Public Announcement
ASX Code: 1AI

AlgoraeOS Artificial Intelligence ('AI') Platform Successfully Launched

Key Highlights:

- Successful launch of AlgoraeOS platform, with Technology Readiness Level ("TRL") 3+
- AI models validated for fixed-dose combination ("FDC") drug target prediction
- High prediction correlation in major synergy metrics ranging from 0.91 – 0.98 "predicted" versus "actual"
- Next major milestone: combination drug candidate prediction, laboratory validation and implementation of intellectual property strategies.

Melbourne, Australia – 24 September 2024: Algorae Pharmaceuticals Limited (ASX: 1AI) is pleased to announce the successful launch of its proprietary artificial intelligence platform, AlgoraeOS.

The platform, launched on schedule, has achieved a Technology Readiness Level ("TRL") of 3+, an internationally recognized metric for evaluating technological progress. AlgoraeOS integrates four proprietary AI neural networks to analyse vast datasets, predicting fixed-dose combination ("FDC") drug targets. It operates on the 'Gadi' supercomputer, managed by National Computational Infrastructure ("NCI Australia"), which has previously been utilised for projects like climate modelling and natural disaster prediction.

To drive this platform to enterprise standards, Algorae is collaborating with leading experts from the UNSW AI Institute, with economic support from the data and digital specialist arm of Australia's national science agency, CSIRO Data61. AlgoraeOS is wholly owned by Algorae and will undergo iterative improvements over the next 2.5 years, with version 2.0 development already underway. Pleasingly, initial system training indicated high prediction correlation of major synergy metrics (Bliss, Loewe and HSA) ranging from 0.91 – 0.98 "predicted" versus "actual" data, facilitating high confidence in the model.

Chairman David Hainsworth added: *"The launch of AlgoraeOS marks a significant step in our strategy to leverage AI for developing fixed-dose combination drugs. By improving existing therapies rather than investing in new molecular entities, we can enhance drug efficacy while compressing the timelines and costs. This intersection of AI and drug development represents a major commercial opportunity for our shareholders and benefits the broader community through access to improved treatments."*

Initial in-silico FDC drug target predictions from AlgoraeOS are expected to be reported for company analysis in the coming weeks. Planning of pre-clinical assessments are under discussion with laboratory partners, focusing on development paths, intellectual property strategies, and potential commercial partnerships. Further updates on these collaborations will follow.

About AlgoraeOS

Algorae Operating System ('AlgoraeOS') is the Company's proprietary artificial intelligence ('AI') biopharmaceutical prediction platform under development at the University of New South Wales ('UNSW') and supported by co-funding from the CSIRO Next Generation AI Graduate Program.

Appendix 1: AlgoraeOS Presentation (below).

This announcement has been approved by the Board of Directors of Algorae Pharmaceuticals Limited.

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For more information, please visit www.algoraepharma.com

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About Algorae Pharmaceuticals

Algorae is a pharmaceutical development company focussed on addressing unmet medical needs through the discovery and development of novel treatments. The Company has assembled a proficient R&D team and established collaborations with reputable academic institutions to advance its promising drug candidates, which include AI-116 for the treatment of neurodegenerative disorders and/or dementia, AI-168 for cardiovascular disease and NTCELL for Parkinson's disease.

Algorae intends to expand its therapeutic pipeline using a proprietary artificial intelligence (AI) drug discovery and development platform. Known as Algorae Operating System (AlgoraeOS), the AI platform leverages extensive medical and scientific databases from various disciplines within an advanced system at the intersection of AI and pharmaceutical research. By employing machine learning, deep learning, and neural networks, the aim of AlgoraeOS is to uncover synergistic drug combinations that lead to the development of novel and effective treatments for any medical condition, aligning with Algorae's commitment to address unmet medical needs. Algorae is listed and publicly traded on the Australian Stock Exchange (ASX: 1AI), providing investors an opportunity to participate in the Company's growth.

