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Investment Note

Healthcare Sector

7 May 2018

Actinogen Medical Ltd (ASX: ACW)

All eyes on Xanamem's Phase II trials…

Rating	**Speculative Buy**
Share Price (A$)	$0.043

Capital Structure

Shares on Issue (m)	750.2M
Market Cap (A$m)	33.0M

Board and Management

Dr. Geoff Brooke	Non-executive Chairman
Dr. Bill Ketelbey	CEO
Dr. Jason Loveridge	Non-Executive Director
Dr. George Morstyn	Non-Executive Director
Tamara Miller	Senior Director Clinical Development & Strategy
Vincent Ruffles	VP: Drug Development

Major Share Holders

Edinburgh Tech Fund	6.42%
JK Nominees Pty Ltd	5.33%
Henderson Family	3.71%
Webinvest Pty Ltd	3.51%
Jason Loveridge	2.92%
Sarl Warambi	2.92%
Bannaby Inv Pty Ltd	2.78%

Summary

We recently had a one-on-one call with the CEO of ACW Medical (ACW). Management gave us an overview of the organisation, current research and development (both mechanism of action and study design) of its drug candidate Xanamem. In our view, Phase II results to be released by Q2 2019 is a key date for the Company. In the interim, in our view other catalysts for a share price re-rating include: (1) the interim analysis on the first 50 evaluable patients on the trial (2) if ACW was able to form commercial partnership agreements with pharmaceutical companies; and or (3) if ACW can show that their drug candidate Xanamem has possible application to other indications such as diabetes.

- **Overview. Actinogen** Medical is an ASX-listed biotechnology company (ASX: ACW) focused on research and development of treatments for Alzheimer's disease and the cognitive decline associated with neurodegenerative diseases and metabolic diseases, like Type 2 diabetes. ACW's drug candidate Xanamem is designed to block the production of cortisol in the brain. By reducing cortisol in the brain, ACW believes Xanamem will be able to slow and possibly prevent the cognitive decline associated with Alzheimer's disease. ACW is currently undertaking a Phase II study XanADu, which is an efficacy and safety trial of Xanamem in patients with mild Alzheimer's disease. Recruitment and treatment of patients started in 2017, with full trial results expected by Q2 2019. An independent interim analysis of the first 50 evaluable patients is imminent. ACW's management team and scientific advisory board includes world-renowned Alzheimer's disease and dementia researchers, as well as industry specialists in drug design and clinical trial management.

We believe the following investment drivers are worth further consideration by investors:

- **# 1 An imminent interim analysis on the first 50 patients and full results by Q2 2019, for Phase II study, XanADu**, In 2016, ACW announced its Phase II study, XanADu, which aims to examine the efficacy and safety Xanamem in patients with mild AD. In terms of study design, according to ClinicalTrials.gov, XanADu is a double-blind, randomised, placebo-controlled study of 174 patients conducted at 20 sites across Australia, UK and USA. ACW began recruiting patients in 2017 and expects top-line results by Q2 2019. An interim analysis of XanADu is due for release in May/June 2018. The study is currently over half way through the recruitment process. ACW's successful capital raising in November 2017 means that its Phase II study is fully funded.

- **# 2 Possible application to other indications such as diabetes.** Separately, ACW believes that Xanamem could assist in the treatment of the cognitive decline associated with increased cortisol in several neurological and metabolic diseases, including Type 2 diabetes. Type 2 Diabetes is a chronic disease that affects over 422 million people globally. Current treatments in use control blood glucose levels but have no effect on preventing dementia. Interestingly, patients with diabetes, especially Type 2 diabetes have higher levels of cortisol and twice the risk of developing dementia. Drugs currently used in practice do not reduce cortisol levels. By inhibiting cortisol production, it is believed that cognition may improve for patients. ACW is in discussion with the University of Edinburgh for a Phase II trial of Xanamem in Diabetes Cognitive Impairment.

- **# 3 Strong management team, Actinogen Medical Board and Xanamem Clinical Advisory Board.** ACW's management team and scientific advisory board includes world-renowned Alzheimer's disease and dementia researchers, and industry specialists in drug design and clinical trial management.

