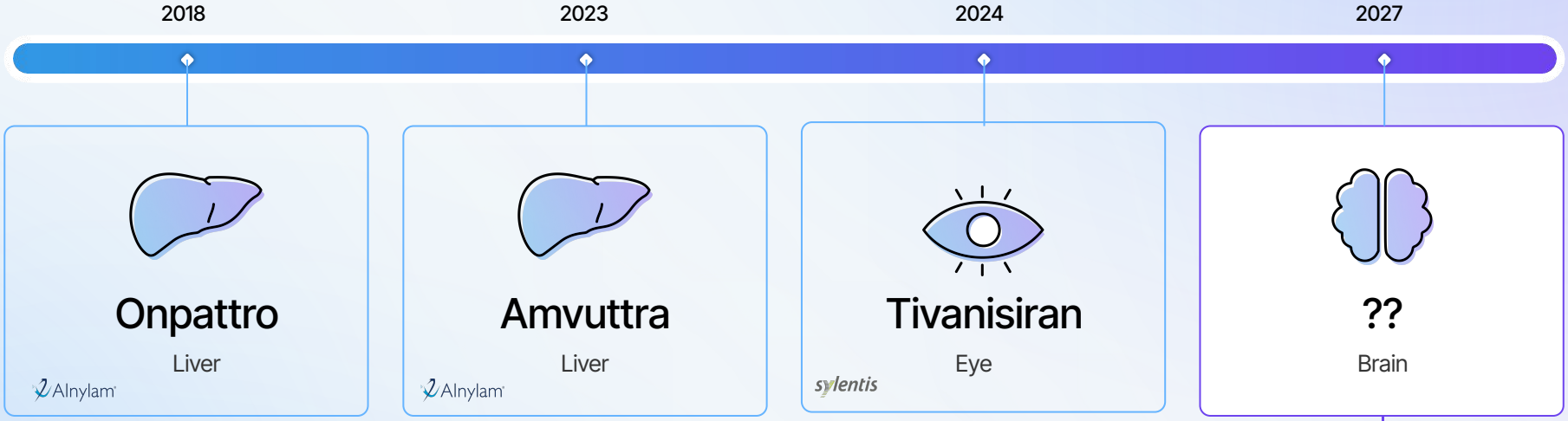
Cognigenics

Unlocking the brain through genetic medicine

RNAi has arrived — but the brain remains locked.

RNA interference (RNAi) is a class of genetic medicine, approved for a number of diseases.
They selectively silence disease-causing genes, offering unmatched precision, reversibility, and programmability.

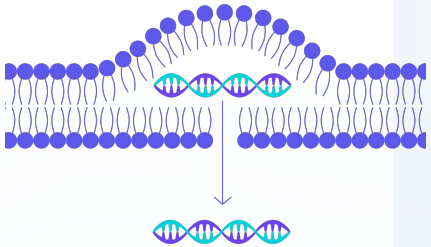


But the brain, shielded by the blood-brain barrier (BBB), remains inaccessible to this technology.
While genetic medicine is reshaping care in the periphery, the central nervous system (CNS) has yet to benefit.

RNAi is a purpose-built modality for the brain.

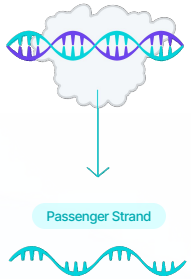
RNAi is a natural cellular process, using elements like siRNA or shRNA, that silences specific genes by degrading their messenger RNA (mRNA) before a protein is made. The gene is silenced temporarily.

