

## Research in the News

### July 2019

1. New legislation, proposed for Western Australia, will deny people diagnosed with dementia the right to access voluntary euthanasia. "Assisted dying" will be limited to people who have decision-making capacity, with eligible conditions and where death is considered reasonably foreseeable within 12 months.  
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2. A study, conducted by researchers at the University of Edinburgh, focused on the connections between brain cells that facilitate the flow of chemicals and electrical signals. These signals are essential for brain health and the formation of memories. Using new technology which looked at detailed images of more than a million synapses, the researchers were able to discover that the synapses of people who had died with Alzheimer's contained clumps of not only amyloid beta, but also another protein, called Clusterin. Previously, proteins accumulating in synapses was unknown, due to the difficulty in studying them. The data will give scientists a new target for potential Alzheimer's treatments.  
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3. Using mouse models, scientists (studying immune responses against cancer) have identified a neurological pathway they've called LANDO (LC3-associated endocytosis). Located in microglial (immune) cells, LANDO helps to regulate inflammation and prevent the build-up of toxic proteins in the brain. The scientists claim activating LANDO appears to protect against neurodegenerative disease, while inhibiting it may boost the efficiency of cancer immunotherapy.  
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4. An online word memory test, launched in 2013 by a research team in the U.S, had, by August 2018, gathered the data from over 60,000 people across America, in an attempt to learn if memory is impacted early on, as much as four decades earlier than the onset of Alzheimer's. Participants aged between 18-65 were asked to recall a missing word from sets of linked words and also provide information on their health and family's health. Almost 5,000 participants who reported a family history of Alzheimer's, also provided blood or saliva samples which were tested for levels of the APOE protein, associated with increased risk of Alzheimer's. A clear link was discovered between having a family history of Alzheimer's and low memory test scores. The researchers

stress that the test is not a clinical diagnostic test for dementia, however it warrants further research and investigation.

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5. A new, non-invasive, cost-effective eye scan for detecting early signs of Alzheimer's disease has been developed by researchers in Melbourne. The team, from The Centre of Eye Research Australia (CERA), will begin clinical trials in August after receiving a \$600,000 philanthropic donation. The scan, which takes less than a second and uses advanced technology with coloured light to look for plaque at the back of the eye, and identify people at risk of Alzheimer's, before symptoms show.  
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6. Pharmaceutical giant Pfizer is under fire for deciding to withhold the results of testing it conducted with a rheumatoid arthritis medication that showed promise as an Alzheimer's treatment. Enbrel, a powerful anti-inflammatory drug, appeared to reduce the risk of Alzheimer's by 64 per cent, but Pfizer, despite urging from its own scientists, opted against further investigation, deeming the clinical trials it would require to be too expensive. Many experts, criticising Pfizer's decision, say the company should have published its findings and shared any results, enabling others in the scientific community to either continue investigating the drug or rule it out as a possible treatment.  
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7. Scientists from Massachusetts General Hospital have found that tau proteins accumulating in the brain may be facilitated by the ageing process itself. While it was already known that age plays a part in Alzheimer's disease, the reasons for this have remained unknown, due to the limitations of existing animal models. Introducing viral gene vectors\* that induce expression of either diseased or normal forms of human tau, and apply a fluorescent label to neurons that directly express tau, the researchers were able to differentiate them from neurons containing tau that has spread from adjacent cells, which probably reflects how Alzheimer's tau pathology spreads through the brain. The researchers hope that further investigation will determine which factors make an ageing brain more susceptible to tau spreading.  
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8. An educational event in Belfast showed participants (with and without cognitive impairment) what it might be like to be living with dementia and how it would affect their daily lives as they go about normal every day activities like shopping, banking and catching public transport. A fabricated "town" with shops, traffic lights and bus stops was created with the aim of replicating

situations that people living with dementia, and their carers, might find themselves in, and how they could be supported to live their best lives. Carers learn new information about available support, dementia-friendly events, and how to obtain assessments, as well as sharing their experiences with others who are in similar situations.

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9. Anecdotal reports of paradoxical lucidity (the phenomenon in which a person in the last stages of dementia suddenly exhibits “normal” behaviour, shortly before passing away) are the subject of research conducted by an interdisciplinary workgroup, led by Michigan Medicine’s George A. Mashour, M.D, Ph.D. The group hopes to investigate whether or not there might be a link between the unexplained lucidity and other near-death events, and if these indicate a possibly reversible component of dementia. The researchers also aim to raise awareness and help validate the experiences of caregivers.

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