NON-CONFIDENTIAL

FY2021 Financial Results

12-month period ended December 31, 2021

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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.

Agenda

1. Business Summary
2. FY2021 Consolidated Financial Results
3. Operational Highlights
4. Organic Growth Plan Update
5. Strategic Growth Plan Update
6. FY2022 Strategic Goals
7. Appendix

Note: This material was created to explain the details of our company and is not intended to be used for investment decisions. In addition, the contents reflect the views of our company at the time of the creation of the material, and the accuracy of the information is not guaranteed. Investments should be made based on the independent views of investors

1

Business Summary

Shinichi Tamura, Chairman & CEO

Vision/Business Overview

Our vision is global biotech champions from Japan by solving challenges of drug discovery

Increasing healthcare costs	Numerous unmet medical needs	Depleting drug discovery targets
Make small molecule drug discovery more efficient and sophisticated with proprietary technology	Logical approach to drugs with new mechanism	Capture undruggable targets

We aim to overcome challenges with proprietary tech-based drug discovery platform (StaR®/SBDD) and

become “one of Japan’s global biopharmaceutical champions”

Current major target

GPCRs the largest drug discovery target, having large potential that our platform can approach

~400 **GPCR targets** active in diseases[2]

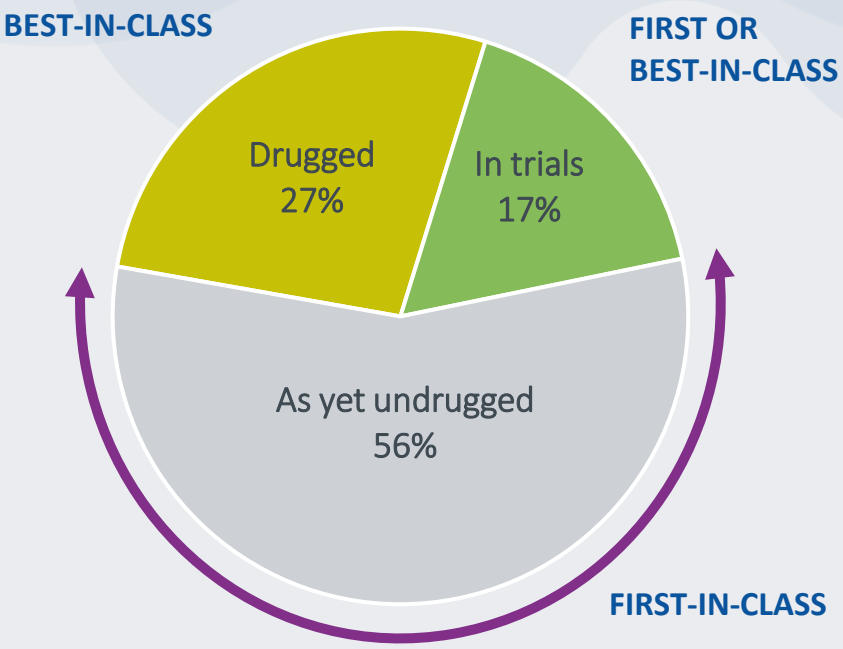
~34% **of FDA approvals** target GPCRs[1]

27% **of global sales** are GPCR drugs[1]

- NEUROLOGICAL DISORDERS
- GASTROINTESTINAL DISEASES
- IMMUNOLOGY/ONCOLOGY
- METABOLIC DISORDERS
- CARDIOVASCULAR
- RESPIRATORY

GPCRs are active in a wide range of disease areas, and offer broad therapeutic potential

~400 GPCR targets in the body active in disease[2]



Significant opportunity to target new first-in-class and/or improved best-in-class GPCR medicines

Sources: [1] "Unexplored opportunities in the druggable human genome", Nature Reviews, 2016 ; [2] "Trends in GPCR in Drug Discovery – new agents, targets and indications", Nature Reviews, 2017

Our Strengths

World-leading tech-based drug discovery platform (StaR®/SBDD)

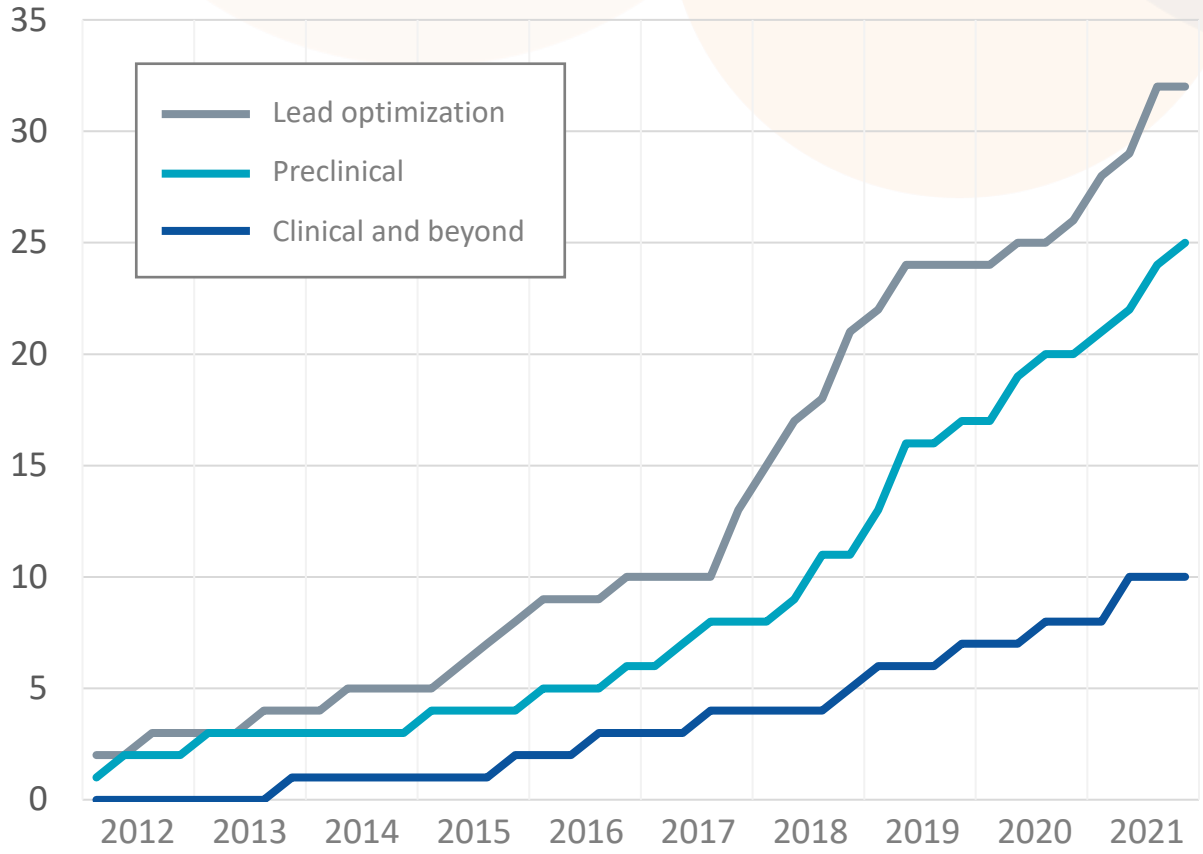
	Conventional drug discovery	Our drug discovery
Location	Empirical design	Rational design (computer-based)
Method	High Throughput Screening (HTS[1])	Drug discovery tech-platform (StaR®/SBDD[2])
Period[3]	4.5 years on average	3.0 years on average
Costs[3]	$15 million	$5 million
Features [4]	Target structure usually unclear, difficult to design drugs precisely	Execute precise drug design following the confirmation of target structure
Target [4]	Difficult for GPCRs with unstable structures	Focusing on GPCRs with unstable structures

[1] HTS/High Throughput Screening is a method to find drug candidates by actually reacting tens of thousands to millions of compounds with drug targets using large machines and human hands.
[2] StaR®: Stabiised Receptor is a method for stabiising drug targets with unstable structures, such as GPCRs, and using them for structural analysis. SBDD: Structure-Based Drug Design is a method to design and screen compounds on the computer based on structural information (ref: Appendix) [3] The period from target selection to preclinical testing. For conventional drug discovery, figures are taken from NATURE REVIEWS Drug Discovery (MARCH 2010). [4] Precise drug design make clear the binding site of target, make easier to improve compound, create backups and redo – potentially increase the success rate. GPCR is most popular drug target which account for 30% of current drug target.(The details are to be mentioned later)

Track record of our drug discovery

Higher drug discovery efficiency with our tech-based drug discovery platform (StaR®/SBDD)

Trends in the number of programs per stage (cumulative)



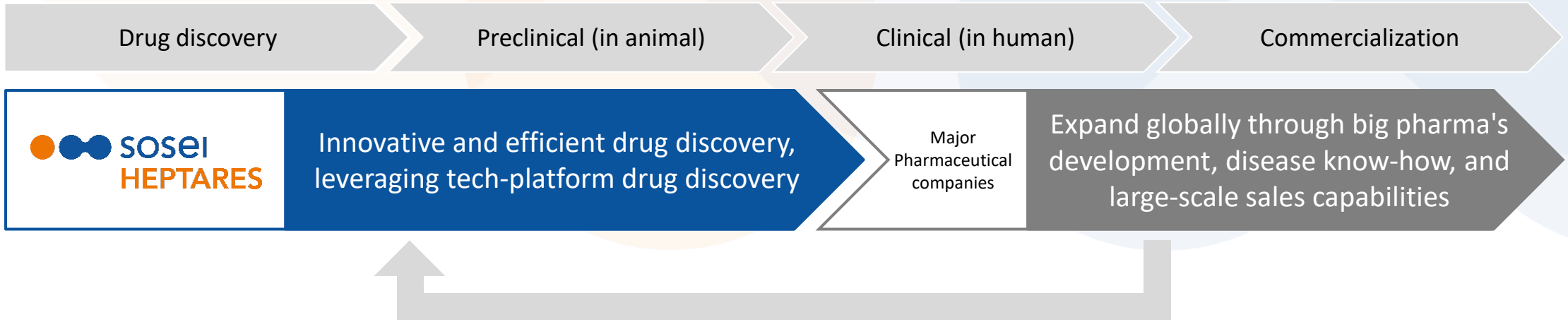
Number of programs

2020 vs 2021

	2020	2021	
Drug discovery	10+	10+	
Lead optimization	6	7	+1
Preclinical	12	15	+3
Clinical - Phase 1	7	9	+2
Clinical – Phase 2	1	1	
Clinical – Phase 3	0	0	
Approval application	0	0	
Approved	0	0	

Business Model

Focus on innovation in the early stages, partnering with major pharmaceuticals after that



Payment 1 - 3 from major pharmaceutical companies through licensing are our major revenue

1	Upfront payment	Receive upon license agreement
2	Milestone payment	Receive upon the successful progression of the program
3	Royalty	Payment on future net sales (ranging from high single digit to mid-teen percentage of the sales at most)

Japan

Our strategic tactical development team in Japan will conduct late-stage clinical trials through to marketing, where our strengths can be leveraged.

sosei HEPTARES (2 products have been marketed)

