

TRANSLATING SCIENCE INTO HIGHLY INNOVATIVE LIFE-CHANGING MEDICINES



Andy Plump MD, PhD

President R&D

Takeda Pharmaceutical Company Limited

Tokyo

November 21, 2019

Better Health, Brighter Future

WHAT YOU WILL HEAR TODAY



1

Our portfolio and pipeline will drive growth and offset key patent expirations

2






We are investing in novel mechanisms and capabilities for a sustainable future

3

We have cultivated an environment of empowerment, accountability and agility

WE ARE POSITIONED TO DELIVER NEAR-TERM & SUSTAINED GROWTH



TARGET APPROVAL	WAVE 1 ¹					WAVE 2 ²						
	CLINICAL-STAGE NMEs					PLATFORMS						
	FY20	FY21	FY22	FY23	FY24	FY25 AND BEYOND						
 ONCOLOGY		TAK-788 ³ 2L NSCLC		TAK-007 Hematologic malignancies	TAK-924 AML	TAK-164 GI malignancies	TAK-252 Solid tumors		CELL THERAPY AND IMMUNE ENGAGERS	TARGETED INNATE IMMUNE MODULATION	NEXT-GEN CHECKPOINT MODULATORS	
		TAK-924 ³ HR-MDS		TAK-788 1L NSCLC		TAK-573 R/R MM	TAK-981 Multiple cancers					
 RARE DISEASES <i>Immunology Hematology Metabolic</i>		TAK-620 CMV infect. in transplant		TAK-611 MLD (IT)	TAK-607 Complications of prematurity	TAK-079 ⁴ MG, ITP	TAK-754 HemA	TAK-755 iTTP, SCD	GENE THERAPY			
		TAK-609 Hunter CNS (IT)		TAK-755 cTTP		TAK-531 Hunter CNS						
 NEUROSCIENCE				TAK-935 DEE	Orexin2R-ag (TAK-925/994) Narcolepsy T1	TAK-341 Parkinson's Disease	Orexin2R-ag Sleep Disorders	TAK-041 CIAS NS	GENE THERAPY	OTHER PLATFORMS RNA Modulation Antibody Transport Vehicle		
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 GASTRO-ENTEROLOGY	TAK-721 EoE					Kuma062 Celiac Disease	TAK-101 Celiac Disease	TAK-018 Crohn's Disease (post-op and ileitis)	TAK-671 Acute Pancreatitis	GENE THERAPY	MICROBIOME	CELL THERAPY
						TAK-954 POGD	TAK-906 Gastroparesis	TAK-951 Nausea & vomiting				
 VACCINES		TAK-003 Dengue Vaccine				TAK-214 Norovirus Vaccine	TAK-426 Zika Vaccine	TAK-021 EV71 vaccine				

1. Projected timing of approvals depending on data read-outs; some of these Wave 1 target approval dates assume accelerated approval

2. Some Wave 2 assets could be accelerated into Wave 1 if they have breakthrough data

3. Projected approval date assumes filing on Phase 2 data

4. TAK-079 to be developed in Rare Diseases indications myasthenia gravis (MG) and immune thrombocytopenic purpura (ITP) (FPI projected in each indication in 2H FY19)

Orphan potential in at least one indication
Estimated dates as of November 14, 2019

2

2019: A WATERSHED YEAR FOR TAKEDA



INTEGRATION OF SHIRE

- 18 assets added to the clinical pipeline*
- Creation of a Rare Diseases Therapeutic Area
- Access to world-class Gene Therapy capabilities



EXPANSION OF OUR GLOBAL BRANDS

- VARSITY study demonstrated head-to-head superiority of Entyvio vs adalimumab and published in New England Journal of Medicine
- TAKHZYRO indication expansions in bradykinin mediated angioedema
- Expecting >15 approvals in China over the next 5 years



UNPRECEDENTED NMEs

- 17 NMEs in Phase 2 and Phase 3
- Potentially curative novel mechanisms (e.g. TAK-101, Orexin2R-ag, CAR-NK)
- Momentum in Cell Therapies, including new partnership with MD Anderson

