

FY2019 1Q Consolidated Financial Overview

CHUGAI PHARMACEUTICAL CO., LTD.
Executive Vice President and CFO
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April 24, 2019



Important Reminder

Forward-Looking Statements

This presentation may include forward-looking statements pertaining to the business and prospects of Chugai Pharmaceutical Co., Ltd. (the “Company”). These statements reflect the Company’s current analysis of existing information and trends. Actual results may differ from expectations based on risks and uncertainties that may affect the Company’s businesses.

Core Results

Chugai discloses its results on a Core basis from 2013 in conjunction with its transition to IFRS. Core results are the results after adjusting non-recurring items recognized by Chugai to IFRS results, and are consistent with the Core concept disclosed by Roche. Core results are used by Chugai as an internal performance indicator, for explaining the status of recurring profits both internally and externally, and as the basis for payment-by-results, including return to shareholders.

Note: Amounts shown in this report are rounded to the nearest 0.1 billion yen
Variance and % are calculated based on the amounts shown.

Core



1Q Results Summary

- Increased revenues and operating profit
- Record-high Q1 revenues, operating profit and net income
- Strong progress vs. full-year forecast

(Billions of JPY)	2019 Jan - Mar	Growth (year on year)		Forecast on Jan. 31 Progress
Revenues	154.3	+6.9	+4.7%	26.0%
Cost of sales cost to sales ratio	-63.7 46.3%	-0.2 -4.6%pts	+0.3%	25.2%
Operating expenses	-42.7	-1.6	+3.9%	21.7%
Operating profit operating margin	47.9 31.0%	+5.1 +2.0%pts	+11.9%	33.5%
Net income	36.3	+5.1	+16.3%	Not disclosed
EPS (JPY)	66.15	+9.63	+17.0%	33.4%

Year on Year (Core)



Financial Overview Jan - Mar

(Billions of JPY)	2018	2019	Growth	
	Jan - Mar	Jan - Mar		
Revenues	147.4	154.3	+6.9	+4.7%
Sales	124.7	137.7	+13.0	+10.4%
Domestic	92.9	99.3	+6.4	+6.9%
Overseas	31.9	38.4	+6.5	+20.4%
Royalties and other operating income	22.7	16.6	-6.1	-26.9%
Royalty and profit-sharing income	5.0	13.7	+8.7	+174.0%
Other operating income	17.7	2.9	-14.8	-83.6%
Cost of sales	-63.5	-63.7	-0.2	+0.3%
(cost to sales ratio)	59.0%	46.3%	-4.6%pts	-
Gross profit	83.9	90.6	+6.7	+8.0%
Operating expenses	-41.1	-42.7	-1.6	+3.9%
Operating profit	42.8	47.9	+5.1	+11.9%
(operating margin)	29.0%	31.0%	+2.0%pts	-
Financial account balance	-0.7	-0.7	0.0	0.0%
Income taxes	-10.9	-10.9	0.0	0.0%
Net income	31.2	36.3	+5.1	+16.3%
EPS (JPY)	56.52	66.15	+9.63	+17.0%

Domestic sales

Despite impact from HIP revision, increase due to sales growth of new products as well as mainstay products

Overseas sales

Increase in exports of Alecensa and Actemra to Roche

Royalty and profit-sharing income

Increase in income for Hemlibra

Other operating income

Decrease due to one-time income in the previous year from the transfer of long-term listed products, etc.