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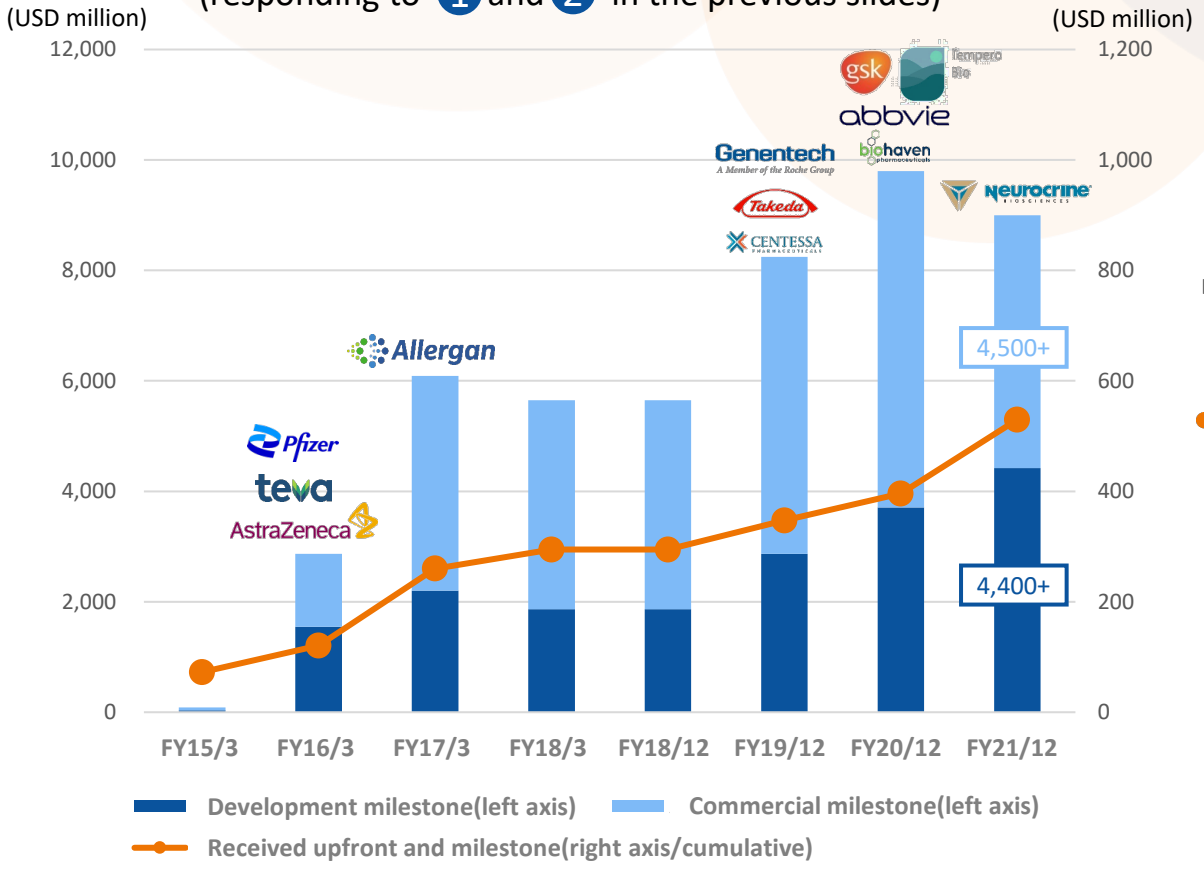
Our licensing partners

Total license value we made with world-class pharmaceutical companies

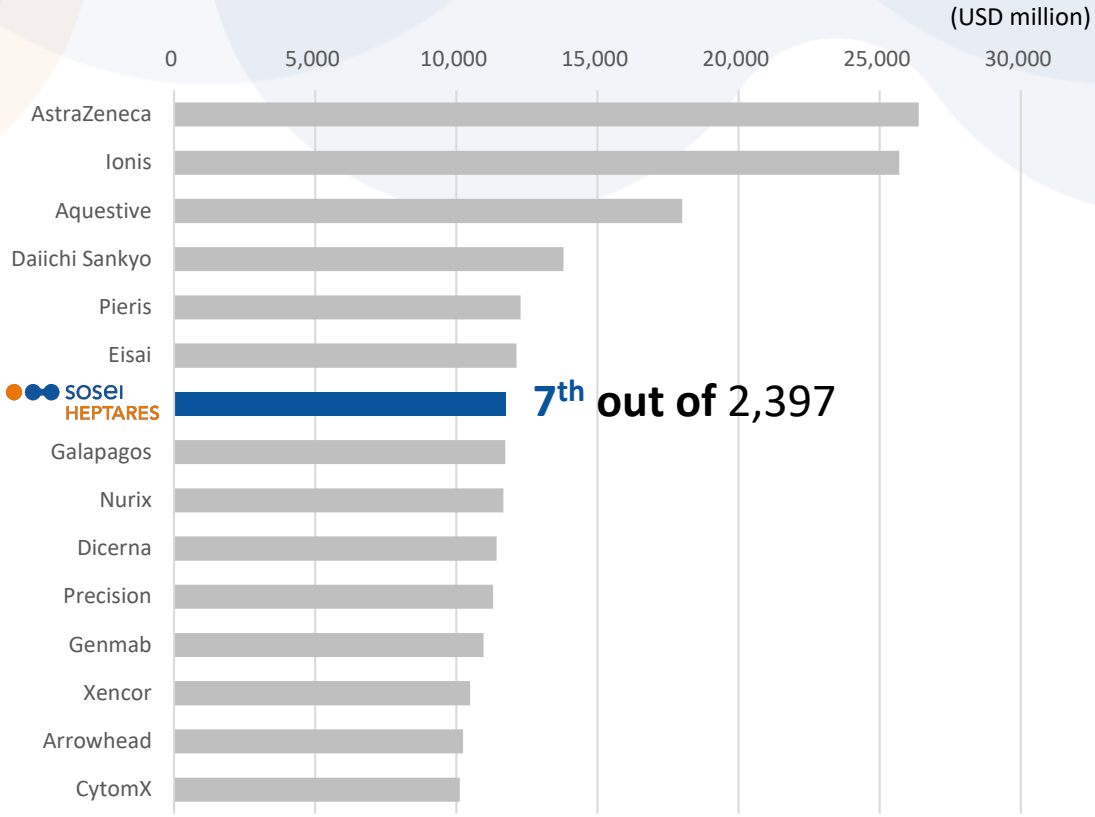
Balance of potential milestone from existing license agreements[1]

(responding to ❶ and ❷ in the previous slides)



Top 15 pharmaceutical/biotech companies by license value[2]

(cumulative total since 2015)

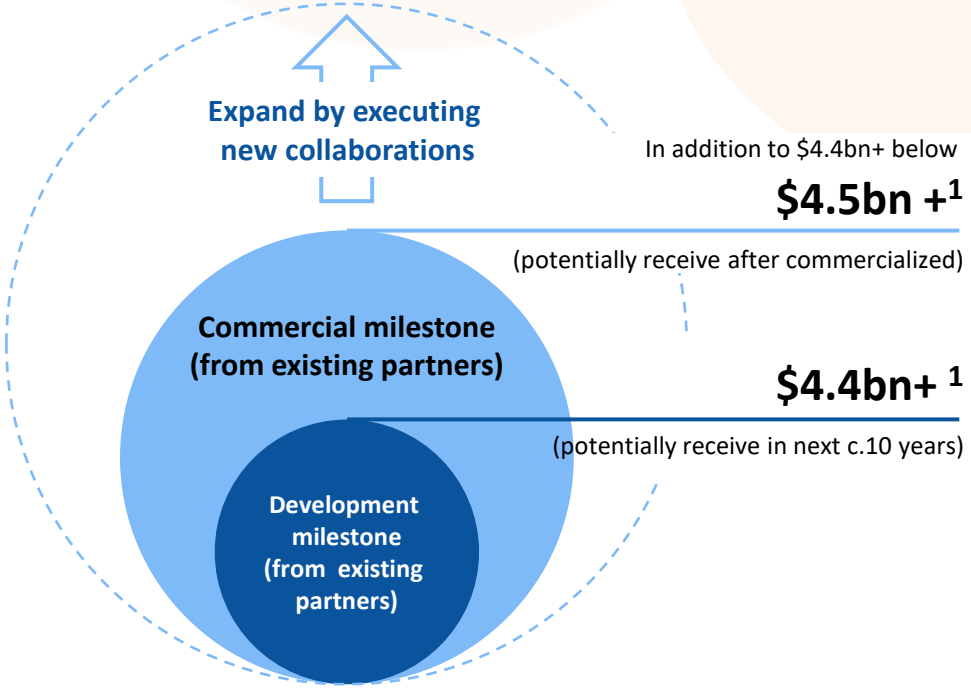


[1] Balance as of the end of the fiscal year of only those currently under contract. TEVA and Abbvie (formerly Allergan), for which compounds were returned, are excluded from the balances from FY2018 and FY2021, respectively. [2] The figures are based on a third party's (EvaluatePharma's) proprietary database and therefore do not completely match the amounts shown in the LHS chart.
Source: Company's data (LHS) and EvaluatePharma (as of 2022/1/18) (RHS)

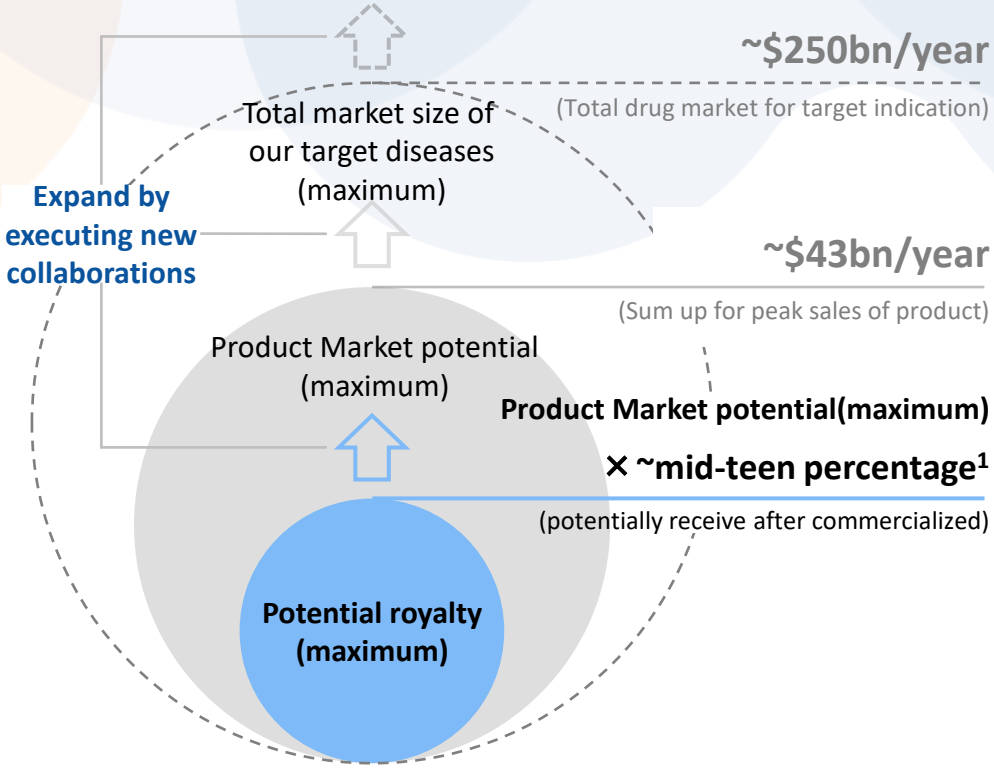
Potential revenue from existing partnerships

Securing stable revenues in the short to medium term from existing partnerships

② Potential milestone from existing partners



③ Potential royalty from existing partners



Short to medium term revenue potentially received in next 10 years	Mid to long term revenue potentially received after commercialized

[1] All of these are the maximum values if all existing programs are successful. Note that the probability of success in drug discovery is not relatively high, and realistically not all programs will be successful.
Source: Total market size of our target diseases and Product Market potential is stated in the Appendix

2

FY2021 Consolidated Financial Results

Christopher Cargill, CFO

Another year of successful execution

Summary Financial Highlights for the 12 months ended 31 December 2021

1. **Revenue of ¥17,712m** ($161m) vs. ¥8,842m ($83m) in prior year, substantial increase driven by Neurocrine transaction.