* Including approved products with ongoing R&D investment

3

PATIENT-DRIVEN AND SCIENCE-FIRST IN 3 CORE AREAS



INNOVATIVE BIOPHARMA



PLASMA DERIVED THERAPIES



Complementing our rare disease focus

VACCINES BUSINESS UNIT



Differentiated Dengue vaccine

4

WE ARE DOING MORE FOR OUR PATIENTS



8



POTENTIAL BIC/FIC NMEs IN PIVOTAL STUDIES¹



~40

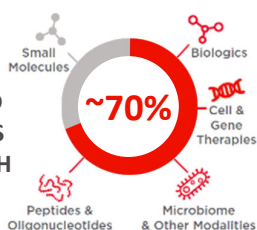
NEW MOLECULAR ENTITY CLINICAL STAGE ASSETS

~4,500

R&D EMPLOYEES GLOBALLY



DIVERSIFIED MODALITIES IN RESEARCH



PIPELINE WITH ORPHAN DRUG DESIGNATION²



200+

ACTIVE PARTNERSHIPS

1. BIC/FIC Best-In-Class/First-In-Class (incl. relugolix). Three NMEs in pivotal studies in 2018
2. 31 Orphan Drug Designations in at least one indication for assets in Phase 1 through LCM in 2019 versus 15 in 2018

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WE ARE TAKING COURAGEOUS RISKS TO MAKE A CRITICAL DIFFERENCE

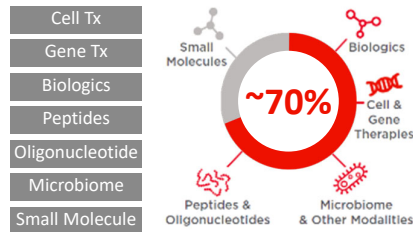
"There is a considerable need for improved treatments for individuals with NT1, which is caused by the loss of orexin-producing neurons in the brain"



Dr. Makoto Honda, Sleep Disorders Project Leader,
Tokyo Metropolitan
Institute of Medical Science

Data presented at World Sleep conference

**NOVEL TARGET
MECHANISMS WITH
HUMAN VALIDATION**



**MODALITY
DIVERSIFICATION**

5 Accelerated programs

20 NME stage-ups since FY18

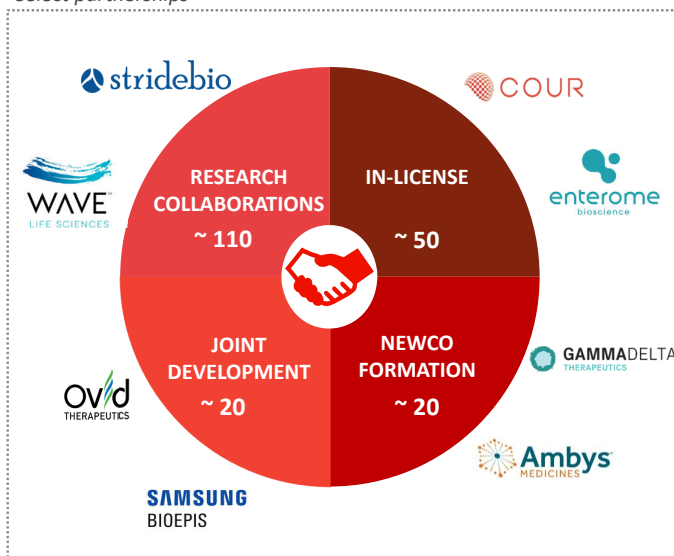
19 Indications terminated or externalized since FY18

**FAST GO / NO-GO
DECISION MAKING**

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WE ARE CULTIVATING THE BEST SCIENCE THROUGH DIFFERENTIATED PARTNERSHIPS...

