

## MEDIA RELEASE

### **Ren Ci deploys bespoke hip protector to enhance safety of fall-prone residents - Comfortable and effective bio-inspired wearable for seniors to prevent hip fracture -**

Singapore, 14 October 2021 – Ms Tan Tzuu Ling, Assistant Director of Nursing at Ren Ci Hospital has made it her mission to better protect the elderly residents against falls after witnessing the debilitating effects of hip fractures in seniors. She co-led the Ren Ci care team that collaborated with the Singapore Institute of Technology (SIT) and G4 Pte Ltd to develop a customised, breathable hip protector which has been tested to offer good protection and comfort for fall-prone seniors.

Ren Ci Hospital is the first in the Community Care sector to trial the **EXO+**, a lightweight hip protector made with breathable material for the local climate. The patented hip protector features a foam pad which is made of sandwiched layers of impact-absorbing foam and elastomers to cushion the wearer's hip in the event of a fall. It is designed by SIT and G4 Ptd Ltd, which specialises in protective gear for defence and healthcare. Satisfied and encouraged by the feedback from residents, Ren Ci Hospital will be deploying the wearable in both its nursing homes to selected residents with fall-risk potential due to gait or lower limb weakness.

“We expect hip fractures among seniors to be on the rise as the population ages. There are existing hip protectors on the market but most are not easy to put on, trap heat when worn for long hours and cause discomfort for the elderly. Compliance becomes a real issue. **EXO+** is easy to don on, more breathable and suitable for our local climate which aids the initial acceptance by the elderly residents. This addresses the issue of compliance so that seniors, especially those with osteoporosis, can avoid a potentially life-threatening hip fracture,” said Ms Tan Tzuu Ling.

“We drew inspiration from the exoskeleton structure of crustaceans for the design of the hip pads. The pads are light, flexible, and streamlined, and can revert to their original structure after the release of impact,” said Associate Professor Soh Chew Beng, Programme Leader, Sustainable Infrastructure Engineering (Building Services), SIT. “Combined with the breathable material, we hope that this improved design encourages fall-prone seniors to wear the hip protector for longer periods,” he added.

Research on the hip protector was funded under the Translational R&D and Innovation Fund (TIF) administered by Singapore's Ministry of Education. TIF supports applied research and translational projects, which can be done in partnership with industry, to enable new innovations, products and/or services. The effectiveness of the impact absorbance of the hip pads has been validated by Cardiff University, with mechanical testing conducted according to the Canadian Standard Association (CSA) 7325:20 for hip protectors for a simulated fall.

“We now have a better solution at hand but key is still ensuring that the elderly understand and comply with wearing the hip protector at all times. From the initial trial, we note that the effective wearable can also enhance the elderly's confidence to walk about within the household independently. This will also go a long way in ensuring that our elderly can remain ambulant for as long as possible,” commented Ms Tan.

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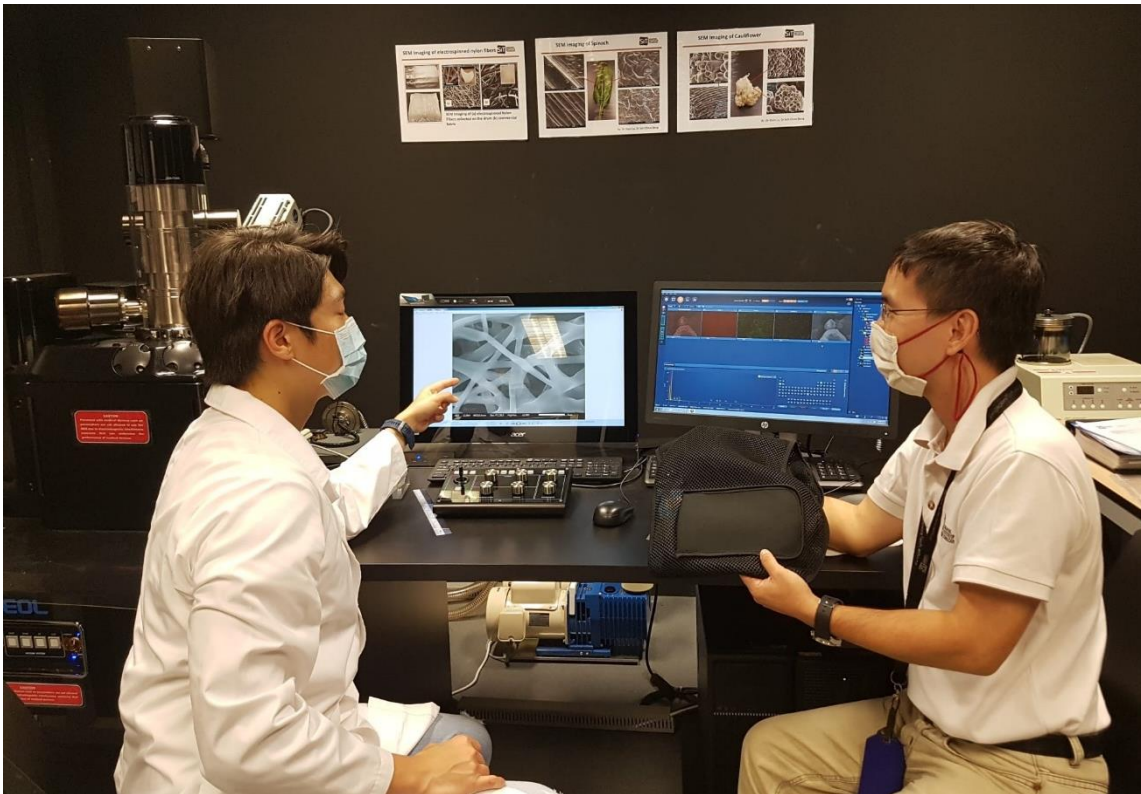
### Annex – Images



**EXO+**, a lightweight hip protector made with breathable material for the local climate.



Donning **EXO+** hip protector gives Mr MOHAMED HAFIDZ BIN SAMAT (59) added confidence to walk more and rely less on his wheelchair.



Associate Professor Soh Chew Beng, Programme Leader, Sustainable Infrastructure Engineering (Building Services), SIT and Mr Samuel Lim, former Research Engineer at SIT, discussing the porous structure in the elastomers hip pad as viewed through the Scanning Electron Microscope.