NANYANG TECHNOLOGICAL UNIVERSITY SINGAPORE

SOFT BIOELECTRODE: REDEFINING HEALTHCARE AND BIOMEDICAL INNOVATION

TechnologyOverview

Bioelectronic platforms are gaining widespread attention as they provide a template to study the interactions between biological species and electronics. Decoding the effects of the electrical signals on the cells and tissues hold the promise for treating the malignant tissue growth, regenerating organs and engineering new-age medical devices. The vision is to manipulate the electrical signals to develop remedies for chronic, neural and other ailments. A freestanding and flexible hydrogel based platform is created, which can be used to study tissue-electronic interactions and also be used as regenerative template. The soft platform with embedded electronics serves to carry out functions like providing electric field, heat etc. 3D bioprinting route is employed to fabricate the platform, allowing for good spatial resolution and control.

Potential Applications

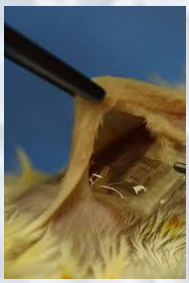
- Wound management
- Biosensing platform
- Implantable biomedical device

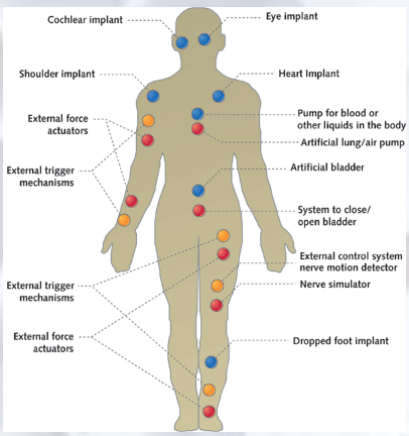
Customer Benefits

- Cost-effective procedure to develop without any post processing steps
- Customization: Ease of tailoring the shape, size and electronic circuits
- A platform that can be customized for any biomedical and biotechnology application

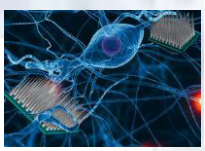
Features & Specifications

- 3D bioprinting provides deposition of bio- and electronic- materials on a single platform with full spatial control
- Platform is ready for use as soon as it is printed, thus requiring no post processing
- Process is cost-effective, quick and easy to scale-up
- The bioelectronic platform is soft, flexible, provides a good conformal coverage, works in wet environment and can be used as regenerative template



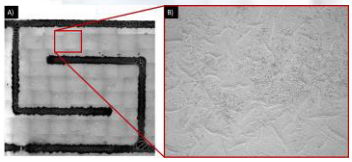


Soft like skin



Bendable and Foldable

Conformal Coverage



Biocompatibility

If you are interested in this technology, please contact the BD Manager: edmund.lim@ntu.edu.sg

Singapore Centre for 3D Printing