Developing **Xanamem™** for Alzheimer's Dementia

Dr. Bill Ketelbey
CEO and Managing Director, Actinogen Medical

ASX Spotlight – Singapore, Hong Kong
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Alzheimer's - a significant unmet need

Alzheimer's disease is emerging as one of the most significant health challenges of our time

- A person develops AD almost every minute in the US[1]
- AD is the second leading cause of death in Australia behind ischaemic heart disease
- Estimated to increase to **US$1 trillion** by 2050, outstripping the cost of treating all other diseases
- Current treatments are of limited benefit. New and alternative treatments are desperately needed

Alzheimer's is the only cause of death among the top 10 in America that

CANNOT BE PREVENTED, CURED OR EVEN SLOWED.

1 in 3 Seniors

DIES WITH ALZHEIMER'S

or another dementia.

[1]Alzheimer's Association- Facts and Figures 2014) http://www.alz.org/downloads/Facts_Figures_2014.pdf?utm_content=bufferb49b5&utm_medium=social&utm_source=twitter.com&utm_campaign=buffer

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Xanamem™

Under development as a treatment for Alzheimer's disease and prodromal Alzheimer's/mild cognitive impairment

THOMSON REUTERS

recently named Xanamem™ as one of the top five drugs in Phase 1 development in the global pharmaceutical or biotech industries

- A novel mechanism of action blocking the production of cortisol (the stress hormone) in the brain
- Excess cortisol leads to reversible memory loss, amyloid plaques and neural death – hallmarks of AD
- Link between excess cortisol and cognitive decline identified in patients with Cushing's disease, Alzheimer's, depression, and in normal aging
- Early development of Xanamem™ funded by the Wellcome Trust - $25m over seven years
- Second Phase I study underway - data expected mid-2015
- Phase II to target early and prodromal AD in 2016.
- Expected to be used in combination with other AD therapies – marketed and in research
- Patent protection to 2031

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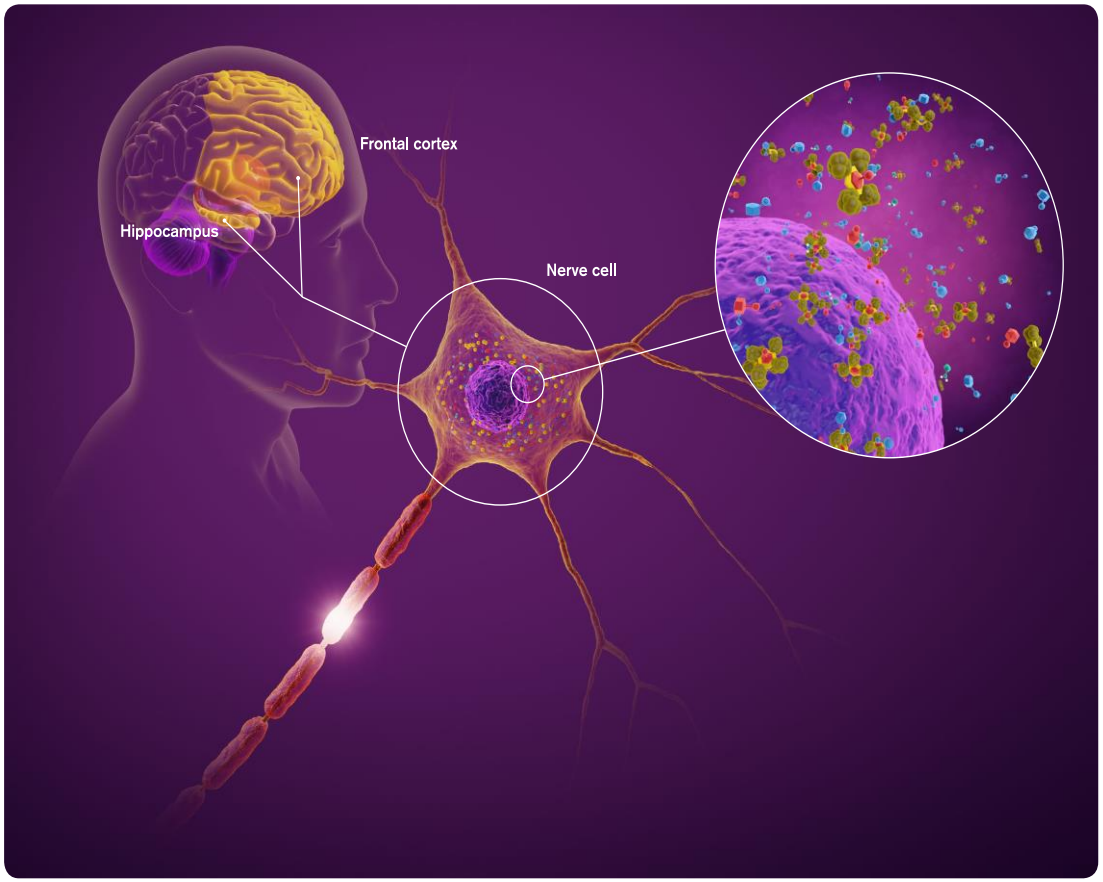
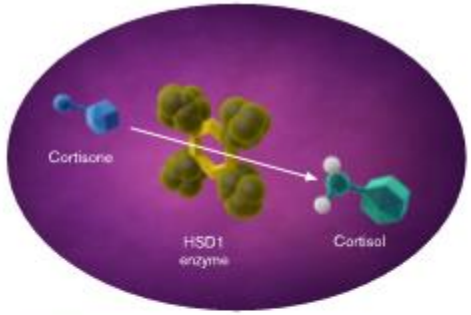
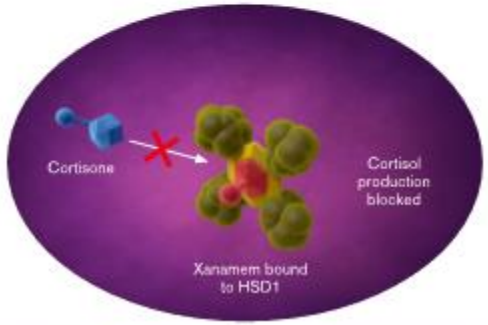
Mechanism of action - a key differentiator

