



World-leading drug discovery
targeting GPCRs

40th Annual J.P. Morgan Healthcare Conference

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References to "FY" in this presentation for periods prior to 1 January 2018 are to the 12-month periods commencing in each case on April 1 of the year indicated and ending on March 31 of the following year, and the 9 month period from April 1 2017 to December 31 2017. From January 1 2018 the Company changed its fiscal year to the 12-month period commencing in each case on January 1. References to "FY" in this presentation should be construed accordingly.

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We are a world-leading team of GPCR drug hunters

World leader in
GPCR drug discovery
and early development

Proprietary GPCR-targeted
StaR® technology and SBDD
platform capabilities

Japan-anchored biotech, with
state-of-the-art R&D centre in
Cambridge, UK

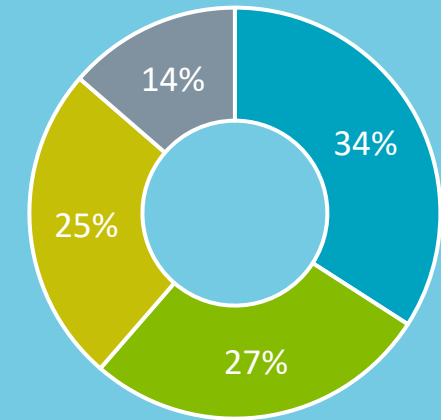
Listed on Tokyo Stock Exchange
(4565-JP). US\$1.2bn Mkt. Cap.



EVOLVING WITH A SPECIALIST THERAPEUTIC FOCUS

Advancing a broad and deep
pipeline of **over 40** partnered
and in-house programs across
multiple therapeutic areas:

- Neurology
- Immunology
- Gastroenterology
- Other



200+
EMPLOYEES
WORLDWIDE



340+
STRUCTURES
SOLVED



500+
GLOBAL
PATENTS



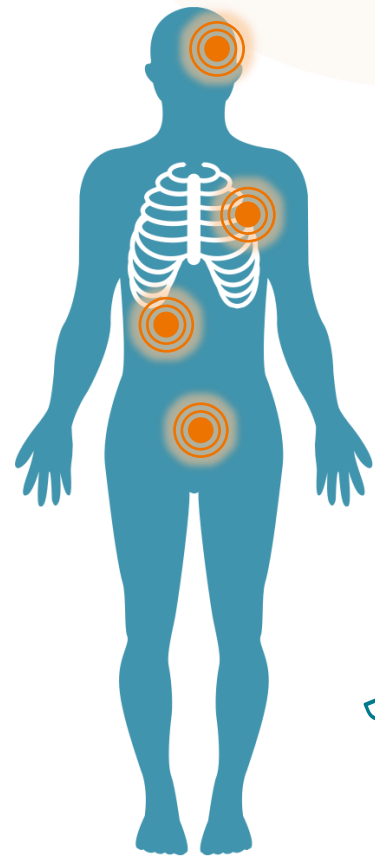
15+
WORLD-LEADING
PARTNERS



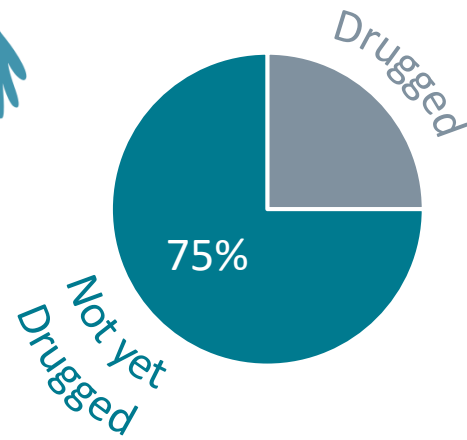
\$500M+
CASH ON
BALANCE SHEET

We unlock the potential of GPCRs with our StaR[®] technology

GPCRs are well-known targets with **significant untapped opportunity**



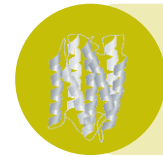
~400
GPCR
PROTEINS



StaR[®] enables us to **unlock the potential of GPCRs** via advanced understanding of their **structure and atomic/molecular interactions**



