

**ALGORAE**  
PHARMACEUTICALS

Non-deal Corporate Presentation

ASX Code: 1AI

April 2024

# Disclaimer: Important Information

Not an offer of Securities. This document has been independently prepared by Algorae Pharmaceuticals Ltd (Algorae) and is provided for informational purposes only. This document does not constitute or contain an offer, invitation, solicitation or recommendation with respect to the purchase or sale of any security in Algorae. This document does not constitute an offer to sell, or a solicitation of an offer to buy, any securities in any jurisdiction (in particular, the United States), or a securities recommendation. This document is not a prospectus, product disclosure statement or other offering document under Australian law or any other law, and will not be lodged with the ASIC. Summary Information This document contains a summary of information about Algorae and its activities that is current as at the date of this document. The information in this document is general in nature and does not purport to be complete or to contain all the information which a prospective investor may require in evaluating a possible investment in Algorae or that would be required in a prospectus or a product disclosure statement prepared in accordance with the Corporations Act 2001 (Cth) (Corporations Act). No Liability The information contained in this document has been prepared in good faith by Algorae, however no guarantee representation or warranty expressed or implied is or will be made by any person (including Algorae and its affiliates and their directors, officers, employees, associates, advisers and agents) as to the accuracy, reliability, correctness, completeness or adequacy of any statements, estimates, options, conclusions or other information contained in this document. To the maximum extent permitted by law, Algorae and its affiliates and their directors, officers, employees, associates, advisers and agents each expressly disclaims any and all liability, including, without limitation, any liability arising out of fault or negligence, for any loss arising from the use of or reliance on information contained in this document including representations or warranties or in relation to the accuracy or completeness of the information, statements, opinions, forecasts, reports or other matters, express or implied, contained in, arising out of or derived from, or for omissions from, this document including, without limitation, any financial information, any estimates or projections and any other financial information derived therefrom. Statements in this document are made only as of the date of this document unless otherwise stated and the information in this document remains subject to change without notice. No responsibility or liability is assumed by Algorae or any of its affiliates for updating Not Financial Product Advice This document does not constitute financial product advice or take into account your investment objectives, taxation situation, financial situation or needs. This document consists purely of factual information and does not involve or imply a recommendation of a statement of opinion in respect of whether to buy, sell or hold a financial product. An investment in Algorae is considered to be speculative in nature. Before making any investment decision in connection with any acquisition of securities, investors should consult their own legal, tax and/or financial advisers in relation to the information in, and action taken on the basis of, this document. Information in this Document is Confidential This document and the information contained within it are strictly confidential and are intended for the exclusive benefit of the persons to whom it is given. It may not be reproduced, disseminated, quoted or referred to, in whole or in part, without the express consent of Algorae. By receiving this document, you agree to keep the information confidential, not to disclose any of the information contained in this document to any other person and not to copy, use, publish, record or reproduce the information in this document without the prior written consent of Algorae, which may be withheld in its absolute discretion. Acceptance By attending an investor presentation or briefing, or accepting, accessing or reviewing this document you acknowledge and agree to the "Disclaimer" as set any information in this document or to inform any recipient of any new or more accurate information or any errors or mis-descriptions of which Algorae and any of its affiliates or advisers may become aware. Forward Looking Statements Certain information in this document refers to the intentions of Algorae, but these are not intended to be forecasts, forward looking statements or statements about the future matters for the purposes of the Corporations Act or any other applicable law. The occurrence of the events in the future are subject to risk, uncertainties and other actions that may cause Algorae actual results, performance or achievements to differ from those referred to in this document. Accordingly Algorae and its affiliates and their directors, officers, employees and agents do not give any assurance or guarantee that the occurrence of these events referred to in the document will actually occur as contemplated. Statements contained in this document, including but not limited to those regarding the possible or assumed future costs, performance, dividends, returns, revenue, exchange rates, potential growth of Algorae, industry growth or other projections and any estimated company earnings are or may be forward looking statements. Forward-looking statements can generally be identified by the use of words such as 'project', 'foresee', 'plan', 'expect', 'aim', 'intend', 'anticipate', 'believe', 'estimate', 'may', 'should', 'will' or similar expressions. These statements relate to future events and expectations and as such involve known and unknown risks and significant uncertainties, many of which are outside the control of Algorae. Actual results, performance, actions and developments of Algorae may differ materially from those expressed or implied by the forward-looking statements in this document. Such forward-looking statements speak only as of the date of this document. There can be no assurance that actual outcomes will not differ materially from these statements. To the maximum extent permitted by law, Algorae and any of its affiliates and their directors, officers, employees, agents, associates and advisers: disclaim any obligations or undertaking to release any updates or revisions to the information to reflect any change in expectations or assumptions; do not make any representation or warranty, express or implied, as to the accuracy, reliability or completeness of the information in this document, or likelihood of fulfilment of any forward-looking statement or any event or results expressed or implied in any forward-looking statement; and disclaim all responsibility and liability for these forward- looking statements (including, without limitation, liability for negligence).

