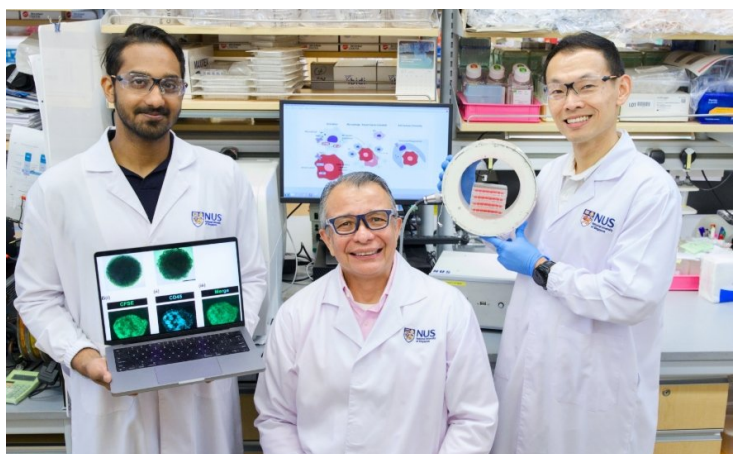


Singapore harnesses magnetic pulses to reprogramme immune cells to fight breast cancer

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An innovative approach for breast cancer treatment uses localised and non-invasive pulsed electromagnetic fields to reprogramme immune cells



Researchers from the National University of Singapore (NUS) have demonstrated an innovative approach for targeted breast cancer therapy using pulsed electromagnetic fields (PEMFs). The NUS team successfully reprogrammed tumour-associated macrophages (TAMs), a corrupted class of immune cells that typically promote cancer growth, into an active anti-tumour state that attacks and destroys cancer cells.

The study, led by Associate Professor Alfredo Franco-Obregón from the Department of Surgery at the NUS Yong Loo Lin School of Medicine and the NUS Institute for Health Innovation & Technology, was published in the journal *Smart Medicine*. This discovery builds on their previous work, where they showed that brief PEMF exposure enhances uptake of doxorubicin (DOX), a chemotherapy drug, by breast cancer cells.

PEMF therapy applies intermittent, low-intensity magnetic pulses to targeted regions of the body over a short period of time. Assoc Prof Franco-Obregón has previously explored the effect of PEMFs on muscle development and oncology. In their latest study, the NUS team demonstrated that even without chemotherapy, PEMFs completely eradicated tumours in 75 per cent of tested preclinical models after just four 30-minute sessions.

Assoc Prof Franco-Obregón shared that the PEMF device used in this study has just successfully completed Phase 1 clinical trials, demonstrating its safety in humans. The team is now seeking partners to conduct Phase 2 efficacy trials to evaluate how well the PEMF treatment works in patients and to further advance its development towards clinical use.