Investment Thesis

ACW's valuation and share price will be driven by the following factors:

- Results by Q2 2019 for Phase II study, XanADu. Interim analysis of XanADu is due for release in May/June 2018. The study is currently over half way through the recruitment process.
- Possible application of Xanamem to other indications such as diabetes cognitive impairment.
- If ACW was able to form commercial partnership agreements with pharmaceutical companies.
- Strong management team and Xanamem Clinical Advisory Board.
- Successful capital raising in November 2017 ensured that Phase II of ACW's Alzheimer's development program is fully funded.

Key Risks

We see the following key risks, but are not limited to:

- No material results/conclusions to studies and clinical trials.
- ACW remains loss making and hence a speculative investment. Further equity raising may be required if the Phase II trial are successful (which is a positive).

Company Description

Actinogen Medical is an ASX-listed biotechnology company **(ASX: ACW)** focused on research and development of treatments for Alzheimer's disease and the cognitive decline associated with neurodegenerative diseases and metabolic diseases, like Type 2 diabetes. ACW's drug candidate Xanamem is designed to block the production of cortisol in the brain. By reducing cortisol in the brain, ACW believes Xanamem will be able to slow and possibly prevent the cognitive decline associated with Alzheimer's disease. ACW is currently undertaking a Phase II study XanADu, which is an efficacy and safety trial of Xanamem in patients with mild Alzheimer's disease. Recruitment and treatment of patients started in 2017, with results expected by Q2 2019. ACW's management team and scientific advisory board includes world-renowned Alzheimer's disease and dementia researchers, as well as industry specialists in drug design and clinical trial management.

Key investment drivers

We believe the following investment drivers are worth further consideration by investors:

 # 1 Results in early 2019 for Phase II study, XanADu, In 2016, ACW announced its Phase II study, XanADu, which aims to examine the efficacy and safety Xanamem in patients with mild AD. In terms of study design, according to ClinicalTrials.gov, XanADu is a double-blind, randomised, placebo-controlled study of 174 patients conducted at 20 sites across Australia, UK and USA. ACW began recruiting patients in 2017 and expects top-line results by Q2 2019.

#2 ACW's Alzheimer's Phase II study is well capitalised following its November 2017 raising. In November 2017, ACW completed a private placement of 132 million ordinary shares at a price of $0.04 per share, to raise gross proceeds of $5.28 million. The placement was subscribed to by sophisticated investors. ACW raised $3.66 million through the issue of 91.5 million shares (Tranche 1 placement) under its 15% placement capacity on 8 December 2017. The issue of the additional 40.5 million shares (Tranche 2 placement) raised $1.62 million. All placement shares were entitled to free options on 1:2 basis, exercisable at $0.06 each on or before 31 March 2019 (placement options).

 # 3 Possible application of Xanamem to other indications such as diabetes. Separately, ACW believes that Xanamem could assist in the treatment of the cognitive decline associated with increased cortisol in a number of neurological and metabolic diseases, including Type 2 diabetes. Type 2 Diabetes is a chronic disease that affects over 422 million people globally. Current treatments in use control blood glucose levels but have no effect on preventing dementia. Interestingly, patients with diabetes, especially Type 2 diabetes have higher levels of cortisol and twice the risk of developing dementia. Drugs currently used in practice do not reduce cortisol levels. By inhibiting cortisol production, it is believed that cognition may improve for patients. ACW is in discussion the University of Edinburgh for a Phase II trial of Xanamem in Diabetes Cognitive Impairment

 # 4 Strong management team and Xanamem Clinical Advisory Board. ACW's management team and scientific advisory board includes world-renowned Alzheimer's disease and dementia researchers, and industry specialists in drug design and clinical trial management. Key members of the Xanamem Clinical Advisory Board include **(1) Professor Craig Ritchie (Chair),** a leading authority on dementia and has been a senior investigator on more than 30 drug trials; **(2) Professor Colin Masters (AO),** a leading researcher in AD and other neurodegenerative diseases with a career spaning over 35 years; and **(3) Professor Jeffrey Cummings,** a leader in clinical trials and developing new therapies for brain diseases. Professor Cummings contribution to Alzheimer's disease research has been recognized through the Henderson Award of the American Geriatrics Society (2006), the Research Award of the John Douglas French Alzheimer's Research Foundation (2008), and the Ronald and Nancy Reagan Research Award of the national Alzheimer's Association (2008). In 2010, he was honoured by the American Association of Geriatric Psychiatry with their Distinguished Scientist Award.