# Corporate Overview

**\$0.01**

1AI share price\*

**\$3.6 million**

Cash (31 Dec 23)

**1.68 billion**

Shares on issue

**306 million**

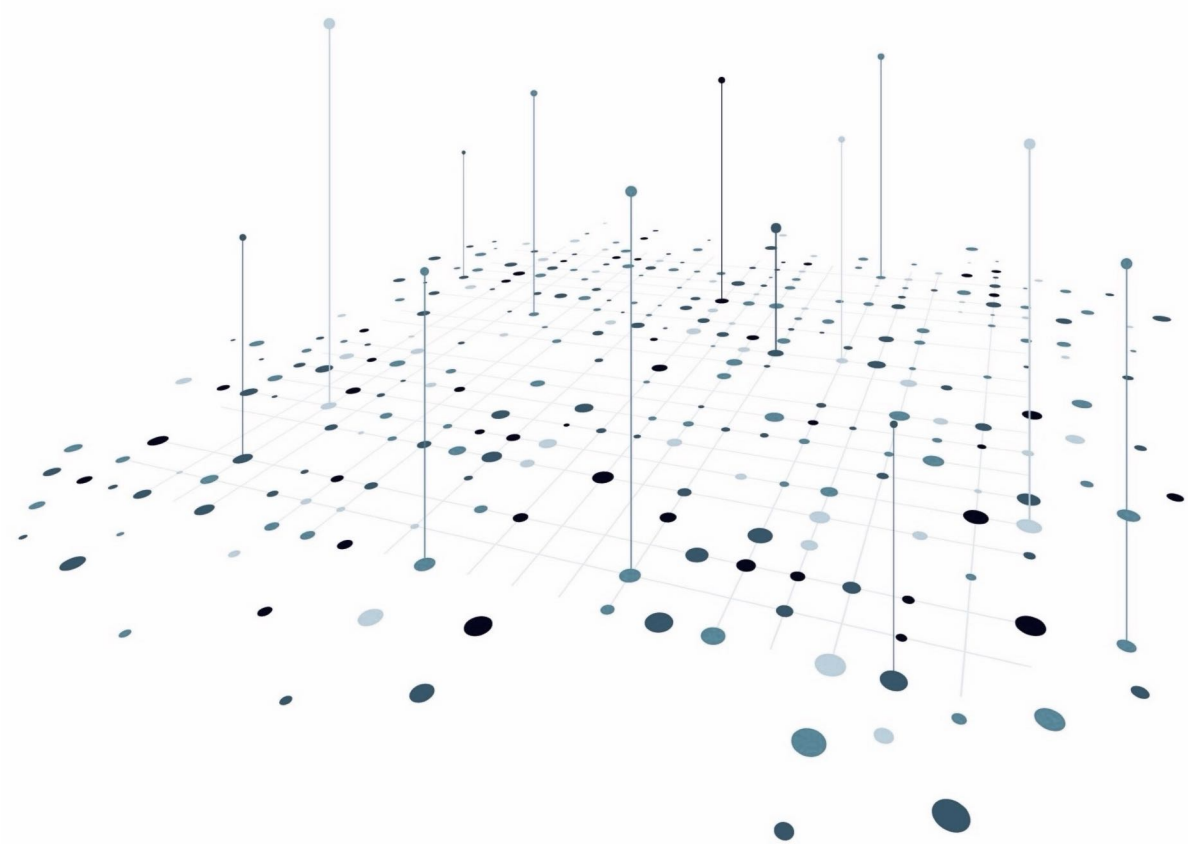
ITM Listed options\*\*

**45%**

Top 20

**\$16.8 million**

Market capitalisation



\* Price as at 17 April 2024

\*\* ITM Listed options: 1AIO (\$0.012, exp 31/03/26), OTM listed options: 1AIOA (\$0.015, exp 19/04/24 (expires 19 April 2024))

# Mission

Algorae is a biopharmaceutical company aiming to transform the **cost**, **pace**, and **timeline** of drug discovery and development through the application of artificial intelligence

# *In Action*

- AlgoraeOS artificial intelligence platform to expand therapeutic pipeline of assets
- First AlgoraeOS readout of fixed dose combination drug targets expected Q2/Q3 2024
- 2 combination drug candidates in pre-clinical trials, **AI-116** for dementia and **AI-168** for cardiovascular disease
- Expert scientific teams from UNSW, Monash and Latrobe University
- CSIRO grant funding achieved for expansion of AlgoraeOS development team
- Strong intellectual property strategy for existing drug candidates and AI-generated drug targets