2. **Core Earnings of ¥8,904m** ($81m) vs. ¥2,904m ($27m) in prior year; **Operating Profit of ¥3,775m** ($34m) vs. ¥928m ($9m) in prior year, substantial increases driven by Neurocrine transaction.

3. **Net profit of ¥1,017m** ($9m), successfully achieving our corporate goal to **target sustainable and/or profitable results** for the full year despite significant impairment and contingent consideration charges.

4. **~¥10bn new growth capital raised**, adding funds earmarked to accelerate our strategic growth initiatives and investments.

5. **Net cash inflow of ¥20bn** ($136m), resulting in a **robust cash balance of ¥60bn** ($522m) at year end.

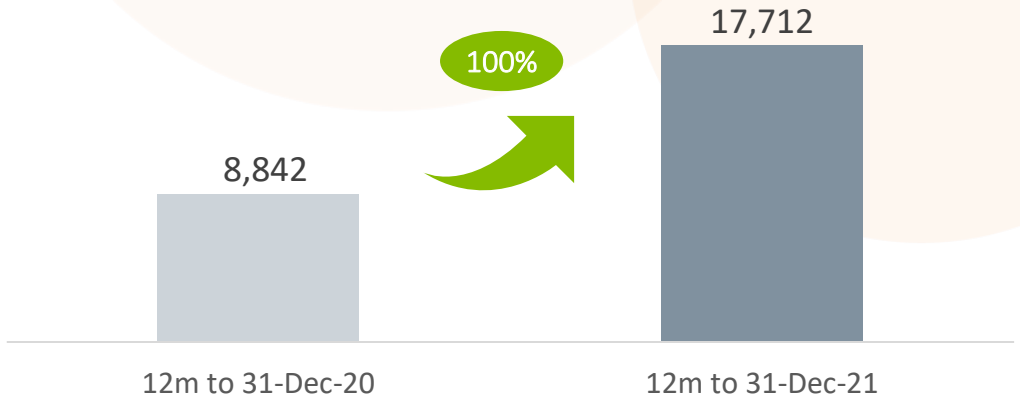
Our unique and balanced business model continues to support a **sustainable financial profile**

Note: USD:JPY FX rates used – 110.16 (FY2021) and 106.77 (FY2020)

Key financial indicators

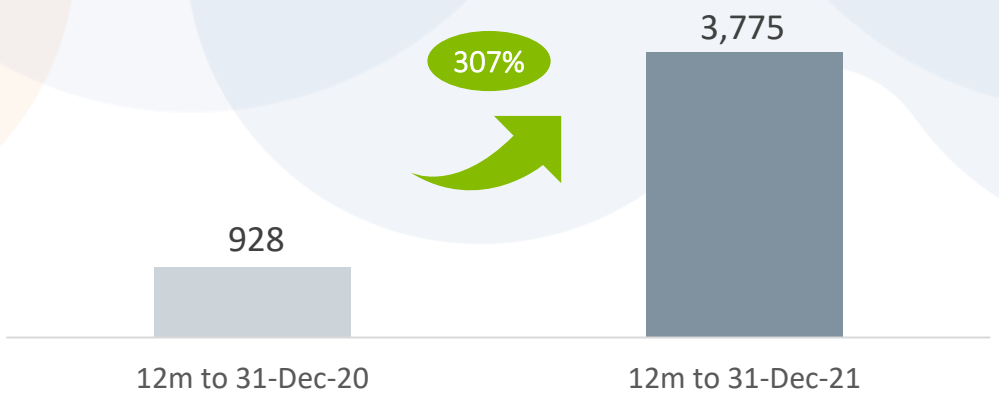
Significantly increased Operating Profit reflected encouraging revenue growth partially offset by (i) planned increase in R&D, and (ii) a non-cash impairment charge

Revenue (JPY million)



- Revenue increased +100% vs. 2020 primarily due to Neurocrine transaction. Milestones from existing partnerships include:
  - GSK (GPR35)
  - Pfizer (MC4 Ph 1 start)
  - Genentech (Delivery of StaRs®)
  - Deferred revenue releases on AbbVie and Genentech collaborations
- Royalties from Novartis declined slightly.

Operating Profit (JPY million)



- R&D costs increased due to higher activity on in-house programs, participation in new co-development collaborations and the impact of a stronger GBP vs. JPY.
- Intangible asset impairment charge associated with a collaboration partner's decision not to progress certain out-licensed drug candidates in clinical trials.
- Higher SBC[1] costs from continued roll out of RSU[2] plans – aligning management's interests with shareholders.

Notes: 1. SBC = Stock-Based Compensation; 2. RSU = Restricted Stock Units

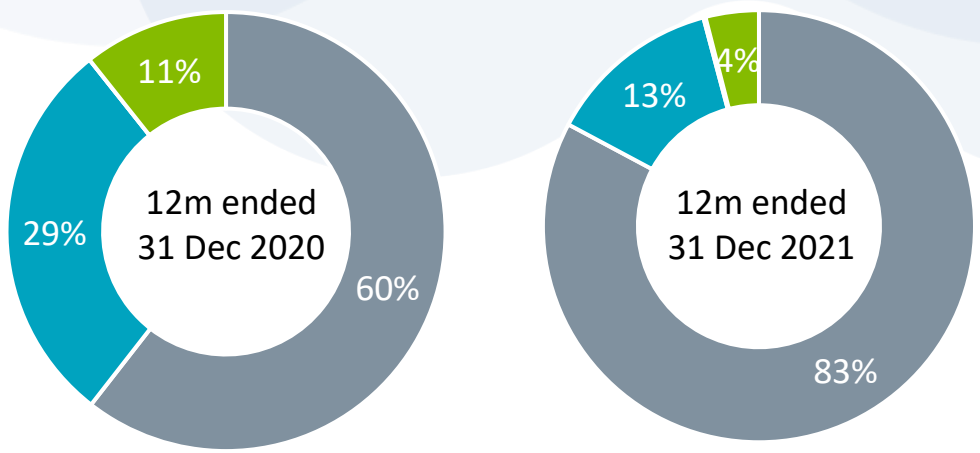
Revenue breakdown

Significant increase in revenue driven by the Neurocrine transaction helped to generate a modest net profit despite significant impairment and contingent consideration charges

JPY million | USD million

IFRS	12m ended 31 Dec 2020	12m ended 31 Dec 2021	12m ended 31 Dec 2020	12m ended 31 Dec 2021
Revenue	8,842	17,712	82.8	160.8
Cost of Sales	(761)	(933)	(7.1)	(8.5)
R&D	(3,793)	(5,931)	(35.5)	(53.8)
G&A	(3,435)	(3,940)	(32.2)	(35.8)
Other Income	79	8	0.7	0.1
Other Expense	(4)	1 (3,141)	(0.0)	1 (28.5)
Operating Profit	**928**	**3,775**	**8.7**	**34.3**
Finance Income	1,628	199	15.2	1.8
Finance Expense	(578)	2 (3,797)	(5.4)	2 (34.5)
Equity Acc. Investments	(356)	256	(3.3)	2.3
Net Profit before Tax	**1,622**	**433**	**15.2**	**3.9**
Net Profit after Tax	**1,479**	**1,017**	**13.8**	**9.2**

Revenue by Type



	12m ended 31 Dec 2020		12m ended 31 Dec 2021	
Milestone	¥5,353m	$50.1m	¥14,667m	$133.1m
Royalty	¥2,544m	$23.8m	¥2,311m	$21.0m
Product Sales	–	–	¥28m	$0.3m
Other	¥945m	$8.9m	¥706m	$6.4m
Total Revenue	¥8,842m	$82.8m	¥17,712m	$160.8m

1 Includes **non-cash impairment** charge of ¥3,064 million following a collaboration partner's decision not to progress older licensed drug candidates, and to instead focus development efforts on next-generation candidates with novel chemistry and longer patent protection

2 Includes **non-recurring** charge of ¥2,891 million to increase the contingent consideration provision to cover the $35m liability to former Heptares shareholders arising from the Neurocrine transaction. A major component of the 2015 Heptares SPA[1] has now expired, and we do not expect significant contingent consideration charges annually going forward

Note: USD:JPY FX rates used – 110.16 (FY2021) and 106.77 (FY2020)
[1] SPA = Share Purchase Agreement

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Introduction of 'Core Earnings'

Core Earnings – the financial indicator favored by investors

	JPY million		USD million	
	12m ended 31 Dec 2020	12m ended 31 Dec 2021	12m ended 31 Dec 2020	12m ended 31 Dec 2021
IFRS Revenue	8,842	17,712	82.8	160.8
IFRS COS	(761)	(933)	(7.1)	(8.5)
IFRS R&D	(3,793)	(5,931)	(35.5)	(53.8)
IFRS G&A	(3,435)	(3,940)	(32.2)	(35.8)
Total IFRS OPEX	(7,989)	(10,804)	(74.8)	(98.1)
IFRS Other Income/(Exp)	75	(3,133)	0.7	(28.4)
IFRS Operating Profit	928	3,775	8.7	34.3
Add back material Non-cash costs:				
Depreciation	507	540	4.8	4.9
Amortisation	843	738	7.9	6.6
Share Based Payments	626	713	5.8	6.5
Impairment	-	3,138	-	28.5
Remove material Non-recurring costs:				
Restructuring/Other	-	-	-	-
Core Earnings	**2,904**	**8,904**	**27.2**	**80.8**

Commentary

- **Core Earnings** is a new key financial indicator that highlights the underlying **recurring cash generating capability** of the business.
- **Core Earnings** is defined as IFRS Operating Profit + material Non-cash costs + material non-recurring costs
- **Material Non-cash Costs** include depreciation, amortization, share based payments and impairment.
- **Material Non-recurring Costs** include restructuring costs and other material one-off items.
- Core Earnings = Cash Earnings + material Non-recurring Costs

Going forward we will disclose our Income Statement in a similar format to major Japanese pharma companies. We will breakdown the calculation of 'Core Earnings' – a key financial indicator for investors

Balance Sheet

Sustainability of the business model and corporate strategy reflected via robust balance sheet

