



Nxera R&D Day  
*Be Bold, Move Fast.*  
6 November 2024

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# Agenda

- 01 Business Update
- 02 Development and Commercial (JP/APAC)
- 03 Research (UK)
- 04 FY2024 Q3 Financial Results
- 05 Appendix

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# Business Update

Chris Cargill, President and CEO

01

## Towards our 2030 vision

Focus on innovative specialty medicines in areas of unmet need



Neurology  
39%

Current portfolio  
% split



Metabolism  
33%



Immunology  
9%



Rare  
18%

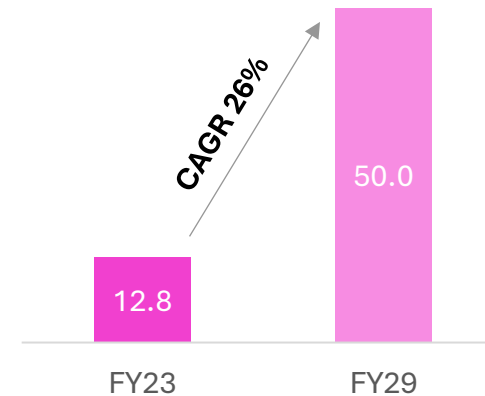
At least 5 products\* launched in Japan



Business development platform actively hunting new product opportunities

At least JPY50 billion in annual revenues

Revenue (JPY billion)



Strengthening management and people

Continuously improving business processes

Implementing technology and leveraging data

Our mission is to accelerate medicine. From Japan, for Japan, and the world.



## Be bold, move fast.

1

**Securing mid-term expansion** by focusing on the growth of key commercial products in Japan and APAC (PIVLAZ<sup>®</sup> and QUVIVIQ<sup>™</sup>)

2

**Driving long-term expansion** by transforming medicine across the hottest areas of Neuroscience, Metabolism, Immunology and Rare Diseases

3

**Powering the world's most comprehensive drug discovery platform** for GPCRs and other membrane proteins to fuel new pipeline products

4

**Executing strategic expansion** in Japan with focused licensing and/or acquisitions

Rapidly building Japan's next-generation pharmaceutical company

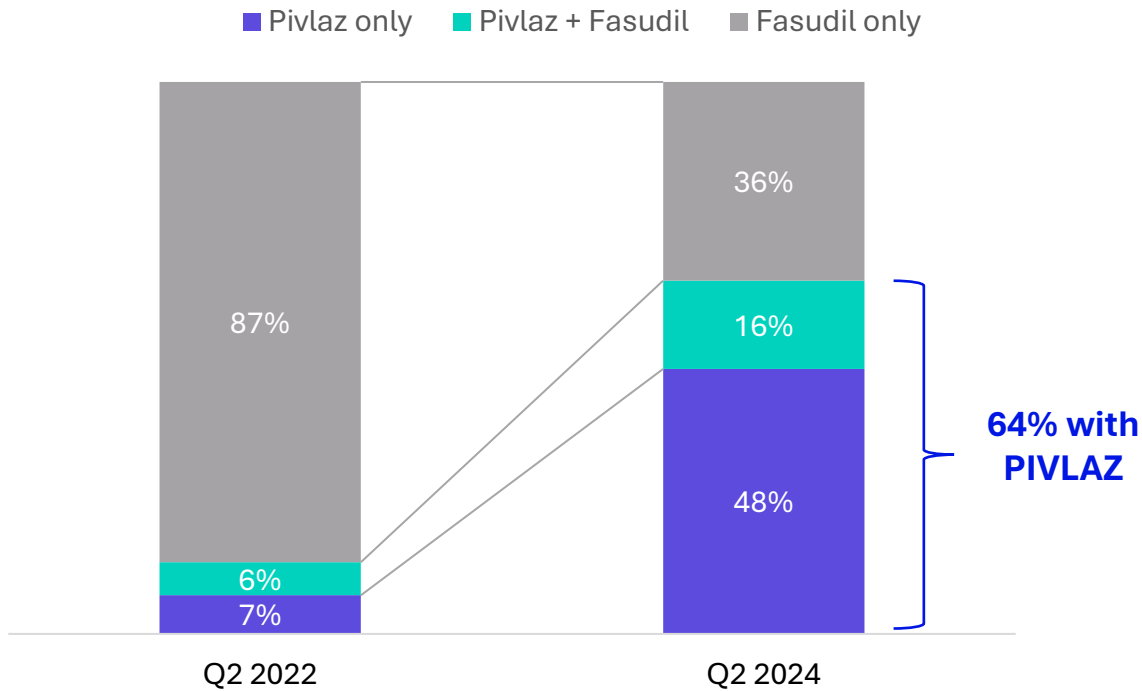


# Mid-term expansion from the stability of PIVLAZ® in Japan



## Share evolution – aSAH usage

## Strategic roadmap



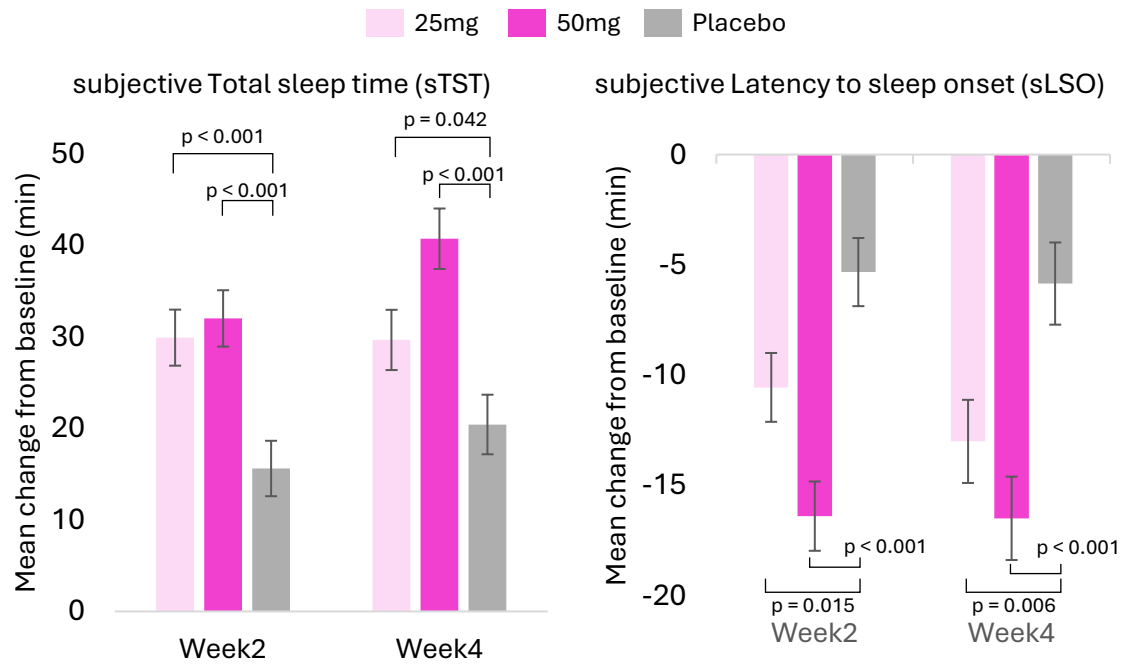
- **Over 15,000 Japanese patients** have received PIVLAZ®
- Japan Guidelines for Management of Stroke gives neurosurgeons confidence to prescribe PIVLAZ® as a **new standard of care for SAH**
- **Indication expansion** discussions ongoing with Japanese KOLs
- **Territory expansion** ongoing – PIVLAZ® expected to be available to South Korean patients in 2025-2026

PIVLAZ® is a life-saving treatment and the backbone of our growing Japanese pharma business


# Mid-term expansion with upcoming launch of QUVIVIQ™ in Japan



## Positive results from Phase 3 trial in Japan









## Strategic roadmap

- **MHLW approval** of QUVIVIQ™ 25mg / 50mg for the treatment of insomnia received in September 2024
- New sales scheme with  **SHIONOGI**
  - **Best partner** to market QUVIVIQ™ in Japan
  - **Enhanced economics** receiving double-digit net sales royalties vs. cost of establishing primary care salesforce
- **Indication expansion** being explored with KOLs
- **Territory expansion** – bridging study ongoing in Korea; discussions ongoing with APAC partners

QUVIVIQ™ go-to-market model transformed by new sales scheme with Shionogi for Japan. Shionogi to exclusively handle sales and distribution activities.



## Long-term expansion by transforming medicine across the hottest areas of Neuroscience...

	PARTNERED WITH 	DISCOVERED BY 	DISCOVERED BY 	TECHNOLOGY FROM 	OPTION TO LICENSE WITH 	DISCOVERED BY 
<b>Compound &amp; Stage</b>	NBI-'568 (Ph 3 ready)		ORX750 (Ph 1/2)		NXE-149 (Ph 1b)	
<b>Target Indication</b>	Schizophrenia		Narcolepsy		Schizophrenia	
<b>Global Patient Population</b>	<b>24 million</b>		<b>3 million</b>		<b>24 million</b>	
<b>Mechanism</b>	Selective M4 receptor agonism		Selective OX-2 receptor agonism		Novel, selective GPR52 receptor agonism	
<b>Key Player</b>	BMS/KarXT		Takeda/TAK-861		First-in-Class	

Technology, platform and know-how to design convenient, cost effective, easy to manufacture, oral small molecule medicines that could change the treatment paradigm for major diseases

## ... and fast-growing areas of Metabolism and Immunology

	DISCOVERED BY Pfizer	TECHNOLOGY FROM NXERG	DISCOVERED BY Pfizer	TECHNOLOGY FROM NXERG	DISCOVERED BY NXERG
<b>Compound &amp; Stage</b>	PF-06954522 (Ph 1)		PF-07054894 (Ph 1)		NXE-744 (Ph 1)
<b>Target Indication</b>	T2D / Obesity		IBD		IBD
<b>Global Patient Population</b>	483 million / 890 million		10 million		10 million
<b>Mechanism</b>	GLP-1 receptor agonist		CCR6 receptor antagonist		Novel, selective EP4 receptor agonist
<b>Key Player</b>	Lilly + Chugai/Orforglipron		First-in-Class		First-in-Class

Current clinical programs targeting Neuroscience, Metabolic Disease and Immunology aim to positively impact over 500 million patients worldwide

# Leveraging the world's most comprehensive drug discovery platform for GPCRs

UK Research & Early Development

Japanese Clinical Development & Sales

NxStaR



NxHit

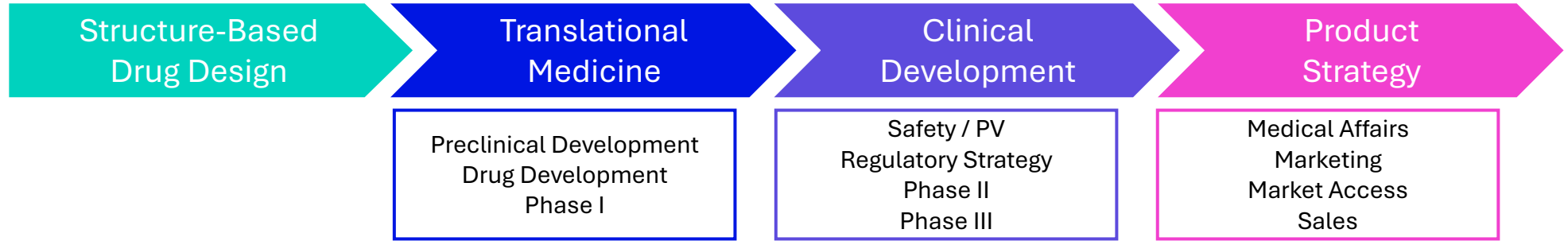


NxDesign



NxWave™ Platform

*In-license clinical stage product opportunities for the Japan and APAC markets*

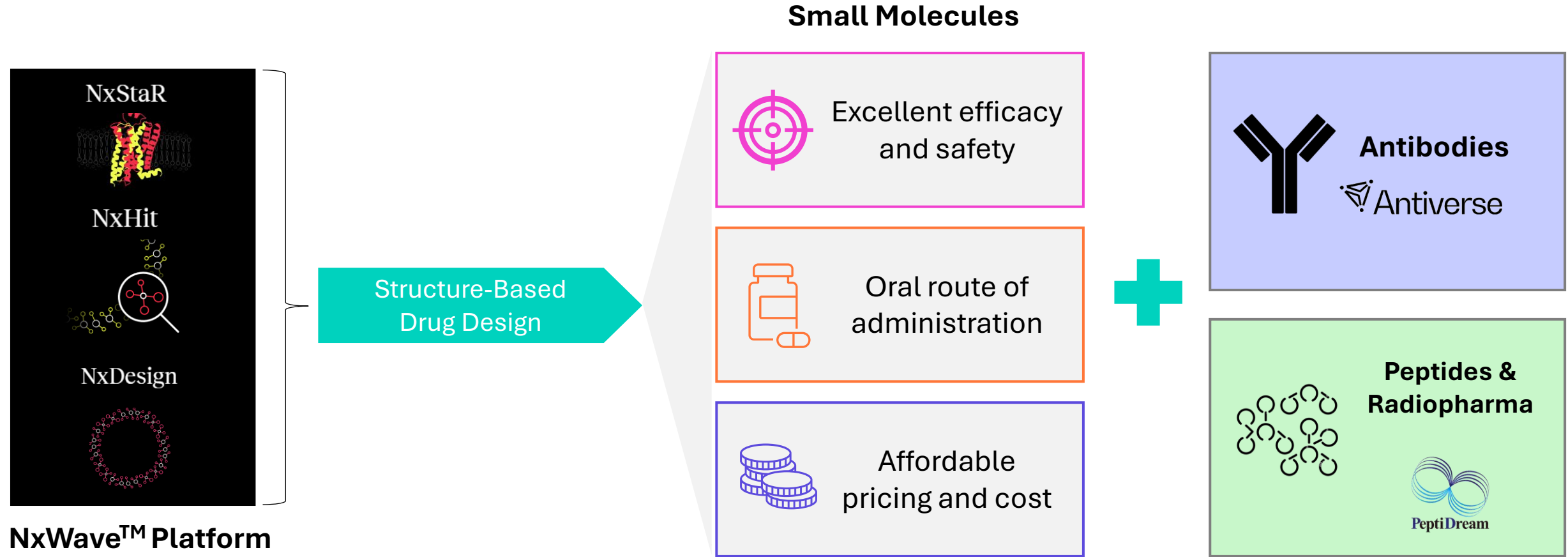


*Out-license our products to mega pharma for the global market*

NxWave™ SBDD platform is the backbone that fuels our continuous innovation of new product opportunities. Our pipeline is bolstered by external innovation and collaboration from partners worldwide.







# Leveraging the world's most comprehensive drug discovery platform for GPCRs



Our strength is in small molecules, but expanding to have additional modalities and capabilities that can address the unmet needs that small molecules cannot

## Leveraging the world's most comprehensive drug discovery platform for GPCRs

	Year Founded	# Team Members	IPO / Listing	Value of Business	Modality	# Non-clinical Programs	# Clinical Programs
	2019	44	NASDAQ (2024)	\$535M	SME, Biologics	3+	1
	2019	78	NASDAQ (2024)	\$745M	SME	3+	1
	2019	136	NASDAQ (2023)	\$2,175M	SME	4	2
	2007*	180**	TSE PRIME		SME, Peptides, Biologics	25+	12

Nxera has 15 years of know-how and technology expertise drugging GPCRs. Across all metrics Nxera has the world's most comprehensive and valuable drug discovery platform for GPCRs

Source: Company Presentations, FactSet as at 25-Oct-2024

\*Relates to the founding of Heptares Therapeutics Ltd (now known as Nxera Pharma UK Limited).

\*\* Team members of Nxera Pharma UK Limited.

# Leveraging the world's most comprehensive drug discovery platform for GPCRs



Structure-Based Drug Design

## Active Partnerships

Partner	Therapeutic Area(s)	Total Milestones Received to Date	Potential Total Milestones <sup>1</sup>
Boehringer Ingelheim	Schizophrenia	€25m	€670m
Lilly	Diabetes and Metabolic	\$37m	\$800m
abbvie	CNS	\$50m	\$1.2bn
NEUROCRINE BIOSCIENCES	CNS	\$180m	\$2.6bn
Genentech <small>A Member of the Roche Group</small>	Multiple	\$33m	\$1.0bn
Pfizer	Multiple	\$36m	\$1.8bn

## Terminated Programs

Daiichi-Sankyo  
biohaven

Total milestones received (\$m)



## Reverted Programs

teva abbvie  
Takeda AstraZeneca  
Allergan GSK

The world's leading pharma companies continue to choose Nxera to develop their GPCR products

<sup>1</sup>Potential option fees, development, regulatory and commercial milestone payments agreed at the time of transaction. Nxera 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.

