NTU scientists develop "contact lens" patch to painlessly treat eye diseases

#Singapore News Singapore

CtoI News Desk Tuesday, November 20th 2018

Nanyang Technological University, Singapore (NTU Singapore) scientists have developed a 'contact lens' patch that treat eye diseases – such as glaucoma and macular degeneration – painlessly and more effectively.

The proof-of-concept patch is covered with biodegradable micro-needles that deliver drugs into the eye in a controlled release, NTU said in a press statement.
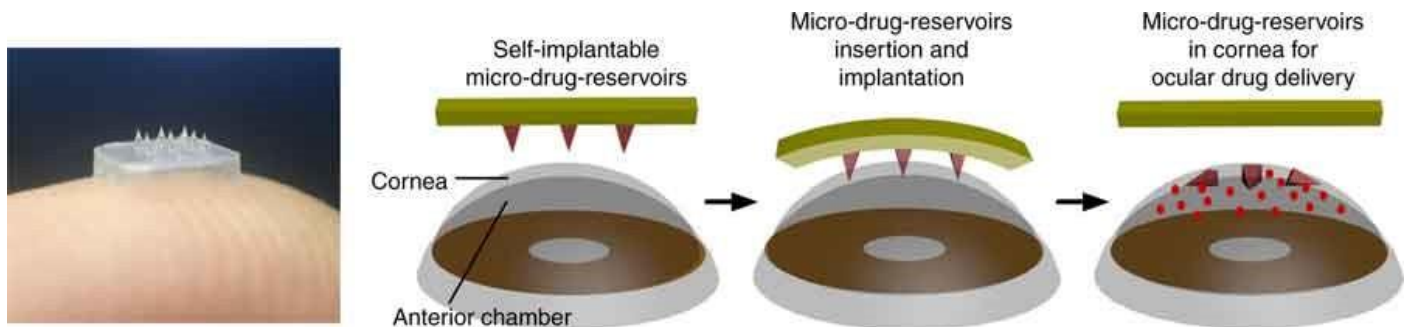

Photo courtesy: NTU Singapore

After pressing it onto the eye surface briefly and gently – much like putting on contact lenses – the drug-containing micro-needles detach by themselves and stay in the cornea,. They would then release the drug over time as they dissolve.

The novel product has been successfully tested in mice, according to the press release on Monday, November 19. A single application of the patch has been shown to be 90 percent more effective in alleviating the condition than applying a single eye drop with 10 times more drug content.

It was developed by a team led by NTU Singapore Professor Chen Peng from the School of Chemical and Biomedical Engineering (SCBE), with clinical insights from Singapore National Eye Centre's Associate Professor Gemmy Cheung.
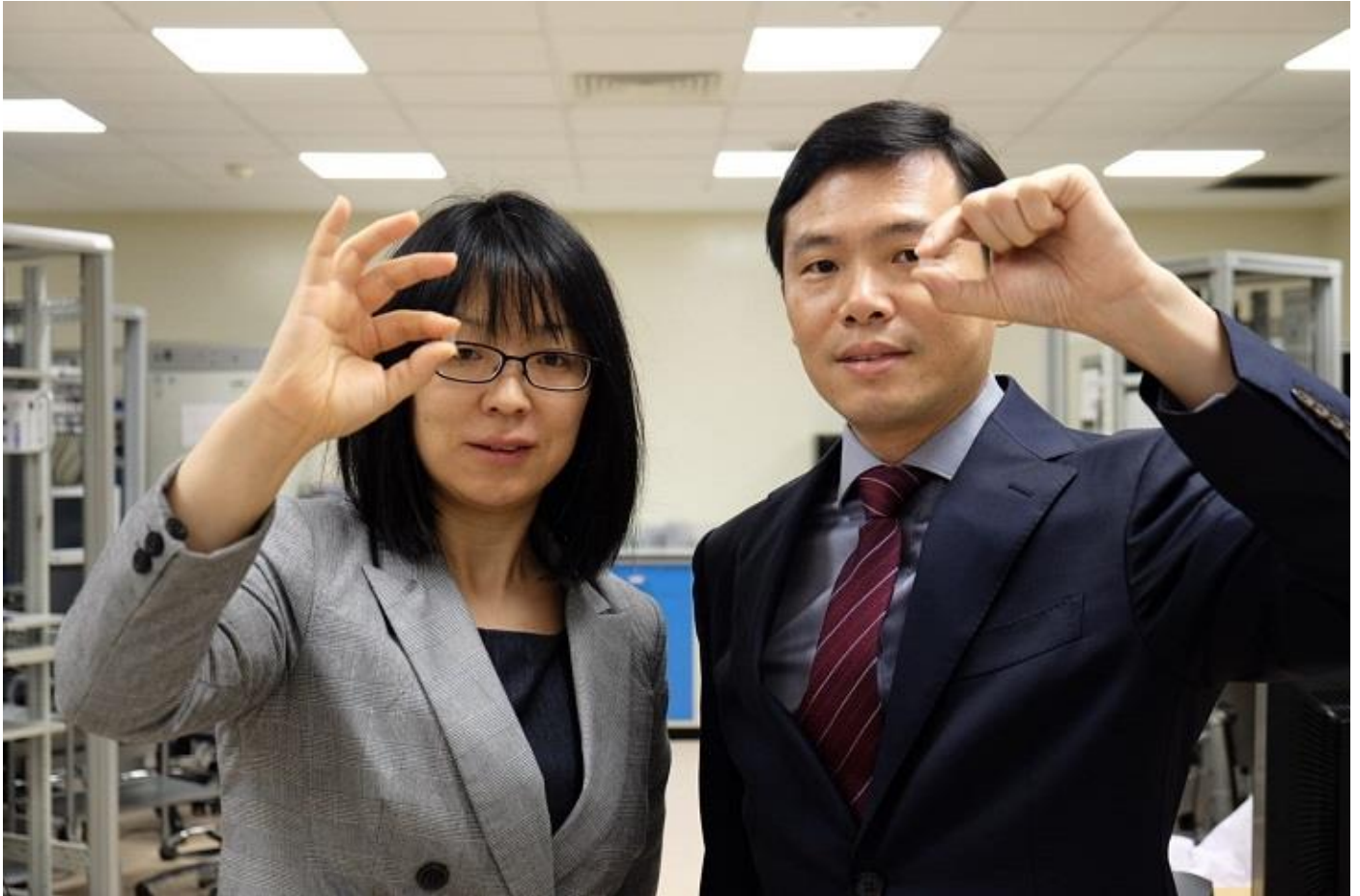

Photo courtesy: NTU Singapore

Current localised treatment methods, such as eye drops and ointments, are hindered by the eye's natural defences, blinking and tears. Meanwhile, eye injections can be painful and carry a risk of infection and eye damage. As a result, some patients are unable to keep up with the prescribed regime for their eye ailments, many of which require long-term management.

The patch could also help to tackle the rising disease burden of eye conditions, explained Prof Chen.

A local 2018 study projected that patients with eye diseases in Singapore will rise significantly by 2040, with glaucoma, diabetic retinopathy and age-related macular degeneration cases set to double.