Artificial intelligence promises to **revolutionise** drug discovery

Only **6%** of clinical trials using **traditional** drug discovery approaches receive FDA approval<sup>1</sup>

We intend to drastically **improve** upon this statistic

## Transforming Drug Discovery with AI-enabled technology



Drug development is accelerated by using data driven and AI-enabled approaches



Combination drug repositioning compresses timelines, decreases costs, and increases approval success rates



AI-enabled drug discovery leverages large data sets to predict synergistic combination drug targets to assess in the clinic

# Artificial Intelligence for Combination Drug Discovery

AlgoraeOS utilises machine learning, deep learning and neural network artificial intelligence within extensive existing databases to predict synergistic pharmaceutical fixed-dose combination (FDC) drug targets, aimed at improving existing therapeutics

# AlgoraeOS Development & Infrastructure



Collaborating with UNSW Data Science Hub and CSIRO Data61 to harness cutting-edge data science and technology, AlgoraeOS is being developed by the leading artificial intelligence experts and institutions in Australia

GADI, Southern Hemisphere's most powerful supercomputer at Canberra's, National Computational Infrastructure (NCI)

- ❖ 250,000 CPU cores
- ❖ 930 terabytes of memory
- ❖ 640 Nvidia GPU's
- ❖ 10 petaflops of peak performance

# AlgoraeOS AI-enabled Drug Discovery Platform

Spend less for discovery and move faster to development

## Data Analysis & Integration

Analysing vast amounts of biological, chemical, and clinical data. Integrating diverse datasets, including genomics, proteomics, and chemical structures, to identify potential drug targets and biomarkers.

## Drug Design & Optimisation

Designing novel drug candidates by predicting molecular structures and properties that are likely to have the desired therapeutic effects. This significantly improves the pace of the drug discovery process and reduces costs

## Predictive Toxicology

Predicting potential toxicities of drug candidates, eliminating unsafe compounds earlier in the development process. This reduces the likelihood of late-stage failures and enhances overall drug safety.

## Target Identification & Validation

Predict and prioritise potential drug targets by analysing biological data, identifying disease-associated pathways, and predicting the likelihood of a target being viable for therapeutic intervention, driving focus on the most promising avenues.

## Prediction of Drug-Drug Interactions

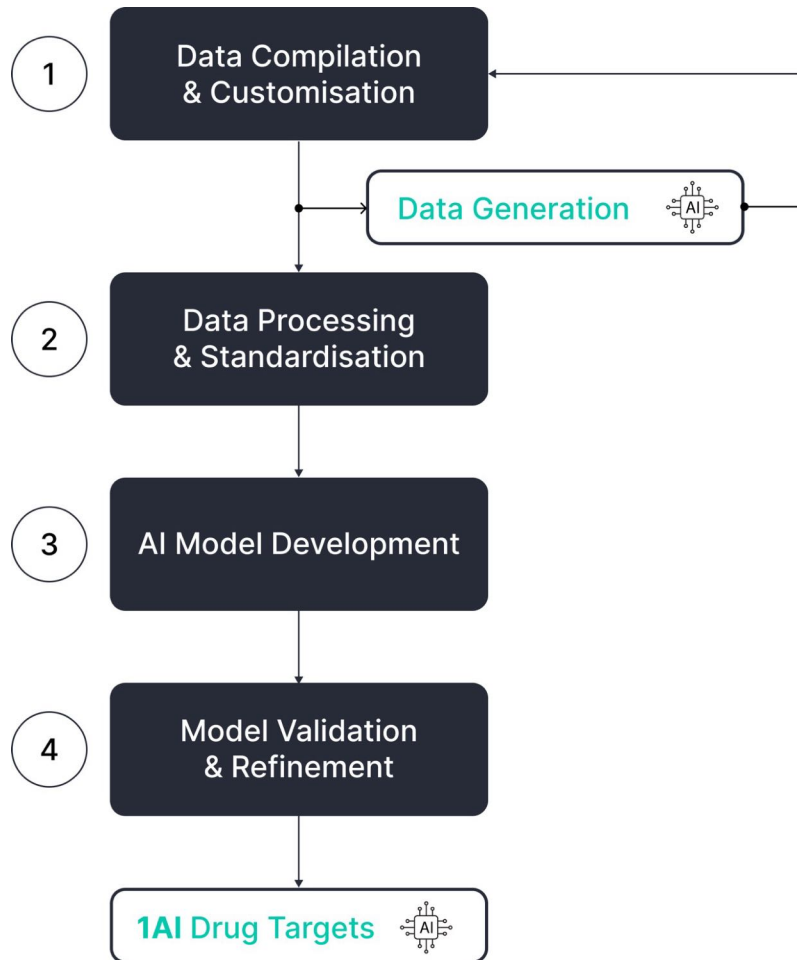
Predict potential interactions between drugs, helping researchers and clinicians identify possible adverse effects and optimise combination therapies. This is crucial in preventing unwanted side effects and ensuring the safety of drug combinations.