Forward-looking Statements

This document may contain certain forward-looking statements, relating to Algorae's business, which can be identified by the use of forward-looking terminology such as "promising," "probable", "plans," "anticipated," "will," "project," "believe," "forecast," "expected," "estimated," "targeting," "aiming," "set to," "potential," "seeking to," "goal," "could provide," "intends," "is being developed," "could be,""on track," or similar expressions, or by express or implied discussions regarding potential filings or marketing approvals, or potential future sales of product candidates. Such forward-looking statements involve known and unknown risks, uncertainties and other factors that may cause actual results to be materially different from any future results, performance or achievements expressed or implied by such statements. There can be no assurance that any existing or future regulatory filings will satisfy the FDA's and other health authorities' requirements regarding any one or more product candidates, nor can there be any assurance that such product candidates will be approved by any health authorities for sale in any market or that they will reach any particular level of sales. In particular, management's expectations regarding the approval and commercialisation of the product candidates could be affected by, among other things, unexpected clinical trial results, including additional analysis of existing clinical data, and new clinical data; unexpected regulatory actions or delays, or government regulation generally; our ability to obtain or maintain patent or other proprietary intellectual property protection; competition in general; government, industry, and general public pricing pressures; and additional factors that involve significant risks and uncertainties about our products, product candidates, financial results and business prospects. Should one or more of these risks or uncertainties materialise, or should underlying assumptions prove incorrect, actual results may vary materially from those described herein as anticipated, believed, estimated, or expected. Algorae is providing this information and does not assume any obligation to update any forward-looking statements contained in this document as a result of new information, future events or developments or otherwise.

ALGORAE PHARMACEUTICALS

ALGORAEOS

AI-enabled Drug Discovery

Version 1.0 Launch

Non-Deal Presentation

September 2024 (ASX: 1AI)

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AlgoraeOS Highlights

- Version 1.0 successfully launched
- AI models successfully validated
- Technology readiness level (TRL): 3+
- Consistent performance in all models
- Version 2.0 development commenced
- Creation of drug candidate IP leveraged to pharmaceutical “patent cliff”
- Next catalyst: combination drug prediction

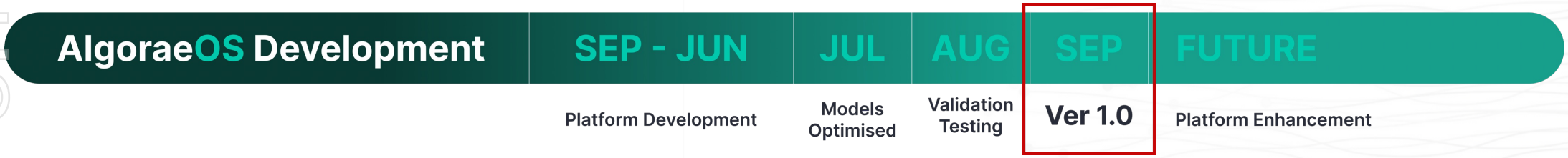
AI x Combination Drugs in Pharmaceuticals

- AI promises to become the starting point of all biopharmaceutical research and development
- AlgoraeOS employs vast multi-omic databases and AI to increase the pace and reduce the cost of discovering new drug candidates for any disease condition
- Intellectual property generated by predicting unexpected outcomes (including synergistic mechanism of action) between two known drugs or molecules
- Combination drug candidates leverage accelerated FDA pathways, utilising existing medical and scientific data available on each individual drug
- Combination drug candidates developed by AlgoraeOS will be developed internally or designated for commercial partnership by the Company

*** Reference: Clinical Development Success Rates and Contributing Factors 2011-2020, Bio Stats*

AlgoraeOS

AI-enabled Drug Combination Prediction



AlgoraeOS Version 1.0 launched on schedule with a 3+ TRL, now actively predicting fixed-dose combination (FDC) drug targets capable of developing patent protected market monopolies. Discussions with laboratory facilities are underway for pre-clinical assessments, with a focus on defining development pathways, commercialisation strategies, including partnerships with big pharmaceutical companies seeking to protect future revenue streams.

AlgoraeOS is academically constructed and distinct from international peers, producing commercial-grade drug candidate predictions. The Platform will continue evolving with additional data sets, metrics and capabilities planned in Version 2.0 and beyond.

AlgoraeOS

AI-enabled Drug Synergy Predictor

Training Data	+	AI Models	=	Drug Targets
>300K Drug Combinations **>2K** Drugs **>180** Cell Lines **>20** Tissues		Customised ANN Architecture Synergy Scores Prediction Validation TRL: 3+		In Silico Screening Prioritisation Laboratory Testing

In **pharmaceuticals**, "synergy" refers to the phenomenon where two or more drugs or compounds work together to produce a therapeutic effect that is greater than the sum of their individual effects. This indicates that the drugs enhance each other's therapeutic efficacy. This interaction can lead to enhanced efficacy, reduced doses of each drug, and potentially fewer side effects compared to using a single drug.