1



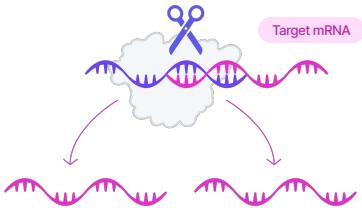
siRNA delivered into cell

2



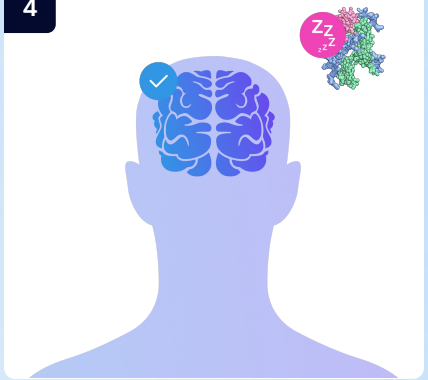
siRNA enters into RISC and unzips

3



Target mRNA cleavage and degredation

4



Protein silencing and healthy phenotype

- **Highly specific**
  You can strategically silence just one isoform of a gene if needed.
- **Programmable**
  Can be designed for nearly any gene — fast iteration, low development cost.
- **Durable but reversible**
  Acts downstream of DNA; safer than genome editing, longer-lasting than small molecules.
- **Low dose, high effect**
  A single RNAi molecule can silence multiple mRNA copies even at low concentrations.

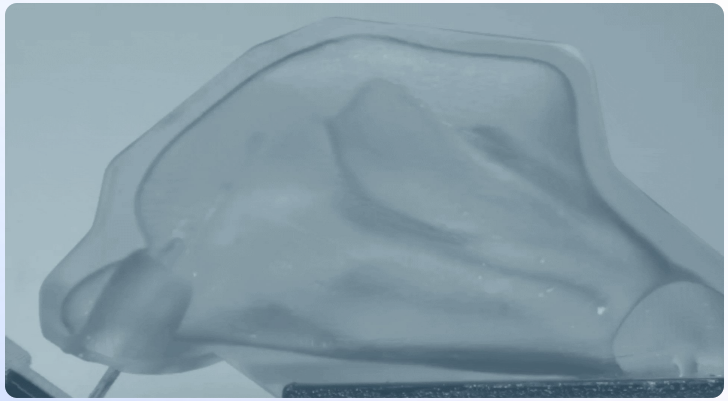
Small molecules scatter. Brain shuttles are complex. Injections are invasive. The barrier remains.

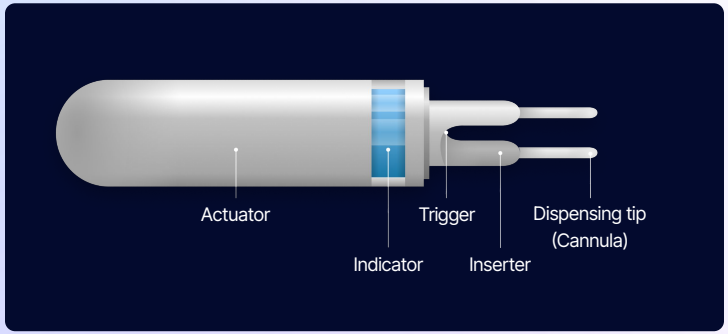
CNS drug development and delivery is dominated by many imperfect strategies, plagued by fundamental limitations:

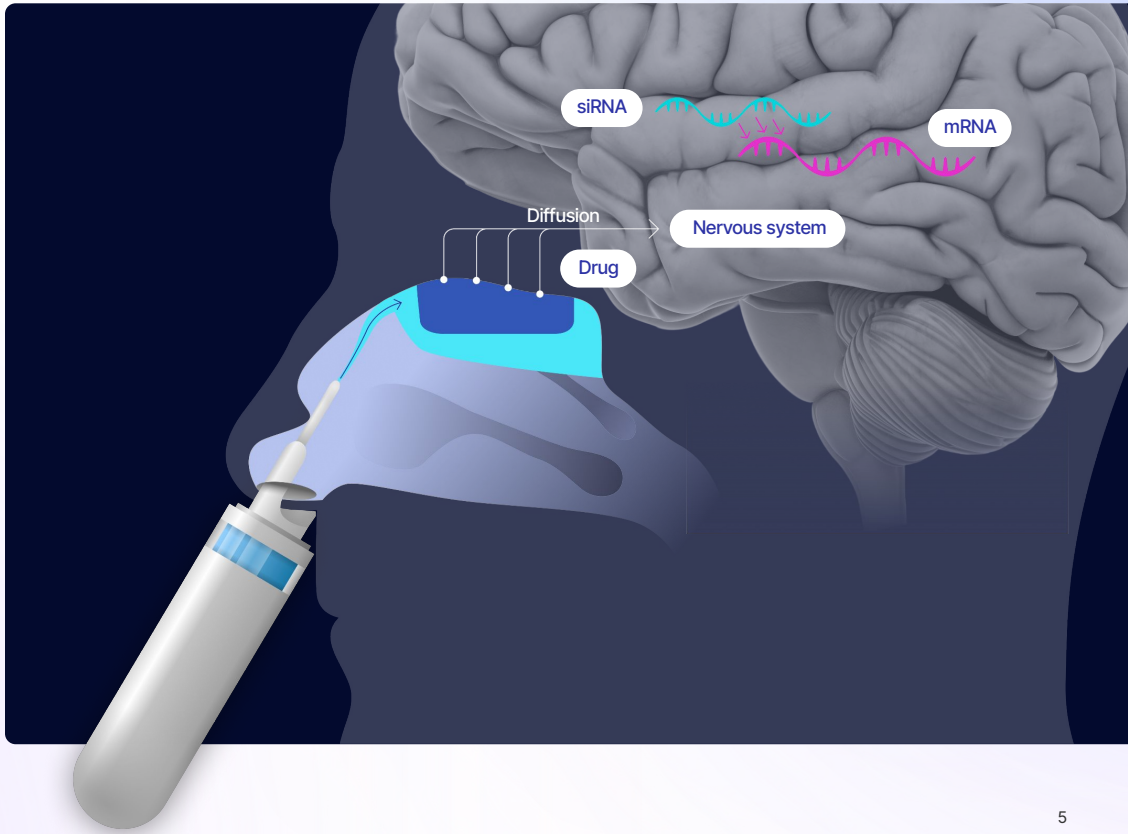
	Delivery method	Potency	Scalability	Targeting precision	Patient Tolerance	Clinical Feasibility	Notes
Small molecules	Oral (predominant route of administration)	Low; 1% of active ingredient reaches the brain	High	Low	Medium	High	99%+ off-target exposure; poor brain specificity
	IV (Intravenous)	systemic exposure dilutes brain delivery	Medium	Low	Medium	High	Widespread distribution; limited BBB penetration; off-target effects remain
RNAi	Intrathecal Injection	High; but limited biodistribution	Low	Moderate	Low	Low (surgical)	Lumbar puncture; limited brain region access
	Intracysternal Injection	High; but limited biodistribution	Very low	Moderate	Low	Low (surgical)	Direct injection into base of skull / neck
	Intracranial Injection	High; but localized biodistribution	Very low	High	Very low	Low (surgical)	Gene therapy for severe conditions, delivered through the skull
	Brain Shuttles (IV)	High if successful	Medium	Variable	Medium	Early-stage	Expensive, complex to engineer for predictable biodistribution
	Ultrasound-Guided (IV)	High if successful	Low	Variable	Medium	Experimental	Requires MRI, microbubble co-admin, BBB disruption risk
	Next Generation Delivery	**High**	**High**	**High**	**High**	**High**	

Introducing a new modality: intranasally delivered RNAi — iRNAi.

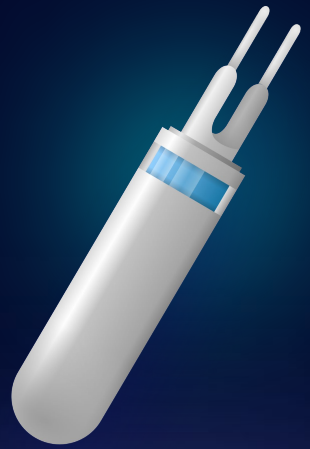
The first scalable, non-invasive modality for targeted gene silencing in the brain.