Cost of sales

Cost to sales ratio improved due to a change in product mix

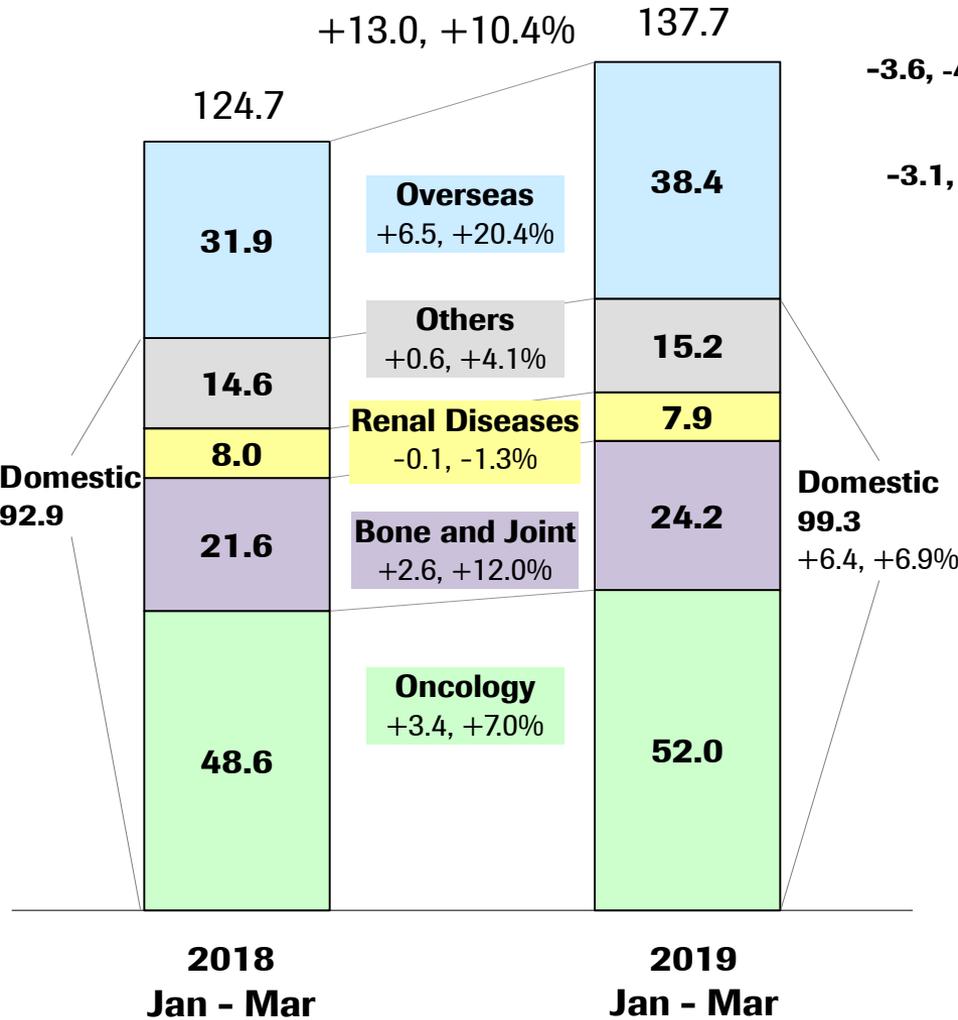
Operating expenses

Overall increase due to increase of research and development expenses

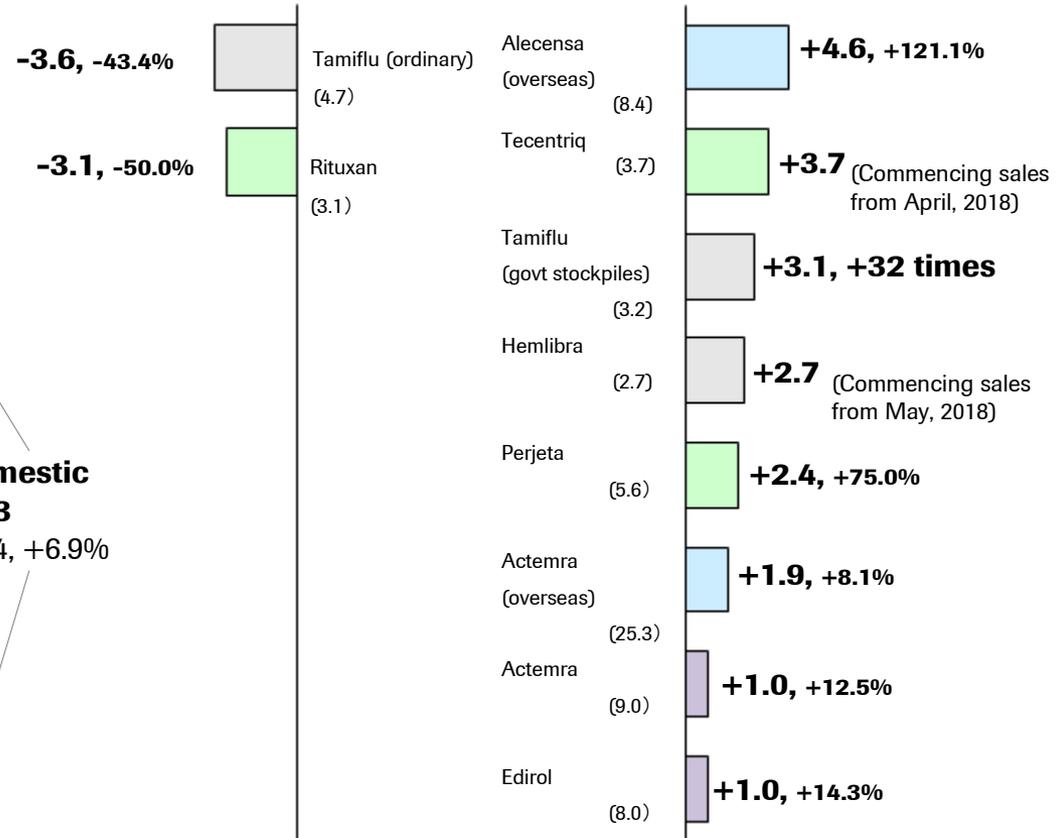
Year on Year (Core)

Sales Jan - Mar

Sales by Disease Area,
Year on Year Comparisons
(Billions of JPY)



Sales by Products,
Year on Year Changes



Details of HER2 franchise (13.8) +2.0, +16.9%

Herceptin (6.2)	-0.6	-8.8%
Perjeta (5.6)	+2.4	+75.0%
Kadcyla (2.0)	+0.2	+11.1%

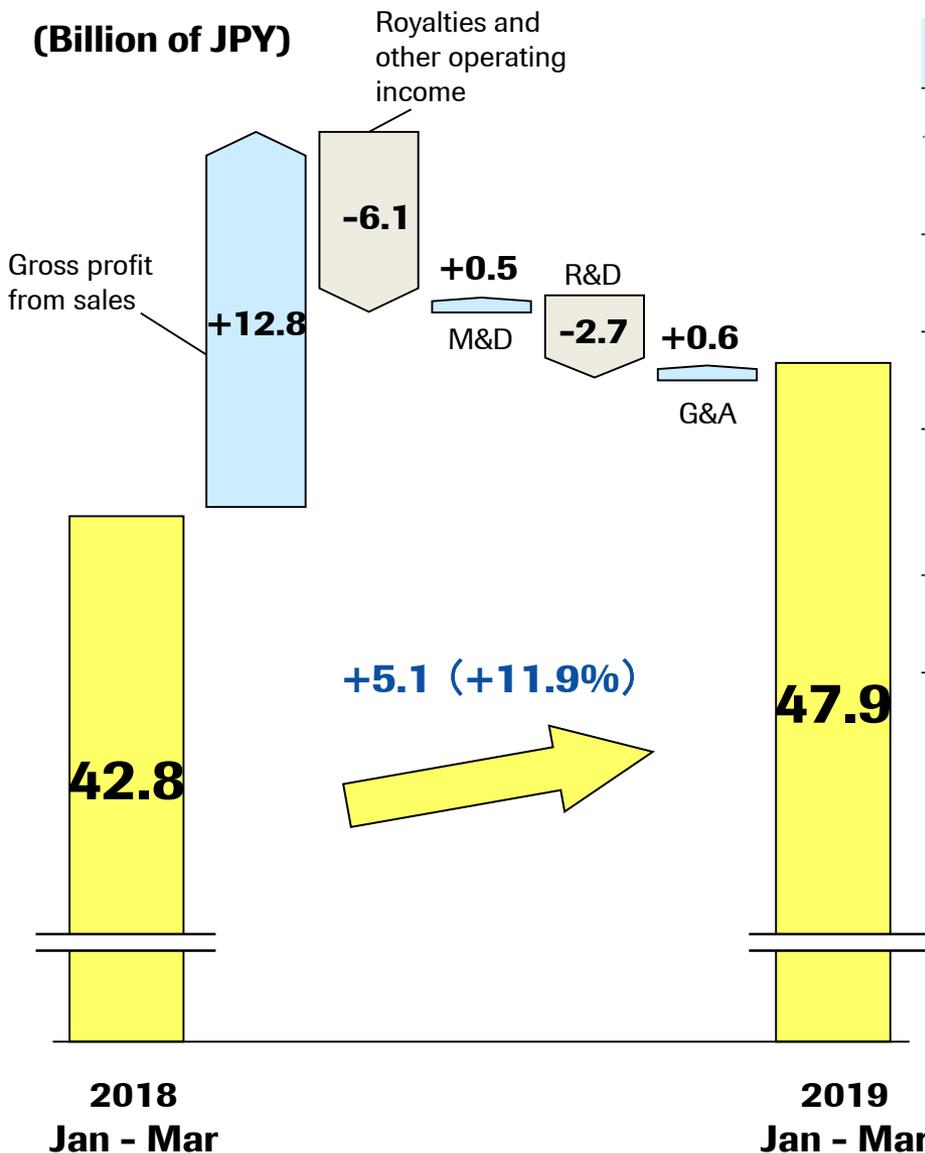
(): Actual sales in FY2019
%: Year-on-year percentage change

Year on Year (Core)

Operating Profit Jan - Mar



Roche Roche Group



(Billions of JPY)	2018 Jan - Mar	2019 Jan - Mar	Growth
Revenues	147.4	154.3	+6.9
Sales	124.7	137.7	+13.0
Royalties and other operating income	22.7	16.6	-6.1
Cost of sales	-63.5	-63.7	-0.2
(cost to sales ratio)	50.9%	46.3%	-4.6%pts
Gross profit	83.9	90.6	+6.7
of which Sales	61.2	74.0	+12.8
Marketing and distribution	-15.9	-15.4	+0.5
Research and development	-20.9	-23.6	-2.7
General and administration	-4.3	-3.7	+0.6
Operating profit	42.8	47.9	+5.1
(operating margin)	29.0%	31.0%	+2.0%pts

Increase in gross profit from sales +12.8

Increase in export to Roche and improvement of cost to sales ratio due to change in product mix

Decrease in royalties and other operating income -6.1

Despite increase in income for Hemlibra, decrease due to one-time income in the previous year from the transfer of long-term listed products