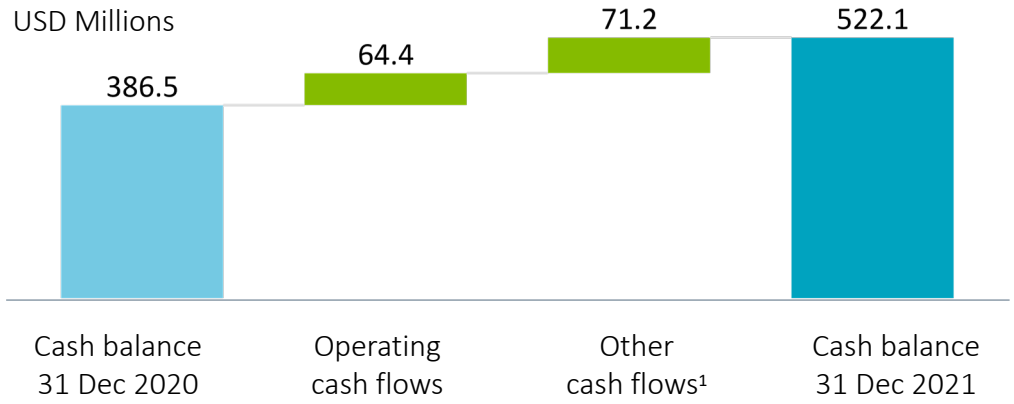
	JPY million		USD million	
	As of 31 Dec 2020	As of 31 Dec 2021	As of 31 Dec 2020	As of 31 Dec 2021
Goodwill & intangibles	25,936	24,215 (1)	250.5	210.4 (1)
Property, plant & equip.	3,824	3,817	36.9	33.2
Cash at hand	40,008	60,087 (2)	386.5	522.1 (2)
Equity Acc. investments	3,087	3,479	29.8	30.2
Other financial assets	1,593	2,650	15.4	23.0
Other assets	2,017	2,737	19.5	23.9
Total Assets	**76,465**	**96,985**	**738.6**	**842.8**
Convertible Bonds	14,789	27,440 (3)	142.9	238.5 (3)
Contingent Consideration	1,107	4,095 (4)	10.7	35.6 (4)
Other liabilities	8,188	8,524	79.0	74.0
Total Liabilities	**24,084**	**40,059**	**232.6**	**343.4**
Net Assets	**52,381**	**56,926**	**506.0**	**499.4**

Notes: USD:JPY FX rates used – 31 Dec 2020 spot rate: 103.52, 31 Dec 2021 spot rate: 115.07
1. Includes Investing, financing and FX related movements

Commentary

1. Decrease relates to intangible asset impairment arising from a collaboration partner's decision not to progress certain out-licensed drug candidates in clinical trials.
2. Major increase in cash balance due to issuance of Convertible Bonds and receipt of Neurocrine upfront fee.
3. New convertible bonds issued in July 21.
4. Includes $35m liability relating to the Neurocrine deal.

Cash Flow Bridge (12m ended 31 Dec 2021)



Cost Guidance for FY2022

Guidance stated on total IFRS expenses basis going forward, rather than cash basis used in FY2021

Guidance (FY2022)

R&D expenses (IFRS basis)

¥5,750 to 6,750m
(FY2021: Actual ¥5,931m)

- Increase investment across all divisions to grow capacity and progress priority assets towards early clinical development to enhance value before partnering

G&A expenses (IFRS basis)

¥3,750 to 4,250m
(FY2021: Actual ¥3,940m)

- Maintain investment in functional support teams (IT, Finance, HR, etc.) to enable great science
- Build on robust governance practices

Modest increases planned for R&D and G&A in FY2022 versus FY2021, in line with our balanced and sustainable business model. Investing today to create value tomorrow

3

Operational Highlights

Christopher Cargill, CFO

Achievement in FY2021

Promote future growth through both organic and strategic growth

		FY2021 OBJECTIVES	ACHIEVEMENT
Organic Growth	1	Execute 2-3 new high value collaborations and/or co-investments every year	✓ Completed: 1 (Neurocrine Biosciences)
	2	Expand expertise in GPCRs	✓ Completed: Continue to update drug discovery platform
	3	Generate 2 new preclinical candidates on average, every year	✓ Completed: M1/M4 dual agonist M1 agonist backup
	4	Advance discovery and development pipeline	✓ Completed: MC4 ant. and CGRP ant. advanced to Ph1
Strategic Growth	1	Seek out revenue-generating opportunities including M&A	✓ Completed additional fundraising in July. Continue to look for suitable acquisition target.
	2	Invest / collaborate in novel technologies	✓ Completed (Inveni AI, TWIST Bioscience, Pharmenable, verily)
	3	Expand drug target classes beyond GPCRs	✓ Completed (metrion biosciences)
	4	In-license late-stage programs for Japan market	✗ Not yet completed

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Pipeline overview

	Pre-Disc. / Discovery	Preclinical studies	Phase 1	Phase 2	Marketed
Out-licensed	Multi-target GI and other (Takeda) Single target Inflammatory (abbvie) Multi-target Multiple (Genentech) Multi-target Multiple (Pfizer)	★ M_1M_4 ag. Neurology (Neurocrine) ★ M_1 ag. Neurology (Neurocrine) GPR35 ag. IBD (gsk)	★ M_4 ag. HTL'878 Neurology (Neurocrine) GLP-1 ag. T2DM/Obesity (Pfizer) CCR6 ant. IBD (Pfizer) MC4 ant. Anorexia (Pfizer) CGRP ant. Neurology (biohaven)	A2a ant. combo(s)[1] mCRPC (AstraZeneca)	Ultibro® Breezhaler® COPD (NOVARTIS) Seebri® Breezhaler® COPD (NOVARTIS) Enerzair® Breezhaler® Asthma (NOVARTIS) Oravi® Mouth candidiasis (Hisamitsu)
Co-dev / Profit share	Captor Therapeutics TPD TWIST Antibody PAR2 peptide Inflammatory diseases (PeptiDream) metrion biosciences Ion channel Inveni AI AI-driven verily AI-driven PHARMENABLE AI-driven	CXCR4 mAb Immuno-oncology (sanofi)			
Co-owned companies		OX1/OX2 ag. Narcolepsy (CENTESSA / Orexia Therapeutics)	$mGlu_5$ NAM Substance Use (Tempero Bio)		
In-house / Not yet partnered	*10+ other programs*	SARS-CoV-2 MPro Coronaviruses (wellcome) PAR2 mAb Atopic Dermatitis ★ GPR52 ag. Neurology ★ EP4 ant. Immuno-oncology	★ H4 ant. Atopic Dermatitis ★ EP4 ag. IBD		

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

Note: Seebri®, Ultibro®, Enerzair® and Breezhaler® are registered trademarks of Novartis AG.) [1]AstraZenenca have removed the A2a program from their clinical pipeline as at Q3 2021

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Major licensing deals

Achieved one of the largest executed CNS license collaborations with Neurocrine in 2021

Partner	Execution	Program	Therapeutic Area	Upfront and Initial Milestone	Potential Total Milestone[1]
Neurocrine Biosciences	November 2021	Collaboration and license agreement for M_4, M_1 and M_1/M_4 dual agonist	Neurological disorders	$100m	$2.6bn
gsk	December 2020	Collaboration and license agreement for GPR 35	Gastrointestinal, immunology	$44m	$480m
biohaven pharmaceuticals	December 2020	Collaboration and license agreement for CGRP portfolio	Neurology	$10m	$380m
abbvie	June 2020	Discovery Collaboration and Option to License[2]	Inflammatory and Autoimmune	$32m	$400m
Takeda	August 2019	Multi-target Collaboration	Multiple; Initial focus on Gastrointestinal	$26m	$1.2bn
Genentech A Member of the Roche Group	July 2019	Multi-target Collaboration	Multiple	$26m	$1bn
Pfizer	November 2015	Multi-target Collaboration	Multiple	--	$1.8bn
AstraZeneca	August 2015	Collaboration and license agreement for A_{2a} antagonist[3]	Immuno-oncology	$10m	$500m

[1]Potential option fees, development, regulatory and commercial milestone payments. Sosei Heptares is also eligible to receive tiered royalties ranging from high single digit to mid-teen percentage on future net sales of any products developed under the partnership. [2] AbbVie has the option to expand the collaboration by an additional three targets. [3] AstraZenenca have removed the A2a program from their clinical pipeline as at Q3 2021

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Four upcoming wholly-owned programs

Prioritized for development over the next 12 to 24 months

Schizophrenia and Psychosis	Atopic Dermatitis	Immunosuppression in solid tumours	Inflammatory Bowel Disease
GPR52 agonist	H4 antagonist	EP4 antagonist	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 combo with checkpoint inhibitors	• Oral GI restricted • Good potency and selectivity • Minimal GI systemic exposure

4

Organic Growth Plan Update

Dr. Miles Congreve,

Senior Vice President,
Chief Scientific Officer

Achievement in FY2021 (Organic Growth)

Major progress in muscarinic and drug discovery platform are in the following slides

		FY2021 OBJECTIVES	ACHIEVEMENT
Organic Growth	1	**Execute 2-3 new high value collaborations and/or co-investments every year**	✓ **Completed: 1** Neurocrine Biosciences
	2	**Expand expertise in GPCRs**	✓ **Completed: Continue to update drug discovery platform**
	3	Generate 2 new preclinical candidates on average, every year	✓ Completed: M1/M4 dual agonist M1 agonist backup
	4	Advance discovery and development pipeline	✓ Completed : MC4 ant. and CGRP ant. advanced to Ph1
Strategic Growth	1	Seek out revenue-generating opportunities including M&A	✓ Completed additional fundraising in July. Continue to look for suitable acquisition target.
	2	Invest / collaborate in novel technologies	✓ Completed — Inveni AI, TWIST Bioscience, PHARMENABLE, verily
	3	Expand drug target classes beyond GPCRs	✓ Completed — metrion biosciences
	4	In-license late-stage programs for Japan market	✗ Not yet completed

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New strategic collaboration with Neurocrine

$100m upfront and up to $2.6bn in future economics for selective Muscarinic agonist family

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 BIOSCIENCES

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M4 agonist competition landscape

Muscarinic M4R now an increasingly de-risked and validated target for multiple types of SZ

	KARUNA THERAPEUTICS	cerevel	sosei HEPTARES
Lead Program	KarXT	CVL-231 (Emraclidine)	**HTL16878**
Mechanism of Action	M_1/M_4 agonist M_2/M_3 antagonist	M_4 PAM[2]	M_4 agonist
Phase (most advanced program)	Ph3	Ph1b	**Ph2 in 2022**
Target	Schizophrenia Dementia related neuropsychiatric disorders	Schizophrenia	Schizophrenia
Impact of recent clinical data[1]	**Achieved primary endpoint in Phase II clinical trial (18 November 2019)** Share price: $17.68 → $85.10 **($1.7bn+ Market cap increase)**	**Positive results from Phase I clinical trials (29 June 2021)** Share price: $12.57 → $23.20 **($1.6 bn+ Market cap increase)**	-

We are potentially best in class

- Avoids non-M4R muscarinic side effects
- Mitigates peripheral M4R cardiovascular effects
- Different profile to PAM, M4 agonist can be more effective in patients who lack cholinergic tone

[1] Change in share price 5 days after announcement; [2] PAM = Positive Allosteric Modulator
Source: Company disclosures, FactSet