Xanamem™'s novel mechanism of action sets it apart from other AD treatments





HSD1 enzyme actives cortisone producing cortisol



Xanamem™ binds to HSD1, blocking cortisol

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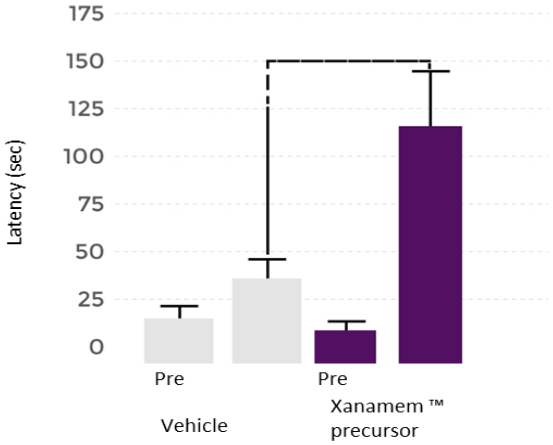
Pre-clinical data

Xanamem™- a highly selective HSD1 inhibitor in pre-clinical animal models.

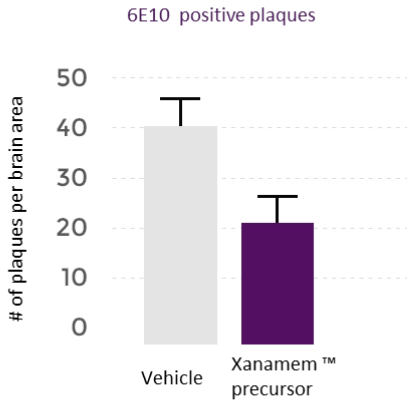
- Inhibition of HSD1 improves cognition in ageing and AD models
- Inhibition of HSD1 reduces Aβ plaque burden and plasma Aβ in AD models

Cognitive Enhancement with Xanamem™ in AD (Performance in Passive Avoidance Test, treatment for 28 days)



AD - progressive cognitive decline

Xanamem™ reduces number of Aβ plaques in AD brain (28 day treatment)



AD - associated with amyloid plaques in the brain

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Xanamem™ development milestones