Increase in research and development expenses -2.7

Progress of projects, etc.

vs. Forecast (Core)

Financial Overview Jan - Mar



(Billions of JPY)	Actual		Forecast on Jan. 31	
	2019 Jan - Mar	2019 Jan - Dec	Progress	
Revenues	154.3	592.5	26.0%	
Sales	137.7	528.0	26.1%	
Domestic	99.3	389.1	25.5%	
Overseas	38.4	138.9	27.6%	
Royalties and other operating income	16.6	64.5	25.7%	
Royalty and profit-sharing income	13.7	53.5	25.6%	
Other operating income	2.9	11.0	26.4%	
Cost of sales	-63.7	-252.5	25.2%	
(cost to sales ratio)	46.3%	47.8%		
Gross profit	90.6	340.0	26.6%	
Operating expenses	-42.7	-197.0	21.7%	
Research and development	-23.6	-102.0	23.1%	
Operating profit	47.9	143.0	33.5%	
(operating margin)	31.0%	24.1%		
EPS (JPY)	66.15	198.00	33.4%	

2018 Progress *	Domestic sales
	1Q results slightly above forecast
25.4%	Overseas sales
	Progress nearly in line with forecast
23.6%	Royalty and profit-sharing income
	Income for Hemlibra progressed well in view of the forecast
23.2%	Other operating income
	Progress nearly in line with forecast
24.9%	Cost of sales
	Cost to sales ratio slightly better than forecast
43.7%	Operating expenses
	Progress nearly in line with forecast
20.7%	
63.4%	
24.2%	
26.4%	
21.9%	
22.2%	
32.8%	
32.0%	

Billions of JPY

FX impact	
Jan - Mar 2019 FX impact vs. Assumption	
Revenue	-0.6
Sales	-0.2
Royalties and other operating income	-0.4
Cost of sales	+0.0
Expenses	+0.1
Operating profit	-0.4

* Jan - Mar progress versus Jan - Dec

vs. Forecast (Core)

Sales Progress Jan - Mar



(Billions of JPY)	Actual		Forecast		2018 Progress *1	(Billions of JPY)	Actual		Forecast		2018 Progress *1
	2019 Jan - Mar	2019 Jan - Dec	2019 Jan - Dec	Progress			2019 Jan - Mar	2019 Jan - Dec	Progress		
Sales	137.7	528.0		26.1%	23.6%	Renal	7.9	31.8		24.8%	22.0%
Domestic	99.3	389.1		25.5%	23.2%	Mircera	5.0	20.5		24.4%	21.2%
Oncology	52.0	215.9		24.1%	21.5%	Oxarol	1.6	5.9		27.1%	23.3%
Avastin	21.4	89.4		23.9%	22.0%	Others	15.2	38.3		39.7%	38.9%
Alecensa	4.9	25.1		19.5%	19.4%	Hemlibra	2.7	12.9		20.9%	-
Herceptin	6.2	24.0		25.8%	24.2%	CellCept	2.2	9.0		24.4%	22.2%
Perjeta	5.6	21.2		26.4%	19.9%	Tamiflu(Ordinary use)	4.7	3.4		138.2%	82.2%
Rituxan	3.1	13.5		23.0%	29.1%	Tamiflu(Govt. stockpiles etc.)	3.2	3.2		100.0%	20.0%
Tecentriq	3.7	13.1		28.2%	-	Overseas	38.4	138.9		27.6%	24.9%
Xeloda	2.4	9.4		25.5%	22.4%	Actemra	25.3	84.6		29.9%	29.0%
Kadcyla	2.0	9.1		22.0%	21.2%	Export to Roche	24.9	82.7		30.1%	29.2%
Tarceva	1.2	5.6		21.4%	22.9%	Alecensa	8.4	36.6		23.0%	12.9%
Gazyva	0.6	1.8		33.3%	-	Export to Roche	8.2	36.0		22.8%	12.8%
Alaglio	0.1	0.4		25.0%	33.3%	Neutrogen	2.5	9.5		26.3%	27.0%
Bone and Joint	24.2	103.1		23.5%	21.5%	Hemlibra	0.7	2.4		29.2%	30.4%
Actemra	9.0	38.2		23.6%	20.9%						
Edirol	8.0	35.3		22.7%	21.3%						
Bonviva	2.3	10.9		21.1%	22.3%						
Suvenyl	1.7	6.1		27.9%	21.8%						

*1 Jan - Mar progress versus Jan - Dec



Appendix



IFRS and Core Results Jan - Mar

(Billions of JPY)	IFRS results		Non-core items		Core results	
	2019 Jan - Mar		Intangible assets	Others	2019 Jan - Mar	
Revenues	154.3				154.3	Non-Core items
Sales	137.7				137.7	Intangible assets:
Royalties and other operating income	16.6				16.6	Amortization
Cost of sales	-63.9		+0.2		-63.7	Impairment
Gross profit	90.4		+0.2		90.6	Others
Operating expenses	-44.3		+1.6		-42.7	none
Marketing and distribution	-15.4				-15.4	Core net income
Research and development	-25.1		+1.6		-23.6	attributable to Chugai
General and administration	-3.7				-3.7	shareholders
Operating profit	46.1		+1.8		47.9	36.3
Financing costs	-0.0				-0.0	(Millions of shares)
Other financial income (expense)	0.2				0.2	Weighted average number
Other expense	-0.8				-0.8	of shares in issue used to
Profit before taxes	45.4		+1.8		47.2	calculate diluted earnings per
Income taxes	-10.4		-0.5		-10.9	share
Net income	35.0		+1.2		36.3	548
Chugai shareholders	35.0		+1.2		36.3	(JPY)
						Core EPS
						66.15



Early Retirement Incentive Program

Background

- Advent of a severe market environment, e.g. growing difficulty of new drug development and the fundamental reform of the drug pricing system in Japan, etc.
- Reform of business activities associated with advances in technology including digitalization, etc.

Purpose

- Support for employees who, due to the diversification of views on employment and lifestyles, are considering early retirement to make a new life plan
- Address the Company's management issues in the fast and dramatically changing business environment

Outline

Eligible employees	Employees aged 45 or over (Detailed criteria are specified separately)
Application period	From April 1, 2019 to April 19, 2019
Retirement Date	June 30, 2019
Number of applicants	172 employees
Incentives	(i) Special additional allowance on top of regular retirement allowance and (ii) reemployment support services
Impact on financial performance	Special additional allowance and other expenses related to this program of approximately JPY 5.1 billion as Non-Core *Slight impact on the forecast for FY2019 consolidated core results

vs. Forecast (Core)

