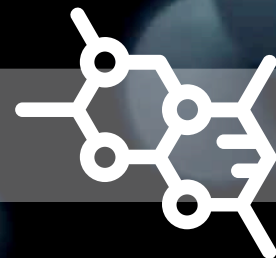


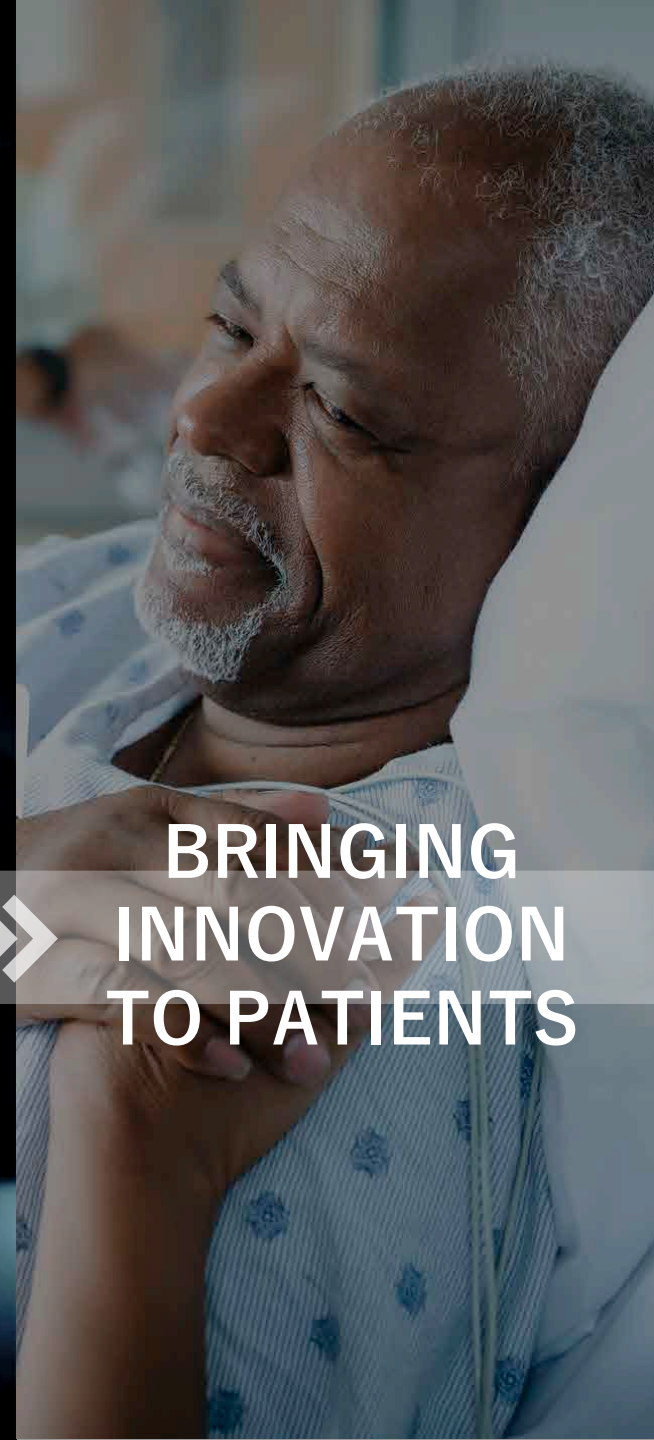
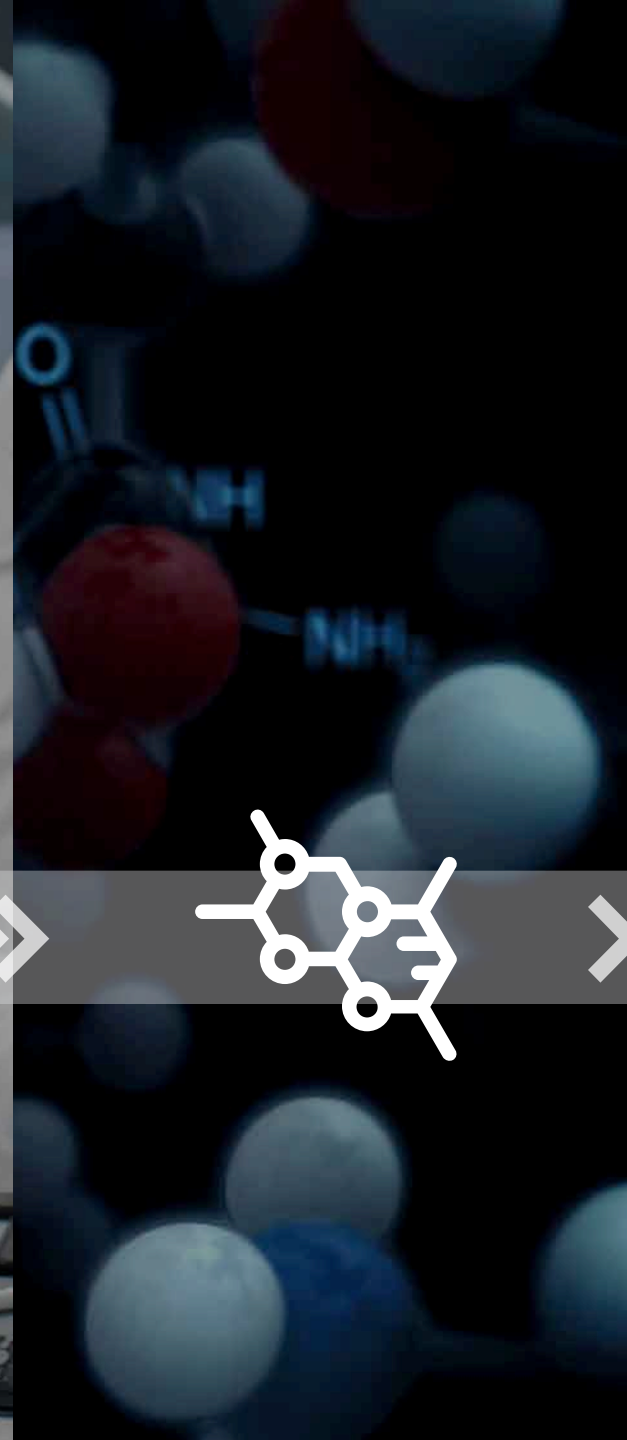
A woman with glasses and a ponytail, wearing a dark long-sleeved shirt, is holding a young child in a pink shirt and a grey hijab. She is pointing her right hand towards a city skyline with several tall buildings under a clear blue sky. The scene is brightly lit, suggesting daytime.

LONG-TERM VALUE FOR PATIENTS, SOCIETY AND INVESTORS

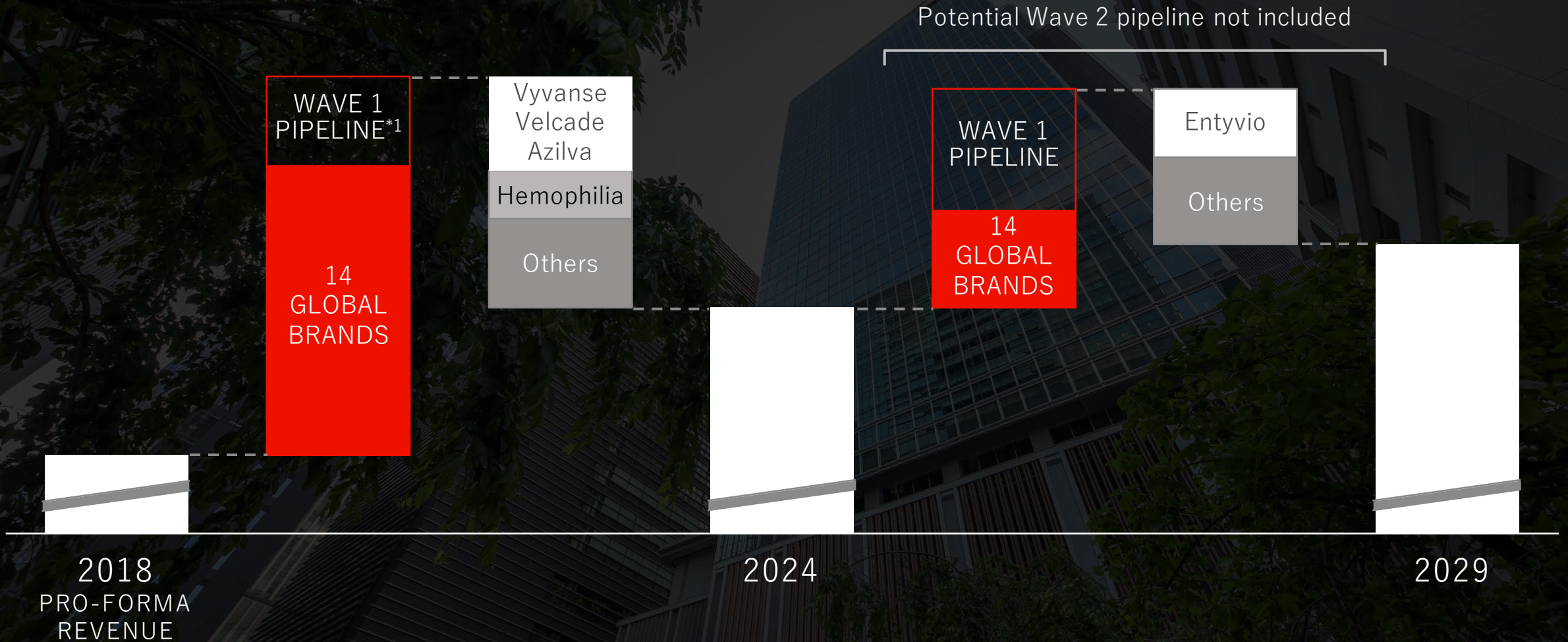
**SCIENCE
DRIVEN
COMPANY
WITH A
FOCUSED
MIND**



**BRINGING
INNOVATION
TO PATIENTS**



Positioned for Sustainable Revenue Growth



Note: The above chart represents conceptual changes in revenue through 2024 and 2029 demonstrating growth over time offsetting loss of exclusivities and achieving a single digit growth as compared to 2018 pro forma revenue which represents the sum of Takeda revenue for FY2018 plus Shire revenue for the same period (not including the Legacy Shire oncology business, which was sold in August 2018), converted to JPY at the rate of \$1 = 111 JPY, and converted from US GAAP to IFRS. Actual future net sales achieved by our commercialized products and pipelines will be different, perhaps materially so, as there is a range of possible outcomes from clinical development, driven by a number of variables, including safety, efficacy and product labelling. In addition, if a product is approved, the effect of commercial factors including the patient population, the competitive environment, pricing and reimbursement is also uncertain. Sales estimate in Wave 1 Pipeline is non-risk adjusted.



R&D DAY AGENDA – NEW YORK, NOVEMBER 14, 2019



TIME	AGENDA
12:30 – 12:35	Welcome and Opening Remarks <i>Sheelagh Cawley-Knopf, Head R&D Global Portfolio Strategy</i>
12:35 – 12:45	Takeda: A Global Values-Based, R&D-Driven Biopharmaceutical Leader <i>Christophe Weber, President & CEO Takeda</i>
12:45 – 13:20	Translating Science into Highly Innovative, Life-changing Medicines <i>Andy Plump, President R&D</i>
13:20 – 13:45	Oncology and Cell Therapies with Spotlight on CAR-NK <i>Chris Arendt, Head Oncology Drug Discovery Unit</i>
13:45 – 14:05	Spotlight on Oncology Opportunities <ul style="list-style-type: none">• TAK-788 : <i>Rachael Brake, Global Program Lead</i>• Pevonedistat : <i>Phil Rowlands, Head Oncology Therapeutic Area Unit</i>
14:05 – 14:20	Break
14:20 – 14:45	Rare Diseases & Gene Therapy <i>Dan Curran, Head Rare Disease Therapeutic Area Unit</i>
14:45 – 15:00	Spotlight on Orexin2R agonists <i>Deborah Hartman, Global Program Lead</i>
15:00 – 15:20	Therapeutic Area Focus in GI with Spotlight on Celiac Disease <i>Asit Parikh, Head GI Therapeutic Area Unit</i>
15:20 – 16:00	Panel Q&A Session
16:00	Drinks reception



TRANSLATING SCIENCE INTO HIGHLY INNOVATIVE LIFE-CHANGING MEDICINES

Andy Plump MD, PhD

President R&D

Takeda Pharmaceutical Company Limited

New York, NY

November 14, 2019



Better Health, Brighter Future

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				PLATFORMS		
	CLINICAL-STAGE NMEs											
	FY20	FY21	FY22	FY23	FY24	FY25 AND BEYOND						
ONCOLOGY		TAK-788³ 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-924³ 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-079⁴ 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	
						TAK-418 Kabuki Syndrome	TAK-653 TRD	TAK-831 CIAS NS				
						WVE-120101 Huntington's Disease	WVE-120102 Huntington's Disease					
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

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 Humira 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

PATIENT-DRIVEN AND SCIENCE-FIRST IN 3 CORE AREAS



INNOVATIVE BIOPHARMA



ONCOLOGY



RARE DISEASES



NEUROSCIENCE



GASTROENTEROLOGY

PLASMA DERIVED THERAPIES



Complementing our
rare disease focus

VACCINES BUSINESS UNIT



Differentiated
Dengue vaccine

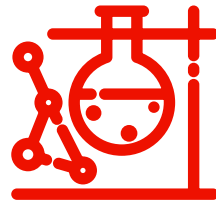
WE ARE DOING MORE FOR OUR PATIENTS



8



POTENTIAL BIC/FIC NMEs IN PIVOTAL STUDIES¹



~40

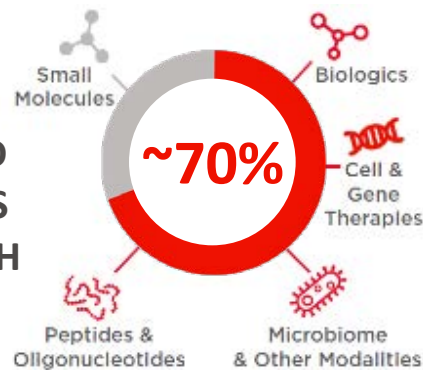
NEW MOLECULAR ENTITY CLINICAL STAGE ASSETS