Combination Drugs: New and Improved Pharmaceuticals

Fixed-dose combination drugs (FDCs) are medicines that comprises two or more active pharmaceutical ingredients combined in a single dosage form. Developers may leverage existing data generated for each individual drug by other R&D companies and organisations over decades to develop improved pharmaceutical treatments.

Advantages of fixed dose combination drugs include:

- Enhanced efficacy: combining drugs with different mechanisms of action can lead to a more potent and synergistic therapeutic effect.
- Reduced side effects: combining drugs may allow for lower individual doses of each drug, minimising side effects.
- Broad spectrum of activity: combination drugs can be effective against a wider range of targets, pathogens, or disease processes.
- Optimised drug delivery: formulating multiple drugs in a single dosage form allows for more precise control over drug release and delivery. This can improve the pharmacokinetics and pharmacodynamics of the drugs, leading to better therapeutic outcomes.

Patent Cliff

AlgoraeOS: Generating Novel Drug Candidates

US$200 Billion per annum of revenue at risk to Big Pharma through to 2030

190 drugs, including 69 blockbusters exit patent protection before 2030

Top 10 big pharma have an average of **44% of revenues at risk**. Total sales in 2023 was $521 Billion

$152 Billion of M&A activity in 2023, the highest since 2019

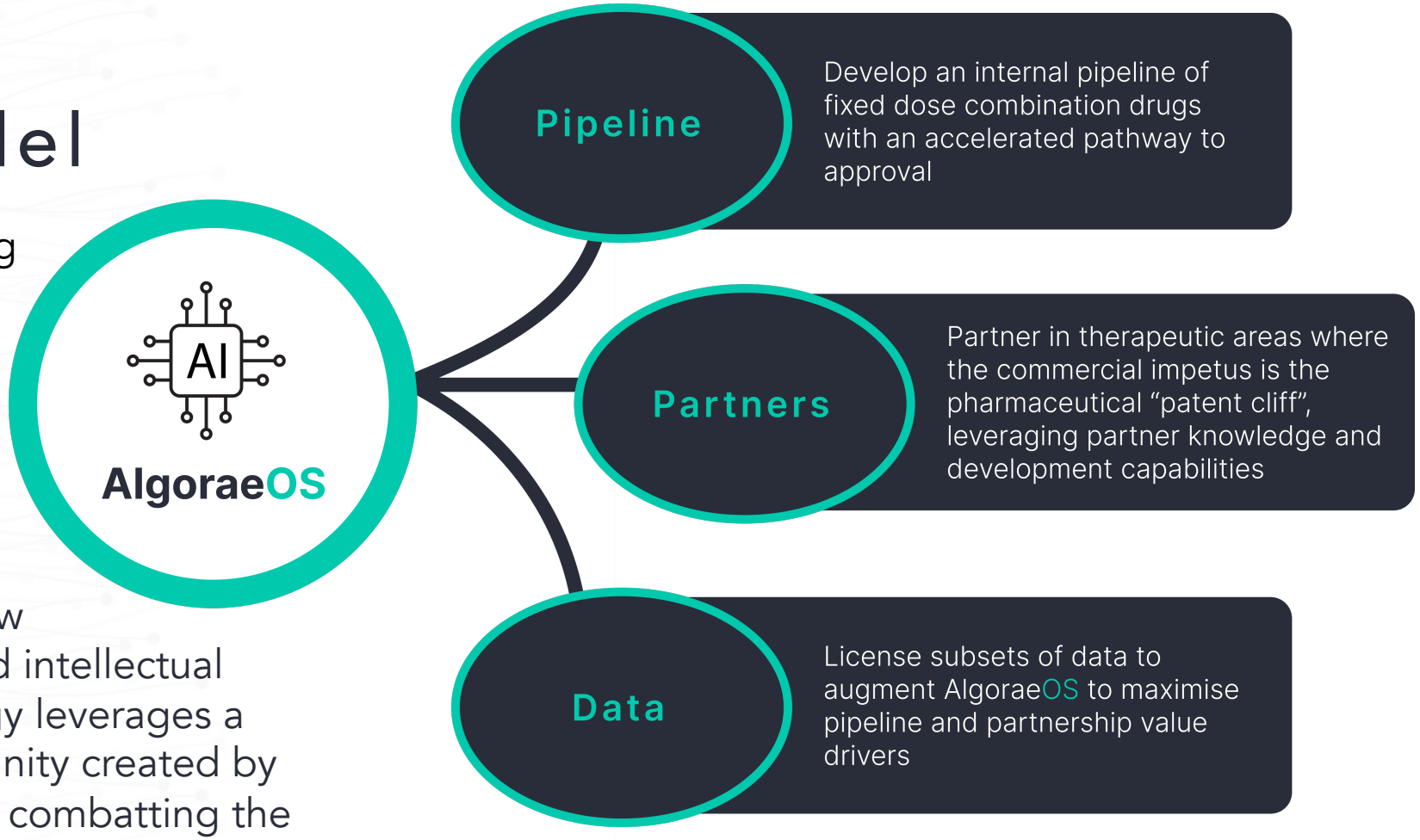
Big pharma hold approx. **$171 Billion of cash** reserves