Unstable
native GPCR



Stabilized
StaR[®] protein

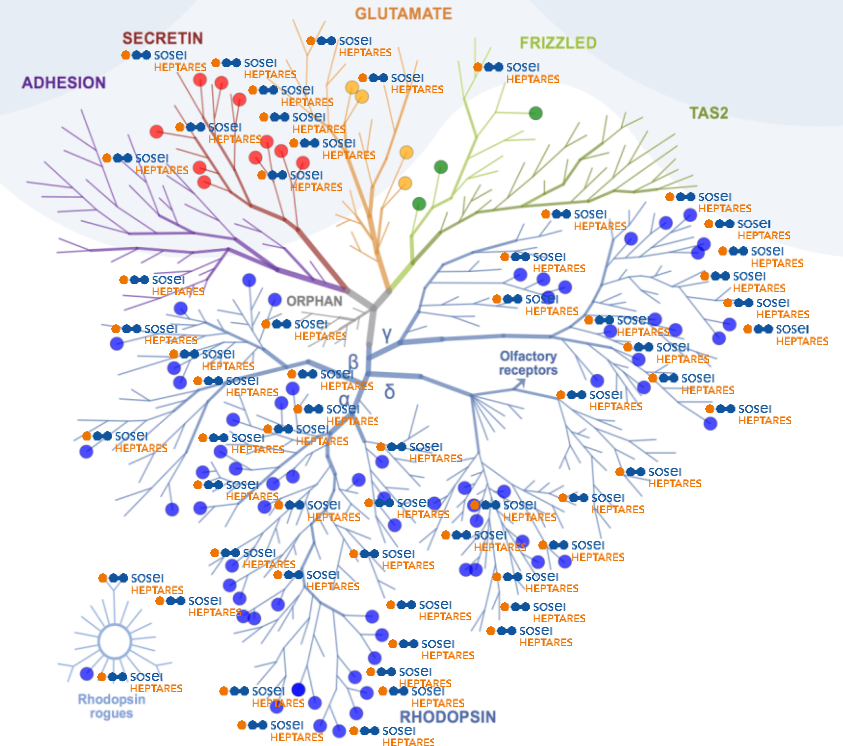
Enables mAb discovery

SBDD



Novel drug
candidate

SMEs and Peptides



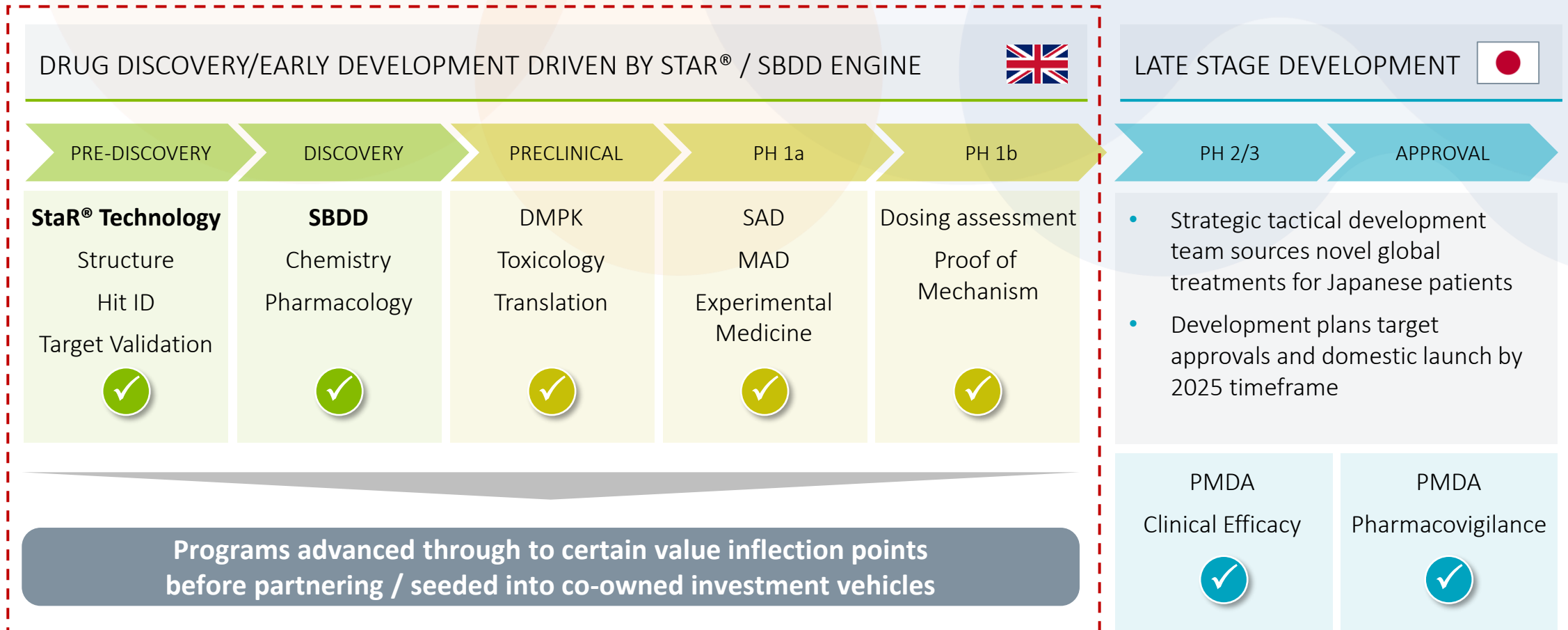
Solved **340+** molecular structures
from **40+** different receptors / **70+** StaRs