~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

“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”

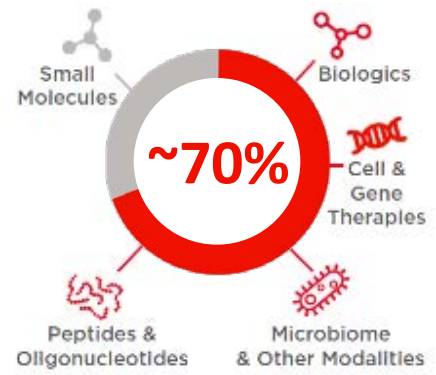


Dr. Makoto Honda, Sleep Disorders Project Leader, Tokyo Metropolitan Institute of Medical Science

Data presented at World Sleep conference

**NOVEL TARGET
MECHANISMS WITH
HUMAN VALIDATION**

- Cell Tx
- Gene Tx
- Biologics
- Peptides
- Oligonucleotide
- Microbiome
- Small Molecule



**MODALITY
DIVERSIFICATION**

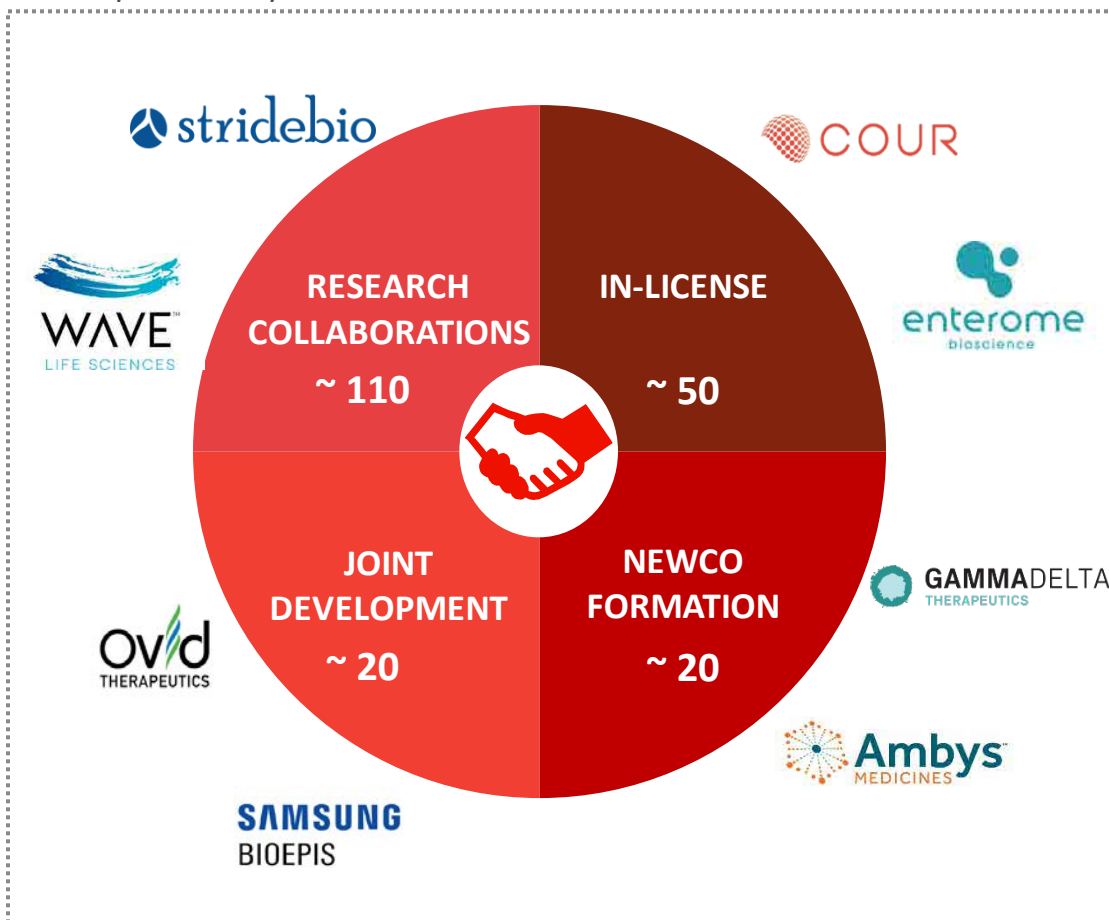
- 5** Accelerated programs
- 20** NME stage-ups since FY18
- 19** Indications terminated or externalized since FY18

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

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



Select partnerships*



* Externalizations and venture investments are not included

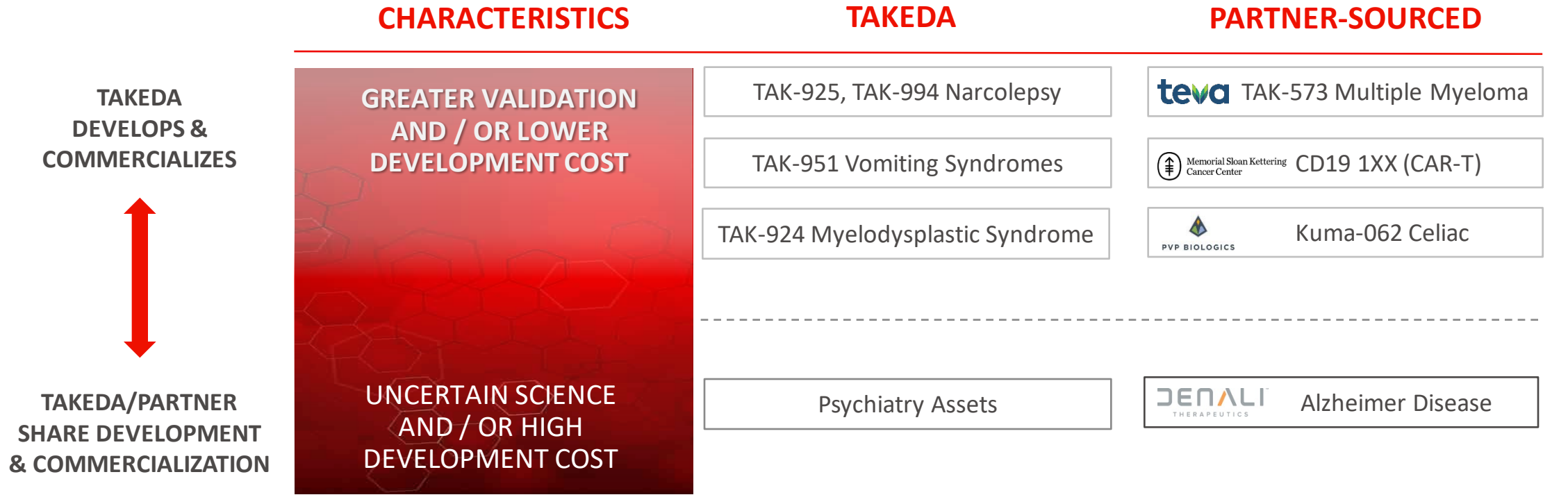
○ Access to Innovation

○ Risk-Sharing

○ Expanding Capacity

Total Value in Public & Private Equity
>\$1B

WE ARE NURTURING INNOVATION WHEREVER IT OCCURS



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



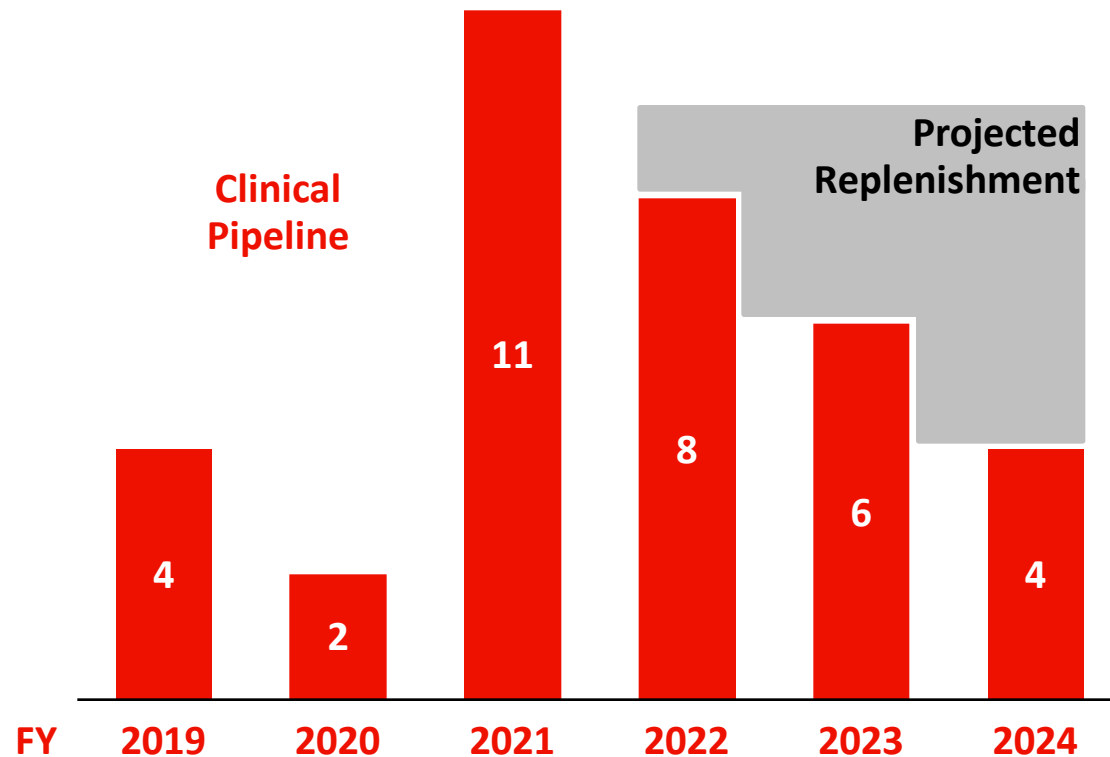
PARTNERSHIP MODEL

Success driven milestone payments

A RESEARCH ENGINE FUELING A SUSTAINABLE PIPELINE



POTENTIAL NME PIVOTAL STUDY STARTS BY YEAR

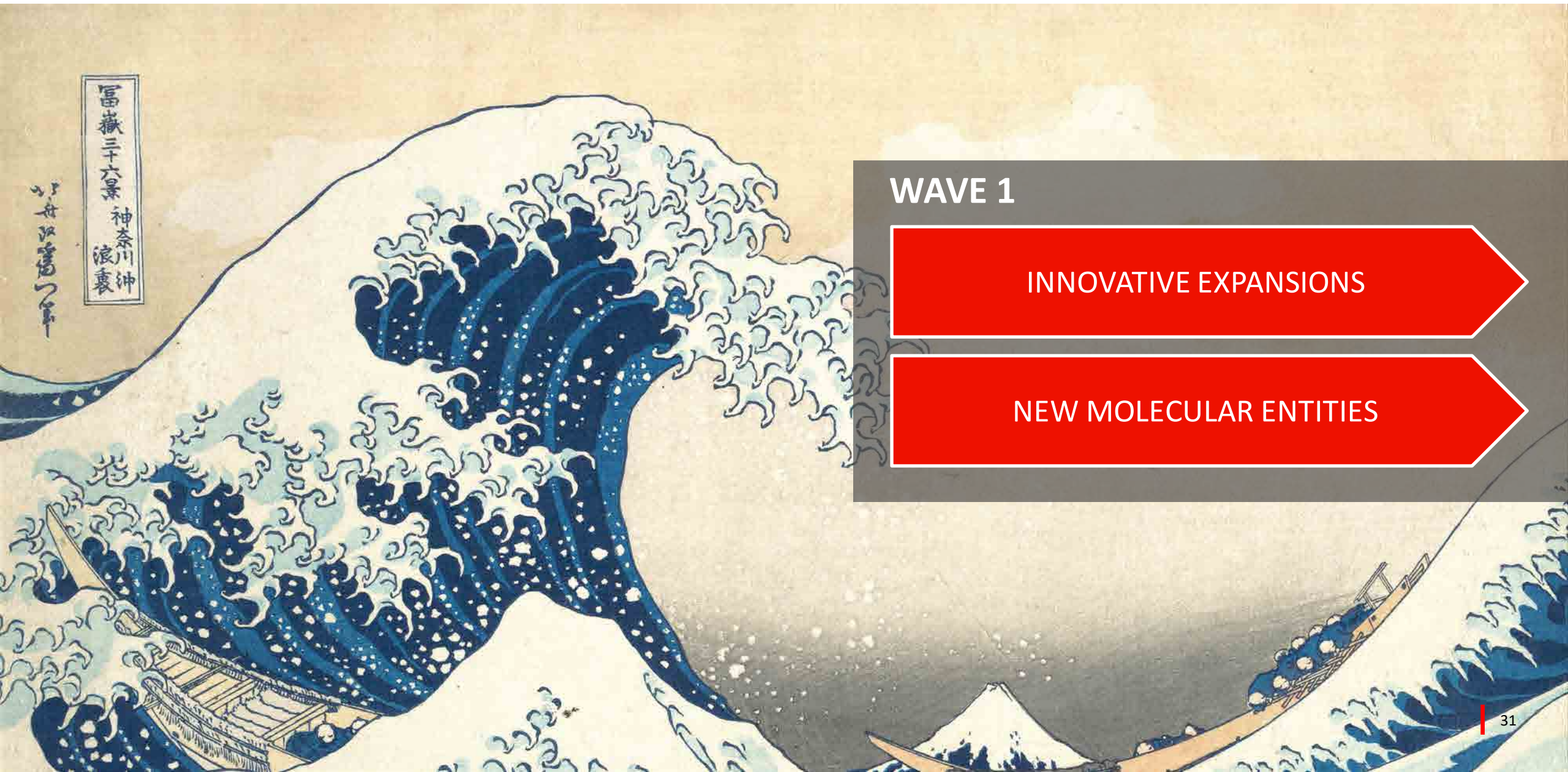


Note: Projections assume successful data readouts

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 80mg TABLETS	1L Non Small Cell Lung Cancer	2020
	 NINLARO [®] (ixazomib) capsules	ND MM Maintenance (non-SCT and post-SCT)	2020 / 2022
 Rare	 TAKHZYRO [®] (lanadelumab-lyo) 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	Japan	 Takecab [®] relugolix, cabozantinib, niraparib
	 ALUNBRIG [®] BRIGATINIB 80mg TABLETS		
	 TAKHZYRO [®] (lanadelumab-lyo) injection		
	 VPRIV [®] velaglucerase alfa for injection		
	 ADYNOVATE [®] [Antihemophilic Factor (Recombinant), PEGylated]		