Select partnerships*



* Externalizations and venture investments are not included

Access to Innovation

Risk-Sharing

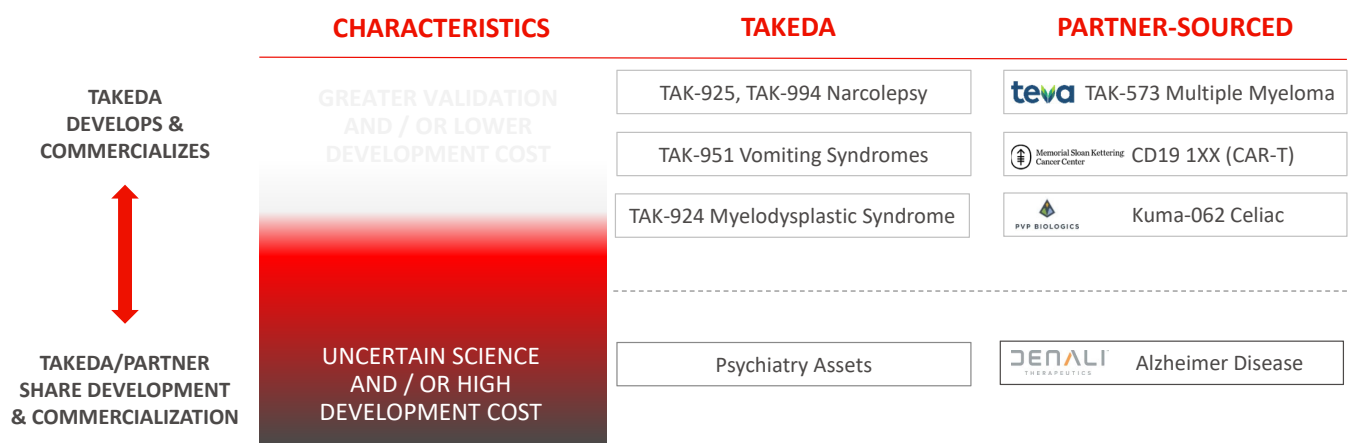
Expanding Capacity

Total Value in Public & Private Equity

>\$1B

7

WE ARE NURTURING INNOVATION WHEREVER IT OCCURS



Representative examples only

8

TO DRIVE HIGHER RETURN ON OUR \$4.5B ANNUAL R&D INVESTMENT



PRIORITIZED R&D PORTFOLIO

FLEXIBLE R&D FUNDING MODEL

BALANCED SPEND

Minimize internal spend and infrastructure

TARGETED POPULATIONS

Smaller trials, lower costs, potential longer exclusivity

PARTNERSHIP MODEL

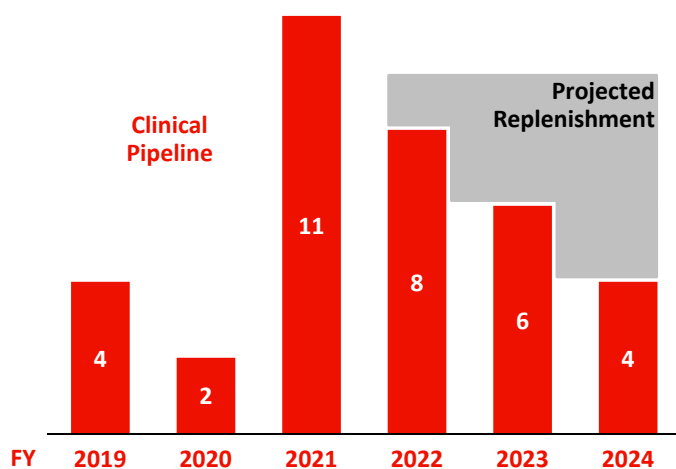
Success driven milestone payments

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A RESEARCH ENGINE FUELING A SUSTAINABLE PIPELINE



POTENTIAL NME PIVOTAL STUDY STARTS BY YEAR



IMPROVED PRODUCTIVITY

- Research momentum building with a projected ~18 portfolio entries in FY19
- Productivity likely to increase with expansion of cell and gene therapy capabilities
- Leveraging partnerships to access the best clinical or preclinical innovation