Sources: "Unexplored opportunities in the druggable human genome", Nature Reviews, 2016 ;
"Trends in GPCR in Drug Discovery – new agents, targets and indications", Nature Reviews,
4 2017; Management analyses

● Receptors for which a structure has been released in Protein Data Bank (public domain)

●●● Sosei Heptares Receptors for which Sosei Heptares has developed a StaR[®]

Core capabilities in drug discovery and early development



Our approach is validated through 20+ active GPCR programs with world class partners

Active Partnerships



Active Spin-Out Asset Centric Vehicles



~\$800 million

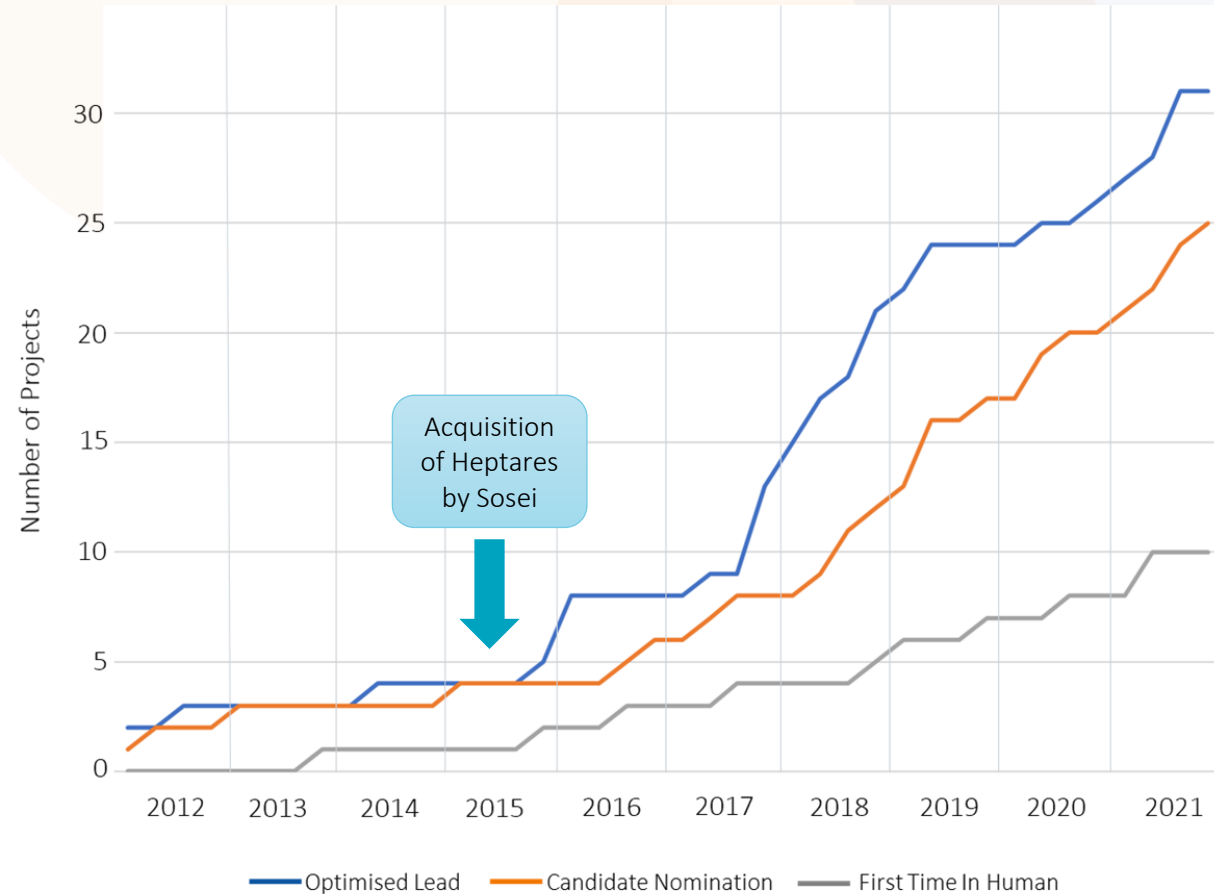
Upfront and milestone payments, royalties and R&D funding received from partners to date¹

~\$7 billion

Total potential deal value of active partnerships²

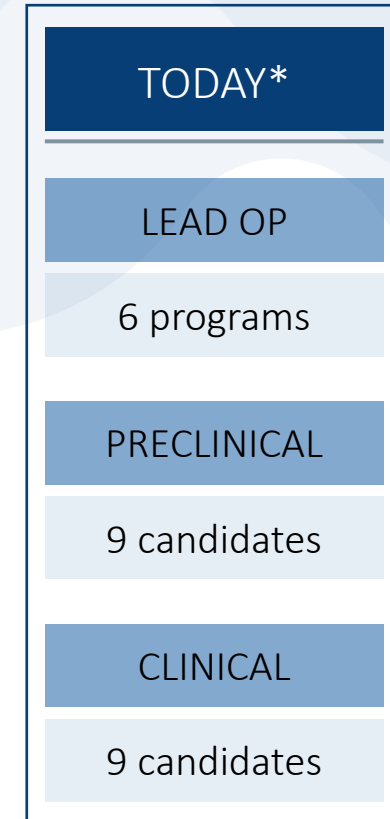
¹ Encompasses payments received from active, inactive and completed partnerships from 2005 to 2020. ² Includes potential option fees, upfront, development, regulatory and commercial milestone payments and committed R&D funding. Excludes potential royalty payments.