## Clinical Trial Optimisation

Assisting patient stratification for clinical trials, identifying sub-populations most likely to respond to a particular treatment. This leads to more efficient and successful clinical trials by enrolling patients who are more likely to benefit.



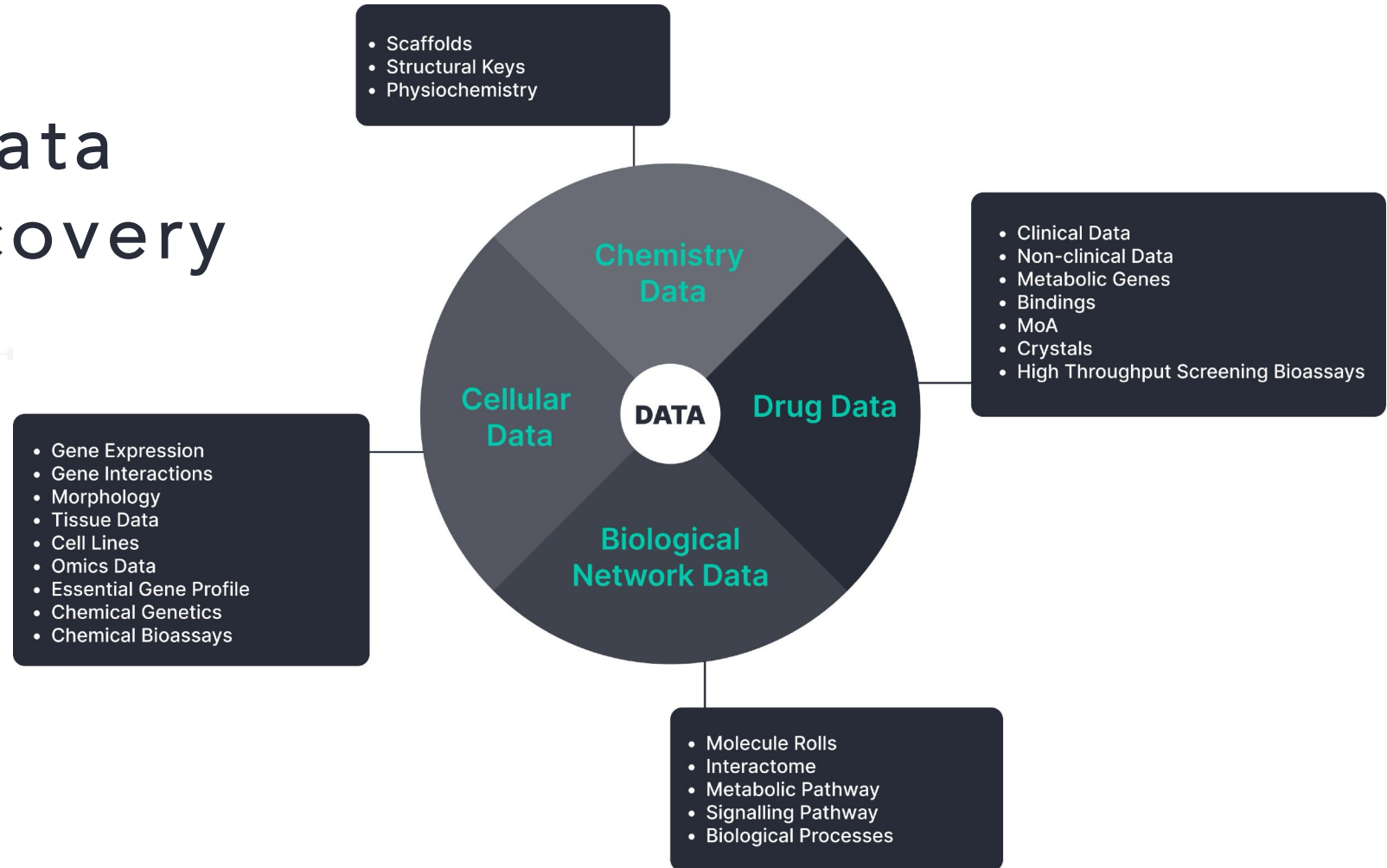
# AlgoraeOS Synergistic Drug Combination Prediction



- Extensive scientific and medical databases compiled and customised for data processing and standardisation
- AI model utilises machine learning, deep learning and neural networks
- Screening for fixed dose combination drug targets, either two registered drugs or a registered drug plus a cannabinoid
- Prediction of fixed-dose ratios for synergistic activity, important for drug improvement and development of new intellectual property
- AI models and AlgoraeOS databases continually refined and validated for increasing predictive power.