Neurocrine BIOSCIENCES

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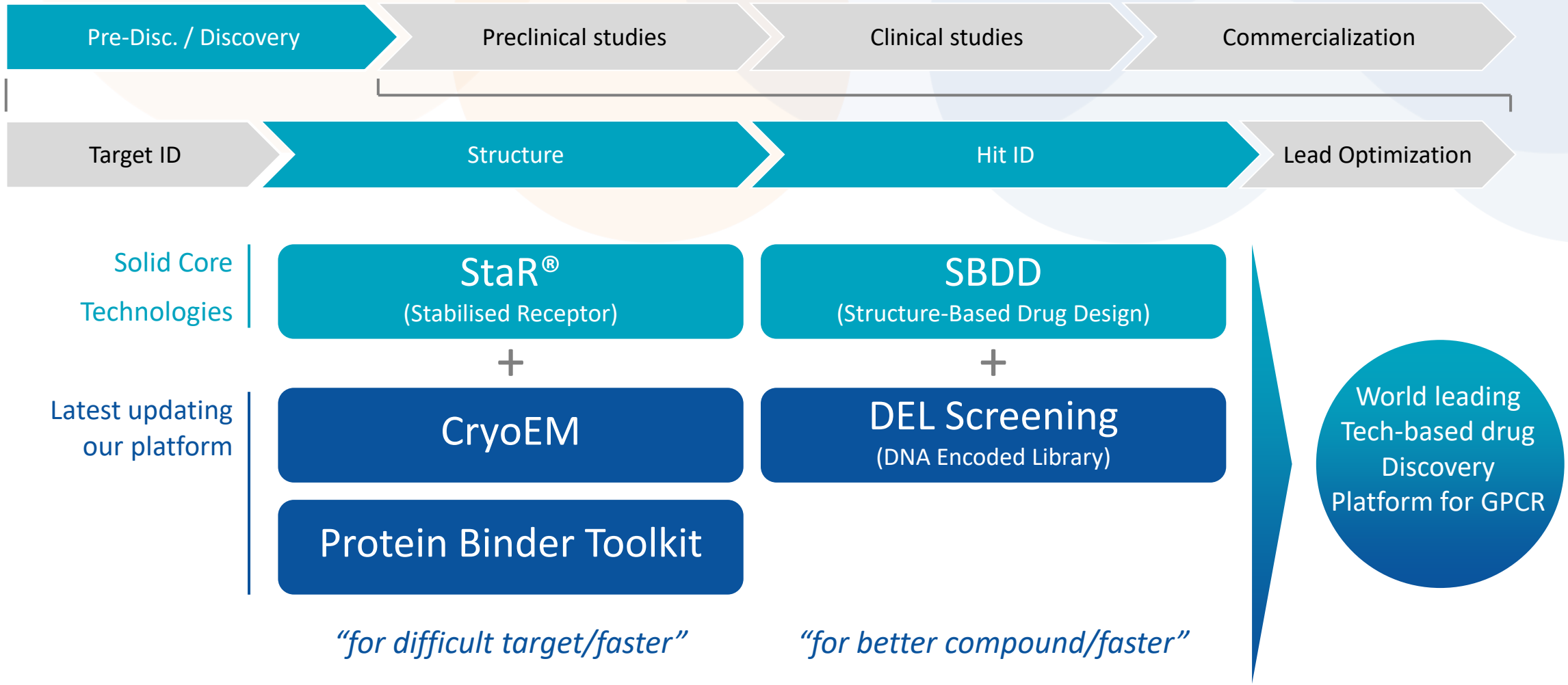
Our discovery platform updates

Further strengthening our world leading platform for GPCR by developing new technology

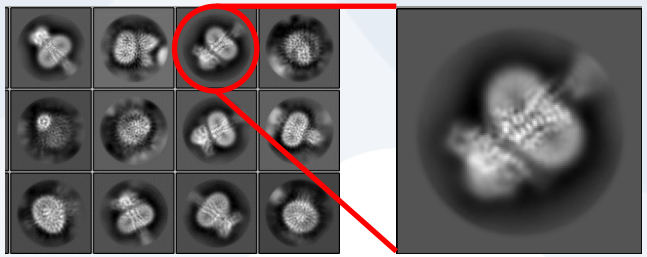


Our discovery platform updates (cont'd)

Combining with our StaR®/SBDD, 3 new technologies makes our platform better and faster

CryoEM

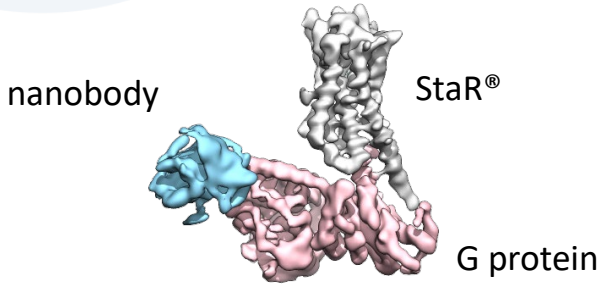
- **12 Unique GPCRs resolved by CryoEM in 2020-2021**.
- We have our own CryoEM internally and access to 2 high power instruments in Cambridge. Richard Henderson, our co-founder and Scientific Advisory Board member won the Nobel prize (2017) for developing this technology.
- Example: Family B receptors are implicated in a range of disease areas and are long standing drug targets – structure determination of these receptors was historically challenging.
- We have determined multiple structures of Family B receptors **by both X-ray crystallography and cryo-EM to enable SBDD.**



2D class averages

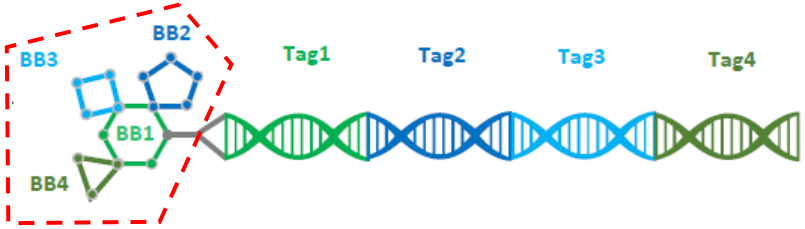
Protein Binder Toolkit

- **Most CryoEM structures we have solved required the introduction of additional protein domains.**
- These include domains **fused to the StaR®** or introduced during expression or purification.
- Fusion partners, mini G proteins*, nanobodies and antibody fragments have all been successfully used.
- In addition to structures, protein binders also facilitate protein engineering, biophysics and pharmacology.



DEL Screening (DNA Encoded Library)

- Alternative strategy for hit identification in early drug discovery.
- **Libraries of 15 billion to >1 trillion compounds.**
- Allows access to unprecedented levels of diversity.
- Compounds engineered with unique features to facilitate identification.
- **We first reported DEL for PAR2 StaR® in 2018.**
- **13 StaR® proteins have now been subjected to DEL screens.**



*US patent, US 10,738,287 B2, relating to the miniG technology was granted in the name of Heptares Therapeutics Limited in 2020. First granted patent from the miniG family, WO 2017/129998 A1 - also granted in 2021 in the UK (GB 2558968B) and Australia (AU 2017212788B2), and pending in territories including Europe, China, Japan and Canada.

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5

Strategic Growth Plan Update

Dr. Matt Barnes,
Senior Vice President, Drug Discovery,
Head of R&D Portfolio Management

Achievement in FY2021 (Strategic growth)

Major progress in new technologies and expansion beyond GPCR are in the following slides

		FY2021 OBJECTIVES	ACHIEVEMENT	
Organic Growth	1	Execute 2-3 new high value collaborations and/or co-investments every year	✓	Completed: 1 Neurocrine Biosciences
	2	Expand expertise in GPCRs	✓	Completed: Continue to update drug discovery platform
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	2	**Invest / collaborate in novel technologies**	✓	**Completed** Inveni.AI, TWIST Bioscience, PHARMENABLE, verily
	3	**Expand drug target classes beyond GPCRs**	✓	**Completed** metrion biosciences
	4	In-license late-stage programs for Japan market	✗	Not yet completed

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Strategic collaboration Target

To leverage technology by choosing right targets and agent is our greatest opportunities

Key opportunity/Target of Strategic collaboration

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

Strategic collaboration landscape

Significant build of in-house methods and industry collaborations to drive new best practice

Pre-Disc. / Discovery → Preclinical studies → Clinical studies → Commercialization

Target ID → Structure → Hit ID → Lead Optimization

Choosing the right target

verily

InveniAI
Innovate with Intelligence

Our Core Technologies

- StaR®
- SBDD
- CryoEM
- DEL Screening
- Protein Binder Toolkit

Discovering a therapeutic agent

PHARMENABLE
metrion biosciences
TWIST BIOSCIENCE
Captor Therapeutics®
PeptiDream
kymab

World leading Tech-based drug Discovery Platform for GPCR and beyond

sosei HEPTARES

Strategic collaboration Partners

Three new key partnerships in AI drug discovery field since 2021

verily

AI drug discovery (Target)

- 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

AI drug discovery (Target)

- 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

PHARMENABLE

AI drug discovery (Compound)

- Technology collaboration with PharmEnable to leverage its proprietary artificial intelligence-enabled and medicinal chemistry technologies.
- Collaboration to drive novel drug discovery against a challenging peptidergic GPCR target associated with neurological diseases.

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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

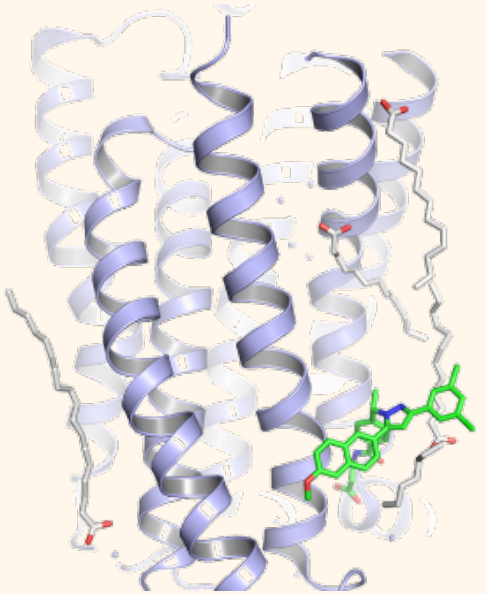
Analysis
Integrative analysis
+ Quality Control

- 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



Strategic collaboration Partners (cont'd)

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

Captor Therapeutics®

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

metrion biosciences

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**

TWIST BIOSCIENCE

Antibody

- 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

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6

Objectives for FY2022

Shinichi Tamura, President and CEO

Overview for our growth strategy

Mid to long-term direction for accelerating our growth

	For our IT-based drug discovery platform (StaR®/SBDD)	For our future strategic growth
Organic Growth	■ Increase the value of the deal by out-licensing after obtaining POC in your own clinical trials, not in preclinical ■ Keeping strongness to our position as world leading IT-based drug discovery solution provider	-
Strategic Growth	■ Leverage our platform potential through new strategic technology collaborations ■ Maximize the synergy with current platform and future alliance partner which came from acquisition/alliance deal	■ Searching for a transformative acquisition which leverage each other ■ In-license late-stage clinical development products for the Japanese market

Priority objectives for FY2022

Continue to promote future growth through both organic and strategic growth

FY2022 OBJECTIVES

Organic Growth

1. Execute at least one new high value collaborations and/or co-investments
2. Generate at least one new preclinical candidates
3. Further enhance platform productivity

Strategic Growth

1. Continue to search for opportunities to acquire companies that will bring new sources of revenue
2. Collaborate/invest in new technologies with synergies
3. In-license late-stage clinical development products for the Japanese market

Priority objectives for FY2022 (cont'd)

Promote sustainable ESG practices and policies across global business

Sustainable Development Goals adopted by the United Nations (Sep-15)

Sosei Heptares is undertaking initiatives focused on 10 of the 17 Sustainable Development Goals

E Environment

S Social

G Governance

E

- Sustainability Committee promotes efficient energy use and renewable energy sources, and waste and water usage reduction
- Promote efficiency in discovery

S

- Ms. Miwa Seki nominated for appointment as new External Director
- Grant funding received from Wellcome to advance the SARS-CoV-2 Mpro inhibitor program and seek partnering opportunity

G

- Proposed Board of Directors – 8 members (incl. 6 external independent)
- Investment Committee and Scientific Advisory Board provide recommendations to the Board

Source: United Nations
LINK: https://soseiheptares.com/uploads/Sustainability/Sustainability_20201214_JP.pdf

Our management team

Transition to new management will be executed after approval general shareholders' meeting

Board of Directors

Shinichi Tamura
Chairman of the Board

Chris Cargill
Representative Executive Officer, President and CEO ✓

Tomohiro Toyama
External Independent Director

Kuniaki Kaga
External Independent Director

Dr. David Roblin
External Independent Director

Noriaki Nagai
External Independent Director

Rolf Soderstrom
External Independent Director

Miwa Seki
External Independent Director ✓

Executive Officers

Chris Cargill
Representative Executive Officer, President and CEO ✓

Hironoshin Nomura
Chief Financial Officer ✓

Kieran Johnson
Chief Accounting Officer ✓

Kazuhiki Yoshizumi
Chief Compliance Officer

Dr. Matt Barnes
President, Heptares Therapeutics Ltd. ✓

Tadayoshi Yasui
Representative Director President, Sosei Co.Ltd.

