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NTU eases out harvesting of healing factors

31 December 2019 | News

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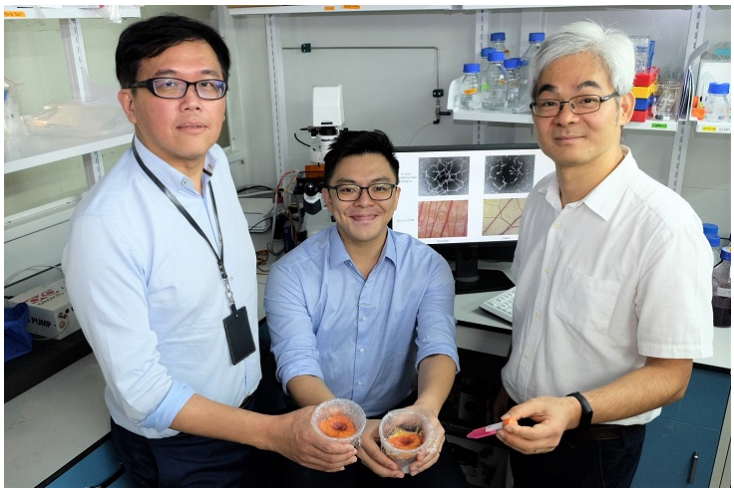

A research team at Nanyang Technological University, Singapore (NTU Singapore) has found an easier way to harvest healing factors – molecules that promote tissue growth and regeneration – from adult stem cells.

Presently, scientists 'pre-condition' adult stem cells to secrete healing factors by putting them in a low-oxygen chamber or by using biochemicals or genetic engineering.

However in lab experiments, the NTU team of materials scientists and biologists tried mimicking the physical conditions that cells find inside the body and grew a particular type of stem cell – Mesenchymal Stem Cells (MSCs) – on a softer surface than is normally used.

MSCs grown on the softer surface, known as hydrogel, increased their secretion of healing factors, known as the secretome, compared to normal growing surfaces.

This method of growing MCSs on hydrogel, a three-dimensional network of polymers with high water content, could potentially be scaled up for mass production of healing factors by biotech companies.

The team now plans to study in further detail why biomimicking soft surfaces would cause stress to the MSCs and aims to translate the use of the biomaterials-engineered MSCs secretome to the treatment of chronic wounds and vascular diseases in humans.

This two-year research project was funded by NTU Singapore and Singapore's Ministry of Education Tier 2 Academic Research Fund.