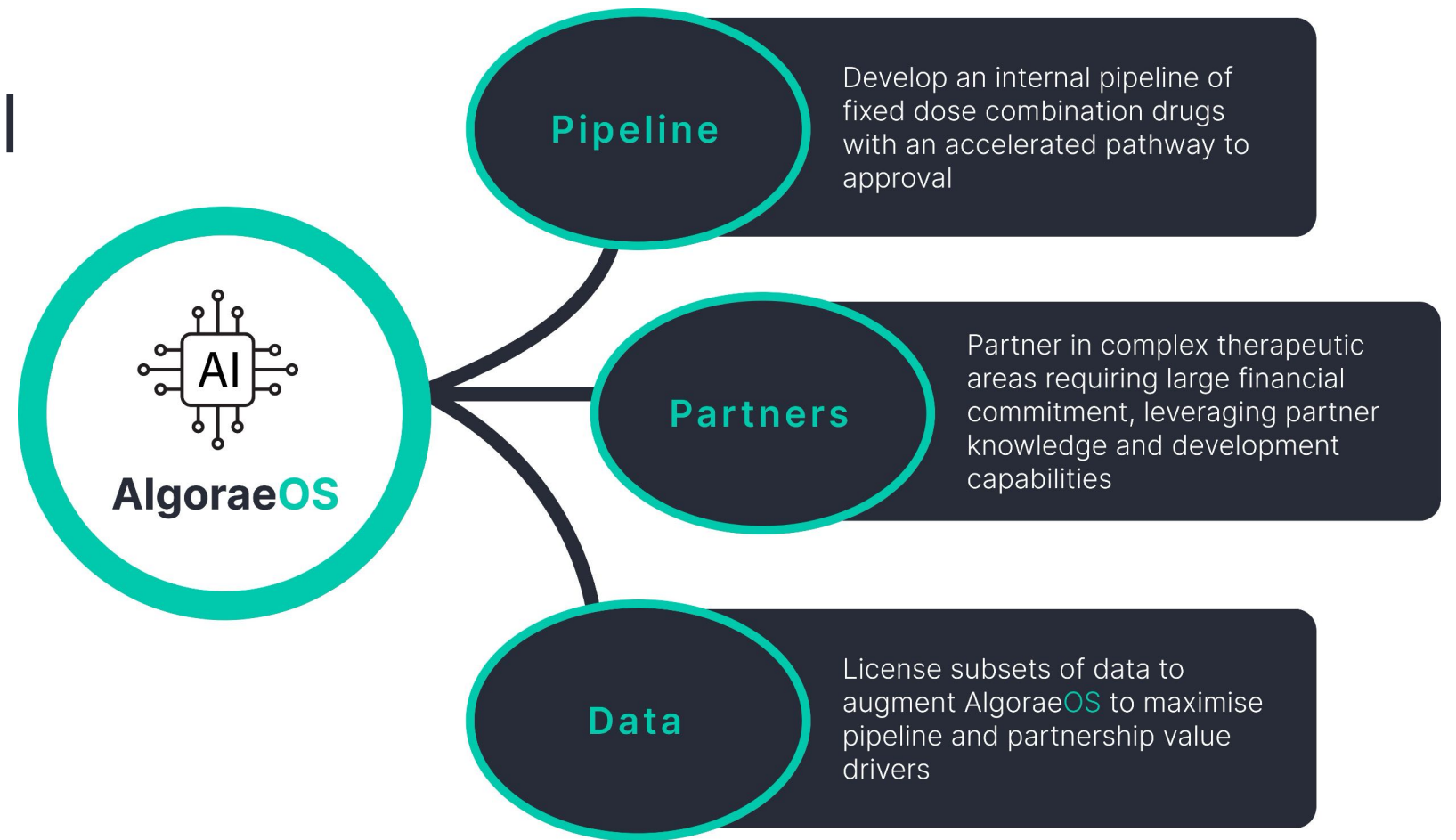
# AlgoraeOS

## 4 Pillars of Data for Drug Discovery



# AlgoraeOS Business Model

3 key opportunities to create  
shareholder value using our  
artificial intelligence platform



# BioPharma with AI-enabled Business Models

Algorae is the only AI-enabled biopharma company focused on fixed-dose combination drugs (FDCs) and cannabinoid combination drugs



		USD	AUD
1AI	Algorae Pharmaceuticals Ltd	\$10.8M	\$16.9M*
RXRX	Recursion Pharmaceuticals Inc	\$1.78B	\$2.78B
RLAY	Relay Therapeutics Inc	\$884M	\$1.38B
EXAI	Excientia Plc	\$537M	\$839M
SDGR	Schrodinger Inc	\$1.79B	\$2.80B
ABCL	AbCellera Biologics	\$1.18B	\$1.84B
BTAI	Bioxcel Therapeutics	\$89.6M	\$140M
LTRN	Lantern Pharma Inc	\$64.8M	\$101M

*\*prices as at 17 April 2024*

Major value drivers within AI-enabled biopharmaceutical companies include generation of drug targets, advancement of AI-discovered drug candidates and commercial collaborations with other, often larger, pharmaceutical companies.

