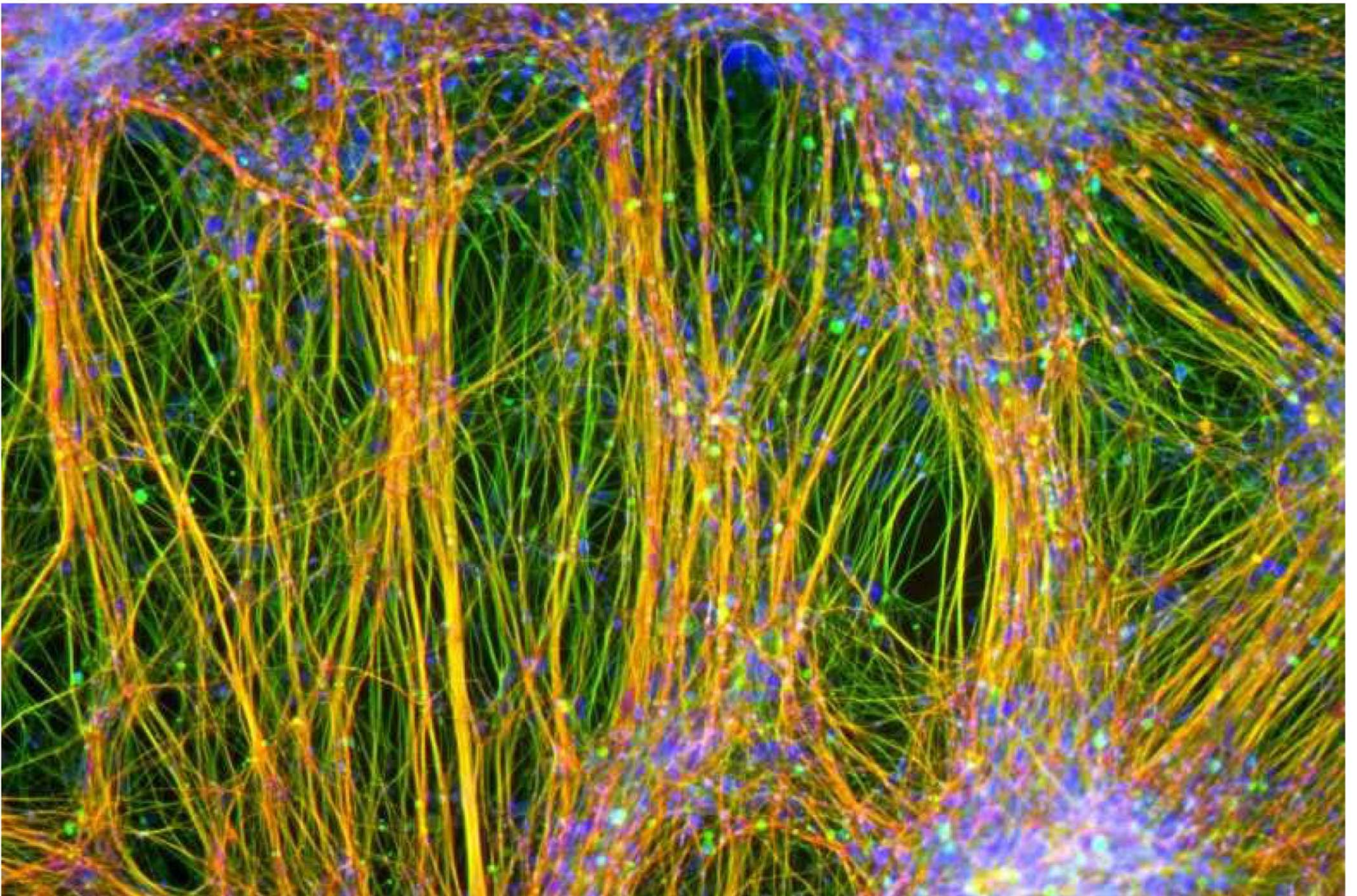


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Singapore scientists find way to mass produce neurons using human stem cells



Neurons generated from neural stem cells. PHOTO: STEM CELL REPORTS, MERTENS ET AL

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SINGAPORE- Local researchers have found a new way to mass produce nerve cells in the brain using human stem cells.

Being able to efficiently produce the neurons in such large quantities could help scientists to study many psychiatric and neurological disorders such as autism and schizophrenia, as well as to screen drugs more rapidly.

The team of scientists from Duke-NUS Medical School (Duke-NUS), A*Star's Genome Institute of Singapore and the National Neuroscience Institute, developed a new procedure to streamline the process of producing a type of neuron called GABAergic neurons (GNs) in the laboratory.

They identified genetic factors involved in GN development in the brain and then tried many different combinations of these factors, before successfully confirming that mature and functional human GNs were produced in the lab. This method is about two to three times faster than the 10 - 30 weeks required for other procedures.

GNs make up roughly 20 per cent of the human brain and they work with other neurons called excitatory neurons for normal brain function. Both neurons are responsible for human behaviour, emotions, and higher reasoning.

Impaired GNs contribute to the symptoms observed in many psychiatric disorders.

Scientists worldwide have been hard at work trying to produce a consistent supply of GNs, but have faced many challenges, said the organisations in a statement. Some of the limitations encountered include poor yield, and requiring a long time to generate the neurons.

"Our quick, efficient and easy way to mass produce GNs for lab use is a game changer for neuroscience and drug discovery," said Dr Shawn Je, Assistant Professor in the Neuroscience and Behavioural Disorders Programme at Duke-NUS, and senior author of the study.

"With increased recognition of the essential role of GNs in almost all neurological and psychiatric diseases, we envisage our new method to be widely used to advance research and drug screening."