Ten drug candidates generated from our SBDD platform have been successfully advanced into clinical trials in the past 7 years



Generated
25
preclinical
candidates

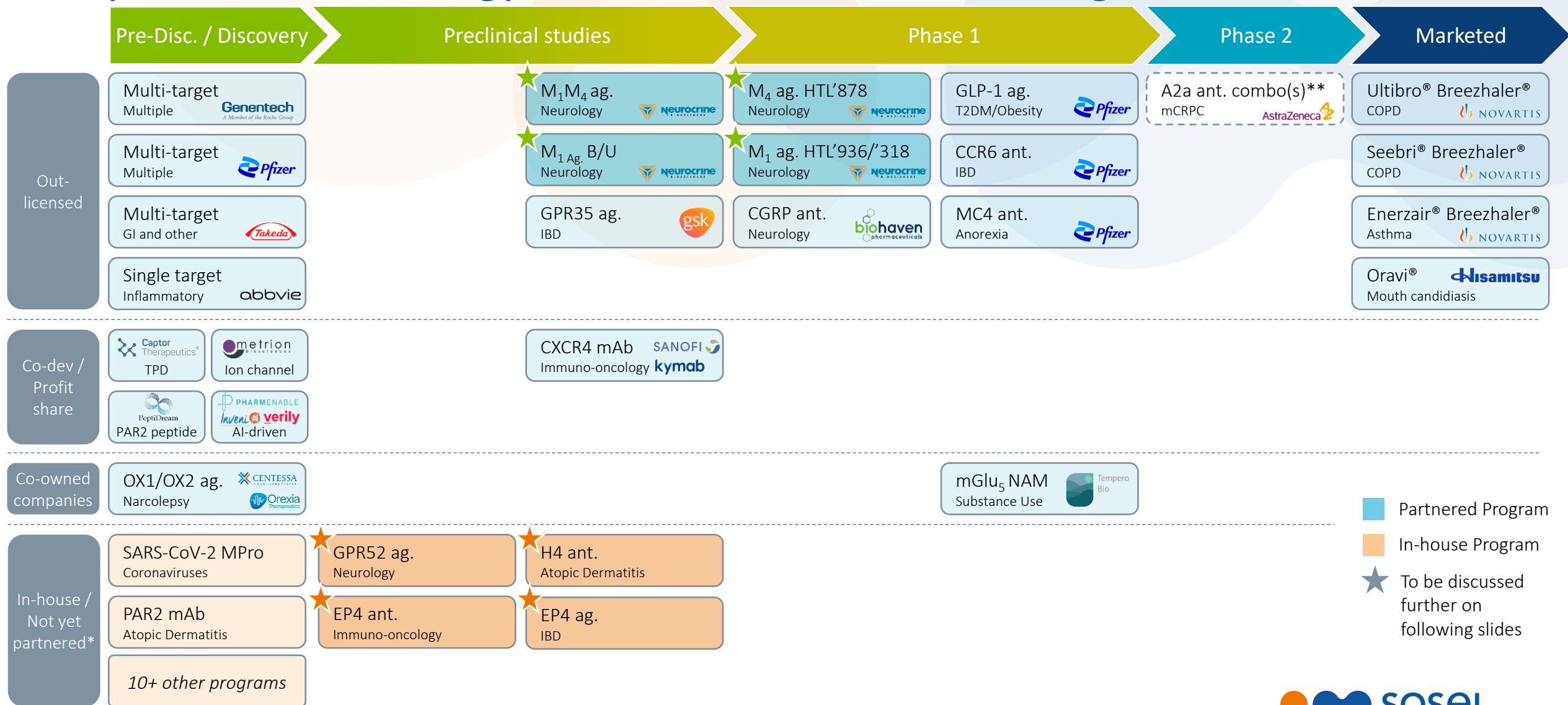
Produced
10
clinical
candidates



We are one of the most productive drug discovery teams in the world over the past 10 years. Up to six new preclinical candidates expected in the next 2 years across both internal and collaboration programs

*5 programs (1 x Phase 1, 2 x Preclinical, 2 x Discovery) have been prioritised for academic or industrial partnerships. More information here: <https://soseiheptares.com/other-programs-for-partnering>

Broad and balanced pipeline of partnered and in-house programs, plus new technology collaborations will drive long-term momentum