# Combination Drugs: New & Improved Pharmaceuticals

**Fixed-dose combination drugs (FDCs)** are medicines comprising 2 or more active pharmaceutical ingredients combined in a single dose. Algorae leverage existing data generated on individual drugs by other R&D companies over decades to develop improved pharmaceutical treatments. Approximately 10% of all new drug applications with FDA are FDCs.

## Advantages of fixed-dose combination drugs

### Enhanced Efficacy

Combining drugs with different mechanisms of action can lead to more potent and synergistic therapeutic effects

### Broader Spectrum of Activity

Combination drugs can be effective against a wider range of targets, pathogens, or disease processes

### Reduced Side Effects

Combining drugs can facilitate lower individual doses of each drug, minimising side effects

### Optimised Drug Delivery

Formulating multiple drugs in a single dose facilitates precise control over drug release, improving the pharmacokinetics and pharmacodynamics of the drugs, leading to better therapeutic outcomes

# AlgoraeOS: Differentiated from International Peers

## Specialisation One: Fixed Dose Combination Pharmaceuticals

## Specialisation Two: Cannabinoids

- Cannabinoid compounds, as well as fixed dose combination drug predictions sets AlgoraeOS apart from international peer platforms
- Warehousing cannabinoids, including understudied minor cannabinoids, for research, which is inputted into the AlgoraeOS database
- Cannabinoids, in particular minor cannabinoids, remain understudied despite **substantial commercial interest** in cannabinoid and cannabinoid-receptor targeting companies

### Recent Cannabinoid Commercialisation Examples:

- USD\$7.2b (A\$11.2b) acquisition of GW Pharmaceuticals by Jazz Pharmaceuticals in 2021 after FDA approval of CBD-based product, Epidiolex<sup>2</sup>. 2022 annual sales of Epidiolex totaled USD\$736m (A\$1.15b)
- USD\$1.075b (A\$1.68b) acquisition of Inversago Pharma by Novo Nordisk A/S in 2023 after Phase 1B trials over drug candidate INV-202, an oral CB1 inverse agonist

# AI-116 Dementia



# Dementia Drug Market

Market data pertains to acetylcholinesterase Inhibitors, known as Donepezil, Rivastigmine and Galantamine.



Est. Market Size (2024)	USD\$21 billion <sup>3</sup>
Est. Market Size (2033)	USD\$170 billion
CAGR (2024-2033)	8.20%

Dementia and neurocognitive diseases, such as Alzheimer's, Parkinson's, and Vascular Dementia, impose a high disease burden on individuals, and the healthcare system

**10 million people** are diagnosed with dementia every year, translating to a diagnosis every **3.2 seconds**

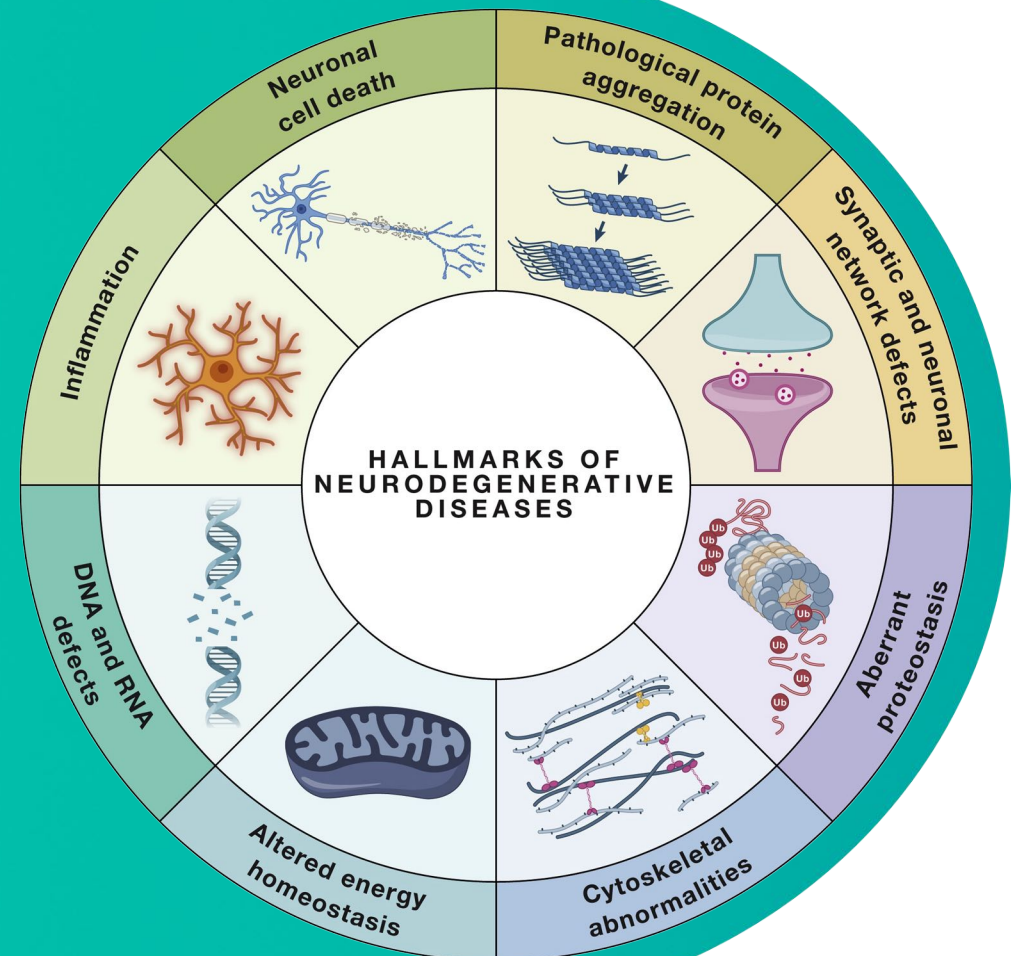
As the world's population ages, Alzheimer's disease is becoming more common, which calls for the creation and application of therapies that specifically address cognitive decline.