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

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

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

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



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

	PRODUCT	MECHANISM	INDICATION	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

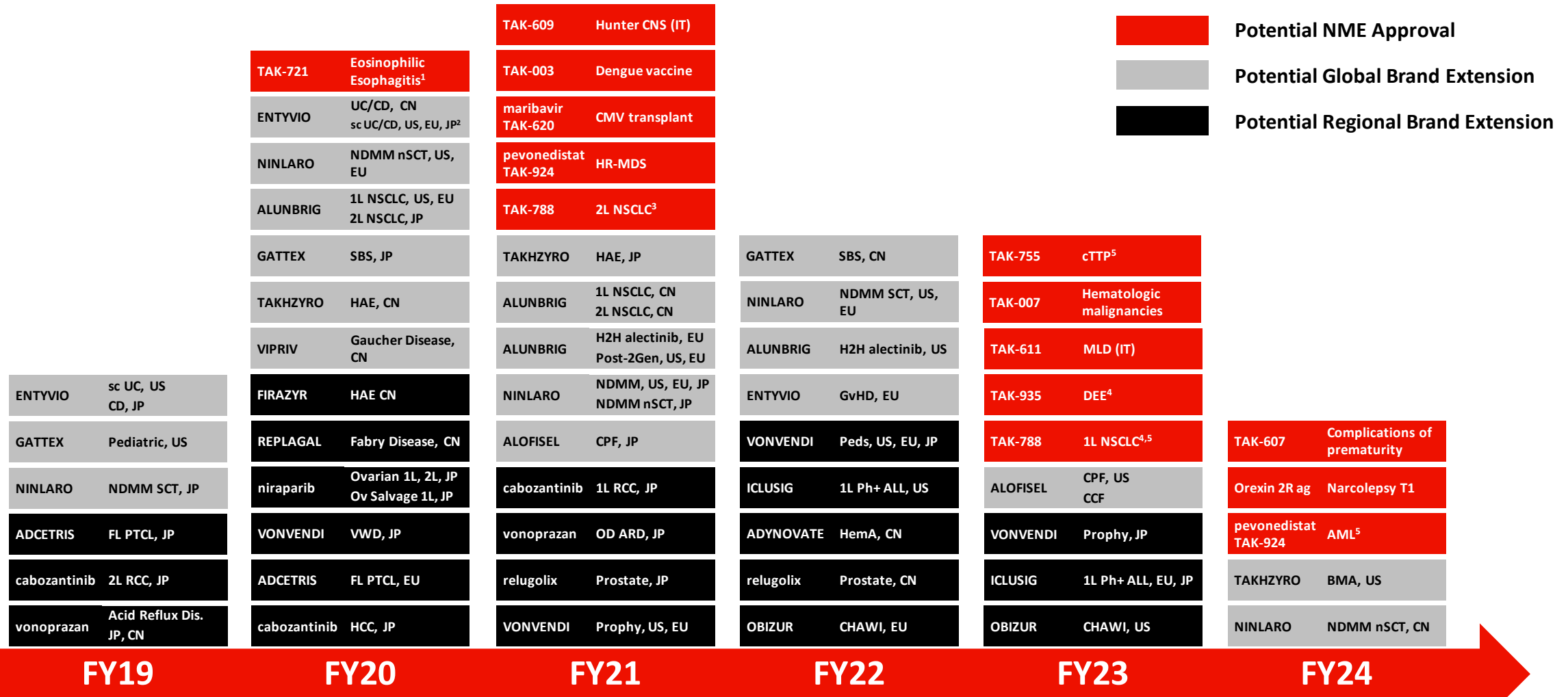
3. For TAK-788, TAK-924, TAK-007, TAK-607 and TAK-620 the addressable population represent annual incidence

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)

IN SUMMARY: ROBUST NEAR-TERM GROWTH



1. China approval in 2023
 2. US approval for sc CD, EU approval for sc UC & CD, Japan approval for sc CD
 3. Includes approval in China
 4. China approval in 2024
 5. New indication for currently unapproved asset

Potential approvals by fiscal year as of November 14, 2019
 The target dates are estimates based on current data and subject to change



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-079² <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-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



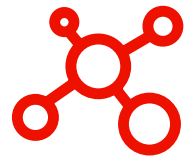
TARGET APPROVAL →

FY25 AND BEYOND

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

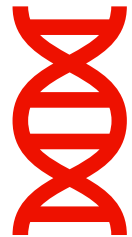
Some Wave 2 assets could be accelerated into Wave 1 if they have breakthrough data

Estimated dates as of November 14, 2019



Cell Therapy

- 5 clinical programs by end of FY20
- Disruptive platforms, including off-the-shelf cell-therapies



Gene Therapy

- World-class gene therapy manufacturing
- Accessing innovation through partnerships (e.g. Stridebio, Ambys)



Data Sciences

- Accelerate clinical development with real world data (e.g. TAK-788)
- Use machine learning to identify rare disease patients



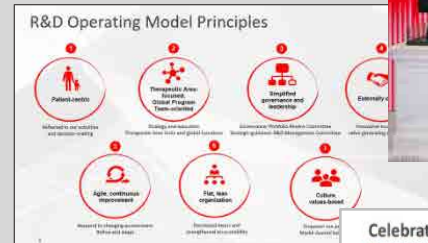
COMMITTED TO OUR PEOPLE



LIVING OUR VALUES THROUGHOUT THE INTEGRATION PROCESS



- 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*



* Where legally cleared

STRONG LEADERSHIP EXECUTING ON OUR VISION



ASIT PARIKH
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*



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)

 **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

OUR COMMITMENT TO OUR PEOPLE IS BEING RECOGNIZED



WE ARE POSITIONED TO DELIVER NEAR-TERM & SUSTAINED GROWTH



TARGET APPROVAL →	WAVE 1 ¹					WAVE 2 ²				PLATFORMS			
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		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	
						TAK-418 Kabuki Syndrome	TAK-653 TRD	TAK-831 CIAS NS					
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 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

R&D DAY AGENDA – NEW YORK, NOVEMBER 14, 2019



TIME	AGENDA
12:30 – 12:35	Welcome and Opening Remarks <i>Sheelagh Cawley-Knopf, Head R&D Global Portfolio Strategy</i>
12:35 – 12:45	Takeda: A Global Values-Based, R&D-Driven Biopharmaceutical Leader <i>Christophe Weber, President & CEO Takeda</i>
12:45 – 13:20	Translating Science into Highly Innovative, Life-changing Medicines <i>Andy Plump, President R&D</i>
13:20 – 13:45	Oncology and Cell Therapies with Spotlight on CAR-NK <i>Chris Arendt, Head Oncology Drug Discovery Unit</i>
13:45 – 14:05	Spotlight on Oncology Opportunities <ul style="list-style-type: none">• TAK-788 : <i>Rachael Brake, Global Program Lead</i>• Pevonedistat : <i>Phil Rowlands, Head Oncology Therapeutic Area Unit</i>
14:05 – 14:20	Break
14:20 – 14:45	Rare Diseases & Gene Therapy <i>Dan Curran, Head Rare Disease Therapeutic Area Unit</i>
14:45 – 15:00	Spotlight on Orexin2R agonists <i>Deborah Hartman, Global Program Lead</i>
15:00 – 15:20	Therapeutic Area Focus in GI with Spotlight on Celiac Disease <i>Asit Parikh, Head GI Therapeutic Area Unit</i>
15:20 – 16:00	Panel Q&A Session
16:00	Drinks reception



TAKEDA ONCOLOGY: INNOVATIVE CELL THERAPIES & NEW FRONTIERS IN IMMUNO-ONCOLOGY



Chris Arendt, PhD

Head of Oncology Drug Discovery Unit

Takeda Pharmaceutical Company Limited

New York, NY

November 14, 2019

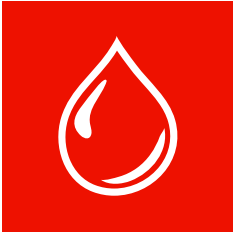
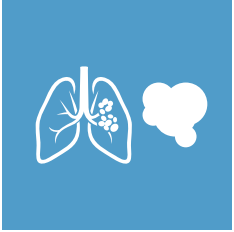
Better Health, Brighter Future

A CURATIVE-INTENT IMMUNO-ONCOLOGY PIPELINE IS TAKING SHAPE




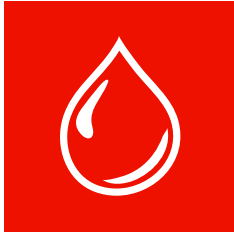
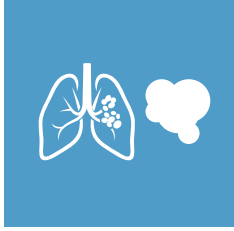
WAVE 1

NMEs that complement our global brands

Hematologic Malignancies 	TAK-924 FY21 target approval
Lung Cancer & Solid Tumors 	TAK-007 FY23 target approval
	TAK-788 FY21 target approval

WAVE 2

Leading platforms in immuno-oncology and cell therapies

Immuno-Oncology 	Hematologic Malignancies 
	Lung Cancer & Solid Tumors 

Unique Partnership Model



- Innovative, disruptive platforms
- Agility in 'open lab' model



Differentiated Portfolio



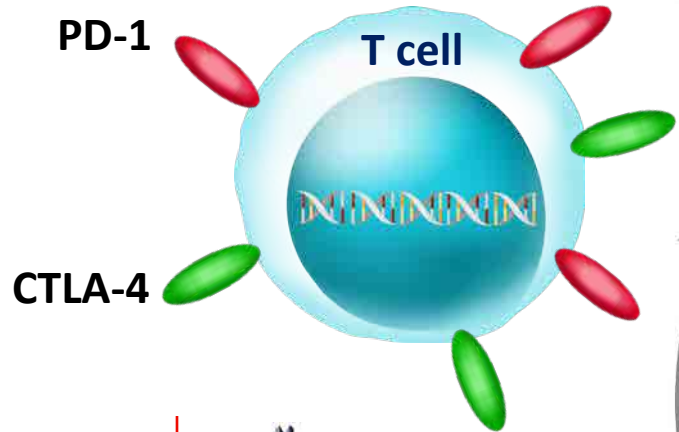
- Harness innate immunity
- Eye towards solid tumors

THE FIRST BREAKTHROUGHS IN CANCER IMMUNOTHERAPY

TARGET T CELLS



T CELL CHECKPOINT INHIBITORS

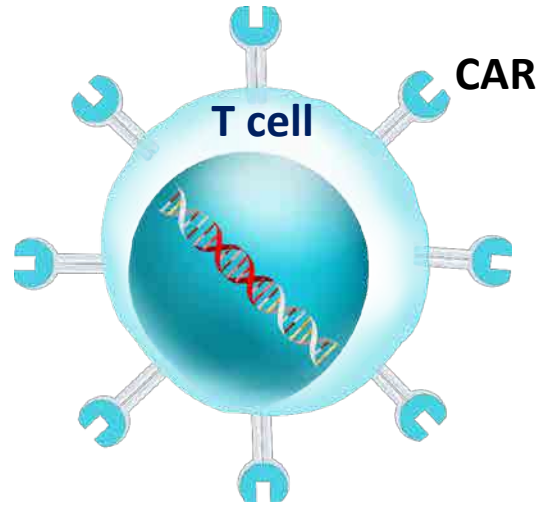


KEYTRUDA

OPDIVO
(nivolumab)

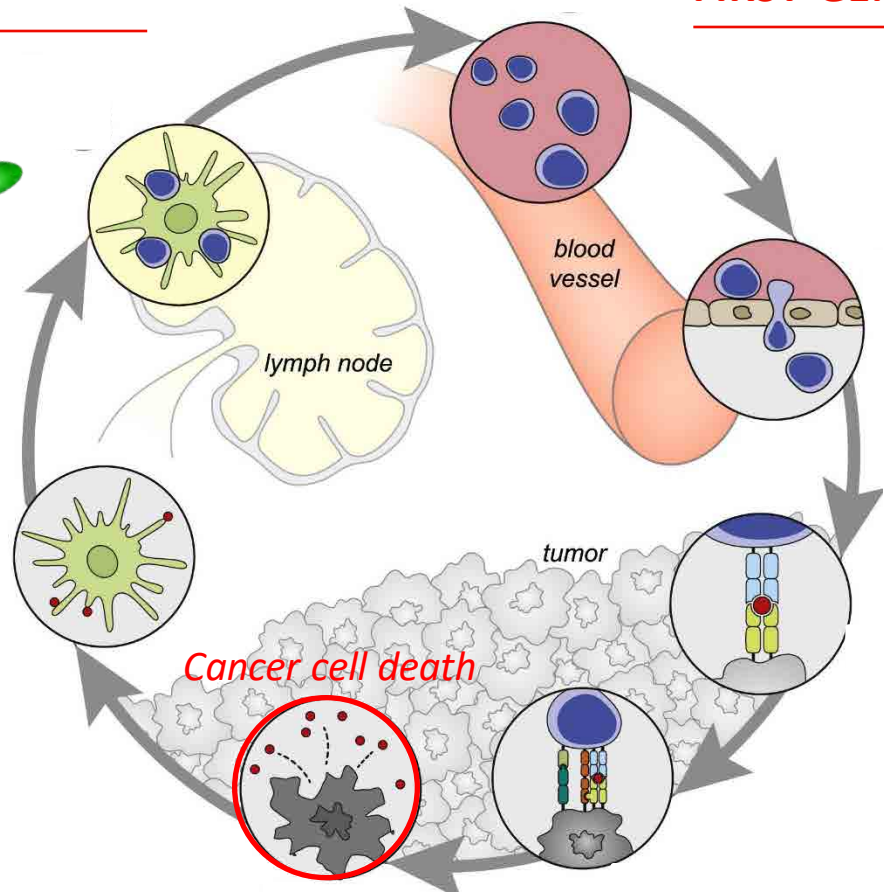
YERVOY
(ipilimumab)
Injection for intravenous use 5 mg/mL