# Executing strategic expansion in Japan & APAC with focused licensing and/or acquisitions

UK Research & Early Development

Japanese Clinical Development & Sales



*In-license clinical stage product opportunities for the Japan and APAC*

*Proactively analyzing opportunities to fill our Phase 2, Phase 3 and commercial stage pipeline. Over US\$300m capital available to deploy.*

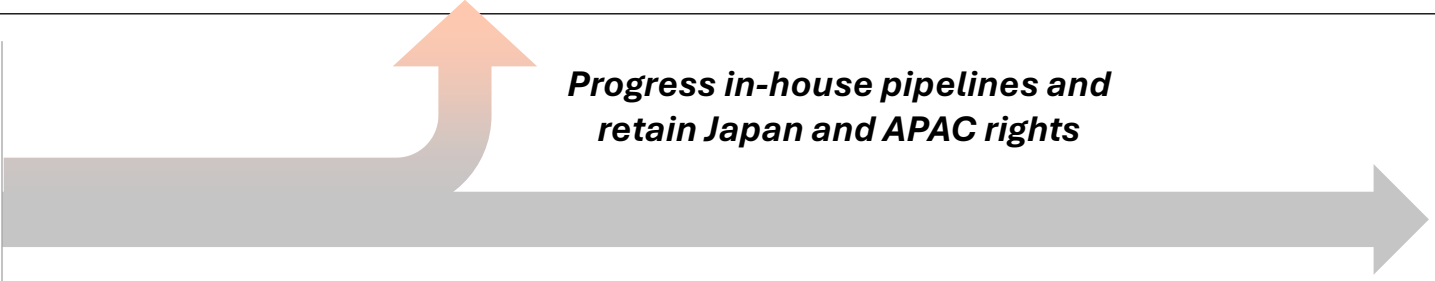


**JAPAN + APAC MARKET**

15+ Programs



- M1 Ag.
- EP4 Ag.
- GPR52 Ag.
- EP4 Antag.

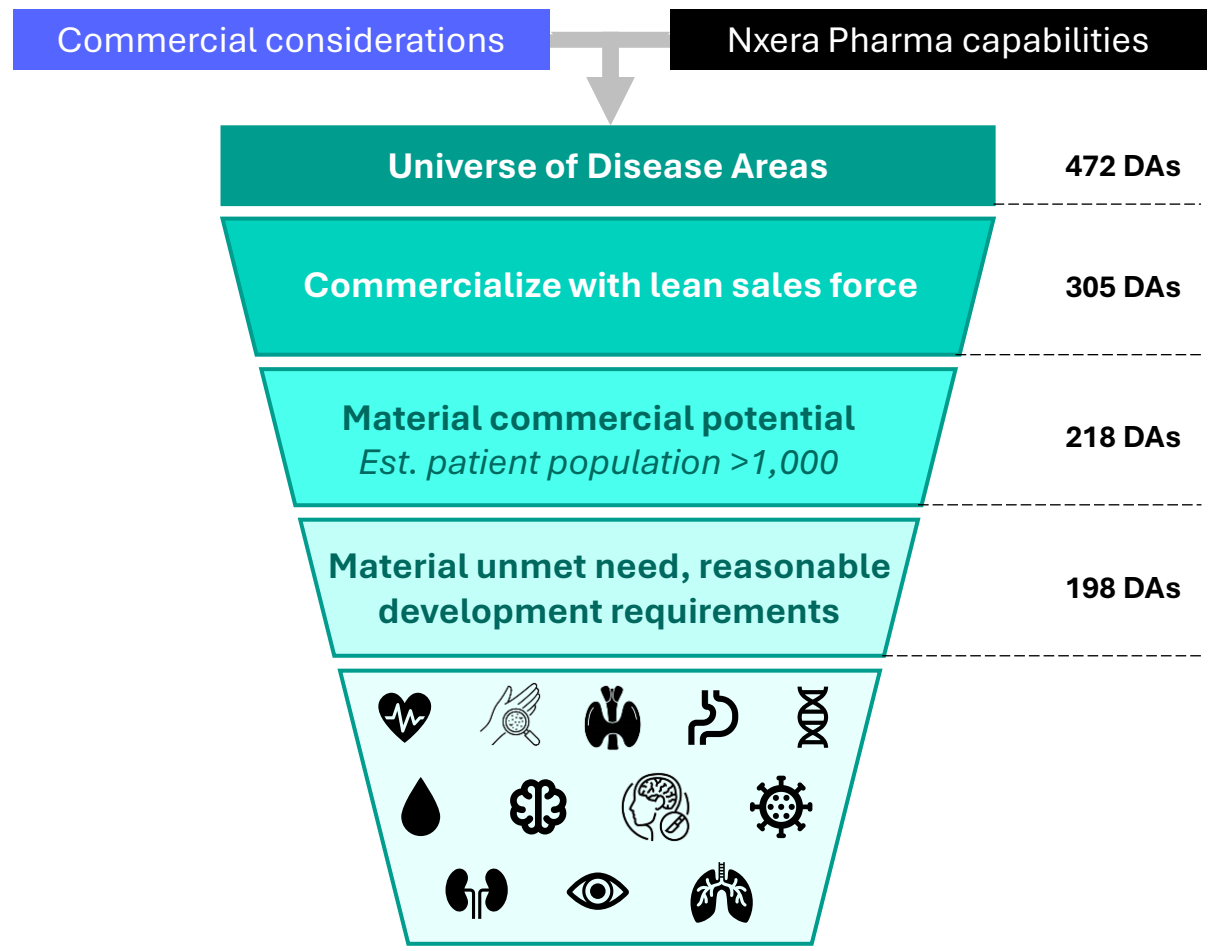


*Progress in-house pipelines and retain Japan and APAC rights*

**GLOBAL MARKET**

# Executing strategic expansion in Japan & APAC with focused licensing and/or acquisitions

## Approach to prioritizing Disease Areas (“DAs”)



## Active in-licensing discussions targeting 20+ assets



50+ proposals evaluated



20+ product opportunities prioritized:

- peak sales potential of JPY 15-50bn, or more
- differentiated medicines in compelling indications

Neurology
Critical Care (incl. Neurosurgery)
Rare (Neuro)endocrine
Immunology & Inflammation
Rare Genetic
Rare Respiratory
Rare Cardiovascular

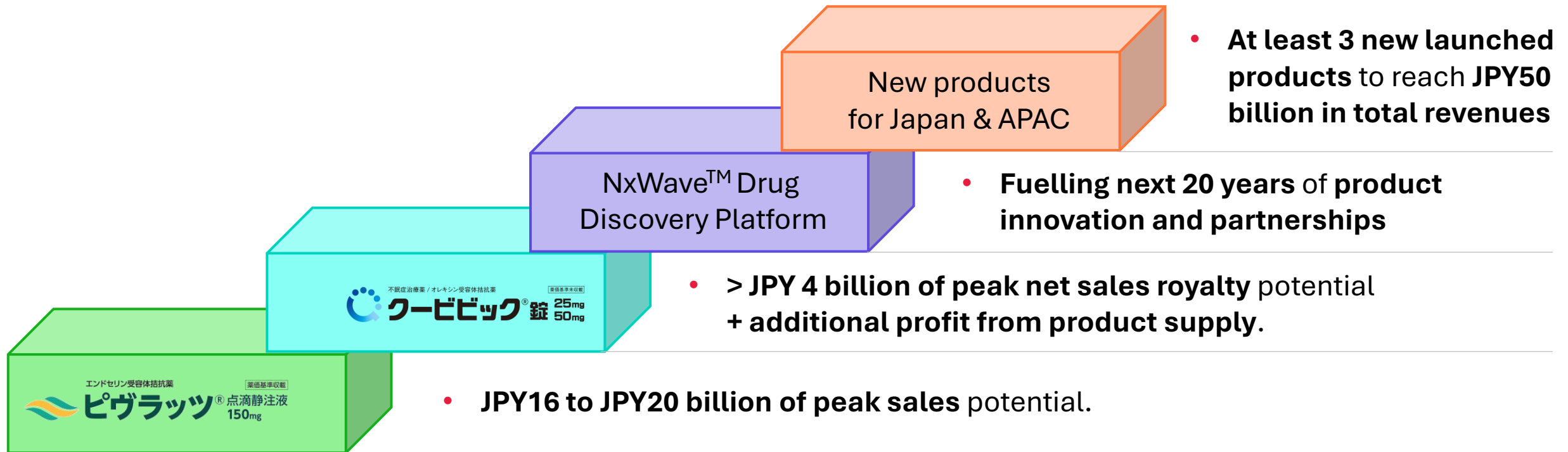


7 opportunities at term sheet or contracting stage

Source: Internal Analysis


















## From a discovery platform towards our 2030 vision



Building a JPY50 billion revenue business by growing sales from new products in Japan and APAC, and global expansion of NxWave™ discovered small molecule, antibody and peptide products

## A year of exceptional progress

	PROGRAM	PARTNER	TIMING	EVENT
✓	EP4 Ag		Achieved (Mar. 2024)	Ph.1 start
✓	GPR35 Ag	 	Achieved (Mar. 2024)	Program reversion
✓	GPR52 Ag		Achieved (Mar. 2024)	Option-to-license agreement
✓	NBI-568 (M4 Ag)		Achieved (Apr. 2024)	Long-term TOX study completed
✓	NBI-567 (M1 pref. Ag)		Achieved (May 2024)	Ph.1 start
✓	ORX750 (Ox2 Ag)		Achieved (May 2024)	Ph.1 start
✓	NBI-568 (M4 Ag)		Achieved (Aug. 2024)	Ph.2 topline data
✓	ORX750 (Ox2 Ag)		Achieved (Sep. 2024)	Ph.1 completion & POC data
	Cenerimod		4Q 2024	Exclusive opt-in decision
	Lucerastat		4Q 2024	Exclusive opt-in decision
	Daridorexant (Sth Korea)		4Q 2024	New Partnership & Ph.3 start
	Daridorexant (Japan)		4Q 2024	NDA Approval ( <b>achieved</b> ) & Launch
	ORX750 (Ox2 Ag)		4Q 2024	Ph.2 start
	TMP-301 (mGlu5 NAM)		End of 2024	Ph.2 start



# Development and Commercial (JP/APAC)

Dr. Makoto Sugita, Executive Officer, Chief Medical Officer  
(CMO) and President of Nxera Pharma Japan

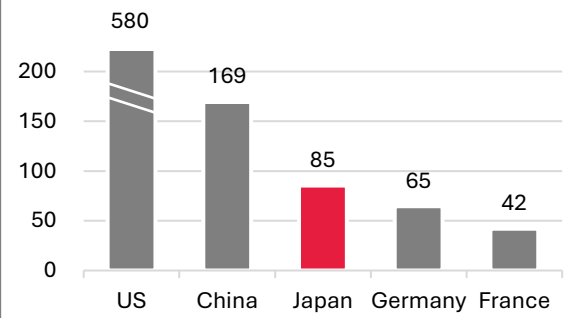
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# Japan will serve as our base to expand across APAC markets

Japan is an attractive, established market with strong volumes

## Japan is the second largest pharma market (ex-China)

Market size (USD bn) (2021)



## Tailwinds from near-term regulatory changes

“ Japan Phase 1 Drug Clinical Trials No Longer Needed for Global Clinical Trials ”

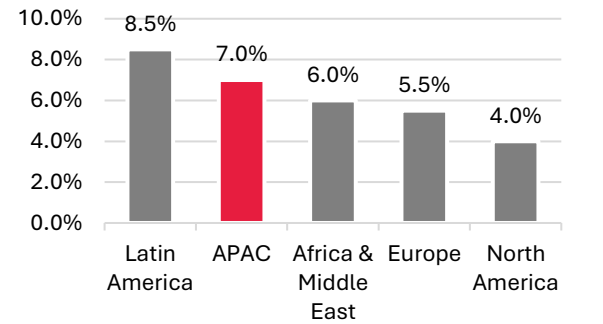


## High quality clinical and regulatory environment

- ✓ Excellent access to Doctors/HCPs who evaluate novel drugs
- ✓ Typically achieve strong patient uptake
- ✓ Reduces drug loss and drug lag for Japan patients

## APAC is the second highest growth pharma market

Market growth (CAGR %) (2019 - 2027)



Source: IQVIA Market Prognosis, Sep 2022; IQVIA Institute, Nov 2022.

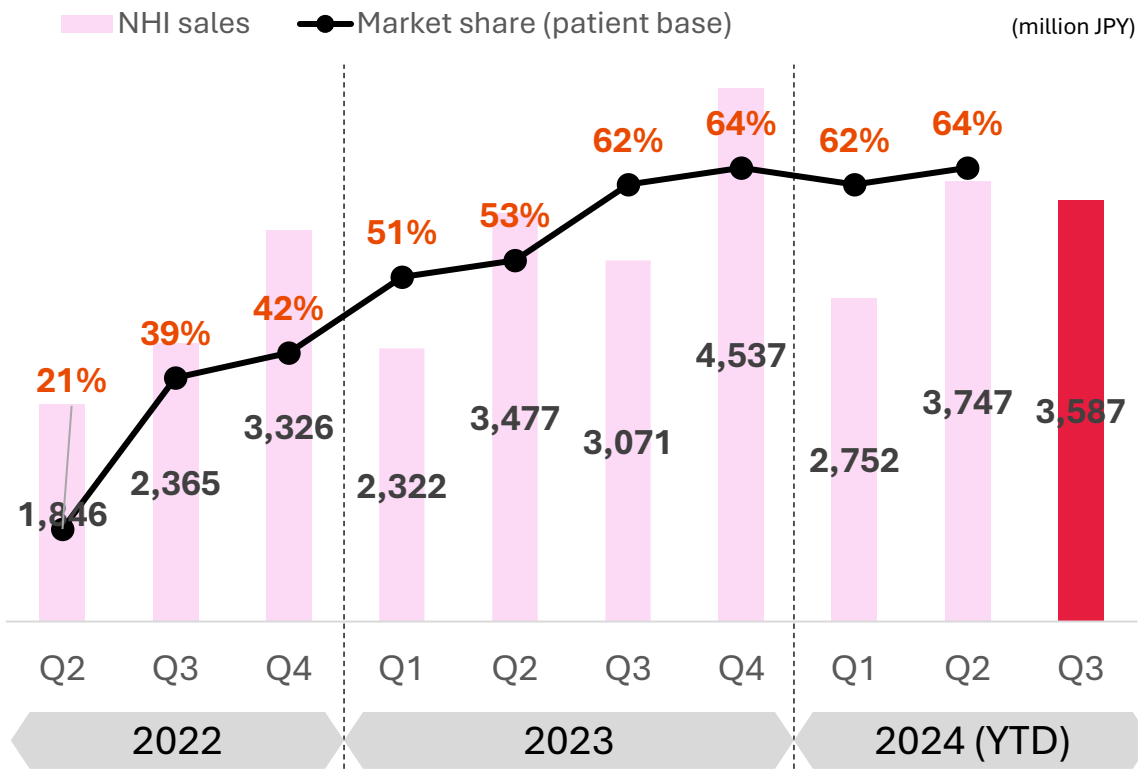
APAC (ex-China) territory includes South Korea, Australia, Brunei, Cambodia, Indonesia, Laos, Malaysia, Myanmar, New Zealand, Philippines, Singapore, Taiwan, Thailand and Vietnam

# Our product: PIVLAZ®

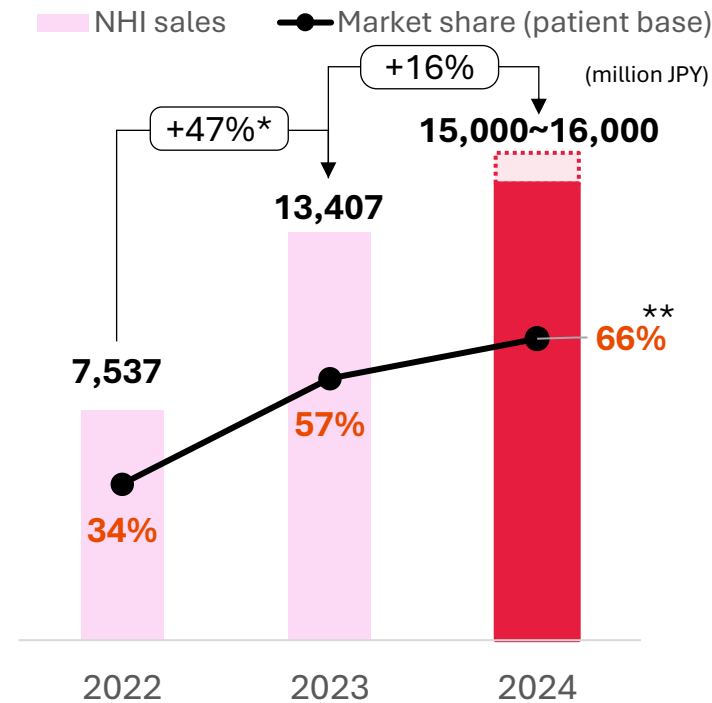


Our first commercially available medicine is penetrating the market and protecting lives every day.