Actinogen Medical (ACW) Overview…

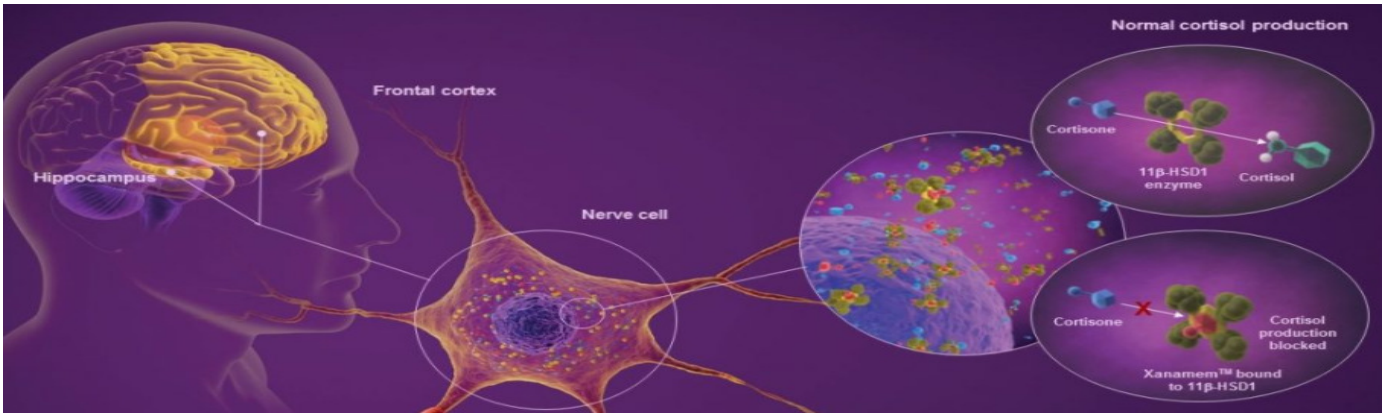
Actinogen Medical is an ASX-listed biotech company **(ASX: ACW)** focused on research and development of treatments for Alzheimer's disease and the cognitive decline associated with neurodegenerative diseases and metabolic diseases, like Type 2 diabetes. ACW's drug candidate Xanamem is designed to block the production of cortisol in the brain. By reducing cortisol in the brain, ACW believes Xanamem will be able to slow and possibly prevent the cognitive decline associated with Alzheimer's disease. ACW is currently undertaking a Phase II study XanADu, which is an efficacy and safety trial of Xanamem in patients with mild Alzheimer's disease. Recruitment and treatment of patients started in 2017, with an interim analysis imminent and full results expected

by Q2 2019. ACW's management team and scientific advisory board includes world-renowned Alzheimer's disease and dementia researchers, as well as industry specialists in drug design and clinical trial management.

ACW pre-clinical trials and Phase I. According to ACW's management, in preclinical studies, using a mouse model of Alzheimer's disease, *"Xanamem was found to be effective in improving cognitive function and in clearing amyloid plaques from the brain. The improved cognitive function was observed after only 4 weeks of treatment and was maintained for at least 41 weeks".* ACW has conducted all necessary studies confirming Xanamem has an acceptable safety profile to proceed into Phase II. Importantly, the studies confirmed that Xanamem can cross the blood-brain-barrier in appropriate concentrations to inhibit production of cortisol in the hippocampus and frontal cortex of the brain (the primary site of action).

How Xanamem works? Independent research studies have shown that patients with AD have persistently high levels of the stress hormone, cortisol. Persistently raised cortisol is toxic to brain and particularly to the hippocampus and the frontal cortex, the areas of the brain associated with recent memory and behaviour. In terms of mechanism of action, Xanamem blocks the activity of 11β-HSD1, the enzyme that converts inactive cortisone into its active form, cortisol in the brain. By inhibiting or blocking this enzyme, the amount of cortisol in the brain is reduced and hence theoretically, cognitive decline should decrease. This could reflect an overall slowing or even prevention of AD.

