ASX Announcement

22 Feb 2022

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Emyria grows its novel MDMA-analogue library

Highlights:

- Emyria, and partner the University of Western Australia, have substantially expanded their proprietary MDMA analogue library
- 17 additional analogues have been synthesised, informed by the initial successful screening results received in December, 2021 and will now be screened; further with novel analogue synthesis ongoing
- Second MDMA-analogue patent family is being prepared for filing
- Preclinical animal models are in planning for high priority compounds
- A technique to isolate analogues into individual enantiomers has been developed, and once applied, will potentially double the size of the current library and provide more selective compounds
- Initial screens have not raised any safety concerns, and several novel compounds of interest with further therapeutic potential have been identified:
    - Second-generation MDMA for psychedelic assisted therapy
    - Neurological and non-neurological treatments

Emyria Limited (ASX: EMD) (Emyria or the Company), a clinical stage biotechnology company leveraging real-world patient data to develop treatments for unmet needs, is pleased to announce a substantial expansion of a proprietary MDMA analogue library being created with the University of Western Australia.

Emyria secured exclusive rights to a library of more than 100 novel MDMA analogues from the University of Western Australia creating a unique drug-discovery pipeline. (See ASX announcement 05 Aug 2021)

17 novel MDMA analogues have been uniquely synthesised and characterised, informed by the recent successful screening of the first batch of 68 compounds. *(See ASX announcement 08 December 2021).*

A method to separate racemic library compounds into distinct enantiomers (i.e two mirror image structures that can exist alone or together as molecules) **has been developed.** Emyria, with its partner UWA, are applying this process to its current library of compounds. Such resolution could effectively double the size of the entire MDMA analogue library; individual enantiomers also have reduced potential for off-target side effects.

A second batch of compounds is being prepared for shipping and screening this week, following the positive initial MDMA-analogue screening results received in December 2021. Initial results expected by the end of the current quarter

Emyria's Managing Director, Dr. Michael Winlo said: *"Emyria's program to develop unique and proprietary MDMA-analogues for psychedelic assisted therapies and other neuropsychiatric disorders is making substantial progress.*

Following our recent positive screening results, a further 17 unique compounds have already been developed with partner UWA, and are now ready for screening. Many more are within reach with robust synthetic methodology well established, and key starting materials in hand.

Furthermore, we have developed a method of separating our racemic analogues ("pairs of non-superimposable mirror image molecules") into distinct chemical entities. ("enantiomers") This is notable because it effectively doubles the size of our screenable library and major Regulatory Agencies, like the FDA, prefer chiral drugs to be evaluated as single enantiomers.

We are currently working with Professor Iain McGregor, an expert in characterising the effects of novel psychoactive substances, as well as A/Prof Matt Piggott and Prof Mat Martin-Iverson, to select animal screening and evaluation programs. A second patent family is being developed alongside this work.

I look forward to updating the market with further progress and results as we advance against our development milestones in the coming months."

The value of enantiomer separation:
In novel chemical synthesis, many new compounds are often initially prepared as racemates - that is, a 50:50 mixture of molecules that are identical in atomic constitution but differ in the three-dimensional arrangement of the atoms, and share a mirror image relationship (like your hands). The different 3D shape of the two enantiomers can lead to distinct biological activity. For this reason, major Regulatory Agencies, like the FDA, encourage the separation and evaluation of individual enantiomers. [1] MDMA is typically used (recreationally and in the clinic) as a racemate but research suggests one of the enantiomers, (R-)-MDMA, may have an improved therapeutic profile [2]. Therefore a valid method to resolve enantiomers greatly increases the number of our proprietary compounds with therapeutic potential.

66 of 68 compounds from the initial batch successfully passed screening with no evidence of interactions with one or more of "anti-targets" - that is, enzyme or cell receptor interactions associated with unwanted side effects - at the test concentrations. *(See ASX announcement 08 December 2021)*

Animal studies are now in planning with Professor Iain McGregor of the University of Sydney to help identify compounds with therapeutic potential (lead compounds).

A second patent family is being prepared with more expected to follow as further screening results arrive.

This announcement has been approved and authorised for release by the Board of Emyria Limited

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References:

[1]
https://www.fda.gov/regulatory-information/search-fda-guidance-documents/development-new-stereoisomeric-drug

[2] Pitts EG, Curry DW, Hampshire KN, Young MB, Howell LL. (±)-MDMA and its enantiomers: potential therapeutic advantages of R(-)-MDMA. Psychopharmacology (Berl). 2018 Feb;235(2):377-392. doi: 10.1007/s00213-017-4812-5. Epub 2017 Dec 16. PMID: 29248945.

About Emyria (www.emyria.com)

Emyria Limited is a data-backed clinical drug development and care delivery company focused on accelerating treatment development and improving patient care.

Emyria's Treatments target unmet needs and are focused on obtaining approval from major global regulators. Emyria's drug development programs are informed by insights generated from extensive analysis of **Emyria Data** - deep, ethically-sourced clinical evidence that is gathered with patients across Emyria's independent clinical services (**Emerald Clinics** - www.emeraldclinics.com.au)

Emyria Data provides deep treatment insights and is therefore a source of unique IP, strategically designed drug development and personalised care programs.

Cautionary Note on Forward-Looking Statements

Any statements in this press release about future expectations, plans and prospects for the Company, the company's strategy, future operations, and other statements containing the words "anticipate," "believe," "estimate," "expect," "intend," "may," "plan," "predict," "project," "target," "potential," "will," "would," "could," "should," "continue," and similar expressions, constitute forward-looking statements. Actual results may differ materially from those indicated by such forward-looking statements as a result of various important factors, including: the Company's ability to successfully develop its product candidates and timely complete its planned clinical programs and the Company's ability to obtain marketing approvals for its product candidates. In addition, the forward-looking statements included in this press release represents the Company's views as of the date hereof. The Company anticipates that subsequent events and developments will cause the Company's views to change. However, while the Company may elect to update these forward-looking statements at some point in the future, the Company specifically disclaims any obligation to do so. These forward-looking statements should not be relied upon as representing the Company's views as of any date subsequent to the date hereof.