- Partnered Program
- In-house Program
- ★ To be discussed further on following slides



8 Note: Seebri®, Ultibro®, Energair® and Breezhaler® are registered trademarks of Novartis AG. * The in-house pipeline displayed above includes fully funded programs only and excludes back-up programs and similar indication programs for one target. For example – A2a ant, SSTR5 ag, GLP-1 ant, GLP-2 ant, M1 and M4 backup programs (list not exhaustive). ** AstraZeneca have removed the A2a program from their clinical pipeline as at Q3 2021

New strategic collaboration with Neurocrine to progress a portfolio of selective Muscarinic agonists



\$100m upfront received and up to \$2.6bn in future economics

- 1 Neurocrine gained **rights to a portfolio of potential best-in-class selective muscarinic receptor agonists** in development for the treatment of major CNS disorders
- 2 Sosei Heptares received **US\$100 million upfront**
- 3 Sosei Heptares to receive **ongoing R&D funding** and **up to US\$1.5 billion** in potential development and regulatory milestones, **up to US\$1.1 billion** in commercial milestones, **plus tiered up to mid-teen percentage royalties** on net sales
- 4 Sosei Heptares also **retained the rights to develop all muscarinic M1 agonists in Japan in all indications**, with Neurocrine receiving co-development and profit share options

Licensed Portfolio

M4 agonists
(Global)

Dual M4/M1 agonists
(Global)

M1 agonists
(ex-Japan)

Developing novel muscarinic receptor agonists for schizophrenia and other neuropsychiatric disorders

Neurocrine M4 agonist (HTL'878) program – 4th-gen candidate aiming to be a highly effective and safer treatment for Sz



	MoA	Typical medicine	Peak sales example	Generation	Efficacy			Safety	
					Positive symptoms	Negative symptom	Cognitive impairment	Extrapyramidal symptoms**	Weight gain
					Number of patients 20M*	Number of patients 11.5M*	Number of patients 16M*	-	-
Typical antipsychotic	D2 Ant	Haldol	(Historic data unavailable)	1 st	+++	-	-	++++	+
Atypical antipsychotics	D2 Ant + 5-HT Regulator	Zyprexa Risperdal Latuda	Zyprexa \$5,000M+ (2010)	2 nd	+++	+	+	++	++++
	D2 partial Ag + 5-HT Regulator	Abilify REXULTI Vraylar	Abilify \$6,100M+ (2013)	3 rd	+++	+	+	+	+
	M4 Agonist***	KarXT CVL-231 HTL'878	-	4 th	+++	++	++	-	-

Of the fourth-generation treatments in development, HTL'878 stands out as a potentially superior approach

*As 1 patient can have several symptoms, number of patients in 3 symptoms is overlapping

**Drug-induced movement disorders including involuntary or uncontrollable movements, tremors, muscle contractions. It is said to be related with D2 receptor occupancy balance.

***Expected efficacy and expected safety derived from ongoing clinical trials of KarXT and CVL-231.

Source: P T. 2014 Sep; 39(9): 638–645, J Clin Psychiatry. 2010;71(3):280–286, Schizophr Bull. 2010 Jan; 36(1): 36–42 and EvaluatePharma



Four upcoming wholly-owned programs prioritised for development over the next 12 to 24 months



Schizophrenia
and Psychosis

GPR52 agonist



Atopic
Dermatitis

H4 antagonist



Immunosuppression
in solid tumors

EP4 antagonist



Inflammatory
Bowel Disease

EP4 agonist

TARGET PRODUCT PROFILE

- Once daily oral small molecule
- 24hr target engagement

- Once daily oral small molecule
- To be used as a monotherapy or in combination

- Once daily oral small molecule
- To be used in combination with checkpoint inhibitors

- Oral GI restricted
- Good potency and selectivity
- Minimal GI systemic exposure



New initiatives and future innovations

Strategic growth plan driving corporate value expansion



Seeking to add new revenues, access new technologies, and expand and future-proof our capabilities

Three big challenges in drug discovery and development

KEY OPPORTUNITY



Choosing
the right target

- Will modulating the target affect disease?
- Can a good modulator of the target be found?