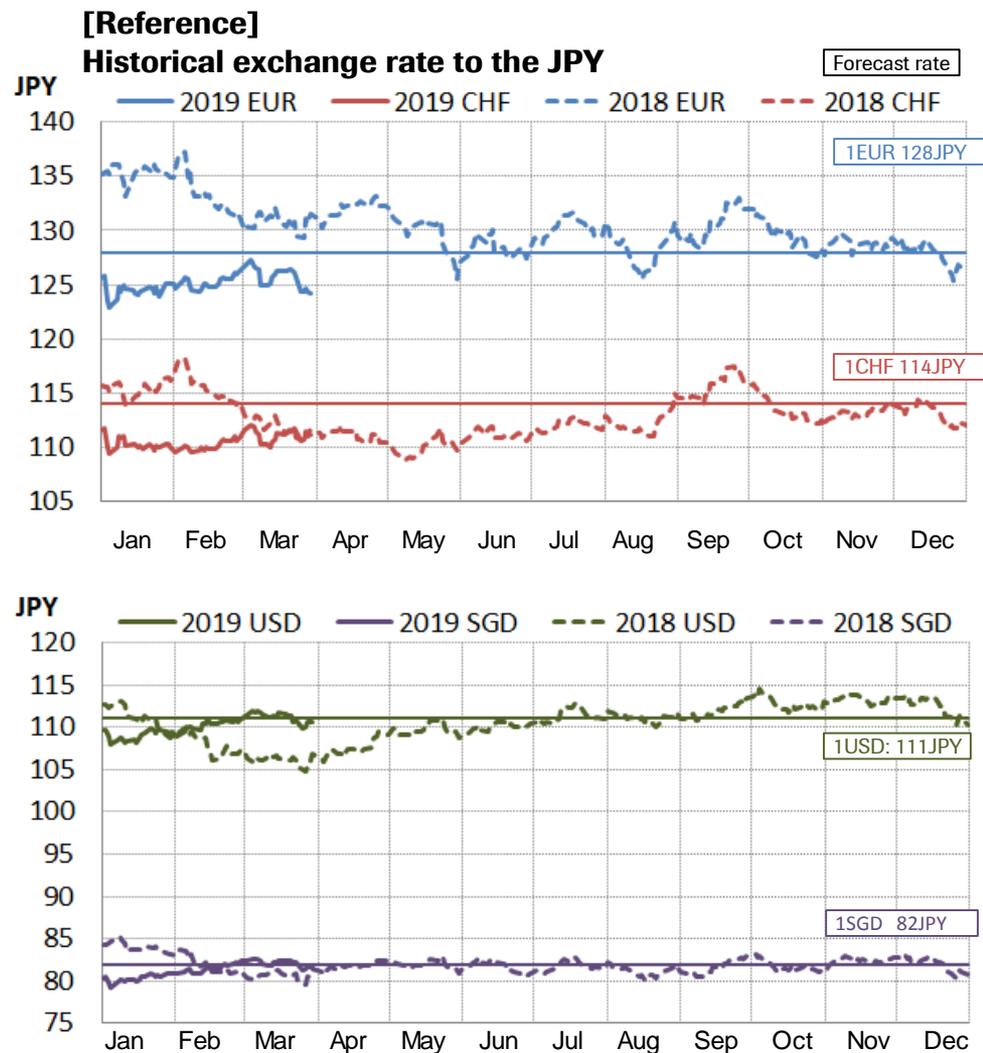


Impact from Foreign Exchange

(Billions of JPY)	FX impact Jan – Mar 2019 (FX impact vs. Assumption)	
Revenues	-0.6	
	Sales	-0.2
	Royalties and other operating income	-0.4
Cost of sales	Cost of sales	+0.0
Operating expenses	Expenses	+0.1
Operating profit	-0.4	

Actual / Forecast rate* (JPY)	2018 Jan - Mar Actual	2019 Jan - Dec Assumption	2019 Jan - Mar Actual
1CHF	114.33	114.00	110.52
1EUR	133.17	128.00	125.17
1USD	108.40	111.00	110.18
1SGD	82.16	82.00	81.32

* Actual: market average exchange rate for the period Jan - Mar



vs. 2018 Year End



Overview of Financial Position

(Billions of JPY)	2018 Dec	2019 Mar	Change
Trade accounts receivable	150.8	149.6	- 1.2
Inventories	159.4	168.7	+ 9.3
Trade accounts payable	-35.9	-54.9	- 19.0
Other net working capital *1	-39.1	-19.1	+ 20.0
Net working capital	235.1	244.3	+ 9.2
Property, plant and equipment	222.4	222.1	- 0.3
Right-of-use assets	-	12.5	+ 12.5
Intangible assets	22.7	21.9	- 0.8
Other long-term assets - net *2	25.1	27.9	+ 2.8
Long-term net operating assets	270.1	284.3	+ 14.2
Net operating assets	505.3	528.6	+ 23.3
Debt	-0.2	-	+ 0.2
Marketable securities	102.5	111.5	+ 9.0
Cash and cash equivalents	146.9	125.8	- 21.1
Net cash	249.2	237.4	- 11.8
Other non-operating assets - net *3	2.1	-5.5	- 7.6
Net non-operating assets	251.3	231.8	- 19.5
Total net assets	756.5	760.5	+ 4.0
Total assets	919.5	932.2	+ 12.7
Total liabilities	-163.0	-171.8	- 8.8

*1 Accrued receivable, accrued payable, accrued expenses, etc.

*2 Long-term prepaid expenses, long-term provisions, etc.

*3 Deferred tax assets, corporate income tax payable, etc.

Increase in net working capital	+9.2
Increase in inventories	+9.3
Increase in trade accounts payable	-19.0
Increase in other net working capital	+20.0
Royalties for Hemlibra and settlement of long-term prepaid expenses for outsourcing manufacturing, etc.	
Increase in long-term net operating assets	+14.2
Increase in right-of-use assets	+12.5
Adoption of IFRS16	
Increase in Other long-term assets	+2.8
Decrease in net cash	-11.8
Decrease in other non-operating assets - net	-7.6
Increase in lease liabilities by adoption of IFRS16, etc.	
Equity ratio attributable to Chugai shareholders	-0.6% pts.
End of March 2019	81.6%
End of December 2018	82.2%

FX rate to the JPY
(end of period)