## Quarterly PIVLAZ® Sales (NHI-based)



## Yearly PIVLAZ® sales and its growth



✓ Target sales changed from previous plan

✓ Keeping strong sales growth (2023 - 2024 growth (1Q-3Q): +14%)

PIVLAZ® is rapidly spreading and becoming standard of care in prevention of cerebral vasospasm

Source: MDV DPC hospital data

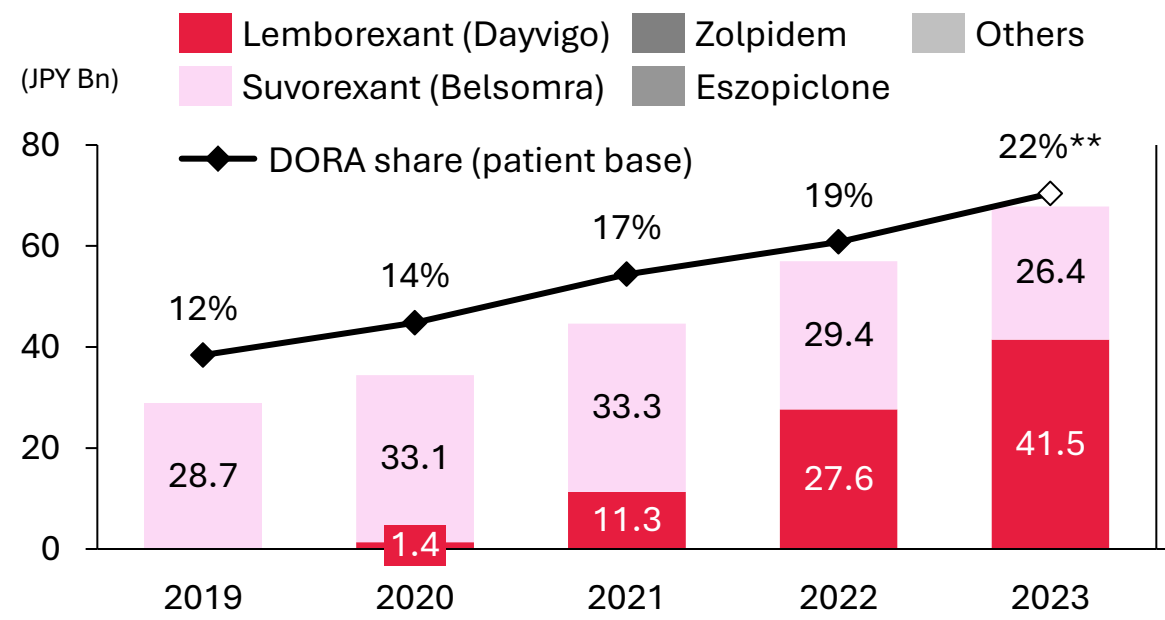
\*: Comparison of 2-4Q of 2022 and 2023, \*\*: Estimation from previous trend

# QUVIVIQ™\*: A Novel Dual Orexin Receptor Antagonist (DORA)

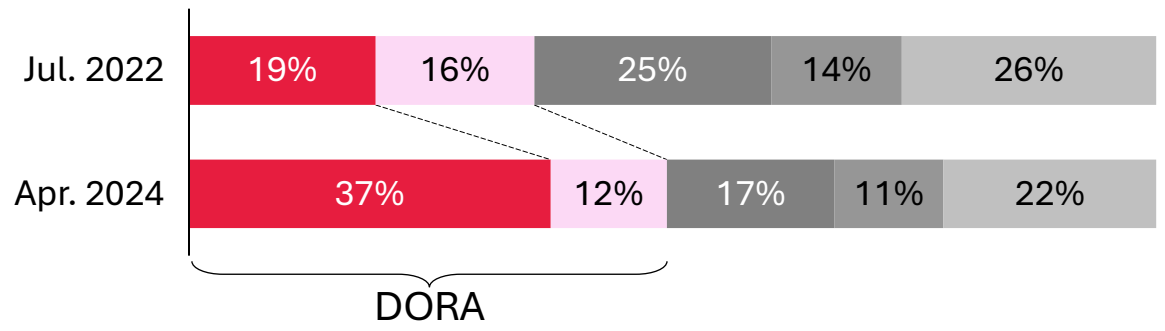


## DORA is rapidly establishing its position in insomnia treatment

Sales and market share (NHI-base)



Prescription share (Most frequently prescribed sleeping pills)



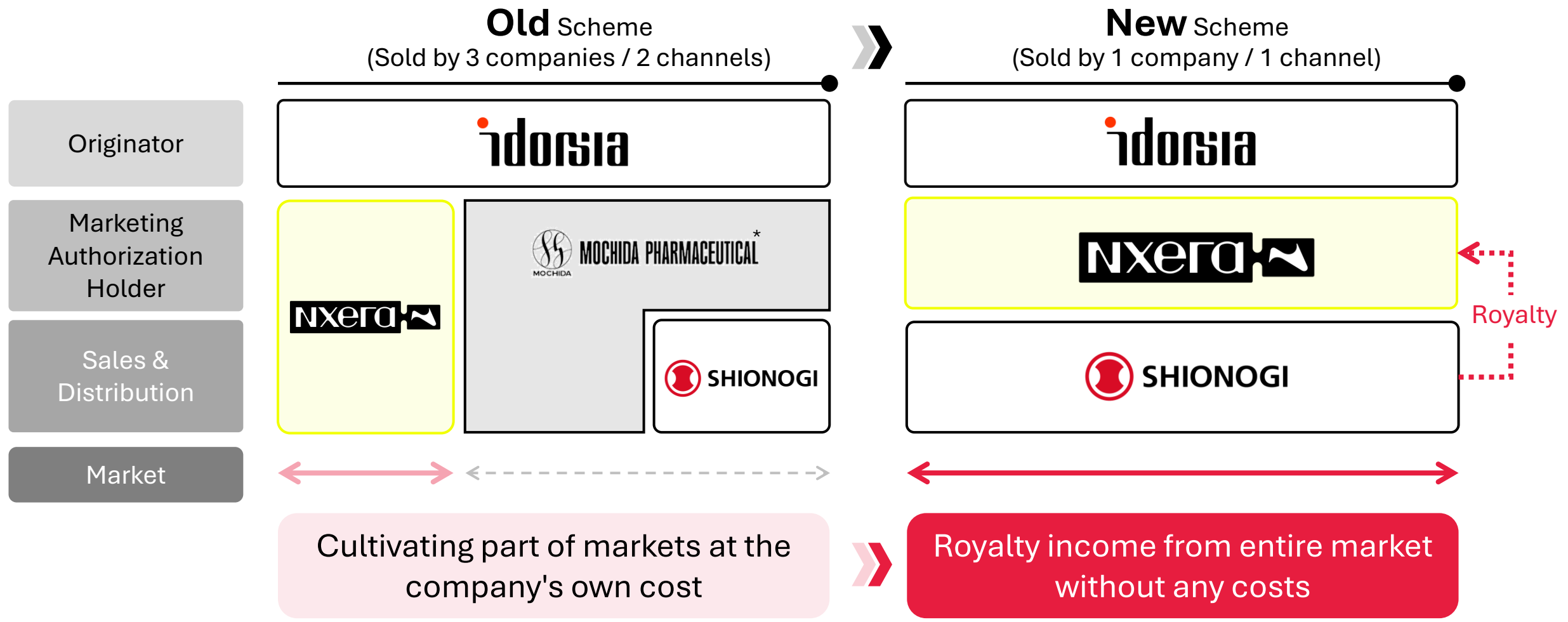
- ✓ DORAs are rapidly penetrating the insomnia treatment market in Japan
- ✓ Japan is one of the largest DORA markets

Source: Nikkei Medical (2022/7/23, 2024/4/13), IQVIA, Encise, Eisai's website  
\* Discovered by Idorsia \*\* Estimation



# QUVIVIQ™ Business scheme change

## SHIONOGI to Exclusively Handle Distribution and Sales Activities in Japan



\* Mochida will remain exclusively responsible for manufacturing of QUVIVIQ™ in Japan






# In-house pipeline: QUVIVIQ™


JNDA approval received in September 2024, and aim to be best-in-class drug



## Unmet needs in insomnia

 Nocturnal awakenings

 Rapid sleep onset

 Carry-over effects to the next day after medication

## About QUVIVIQ™



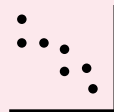
Dual Orexin Receptor Antagonist

Alleviates excessive wakefulness through strong inhibition of orexin receptors



European Guideline

Recommended in the 2023 European Insomnia Guidelines as **the only orexin receptor antagonist** that can be used <sup>1</sup>



PK profile

**T<sub>max</sub>: about 0.5-1.4 hour**

**T<sub>1/2</sub>: about 6-9 hour**

Significant improvement in next-day sleepiness and daytime functioning confirmed in global phase 3 trials <sup>2</sup>

**Aim to be Best-in-class drug in DORA class**

Source: <sup>1</sup> [ESRS Home | European Sleep Research Society](#), <sup>2</sup> [Lancet Neurol 2022; 21: 125-39](#).





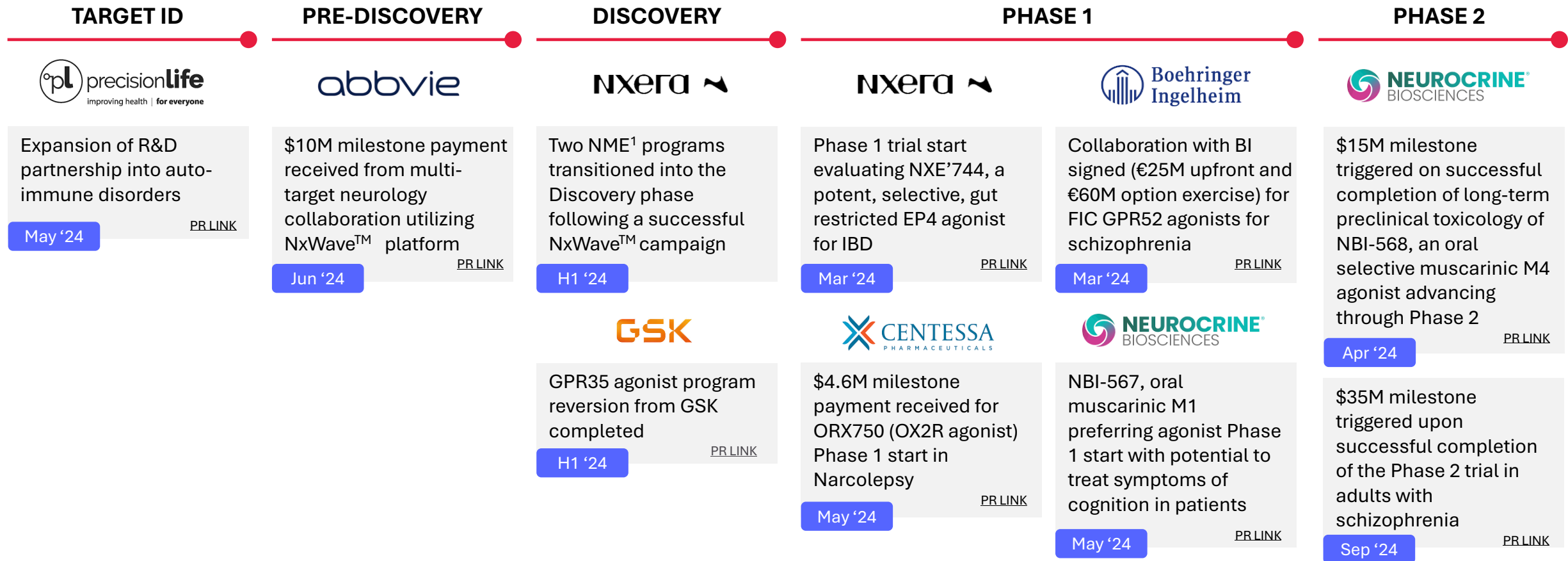
## Research (UK)

Dr. Matt Barnes, Executive Officer, President of Nxera Pharma  
UK and Head of R&D

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# Key Events 2024

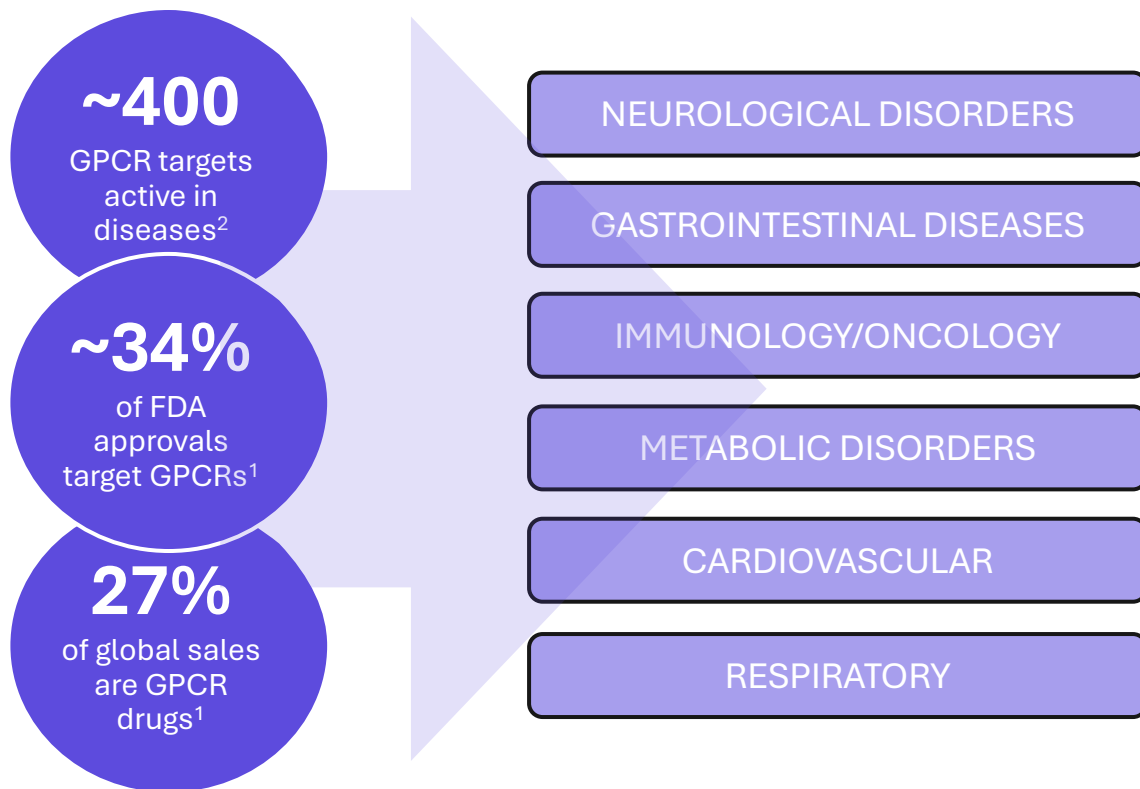
Accelerating the development of life-changing medicines, by investing in science and technology



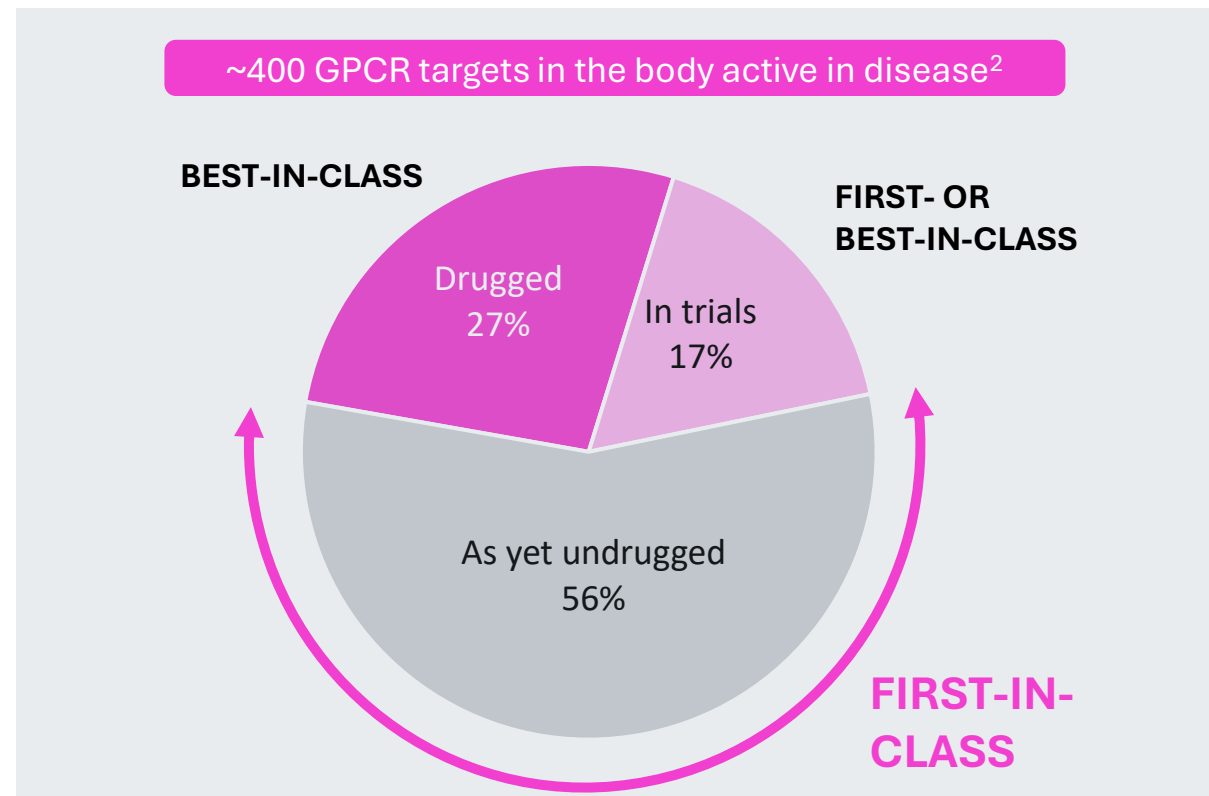
World-leading NxWave™ SBDD platform continues to fuel innovation