EARLY-2015

Second Phase I trial

✓ **initiated**

Final pre-clinical study for IND

✓ **initiated**

MID-2015

Results for Phase I trial and final preclinical study

Establishment of Xanamem™ Clinical Advisory Board

✓ **completed**

2016

Phase II efficacy study in patients with AD and Mild Cognitive Impairment

Phase II study and protocol design

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Xanamem™ Clinical Advisory Board

Powerhouse Advisory Board to drive Xanamem™'s clinical development. World experts to help design the optimum Phase II efficacy trial for Xanamem™ in early and prodromal Alzheimer's patients

Prof. Craig Ritchie

- Professor of Psychiatry of Aging, University of Edinburgh, UK
- Senior Investigator in over 30 Alzheimer's clinical trials
- Published extensively on dementia

Prof. Colin Masters

- Professor, University of Melbourne, Australia
- Executive Director of Mental Health Research Institute
- Senior Deputy Director of the Florey Institute of Neuroscience and Mental Health

Prof. Jeffrey Cummings

- Professor of Medicine (Neurology), Cleveland Clinic, Ohio and Nevada, USA
- Chair of the Neurological Institute of Cleveland Clinic
- edited 39 books and published over 650 papers

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Xanamem™ pipeline

Xanamem™'s novel mechanism of action – blocking excess cortisol production – offers many additional possible applications relevant to diseases of the central nervous and endocrine/metabolic systems

- Potential development opportunities:
  - Cognitive dysfunction in schizophrenia, depression
  - PTSD (post traumatic stress disorder)
  - Diabetes – cognitive dysfunction and treatment
  - Cardiovascular disease
  - Post myocardial infarction
  - Obesity
  - Neuroprotection in metabolic disease

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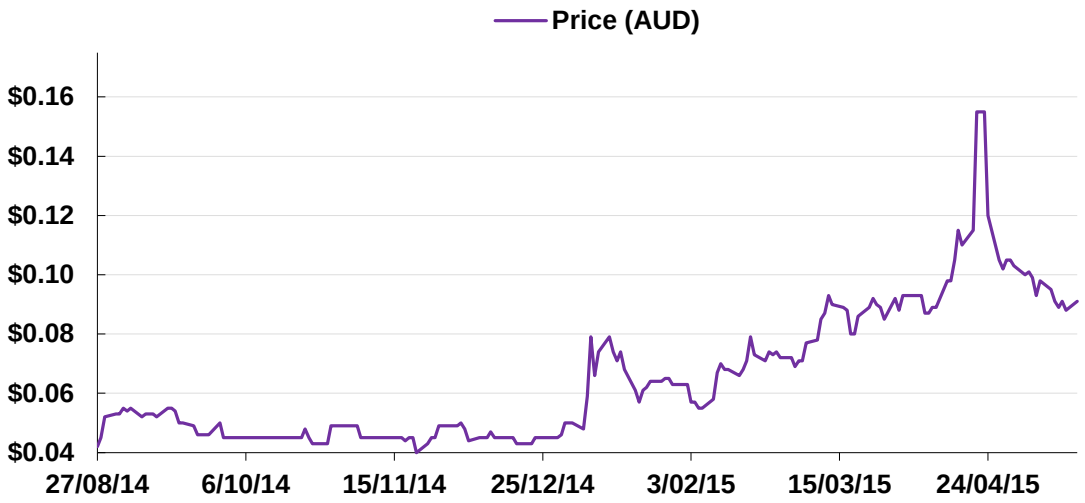
Financial profile



Key Corporate Data:	
Market Cap.*	~$51m
Share Price*	$0.083
Cash**	$10.4m
Shares on issue^	606.16m

*market cap and share price data as of May 19, 2015
**includes the proceeds from the Placement and SPP
^post Placement and SPP

Top Ten Shareholders	Percentage
Edinburgh Technology Fund Limited	7.94%
Tisia Nominees Pty Ltd	5.55%
JK Nominees Pty Ltd	5.44%
Mr Martin Rogers	4.12%
Warmbi SARL	3.61%
Webinvest Pty Ltd	3.54%
Denlin Nominees Pty Ltd	3.15%
Mr Jason Peterson & Mrs Lisa Peterson	3.05%
Oaktone Nominees Pty Ltd	2.43%
Dr John William Ketelbey	2.04%