FIRST-GEN CAR-Ts



YESCARTA[®]
(axicabtagene ciloleucel) Suspension for IV infusion

KYMRIAH[™]
(tisaqenlecleucel) Suspension for IV infusion



Adapted from Chen & Mellman, *Immunity* 2013

OUR FOCUS IS ON NOVEL MECHANISMS IN THE CANCER-IMMUNITY CYCLE



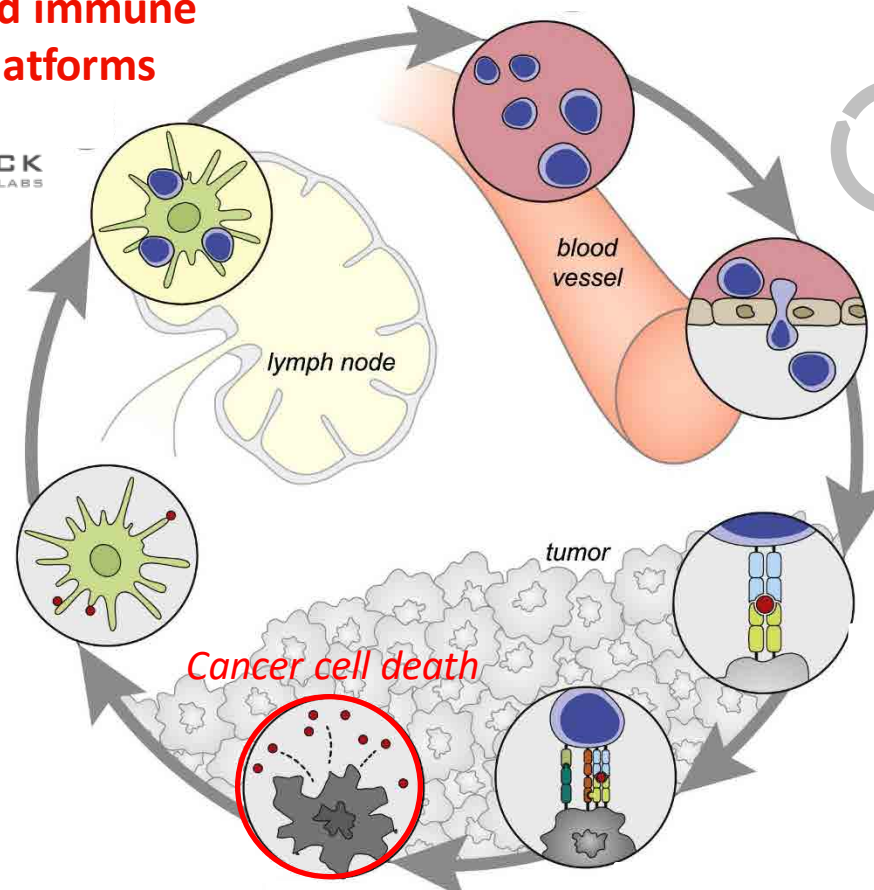
2

Novel-scaffold immune checkpoint platforms



1

Innate immuno-modulation



3

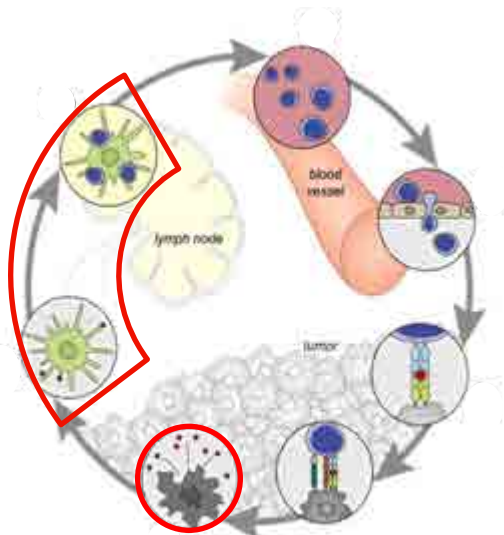
Next-gen cell therapy & immune engager platforms



Memorial Sloan Kettering
Cancer Center

1

EMERGING STRENGTH IN TARGETED INNATE IMMUNE MODULATION



Cancer cell death

HIGH UNMET NEED

Patients refractory/ unresponsive to current immunotherapies

OUR DIFFERENTIATED APPROACH

Systemic therapies leveraging innate immunity to enhance response breadth, depth & durability

PLATFORM	PARTNER	MECHANISM-OF-ACTION	PROGRAMS	PRE-CLINICAL	PH 1
STING agonism		<ul style="list-style-type: none"> Innate-to-adaptive priming 	TAK-676 (STING agonist) Targeted STING agonist	 	
SUMOylation		<ul style="list-style-type: none"> Innate immune enhancer 	TAK-981 TAK-981 (ADCC combo)	 	
Attenukine™		<ul style="list-style-type: none"> Targeted attenuated IFN-α 	TAK-573 (CD38-Attenukine™) Next-gen Attenukine™	 	

ADCC = Antibody-dependent cellular cytotoxicity

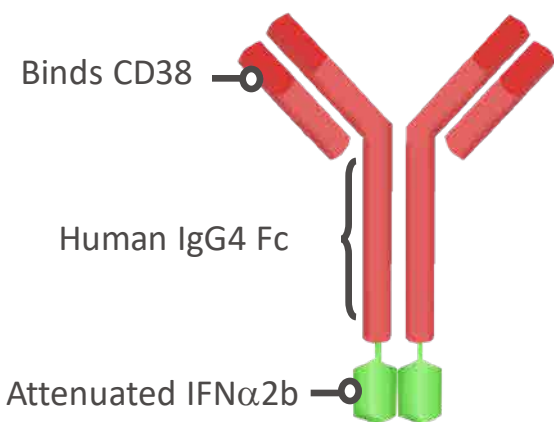
= first-in-class

1 ATTENUKINE™ PLATFORM ELICITS BOTH DIRECT TUMOR KILL AND IMMUNE ACTIVATION



TARGETED ATTENUATED TYPE I IFN PAYLOAD

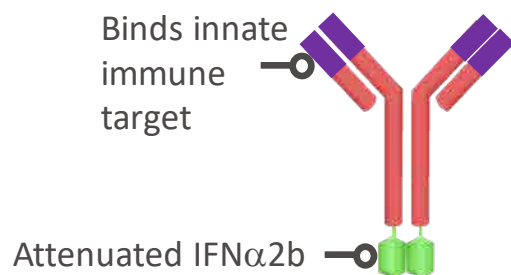
TAK-573



Immunomodulation in preclinical models

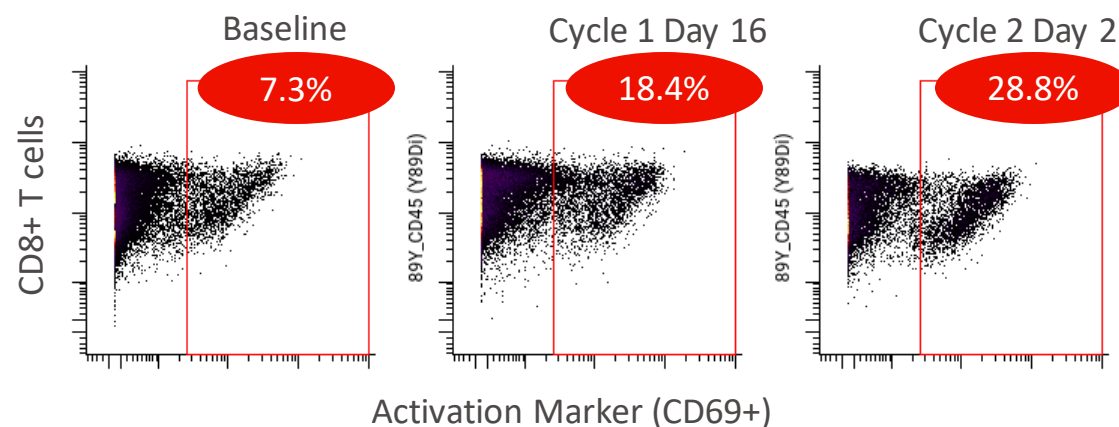
Includes CD8+ T cell migration / activation

NEXT-GEN ATTENUKINE™



TAK-573 POM IN ONGOING PHASE 1 R/R MM STUDY

Activation of CD8+ T cells in bone marrow



EXPECTED MILESTONES (FY)

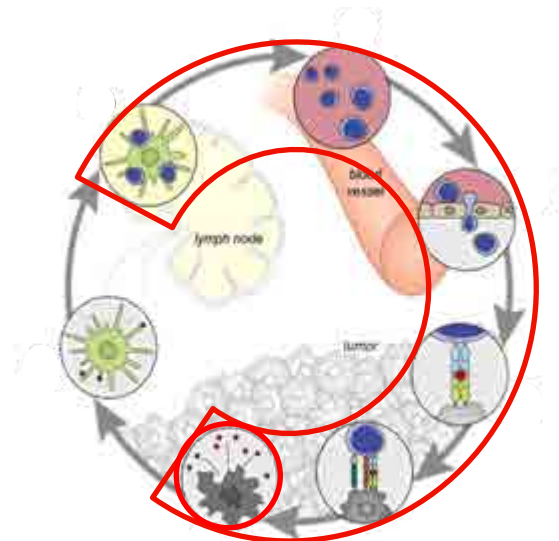
2019

2020

Ph1 FPI in solid tumors

Ph1b MM (incl. combinations)

1 NOVEL SCAFFOLD NEXT-GENERATION CHECKPOINT MODULATORS



Cancer cell death

HIGH UNMET NEED

Current checkpoint modulators fail to improve overall survival in majority of patients

OUR DIFFERENTIATED APPROACH

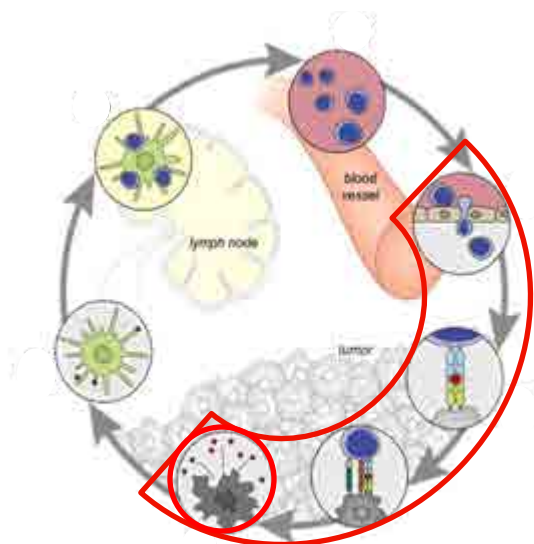
New classes of checkpoint inhibitors designed to increase breadth and depth of responses

PLATFORM	PARTNER	MECHANISM-OF-ACTION	PROGRAMS	PRE-CLINICAL	PH 1
Humabody Vh		<ul style="list-style-type: none"> Unique pharmacology 	Concept 1 Concept 2	 	
Agonist-redirected checkpoints		<ul style="list-style-type: none"> Co-inhibition & co-stimulation 	TAK-252 / SL-279352 (PD1-Fc-OX40L) TAK-254 / SL-115154 (CSF1R-Fc-CD40L)	 	

Vh = Variable heavy domain

= first-in-class

1 BRINGING 5 NOVEL CELL THERAPY PLATFORMS TO THE CLINIC BY THE END OF FY20



Cancer cell death

HIGH UNMET NEED

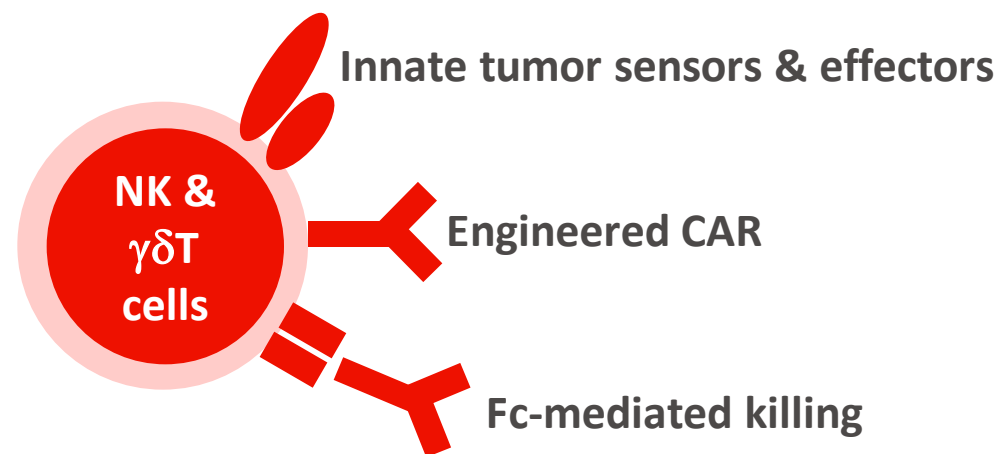
Current CAR-T therapies have significant challenges & fail to address solid tumors

OUR DIFFERENTIATED APPROACH

Leverage novel cell platforms & engineering to address shortcomings in liquid & solid tumors

INNATE IMMUNE PLATFORMS

- Multiple mechanisms of tumor killing
- 'Off-the-shelf'
- Utility in solid tumors