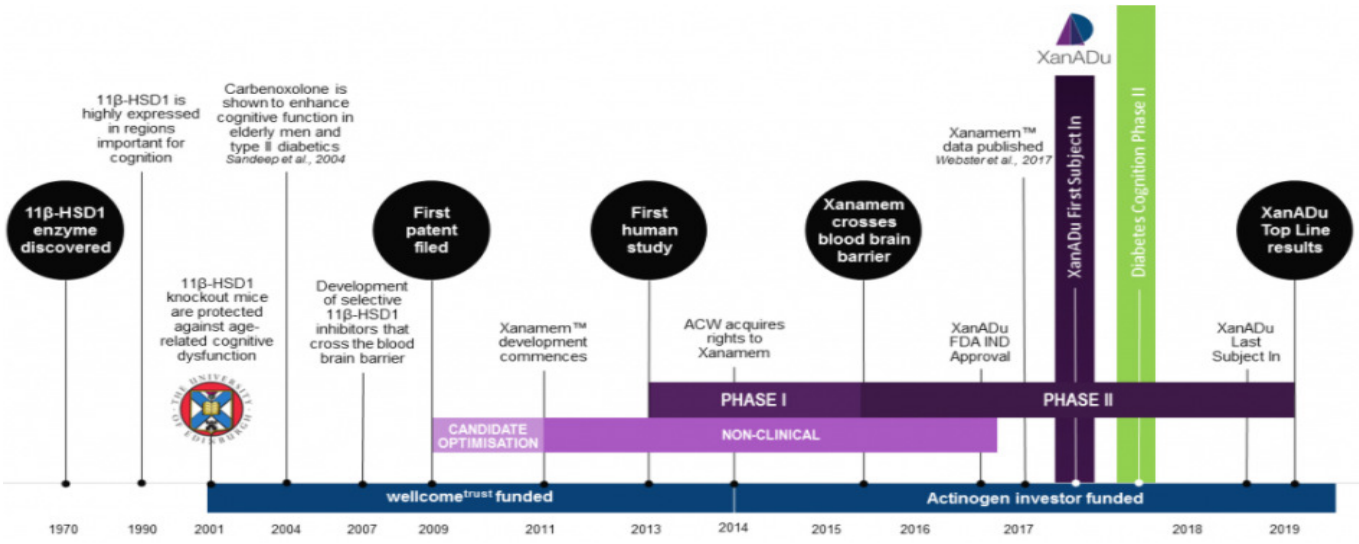
Figure 1: Xanamem mechanism of action



Source: Company

Phase II – Q2 2019 is a key date. In 2016, ACW announced its Phase II study, XanADu, which aims to examine the efficacy and safety Xanamem in patients with mild AD. In terms of study design, according to ClinicalTrials.gov, XanADu is a double-blind, randomised, placebo-controlled study of 174 patients conducted at 20 sites across Australia, UK and USA. ACW began recruiting patients in 2017 and expects top-line results by Q2 2019. An interim analysis will be undertaken by an independent Data Safety Monitoring Board in May/June 2019

Figure 2: Time frames – release of Phase II trial results in early 2019 is a key catalyst



Source: Company

Other indications – Diabetes. Separately, ACW believes that Xanamem could assist in the treatment of the cognitive decline associated with increased cortisol in a number of neurological and metabolic diseases, including Type 2 diabetes. Type 2 Diabetes is a chronic disease that affects over 422 million people globally. Current treatments in use control blood glucose levels but have no effect on preventing dementia. Interestingly, patients with diabetes, especially Type 2 diabetes have higher levels of cortisol and twice the risk of developing dementia. Drugs currently used in practice do not reduce cortisol levels. By inhibiting cortisol production, it is believed that cognition may improve for patients. ACW is in discussion with the University of Edinburgh for a Phase II trial of Xanamem in Diabetes Cognitive Impairment.