# GPCR targets are our core focus

GPCRs are the largest family of drug discovery targets – comprising 1/3 of all FDA approved drugs



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: <sup>1</sup> "Unexplored opportunities in the druggable human genome", Nature Reviews, 2016 ; <sup>2</sup> "Trends in GPCR in Drug Discovery – new agents, targets and indications", Nature Reviews, 2017

# NxWave™ Platform: 5-step patient-driven discovery approach

26 Pre-Clinical Candidates; 17 Clinical Starts

**Target ID & Validation**



*Identifying the best targets*

- MoA link between biological function and disease
- Tractability aligned with NxWave Platform
- Commercially attractive in core disease/therapeutic areas

 **The Right Targets**

**NxStaR**




*Stabilising the right targets*

- World-leading technology platform
- Protein NxStaR for NxHit
- NxStaR enabling structure determination
- NxStaR supported biophysics and MoA

 **The Right Structure**

**NxHit**




*Identifying the best hits*

- Proprietary screening sets
- NxStaR enabled DEL screening
- NxStaR enabled fragment screening
- Ligand & Structure-based virtual screening


 **The Right Hits**

**NxDesign**




*Selecting the best Candidate*

- SBDD enabled
- CADD focused
- Optimal physchem, pharmacology, DMPK and drug safety
- Confidence in Human PKPD, dose prediction
- Competitor Differentiation


 **The Right Candidates**

**Translational Medicine**

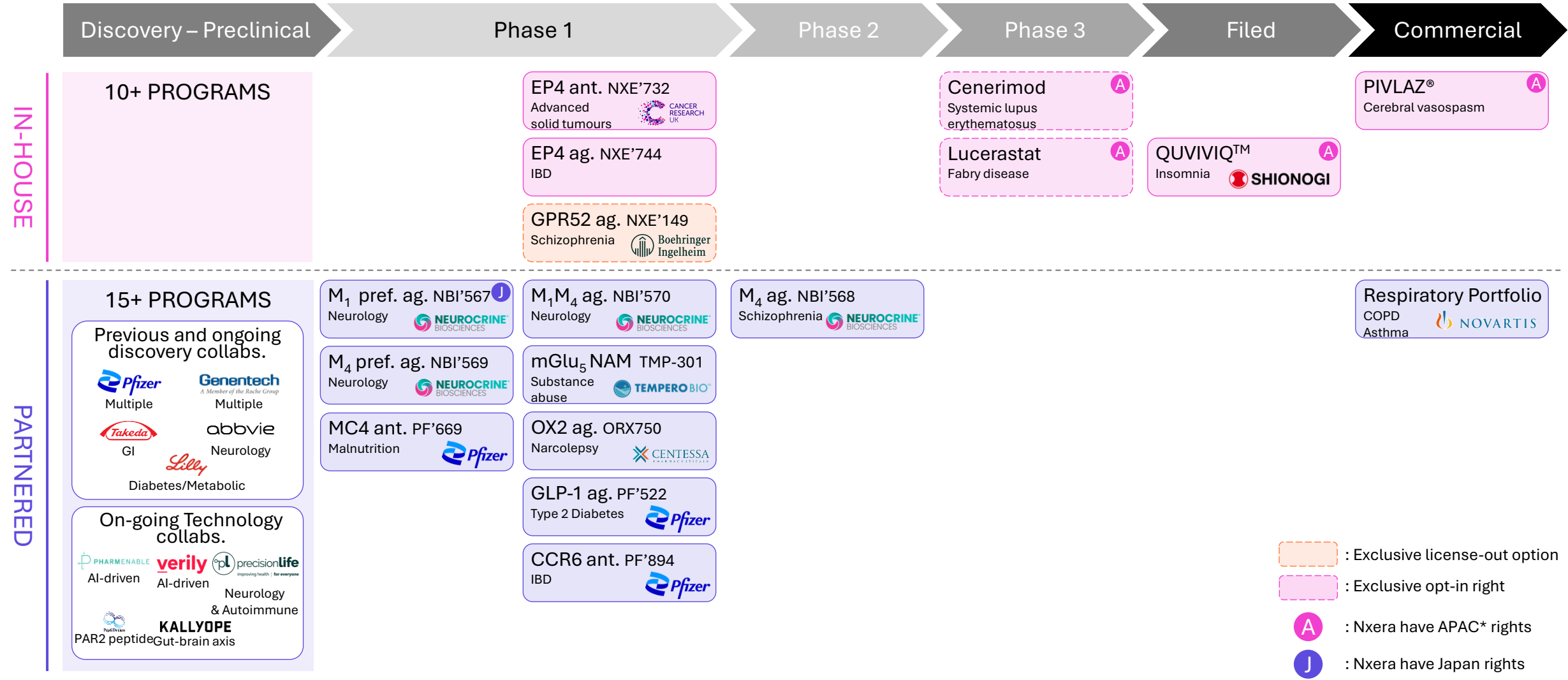


*Testing the Therapeutic Hypothesis*

- Human biology focused translational platform
- Build Translational Pillars to inform biomarker strategy
- Deliver molecules that robustly & safely test therapeutic hypothesis
- Drug manufacture

 **The Right Drugs  
The Right Trial**

# Major Pipeline Overview



Note: Pref. ag. : Preferring agonist

Respiratory Portfolio = Seebri®, Ultibro®, Enerzair® and Breezhaler® which is registered trademarks of Novartis AG.

\*APAC (ex-China) territory includes Japan, South Korea, Australia, Brunei, Cambodia, Indonesia, Laos, Malaysia, Myanmar, New Zealand, Philippines, Singapore, Taiwan, Thailand and Vietnam



# Partnered Program Highlights

Neurocrine Biosciences  
Centessa Pharmaceuticals

# Historical Perspective: Muscarinic M4 receptor background and key dates

**Article**

**Selective Muscarinic Receptor Agonist Xanomeline as a Novel Treatment Approach for Schizophrenia**

First clinical evidence for benefit of xanomeline in schizophrenia. Small clinical study (N=10), sig. effects on PNAS and BPRS clinical endpoints  
*Shekar et al Am J Psychiatry 2008; 165:1033-1039*

**KARUNA THERAPEUTICS**

Positive KarXT Phase2 clinical data in schizophrenia

**cerevel**

Cerevel M4 PAM Phase1b positive data (Emraclidine)

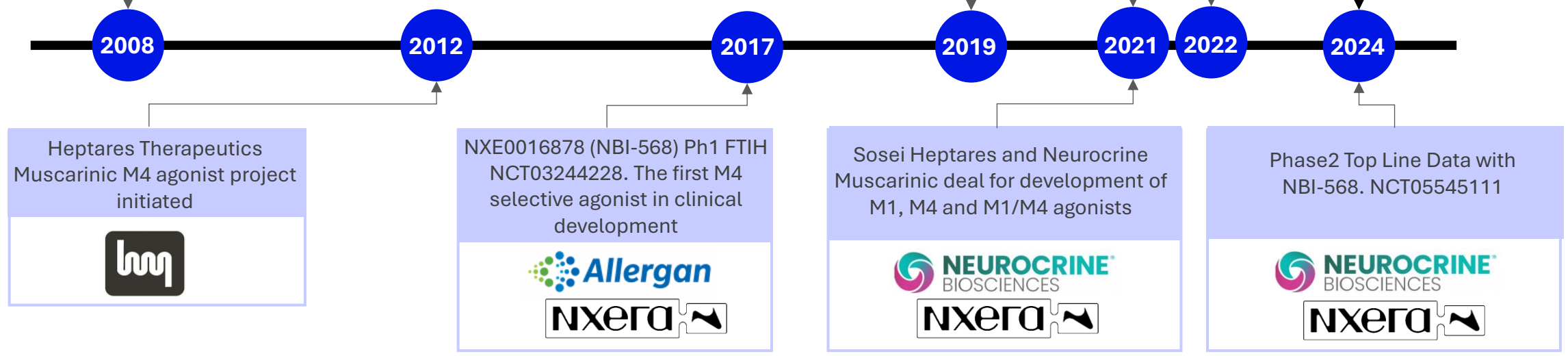
**KARUNA THERAPEUTICS**

Positive KarXT Phase3 clinical data in schizophrenia

**Bristol Myers Squibb™**

**KARUNA THERAPEUTICS**

FDA PDUFA acceptance 26<sup>th</sup> September 2024



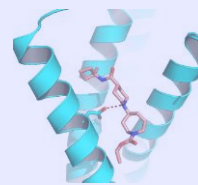
Note: NBI-568 is investigational and not approved for any use by any regulatory body

# Highly Selective Muscarinic M4 agonists have the potential to revolutionise treatment across multiple disorders

## Opportunity

- Preclinical data supports that M<sub>4</sub>R agonists modulate VTA and MSN dopamine neuron activity
- This has the potential to modulate dopamine synthesis and/or release and downstream signalling events
- Demonstrates that this **novel mechanism controls excess dopamine** without blockade of D<sub>2</sub> receptor (common drug target for atypical antipsychotics)

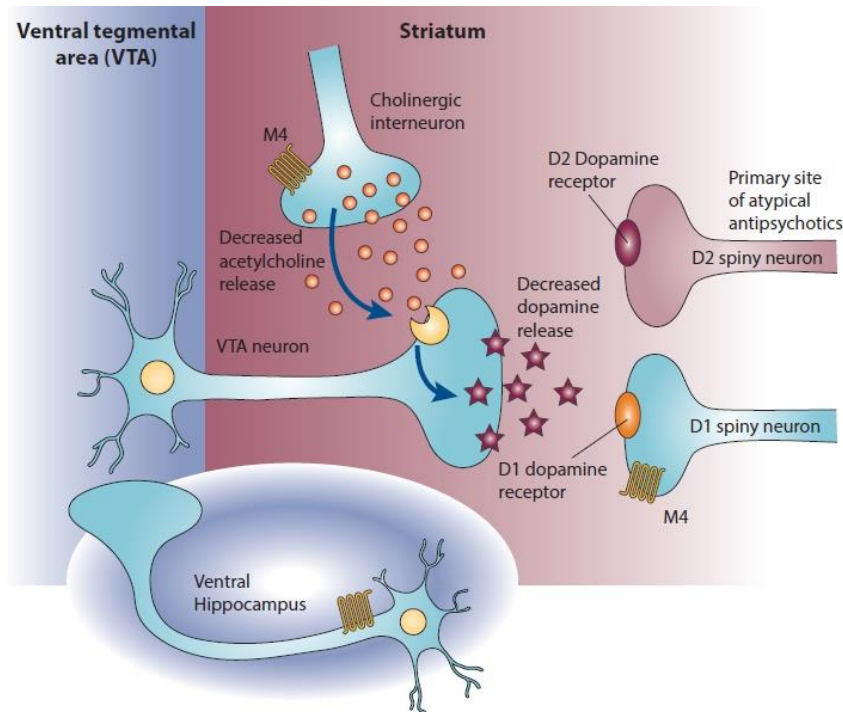
## Challenge



- Selectivity challenges associated with KarXT due to activity at M<sub>2</sub> and M<sub>3</sub> receptors and associated cholinergic AE's
- **Broad activity** across a range of CNS indications – including those where acetylcholine is no longer present and PAMs are predicted to be less effective

## Solution

- Design of **highly selective orthosteric M4 agonists** using **structure-based design**.
- **NBI-568** Phase 2 trial initiated by Neurocrine Bioscience







# NBI-568 Phase2 Design: A dose finding and early efficacy study in schizophrenia

## Predicting human efficacious doses

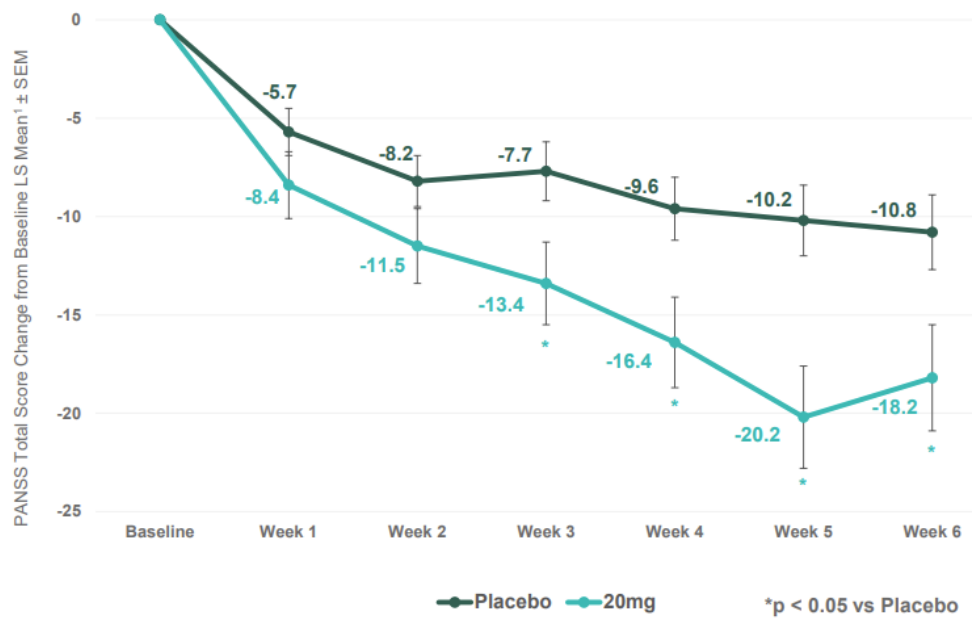
- Consistent dose-related data generated across all pre-clinical models and healthy human subjects
- Pre-Clinical and Phase 1 data including EEG and CSF exposure predicted efficacious doses for Phase 2
- Confident in the human 20mg dose being predicted to be efficacious

## Phase 2, 6-week DRF & efficacy study in schizophrenia patients

- Objectives:
  - ✓ Explore different doses, different dosing regimens (with and without titration), once a day, twice a day
- Trial Design:
  - ✓ Adults with PANSS  $\geq 80$
  - ✓ Ages 18-55 enrolled at
  - ✓ 15 US sites (inpatient)
  - ✓ Initial doses 20mg and 40mg
  - ✓ 2 blinded safety data interim analyses prior to adding pre-specified doses of 60mg QD and 30mg BID
- Good drug-like properties of NBI-568 supported exploring a significantly broader range of doses above the predicted efficacious dose than all previous M4 competitor molecules.