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Investment highlights

- Xanamem™ a potential treatment for early and prodromal AD/mild cognitive impairment
- Significant unmet need in a huge and growing global market
- Novel mechanism of action, targeting the stress hormone cortisol – a key differentiator
- Hypothesis backed by good pre-clinical and clinical evidence. Early development funded by Wellcome Trust
- Final Phase I and preclinical results due mid-2015; funded through to completion of these studies
- IND filing and Phase II study planned for 2016
- Expected to be used in combination with other AD therapies – marketed and in research
- Patent protection to 2031
- Tight capital structure with top 20 shareholders owning more than 70%

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Board and Management

A highly experienced Board and Management team with a wealth of drug development, commercialisation and clinical research expertise

Martin Rogers
Chairman

- Biotechnology entrepreneur and executive
- Non-Executive Director of OncoSil (ASX:OSL), Chair of Rhinomed (ASX:RNO) and Non-Executive Director of Cellmid (ASX:CDY)

Bill Ketelbey
CEO

- MD with 30 years' experience in pharmaceuticals
- Senior roles at Pfizer, including development of Aricept™, the current leading AD treatment

Vince Ruffles
VP Clinical Research

- Extensive drug development experience over 20 years
- Responsible clinical development and regulatory strategy

Jason Loveridge
Non-Executive Director

- Former head of Nomura Life Sciences Fund in the UK with 28 out of 34 investment wins in investing in Biotech

Anton Uvarov
Non-Executive Director

- Healthcare and biotech equities analyst, formerly Citibank NY
- Executive Director of Sun Biomedical

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Contact details

Head Office	Level 10, 15-17 Young Street, Sydney, NSW, 2000
Telephone:	+61 (02) 8964 7401
Facsimile:	+61 (02) 8964 7588
Email:	bill.ketelbey@actinogen.com.au
Twitter:	@billketelbey

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Thank you and questions

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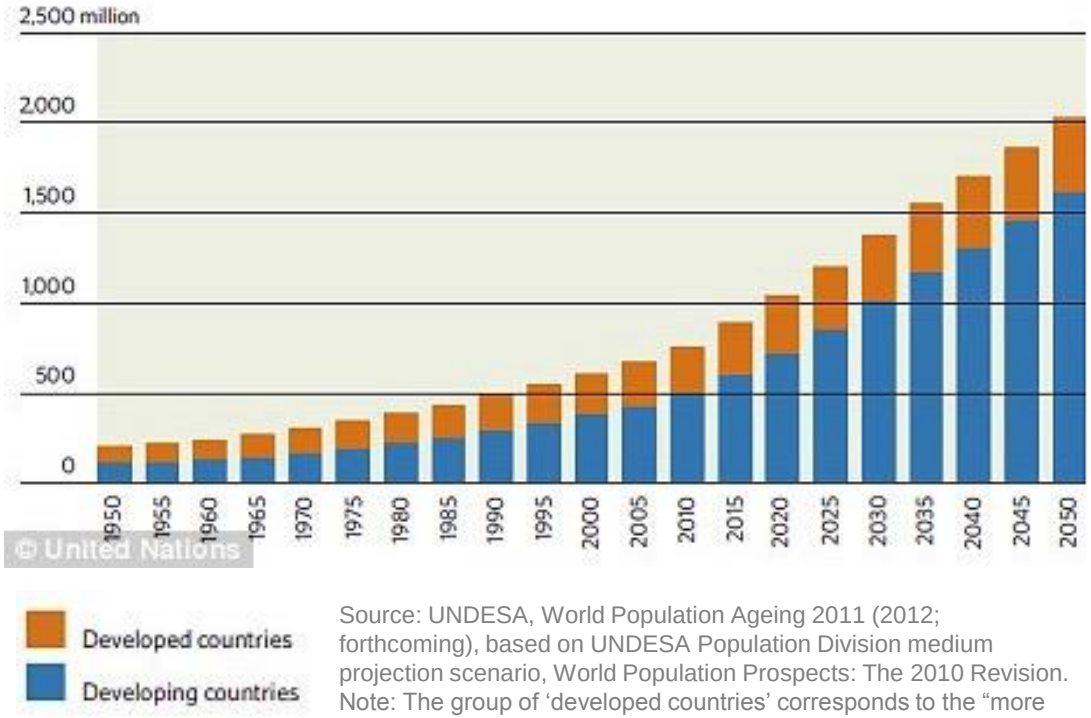
Appendix