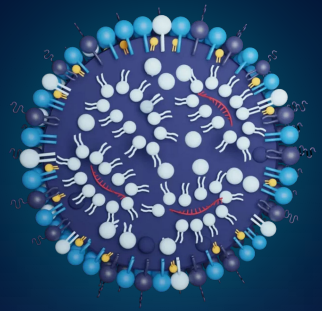




Cognigenics saw it coming. Technology caught up.

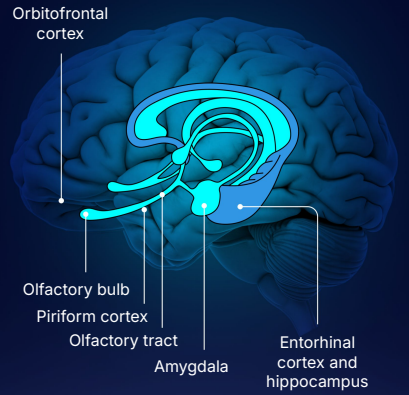


Microfluidics enabling precise deposition



LNP coating that protects RNAi from degradation

RNAi evolution for CNS specificity



Validated CNS circuits for target selection

What does this mean for the patient?

"I was on six medications. None worked. All made me sick."

— Patient with Parkinson's Disease Psychosis

Fewer side effects

iRNAi avoids systemic exposure - unlike small molecules, which send 99% of the drug where it doesn't belong.

Long-lasting relief

iRNAi exerts its therapeutic effects within 48-72 hours, and is designed for bi-monthly dosing.

Improved compliance

Self-administered. No infusions, daily injections, or invasive surgeries. Delivered directly and non-invasively via SOA olfactory delivery device.

Personalized insight

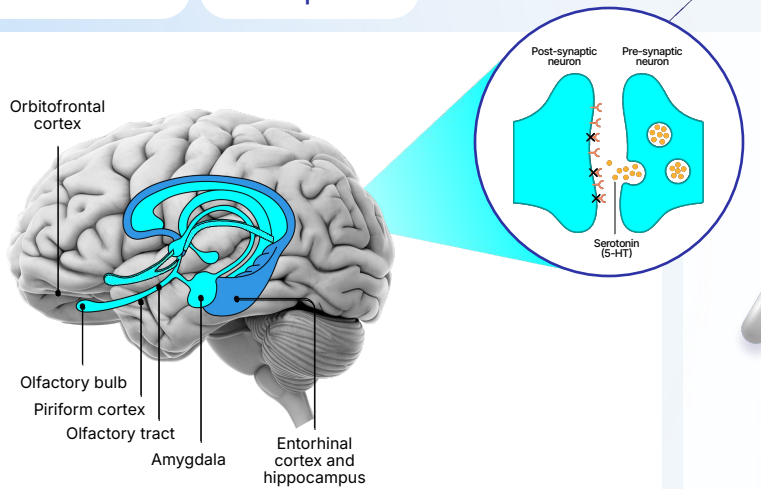
Future integration with wearables and real-time patient monitoring to support behavior change and long-term recovery.

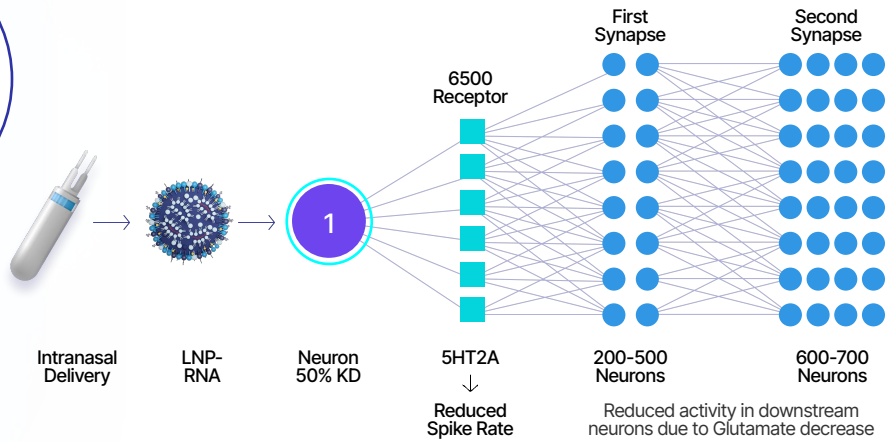
5HT2A is a master switch, across numerous psychiatric disorders