Figure 3: ACW's history of clinical trials

Trial Title	Drug Name	Indication	Stage	Status	Study Type	Sponsor
Phase I human positron emission tomography study of brain 11BHSD1 receptor occupancy by Xanamem	Xanamem	Healthy Volunteers	Phase I	Planned	Interventional	Actinogen Medical Ltd
Phase II Study of Xanamem in Diabetic Subjects with Cognitive Impairment	Xanamem	Diabetes Cognitive Impairment	Phase II	Planned	Interventional	Actinogen Medical Ltd
A Phase II Study to Assess the Safety, Tolerability and Efficacy of Xanamem in Subjects with Mild Dementia Due to AD (XanADu)	Xanamem	Mild Cognitive Impairment (Dementia) Associated with Alzheimer's Disease	Phase II	Ongoing, recruiting	Interventional	Actinogen Medical Ltd
Phase I MAD, Fed-Fasted, CSF Study of oral UE2343 in Healthy Subjects	Xanamem (UE-2343)	Healthy volunteers	Phase I	Completed	Interventional	Actinogen Medical Ltd
A Phase I SAD Study of Oral UE2343 in Healthy Subjects	Xanamem (UE-2343)	Healthy volunteers	Phase I	Completed	Interventional	University of Edinburgh

Source: Company; ClinicalTrials.gov

ACW's Alzheimer's Phase II study is well capitalised following raising. In November 2017, ACW completed a private placement of 132 million ordinary shares at a price of $0.04 per share, to raise gross proceeds of $5.28 million. The placement was subscribed to by sophisticated investors. ACW raised $3.66 million through the issue of 91.5 million shares (Tranche 1 placement) under its 15% placement capacity on 8 December 2017. The issue of the additional 40.5 million shares (Tranche 2 placement) raised $1.62 million. All placement shares were entitled to free options on 1:2 basis, exercisable at $0.06 each on or before 31 March 2019 (placement options).

Alzheimer's disease (AD) Overview…

Alzheimer's disease - overview. Dementia is the umbrella term for several diseases which are often characterised by deterioration in cognition and memory, as well as impairment in bodily functions. The most common form of dementia is Alzheimer's disease (AD). AD is a progressive and fatal neurodegenerative disease and is estimated to comprise 60-80% of total dementia cases. Those with Alzheimer's related dementia are said to have Dementia of the Alzheimer Type (DAT). Typically, the first presenting symptoms of AD are lapses in memory and sleep disturbances, which eventually progress to persistent memory difficulties, as well as complete inability to process language. In the more severe stages, permanent observation is often required, either by a family member or home-care professional. As their status deteriorates, patients with AD and their carers experience a drastic reduction in quality of life (QOL).

Most patients usually develop AD after the age of 65, however 2-5% of patients develop AD in their 40's or 50's, and this is referred to as early-onset AD. Of those with early-onset AD, over 50% have a predisposition to the disease due to inherited gene mutations; children of patients with early-onset AD have a 50% risk of developing AD themselves (Sager et al., 2005).

Dementia has been identified as a global health priority due to its significance in size, costs, and impact. In the United States, the overall costs of AD were estimated to be ~$259bn in 2017, 68% ($175bn) of which was funded by Medicaid or Medicare. Going forward, government spending on AD is expected to surge across the seven major markets (7MM: US, France, Germany, Italy, Spain, UK, and Japan) due to the aging population.

Prevalence of AD. In the 7MM, the US had the highest prevalence of AD, accounting for 35.79% of total cases, with 3,795,115 cases in 2016. The 5 European nations of the 7MM had 3,339,577 cases in total (31.49% of total), while Japan had 3,470,064 of total cases, accounting for 32.72%. Across the 7MM, the total prevalent cases of AD are forecasted to increase 29.8% from 10,604,756 in 2016 to 13,759,916 by 2026, with an annual growth rate (CAGR) of 2.98%.