Senior Management

Dr. Miles Congreve
Chief Scientific Officer

Dr. Rob Cooke
Chief Technology Officer

James Taylor
Chief Business Officer

Dr. Barry Kenny
Senior Business Advisor

Dr. Marcus Messenger
Vice President, Business Development ✓

Dr. Alastair Brown
Vice President, Translational Sciences ✓

David Howe
Vice President, Non-CNS Development & Experimental Medicine ✓

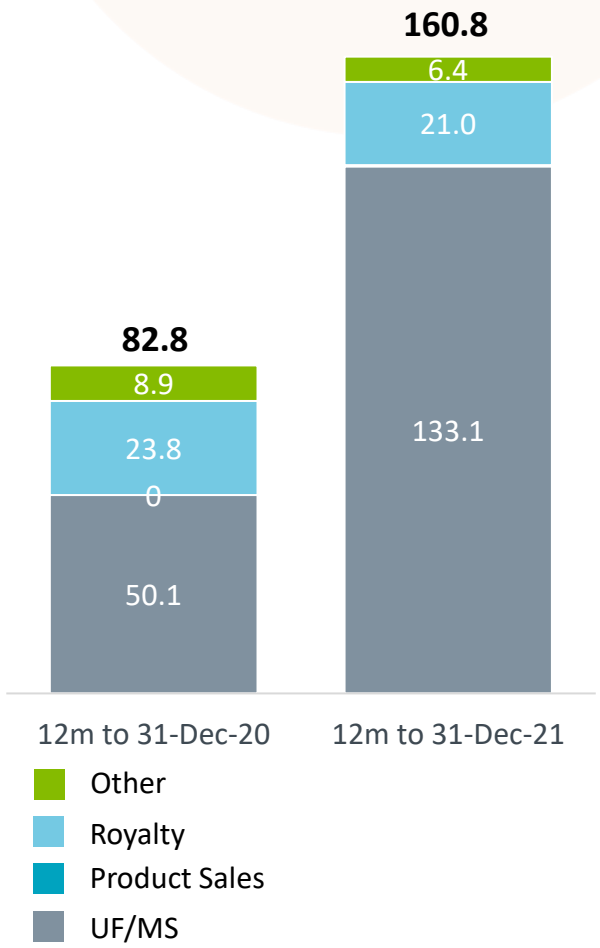
✓ updated

7

Appendix

Revenue breakdown by type (IFRS)

USD (M)



Upfront (UF)/Milestone (MS) revenue recognized in the full Financial Year[1]

Date	FY20 UF/MS Event	Revenue (USDm)
Feb-20	Daiichi Sankyo lead identified	1.5
Jun-20	AbbVie collab upfront	2.5
Jun-20	Novartis Enerzair® Breezhaler® Japan approval	1.3
Jul-20	Novartis Enerzair® Breezhaler® EU approval	5.0
Aug-20	Takeda structure solved	0.3
Sep-20	Pfizer Phase 1 start	5.0
Nov-20	Tempero Bio collab upfront	5.0
Nov-20	Fair value of shares in Tempero Bio	2.0
Nov-20	Biohaven collab upfront	5.0
Nov-20	Biohaven share consideration	4.7
Dec-20	AbbVie StaR® structure solved	0.7
Dec-20	Takeda StaR® structure solved	0.3
Dec-20	GSK collab upfront	12.5
	Selected revenue	4.3

Date	FY21 UF/MS Event	Revenue (USDm)
Feb-21	Genentech StaR® structure solved	1.1
Feb-21	Genentech StaR® structure solved	0.5
Apr-21	Genentech StaR® structure solved	1.1
May-21	Pfizer Phase 1 start	5.0
Jun-21	Biohaven Phase 1 start	0.5
Jul-21	FFTC termination of exclusive distribution rights	-4.5
Nov-21	Hisamitsu exclusive distribution rights	4.1
Nov-21	Takeda collab upfront	2.5
Dec-21	Neurocrine collab upfront	100.0
Dec-21	Genentech StaR® structure solved	0.8
Dec-21	GSK candidate selection	6.9
	Selected revenue	15.1

[1] Values relate to revenue recognized in the full financial year per accounting measures, as opposed to cash received in the full financial year.

IFRS Income Statement Reconciliation

Income Statement Reconciliation: 'Cash' basis to IFRS basis

	USD (000s)		YEN (M)	
	FY21	FY20	FY21	FY20
Royalties	20,981	23,826	2,311	2,544
Milestones	133,139	50,133	14,667	5,353
Goods sales	256	-	28	-
Other	6,405	8,850	706	945
Total Revenue	**160,782**	**82,809**	**17,712**	**8,842**
Cash COS	(7,109)	(5,684)	(784)	(607)
Cash R&D	(50,034)	(31,944)	(5,511)	(3,411)
Cash G&A	(22,857)	(18,687)	(2,518)	(1,995)
Other Cash Income	46	699	5	75
Cash Earnings	**80,829**	**27,193**	**8,904**	**2,904**
SBP, Depn & Amort – COS	(1,356)	(1,440)	(149)	(154)
SBP, Depn & Amort - R&D	(3,808)	(3,575)	(420)	(382)
SBP, Depn & Amort - G&A	(12,911)	(13,488)	(1,422)	(1,440)
Other Operating Costs	(28,488)	-	(3,138)	-
Operating income	**34,265**	**8,689**	**3,775**	**928**
IFRS Revenue – per above	160,782	82,809	17,712	8,842
IFRS COS	(8,465)	(7,124)	(933)	(761)
IFRS R&D	(53,842)	(35,519)	(5,931)	(3,793)
IFRS G&A	(35,767)	(32,175)	(3,940)	(3,435)
Total IFRS OPEX	**(98,075)**	**(74,818)**	**(10,804)**	**(7,989)**
IFRS Other Income	(28,442)	699	(3,133)	75
IFRS OPERATING INCOME	**34,265**	**8,689**	**3,775**	**928**

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StaR® Platform

We are driving a new era of GPCR SBDD with surprising insight into ligand binding modes

- **GPCR drug discovery remains challenging**
  - *Low expression levels* – often with complicated expression and secretion pathways
  - *Difficult purification* – lose structural integrity outside the membrane
  - *Heterogeneity* – inherently flexible; changing conformation depending on the bound ligand

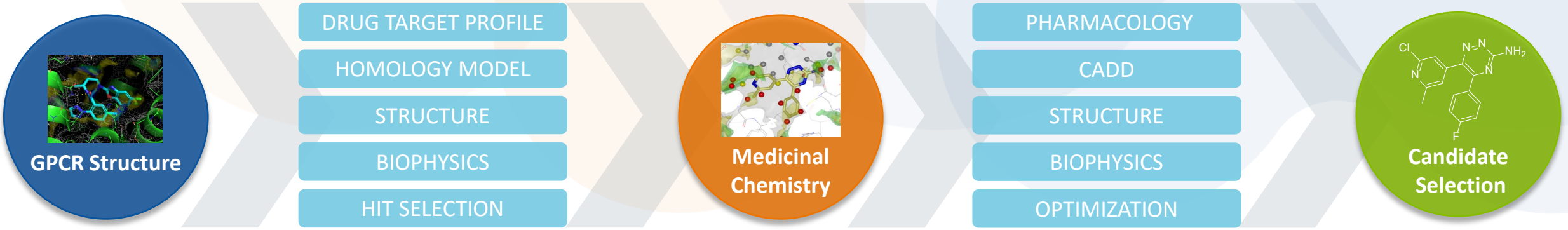
- We introduce point mutations into a GPCR which leads to **increased thermostability**
- The receptor is trapped in a relevant conformation to match the drug product profile
- The **Stabilized Receptor (StaR®)** can be extracted from the membrane and purified with function retained

70+ Stabilized Receptors generated in agonist and/or antagonist conformations

sosei HEPTARES

SBDD Platform

Collaborating with StaR®, Structure Based Drug Design(SBDD) is powerful tool for GPCR



- **GPCR focused SBDD**
  - *Hit Identification*– Virtual Screening, Biochemical and Biophysical assays
  - *Structure Determination* – characterize binding modes
  - *Pharmacology* – understanding mode of action and signalling

- Medicinal Chemistry working closely with Computer Aided Drug Design (CADD)
- Establish detailed Screening Cascade and progression criteria
- Typically 2 year process from starting the target screening to entering Candidate Selection phase

25+ Preclinical Candidates identified for in-house and collaboration pipeline

Major indication for GPCR

Neuroscience, Immunology and GI are our areas of focus

~400
GPCR targets active in diseases[2]

~34%
of FDA approvals target GPCRs[1]

