



## Dr. Andy Tay Kah Ping, Ph.D.

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“Mechano-enhancement of wound regeneration and nanomedicine delivery”

**Abstract:**

The World Health Organization estimates that 10% of the world's population suffers from diabetes, and diabetic patients has a 15-25% lifetime risk of getting diabetic foot ulcers. Every 20s, there is a lower extremity amputation worldwide. In this project, I will describe our technology for single platform integration of biomaterials, cells and mechanical stimulation to synergistically accelerate diabetic wound healing.

Despite the enhanced permeability and retention (EPR) effect, a significant percentage of nanomedicine does not end up in the tumors and are instead transported to highly vascularized organs like the liver. This greatly limits the therapeutic efficacy of nanomedicine and causes cytotoxicity due to off-target effects. Here, I will describe the use of soft robotics to enhance nanoparticle infiltration into superficial solid tumors through mechanical 'massage'.

**Biography:**

Andy Tay graduated in 2014 from NUS with a First-Class Honours in Biomedical Engineering. He later headed to the University of California, Los Angeles for his PhD studies and graduated in 2017 as the recipient of the Harry M Showman Commencement Award. Andy next received his postdoctoral training at Stanford University before heading to Imperial College London as an 1851 Royal Commission Brunel Research Fellow. He is currently a Presidential Young Professor in NUS.

Andy is a recipient of international awards including the Interstellar Initiative Early-Career Faculty Award, Christopher Hewitt Outstanding Young Investigator Award, Terasaki Young Innovator Award. He is listed as a 2019 Forbes 30 Under 30 (US/Canada, Science), 2020 World Economic Forum Young Scientist, and 2020 The Straits Times '30 and Under' Young Singaporeans to Watch.