AD consequence of a rapidly ageing population

Number of people aged 60 or over: World, developed and developing countries, 1950-2050



Source: UNDESA, World Population Ageing 2011 (2012; forthcoming), based on UNDESA Population Division medium projection scenario, World Population Prospects: The 2010 Revision. Note: The group of 'developed countries' corresponds to the "more developed regions" of the World Population Prospects: The 2010 Revision, and the group "developing countries" corresponds to the "less developed regions" of the same publication.

- Affects nearly 36 million patients worldwide
- In Australia, there are currently 320,000 AD sufferers – by 2050, this is expected to rise to close to 1 million.
- Commonly diagnosed in patients in their 60's, with 25% of 85 year olds and up to 50% of 95 year olds developing the disease
- AD is the second leading cause of death in Australia. (ABS)

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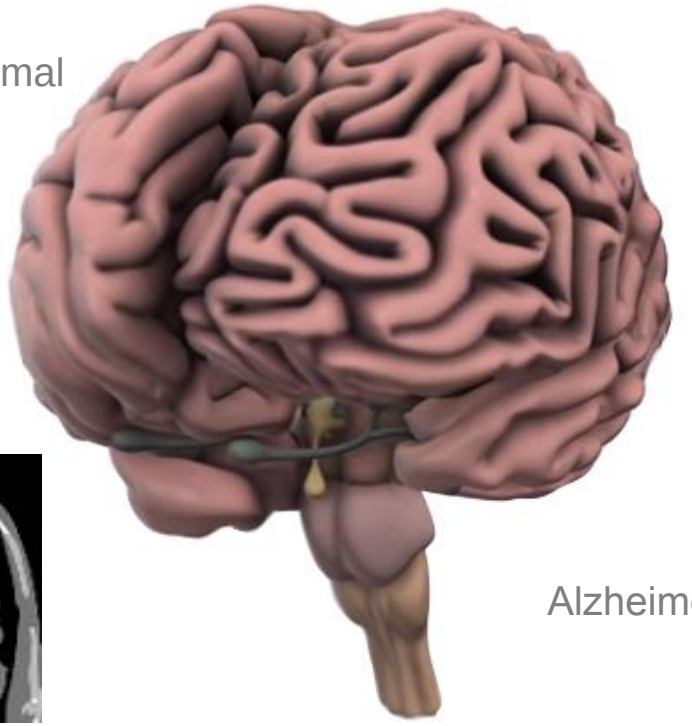
The hallmarks of AD

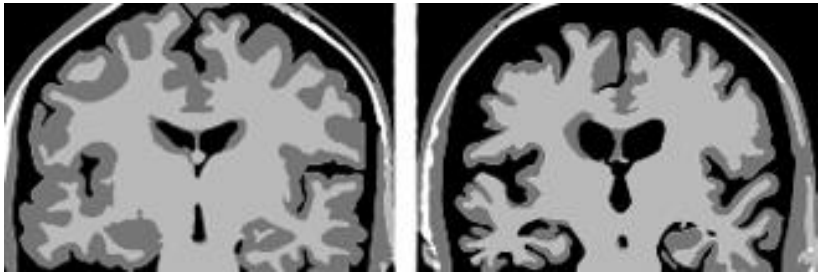
Memory, language and abstract reasoning impairment with

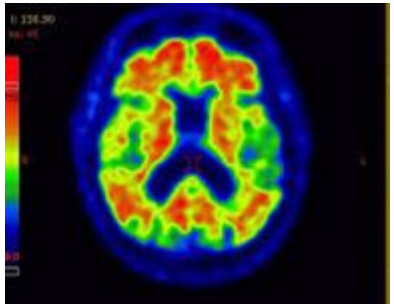
- brain shrinkage – particularly hippocampus and cortex
- neuronal loss
- amyloid plaques
- neurofibrillary tangles