Revenue growth has a 7 times greater impact on total shareholder returns (TSR) than margin growth

AlgoraeOS Business Model

Multiple routes for generating shareholder value, including high value partnering and licensing opportunities.

AlgoraeOS is designed to predict synergistic drug combinations that lead to new and improved treatments and intellectual property profiles. Our strategy leverages a significant economic opportunity created by big pharma's investment into combatting the "patent cliff", the expected lost revenues from patent expirations over major drugs.



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	$7.9M	$11.8M*
RXRX	Recursion Pharmaceuticals Inc	$1.90B	$2.83B
RLAY	Relay Therapeutics Inc	$1.22B	$1.82B
EXAI	Excientia Plc	$635M	$947M
SDGR	Schrodinger Inc	$1.45B	$2.16B
ABCL	AbCellera Biologics	$763M	$1.14B
LTRN	Lantern Pharma Inc	$42.9M	$64M

**prices as at 23 September 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.

AI Development Team

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Artificial Intelligence | PI

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Mr. Thomas Marsland (UNSW)
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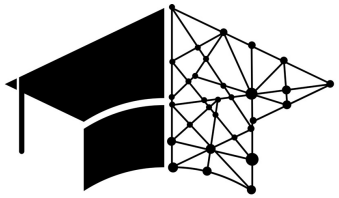
Artificial Intelligence

Mr. Bryan Lye (UNSW)
Artificial Intelligence

AlgoraeOS Project Partners

UNSW
AI Institute

UNSW
VAFAEE LAB
Biomedical AI Laboratory



Med-Tech.AI
Next Generation Graduates Program

uDASH
UNSW DATA SCIENCE HUB

NCI
AUSTRALIA

AI Model

Features, Architecture & Validation

AI Model

Features, Architecture & Validation

Four Customised Artificial Neural Network (ANN) Architectures

Features

- Cell Line: Gene Expression; Drug: Chemistry

Models for Predicting Drug Synergy Scores

- **ZIP (Zero Interaction Potency):** a mathematical model used in pharmacology to quantify & evaluate drug interactions.
- **BLISS**: an important independence model in drug discovery, allowing researchers to systematically evaluate the effects of drug combinations. Assumes that drugs work independently, and their effects can be combined to assess synergy.
- **LOEWE**: a particularly valuable tool in pharmacology for determining optimal drug dosages in combination therapies. Synergy occurs if the combined effect is more than expected from their additive effect.
- **HSA (Highest Single Agent)**: a valuable synergy model in early-stage drug development for quickly determining whether a combination of drugs performs better than the most effective drug used alone.

Better than or comparable to SOA

- Standard metrics (MSE or MAE)

Validation

- K-fold cross-validation
- Leave-drug-out CV (*de novo*)

AI Model: Features

Cell Lines: Gene Expression

Gene expression profiles

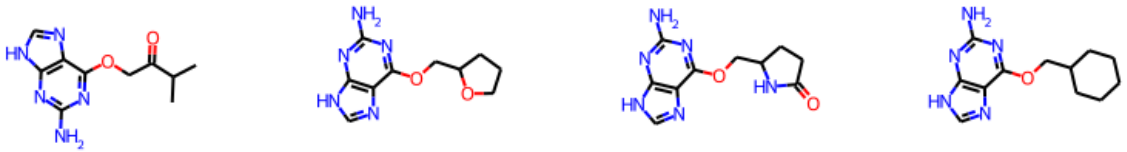
- DepMap repository
- Normalised, batch-corrected

Selected genes/features

- Entire transcriptome: ~20K
- LINCS Landmark genes: 978
- Targets of drugs: 1,162