Figure 4: Total Prevalent Cases of AD, Both Sexes, Ages ≥60 Years, Selected Years 2016–2026

Market	2016	2018	2020	2022	2024	2026	CAGR (%)
US	3,795,115	3,973,092	4,167,209	4,385,821	4,653,400	4,892,576	2.89%
France	672,151	694,455	716,469	743,795	775,479	806,032	1.99%
Germany	883,542	916,903	953,347	981,621	1,015,056	1,054,711	1.94%
Italy	674,486	697,364	721,368	744,866	769,753	793,812	1.77%
Spain	560,713	582,763	606,468	631,388	656,130	681,498	2.15%
UK	548,685	567,513	589,373	617,133	647,323	673,906	2.28%
Japan	3,470,064	3,754,186	4,011,414	4,290,500	4,585,612	4,857,383	4.00%
5EU	**3,339,577**	**3,458,998**	**3,587,025**	**3,718,803**	**3,863,741**	**4,009,959**	**2.01%**
7MM	**10,604,756**	**11,186,276**	**11,765,648**	**12,395,124**	**13,102,753**	**13,759,918**	**2.98%**

Source: GlobalData
5EU = France, Germany, Italy, Spain, and UK; 7MM = US, 5EU, Japan

AD market is expected to see double-digit sales growth out to 2026. Per GlobalData, from 2016-2026, the AD market will grow significantly and see the introduction of 20 new therapies, a portion of which may have the potential to modify the underlying causes of AD. This growth of the AD treatment market will be driven by disease-modifying therapies (DMTs), including passive immunotherapies (such as aducanumab, gantenerumab, and crenezumab) and are expected to see strong demand in the 7MM. Novel symptomatic therapies are also expected to be used more routinely in care for AD patients.

GlobalData estimates that 2016 sales in the AD market reached $2.9bn in the 7MM, and forecasts for sales across these markets to reach $14.8bn by 2026, which implies a compound annual growth rate (CAGR) of 17.5% over 10 years.

Current treatments. In Figure 5, we highlight current treatments for AD. Significant efforts have been expended to develop a new treatment, as existing pharmacologic management only provides a temporary improvement in symptoms and will not cure AD nor prevent it from worsening. As AD is multifarious, with vague aetiologies, it is unlikely that one single approach or treatment will be able to cure it. Without treatments that effectively cure the disease, the development of a more effective pharmacologic approach than is available currently is an area of significant opportunity.

Figure 5: Leading Therapies in AD

ChEIs	Brand (Company)	US Launch	5EU Launch	Japan Launch
Donepezil	Aricept (Eisai)	1996	1997	1999
Rivastigmine	Exelon (Novartis)	2000	1998	2011
Galantamine	Razadyne (Janssen)	2001	2000	2011
NMDA-R Antagonist				
Memantine	Namenda (Allergan)	2003	2002	2011
Memantine ER	Namenda XR (Allergan)	2013	N/A	N/A
NMDA-R Antagonist + ChEI Combination				
Memantine/donepezil	Namzaric (Allergan/Adamas)	2016	N/A	N/A

Source: GlobalData
5EU = France, Germany, Italy, Spain, UK.

Allergan, Biogen, and Roche are expected to lead the AD market in 2026. Four products currently dominate the AD market - Eisai/Pfizer's Aricept (donepezil hydrochloride), Novartis' Exelon/Exelon Patch (rivastigmine), Janssen's Razadyne (galantamine), and Allergan/Lundbeck/Merz's Namenda (memantine hydrochloride), which all provide moderate improvement in symptoms. However, these products have either reached or are nearing patent expiry, and so many players in the industry are actively pursuing new treatments to meet the significant unsatisfied need in the AD market.

Alzheimer's disease clinical trials. The data below shows the clinical trials by phase and the major sponsors/companies undertaking these trials. There are a significant number of Phase II, Phase I and pre-clinical studies.