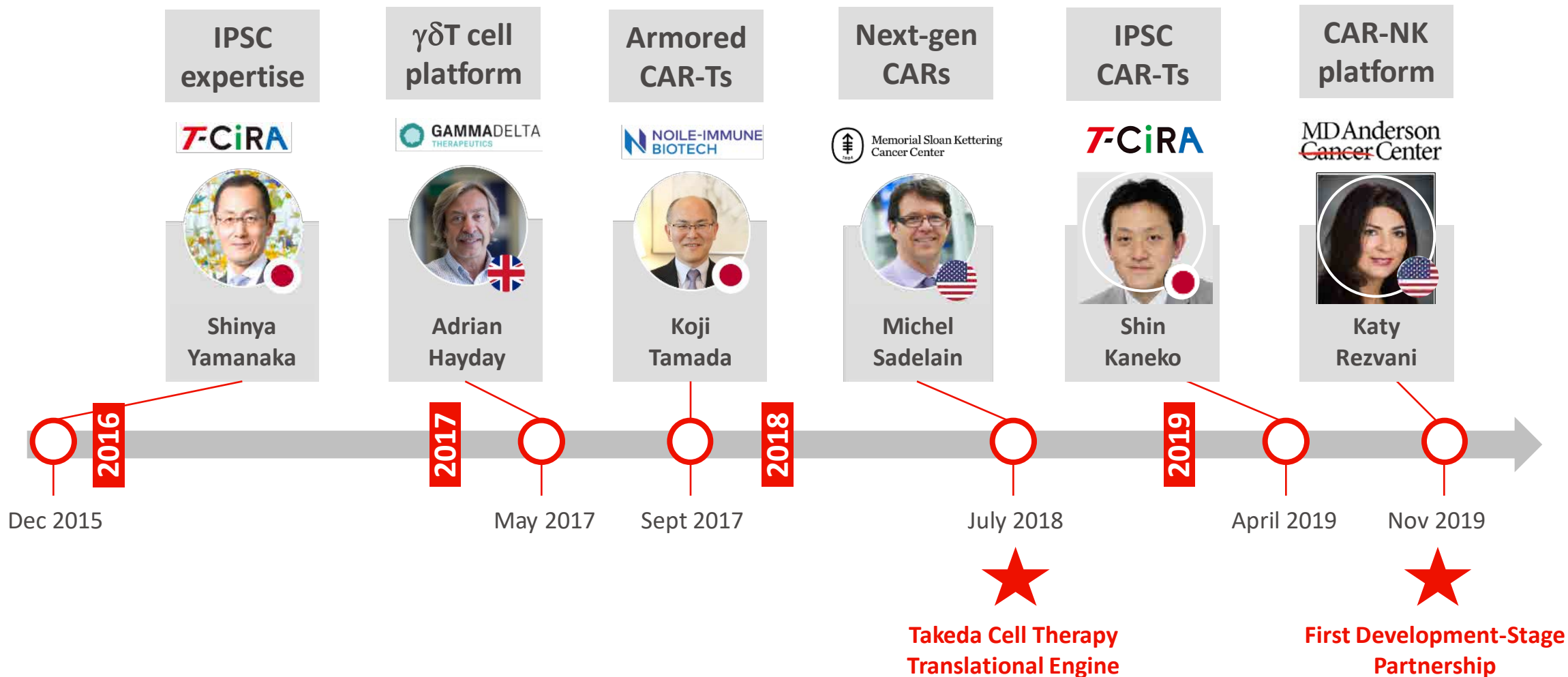


1

A NETWORK OF TOP INNOVATORS IS FUELING TAKEDA'S CELL THERAPY ENGINE



CUTTING-EDGE ENGINEERING & CELL PLATFORMS



IPSC = Induced pluripotent stem cell NK = Natural killer

Dr. Sadelain is a co-inventor on patents relative to next-gen CARs, intellectual property that MSK has licensed to Takeda. As a result of these licensing arrangements, Dr. Sadelain and MSK have financial interests related to these research efforts.

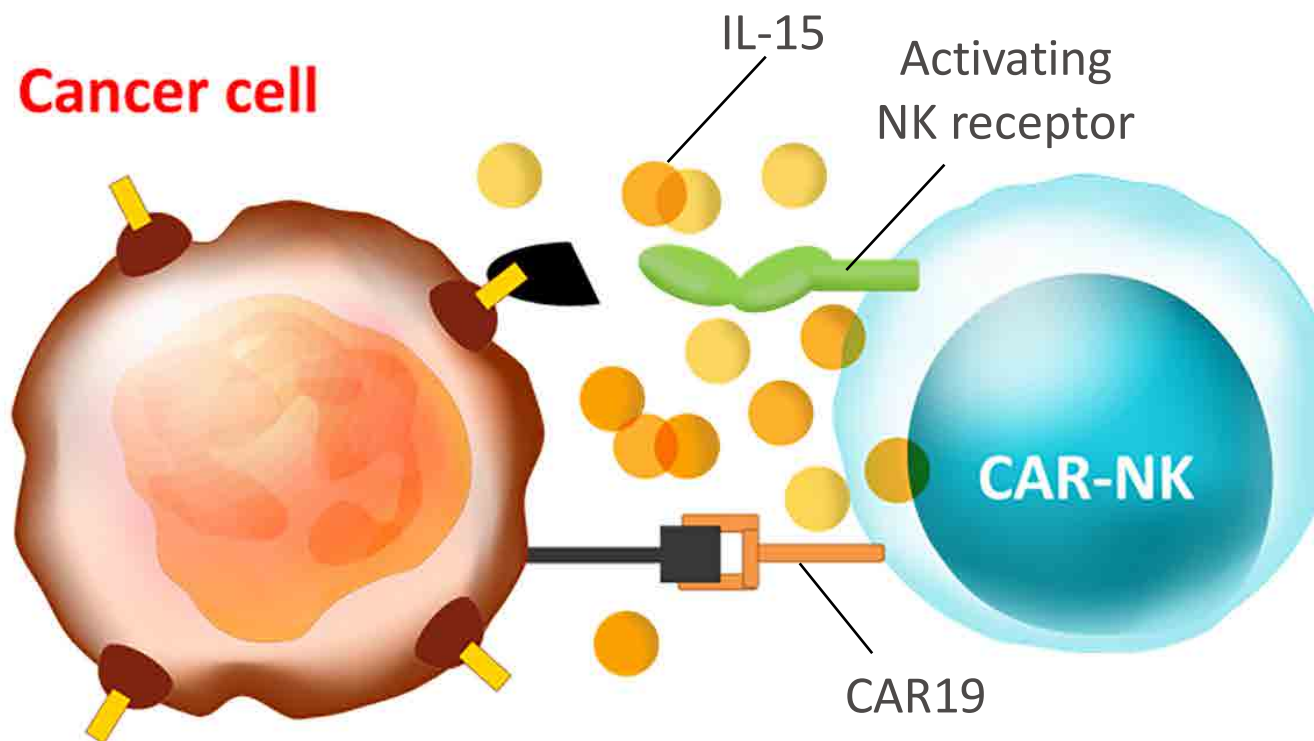
1

TAKEDA IS EMBARKING ON A TRANSFORMATIVE CAR-NK PARTNERSHIP THAT COULD ENTER PIVOTAL TRIALS IN 2021

NK CAR Platform

Multiple mechanisms of tumor killing

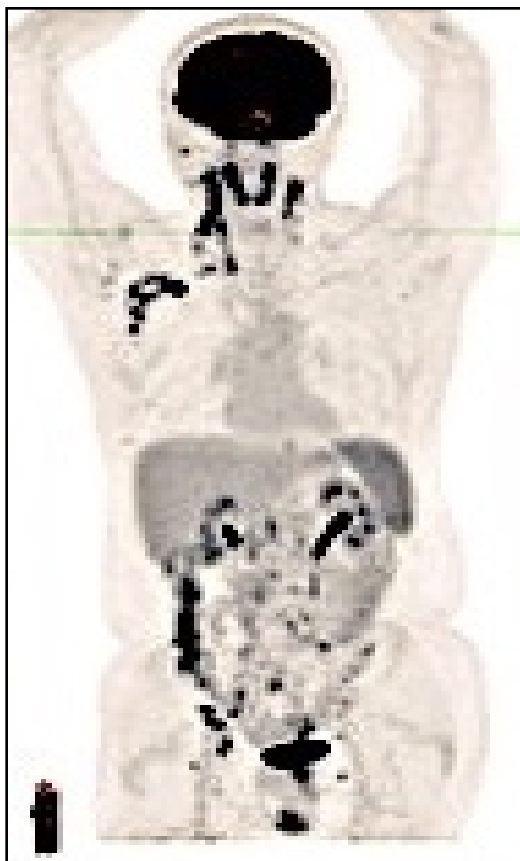
Potentiation of innate & adaptive immunity



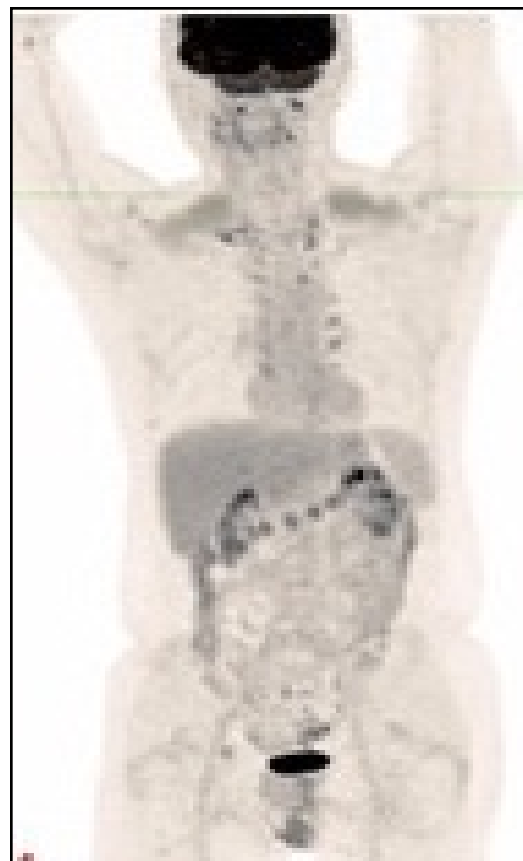
1 DRAMATIC COMPLETE RESPONSE IN FIRST PATIENT TREATED

47-YEAR OLD MALE WITH RELAPSED TRANSFORMED DOUBLE-HIT (C-MYC / BCL-2) DLBCL

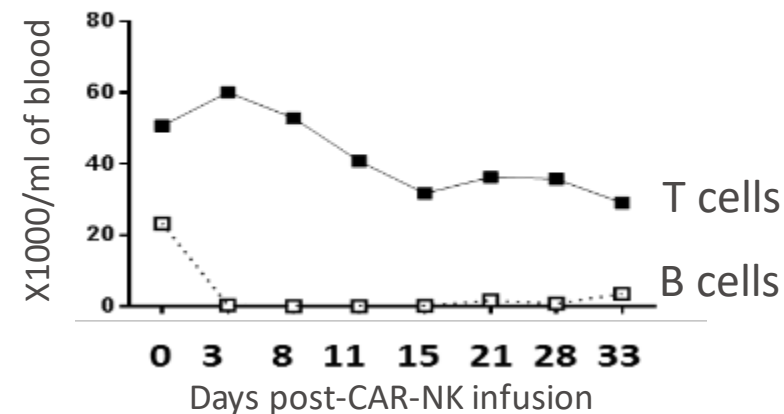
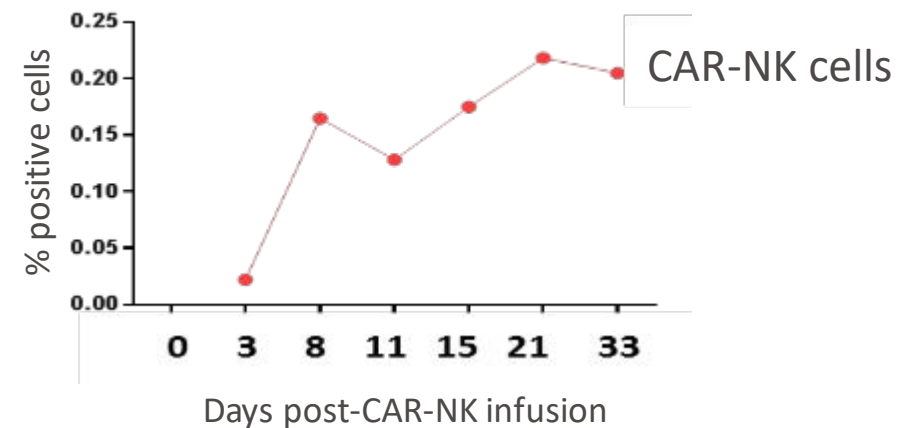
KINETICS OF CAR-NK VERSUS ENDOGENOUS T AND B CELLS IN PERIPHERAL BLOOD



Baseline scan



Day 30 post CAR19-NK



1 IMPRESSIVE RESPONSES IN OTHER HEAVILY PRETREATED PATIENTS

61-YEAR OLD MALE CLL/RICHTER'S TRANSFORMATION (5 PRIOR LINES OF THERAPY)

60-YEAR OLD FEMALE WITH CLL / ACCELERATED CLL (5 PRIOR LINES OF THERAPY)