5HT2A is well studied and its modulation plays a critical role across a range of psychiatric disorders

Parkinson's | Anxiety | Alzheimer's & MCI | Schizophrenia

This gene encodes the serotonin 5-HT2A receptor. Silencing it reduces receptor expression, lowers neuron firing by 24%, and dampens downstream glutamate release, the brain's primary excitatory signal. The result: returning to neural homeostasis.





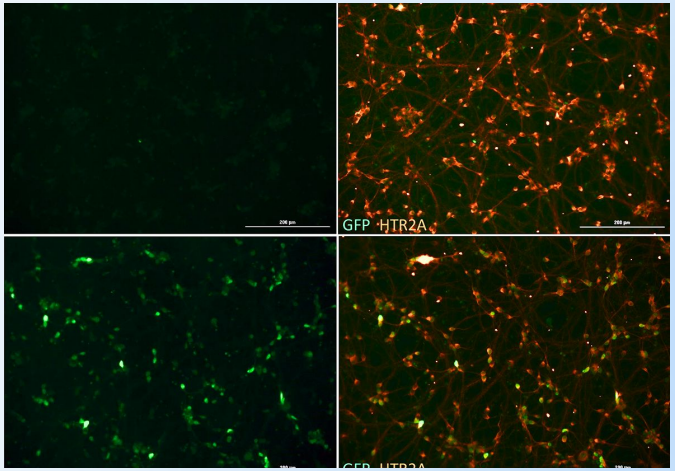
iRNAi enables precise control of 5HT2A — this is true precision medicine.

COG-301: First-in-class RNAi therapy for Parkinson's Psychosis.

5-HT2A overexpression is key a mechanism underlying hallucinations and memory loss — COG-301 silences 5HT2a without sedating or worsening motor symptoms

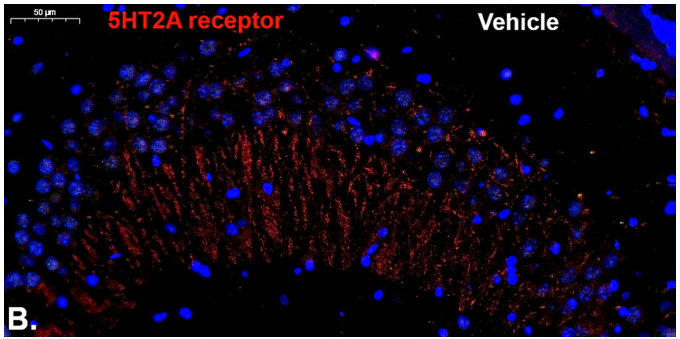
RNAi downregulates the 2A receptor in human iPSC neurons

Scrambled shRNA

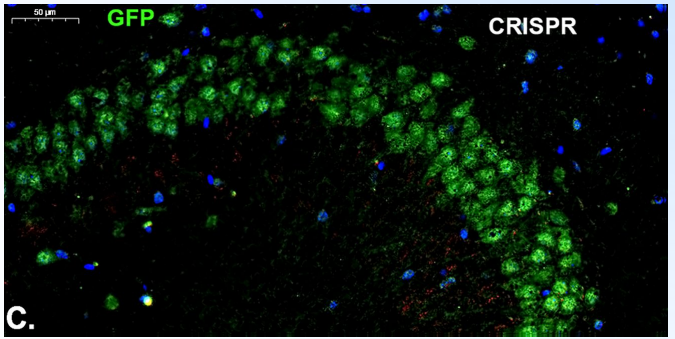


shRNA HTR2A

Our preclinical studies used AAV-delivered shRNA to establish that gene silencing of 5HT2A produces a >92% improvement in memory and >40% reduction in anxiety in preclinical models, validating the therapeutic mechanism for siRNA-based delivery.