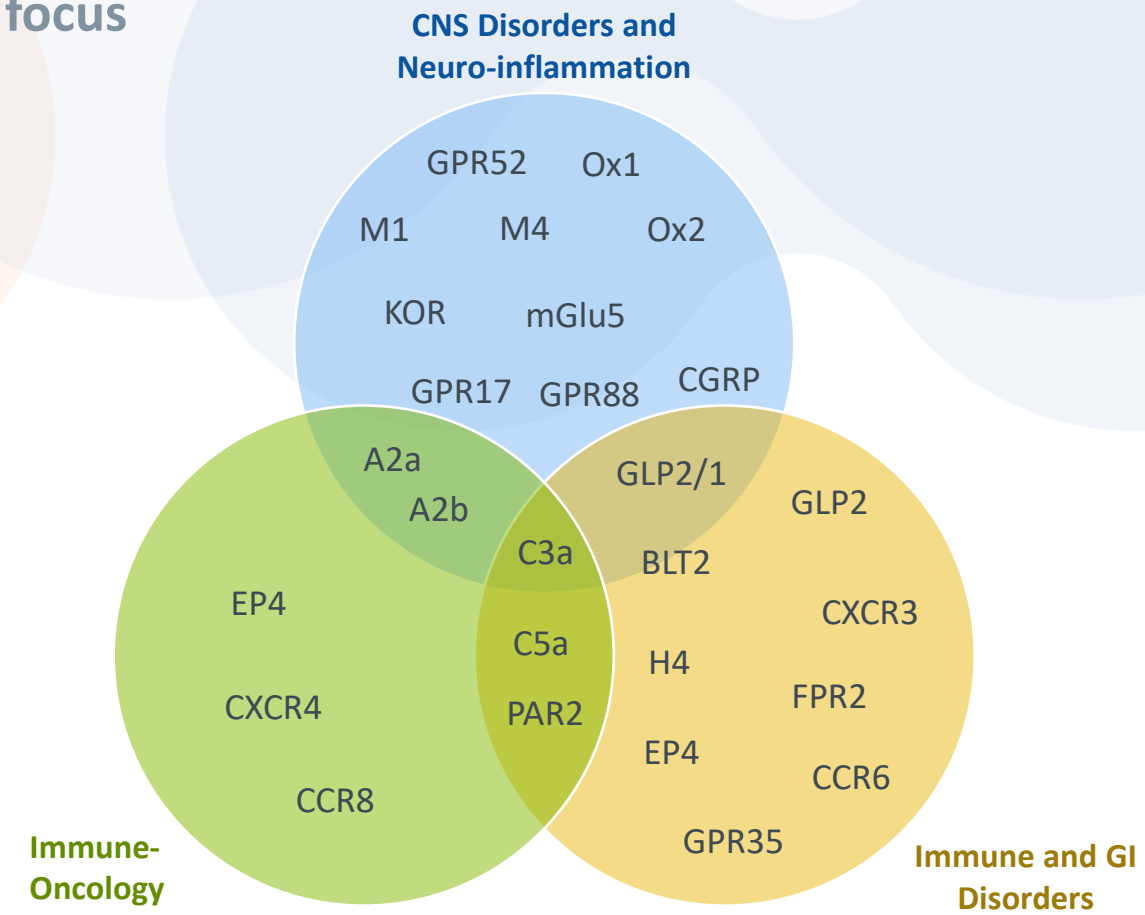
27%
of global sales are GPCR drugs[1]

NEUROLOGICAL DISORDERS

GASTROINTESTINAL DISEASES

IMMUNOOGY/ONCOLOGY

ENORMOUS UNTAPPED POTENTIAL IN THESE THERAPY AREAS FOR SBDD - LED APPROACHES



GPCRs are active in a wide range of disease areas, and offer broad therapeutic potential

Significant opportunity to target new first-in-class and/or improved best-in-class GPCR medicines

Sources: [1] "Unexplored opportunities in the druggable human genome", Nature Reviews, 2016 ; [2] "Trends in GPCR in Drug Discovery – new agents, targets and indications", Nature Reviews, 2017

SARS-CoV-2 protease inhibitors competition landscape

We need several option for drug resistance and aiming one of the best class therapy

	Pfizer	SHIONOGI	SOSEI HEPTARES
Program	PAXLOVID™	S-217622	SH-879
Administration	Oral	Oral	Oral
Number of doses	twice a day	once a day	once a day
Features	Requirement for ritonavir combination boost exposure	**Not require co-dosing with ritonavir**	**Not likely require co-dosing with ritonavir**
Phase	FDA authorized the emergency use	Phase 2/3	Potential clinical candidate identified suitable for further development
Key data findings	✓ Exhibits potent in vitro antiviral activity against SARS-CoV-2 ✓ Good tolerability, no safety findings up to 500mg dose 2x daily with ritonavir/10 days in healthy volunteers ✓ Interim data of Phase 2/3 EPIC-HR Study was announced in November 2021 - Reduced Risk of Hospitalization or Death by 89%	✓ Phase 2a shows followings • On day 4 (after the 3rd dose), the proportion of subjects with positive viral titer decreased by approximately 60-80%, compared to the placebo group • No cases of exacerbation required hospitalization or similar therapy as hospitalization were found in the S-217622 group	✓ Comparable antiviral activity to Pfizer's PF-07321332 against SARS-CoV-2 in cell based assays ✓ Low in vitro clearance, superior in vivo clearance and high plasma exposure from oral dosing

Receives Grant Funding from Wellcome on Dec 2021

- Funding comes through the Covid-19 Therapeutics Accelerator, which was set up by Wellcome, Bill & Melinda Gates Foundation and Mastercard
- 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

Source: Company announcements; Company websites

In vitro data of SH-879

SH-879 represents an excellent opportunity for further development as an oral drug for the treatment of COVID-19

TARGET PRODUCT PROFILE

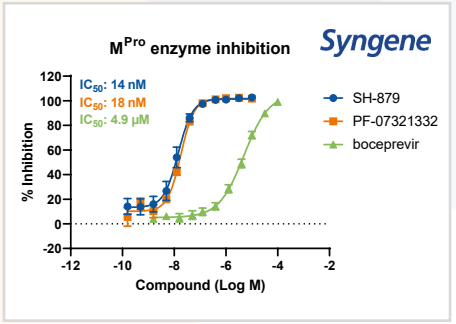
Once or twice daily oral agent for treatment of SARS-CoV-2 viral infection dosed immediately after a positive test result and for up to 2 weeks thereafter, with potential for broader application for intervention of associated human coronavirus and related viral infections.

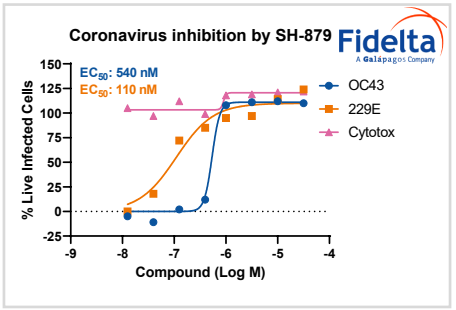
PROGRAM STAGE

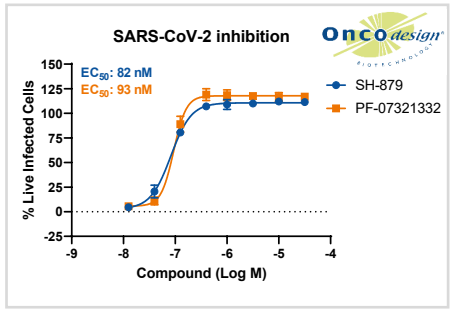
Excellent progress has been made in >1 chemical series of inhibitors since project initiation Apr-20

Potential clinical candidates have now been identified, suitable for further development

Promising PK results from SH-879, our most advanced asset (see adjacent charts for cell-based antiviral assay data)







Next Step

- Proactively seeking funding via charitable organizations and trusts / other philanthropic sources of funding, to rapidly progress our molecules
- Program is available for global partnering to accelerate progress to human clinical trials
  Significant inbound interest received and under assessment
- Program remains a core ESG project –
  We will not profit/receive economics from sales to Least Developed Countries*. For all other countries, we will reinvest a portion of any profits received towards our Group's ESG initiatives

[1] * Regardless of pandemic/endemic status. List of LDCs as defined by the United Nations.

SZ treatment system

M4 agonist is 4th-gen candidate aiming to be a highly effective and safer treatment for SZ

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

M4 agonist is 4th-gen candidate

- Potential Best-in-Class therapy with a novel mechanism
- Improved efficacy and Safety

*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

Estimation of potential market size

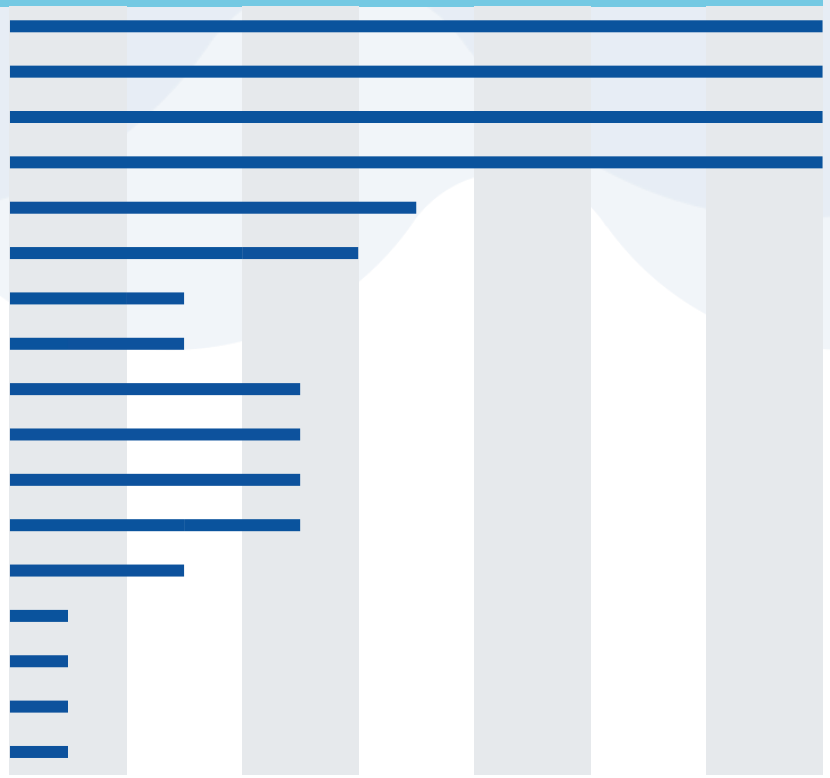
Market size and peak sales of our development products in the preclinical stage and beyond

Category	Indication[2]	Number of Patients	Peak Sales(USD million)		Our Products
			Market Size	Individual Products	
Neurological disorders	Dementia	~55 million	$7,266M (2010)	$3,913M (2009/Aricept)	M1 agonist, M1/M4 agonist
	Schizophrenia	~20 million	$20,691M (2011)	$6,198M (2013/Abilify)	M4 agonist, M1/M4 agonist
	Substance use disorders	~10.4 million[1]	-	-	mGlu5 NAM
	Narcolepsy	~3 million	$2,014M (2020)	$1,742M (2020/Xyrem)	OX2 agonist
	Other	-	-	-	CGRP antagonist, GPR52 agonist
Immunological disorders	Cancer	~42 million	$152,495M (2020)	$14,380M (2020/Keytruda)	A2a antagonist, EP4 antagonist, CXCR4 mAb
	Inflammatory bowel disease	~10 million	$19,966M (2020)	$7,809M (2020/Humira)	CCR6 antagonist, GPR35 agonist, EP4 agonist
	Atopic Dermatitis	~13.3 million	$4,127M[3] (2020)	$3,204M (2020/Dupixent)	H4 antagonist, PAR2 mAb
Other	T2DM/Obesity	~420 million	$48,861M (2020)	$6,652M (2014/Lantus)	GLP1 agonist
	Anorexia	~2.9 million	-	-	MC4 antagonist
	SARS-CoV-2	~240 million	-	-	Mpro
合計			$255,420M	$43,898M	

Source (Number of patients) : World Health Organization、The European Federation of Crohn's & Ulcerative Colitis Associations (EFCCA)、Narcolepsy Network, Inc.、GBD 2015 Disease and Injury Incidence and Prevalence Collaborators (October 2016). "Global, regional, and national incidence, prevalence, and years lived with disability for 310 diseases and injuries, 1990-2015: a systematic analysis for the Global Burden of Disease Study 2015". Lancet. 388 (10053): 1545–1602 [1] The number of patients with drug addiction
Source (Peak Sales):Sales of each indications are extracted form Evaluate Pharma's data of sales by disease and sales by individual products (as of 18 Jan. 2022). [2] Sosei Heptares may target one segment in the market for specific diseases. [3] Since there is no applicable indication category, the market size of "Eczema" is stated. Current market size for Atopic Dermatitis may be larger than stated above.