PIPELINE INVESTMENTS SUPPORTING NEAR-TERM GROWTH



WAVE 1

INNOVATIVE EXPANSIONS

NEW MOLECULAR ENTITIES

WE ARE DRIVING EXPANSION OF OUR GLOBAL BRANDS



SELECT GLOBAL GROWTH BRANDS

TAU	Therapies	New Indications / Geographic Expansions	Target (FY)
ONC	ALUNBRIG brigatinib	1L Non Small Cell Lung Cancer	2020
	NINLARO (ixazomib) capsules	ND MM Maintenance (non-SCT and post-SCT)	2020 / 2022
Rare	TAKHZYRO (lanadelumab-lygi) injection	Bradykinin Mediated Angioedema	2024
	vonvendi *	Prophylactic Treatment of von Willebrand Disease	2021
GI	Entyvio vedolizumab	Ulcerative Colitis, Crohn's Disease (subcutaneous formulation)	2019 / 2020
		Graft versus Host Disease (prophylaxis)	2022
	ALOFISEL	Complex Perianal Fistulas	2021

SELECT REGIONAL EXPANSIONS

Region	Therapies	Region	Therapies
China	Entyvio vedolizumab ALUNBRIG brigatinib TAKHZYRO (lanadelumab-lygi) injection VPRIV velaglucerase alfa for injection ADYNOVATE [Antihemophilic Factor (Recombinant), PEGylated]	Japan	Takecab relugolix, cabozantinib, niraparib

ND MM: newly diagnosed multiple myeloma
SCT: stem cell transplant

* VONVENDI is emerging as a global brand
Estimated dates as of November 14, 2019

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WAVE 1 NEW MOLECULAR ENTITIES HAVE POTENTIAL TO DELIVER >\$10B AGGREGATE PEAK SALES...



TARGET APPROVAL ¹	FY20	FY21	FY22	FY23	FY24
ONCOLOGY		TAK-788² 2L NSCLC		TAK-007 Hematologic malignancies	TAK-924 AML
		TAK-924² HR-MDS		TAK-788 1L NSCLC	
RARE DISEASES Immunology Hematology Metabolic		TAK-620 CMV infect. in transplant		TAK-611 MLD (IT)	TAK-607 Complications of prematurity
		TAK-609 Hunter CNS (IT)		TAK-755 cTTP	
NEUROSCIENCE				TAK-935 DEE	Orexin2R-ag (TAK-925/994) Narcolepsy T1
GASTRO-ENTEROLOGY	TAK-721 EoE				
VACCINES		TAK-003 Dengue Vaccine			

14 potential NME launches which represent best-in-class or first-in-class therapies to advance patient standard of care

Peak sale estimate of >\$10B is non-risk adjusted

1. Projected timing of approvals depending on data read-outs; some of these Wave 1 target approval dates assume accelerated approval
2. Projected approval date assumes filing on Phase 2 data






Orphan potential in at least one indication
Estimated dates as of November 14, 2019

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...AND ARE EXPECTED TO DELIVER LIFE-CHANGING MEDICINES



POTENTIAL FIRST-IN-CLASS OR BEST-IN-CLASS NMEs

				TARGET APPROVAL DATE (FY) ¹	ADDRESSABLE POPULATION (IN US) ²	ADDRESSABLE POPULATION (WW) ^{2,3}
 ONCOLOGY	● TAK-788	EGFR inhibitor (exon 20)	NSCLC – 2L / 1L	2021 ⁴ / 2023	~2k	~20 - 30k
	● pevonedistat (TAK-924)	NAE inhibitor	HR-MDS / AML	2021 ⁴ / 2024	~7k / ~12k	15 - 20k / 20 - 25k
	TAK-007	CD19 CAR-NK	Hematologic malignancies	2023	~9k	~15 - 25k
 RARE DISEASES <i>Immunology Hematology Metabolic</i>	● TAK-609	ERT / I2S replacement	Hunter CNS (IT)	2021	~250	~1 - 1.5k
	● maribavir (TAK-620)	UL97 kinase inh	CMV infect. in transpl.	2021	~7 - 15k	~25 - 45k
	TAK-607	IGF-1/ IGFBP3	Complications of prematurity	2024 ⁵	~25k	~80 - 90k
	TAK-611	ERT / arylsulfatase A	MLD (IT)	2023	~350	~1 - 2k
	● TAK-755	ERT/ ADAMTS-13	cTTP / iTTP	2023 / 2025	~500 / ~2k	2 - 6k / 5 - 18k
 NEUROSCIENCE	Orexin programs	Orexin 2R agonist	Narcolepsy Type 1	2024	70 - 140k	300k - 1.2M
	TAK-935	CH24H inhibitor	Developmental and Epileptic Encephalopathies (DEE)	2023	~50k	~70 - 90k
 GASTRO-ENTEROLOGY	● TAK-721	Oral anti-inflammatory	Eosinophilic Esophagitis	2020	~150k	<i>Under evaluation</i>
 VACCINES	● TAK-003	Vaccine	Dengue	2021	~32M	~1.8B