5-HT2A Receptors (Blue) Control Mice



5-HT2A Receptors (Green) Reduced in Treatment Mice

COG-301: Beachhead indication for Parkinson's Psychosis.

Parkinson's Psychosis is predominantly treatment-induced — characterized by overactive dopaminergic circuits — and offers clear clinical endpoints with an unmet medical need; an ideal target for iRNAi.

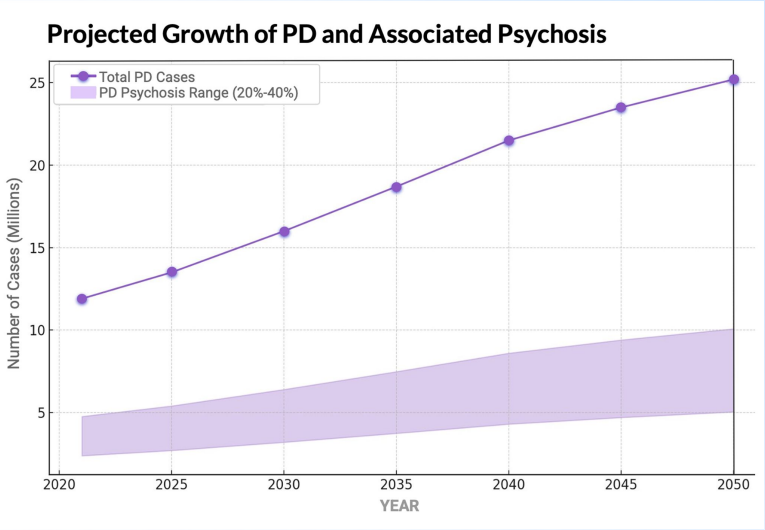
RNAi 301 Eligible for Breakthrough Therapy Designation due to large unmet need and poor tolerability of current drugs.

Nuplazid™ - pimavanserin

⚠ **Black Box Warning:**
Increased mortality in elderly patients with dementia-related psychosis

Platform Technology Designation Program; Draft Guidance for Industry; Availability; Agency Information Collection Activities; Proposed Collection; Comment Request

A Notice by the Food and Drug Administration on 05/29/2024



Targets 5HT2A — an FDA-validated receptor for Parkinson's Psychosis, de-risking regulatory path despite new modality

COG-301 de-risks the platform and opens up the 5HT2A market.

Precision, tolerability, and non-invasive delivery aren't just better for patients, they make earlier intervention and prevention possible.

Delivery	Tech.	Target Indication	Patient Population	Market size
Intranasal	RNAi	Parkinson's psychosis	~400K in US (PDP prevalence ~40% of 1M PD cases)	$0.5B
		Stress	~70M in US experience stress frequently	$018.4B global stress management market
		Anxiety	~40M in US annually	$13.5B US anxiety treatment market
		Depression	~21M in US	$17.5B global antidepressant market
		Obsessive Compulsive Disorder (OCD)	~2.5M in US	$10.5B global OCD treatment market
		ADD/ADHD	~11M diagnosed with ADHD in US	$20.6B global ADHD drug market
		Mild Cognitive Impairment (MCI)	~7M in US (12–18% of people aged 60+)	$3.7B global cognitive impairment market
		Memory/Cognitive Enhancement	Broad consumer interest across age groups	$5.3B global nootropics market

DelveInsight. Parkinson's Disease Psychosis Treatment Market: Key Analysis. 2022; Lenka A, et al. Nat Commun. 2022; Statista. Stress management market size worldwide 2024. 2024; NIMH. Anxiety Disorders. National Institute of Mental Health. 2023; CDC. Depression in adults. Centers for Disease Control. 2023; APA. Obsessive-Compulsive Disorder (OCD). American Psychiatric Association. 2023; CHADD. National Resource Center on ADHD. 2024; Alzheimer's Association. Mild cognitive impairment. 2023; Grand View Research. Nootropics Market Size Report. 2023.