# Efficacy: Clinically meaningful and statistically significant efficacy at 20mg once daily dose

The placebo effects underpin any differences and are similar to those anticipated in Phase 3 studies



## Comparator Efficacy Data at Primary Endpoint

	NBI-568	CVL-231 30mg QD <sup>3</sup>	KarXT EMERGENT-1 <sup>4</sup>	KarXT EMERGENT-3 <sup>5</sup>
LS Mean <sup>1</sup>	-18.2	-19.5	-17.4	-20.6
LS Mean <sup>1</sup> Diff. vs.Pbo	-7.5	-12.7	-11.6	-8.4
Placebo	-10.8	-6.8	-5.9	-12.2
Effect Size <sup>2</sup>	0.61	0.68	0.75	0.6

- Significant PANSS total efficacy from week 3 at 20mg dose of NBI-'568
- PANSS Total Effect size comparable to known Muscarinic Programs and all leading Antipsychotics
- Statistically Significant Improvement in Additional Endpoints (CGI-S / Marder scores)

<sup>1</sup> Least-squares (LS) means are from a MMRM which includes treatment group, visit, and study period as fixed effects; treatment group-by-visit interaction; baseline PANSS total score as a covariate; and subject as a random effect. <sup>2</sup> Effect size (Cohen's D) is based on observed data. <sup>3</sup> Krystal et al (2021) Lancet DOI: 10.1016/S0140-6736(22)01990-0 data at week6. <sup>4</sup> Brannan et al (2021) N Engl J Med 2021;384:717-726 data at week5. <sup>5</sup> Kaul et al (2024) JAMA Psychiatry. 2024;81(8):749-756. doi:10.1001/jamapsychiatry.2024.0785 data at week5

Note: NBI-568 is investigational and not approved for any use by any regulatory body

# Safety and AE's: Generally safe and well tolerated at all doses tested

Treatment-Emergent Adverse Events Occurring in  $\geq 5\%$  of NBI-568 All Treated Group

Activation of the muscarinic receptors have been clinically associated with a range of dose limiting AE's that has made drug development challenging

Salivation

Lacrimation

Urinary control

Defecation

Gastrointestinal

Emesis

Typically associated  
With peripheral  
Cholinergic activity at  
The M<sub>2</sub> and M<sub>3</sub> receptors

Consistent with EMERGENT-1 Phase2 and the interim pooled analyses from the long-term, open-label EMERGENT-4 and EMERGENT-5 trials for KarXT

The most common treatment-related AEs in the KarXT group were consistent with the known activity of xanomeline and tropium at muscarinic receptors (nausea / vomiting / constipation)

Note: NBI-568 is investigational and not approved for any use by any regulatory body

	Placebo N=70	20mg QD N=40	40mg QD N=39	60mg QD N=34	30mg BID N=27	All Treated N=140
Somnolence	2 (2.9)	5 (12.5)	2 (5.1)	7 (20.6)	1 (3.7)	15 (10.7)
Dizziness	1 (1.4)	5 (12.5)	3 (7.7)	4 (11.8)	1 (3.7)	13 (9.3)
Headache	14 (20.0)	1 (2.5)	5 (12.8)	1 (2.9)	5 (18.5)	12 (8.6)
Nausea	2 (2.9)	2 (5.0)	3 (7.7)	3 (8.8)	0	8 (5.7)
Constipation	2 (2.9)	2 (5.0)	3 (7.7)	1 (2.9)	1 (3.7)	7 (5.0)

5.0% Treatment Discontinuation Rate Due to Adverse Events  
Across All NBI-568 Arms vs. 4.3% For Placebo

## NBI-568 was well tolerated across all dose groups

Consistent with improved muscarinic selectivity profile vs. xanomeline nausea, constipation and other gastrointestinal adverse events were low in frequency and similar to placebo  
No weight gain relative to placebo

## Summary: NBI-568 is Positioned for Phase3 in schizophrenia in 1H25

This will be the 1<sup>st</sup> Nxera Pharma UK SBDD compound to progress into Phase3



### Clinically Effective

Efficacy at 20mg dose comparable to all competitors



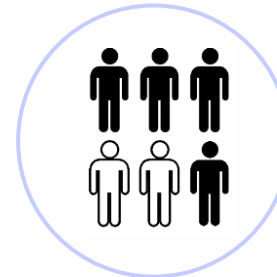
### Good Tolerability

Across all doses tested supporting good future compliance



### Improved Convenience

Once daily administration with or without food



### Broad Utility

Multiple indications where M4 agonists may be effective

**NBI-568 Phase 2 was successful** and confirmed a safe, well tolerated and efficacious dose to progress into Phase 3 studies in 1H25

# Strong potential for OX<sub>2</sub>R agonists as an improved treatment for Narcolepsy Type 1 and beyond

## OX<sub>2</sub>R Narcolepsy Landscape

Market size

- Approximately \$2.0Bn in 2020<sup>1</sup>
- Projected to be \$5Bn in US alone by 2026<sup>2</sup>
- OX<sub>2</sub>R agonist peak sales forecast of \$3.8Bn<sup>3</sup>

Pipeline



*Discontinued:* TAK-994 & TAK-925 (Takeda)  
*Paused:* JZP44DSP-0187 (Jazz/Sumitomo Pharma)

## Centessa's recent activities

- Positive Interim Phase 1 Clinical Data in Acutely Sleep-Deprived Healthy Volunteers (Sep. 10, 2024)
  - 2.5 mg dose restored normative wakefulness with mean sleep latency of 32 minutes as measured by the Maintenance of Wakefulness Test (MWT)
  - Favorable safety and tolerability profile
  - PK profile supports once-daily dosing
- Presents Preclinical Data at Sleep Europe 2024 (Sep. 26, 2024)
  - Non-human primate data support ORX142 as novel drug candidate for the treatment of excessive daytime sleepiness (EDS) in select neurological, neurodegenerative, and psychiatric disorders

ORX750

ORX142



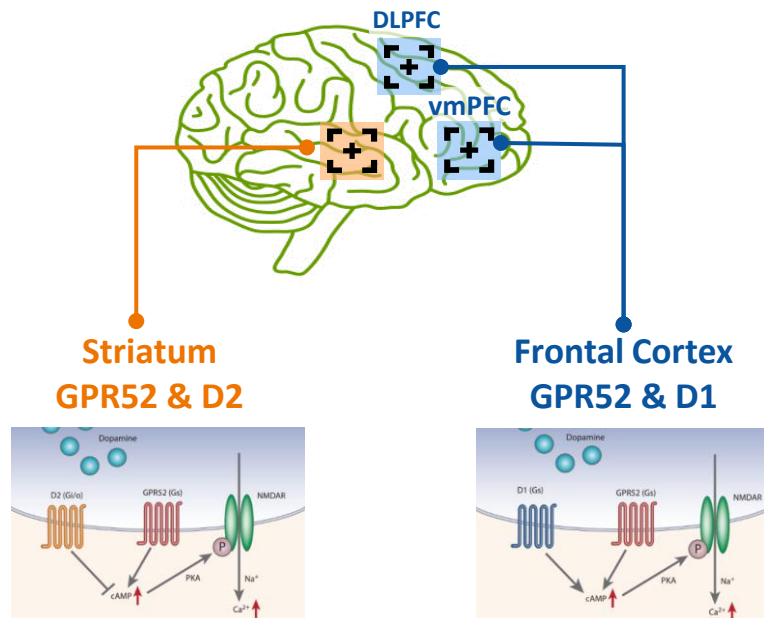
# Internal Portfolio Highlights

# GPR52 Agonist for Schizophrenia

A Novel First-In-Class Mechanism to Treat Positive, Negative & Cognitive Domains of Schizophrenia

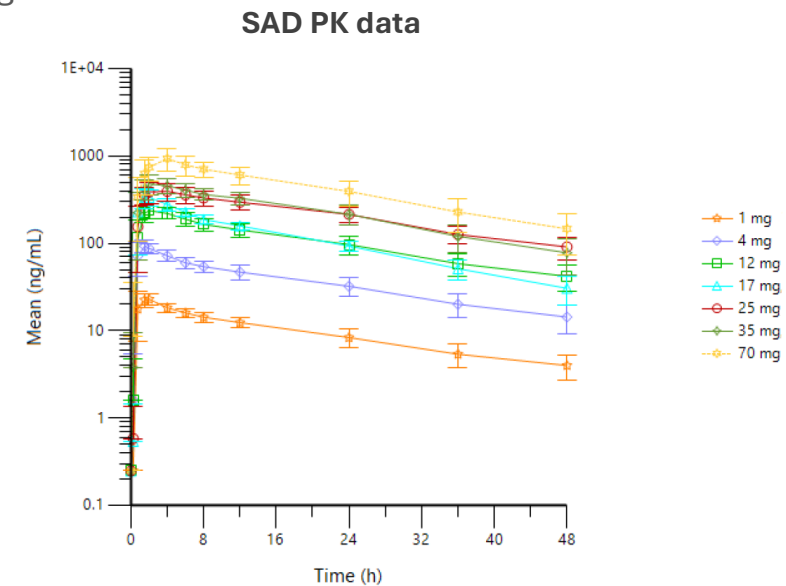
## Disease Rationale

- GPR52 is expressed on D2 dopamine neurons in striatum where activation could lead to D2 antagonist-like effect to treat positive symptoms, e.g. hallucinations
- GPR52 also co-located with D1 dopamine receptor in prefrontal cortex where activation could lead to D1 agonist-like effect to improve cognition, e.g. attention



## Results So Far

- NXE'149, a first-in-class GPR52 agonist identified using SBDD, is being developed for once-daily oral dosing
- Human PK data in line with preclinical predictions, linear across full dose range with low variability, and consistent with once daily dosing
- Phase 1 MAD study including pharmacodynamic measures now ongoing





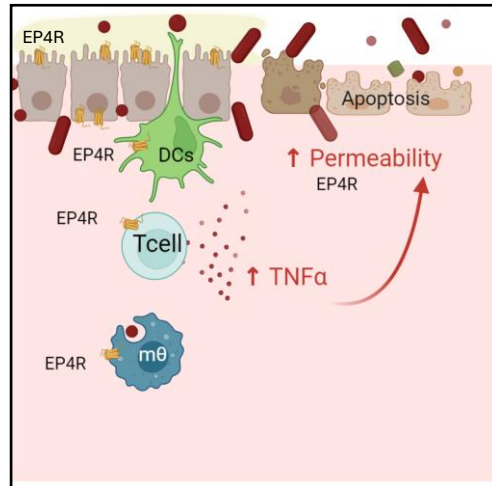
# EP4 Agonist for Inflammatory Bowel Disease (IBD)

## A First-In-Class GI Targeted Agent to Promote Mucosal Healing in IBD

### Disease Rationale

- IBD is an immunological disorder in which current standard-of-care agents have treatment "ceilings" of about 40% response rates.
- All approved IBD agents are immunomodulatory in nature and do not directly target disease-induced mucosal barrier defects.
- Through combined anti-inflammatory and barrier repair effects, EP4 agonists are expected to bring benefits in IBD by promoting mucosal healing.
- Previous attempts to agonise the EP4 receptor have demonstrated early signals of clinical efficacy but have been limited by systemic safety.

Improved barrier repair  
& homeostasis  
↓ Permeability



Created with BioRender.com

### Results So Far

- Novel, potent GI targeted EP4 selective agonist (NXE'744) identified through Nxera's NxWave™ platform
- Preclinical discovery activities generated a novel gut-restricted agent with rodent efficacy in IBD models and demonstrated specific mechanistic effects in mucosal healing.
- A First-in-Human Phase 1 study, in healthy volunteers, commenced in March 2024, with single ascending dose (SAD) and multiple ascending dose (MAD) cohorts to be undertaken in an overlapping design.
- Dosing has proceeded well with the seventh SAD and the third MAD cohorts currently being dosed.
- No concerning adverse events have been noted to date.
- Further activities to support a Ph 1B/II study start are underway including additional cohorts (e.g. sigmoidoscopy) under the FIH umbrella.

EP4 Ag Study Link:

<https://www.isrctn.com/ISRCTN70080074?q=nxera&filters=&sort=&offset=1&totalResults=2&page=1&pageSize=10>



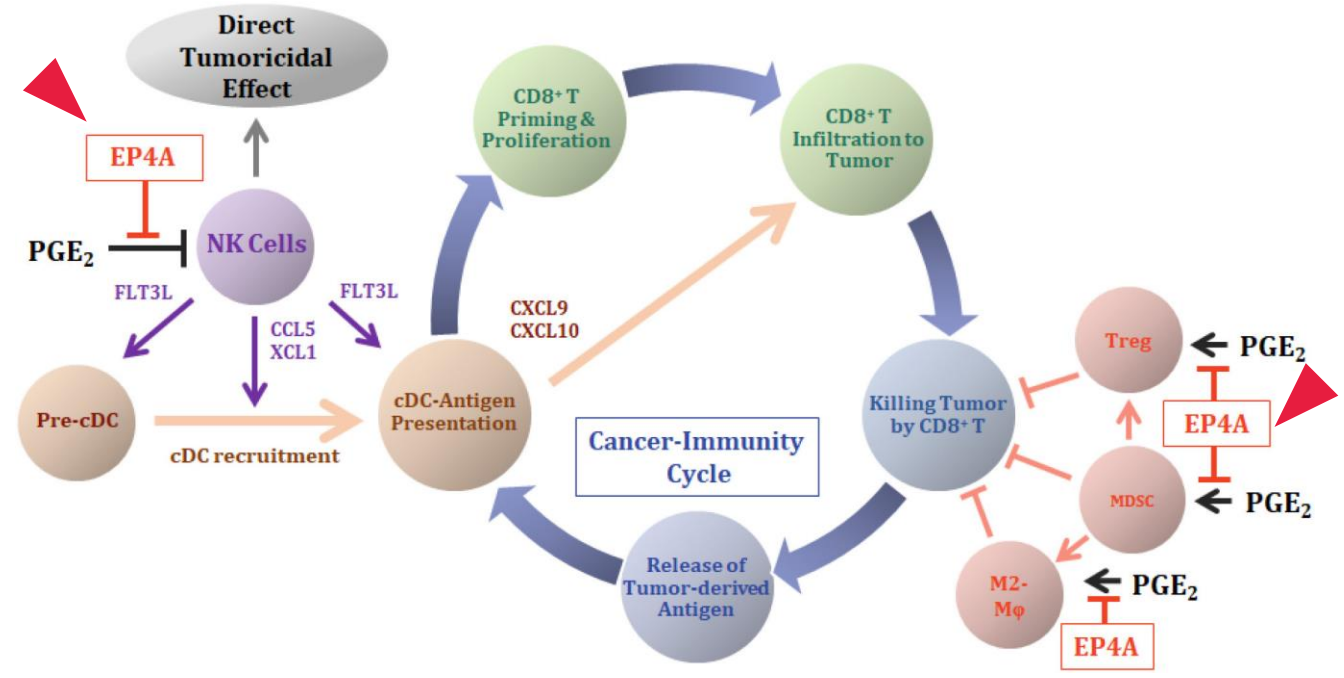
# EP4 Antagonism for Advanced Solid Tumours

Alone or in Combination with Checkpoint Inhibitors (CPIs)



## Disease Rationale

- PGE2 binds to EP1-4 GPCR receptors with EP4 the most widely distributed
- Prostaglandin E2 (PGE2) is secreted by tumour and surrounding tissue and signals through EP4 to suppress the immune system promoting tumor development and progression
- EP4 antagonism is expected to restore immunosurveillance and enhance the effect of CPIs
- Less than 20% of eligible patients derive benefit from CPIs, meaning there is a great unmet need



# GPCR SBDD: EP4 Receptor Antagonist



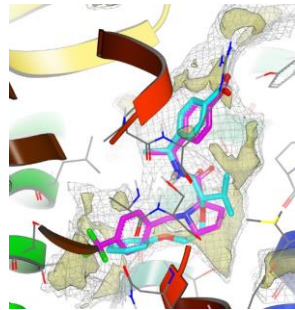
NxWave™ SBDD platform delivering a clinical ready EP4 antagonist

## Clinical agents / literature ligands

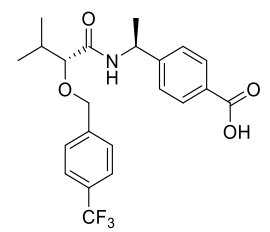
**'Big data' patent & literature extraction**  
Select best ligands to initiate SBDD drug discovery project



**SBDD homology-model** guided hybrid scaffold hopping (H2L phase)



## Lead



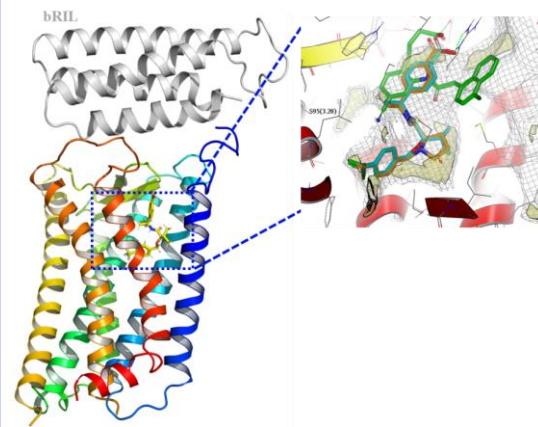
**NXE'309**

EP4 fpK<sub>B</sub> 9.1  
EP2 pEC<sub>50</sub> 6.0  
LLE 5.8

Novel, high efficiency series  
Low Cl (rat/dog)  
QD human PK prediction  
EP2 ago activity

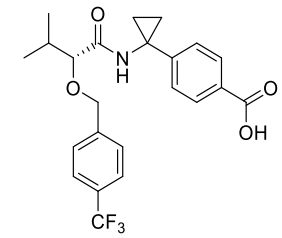


SBDD enabled **selectivity enhancement**



Crystal structure supports binding mode hypothesis and ONO-AE3-208 differentiation