	2018 Dec	2019 Mar
1CHF	112.03	111.11
1EUR	126.13	124.15
1USD	110.28	110.64
1SGD	80.70	81.56

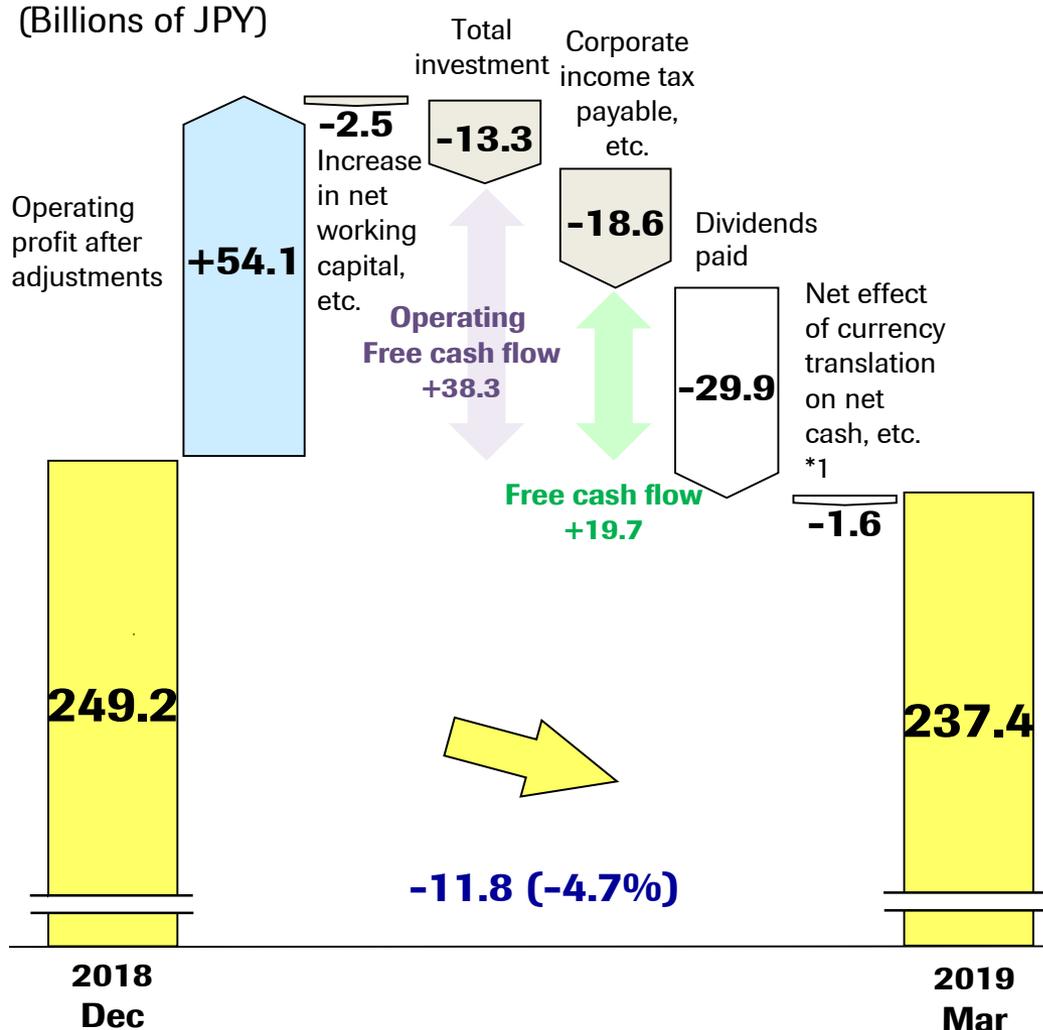
vs. 2018 Year End

Net Cash



Roche Roche Group

(Billions of JPY)



Operating profit after adjustment	+54.1
Operating profit	+46.1
Depreciation and impairment for property, plant and equipment	+3.7
Depreciation and impairment for right-of-use assets	+1.5
Amortization and impairment for intangible assets	+2.1
Other adjustments for operating profit	+0.8
Increase in net working capital, etc.	-2.5
Total investment	-13.3
Property, plant and equipment	-7.4
Payment for lease liabilities	-2.2
Intangible assets	-3.8
Operating free cash flow	+38.3
Corporate income tax payable, etc.	-18.6
Free cash flow	+19.7
Dividends paid	-29.9
Net effect of currency translation on net cash, etc.	-1.6

*1 Net effect of currency transactions on net cash, etc. = Transaction in own equity instruments + Purchase of non-controlling interests + Net effect of currency translation on net cash(*2)

*2 Results from using different types of exchange rates when consolidating overseas subsidiaries in financial statements, i.e. net cash using end of period exchange rate and free cash flow using average exchange rate. (Chugai defines this term based on International Accounting Standard (IAS) 7 and IAS 21)

Emphasis on Core ROIC as a Long-term Indicator for Investment Efficiency



From 2019, Core ROIC is emphasized as the management indicator (internal KPI) to realize sustained growth in profits and improved corporate value while actively making investments for future growth.

Sustained growth in profits / Improvement of corporate value



	← JGAAP		IFRS →						
[Billions of JPY]	2011	2012	2013	2014	2015	2016	2017	2018	2019
	Actual	Actual	Actual	Actual	Actual	Actual	Actual	Actual	Forecast
Revenue	372.1	386.6	423.7	461.1	498.8	491.8	534.2	579.8	592.5
Core OP	65.8	75.6	79.9	77.3	90.7	80.6	103.2	130.3	143.0
Core EPS(JPY)	83.27	85.64	94.69	95.04	116.42	102.50	138.68	176.42	198.00

Short-term Objectives

Medium-term Objectives

Sunrise 2012 results
 Revenue: 391.2 billion yen
 Operating profit: 76.4 billion yen
 Operating margin: 19.5%

ACCEL 15 results
 Core EPS CAGR* (2012-2015)
 18.3%**

IBI 18 results
 Core EPS CAGR* (2015-2018)
 17.1%**

IBI 21 forecast
 Core EPS CAGR* (2018-2021)
 High single digit**

Long-term Objectives

Core ROIC
 (actual results to be disclosed)

Objectives and Purposes for Implementation of Core ROIC



ROIC and Economic Value Added

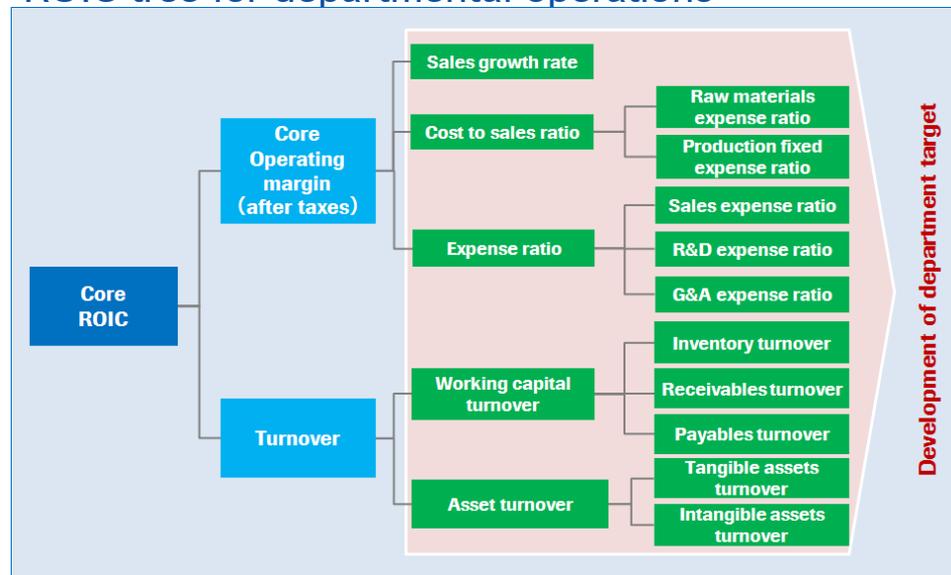
$$\text{Economic Value Added} \uparrow = \text{IC} \times (\text{ROIC} \uparrow - \text{WACC})$$

IC: Invested Capital **ROIC:** Return on Invested Capital (= R/IC)
R: Return

Investments for future growth

- ✓ **Progress in discovery of middle molecule drugs and evolution of antibody engineering technologies**
- ✓ **Enhancement of new capabilities (e.g. digital technology) for growth**
- ✓ **Construction of a new laboratory and enlargement of production facilities**

ROIC tree for departmental operations



- **Improvement of corporate value**
 - Improvement of ROIC brings additional economic value, and eventually improves corporate value.
- **Effectiveness as management indicator for efficiency of invested capital during investment phase**
 - Maintains a certain level of efficiency during the concentrated investment phase, and over the mid- to long-term clarifies the improvement targeted through the investment effect
- **Potential for implementation as KPI at the department level**
 - Each department can set and control its KPI indicator and its target by implementing the ROIC tree.