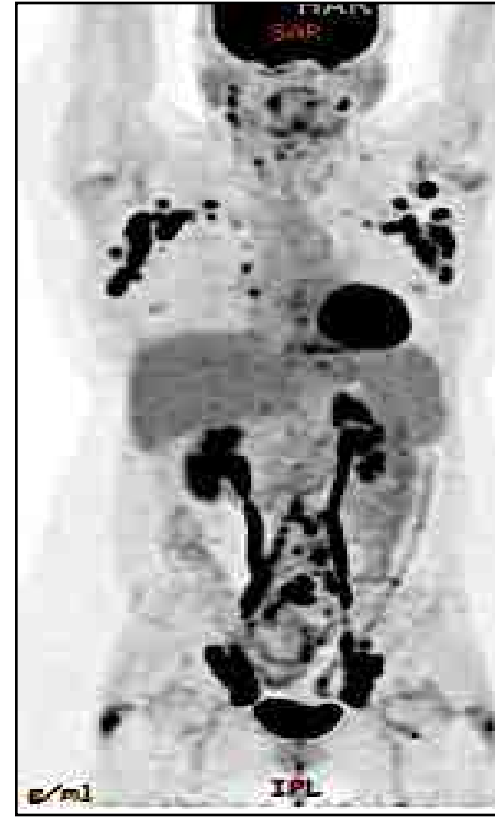


Baseline scan

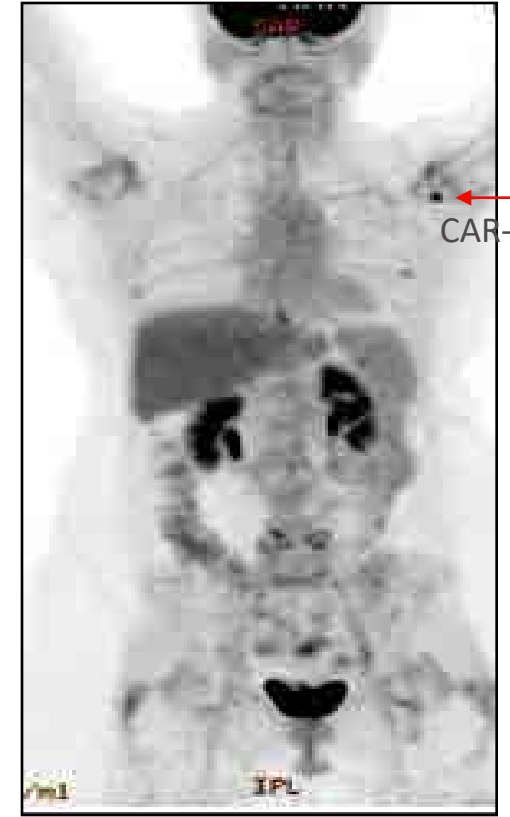


Day 30 post CAR19-NK

CR in Richter's; SD in CLL



Baseline scan



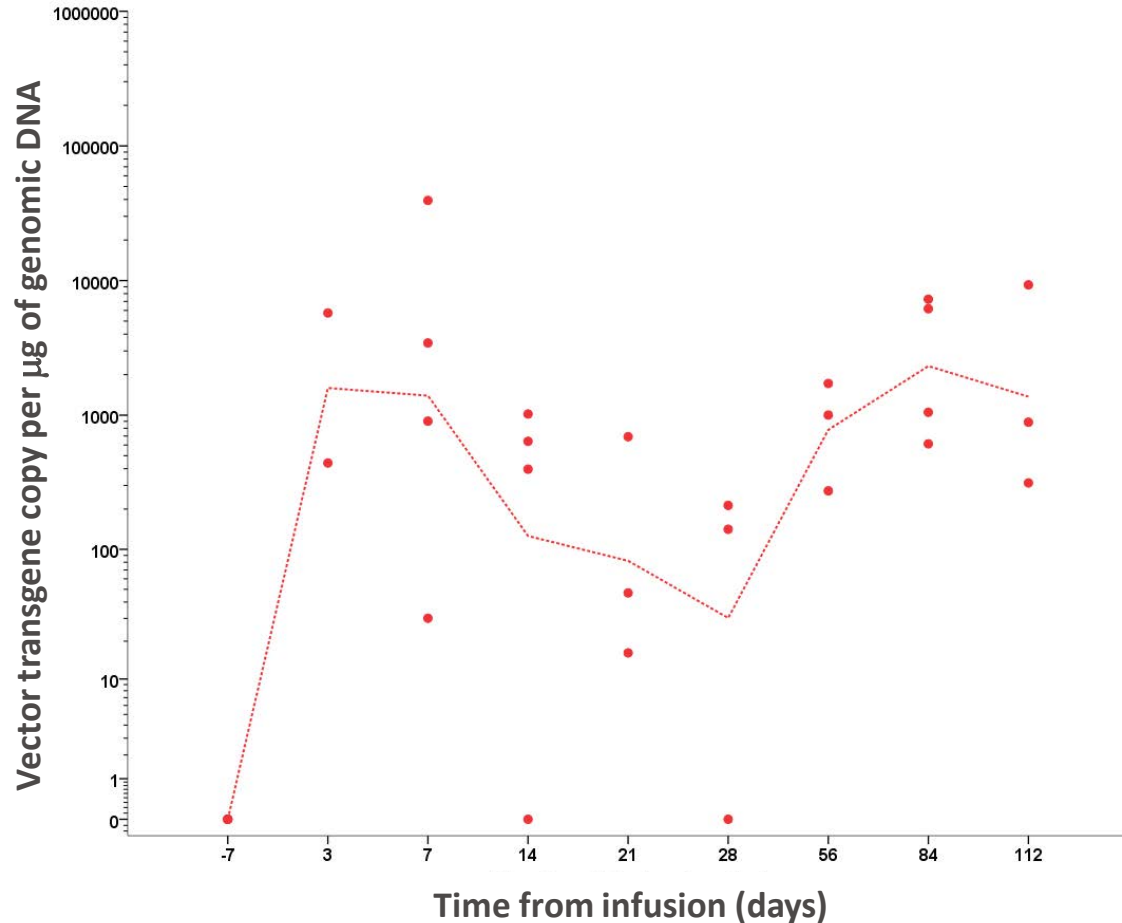
Day 30 post CAR19-NK

1

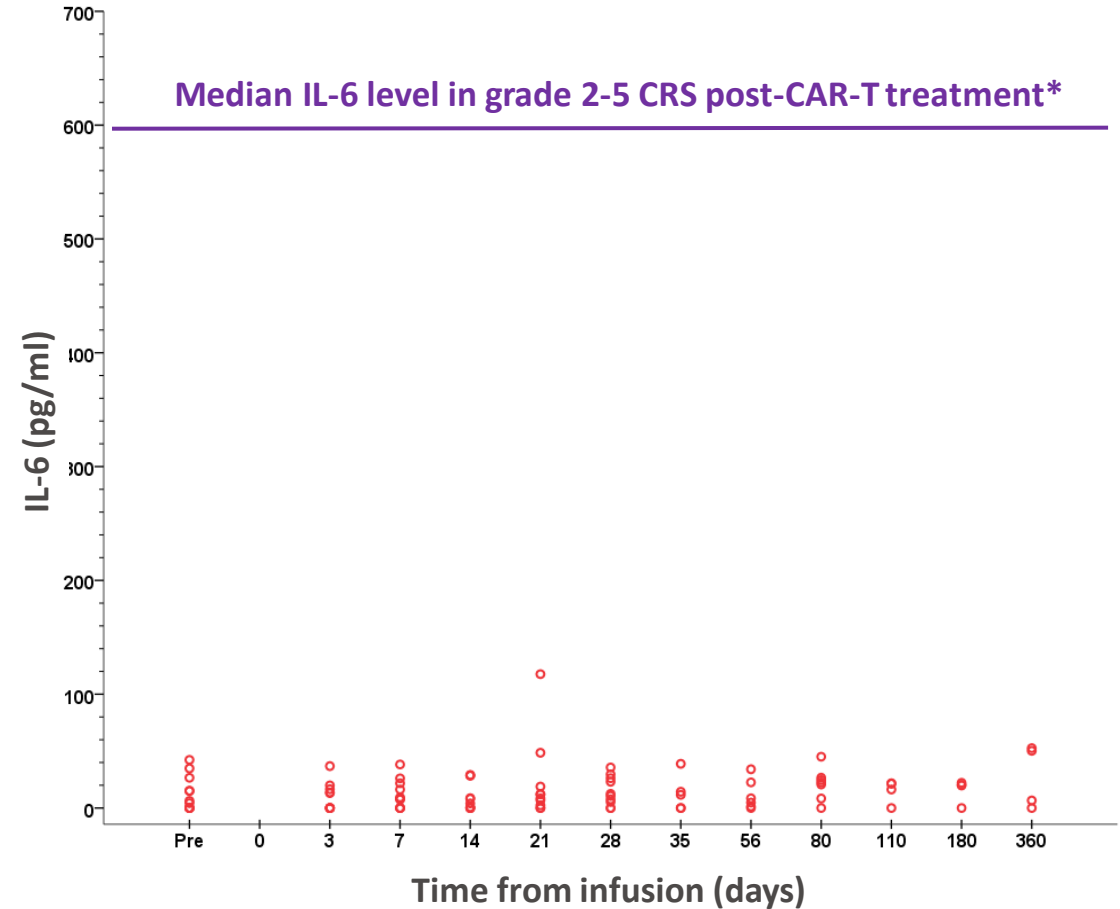
CAR-NK CELLS PERSIST IN PATIENTS AND DO NOT TRIGGER CYTOKINE RELEASE SYNDROME (CRS)



CAR-NK CELLS PERSIST UP TO 4 MONTHS POST INFUSION



IL-6 LEVELS POST CAR-NK INFUSION DO NOT INDICATE CRS



CRS = Cytokine Release Syndrome

*Turtle et al. 2017

Data from Dr. Katy Rezvani, MD Anderson Cancer Center

1 CAR-NK EFFICACY & TOXICITY TREATING MULTIPLE DIAGNOSES



	Diagnosis	Lines of Treatment	HLA Match	CRS / Neurotox	Complete Response
Dose Level 1	DLBCL - Relapsed transformed double-hit	3 Incl. ASCT	Partial match	None	✓
	DLBCL - Refractory	7	Partial match	None	PD
	CLL	4 Incl. ibrutinib & venetoclax	Partial match	None	✓
Dose Level 2	CLL	4 Incl. ibrutinib	Partial match	None	PD
	CLL/Richter's transformation	5 Incl. ibrutinib	Partial match	None	✓* Richter's
	CLL/Accelerated CLL	5 Incl. ibrutinib & venetoclax	Partial match	None	✓
	CLL	4 Incl. ibrutinib	Partial match	None	✓
Dose Level 3	DLBCL - Refractory	11 Incl. ASCT	Partial match	None	✓
	DLBCL - Relapsed transformed double-hit	4 Incl. ASCT	Partial match	None	✓
	Follicular lymphoma - Relapsed	4 Incl. ASCT	Mismatch	None	PD
	Follicular lymphoma - Relapsed	4	Mismatch	None	✓

CLL = Chronic lymphocytic leukemia
 CRS = Cytokine release syndrome
 DLBCL = Diffuse large B-cell lymphoma
 ASCT = Autologous stem cell transplant
 HLA = Human leukocyte antigen
 PD = Progressive disease
 *Complete response for Richter's

1

FAST-TO-CLINIC CELL THERAPY ENGINE WILL MAXIMIZE LEARNINGS ON MULTIPLE 'DISRUPTIVE' PLATFORMS




5 CLINICAL-STAGE PROGRAMS EXPECTED BY END OF FY20




TAK-007
 MD Anderson
 Cancer Center


*Off-the-shelf
 CAR-NK product*




TAK-102



*Cytokine +
 chemokine
 armed CAR-T*




CD19 1XX-CAR-T



Memorial Sloan Kettering
 Cancer Center

*Next-gen CART
 signaling domain*




GDX012





*Gamma-delta
 T cells*




GCC CAR-T



*Colorectal
 Cancer*

Hematology



Solid tumors

FY21+:
Other cell
therapy
candidates

1

A RICH AND POTENTIALLY TRANSFORMATIVE EARLY CLINICAL ONCOLOGY PIPELINE



PLATFORM		PARTNER(S)	MECHANISM-OF-ACTION	PROGRAMS	PRECLINICAL	PH1
STING agonism				<ul style="list-style-type: none"> Innate-to-adaptive priming 	TAK-676 (STING agonist)	
					Targeted STING agonist	
SUMOylation				<ul style="list-style-type: none"> Innate immune enhancer 	TAK-981	
					TAK-981 (ADCC combo)	
Attenukine™				<ul style="list-style-type: none"> Targeted attenuated IFN-α 	TAK-573 (CD38-Attenukine™)	
Agonist-redirected checkpoints				<ul style="list-style-type: none"> Co-inhibition & co-stimulation 	TAK-252 / SL-279353	
					TAK-254 / SL-115154	
Shiga-like toxin A				<ul style="list-style-type: none"> Novel cytotoxic payload 	TAK-169 (CD38-SLTA)	
IGN toxin				<ul style="list-style-type: none"> Solid tumor-targeted ADC 	TAK-164 (GCC-ADC)	
Conditional T cell engagers				<ul style="list-style-type: none"> Novel solid tumor platform 	MVC-101 (EGFR COBRA™)	
Cell therapy platforms				<ul style="list-style-type: none"> Off-the-shelf cell therapies 	TAK-007 (CD19 CAR-NK)	
					5 cell therapies expected in clinic by end of FY20	

UNDISCLOSED TARGETS



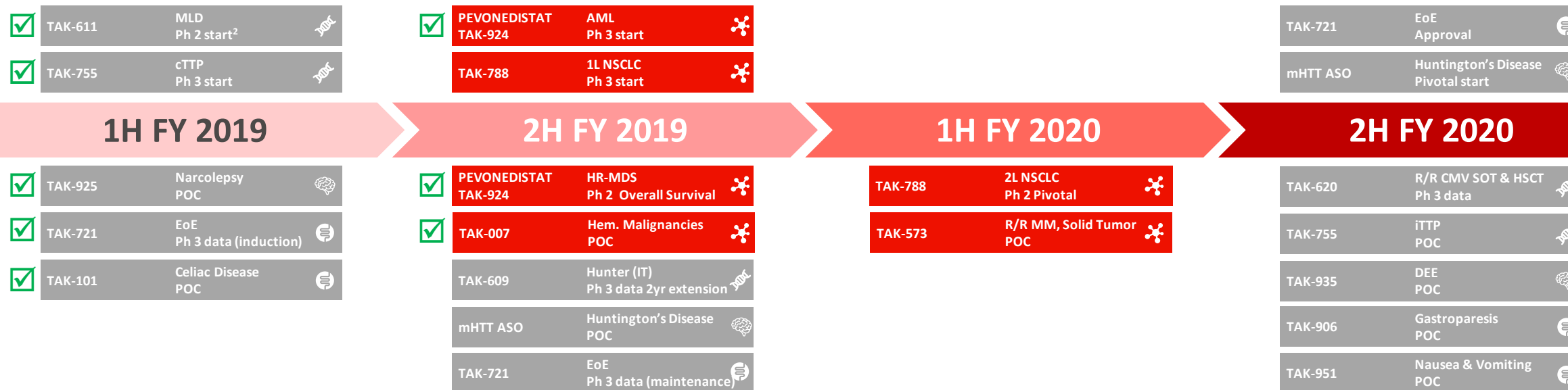
= first-in-class

Hematology Solid tumors

NME MILESTONES ACHIEVED IN FY19 AND LOOKING AHEAD TO OTHER POTENTIAL MILESTONES¹ THROUGH FY20



PIVOTAL STUDY STARTS, APPROVALS



- Oncology
- Rare Disease
- Neuroscience
- Gastroenterology

Denotes milestones that have been achieved.