# Cannabinoids to Improve Existing Dementia Treatments

AI-116 combines an acetylcholinesterase inhibitor and cannabidiol in a novel fixed dose combination designed to enhance an existing treatment.

Neurocognitive diseases, like Alzheimer's, share many of the same hallmarks, such as inflammation, neuronal cell death, pathological protein aggregation and, synaptic and neuronal network defects <sup>4</sup>



# AI-116 Dementia: Preliminary Results

- Preliminary *in vitro* data demonstrates the neuroprotective effect of AI-116, exceeding that of the existing FDA registered acetylcholinesterase inhibitor.
- Cell viability increased by 20.1% for AI-116 versus 2.1% for an existing acetylcholinesterase inhibitor, in pre-clinical studies.
- Results demonstrate synergistic method of action within AI-116.
- RNA sequencing analysis to commence to further assess AI-116, including for neuroinflammation which plays a multifaceted role in the pathogenesis of dementia.

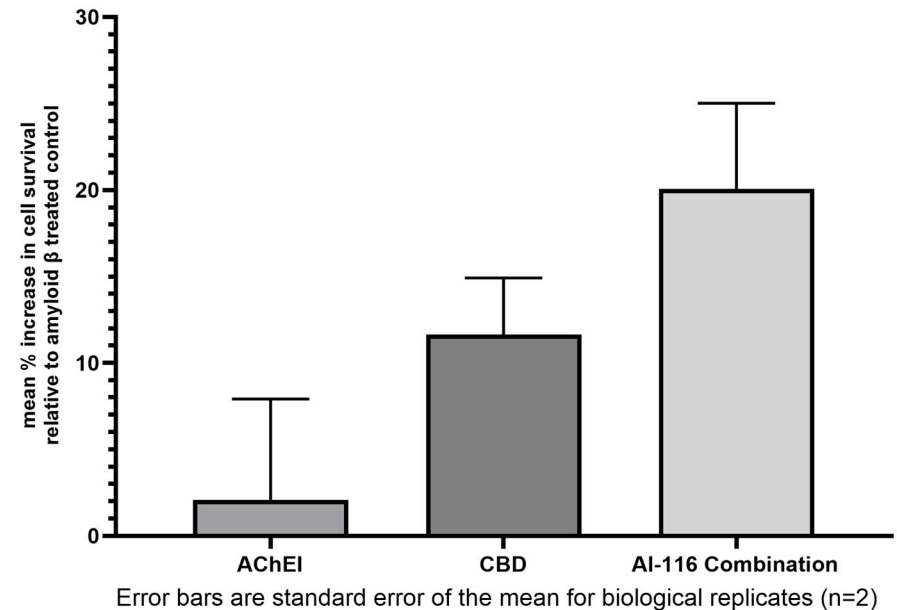

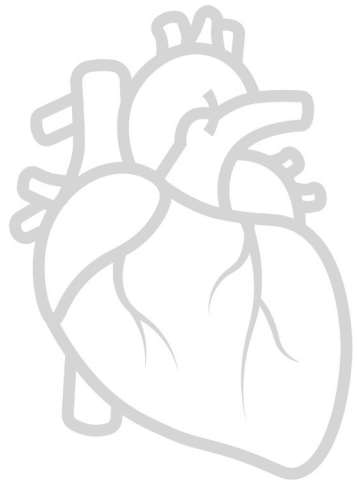


Figure 1. Average percentage increase in cell survival relative to amyloid  $\beta$  treated control cells. Zero is the benchmark for AB effected cells with no treatments, whereby cell viability was 65.5%. Cell viability increased by 2.1% to 67.6% for the acetylcholinesterase inhibitor (AChEI), by 11.6% to 77.1% for CBD and by 20.1% to 85.6% for AI-116.