## Candidate



**NXE0039732**

EP4 fpK<sub>B</sub> 9.1  
EP2 pEC<sub>50</sub> 5.1  
LLE 5.8

Low Cl (rat/dog)  
QD human PK prediction  
<100 mg dose prediction

Identifying the clinical candidate NXE0039372 with our NxWave™ SBDD platform

# Human pharmacokinetic and dose predictions for NXE0039732

## Candidate Profile

**Selected candidate showed excellent profile**

High potency

- hEP4  $\approx$  1nM

High selectivity

- >5000-fold hEP1, hEP2, hEP3

Clean in vitro safety profile

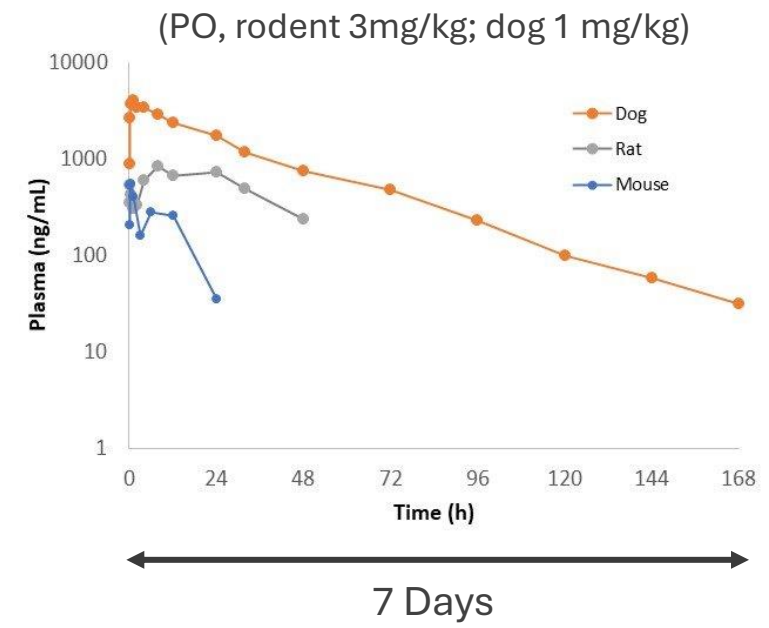
- ✓ General Safety Panel
- ✓ Cardiotoxicity
- ✓ Mutagenicity

Excellent in vitro ADME properties

## Pre-clinical PK

**Excellent PK profile across 3 species**

- low Cl
- long  $T_{1/2}$



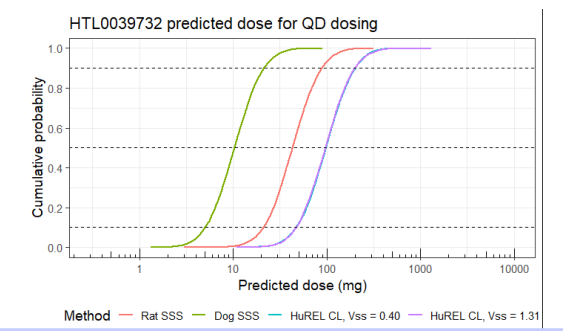
## Human Dose Prediction

**QD with lower dose is predicted to be sufficient**

- Human PK & Dose simulations conducted predicted low Cl & low Vd to meet QD profile
- <100 mg QD predicted to maintain trough IC90 cover
- E7046 (Eisai) prediction - 800 mg QD dose to maintain IC<sub>90</sub> trough

Predictions to maintain IC<sub>90</sub> concentration at trough

- Monte Carlo simulations conducted to quantify probability and uncertainty on each prediction



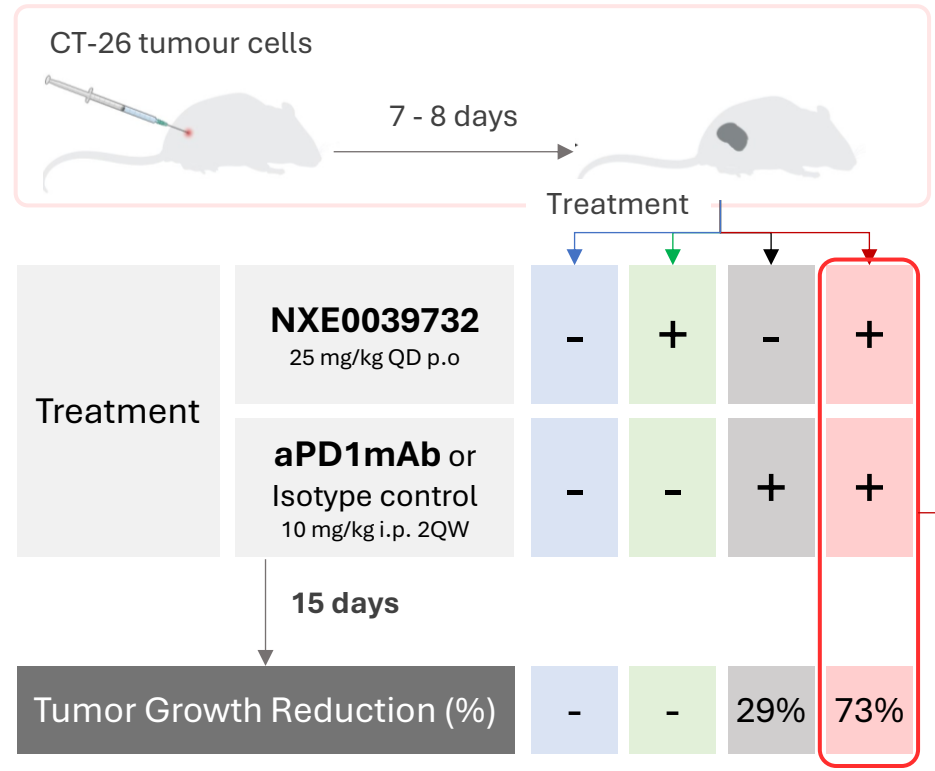
Excellent clinical candidate with high confidence that predicted human PK supports testing the clinical hypothesis

# Synergistic effect of EP4 antagonist in CT-26 syngeneic model of colorectal carcinoma

Synergistic activity of PD-1 checkpoint inhibitor and EP4 antagonist provides long lasting anti-tumour immunological memory

## Combination efficacy to CT-26 (Colorectal Tumour model) in Mouse

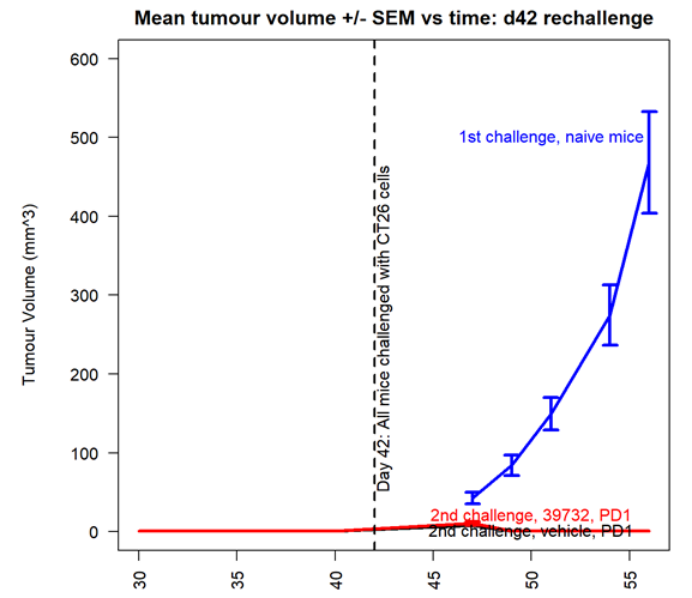
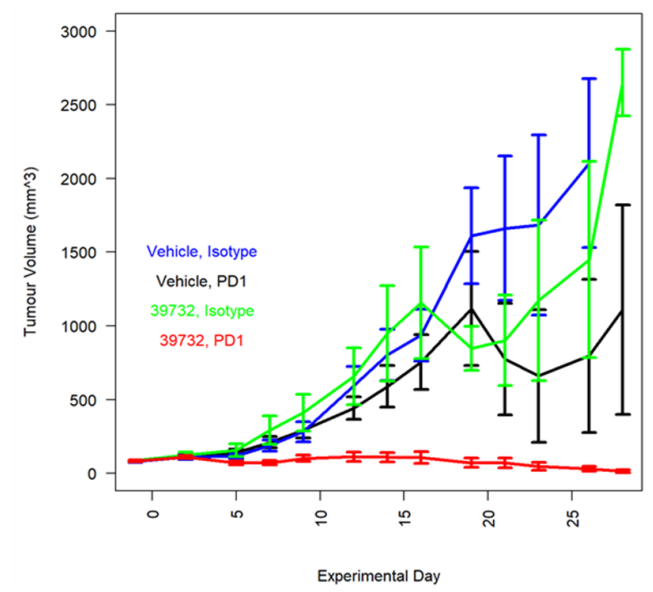
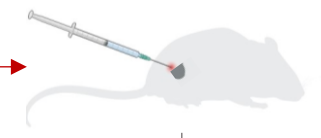
Strong evidence for **combination benefits** of EP4 ant + aPD1 mAb treatments on control of tumour growth



## CT-26 Tumour Challenge

Clear long-lasting **anti-tumour memory response** following treatment with EP4 antagonist

aPD1 / EP4 ant treatment group survivors re-challenged with CT-26 tumour cells



# Progressing through Ph1/2a in collaboration with CRUK

Evaluating anti-tumour activity of NXE0039732 as a monotherapy and in combination with CPI, Atezolizumab

## Cancer Research UK presented the study design at ESMO

### Nxera's Partner Cancer Research UK to Present on Phase 1/2a Clinical Trial with Cancer Immunotherapy Drug HTL0039732 at ESMO

- HTL0039732 (also known as NXE0039732) is Nxera's novel oral EP4 antagonist with the potential to treat a wide range of cancers in combination with other immunotherapies
- Cancer Research UK's Centre for Drug Development is sponsoring and managing the ongoing Phase 1/2a clinical trial of HTL0039732

Tokyo, Japan and Cambridge and London, UK, 13 September 2024 – Nxera Pharma (TSE: 4565, "Nxera") and Cancer Research UK announce an upcoming presentation on the ongoing Phase 1/2a clinical trial ([NCT05944237](https://clinicaltrials.gov/ct2/show/study/NCT05944237)) of Nxera's immunotherapy drug HTL0039732 (also known as NXE0039732) at the European Society for Medical Oncology Congress (ESMO) 2024, taking place on 13–17 September in Barcelona, Spain.

The trial's co-chief investigator, Dr. Debashis Sarker from Guy's and St Thomas' NHS Foundation Trust, will present a "Trial in Progress[1]" poster at ESMO 2024 on Saturday 14 September (presentation 679TIP, available on the ESMO website [here](#)).

The first-in-human trial is evaluating the safety, tolerability, pharmacokinetics, pharmacodynamics and anti-tumor activity of HTL0039732 as a monotherapy and in combination with the checkpoint inhibitor atezolizumab, in patients with advanced solid tumors.

HTL0039732 is an oral small molecule drug candidate that was rationally designed using Nxera's NxWave™ platform and evaluated through rigorous translational and preclinical studies. HTL0039732 works by blocking signaling through a specific type of prostaglandin receptor, the prostaglandin E2 (PGE2)-type prostanoid receptor 4 (EP4). PGE2 acts in the tumor microenvironment to trigger cancer cells to evade the immune system. Targeting EP4 to block the effects of PGE2 increases the ability of the immune system to detect and control cancer cells and makes HTL0039732 a potential candidate to treat patients with cancers that generally do not respond well to current immunotherapies.

Cancer Research UK's Centre for Drug Development is sponsoring and managing the trial, which is led by chief investigator Dr Bristi Basu, University of Cambridge, and Dr Sarker. [The first patient was dosed in August 2023](#) and the trial is currently open for recruitment at Addenbrooke's Hospital in Cambridge, Guy's Hospital in London, and the Christie Hospital in Manchester.

## Results So Far (presented at ESMO)

- Clinical trial enrolment began 2023 and is ongoing in the UK
- Monotherapy escalation (Part A) has completed without DLTs
- Combination escalation (Part B) has now completed recruitment
- PK is in line with predictions and exhibits general dose proportionality across all dose level
- Target engagement has been observed at all dose levels tested. Additional PD analysis, including evaluation of paired biopsies for infiltration, is underway
- Toxicities, where these have occurred, have generally been mild (Grade 1-2) and resolved without dose interruption
- Preparation for Phase 2a is ongoing

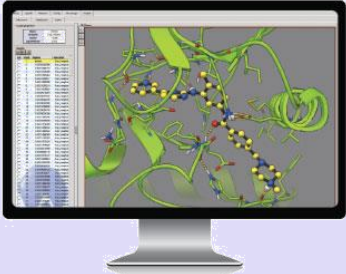


# Innovation Growth

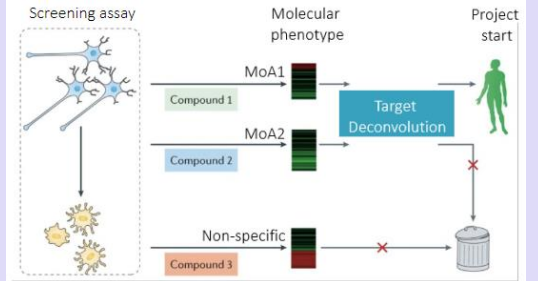


# Repeatable approach to mining for next generation targets

## In Silico



## Phenotypic Screening



Why?	<ul style="list-style-type: none"> <li>To identify new GPCR drug targets across multiple disease types</li> </ul>	<ul style="list-style-type: none"> <li>To identify new GPCR drug targets through use of disease specific assay systems</li> </ul>
How?	<ul style="list-style-type: none"> <li>Using 'big-data' and precision medicine to identify molecular signatures of disease and potential patient stratification opportunities</li> <li>Use ML to identify influential drivers of disease, finding patterns to model non-linear biology</li> </ul>	<ul style="list-style-type: none"> <li>Testing a curated compound library covering 270 GPCRs in various disease relevant phenotypic screening assay systems (ideally human)</li> </ul>
What?	<ul style="list-style-type: none"> <li>Approach can be applied to multiple disease indications: scalable methodology</li> </ul>	<ul style="list-style-type: none"> <li>Demonstrate disease relevant functional responses</li> <li>Approach already used to identify tractable GPCR targets in IBD and currently under investigation in neurological disease</li> </ul>

Partner




# KALLYOPE



# Scalable AI-Genetics approach to mining for next generation targets

Nxera Pharma and PrecisionLife expand strategic partnership in auto-immune disorders to identify new drug targets and patient stratification biomarkers for complex, chronic conditions



## Why?

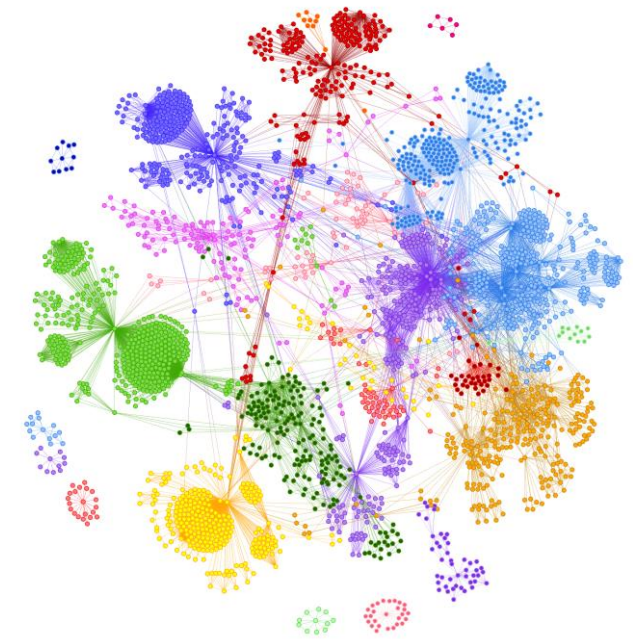
- Identifies novel GPCR drug targets, strongly associated with patient subgroups in heterogeneous populations across and between genes
- Autoimmune diseases are enormously complex, caused by genetic and environmental factors

## How?

- PrecisionLife uses combinatorial analytics to find non-linear interactions between genes that drive disease biology
- PrecisionLife focuses on mechanism – providing uniquely actionable insights across the value chain:
  - ✓ **Target Identification** – allows selection of innovative novel drug targets that are drivers of disease biology with supporting genetic evidence
  - ✓ **Development** – patient stratification biomarkers to refine clinical trial design
  - ✓ **Healthcare** – identification of responders supports payer discussion, launch and prescriptions

## What?

- 1st indication under review is Rheumatoid Arthritis with potential to expand to additional auto-immune indications
- Highly scalable – novel insights into 50+ diseases including CNS and auto-immune conditions



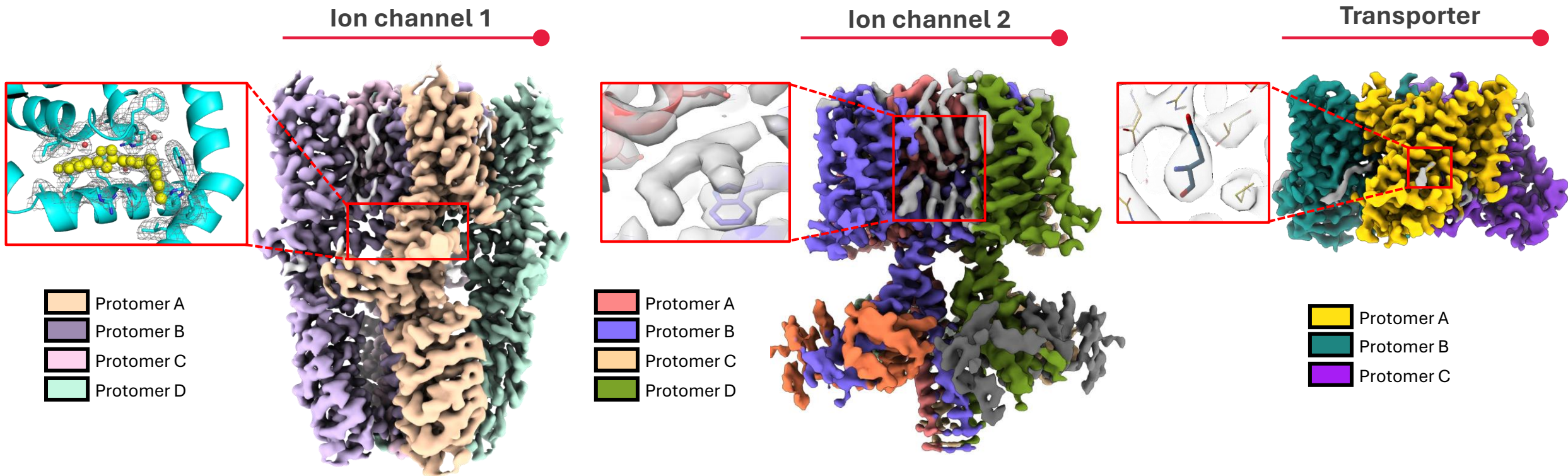
PrecisionLife's mechanism-based stratification example

**Circles** represent SNPs, **lines** indicate co-occurrence in >20% of patients. **Colours** represent different patient subgroups who share a specific mechanism driving their disease.