1. Projected timing of approvals depending on data read-outs; some of these target approval dates assume accelerated approval

2. Estimated number of patients projected to be eligible for treatment in markets where the product is anticipated to be commercialized, subject to regulatory approval

3. For TAK-788, TAK-924, TAK-007, TAK-607 and TAK-620 the addressable population represent annual incidence

4. Projected approval date assumes filing on Phase 2 data

5. Currently in a non-pivotal Ph 2; interim stage gates may advance program into pivotal trial for target approval by 2024

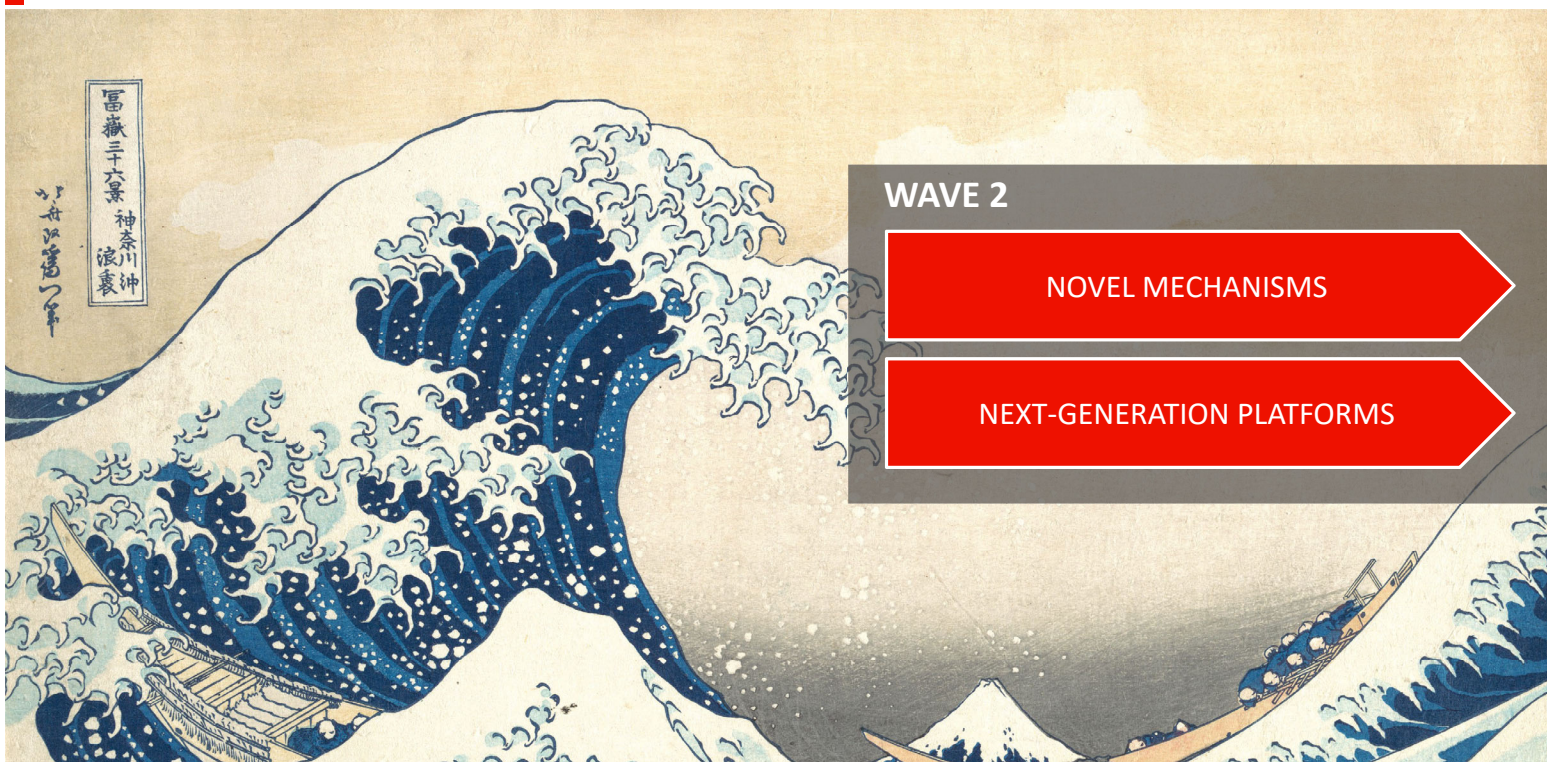
● Currently in pivotal study or potential for registration enabling Ph-2 study (note: table excludes relugolix)