Figure 6: Current Phase II and Phase III clinical trials in AD

Phase of Development	Company	Product
	AB Science	Masitinib
	Avanir	Nuedexta (dextromethorphan + quinidine)
PHASE III	Eli Lilly	Solanezumab
	Enzymotec	Vayacog
	Merck	Suvorexant
	AbbVie	AADvac-1
	AbbVie	ABBV-8E12
	Acadia	pimavanserin tartrate
	Actinogen Medical	**Xanamem (UE-2343)**
	Allergan	CPC-201
	Ausio Pharmaceuticals	S-equol
	Boehringer Ingelheim	BI-409306
	Charsire Biotechnology Corp	CSTC-1
	Eisai	BAN-2401
	Eisai	Lemborexant
	Eli Lilly	LY-3202626
	Glovia Co	Ferulic acid
	Institute of Community Life Sciences Co Ltd	probiotic
PHASE II	Lupin	LND-101001
	Mediti Pharma Inc	MP-101
	Metabolic Therapy Inc	chromium chloride
	Metabolic Therapy Inc	magnesium sulfate
	Nature Cell	AstroStem
	Neurim Pharmaceuticals	piromelatine
	Neurotrope Bioscience Inc	Bryostatin-1
	Orion Oyj	ORM-12741
	PharmatrophiX	LM-11A31BHS
	Probiodrug AG	PQ-912
	QR Pharma	Posiphen
	Suven Life Sciences	SUVN-502
	T3D Therapeutics	T-3D959
	Toyama Chemical	T-817MA

Source: GlobalData

Experienced Board of Directors, Management Team and Scientific Advisory Board…

ACW's board of directors, management team and scientific advisory board includes world-renowned Alzheimer's disease and dementia researchers, and industry specialists in drug design and clinical trial management.

Key members on the board include:

- **Dr Geoff Brooke (Chairman).** Dr Brooke is a clinically trained physician and is a medical graduate of the University of Melbourne and has an MBA from IMEDE (now IMD), Lausanne Switzerland. Dr Brooke also has over 30 years' experience in venture capital with a focus in the healthcare industry. In particular, his experience includes assisting high growth technology-based companies in areas such as development strategy, clinical trial design, fund raising, management structuring and investment exits. Dr Brooke was a founder/managing director of two venture capital firms,

Medvest Inc and GBS Venture Partners, which is viewed as one of the Asia Pacific region's premier healthcare venture investors.

- **Dr Bill Ketelbey (CEO/Managing Director).** Dr Ketelbey has more than 30 years' experience in the healthcare, biotech and pharmaceutical industries, and has previously held senior medical and management roles in the Asia Pacific Region with global pharmaceutical company Pfizer. Dr Ketelbey has a strong track record of drug commercialisation in the healthcare industry which involves successful registration, launch and commercialisation of numerous market leading medicines in a broad range of therapeutic areas, including in Alzheimer's Disease. More importantly, Dr Ketelbey previously led the local clinical development, and was involved in the commercialisation, of Aricept™ (donepezil), the current market-leading Alzheimer's disease therapy. Dr Ketelbey was a medical graduate from the University of the Witwatersrand and a Fellow of the Faculty of Pharmaceutical Physicians from the Royal College of Physicians in the UK. He also has an MBA from Macquarie Graduate School of Management and is a Graduate of the Australian Institute of Company Directors. Dr. Ketelbey is also a Non-Executive Director of the Westmead Institute of Medical Research.

- **Dr George Morstyn (Non-Executive Director).** Dr Morstyn has more than 25 years' experience in the biotechnology industry including as Senior Vice President of Development and Chief Medical Officer at Amgen. Dr Morstyn had overall responsibility globally for drug development in all therapeutic areas including neuroscience at Amgen and was a member of the Operating Committee. Many new products were approved and launched during Dr Morstyn's tenure. Prior to joining Amgen, Dr Morstyn was the principal investigator on the earliest clinical studies of the haemopoietic colony stimulating factors (CSFs). Since returning to Australia, Dr Morstyn has been a non-executive director of various for-profit and not for profit companies, including many biotechs. Dr Morstyn is a medical graduate of Monash University, and obtained a PhD at the Walter and Eliza Hall Institute and a FRACP in medical oncology following a fellowship at the National Cancer Institute in the US. He is currently on the Board of the CRC for Cancer Therapeutics, Symbio(Tokyo) and Biomedvic. He is a member of the Australian Institute of Company Directors and a Fellow of the Australian Academy of Technological Sciences and Engineering.