KEY DATA READOUTS

1. Potential key milestone dates as of November 14, 2019. The dates included herein are estimates based on current data and are subject to change
 2. Potentially registration enabling

1

Total transformation of preclinical & early clinical pipeline

2

Differentiated opportunities in IO leveraging innate immunity & cell therapies

3

Multiple near-term catalysts informing momentum towards solid tumors

R&D DAY AGENDA – NEW YORK, NOVEMBER 14, 2019



TIME	AGENDA
12:30 – 12:35	Welcome and Opening Remarks <i>Sheelagh Cawley-Knopf, Head R&D Global Portfolio Strategy</i>
12:35 – 12:45	Takeda: A Global Values-Based, R&D-Driven Biopharmaceutical Leader <i>Christophe Weber, President & CEO Takeda</i>
12:45 – 13:20	Translating Science into Highly Innovative, Life-changing Medicines <i>Andy Plump, President R&D</i>
13:20 – 13:45	Oncology and Cell Therapies with Spotlight on CAR-NK <i>Chris Arendt, Head Oncology Drug Discovery Unit</i>
13:45 – 14:05	Spotlight on Oncology Opportunities <ul style="list-style-type: none">• TAK-788 : <i>Rachael Brake, Global Program Lead</i>• Pevonedistat : <i>Phil Rowlands, Head Oncology Therapeutic Area Unit</i>
14:05 – 14:20	Break
14:20 – 14:45	Rare Diseases & Gene Therapy <i>Dan Curran, Head Rare Disease Therapeutic Area Unit</i>
14:45 – 15:00	Spotlight on Orexin2R agonists <i>Deborah Hartman, Global Program Lead</i>
15:00 – 15:20	Therapeutic Area Focus in GI with Spotlight on Celiac Disease <i>Asit Parikh, Head GI Therapeutic Area Unit</i>
15:20 – 16:00	Panel Q&A Session
16:00	Drinks reception



TAK-788: PURSUING A FAST-TO-PATIENT STRATEGY FOR NSCLC PATIENTS WITH EGFR EXON 20 INSERTIONS



Rachael L Brake, PhD

Global Program Leader, Oncology

Takeda Pharmaceutical Company Limited

New York, NY

November 14, 2019

THE SIZE OF THE LUNG CANCER CHALLENGE IS VAST



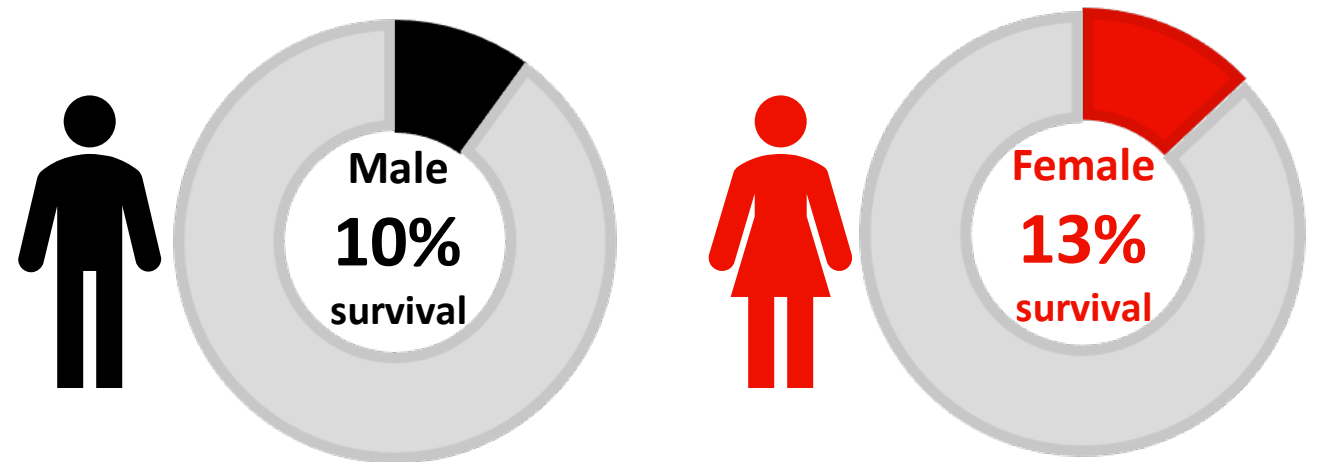
228,000¹

New Lung cancer cases / year

143,000¹

**Lung cancer deaths/ yr
More than breast, colon,
and prostate cancer
combined**

Survival of Lung cancer is amongst the lowest of all cancers



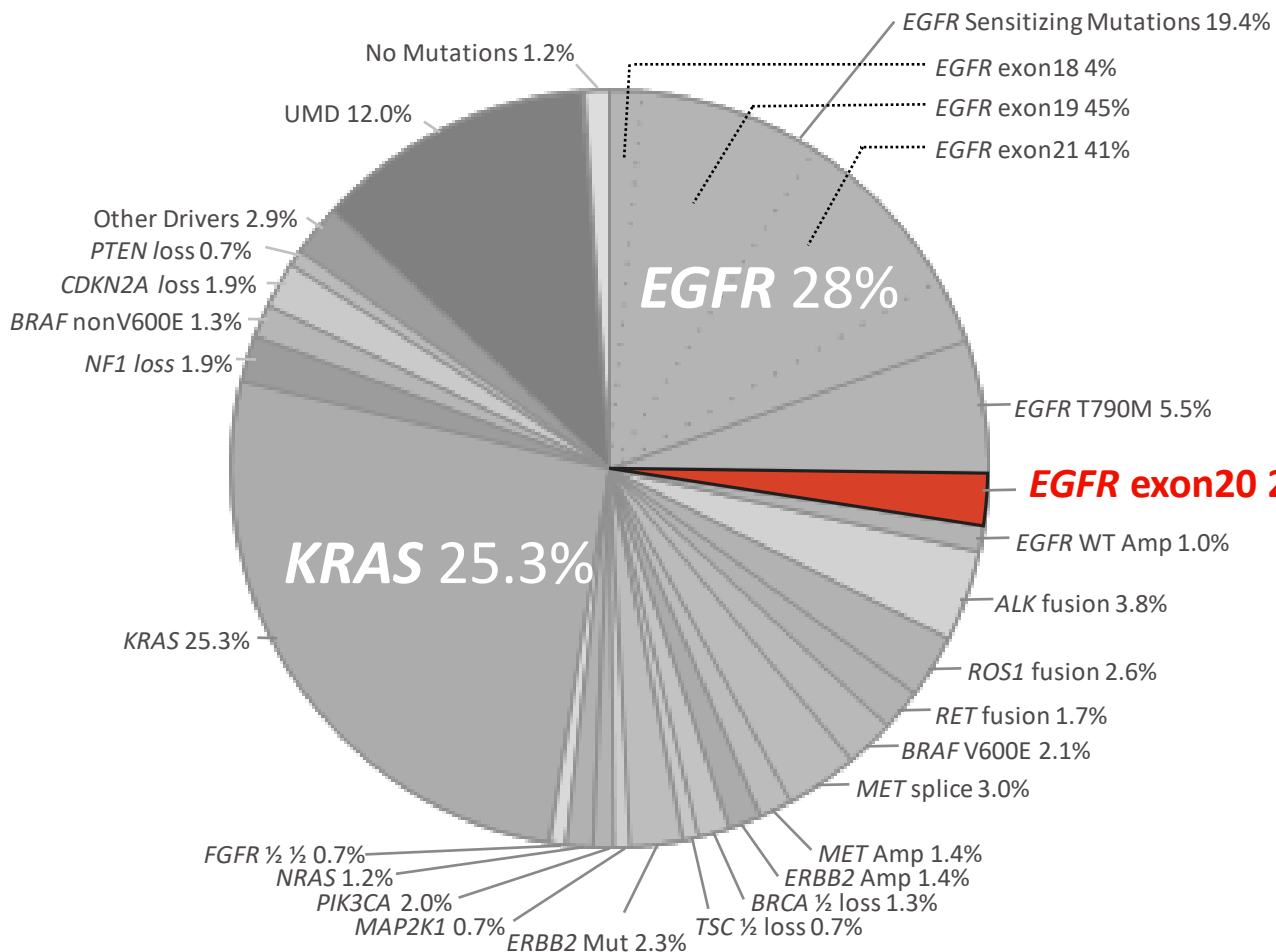
5 yr survival estimates among adults diagnosed with lung cancer between 2007-2011²

1. American Cancer Society; Cancer facts and figures 2019
2. Office for National Statistics UK (www.ons.gov.uk)

EXON 20 INSERTIONS ARE A RARE SUBSET OF EGFR MUTANT NSCLC



Non-Sq NSCLC
200,000 pts/yr¹



EGFR Exon 20 insertions
2,000 pts/yr²

Insertion variants		
1.	V769_D770insASV	(≈20%)
2.	D770_N771insSVD	(≈19%)
3.	H773_V774insH	(≈8%)
4.	A763_Y764insFQEA	(≈7%)
5.	H773_v774insPH	(≈5%)
6.	H773_V774insNPH	(≈4%)
7.	N771_P772insN	(≈3%)
8.	H773_V774insAH	(≈3%)
9.	Other	(≈31%)

Sources: Leduc C et al., Ann Oncol 2017; Jorge S et al. Braz J Med Biol Res 2014; Kobayashi Y & Mitsudomi T. Cancer Sci 2016; Arcila M et al. Mol Cancer Ther 2013; Oxnard G et al. J Thorac Oncol 2013

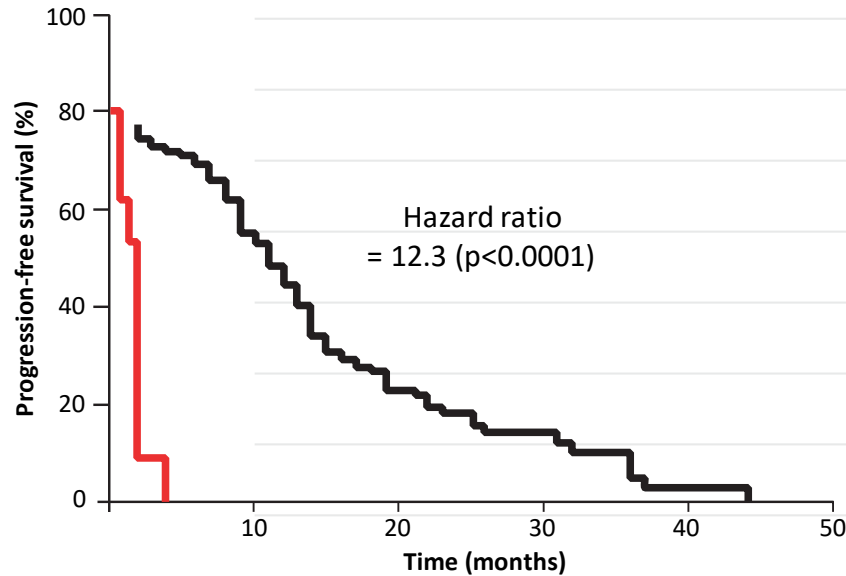
1. Estimated US annual incidence of non-squamous NSCLC
2. Represents annual incidence of the US addressable patient population

PATIENTS WITH EGFR EXON 20 INSERTIONS HAVE NO EFFECTIVE THERAPY



POOR RESPONSE TO EXISTING TKIs ¹

EGFR exon 20 insertions do not demonstrate significant PFS benefit with 1st and 2nd gen EGFR TKIs

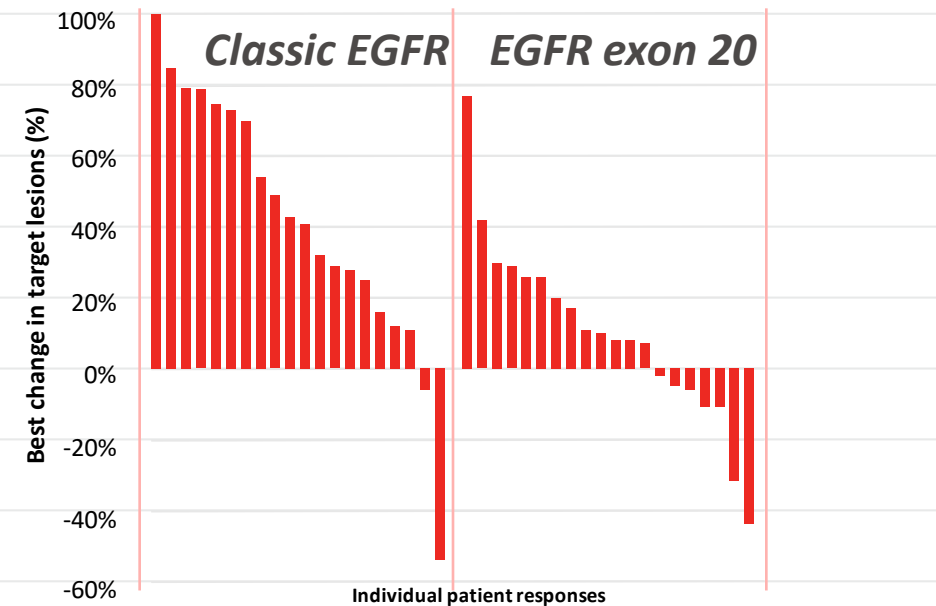


Group	Median PFS (months)
EGFR exon 20 ins (n=9)	2.0
Classical EGFR mut (n=129)	12.0