Definition and actual results of Core ROIC



- Profit: **Core operating profit (after taxes)**
- Investment capital: **NOA (Net Operating Assets)**

Adoption of asset side to raise consciousness in departments about the efficient control of investment capital

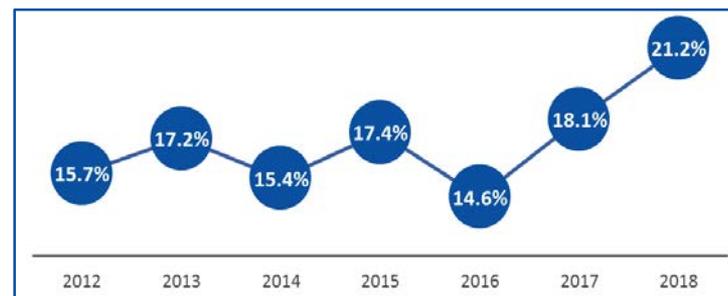
【Billions of JPY】	2012 Dec	2013 Dec	2014 Dec	2015 Dec	2016 Dec	2017 Dec	2018 Dec
Core operating profit (after taxes)	49.4	54.4	52.7	64.4	59.3	78.6	100.1
Net operating assets	307.9	325.2	357.7	380.4	431.1	440.2	505.3
Non-operating assets_net	221.3	248.0	240.0	246.8	215.4	252.7	251.3
Net cash	211.7	234.4	229.9	235.4	204.9	242.8	249.2
Other non-operating assets-net	9.6	13.6	10.2	11.5	10.5	9.9	2.1
Total net assets	529.2	573.2	597.8	627.3	646.5	692.9	756.5

【Core ROIC Formula / Actual results】

**Core operating profit
(after taxes)**

(opening NOA + ending NOA) ÷ 2

*Balance of NOA is the average of opening and ending balances.



Overview of Development Pipeline

CHUGAI PHARMACEUTICAL CO., LTD.
Department Manager of R&D Portfolio
Management Dept., Project & Lifecycle
Management Unit
Dr. Minoru Hirose

April 24, 2019



Projects under Development (1)

As of April 24, 2019

	Phase I	Phase II	Phase III		Filed
Oncology	<p>CKI27 - solid tumors</p> <p>GC33 / codrituzumab - HCC★</p> <p>ERY974 - solid tumors</p> <p>RG7421 / cobimetinib - solid tumors</p> <p>RG7802 / cibisatamab - solid tumors</p> <p>RG7828 / mosunetuzumab - hematologic tumors</p>		<p>RG3502 / Kadcyła - breast cancer (adjuvant)</p> <p>RG435 / Avastin - RCC - HCC</p> <p>RG7440 / ipatasertib - prostate cancer - breast cancer</p> <p>RG7596 / polatuzumab vedotin - DLBCL</p> <p>RG6264 (Herceptin+Perjeta) - breast cancer (Fixed-dose combination, subcutaneous injection)</p>	<p>AF802 (RG7853) / Alecensa - NSCLC (adjuvant)</p> <p>RG7446 / Tecentriq - NSCLC (adjuvant) - urothelial carcinoma - MIUC (adjuvant) - RCC - RCC (adjuvant) - early breast cancer - ovarian cancer - prostate cancer - HCC - HNC (adjuvant)</p>	<p>RG7446 / Tecentriq - breast cancer - SCLC</p> <p>RG6268 / entrectinib - solid tumors - NSCLC ★</p>
Bone & Joint			<p>NRD101 / Suvenyl (China) - knee osteoarthritis/shoulder periarthritis</p>		<p>ED-71 / Ediolol (China) - osteoporosis</p>
Renal	<p>EOS789 - Hyperphosphatemia</p>				

In principle, completion of first dose is regarded as the start of clinical studies in each phase.

HCC: hepatocellular carcinoma
 NSCLC: non-small cell lung cancer
 SCLC: small cell lung cancer
 MIUC: muscle invasive urothelial carcinoma

RCC: renal cell carcinoma
 DLBCL: diffuse large B-cell lymphoma
 HNC: head and neck carcinoma

Letters in orange: in-house projects

★: Projects with advances in stages since January 31, 2019

★: Multinational study managed by Chugai

Projects under Development (2)



As of April 24, 2019

	Phase I	Phase II	Phase III	Filed
Autoimmune	RG7845 / fenebrutinib - rheumatoid arthritis		MRA (RG1569) / Actemra - systemic sclerosis	
Neurology	RG7935 / prasinezumab - Parkinson's disease GYM329 (RG6237) - neuromuscular disease RG7906 - psychiatric disorders RG6100 (anti-tau MAb) - Alzheimer's disease ★		RG1450 / gantenerumab - Alzheimer's disease SA237 (RG6168) / satralizumab - NMOSD ★ RG6042 (HTT ASO) - Huntington's disease ★ RG6206 (anti-myostatin adnectin) - DMD (PII/III) RG7916 / risdiplam - spinal muscular atrophy(PII/III)	
Others	PCO371 - hypoparathyroidism AMY109 - endometriosis	CIM331 / nemolizumab* - pruritus in dialysis patients SKY59 (RG6107) / crovalimab - paroxysmal nocturnal hemoglobinuria (PI/II)	RG7716 / faricimab - DME - wAMD ★	

In principle, completion of first dose is regarded as the start of clinical studies in each phase.

wAMD: wet age-related macular degeneration DME: diabetic macular edema DMD: Duchenne muscular dystrophy
 NMOSD: neuromyelitis optica spectrum disorder
 HTT ASO: Antisense oligonucleotide targeting *HTT* mRNA

Letters in orange: in-house projects

★: Projects with advances in stages since January 31, 2019

★: Multinational study managed by Chugai

* Atopic dermatitis is under development by licensees [Galderma (overseas) and Maruho (Japan)]



Key News Flows in Q1

Approved	Hemlibra (Europe)	Hemophilia A (non-inhibitor)	March, 2019
	Actemra (Japan)	Cytokine Release Syndrome	March, 2019
	Rituxan	CD20+ CLL	March, 2019
Filed	entrectinib	ROS 1+ NSCLC	March, 2019
	F1 CDx	CDx for entrectinib	January, 2019
	F1 CDx	CDx for Lynparza	March, 2019
Phase Transitions	faricimab	Wet age-related macular degeneration	Global Phase 3 study
New to Pipeline	HTT ASO	Huntington's disease	Global Phase 3 study
	anti-tau MAb	Alzheimer's disease	Phase 1 study
Development Discontinued	crenezumab	Alzheimer's disease	-
Late-stage Readouts	Suvenyl (China)	Knee osteoarthritis /Shoulder peri-arthritis	Phase 3 study
	nemolizumab* (Japan)	Atopic dermatitis	Phase 3 study
Medical Conference	nemolizumab* (overseas)	Atopic dermatitis (Phase 2b)	American Academy of Dermatology
Others	risdiplam	Spinal muscular atrophy	Orphan Drug Designation

CLL: Chronic Lymphocytic Leukemia / NSCLC: Non-small cell lung cancer

F1 CDx: FoundationOne CDx Cancer Genomic Profile

HTT ASO: Antisense oligonucleotide targeting *HTT* mRNA

* Atopic dermatitis is under development by licensees [Galderma (overseas) and Maruho (Japan)]

