Actinogen Medical

Quarterly Newsletter

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My personal journey in Alzheimer's research

Brain Awareness Week has prompted me to reflect on my personal journey in seeking a cure for Alzheimer's Disease and the reasons why I joined Actinogen. Not many careers offer the chance to make a real difference to the world, and to have that opportunity more than once in a lifetime is an extraordinary privilege.

Over my medical research career, I've been involved with developing life-saving vaccines that have wiped out some of the most debilitating forms of meningitis, in developing breakthrough drugs for previously untreatable cancers, and cardiovascular medicines that have saved many, many lives. I've enjoyed the satisfaction of seeing the fruits of these endeavours go on to benefit patients, often in the most unexpected ways.

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Undoubtedly one of the most satisfying achievements though, was to be part of the team that developed Aricept. This was the first effective treatment for Alzheimer's disease, and it filled a huge unmet medical need. The joy and relief from the whole Alzheimer's community when Aricept was launched, from patients, carers, doctors and researchers was extraordinary. Until then very little could be offered to people diagnosed with Alzheimer's disease, which made the sense of achievement all the more satisfying.

Sadly however, as was recognised early on in the development of Aricept, the benefit achieved by the drug, and the three others that followed, was limited. While we had delivered a massive medical breakthrough, it was clear our goal of developing a sustainably effective treatment for Alzheimer's was a long way from complete.

Over the years since the development of Aricept, the pile of research failures in Alzheimer's disease has grown steadily – signifying that a new direction and new thinking were needed. That new thinking could be Xanamem.

Xanamem works by inhibiting cortisol production in the brain and chronically raised cortisol is now known to be associated with the development of Alzheimer's disease. So, when Actinogen Medical called to offer me a second chance at developing a truly novel drug for this devastating disease, the decision was easy. Who wouldn't want to be involved in what could be the next big breakthrough in treating Alzheimer's disease, and to be able to make a real difference to the world?

Facts about your brain:

Your brain is your most powerful organ, yet weighs only about 1.5kg and is the fattiest organ in your body.

There are over 1,000 diseases and disorders of the brain and most do not have a cure.

When you are thinking hard, your brain can use up to 50 percent of the fuel and oxygen your blood carries.

An adult brain contains about 100 billion nerve cells, or neurons, with branches that connect at more than 100 trillion points.

Having said all that, there is more we don't know about the brain than we do currently know.

Landmark research gives important clue to Alzheimer's treatment

Key Australian research may have provided an important clue to how best to develop a new treatment for Alzheimer's disease, at a time when a significant number of major drug trials have failed – particularly trials based on the more mainstream research approaches targeting beta-amyloid, tau or 5HT6.

A study funded by the CSIRO and a number of Australian universities, and titled the "Australian Imaging, Biomarker & Lifestyle Flagship Study of Ageing", or AIBL, found a strong correlation between raised cortisol in the blood of a healthy aged population and the subsequent development of Alzheimer's disease in these individuals.

When individuals also had a build-up of beta-amyloid protein plaques in the brain, their chances of developing Alzheimer's disease increased even further. The AIBL study (n=416) concluded that targeting ways to lower excess cortisol should be researched as a way to manage Alzheimer's disease in the elderly. The body produces cortisol during times of stress but consistently raised cortisol can be toxic to the brain, and is associated with the development of Alzheimer's disease.

This is why Actinogen Medical's XanADu program – the Phase II clinical trial for Xanamem™ in Alzheimer's disease – is keenly watched by the whole Alzheimer's community and the global pharmaceutical industry. (*Continue on next page*)

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Landmark research gives important clue to Alzheimer's treatment

XanADu is a study to assess the effectiveness of Xanamem™ in treating patients with Alzheimer's disease. Xanamem™ is designed specifically to block excess production of cortisol in the brain. XanADu is being conducted in Australia, the UK and USA and is about to start patient recruitment and treatment. Results are expected in two years.

"These [AIBL] study results demonstrate both the importance of understanding the pathological processes in Alzheimer's and the compelling need for new approaches to treatment," said Professor Jeffrey Cummings, M.D., Director, Cleveland Clinic Lou Ruvo Center for Brain Health, United States. "To my eyes, AIBL has provided the most important validation to date for controlling excess cortisol production in individuals at risk for developing dementia. Development of new therapies to inhibit cortisol can show us the impact of blocking this mechanism on [Alzheimer's] disease progression."

Professor Colin L. Masters, M.D., Co-Head, Neurodegeneration Division of the Florey Institute of Neuroscience and Mental Health, Melbourne, Australia, and co-author on the AIBL study stated, "while the presence of aberrant beta-amyloid and tau proteins in the brain, combined with neural death and cognitive decline, are recognized as the hallmarks of Alzheimer's disease, there is still substantial speculation as to the underlying triggers for the disease. We have demonstrated [in the AIBL study] that when levels of cortisol, the 'stress hormone,' become chronically raised in the blood, there is a strong correlation with the subsequent development of Alzheimer's disease. This finding, and the results showing synergy with the build-up of beta-amyloid plaques in the brain, suggests a compelling new area of research for the treatment of Alzheimer's."

Click on the link for more information on AIBL http://bit.ly/2agHhO7

Could Alzheimer's bankrupt Medicare?

Alzheimer's is an insidious and widespread disease but most people do not have an inkling of the true cost of the illness.

Alzheimer's disease now affects 50 million people worldwide and the numbers are doubling every 20 years. One-in-three people at 85 years will develop the disease and available health budgets cannot cope with managing this disease – it already costs US$250 billion annually in the US alone!

A report from CNN[1] speculates that Alzheimer's disease could send US Medicare to the wall as the disease already consumes one-in-five Medicare/Medicaid dollars, and this could increase to one-in-three in the next decade. If that happens, Alzheimer's disease will cause the collapse of Medicare and Medicaid – two government programs that provide medical and health services to specific groups in the US.

This isn't only a ticking financial time bomb for the world's largest economy. Alzheimer's disease is the biggest killer in the UK and second only to heart disease in Australia. Alzheimer's Australia estimates that the total costs of dementia in Australia will hit $18.7 billion in today's dollars by 2025, before surging to $36.8 billion in 2056[2].

To put these figures in perspective, the Australian government is forecasting total spending on Medicare to reach $26.3 billion in the current financial year.

Unless we find a way to effectively treat Alzheimer's disease, just as we have for nearly all other major diseases, it is only a matter of time before we see a news article about the prospect of Australian Medicare going bankrupt due to the impact of managing the disease.

[1] http://edition.cnn.com/2017/03/07/health/alzheimers-report-2017/
[2] https://www.fightdementia.org.au/statistics