Partnered Pipeline

Compound	Target / Mechanism of Action	Modality	Indication	Partner
Traditional Out-licensing Collaborations				
Seebri® Breezhaler®	LAMA	SME	COPD	NOVARTIS
Ultibro® Breezhaler®	LAMA+LABA	SME	COPD	NOVARTIS
Enerzair® Breezhaler®	LAMA+LABA+ICS	SME	Asthma	NOVARTIS
ORAVI®	Antifungal agent miconazole	SME	Oropharyngeal candidiasis	Hisamitsu
Imaradenant[1]	Adenosine A2a ant. combo	SME	mCRPC	AstraZeneca
HTL'878	Muscarinic M4 agonist	SME	Neurology diseases	Neurocrine
Not disclosed	Muscarinic M1 agonist	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
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
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®, Enerzair® and Breezhaler® are registered trademarks of Novartis AG. [1] AstraZenenca have removed the A2a program from their clinical pipeline as at Q3 2021

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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	PeptiDream							
Not disclosed	Targeted Protein Degradation	SME	Gastrointestinal disorders	Captor Therapeutics							
Not disclosed	AI-Augmented Drug Discovery	SME	Neurology diseases	PHARMENABLE							
Not disclosed	Ion Channel Drug Discovery	SME	Neurology diseases	metrion biosciences							
Not disclosed	Multi target AI-powered	SME/LME	Immune diseases	Inveni.AI							
Not disclosed	Antibody Discovery	mAb	Disease-relevant GPCR targets	TWIST							
Not disclosed	Multi target AI-powered	SME/LME	Immune diseases	verily							
Co-owned Investments											
TMP301	mGlu5 NAM	SME	Substance use disorders	Tempero Bio							
Not disclosed	OX1/OX2 agonist (oral and intranasal)	SME	Narcolepsy	CENTESSA / Orexia Therapeutics							

Note: SME = small molecule. LME = large molecule

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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	sosei HEPTARES							
Not disclosed	EP4 antagonist	SME	Immuno-oncology	sosei HEPTARES							
Not disclosed	GPR52 agonist	SME	Neurology diseases	sosei HEPTARES							
Not disclosed	EP4 agonist	SME	Inflammatory bowel disease	sosei HEPTARES							
Not disclosed	PAR-2 mAb	mAb	Atopic Dermatitis	sosei HEPTARES							
SH-879	SARS CoV-2 Mpro	SME	Coronaviruses	sosei HEPTARES							
Multiple programs	Not disclosed	SME/LME	Neurology diseases	sosei HEPTARES							
Multiple programs	Not disclosed	SME/LME	GI and Inflammatory diseases	sosei HEPTARES							
Multiple programs	Not disclosed	SME/LME	Immunology diseases	sosei HEPTARES							
In-house Programs (No longer internally funded. Targeting academic / industrial partnership)											
HTL'310	SSTR5 agonist	Peptide	Hypoglycaemic disorders	sosei HEPTARES							
HTL'097	GLP-1 antagonist	Peptide	Hypoglycaemic disorders	sosei HEPTARES							
HTL'023	Dual GLP-2/GLP-1 agonist	Peptide	Intestinal failure / NASH	sosei HEPTARES							
Not disclosed	Apelin agonist	Peptide	Pulmonary Arterial Hypertension	sosei HEPTARES							
HTL'641	Dual orexin antagonist	SME	Insomnia and sleep disorders	sosei HEPTARES							

Note: SME = small molecule. LME = large molecule

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Glossary

Basic Terminology/Technology		
GPCR	G Protein-Coupled Receptor	There are about 800 types of GPCRs in the human body. While 400 of them are known to be potential drug targets, about 300 of them are not yet drugged
StaR	Stabilized Receptor	Sosei Heptares' proprietary technology to stabilize a GPCR by engineering a small number of single point mutations outside of the ligand-binding site. It enables to identify the structure of GPCRs to be used for SBDD drug discovery as well as antibody drug discovery as antigens
SBDD	Structure-Based Drug Design	A method to design drugs on a computer base based on the analysis of the three-dimensional structure of the drug target (e.g., protein receptor)
TPD	Targeted Protein Degradation	Drugs that promote the degradation of target proteins (e.g., receptors) in cells and aim for therapeutic effects by reducing disease-causing proteins
PAM	Positive Allosteric Modulator	A regulator that binds to unusual active sites (allosteric sites) on the receptor to increase the affinity and effect of the agonist
NAM	Negative Allosteric Modulator	A regulator that binds to an unusual active site on the receptor (allosteric site) and reduces the affinity and effectiveness of the agonist
Ag	Agonist	A therapeutic drug that binds to a receptor and activates an intracellular signaling system similar to biological substances
Ant	Antagonist	A therapeutic drug that suppresses biological reactions by binding to receptors and preventing them from binding to biological substances
PK	Pharmacokinetics	Research and testing on the relationship between drug dosage and blood concentration. Mainly describes the rate process of ADME
PD	Pharmacodynamics	Research and testing on the relationship between drug concentration and pharmacological effects
ADME	Absorption, Distribution, Metabolism and Excretion	A series of process in the absorption of drugs into the body, distribution within the body, metabolism in the liver and other organs, and excretion in the kidneys and other organs
POM	Proof of Mechanism	Proof of mechanism of action, mainly through biomarkers. It can suggest the possibility of efficacy in fewer cases than POC
POC	Proof of Concept	Proof of a therapeutic concept, primarily through clinical efficacy and safety
Ach	Acetylcholine	A neurotransmitter released from the peripheral parasympathetic and motor nerves to transmit nerve stimuli
IND	Investigational New Drug	Information packages for development candidates to be submitted to the U.S. Food and Drug Administration (FDA) at the time of initiation of clinical trials
Ph1	Phase1	A study in humans. The main purpose is to confirm the safety of the drug candidate mainly by healthy volunteers.
Ph2	Phase2	A study in humans. The main purpose is to confirm the efficacy of the drug candidates on a small scale (however, the number of patients varies greatly depending on the disease)
Ph3	Phase3	A study in humans. The main purpose is to determine the efficacy of the drug candidates on a large scale (however, the number of patients varies greatly depending on the disease)
NDA	New Drug Application	An application to the U.S. Food and Drug Administration (FDA) for approval to market a new drug
Disease/Drug		
LAMA	Long Acting Muscarinic Antagonist	An inhalant that dilates bronchial tubes and improves respiratory function by inhibiting the action of acetylcholine receptors (M3), which increase parasympathetic nerves.
LABA	Long Acting Beta2-Agonist	An inhalant that improves respiratory function by stimulating sympathetic beta2 receptors to dilate the bronchi.
ICS	Inhaled Corticosteroid	An inhalant that suppresses airway inflammation to prevent coughing attacks and other symptoms caused by asthma, also promotes the action of beta 2 stimulants and improve airway hyperresponsiveness.
mCRPC	Metastatic Castration–Resistant Prostate Cancer	Cancer that has spread (metastasized) beyond your prostate gland and for which hormone therapy is no longer effective in stopping or slowing the disease.
COPD	Chronic Obstructive Pulmonary Disease	A group of diseases that causes damage to the bronchi and lung due to smoking or inhalation of toxic substances, resulting in breathing problems.
AD	Alzheimer's Disease	Alzheimer's disease is a progressive neurologic disorder that causes the brain to shrink (atrophy) and brain cells to die, the most common cause of dementia .
DLB	Dementia with Lewy Bodies	Protein deposits, called Lewy bodies, develop in nerve cells in the brain regions involved in thinking, memory and movement (motor control), the second most common type of dementia.

Glossary (cont'd)

Drug discovery target		
M1	Muscarinic M1 Receptor	One of the five subtypes M1 to M5 of muscarinic acetylcholine receptors, known to be involved in learning and memory.
M4	Muscarinic M4 Receptor	One of the five subtypes M1 to M5 of muscarinic acetylcholine receptors, known to be involved in behavior and dopamine release.
CGRP	Calcitonin Gene-Related Peptide	CGRP is thought to be involved in vasodilation, decreased heart rate, and increased myocardial contractility via receptors.
A2A	Adenosine A2A receptor	One of the four subtypes of adenosine receptors, A1, A2A, A2B, and A3. It is expressed in many tissues and has multiple functions such as neural activity, vasodilation, and immune regulation.
GLP-1	Glucagon-like Peptide 1	GLP-1 is secreted by gastrointestinal cells when we eat, and is involved in insulin secretion from the pancreas and appetite regulation in the central nervous system.
CCR6	Chemokine Receptors 6	A type of B chemokine receptor that responds to chemokines generated during inflammation. It is believed to be involved in inflammation and immunity mainly by it's regulating the migration activity of leukocytes into inflamed tissues.
MC4	Melanocortin 4 Receptor	MC4 is expressed in the central nervous system and is the main receptor that mediates the appetite suppressing effect of alpha-melanocyte stimulating hormone.
GPR35	G Protein-Coupled Receptor 35	Orphan receptors - expressed mainly in immune and gastrointestinal tissues and is thought to be involved in areas of gastrointestinal tract, cardiovascular, inflammation, and central nervous system.
CXCR4	CXC Motif Chemokine Receptor 4	CXR4 induces migration of cancer cells and is known to be important in metastasis process.
mGlu5	Metabotropic Glutamate Receptor 5	One of the metabolic glutamate receptors expressed in the central nervous system. Glutamate is known to be the most abundant excitatory neurotransmitter in the human nervous system.
OX1、OX2	Orexin 1 Receptor、Orexin 2 Receptor	Orexins are a class of neuropeptides that are known to play a role in stabilizing wakefulness and inhibiting sleep.
GPR52	G Protein-Coupled Receptor 52	An orphan receptor that is highly expressed in the striatum- may play a role in the regulation of frontal lobe-striatal and limbic dopamine in psychiatric and neurological disorders.
H4	Histamine H4 Receptor	H4 is particularly expressed in immune system cells and is known to be involved in inflammation and allergy.
EP4	Prostaglandin EP4 Receptor	EP4 suppresses innate and acquired immunity and is known to induce tumor progression
PAR2	Protease-Activated Receptor 2	PAR2 is known to be associated with many physiological and pathophysiological processes such as inflammation, tumor metastasis, gastrointestinal motility, pain, and itching
SSTR5	Somatostatin Receptor 5	SSTR is expressed mainly on small intestinal endocrine cells and pancreatic beta cells, inhibits the secretion of gastrointestinal hormones such as GLP-1 and PYY by binding somatostatin.
GLP-2	Glucagon-like Peptide 2	Intestinal GLP-2 is secreted together with GLP-1 during nutrient intake, and repairs and protects the intestinal tract.
Mpro	SARS-CoV-2 Main Protease	An enzyme essential for the replication of Sars-CoV-2(COVID-19 cause virus). One of the target proteins for the development of antiviral drugs.
D2	Dopamine Receptor D2	Dopamine is a neurotransmitter in the brain involved in motor control, motivation, and learning - known to be associated with Parkinson's disease and schizophrenia.
5-HT	5-Hydroxytryptamine Receptor	5-hydroxytryptamine (serotonin), as a transmitter in the central nervous system, is thought to play an important role in the regulation of brain function.
Orphan receptor		A receptor whose existence is known based on genetic analysis, but for whom no ligand has been identified.
Ligand		A ligand is a molecule that binds to a specific receptor in vivo, such as hormones, neurotransmitters. For example, the ligand for muscarinic receptors is acetylcholine.

Locations

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