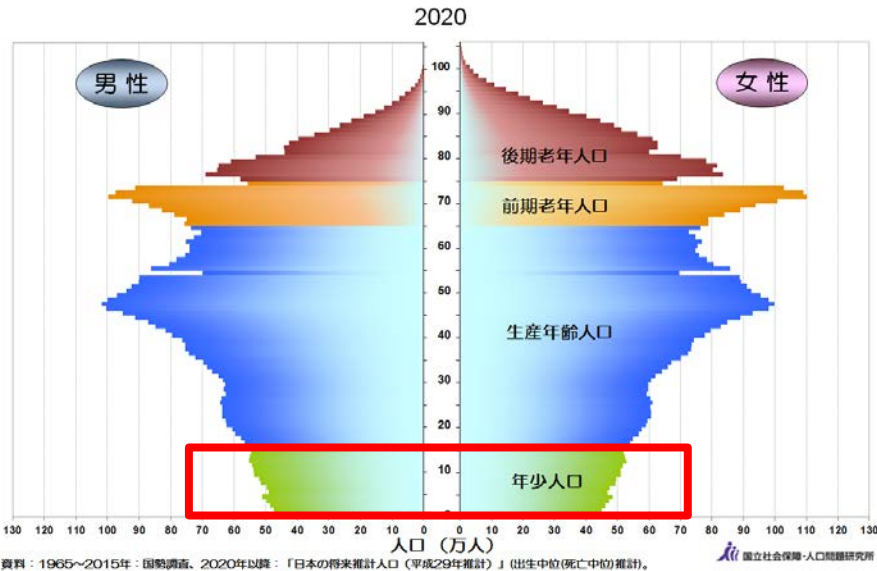
✓ **Segmented disease**
 ✓ **Personalized healthcare solution**

❖ **Personalized healthcare solution will be more important**
 ❖ **Neglected disease such as intractable/rare/pediatric disease is to be focused**

Potential of Pediatric Disease

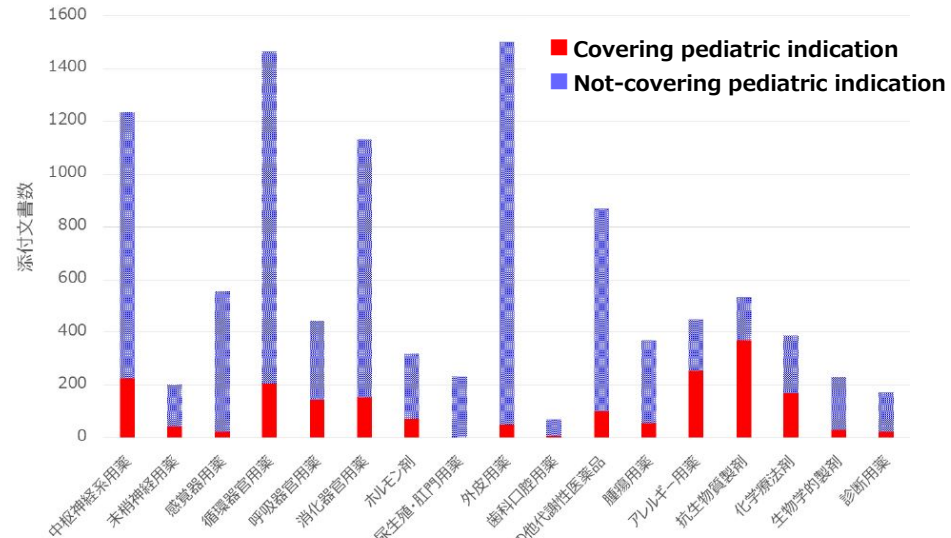
– Importance of improving the quality of comprehensive healthcare services for child and juvenile

Age Pyramid of Japan



Source: <http://www.ipss.go.jp/>

The number of package inserts obtaining marketing authorization for pediatric indication



平成27年5月現在。PMDA医療用医薬品情報検索で「効能又は効果/用法及び用量」に「小児」を含むものをカウント
Source: <http://www.pmda.go.jp/>

- The population of many countries including Japan shows “inverse” pyramid style
- The portion of child/juvenile population (less than 15 years old) in Japan is approx. 12.5% of total population and tremendously getting lower.
- The decrease of child/juvenile population who would be a key for Japanese and global economic growth in the future should endanger maintenance of a solid and sustainable society.

- The number of drugs which have pediatric indication and dosage is limited although they are available for adult.
- Healthcare cost dispensed at pharmacy for pediatric disease (less than 15 years old) is approx. 500 billion yen in 2015, approx. 6.25% of total healthcare cost at pharmacy in Japan (approx. 8 trillion yen).
- Considering the number of package inserts including pediatric indication, we estimate there should be a considerable number of patients who do not receive sufficient healthcare service and, therefore, a market potential should be larger.



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***Biotech Engineering Company,
striving for value creation***