- **Dr Jason Loveridge (Non-Executive Director).** Dr Loveridge's career spans over 20 years in the biomedical technology industry and has extensive experience in developing clinical stage biotech companies. As a venture investor with JAFCO Nomura, Dr Loveridge participated and invested in the start-up of over 24 companies in Europe, the United States and Israel. Dr Loveridge is also a Non-Executive Director of ASX-listed Resonance Health (ASX: RHT) and CEO of German based biopharmaceutical company 4SC AG. Dr Loveridge holds a PhD in Biochemistry and is a fellow of the Royal Society of Medicine.

Key members of the Xanamem Clinical Advisory Board include:

- **Professor Craig Ritchie (Chair).** Professor Ritchie is a leading authority on dementia and has been a senior investigator on more than 30 drug trials. Professor Ritchie is the Chair of the Scottish Dementia Research Consortium, Professor of the Psychiatry of Ageing and Director of the Centre for Dementia Prevention at the University of Edinburgh, Associate Director of the Wellcome Trust Clinical Research Facility and Co Coordinator at IMI-EPAD.

- **Professor Colin Masters (AO).** Professor Masters' is a leading researcher in AD and other neurodegenerative diseases with a career spaning over 35 years. Professor Masters is the Laureate Professor of Dementia Research and Head, Neurodegeneration Division at The Florey Institute, The University of Melbourne and a consultant at the Royal Melbourne Hospital.

- **Professor Jeffrey Cummings.** Professor Cummings is a leader in clinical trials and developing new therapies for brain diseases. Professor Cummings contribution to Alzheimer's disease research has been recognized through the Henderson Award of the American Geriatrics Society (2006), the Research Award of the John Douglas French Alzheimer's Research Foundation (2008), and the Ronald and Nancy Reagan Research Award of the national Alzheimer's Association (2008). In 2010, he was honoured by the American Association of Geriatric Psychiatry with their Distinguished Scientist Award. Professor Cummings is the Camille and Larry Ruvo Chair of the Neurological Institute of Cleveland Clinic and Professor of Medicine (Neurology), Cleveland Clinic Lerner College of Medicine, Case Western Reserve University.

Key members of ACW's scientific development panel include:

- **Professor Alan Boyd.** Professor Boyd has a medical research and pharmaceutical industry career spanning 30-years, initially with Glaxo Group Research Ltd. He has held roles in global pharmaceutical companies, including Director of Clinical and Medical Affairs, Head of Medical Research, and Director of Research and Development. Professor Boyd has qualifications in Biochemistry and Medicine from the University of Birmingham and is also President of the Faculty of Pharmaceutical Medicine, Royal College of Physicians, UK.

- **Professor Brian Walker.** Brian Walker was appointed Pro Vice Chancellor for Research Strategy & Resources and Chair of Medicine at Newcastle University in September 2017. He is also an Honorary Professor in Edinburgh Medical School and an Affiliate Member of the BHF Centre for Cardiovascular Science, where his research group is based. He was previously Professor of Endocrinology, Head of the 200-strong University/British Heart Foundation Centre for Cardiovascular Science, Co-Director of the Edinburgh Clinical Academic Track programme, and Dean of Research for the College of Medicine & Veterinary Medicine at the University of Edinburgh. A clinical Endocrinologist, his research on steroid hormones in cardiovascular disease is supported by a Wellcome Trust Investigator award and has led to >230 original research papers (h-index >60). Professor Walker, along with Profs Jonathan Seckl and Scott Webster discovered, and developed Xanamem at the University of Edinburgh

- **Professor Scott Webster.** Prof Webster has over 17 years' experience in drug discovery industry. He has a successful track record in medicines discovery, leading programmes through preclinical discovery, clinical development and licensing. Professor Webster was pivotal in the discovery and development of Xanamem and other compounds currently in development for acute pancreatitis and multiple organ failure.

- **Professor Jonathan Seckl.** Professor Seckl is a clinical endocrinologist and former Wellcome Trust Senior Clinical Research Fellow. Professor Seckl's research focuses on glucocorticoid biology from 'cloning to clinic'. Professor Seckl has authored over 340 peer-reviewed scientific papers (with career citations >29,000, h=88). He has given over 200 invited lectures at international meetings including many plenary talks.

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