Normal



Alzheimer's





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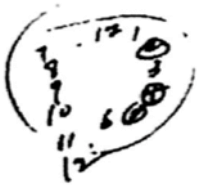
Signs of AD

Dementia is typically documented by decreasing performance on neuropsychological tests assessing memory, general knowledge, language, abstract reasoning and the ability to perform particular tasks requiring minimal skill:

‘ Please draw a clock. Put the hours on it and set the time at 2:45’

Score 10:
Normal

Score 8:
Mild Cognitive Impairment (numbers error and placement of hands)



Score 4:
Moderate cognitive impairment

Score 2:
Severe cognitive impairment

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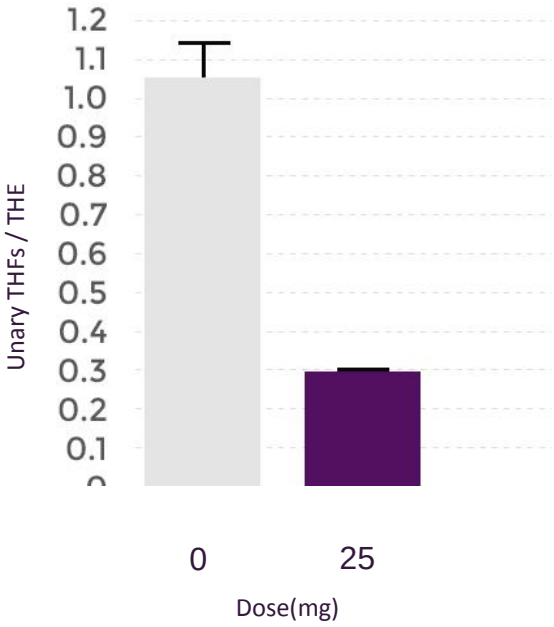
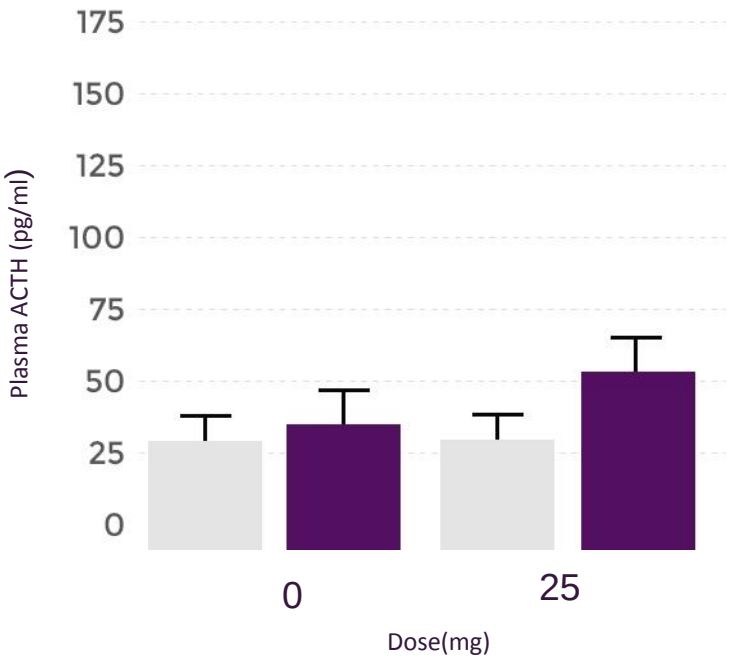
Xanamem™ Phase I SAD study

Average 24h Liver Inhibition



Plasma ACTH



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Clinical trials overview

Second Phase 1 study in healthy volunteers underway

- Trial conducted at Linear Clinical Research, Sir Charles Gairdner Hospital Perth, Western Australia.
- 40 healthy volunteers enrolled across 3 studies
- First study to confirm how the body absorbs and metabolises Xanamem™ and the optimal dose - **completed**
- Two follow-on studies:
  - Fast-fed study in a cohort of 12 patients – **underway with results in July**
  - Central nervous system pharmacokinetics of Xanamem™ in participants
  - Trial on-time and on-budget. Results expected by mid 2015

Linear Clinical Research Limited

Phase II efficacy and safety study in patients with early and prodromal AD/ mild cognitive impairment. On track to start in 2016 in US, Australia and UK

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