Letters in orange: in-house projects



RG6042 (HTT ASO) (1)

Antisense oligonucleotide targeting *HTT* mRNA

Huntington's Disease

- Cause: Autosomal dominant genetic disease due to mutation in Huntingtin (HTT) gene
- Symptoms: Involuntary movements (mainly jerky movements), psychiatric symptoms and dementia
- Age of onset: 40s*
- Disease duration: 10-20 years
- Treatment: No definitive treatment, symptomatic treatment is common
- Causes of death: Poor nutrition, infection, asphyxia and injury, etc.
- Number of patients in Japan (number of people who received certificates issued for specific disease treatment as of 2014): 933

Source: Huntington's disease (Designated incurable disease 8), Japan Intractable Diseases Information Center WEB site

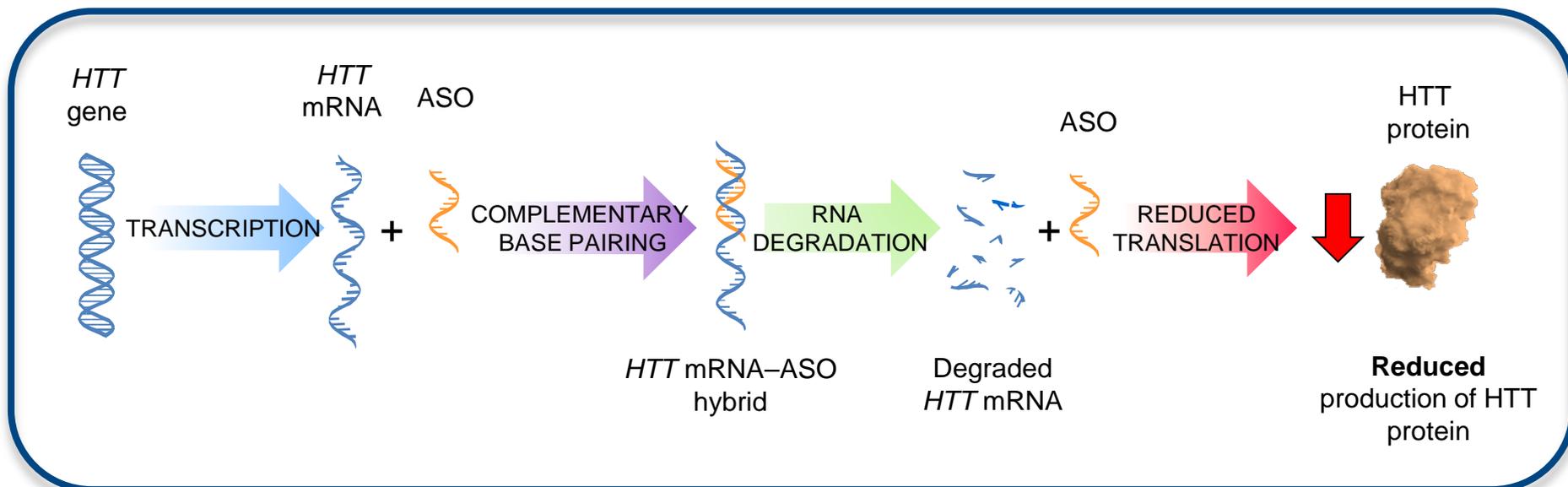
* Nat. Rev. Neurol. 10, 204–216 (2014)

RG6042 (HTT ASO) (2)

Antisense oligonucleotide targeting *HTT* mRNA

Mode of Action

- HTT ASO, antisense oligonucleotide (ASO), is complementary to *HTT* mRNA and reduces HTT protein based on degradation of the mRNA by RNase H.
- HTT ASO is expected to slow/stop clinical progression of Huntington's Disease.



RG6100 (Anti-Tau IgG4 Monoclonal Antibody)

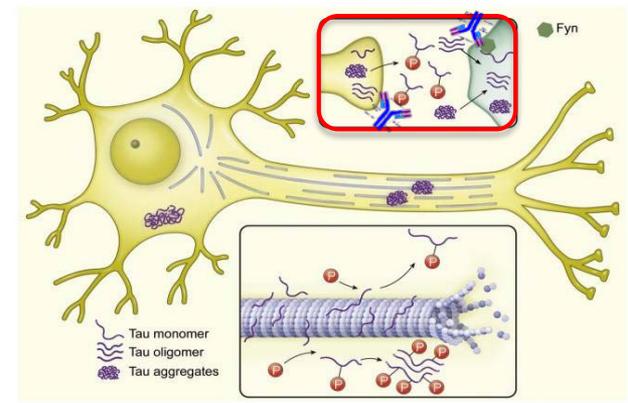
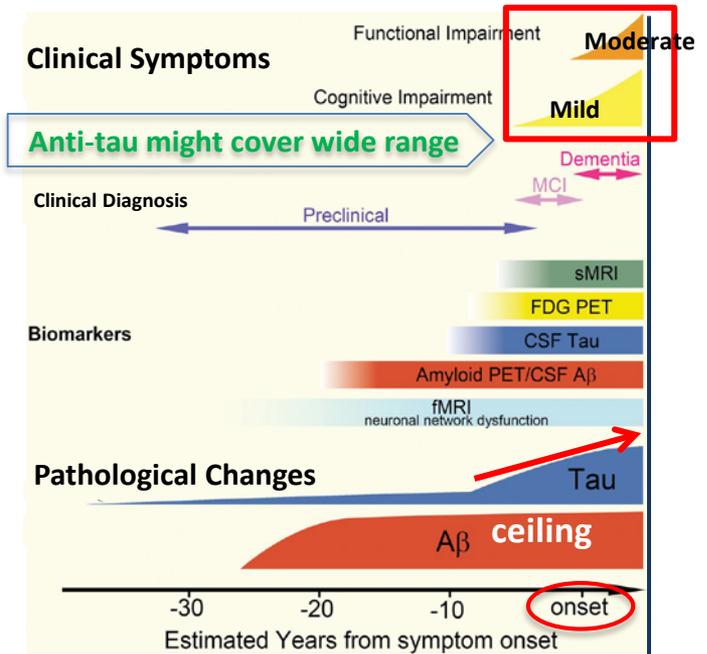


Scientific Background

- Under normal physiological conditions, tau protein stabilizes microtubules, promotes microtubule assembly, and contributes to neuronal integrity.
- Tau pathology, characterized by aggregated tau protein, is a pathological hallmark of AD and other tau-related neurodegenerative diseases.
- Pathological tau appears to propagate from cell to cell, in a prion-like manner, via the extracellular space.
- Tau pathology spreads with a characteristic spatiotemporal pattern of propagation throughout the brain, coinciding with clinical burden and disease progression in AD.

Mode of Action

- RG6100 demonstrated binding to multiple isoforms of the tau protein.
- RG6100 is designed to bind tau in the extracellular space of the brain, and intercept the cell-to-cell propagation of pathological tau.



OBP-301 / Telomelysin

Oncolytic Viral Immunotherapy created by Oncolys BioPharma

Mode of Action

- OBP-301 is a genetically modified type 5 adenovirus which can specifically replicate in and destroy cancer cells.
- OBP-301 may induce strong anti-tumor activity after causing oncolysis by specific replication in cancer cells with high telomerase activity.
- OBP-301 has extremely low replication ability in normal cells.