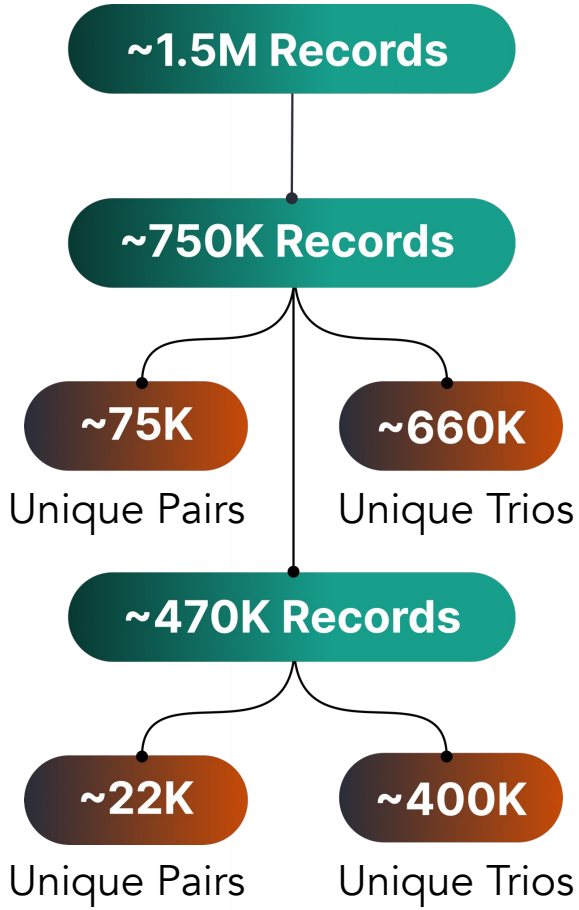
Drugs: Chemical Structure

- Molecular graph
- Mogan fingerprint (256)



AlgoraeOS Ver. 1 Statistics

Version 1 Dataset



Drugs	Cell Lines	Tissues
8370	2041	32

Dual-Therapy

Drugs	Cell Lines	Tissues
4328	295	17

Gene Expression Data

Drugs	Cell Lines	Tissues
3168	150 - 170	15

AI Model: ANN Architecture

Loewe Metric, 300K Training Data

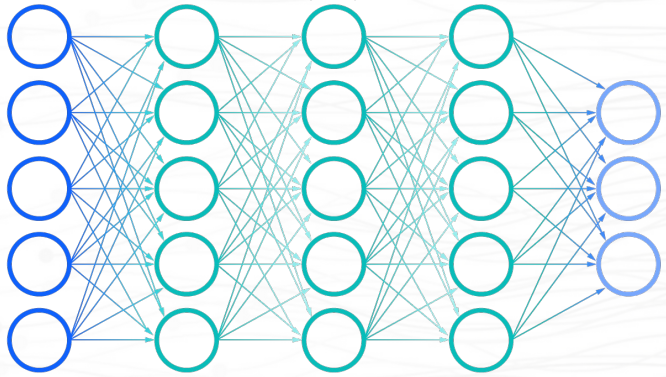
Feature Fusion

- ❖ Early fusion
- ❖ Late fusion

6-Layer Feedforward Neural Network

- ❖ Architecture:
  - Input layer: 6274 <256,256,1162>
  - 4 x Hidden layers:
    - 1st hidden layer: 2048
    - 2nd hidden layer: 1042
    - 3rd hidden layer: 128
    - 4th hidden layer: 16
  - Output layer: 1

} >15M Parameters



AI Model: Performance

Correlation Results (Actual Values vs Predicted Values)

5-fold Cross-Validation
(Bliss, HSA and ZIP Metrics)30K Training Data

Corr (Actual Values, Predicted Values) = 0.98	**BLISS**
Corr (Actual Values, Predicted Values) = 0.91	**HSA**
Corr (Actual Values, Predicted Values) = 0.91	**ZIP**

Correlation results measure how well the predicted values correlate with the actual synergy scores. Values close to 1.0 indicate a strong predictive model.

Drug Combination Prediction

In Silico Screening

Drug Combination Prediction

In Silico Screening

Prioritised Predictions

In Silico Screening

- Fixed dose combination (FDC) drugs
- Initial focus on cannabidiol combinations
- Subsequent versions to compare all registered drugs

Prioritisation Based On

- Prediction score
- Metric agnostic
- Cell line
- No reported drug-to-drug interaction (DDI)
- No reported toxicity (TOXRIC)

NEXT STEPS

Laboratory Testing

- Pre-clinical assessment of predicted FDC drugs
- Discussions commenced with laboratories

Intellectual Property

- IP assessment for commercial potential

Pipeline, Partnerships & Platform

- Develop internal pipeline of FDC drugs
- Partner in complex therapeutic areas, leveraging partner knowledge and development capabilities
- License subsets of platform to maximise value drivers

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