Cognigenics is unlocking brain-directed RNAi.

Patents cover

Area
CNS delivery

IP Coverage
Precision intranasal targeting

What's New
Full device-system claims with regional control

Area
RNA modulation

IP Coverage
siRNA, mRNA, miRNA interference

What's New
Expanded target set: 5HT2A, HTR1A

Area
Therapeutic breadth

IP Coverage
PDP, anxiety, cognition, trauma

What's New
Includes psychedelic adjuncts, AD, MCI

Area
Formulation

IP Coverage
Intranasally-optimized LNPs

What's New
Particle designs for targeted CNS diffusion

Area
Cognition

IP Coverage
Reversible, adaptive models

What's New
Foundational and applied patents for sustainable enhancement

We are building the iRNAi ecosystem: combining cutting-edge delivery, formulation, and patient insight.

Rocket Science Health
Device Partner

Laminar Fluid Ejection Device for olfactory drug delivery - 80%+ olfactory deposition

Cytiva
LNP Manufacturing Partner

Industry leader in nanoparticle formulations for genetic payloads

Certara

In-silico modeling AI, brain distribution, behavioral output (full model tracks where its going and how it interacts)

Oura Ring / Fitbit
Patient Insight Integration

Enabling digital biomarkers, 24/7 vitals, and feedback loops for optimized dosing and therapeutic monitoring

Olfera
Therapeutics Screening

Specialize in therapeutics screening for intranasal therapeutics, using a “nose”-on-a-chip system

A world-class team driving innovation and commercialization.

Dr Tracy Brandmeyer

CEO, Co-Founder

Leader in precision neuroengineering and neural circuit dynamics with 20+ years of neuroscience r&d. Former Chief Science Officer at BrainMind, the world's leading neurotechnology innovation ecosystem

Dr Fabio Macciardi

CSO

Global authority in psychiatric molecular genetics with 30+ years of research. Led landmark meta-analysis on hippocampal hyperactivity and memory restoration.

Peter Seidler

COO

Biotech innovation operations leader and author of Cognitive Genetics. Specialist in business systems design and precision medicine storytelling.

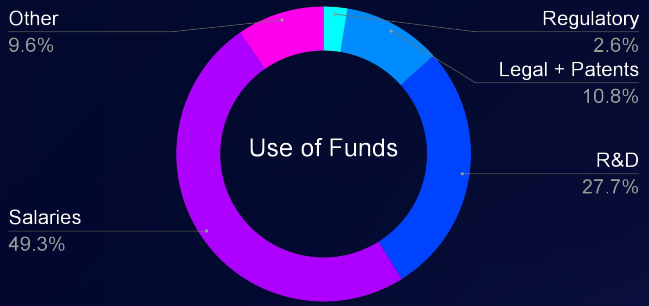
John Mee

Founder, President

Secured $400M in R&D funding; launched $5B in advanced computing systems. Applying Fortune 500 tech leadership to disrupt mental health therapeutics with RNA innovation.

Seeking $2M to unlock the study that unlocks the brain.

A pivotal primate study will test biodistribution, deposition and specificity.



Current seed round ($2M)

Pre-A round

H2 2025

Certara AI Modeling

Validate target engagement and efficacy in human model

LNP Design

H1 2026

Effective delivery in NHP

Efficacy in Parkinson's PD preclinical model

H2 2026

IRB approval

NHP safety tox and dose escalation completed

Phase 1a clinical trial (Australia)

H1 2027

IND approval

H2 2027

Phase 1a clinical trial (US)

Cognigenics

Thank You

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