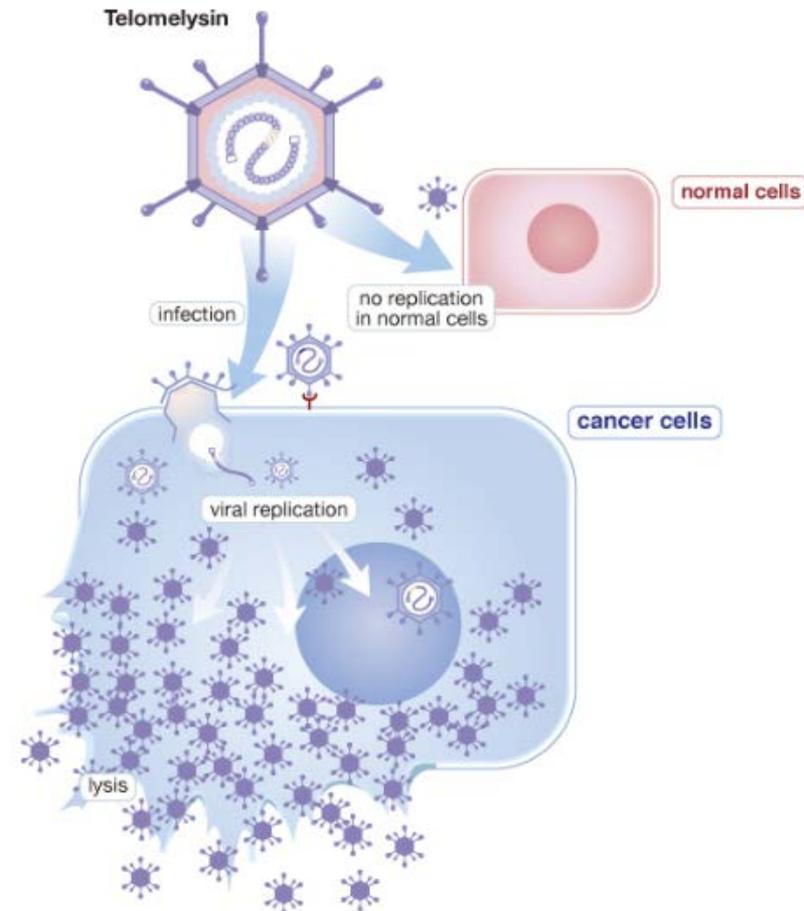
Major Developments in Progress

【Japan】

- Esophageal cancer (combo with radiotherapy): Phase I
- *SAKIGAKE* designation: April 2019

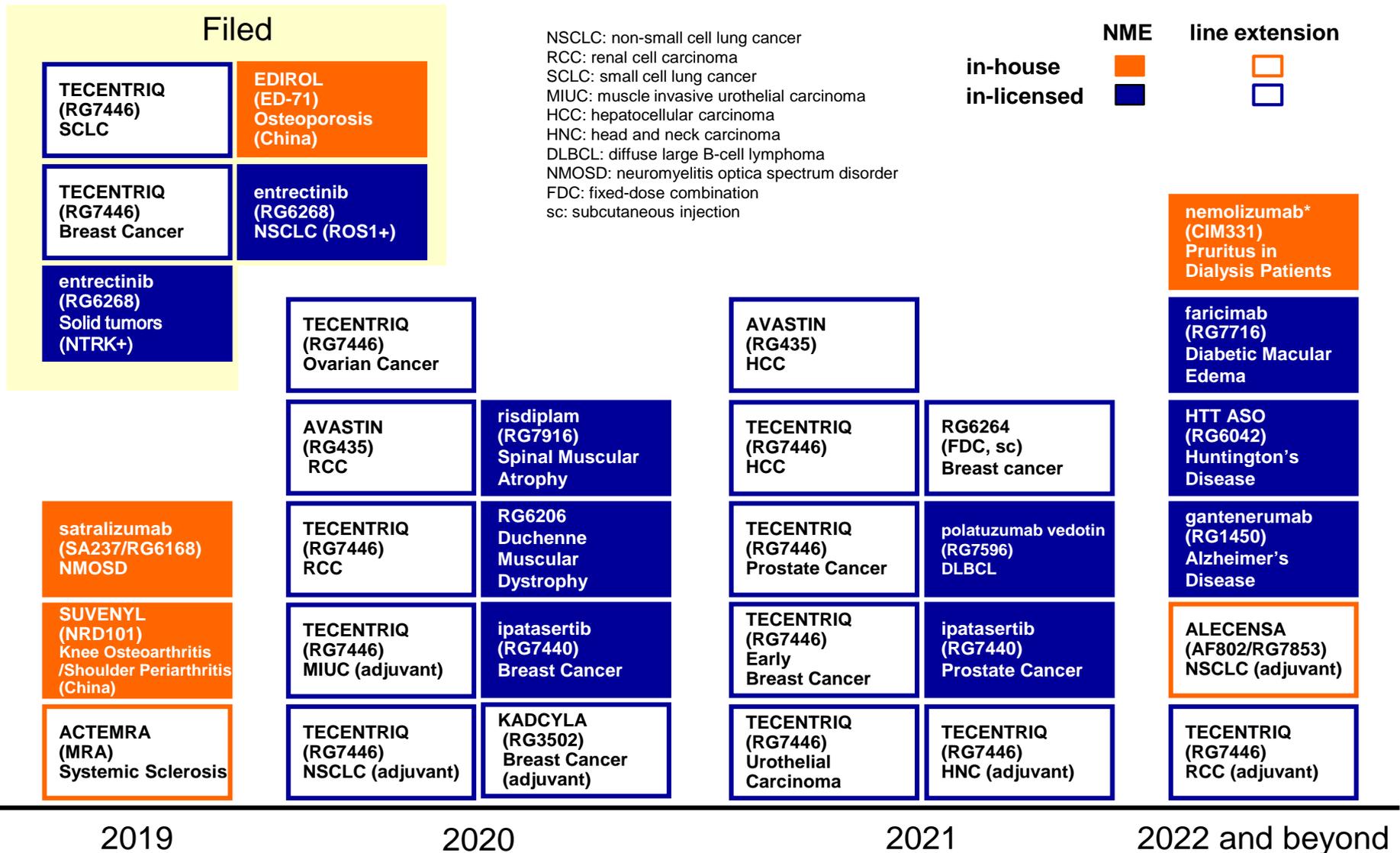
【Overseas】

- Melanoma (monotherapy): Phase II (US)
- Hepatocellular carcinoma (monotherapy): Phase I/II (South Korea, Taiwan)



Projected Submissions (Post PoC NMEs and Products)

as of April 24, 2019



NSCLC: non-small cell lung cancer
 RCC: renal cell carcinoma
 SCLC: small cell lung cancer
 MIUC: muscle invasive urothelial carcinoma
 HCC: hepatocellular carcinoma
 HNC: head and neck carcinoma
 DLBCL: diffuse large B-cell lymphoma
 NMOSD: neuromyelitis optica spectrum disorder
 FDC: fixed-dose combination
 sc: subcutaneous injection

NME ■ **line extension**
in-house ■
in-licensed ■

*Atopic dermatitis is under development by licensees [Galderma (overseas) and Maruho (Japan)]

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