

For immediate release:

Monash University uncovers secrets to 'super-agers' in world-first study

Monash University & Siemens Healthineers are uncovering the secrets to super-aging through a world-first technique of interpreting imaging data. Monash Research Fellow and project leader, Dr. Sharna Jamadar, is using two powerful medical imaging technologies to gain insight into neuronal activation and corresponding energy consumption of the brain within a single simultaneous experiment. Facilitated by the imaging technology, the researchers for the first time ever will be able to quantifiably measure an individual's 'cognitive reserve' - a parameter that has the potential to show how much capacity a person has to maintain healthy brain function.

The study aims to determine how healthy elderly people, or 'super-agers', biologically compensate for the effects of aging and maintain healthy brain function with their cognitive reserve. Outcomes of the study will assist the development of future strategies that ultimately support the elderly to live more successful and productive independent lives for longer.

Director of Monash Biomedical Imaging (MBI), Professor Gary Egan, and Dr. Jamadar have been working with Siemens Healthineers since the organisation was founded in 2010, to develop the new technique. By being able to simultaneously acquire BOLD fMRI and glucose consumption on their fully integrated MR-PET machine, the Siemens Biograph mMR, researchers can observe the metabolic and pathologic activity of the brain, providing a greater understanding of neural reaction to proteins and other stimulants.

By pioneering the quantitative exploration, Dr. Jamadar is looking to gain insight on how the study's candidates, which include elderly academics, have managed to maintain their level of cognitive function. The study will delve into the candidates' life exposures, with the aim of unveiling strategies which could facilitate super-aging in a wider pool of the population.

Dr. Jamadar, ARC DECRA Research Fellow, said "The development in new imaging technologies is helping us uncover the human brain with more precision and in more detail than ever before. We need to be able to prepare for an increasingly aging-population, to manage the impact this will have in the future."

David Brown, General Manager, Diagnostic of Siemens Healthineers, said “We’re excited to be working with Monash to help uncover the possibilities of delaying the decline in cognitive function. This is an issue that affects the entire human race, and is of particular relevance for Australia right now, so we’re proud to lead the way globally with Monash to pioneer better understanding of it.”

The advancement comes as Australia’s aging population continues to increase; with the number of Australians aged over 65 years expected to rise from 13% to 25% of the population by 2042. This continual increase, poses the risk of a heavy societal and fiscal burden due to age-related cognitive decline, and an increased demand for assisted living.

The concept of cognitive reserve explores aspects of life exposures over the adult lifespan (20-90 years) that people engage in, which aids in creating an energy reserve that ultimately helps to maintain healthy brain function for a longer period of time. Previous research in the field has qualitatively analysed the effects of education and other life experiences on the cognitive reserve, but has yet to provide a quantifiable measure of individuals’ cognitive reserve and unveil strategies, which have the potential to improve quality of life in the elderly.

Contact for journalists

Rachel Barry
Red Agency on behalf of Siemens Healthineers
rachel.barry@redagency.com.au
02 9963 7857 / +61 4 48 216 676

Sam Gallagher
Siemens Healthineers
sam.gallagher@siemens-healthineers.com
+61 428 249 545

About Monash Biomedical Imaging

Monash Biomedical Imaging (MBI) provides a full suite of world-class biomedical imaging equipment and expertise for preclinical and clinical research. MBI's state-of-the-art imaging facilities are used for interdisciplinary and multi-modal imaging research, allowing researchers to advance our understanding of human diseases to improve health outcomes.

Dr Sharna Jamadar ARC DECRA Research Fellow

Dr Jamadar is a Research Fellow at Monash University’s Biomedical Imaging and School of Psychological Sciences faculty. Her research at Monash has been focused on establishing and developing cognitive neuroscience research infrastructure and projects at the newly established Monash Biomedical Imaging (MBI) facility, particularly the simultaneous oculomotor – functional magnetic resonance imaging (fMRI) and oculomotor – electroencephalography (EEG)-fMRI infrastructure. She has previously won the young scientist award and has received a significant grant to fund the research method development of her project.

Siemens Healthineers is the separately managed healthcare business of Siemens AG enabling healthcare providers worldwide to meet their current challenges and to excel in their respective environments. A leader in medical technology, Siemens Healthineers is constantly innovating its portfolio of products and services in its core areas of diagnostic and therapeutic imaging and in laboratory diagnostics and molecular medicine.

Siemens Healthineers is also actively developing its digital health services and enterprise services. To help customers succeed in today’s dynamic healthcare marketplace, Siemens Healthineers is championing new business models that maximise opportunity and minimise risk for healthcare providers.