

Singapore aims to develop novel treatments for tackling osteoarthritis

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While there are many research initiatives on preventing or slowing the worsening of osteoarthritis, there are no drugs or treatments that can halt or reverse disease progression



image credit- NTU Singapore

Scientists at Nanyang Technological University, Singapore (NTU Singapore) are aiming to develop novel treatments to tackle a common ageing-related joint condition called osteoarthritis, supported by a S\$1.2 million gift from StemiGen Therapeutics, a Singapore biotechnology company.

In the late stage of osteoarthritis, a surgical procedure to realign the leg bones using artificial bone substitutes, such as 3D printed scaffolds, is often performed on patients to relieve pressure on the affected joint. However, the natural process of bone formation and healing can take a while post-surgery.

To accelerate this regeneration process and healing, a research team led by Assoc Prof Choo will investigate a method of incorporating osteogenic (bone) stem cells into 3D printed scaffolds for bone regeneration. StemiGen Therapeutics will contribute to the project by manufacturing large quantities of clinical grade stem cells for the application.

The project will also involve two other industry collaborators, NTU spin-off Osteopore International and London-based stem cell technology company Plasticell.

Another project led by Assoc Prof Choo will look at cartilage repair for knee osteoarthritis using drugs. With support from NTU materials scientists, biochemical engineers and biological sciences experts, the research team hopes to develop a method to deliver the drugs and retain them in the joint effectively, leading to cartilage regeneration and consequently, to delay or reverse progression of knee osteoarthritis. The NTU research team anticipates product development and animal trials to take place approximately within three years, and human clinical trials to start thereafter if successful.