Discovering
a therapeutic agent

- Identifying a modulator with the appropriate profile
- Differentiating from competitors (if any)



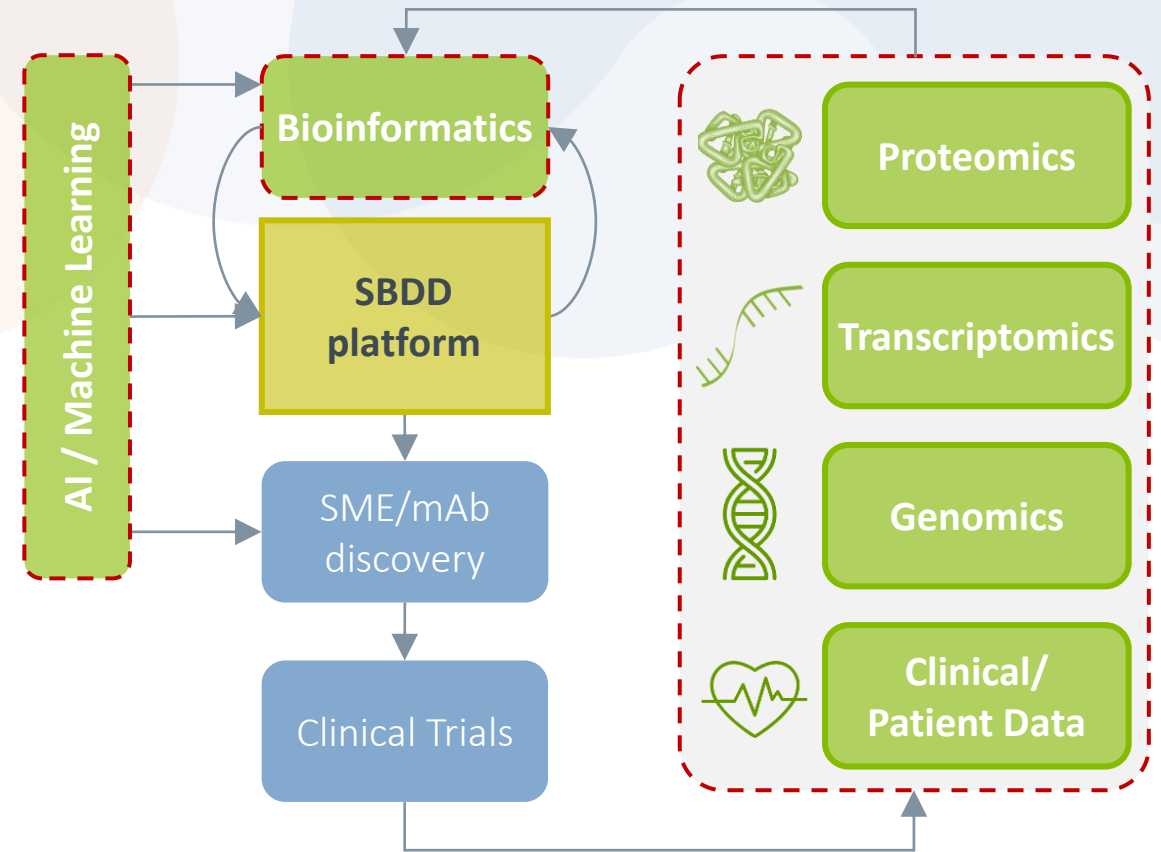
Conducting
the right patient studies

- Demonstrating the value of the agent in treating disease
- Utilizing biomarkers to support patient stratification

Our greatest opportunity is to leverage technology to choose the right drug targets that will become the transformational therapies of the future

In January 2021 we established our **New target ID and validation (TIV) framework** to accelerate our hunt for novel GPCR targets...

Aim	To support the identification and validation of new drug GPCR targets across our core therapeutic areas (GI, immunology, immuno-oncology and neuroscience)
How	By leveraging top-end external company omics platforms/databases and validation capabilities
Why	To add exciting novel GPCR targets to our pipeline which have evidence of a direct involvement in a disease / mechanism process to fuel partnering activity and higher value creation



Continuously expanding our know-how and SBDD platform to maintain our leadership position in GPCR drug discovery

...with three new key partnerships executed in the past 12 months

verily

- Research collaboration combining Verily's immune profiling capabilities and SH's StaR® platform and SBDD capabilities
- Collaboration aims to identify GPCRs expressed in immune cells, enhance our understanding of their functional relevance and prosecute as potential drug targets in **immune-mediated diseases**

InveniAI
Innovate with Intelligence

- Discovery collaboration combining InveniAI's AI-powered platform for target discovery with SH's GPCR SBDD and early development capabilities
- Collaboration aims to identify new therapeutic product concepts for **immune diseases** and generate novel compounds that could improve responses to existing immunotherapies

T W I S T
BIOSCIENCE

- Discovery collaboration combining Twist's synthetic antibody libraries and bioinformatics expertise with SH's StaR® platform
- Collaboration aims to discover **therapeutic antibodies** against GPCRs identified by SH
- SH will have exclusive, full global rights to develop and commercialize any antibody leads identified and directed to the targets of interest

Leveraging the best technologies to drive synergies with our platform and accelerate novel drug discovery

New multi-target collaboration with Verily aims to accelerate the development of novel therapies for immune-mediated diseases

300+
Potential
GPCRs

High priority
candidate targets

Structure-based
drug development

verily Immune Profiler

Data

8 million readouts per sample
+ Reference data

- + Cell sorting & frequencies
- + Gene expression
- + Disease score, treatment / response
- + Chromatin accessibility & contacts

