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NUS scientists develop blood test for Alzheimer's

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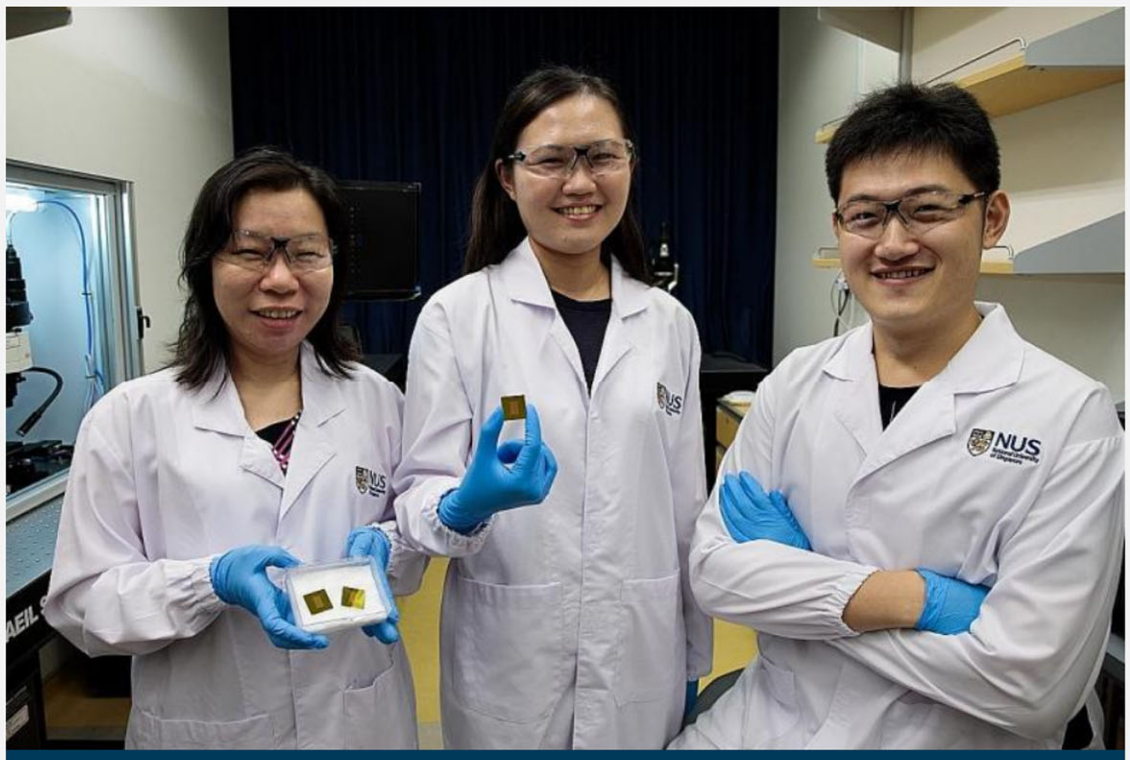
A new blood test for diagnosing Alzheimer's disease could be available within the next five years.

Researchers from the National University of Singapore (NUS) have come up with a test known as amplified plasmonic exosome (Apex) that can detect a molecule that indicates early-stage Alzheimer's disease, the most common cause of severe dementia.

The test is the first of its kind in the world and could potentially be used to diagnose the disease before clinical symptoms appear, said Dr Shao Huilin of the NUS Institute for Health Innovation & Technology (NUS iHealthtech).



(From left) Dr Shao Huilin, NUS doctoral students Carine Lim and Zhang Yan of the NUS research team . PHOTO: NATIONAL UNIVERSITY OF SINGAPORE

Dr Shao, who led the two-year-long study, said: "There is currently no good blood-based method to effectively screen and monitor Alzheimer's disease. New tests that are under investigation have either poor accuracy or low sensitivity."

Alzheimer's disease is usually detected at a late stage. Early detection could improve the success rate of disease-modifying therapies, she added.

The blood test costs $30, less than 1 per cent of the price of a positron emission tomography (PET) scan, the current "gold standard" for Alzheimer's disease detection.

Other alternatives such as clinical evaluation and neuropsychological assessments are subjective and effective only in detecting late-stage Alzheimer's disease, while cerebrospinal fluid tests require invasive and painful lumbar punctures.

CLINICAL TRIAL

The team of 12 researchers conducted a clinical trial involving 84 patients, including those who have been diagnosed with Alzheimer's disease, those with mild cognitive impairment and a control group comprising healthy individuals and patients diagnosed with other conditions such as vascular dementia.

Vascular dementia is a the second most common form of dementia after Alzheimer's disease. It results from impaired blood flow to the brain and can be caused by a stroke.

PET scans and the Apex blood test were conducted on all the participants.

Dr Shao said the results correlated "extremely well" and that the Apex system was able to accurately identify patients with Alzheimer's and cognitive impairment.

She added that the test was also able to differentiate them from healthy individuals and those with other neurodegenerative diseases.

The team is in discussions with potential industry partners to bring the product to the market, she said.