POOR RESPONSE TO ANTI PD-1/PDL-1 THERAPY ²

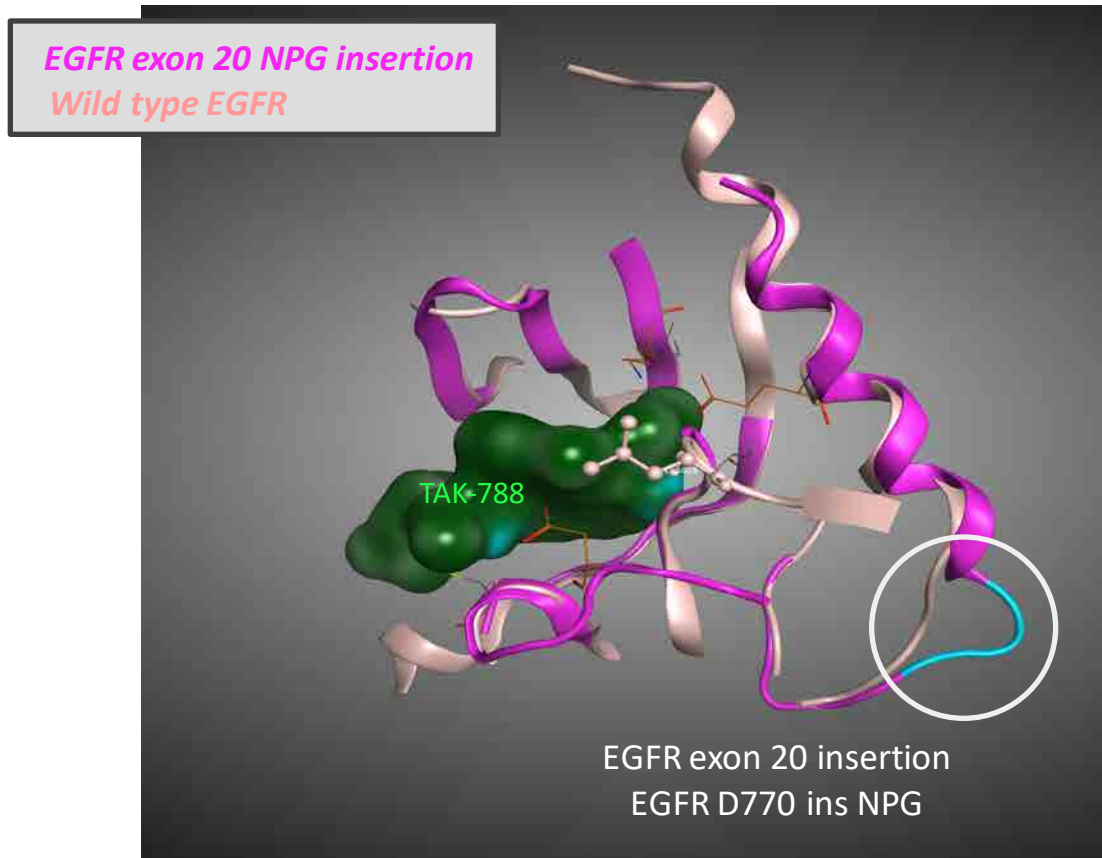
EGFR exon 20 ins patients demonstrate limited benefit to anti PD-1 directed therapy



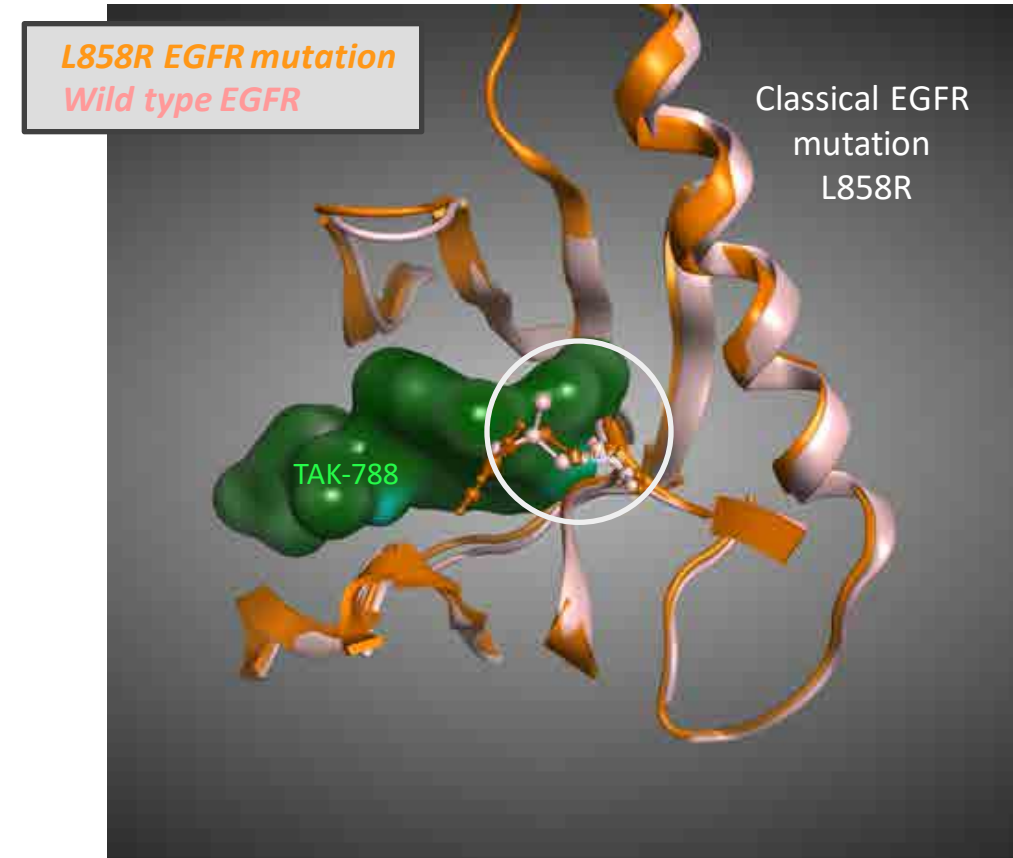
Group	Median PFS (months)	PDL-1 expression ≥1%
EGFR exon 20 ins (n=20)	2.7 (1.7-3.8)	40%
Classical EGFR mut (n=22)	1.8 (1.2-2.4)	25%

1. Robichaux et al., WCLC 2016.
 2. Adapted from Negrao et al., WCLC 2019

OVERCOMING THE DRUG DEVELOPMENT CHALLENGE IN EXON 20 INSERTIONS



**EGFR exon 20 insertion mutations
have a similar structure and similar affinity for
ATP to wild type EGFR**



**Classical EGFR mutations
Significantly alter both structure and affinity
for ATP compared to wild type EGFR**

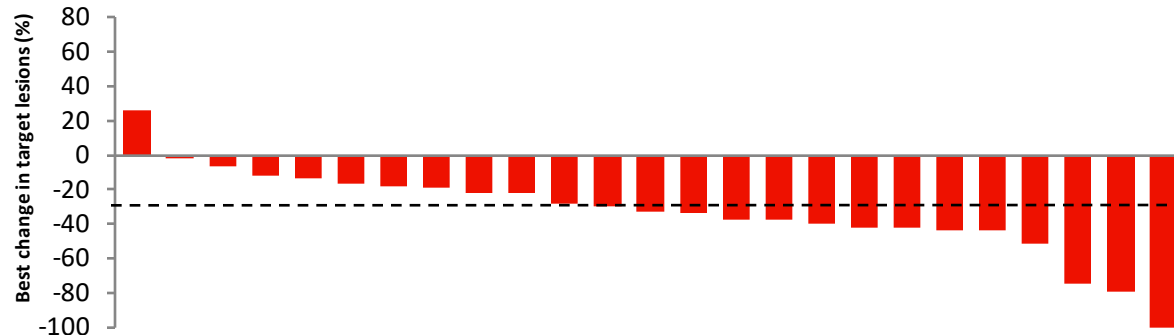
TAK-788 PROOF OF CONCEPT DATA IN EGFR EXON 20 INSERTIONS



2019 ASCO
ANNUAL MEETING

- Confirmed ORR: 12/28 patients: 43% (24.5-62.8%)
- Median PFS: 7.3 months (4.4 mo - NR)

ANTITUMOR ACTIVITY IN EGFR EXON 20 INS AT 160 MG DAILY



Individual patient responses

Prior TKI:	N	N	N	N	Y	N	N	N	N	N	N	N	N	Y	N	N	N	N	N	N	N	N	N	Y	Y	N
Prior IO:	N	Y	Y	N	Y	N	N	N	N	Y	Y	N	Y	Y	N	Y	Y	Y	N	N	Y	N	Y	Y	Y	

SAFETY SUMMARY IN PATIENTS TREATED WITH TAK-788

N (%)	All Patients 160 mg qd (n=72)
Treatment-related AE	
Any grade	68 (94)
Grade ≥3	29 (40)
Dose reduction due to AE	18 (25)
Dose interruption due to AE	36 (50)
Discontinuation due to treatment-related AE	10 (14)

TAK-788 has not been approved for the use or indications under investigation in the clinical trials (and there is no guarantee it will be approved for such use or indication). Claims of safety and effectiveness can only be made after regulatory review of the data and approval of the labeled claims.

Adapted from Riley et al. ASCO. 2019

ENCOURAGING EFFICACY AND SAFETY HAS BEEN OBSERVED WITH TAK-788



Select signs of efficacy				
Clinical feature	TAK-788 ¹ n=28	Poziotinib ² n=50	Afatinib ³ n=23	Osimertinib ⁴ n=15
ITT confirmed ORR (%)	43%	NR	8.7%	0%
Evaluable confirmed ORR (%)	NR	43%	NR	NR
ITT median PFS (months)	7.3	5.5	2.7	3.5
Select treatment related adverse events attributable to wild type EGFR inhibition				
Grade ≥ 3 Adverse event	TAK-788 ¹ n=72	Poziotinib ² n=63	Afatinib ⁵ n=229	Osimertinib ⁶ n=279
Diarrhea ≥ Gr3	18%	17.5%	14%	1%
Rash ≥ Gr3	1%	35%	16%	1%
Paronychia ≥ Gr3	0%	9.5%	11%	0%
Total dose reduction rates				
AE related dose reductions (%)	25%	60%	52%	2.9%

Direct cross-trial comparison can not be made between TAK-788 and other treatments due to different studies with different designs

ITT = Intention to treat, ORR = Overall response rate, PFS = progression free survival, NR = Not reported.

Sources: 1. Riley et al. ASCO. 2019; 2. Haymach et al. WCLC 2018; 3. Yang et al., Lancet. 2016.; 4. Kim et al., ESMO 2019; 5. Yang et al., Lancet. 2012; 6. Mok et al., NEJM 2017

STRONGER DIARRHEA MANAGEMENT SHOULD = ENHANCED EFFICACY




June 2016
FIRST IN HUMAN
Diarrhea
management very
late - medicate
when at Grade 2



Average time on TAK-788 7.9 months	
Diarrhea	Time on Treatment (Mo)
Grade 3	4.6
Grade 2	9.8
Grade 1	12.7
No diarrhea	12.1



Feb 2019 new trial

Comprehensive
diarrhea management
guidelines
implemented earlier

WE HAVE MODIFIED OUR APPROACH TO GI ADVERSE EVENT MANAGEMENT WITH THE AIM TO IMPROVE EFFICACY

2021: EXPECTED FIRST APPROVAL IN EGFR EXON 20 INSERTIONS



- Single arm Phase 2 trial
- Refractory EGFR Exon 20 insertion patients

- Previously treated, ≤2 systemic anticancer chemotherapy
- Locally advanced or metastatic
- NSCLC harboring EGFR exon 20 insertion



TAK-788 at 160 mg qd

1. Overall Response Rate
2. Duration of Response
3. Median Progression Free Survival
4. Overall survival

• ACTIVELY ENROLLING US, EU, AND ASIA
• POTENTIAL APPROVAL MID 2021

- Supporting data generation
- Real world evidence (RWE) data collection

RWE will be used to assess the benefit of conventional standard of care (SOC) agents in patients with EGFR Exon 20 insertions

EMR claims databases and Medical Chart Review

Chemo +/- VEGFR

Immunotherapy

Other

1. Overall Response Rate
2. Time to treatment failure
3. Median progression free survival
4. Duration of Response
5. Overall survival

• US (FLAT IRON HEALTH) • JP (SCRUM-JAPAN)
• EU AND CHINA CHART REVIEW

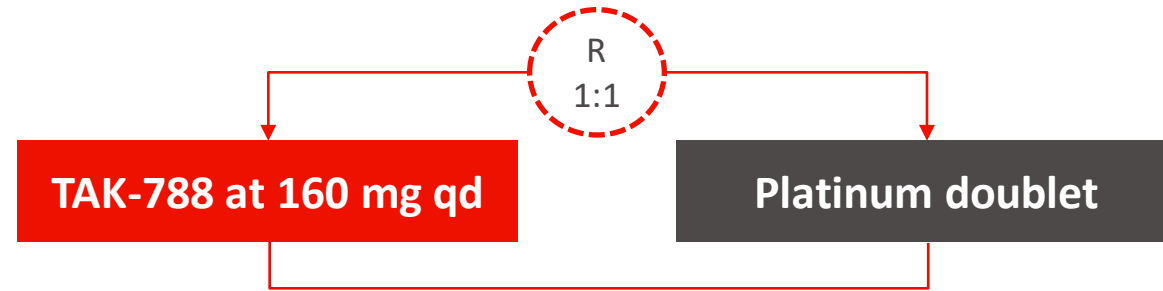
NEW ACTIVATION: A TRIAL FOR NEWLY DIAGNOSED PATIENTS



2 year enrollment
Anticipated approval 2023

- Randomized, controlled, Phase 3 trial
- Treatment-naïve EGFR exon 20 insertion patients

- Advanced or metastatic
- Treatment-naïve patients diagnosed with NSCLC harboring EGFR exon 20 insertion mutations



1. Median Progression Free Survival
2. Overall Response Rate
3. Duration of Response
4. Overall survival

Electronic patient reported outcomes

• ACTIVELY ENROLLING
• US, EU, LATIN AMERICA AND ASIA-PACIFIC

1

NSCLC patients with EGFR Exon 20 insertions are underserved with the current available therapies

2

TAK-788 is the first purposely designed inhibitor and clinical proof-of-concept has demonstrated efficacy

3

The EXCLAIM trial in refractory patients could lead to the first approval of TAK-788 by 2021