Analysis

Integrative analysis
+ Quality Control

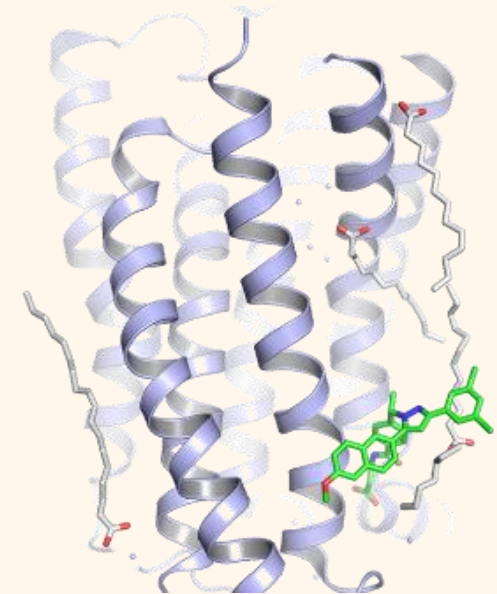
- Prioritized pathways & signatures
- Multi-faceted evidence
- Public datasets
- Wet lab validation

= Better Tx & Better Dx

sosei
HEPTARES

StaR® Platform

GPCRs are proteins that represent the **target and site of action** for more drugs marketed today or in development than any other class of proteins



We are building a **Future Innovations Portfolio** to explore ways to leverage our platform expertise in new directions

Targeted GPCR Degradation



- Technology collaboration to initially identify novel small molecules that target a GPCR for degradation as potential therapeutic agents for **gastrointestinal disorders**
- Further aim to generate high resolution structural information around the GPCR-E3 ligase complex to enhance drug discovery efforts

Ion Channels



- Technology collaboration to demonstrate the potential of SBDD to address disease-associated ion channels
- Initial focus to identify novel, highly specific drug leads for further development against a single ion channel associated with **neurological diseases**

COVID-19 Treatment



- In-house program funded by Wellcome through the Covid-19 Therapeutics Accelerator
- Currently advancing the pre-clinical development of novel oral anti-viral small molecules targeting the main protease of SARS-CoV-2 (M^{pro}) as potential treatments for **COVID-19**

Our SBDD platform is also now being applied to areas outside our traditional GPCR space

Priority objectives for FY2022



Progress organic growth plan

- Extend technology / platform leadership
- Generate high quality novel candidates
- Advance discovery and development pipeline
- Execute high value partnerships



Execute strategic growth plan

- Invest / collaborate in novel technologies
- Diligence potential strategic M&A opportunities
- Diligence potential opportunities for Japan
- Expand drug target classes beyond GPCRs



Commitment to sustainable development goals

- Promote sustainable ESG practices and policies across global business
- Advance Mpro inhibitor program and seek collaboration to further develop candidates as oral treatments for human coronaviruses



Appendix

Our new partner Neurocrine is committed to a transformative treatment for Schizophrenia with the M4 agonist HTL-0016878

Large addressable market with blockbuster sales profiles...

~20M

Schizophrenia patients worldwide

Blockbusters sales profiles despite limited efficacy and severe side effects

\$10BN+
(2020)



\$13BN+
(2026)



...Limited innovation in 70 years

Current treatments use the same mechanism of action from the 1950s

1st Gen

D2 modulating

Atypicals

Dual D2/5HT modulating

2nd Gen Atypicals

Dual D2/5HT modulating






















Huge opportunity for M4 agonists including HTL-0016878

- ✓ Highly selective M4 agonists
- ✓ Potential Best-in-Class therapy with a novel mechanism
- ✓ Improved tolerability
- ✓ Significant need for new treatment options

The current standard of care can be improved. Selective M4 agonism represents a unique opportunity