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IN SUMMARY: ROBUST NEAR-TERM GROWTH



SUSTAINED GROWTH BEYOND FY25



WAVE 2

NOVEL MECHANISMS






NEXT-GENERATION PLATFORMS

DRIVEN BY A CLINICAL PIPELINE OF NOVEL MECHANISMS...



TARGET APPROVAL¹ →

FY25 AND BEYOND

 ONCOLOGY	TAK-164 <i>GI malignancies</i>	TAK-252 <i>Solid tumors</i>		
	TAK-573 <i>R/R MM</i>	TAK-981 <i>Multiple cancers</i>		
 RARE DISEASES <i>Immunology Hematology Metabolic</i>	TAK-079 ² <i>MG, ITP</i>	TAK-754 <i>Hema</i>	TAK-755 <i>ITTP, SCD</i>	
	TAK-531 <i>Hunter CNS</i>			
 NEUROSCIENCE	TAK-341 <i>Parkinson's Disease</i>	Orexin2R-ag <i>Sleep Disorders</i>	TAK-041 <i>CIAS NS</i>	
	TAK-418 <i>Kabuki Syndrome</i>	TAK-653 <i>TRD</i>	TAK-831 <i>CIAS NS</i>	
	WVE-120101 <i>Huntington's Disease</i>	WVE-120102 <i>Huntington's Disease</i>		
 GASTRO-ENTEROLOGY	Kuma062 <i>Celiac Disease</i>	TAK-101 <i>Celiac Disease</i>	TAK-018 <i>Crohn's Disease (post-op and ileitis)</i>	TAK-671 <i>Acute Pancreatitis</i>
	TAK-954 <i>POGD</i>	TAK-906 <i>Gastroparesis</i>	TAK-951 <i>Nausea & vomiting</i>	
 VACCINES	TAK-214 <i>Norovirus Vaccine</i>	TAK-426 <i>Zika Vaccine</i>	TAK-021 <i>EV71 Vaccine</i>	

Rich early clinical pipeline of potentially transformative and curative NMEs

1. Some Wave 2 assets could be accelerated into Wave 1 if they have breakthrough data

2. TAK-079 to be developed in Rare Diseases indications myasthenia gravis (MG) and immune thrombocytopenic purpura (ITP) (FPI projected for 2H FY19)