A photograph of a middle-aged Black man smiling broadly, looking off to the side. He is wearing a dark blue t-shirt, a white towel draped over his shoulders, a white smartwatch on his left wrist, and white earbuds in his left ear. The background is a soft-focus green and yellow bokeh, suggesting an outdoor setting with trees and sunlight. The text 'AI-168 Cardiovascular Disease' is overlaid on the left side of the image.

AI-168  
Cardiovascular  
Disease

# Cardiovascular Drug Market



Est. Market Size (2023)

USDS\$66.7 billion <sup>5</sup>

Est. Market Size (2032)

USD\$84.5 billion

CAGR (2023-2029)

2.7%

Cardiovascular disease (CVD) is the leading cause of death worldwide with an estimated 18 millions deaths attributable in 2019 alone

In 2017 in Australia, CVD accounted for 19% of the disease burden, was associated with 27% of deaths, caused more than 1 million hospitalizations, and accounted for 12% of the total health expenditure

# Cannabinoids to Improve Treatments for Cardiovascular Disease

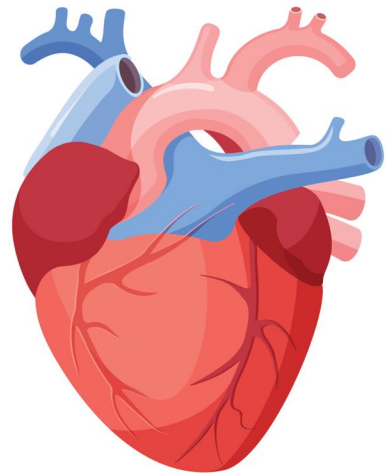
## Reported Effects of Cannabinoids in Animal Models of Cardiac Disease

### Myocardial Infarction

- ⌵ Inflammation
- ⌵ Infarction Size
- ⌵ Neutrophil Infiltration

### Arrhythmia

- ⌵ Tachycardia
- ⌵ Cell Death
- ⌵ Oxidative Stress



### Cardiomyopathy

- ⌵ Inflammation
- ⌵ Oxidative Stress
- ⌵ Cell Death

### Hypertension

- ⌶ Vasorelaxation

AI-168 comprises a cannabinoid and another drug in combination.

Cannabinoids have been reported to be therapeutically beneficial in models of myocardial infarction, arrhythmia, diabetic cardiomyopathy, hypertension and doxorubicin-induced cardiomyopathy, where they protect against inflammation, reactive oxygen species and improve cell survival <sup>6</sup>

# Board of Directors

- Significant shareholders in the business
- Extensive experience building and funding high growth companies on ASX
- Established record of collaborating with expert scientists, institutions and universities



Mr. David Hainsworth  
Executive Chairman



Mr. Brad Dilkes  
Non-executive Director



Mr. Bradley Latham  
Non-executive Director

# Scientific Leadership Team



Dr. James McKenna (Algorae)  
Chief Scientific Officer



Prof. Garrie Arumugam (LTU)  
Dementia



A/Prof. Fatemeh Vafae (UNSW)  
Artificial Intelligence



Dr. Muhammad Heydari (UNSW)  
Artificial Intelligence



Dr. Kristen Bubb (Monash)  
Cardiovascular



Dr. Giannie Barsha (Monash)  
Cardiovascular

# Upcoming Catalysts

- Launch of AI platform, AlgoraeOS
- Artificial intelligence scans for drug targets
- Additional pre-clinical results from AI-116 for Dementia
- Pre-clinical results from AI-168 for Cardiovascular Disease
- Data acquisitions for AI platform
- Data sharing and strategic partnerships
- Findings from NTCELL strategic review





# Appendix

## References / Cited Sources

### Slide 5: FDA Approvals

1. [Link to cited information](#)

### Slide 14: GW Pharmaceuticals Takeover

2. [Link to cited information](#)

### Slide 16: Dementia Drug Market

3. [Link to cited information](#)

### Slide 17: Neurocognitive Disease and Cannabinoids

4. [Link to cited information](#)

### Slide 20: Cardiovascular Drug Market

5. [Link to cited information](#)

### Slide 21: Cannabinoids and Cardiovascular Disease

6. [Link to cited information](#)

[Link to cited information](#)



**ALGORAE**  
PHARMACEUTICALS

Website: <https://algoraepharma.com>

Media Inquiries: [brad@algoraepharma.com](mailto:brad@algoraepharma.com)

Level 23, Rialto South Tower

525 Collins Street, Melbourne VIC 3000