This helps select the best targets.



# Structure-Based Drug Discovery at other integral membrane protein target classes



- Use of in-house state-of-the-art membrane protein biochemistry to produce high quality protein reagents for functional and structural studies
- Multiple high resolution cryo-EM structures determined of liganded ion channels and transporter
- Establishment of network of trusted CRO to conduct electrophysiology experiments

**NxWave™ SBDD platform delivering atomic resolution structures of liganded ion channels and transporters.**

# Designing Next Generation GPCR Antibody Therapeutics

Nxera Pharma and Antiverse Enter Collaboration To Design Novel GPCR-Targeted Antibody Therapeutics Using Generative AI

Why?

- Antibodies present an exciting opportunity for tackling GPCRs by offering high specificity and target occupancy with the potential of more convenient dosing regimens versus other modalities
- Nxera's NxStaR proteins have been utilised as antigens in the successful discovery of highly selective and potent antibodies

How?

The collaboration will combine:

- **Nxera's NxWave™ platform**, a powerful tool for GPCR target selection, validation and structure determination
- **Antiverse's AI de novo Antibody Design Platform**, which enables the rapid design of antibodies with tailored properties at scale – including epitope specificity, functionality, species cross-reactivity and enhanced affinity
- Developed over 7 years, Antiverse's platform integrates proprietary datasets and a multi-model, multi-step approach to efficiently generate and filter high-quality antibodies
- A multi-target partnership and licensing agreement to target diseases of high unmet need by leveraging NxStaRs in combination with Antiverse's AI design approaches
- The first project will be aimed at designing antibodies with agonist function for a challenging GPCR target

What?



A glass of beer with a straw is visible in the top left corner. The background is a blurred green and blue scene, possibly a garden or park. The text is overlaid on the left side of the image.

# FY2024 Q3 Financial Results

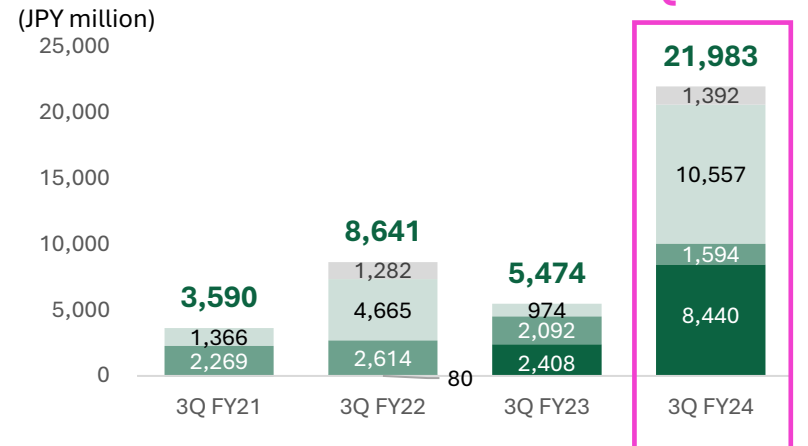
Hironoshin Nomura, Executive Officer, CFO

04

# Key financial indicators

Full impact of NPJ/NPK product sales and cost base reflected in FY2024

Revenue

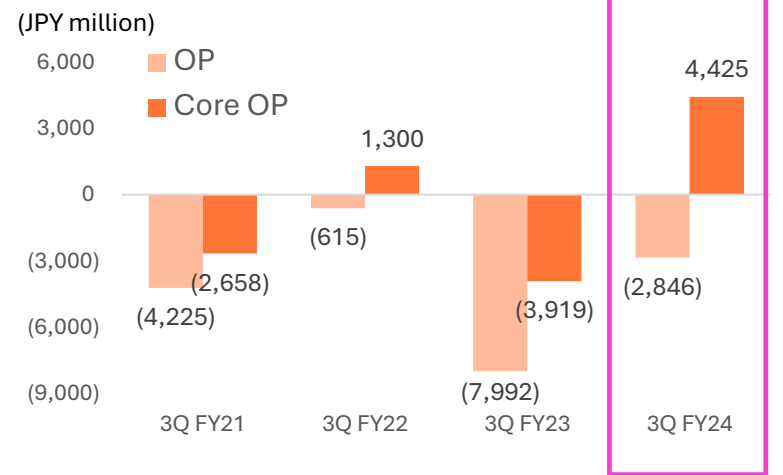


Upfront<sup>1</sup>  
Milestone<sup>2</sup>  
Royalty / Other  
Product Sales

## Explanation for 1Q-3Q 2024

- New option-to-license deal signed with Boehringer. (March)
- \$15m M4 development milestone from Neurocrine (April).
- \$4.6m milestone from Centessa (May).
- \$10m milestone from AbbVie (June).
- \$35m M4 Ph2 succuses milestone from Neurocrine (Sept).
- Royalty from Respiratory Portfolio from Novartis decreased.
- PIVLAZ<sup>®</sup> sales are increasing and fully impact for 2024.

Operating Profit / Loss



R&D  
Cost of Sales  
G&A

- Increase investment in R&D activities for clinical trial.
- Inclusion of NPJ/NPK related R&D costs.
- Inclusion of PIVLAZ<sup>®</sup> product supply costs.
- Additional non-cash CoS charge relating to PIVLAZ<sup>®</sup> inventory.
- Inclusion of NPJ/NPK related G&A costs.
- Integration costs (incl. company name change).
- Amortization of intangible assets (PIVLAZ<sup>®</sup>).

<sup>1</sup> Upfront fee revenue recognised at deal inception  
<sup>2</sup> Milestone revenue recognised at milestone event + deferred revenue releases

# Breakdown of 3Q 2024 result

Impact of Non-cash/Non-recurring costs on full-year result is more significant in 2024 due to the inclusion of Idorsia businesses

(JPY million)	NPC / NPU*1	+	NPJ / NPK*2	=	Consolidated P&L (Core)	+	Non-cash costs	+	Non-recurring Costs	=	Consolidated P&L (IFRS)
Revenue	13,613		8,370		21,983						21,983
Cost of Sales + SG&A	(4,823)		(6,100)		(10,923)		<b>A</b> (2,401) PIVLAZ® inventory adjustment <b>B</b> (1,022) Amortization - Product IP <b>C</b> (836) Integration <b>D</b> (2,024) Other				(17,206)
R&D	(6,553)		(976)		(7,529)		<b>D</b> (988) Other				(8,517)
Other income	933		(39)		894		Total : 7,271				894
<b>OP/Core OP</b>	<b>3,170</b>		<b>1,255</b>		<b>Core OP 4,425</b>						<b>OP (2,846)</b>

## Integration related costs

- A** Additional CoS charge for PIVLAZ® stock which completed by 3Q 2024. This will no longer be recurring from 4Q 2024.
- B** Amortization of intangible assets (currently relates to PIVLAZ®). Annual charge to increase to c. JPY 1,800m per year from 2025.
- C** Integration costs including IT system integration and Corporate rebranding. Will significantly decrease in 2025.

## Other

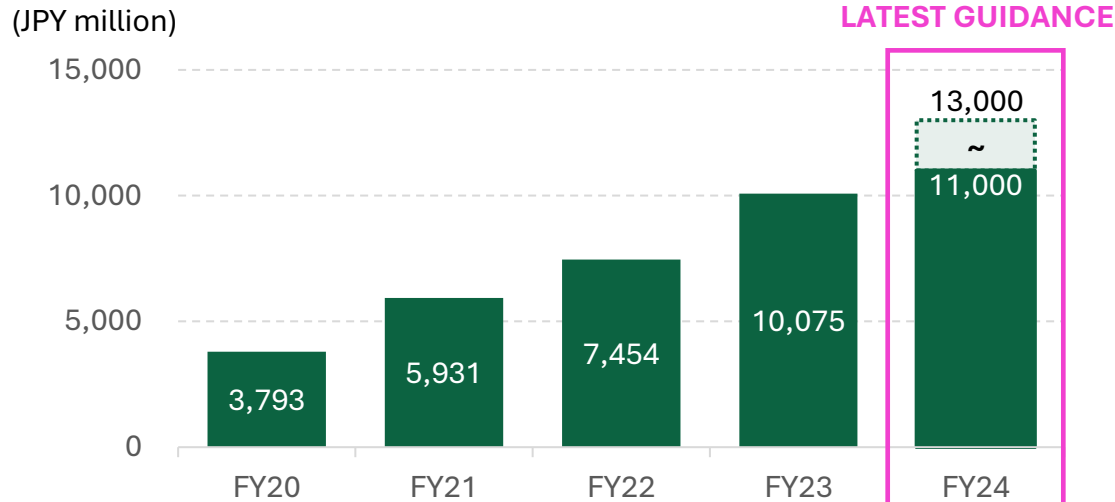
- D** Amortization of other intangible assets (e.g. IP), depreciation (e.g. laboratory equipment), share-based payments and other restructuring costs.

\*1 = Nxera Pharma Co. Ltd. (formerly Sosei Group Corporation) + Nxera Pharma UK Ltd (formerly Heptares Therapeutics Ltd.) + Sosei K.K

\*2 = Nxera Pharma Japan (formerly Idorsia Pharmaceuticals Japan) + Nxera Pharma Korea (formerly Idorsia Pharmaceuticals Korea)

# Full year cost guidance

Incremental investment designed to deliver greater returns over the medium to long term

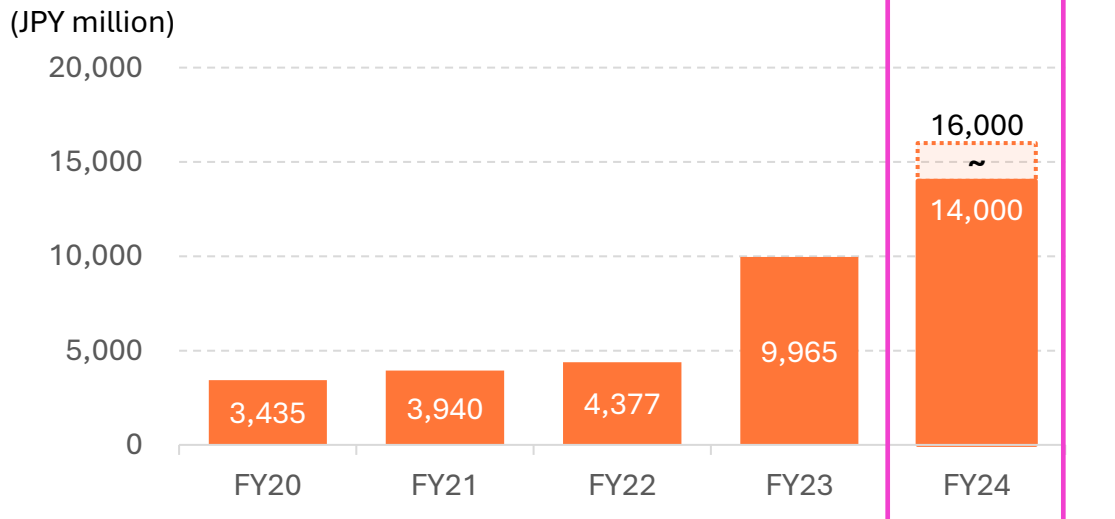


**R&D expenses (IFRS)**

Old		New
¥12,000 ~ ¥14,000m	▶ - ¥1,000m	¥11,000 ~ ¥13,000m

**Major points on FY24**

- Investment in discovery and translational medicine capabilities.
- 1 clinical trial initiated for in-house program (EP4 ag.)
- Advancing in-house programs further through the clinic will deliver higher out-licensing revenues



**SG&A expenses (IFRS)**

Old		New
¥18,000 ~ ¥20,000m	▶ - ¥4,000m	¥14,000 ~ ¥16,000m

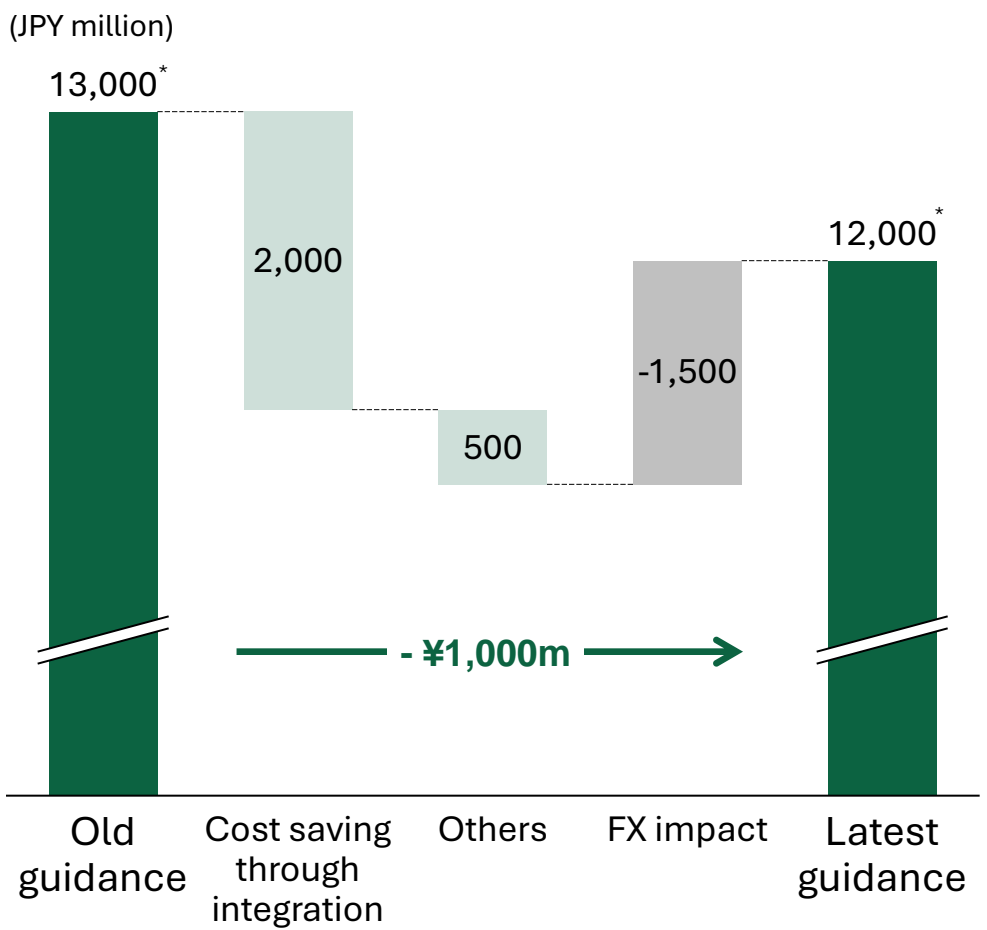
**Major points on FY24**

- Includes NPJ<sup>1</sup>/NPK<sup>2</sup> SG&A costs for a full year.
- Increase in support for PIVLAZ<sup>®</sup> to drive growth.
- Increase in amortization charge for PIVLAZ<sup>®</sup> and QUVIVIQ<sup>™</sup> (c. ¥1,600m)
- PMI relating costs for NPJ/NPK (c. ¥1,000m)