Orphan potential in at least one indication

Estimated dates as of November 14, 2019

...AND WITH OUR NEXT-GENERATION PLATFORMS



TARGET APPROVAL →

FY25 AND BEYOND

ONCOLOGY	CELL THERAPIES AND IMMUNE ENGAGERS CAR-T <i>MSKCC, Naoie-Immune</i> T-CiRA, Takeda CAR-NK <i>MD Anderson</i> GammaDelta CAR-T <i>GammaDelta Tx</i> Conditional T cell engagers <i>Maverick</i>	TARGETED INNATE IMMUNE MODULATION Attenukine <i>Teva</i> STING <i>CuraDev, Takeda</i> SUMOylation <i>Takeda</i>	NEXT-GEN CHECKPOINT MODULATORS Agonist-redirected checkpoints <i>Shattuck</i> Humabodies <i>Crescendo</i>	<h3>Harnessing the potential of cell and gene therapies and other diverse modalities</h3>
	RARE DISEASES <i>Immunology Hematology Metabolic</i> GENE THERAPY Hemophilia Lysosomal Storage Diseases			
	NEUROSCIENCE GENE THERAPY Neurodegenerative Diseases <i>StrideBio</i> OTHER PLATFORMS RNA Modulation <i>Wave, Skyhawk</i> Antibody Transport Vehicle <i>Denali</i>			
	GASTRO-ENTEROLOGY GENE THERAPY Liver <i>Ambys</i> MICROBIOME FIN-524 <i>Finch</i> Microbial Consortia <i>NuBiyota</i> CELL THERAPY <i>Ambys</i>			

Some Wave 2 assets could be accelerated into Wave 1 if they have breakthrough data

Estimated dates as of November 14, 2019

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INVESTING IN CAPABILITIES TO POSITION US FOR SUCCESS



	Cell Therapy	<ul style="list-style-type: none"> • 5 clinical programs by end of FY20 • Disruptive platforms, including off-the-shelf cell-therapies 	
	Gene Therapy	<ul style="list-style-type: none"> • World-class gene therapy manufacturing • Accessing innovation through partnerships (e.g. Stridebio, Ambys) 	
	Data Sciences	<ul style="list-style-type: none"> • Accelerate clinical development with real world data (e.g. TAK-788) • Use machine learning to identify rare disease patients 	

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LIVING OUR VALUES THROUGHOUT THE INTEGRATION PROCESS

誠実

INTEGRITY

公正

Fairness

正直

Honesty

不屈

Perseverance

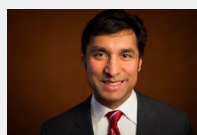
December 2018
Leadership Team and Proposed R&D
Operating Model Announced

April 2019
Prioritization of Combined
Pipeline and Portfolio

August 2019
R&D Employees Informed
of Employment Status*



STRONG LEADERSHIP EXECUTING ON OUR VISION



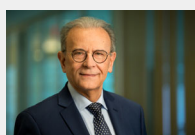
ASIT PURI
Head, Gastroenterology
Therapeutic Area Unit



PHIL ROWLANDS
Head, Oncology
Therapeutic Area Unit



DAN CURRAN
Head, Rare Diseases
Therapeutic Area Unit



EMILIANGELO RATTI
Head, Neuroscience
Therapeutic Area Unit



SARAH SHEIKH
Head, Neuroscience
Therapeutic Area Unit*

 **New hire**

*Sarah Sheikh to succeed Emiliangelo Ratti upon his retirement beginning November 25

*includes Regulatory, Global Patient Safety Evaluation, Development Operations, and Clinical Supply Chain



STEVE HITCHCOCK
Head, Research



NENAD GRMUSA
Head, Center for
External Innovation



GEORGIA KERESTY
R&D Chief Operating Officer



ANNE HEATHERINGTON
Head, Data Sciences Institute



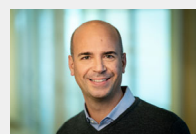
WOLFRAM NOTHAFT
Chief Medical Officer



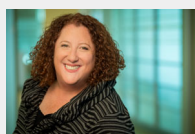
STEFAN WILDT
Head, Pharmaceutical Sciences
and Translational Engine, Cell
Therapies



JEREMY CHADWICK
Head, Global Development
Office†



WOLFGANG HACKEL
Head, Global R&D Finance



ERIKA MARDER
Head, Global R&D Human
Resources



COLLEEN BEAUREGARD
Head, Global R&D
Communications



TOSHIO FUJIMOTO
General Manager, Shonan
Health Innovation Park (iPark)

OUR COMMITMENT TO OUR PEOPLE IS BEING RECOGNIZED



BOSTON BUSINESS JOURNAL



2019 BEST PLACES TO WORK








**CEO CANCER
GOLD
STANDARD**



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