Source: World Health Organization; EvaluatePharma

Partnered Pipeline

Compound	Target / Mechanism of Action	Modality	Indication	Partner	Disc.	PCC	Ph1	Ph2	Ph3	App	Mkt
Traditional Out-licensing Collaborations											
Seebri® Breezhaler®	LAMA	SME	COPD	 NOVARTIS	█	█	█	█	█	█	█
Ultibro® Breezhaler®	LAMA+LABA	SME	COPD	 NOVARTIS	█	█	█	█	█	█	█
Energair® Breezhaler®	LAMA+LABA+ICS	SME	Asthma	 NOVARTIS	█	█	█	█	█	█	█
ORAVI®	Antifungal agent miconazole	SME	Oropharyngeal candidiasis	 Mitsubitsu	█	█	█	█	█	█	█
Imaradenant**	Adenosine A2a ant. combo	SME	mCRPC	 AstraZeneca	█	█	█	█	█	█	█
HTL'878	Muscarinic M4 agonist	SME	Neurology diseases	 neurocrine	█	█	█	█	█	█	█
HTL'318 ¹	Muscarinic M1 agonist	SME	Neurology diseases	 neurocrine	█	█	█	█	█	█	█
HTL'936	Muscarinic M1 agonist	SME	Neurology diseases	 neurocrine	█	█	█	█	█	█	█
Not disclosed	Muscarinic M1 agonist (B/U)	SME	Neurology diseases	 neurocrine	█	█	█	█	█	█	█
Not disclosed	Muscarinic M1/M4 agonist	SME	Neurology diseases	 neurocrine	█	█	█	█	█	█	█
PF-07081532	GLP-1 agonist	SME	T2DM / Obesity	 Pfizer	█	█	█	█	█	█	█
PF-07054894	CCR6 antagonist	SME	Inflammatory bowel disease	 Pfizer	█	█	█	█	█	█	█
PF-07258669	MC4 antagonist	SME	Anorexia	 Pfizer	█	█	█	█	█	█	█
BHV3100	CGRP antagonist	SME	Neurology diseases	 biohaven pharmaceuticals	█	█	█	█	█	█	█
Not disclosed	GPR35 agonist	SME	Inflammatory bowel disease	 gsk	█	█	█	█	█	█	█
Not disclosed	Multi target	SME	Multiple indications	 Pfizer	█	█	█	█	█	█	█
Not disclosed	Multi target	SME/LME	Multiple indications	 Genentech A Member of the Roche Group	█	█	█	█	█	█	█
Not disclosed	Multi target	SME/LME	Gastrointestinal and other	 Takeda	█	█	█	█	█	█	█
Not disclosed	Single target	SME	Inflammatory diseases	 abbvie	█	█	█	█	█	█	█















Note: SME = small molecule. LME = large molecule. Seebri®, Ultibro®, Energair® and Breezhaler® are registered trademarks of Novartis AG. ** AstraZeneca have removed the A2a program from their clinical pipeline as at Q3 2021

Partnered Pipeline (cont'd)

Compound	Target / Mechanism of Action	Modality	Indication	Partner	Disc.	PCC	Ph1	Ph2	Ph3	App	Mkt
Co-development / Profit-share Collaborations											
KY1051	CXCR4 mAb	mAb	Immuno-oncology	SANOFI 	█						
Not disclosed	PAR-2	Peptide	Inflammatory diseases		█						
Not disclosed	Targeted Protein Degradation	SME	Gastrointestinal disorders		█						
Not disclosed	AI-Augmented Drug Discovery	SME	Neurology diseases		█						
Not disclosed	Ion Channel Drug Discovery	SME	Neurology diseases		█						
Not disclosed	Multi target AI-powered	SME/LME	Immune diseases		█						
Not disclosed	Antibody Discovery	mAb	Disease-relevant GPCR targets		█						
Not disclosed	Multi target AI-powered	SME/LME	Immune diseases		█						
Co-owned Investments											
TMP301	mGlu5 NAM	SME	Substance use disorders		█						
Not disclosed	OX1/OX2 agonist (oral and intranasal)	SME	Narcolepsy	 	█						

Note: SME = small molecule. LME = large molecule. Seebri®, Ultibro®, Enerzair® and Breezhaler® are registered trademarks of Novartis AG.

In-house Pipeline

Compound	Target / Mechanism of Action	Modality	Indication	Originator	Dis	PCC	Ph1	Ph2	Ph3	App	Mkt.
In-house Programs (Not yet partnered)											
Not disclosed	H4 antagonist	SME	Atopic Dermatitis		██████████						
Not disclosed	EP4 antagonist	SME	Immuno-oncology		██████████						
Not disclosed	GPR52 agonist	SME	Neurology diseases		██████████						
Not disclosed	EP4 agonist	SME	Inflammatory bowel disease		██████████						
Not disclosed	PAR-2 mAb	mAb	Atopic Dermatitis		██████						
SH-879	SARS CoV-2 Mpro	SME	Coronaviruses		██████						
Multiple programs	Not disclosed	SME/LME	Neurology diseases		██████						
Multiple programs	Not disclosed	SME/LME	GI and Inflammatory diseases		██████						
Multiple programs	Not disclosed	SME/LME	Immunology diseases		██████						
In-house Programs (No longer internally funded. Targeting academic / industrial partnership)											
HTL'310	SSTR5 agonist	Peptide	Hypoglycaemic disorders		████████████████████						
HTL'097	GLP-1 antagonist	Peptide	Hypoglycaemic disorders		██████████						
HTL'023	Dual GLP-2/GLP-1 agonist	Peptide	Intestinal failure / NASH		██████████						
Not disclosed	Apelin agonist	Peptide	Pulmonary Arterial Hypertension		██████████						
HTL'641	Dual orexin antagonist	SME	Insomnia and sleep disorders		██████████						

Note: SME = small molecule. LME = large molecule. ¹ Voluntarily suspended


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