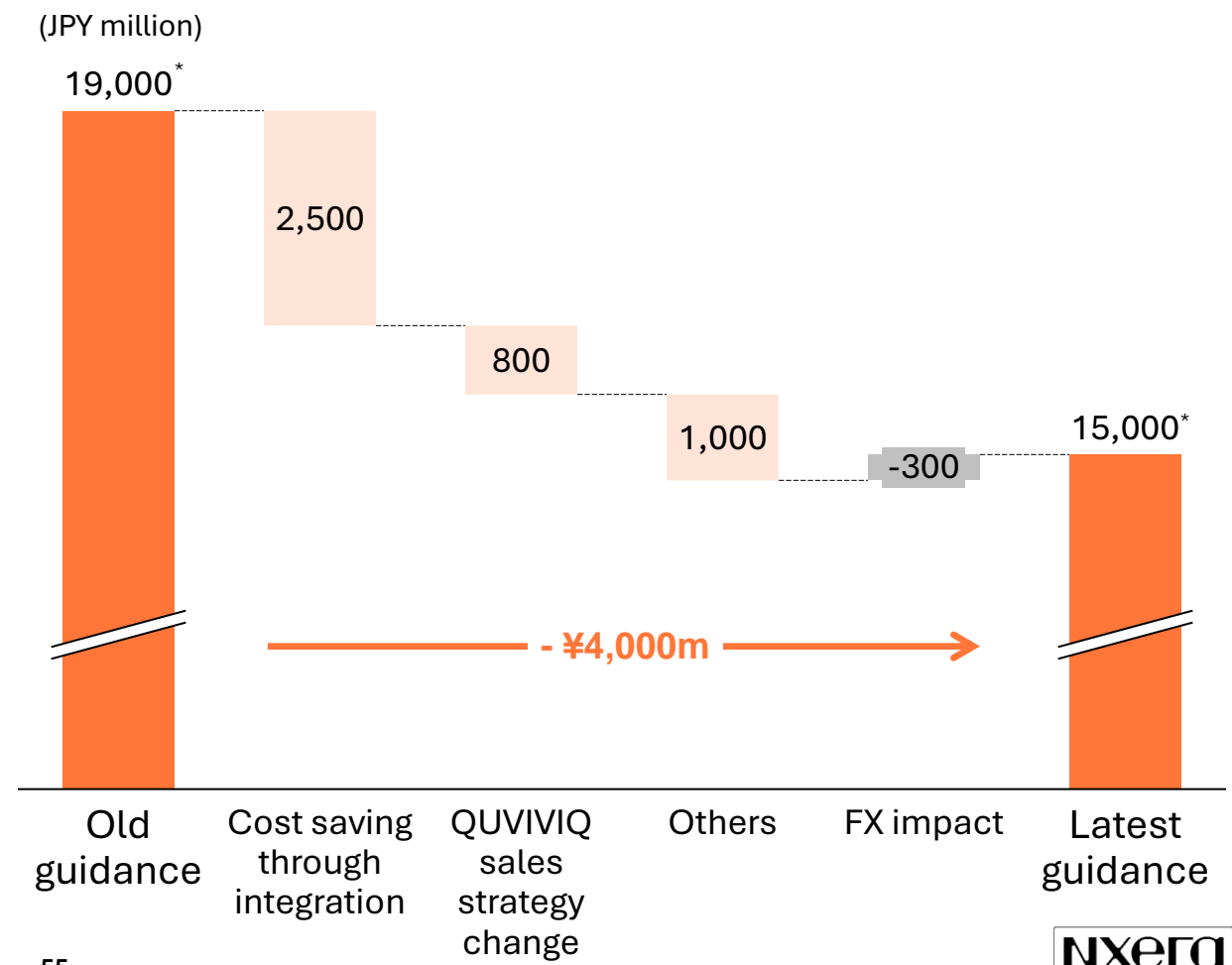
# Cost expenses guidance gap vs. beginning of FY24

We expect downward trend in SG&A expenses to continue through optimization in 2025

## R&D expenses (IFRS) guidance



## SG&A expenses (IFRS) guidance



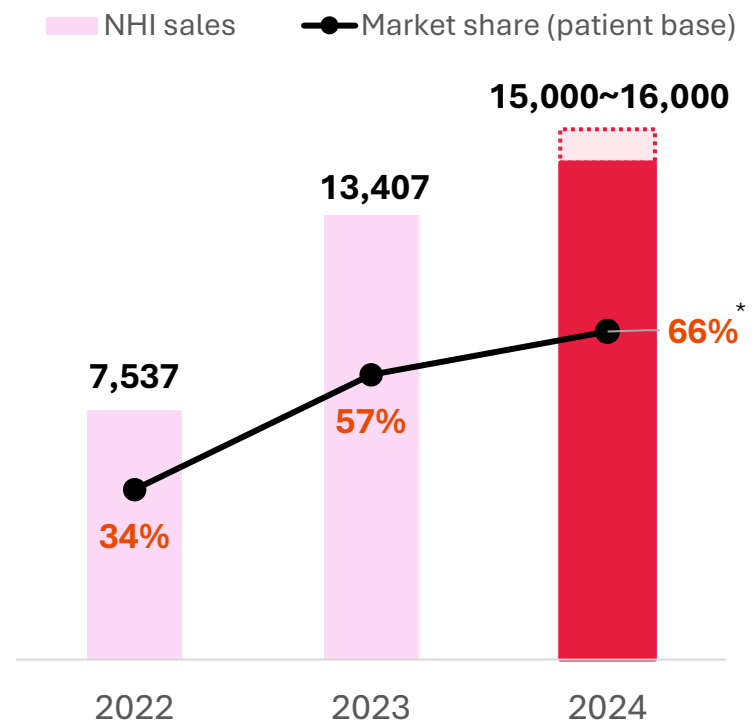
\* The median of range is given as an example  
 Assumed exchange rate: 140 JPY/USD | 172 JPY/GBP (old guidance), 152 JPY/USD | 193 JPY/GBP (latest guidance)

# PIVLAZ® sales guidance update

Updated sales guidance due to SAH occurrence decrease and cancellation of inventory adjustment plan

## Sales guidance of PIVLAZ®

Updated sales guidance though PIVLAZ's market share is continuously growing



\* Estimation from previous trend

## Background of sales guidance update

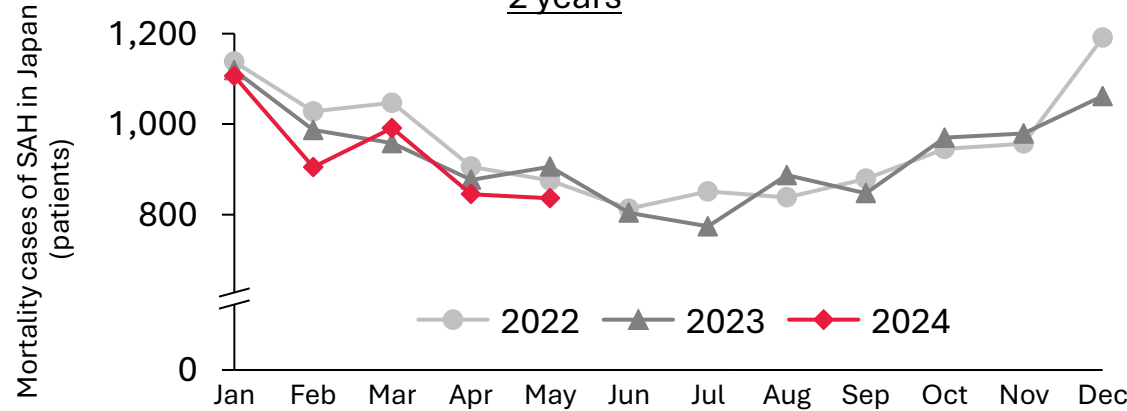
SAH occurrence decrease in 2024

c. JPY800m ↓

Optimization of year-end inventory

c. JPY200m ↓

Mortality cases of SAH in 2024 (Jan-May) was 4-6% lower than past 2 years



### 2023

In anticipation of increasing demand over the year-end and New Year period, the inventory for distributor was adjusted (excess of **c. JPY 200 million** than monthly forecast)

### 2024

Inventory adjustment was cancelled based on the track records in 2022-2023





Thank you



Appendix

05

# Exclusive Opt-in Rights And ROFN/ROFR<sup>1</sup>

Option to develop up to seven clinical programs for Japan and APAC (ex-China) from Idorsia

	Program	Mechanism of Action	Indication	Stage	Region
Exclusive Opt-in Right	Cenerimod	S1P1 receptor modulator	Systemic lupus erythematosus	Phase 3	APAC (ex-China) <sup>2</sup>
	Lucerastat	Glucosylceramide synthase inhibitor	Fabry disease	Phase 3	
ROFR /ROFN <sup>1</sup>	ACT-1004-1239	ACKR3 / CXCR7 antagonist	Multiple sclerosis and other demyelinating diseases	Phase 2*	
	ACT-1014-6470	C5aR1 antagonist	Immune-mediated disorders	Phase 1*	
	IDOR-1117-2520	Undisclosed	Immune-mediated disorders	Phase 1*	
	ACT-777991	CXCR3 antagonist	Recent-onset Type 1 diabetes	Phase 1*	

<sup>1</sup> ROFN/ROFR - Right of first negotiation / Right of first refusal

<sup>2</sup> Territories include Japan, South Korea, Australia, Brunei, Cambodia, Indonesia, Laos, Malaysia, Myanmar, New Zealand, Philippines, Singapore, Taiwan, Thailand and Vietnam

\* Global Phase

# Core Operating Profit - Definition

Core Operating Profit/Loss – a financial indicator closer to the reality of our business

## Operating Profit

### “Core”

- Core Operating Profit/ Loss is a key financial indicator that highlights the underlying recurring cash generating capability of our business.
- Core Operating Profit/Loss 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, M&A related professional fees and other material one-off items.

### + Material Non-cash Costs

(Depreciation, Amortization, Share based payments, Impairment...etc.)

### + Material Non-recurring Costs

(Restructuring costs and Other material one-off items...etc.)

	Cash	Non-cash (Material)
Recurring	Costs under “Core”	
Non-recurring (Material)		Costs under “IFRS”

## Operating Profit

### “IFRS”

- Financial results recorded and prepared in accordance with International Financial Reporting Standards (IFRS)

# Estimation of potential market size

Multi-billion USD annual peak sales potential for our post-pre-clinical pipeline

Category	Indication <sup>2</sup>	Number of Patients	Market Size		Individual Products	Our Candidates
Neurological disorders	Dementia	~55 million	\$7.3 billion (2010)		\$3.9 billion (2009/Aricept)	M1 agonist, M1/M4 agonist
	Schizophrenia	~20 million	\$20.7 billion (2011)		\$5.7 billion (2013/Abilify)	M4 agonist, M1/M4 agonist, GPR52 agonist
	Substance use disorders	~10.4 million <sup>1</sup>	-	-	-	mGlu5 NAM
	Narcolepsy	~3 million	\$2.3 billion (2022)		\$1.7 billion (2020/Xyrem)	OX2 agonist
	Other	-	-	-	-	CGRP antagonist, GPR52 agonist
Immunological disorders	Cancer	~42 million	\$178.9 billion (2022)		\$21.0 billion (2022/Keytruda)	A2a antagonist, EP4 antagonist, CXCR4 mAb
	IBD	~10 million	\$23.5 billion (2022)		\$7.5 billion (2022/Humira)	CCR6 antagonist, GPR35 agonist, EP4 agonist
	Atopic Dermatitis	~13.3 million	\$8.1 billion <sup>3</sup> (2022)		\$7.0 billion (2022/Dupixent)	H4 antagonist, PAR2 mAb
Other	T2DM/Obesity	~420 million	\$58.3 billion (2022)		\$8.8 billion (2022/Ozempic)	GLP1 agonist
	Anorexia	~10 million	-	-	-	MC4 antagonist
Total			~\$299 billion/year		~\$56 billion/year	

Source (Number of patients) : World Health Organization, Evaluate Pharma, 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 <sup>1</sup> The number of patients with drug addiction

Source (Peak Sales): Sales of each indications are extracted from Evaluate Pharma's data of sales by disease and sales by individual products (as of 30 June, 2022). <sup>2</sup> Nxera may target one segment in the market for specific diseases. <sup>3</sup> 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 (1/2)

Compound	Target / Mechanism of Action	Modality	Indication	Partner	Disc.	PCC	Ph1	Ph2	Ph3	App	Mkt
Partnered											
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	HISAMITSU							
NBI-1117568	Muscarinic M4 agonist	SME	Schizophrenia	NEUROCRINE BIOSCIENCES							
NBI-1117569	Muscarinic M4 preferring agonist	SME	Neurology diseases	NEUROCRINE BIOSCIENCES							
NBI-1117570	Muscarinic M1/M4 agonist	SME	Neurology diseases	NEUROCRINE BIOSCIENCES							
NBI-1117567	Muscarinic M1 preferring agonist	SME	Neurology diseases	NEUROCRINE BIOSCIENCES							
PF-07054894	CCR6 antagonist	SME	Inflammatory bowel disease	Pfizer							
PF-07258669	MC4 antagonist	SME	Malnutrition	Pfizer							
PF-06954522	GLP-1 agonist	SME	Type 2 Diabetes	Pfizer							
(Not disclosed)	CGRP antagonist	SME	Neurology diseases	Pfizer							
(Not disclosed)	Multi target	SME/LME	Multiple indications	Genentech <small>A Member of the Roche Group</small>							
(Not disclosed)	Multi target	SME	Neurology	abbvie							
(Not disclosed)	Multi target	SME	Diabetes/Metabolic	Lilly							

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



## Partnered pipeline (2/2)

Compound	Target / Mechanism of Action	Modality	Indication	Partner	Disc.	PCC	Ph1	Ph2	Ph3	App	Mkt
<b>Co-development</b>											
KY1051	CXCR4 mAb	mAb	Immuno-oncology	sanofi	██████████						
(Not disclosed)	PAR-2	Peptide	Inflammatory diseases	Repligen	██████████						
(Not disclosed)	AI-Augmented Drug Discovery	SME	Neurology diseases	PHARMENABLE	██████						
(Not disclosed)	Multi target AI-powered	SME/LME	Immune diseases	verily	██████						
(Not disclosed)	Gut-brain axis drug discovery	SME	Gastrointestinal disorders	KALLYOPE	██████						
<b>Co-owned companies</b>											
TMP301	mGlu5 NAM	SME	Substance use disorders	TEMPERO BIO	██████████	██████████	██████████				
ORX750	OX2 agonist (Oral)	SME	Narcolepsy	CENTESSA  Orexia Therapeutics	██████████	██████████	██████████				
ORX142	OX2 agonist (Oral)	SME	EDS in neurology	CENTESSA  Orexia Therapeutics	██████████						

Note: SME = small molecule. LME = large molecule



# In-house pipeline

Compound	Target / Mechanism	Modality	Indication	Partner	Disc.	PCC	Ph1	Ph2	Ph3	App	Mkt
<b>In-house Programs</b>											
PIVLAZ®	ETA antagonist	SME	Cerebral vasospasm								
QUVIVIQ™	Dual Orexin antagonist	SME	Insomnia								
NXE0048149 <sup>1</sup>	GPR52 agonist	SME	Schizophrenia								
NXE0039732	EP4 antagonist	SME	Immuno-oncology								
NXE0033744	EP4 agonist	SME	Inflammatory bowel disease								
NXE0027477	GPR35 agonist	SME	Inflammatory bowel disease								
(Not disclosed)	Muscarinic M1 agonist (JP)	SME	Neurology diseases								
(Not disclosed)	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								
<b>In-house Programs (No longer internally funded. Targeting academic / industrial partnership)</b>											
NXE'310	SSTR5 agonist	Peptide	Hypoglycaemic disorders								
NXE'097	GLP-1 antagonist	Peptide	Hypoglycaemic disorders								
NXE'023	Dual GLP-2/GLP-1 agonist	Peptide	Intestinal failure/NASH								
(Not disclosed)	Apelin agonist	Peptide	Pulmonary Arterial Hypertension								
NXE'641	Dual orexin antagonist	SME	Insomnia and sleep disorders								
(Not disclosed)	PAR-2 mAb	mAb	Atopic Dermatitis/Pain								

Note: SME = small molecule. LME = large molecule. 1: Exclusive license-out option





# 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
NxStaR	Stabilized Receptor	Nxera' 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.



# Locations



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