MEDIA RELEASE

3 June 2014

A good yarn powers implantable biomedical devices

Implantable biomedical devices, such as insulin pumps, powered by glucose in our blood rather than by batteries are a step closer to reality following an advance made by an international research team involving the ARC Centre of Excellence for Electromaterials Science (ACES).

The advance, published yesterday (2 June 2014) in Nature Communications, describes a highly efficient biofuel cell made from carbon nanotube yarn that generates energy from blood glucose.

ACES Director Professor Gordon Wallace said the team was able to create the highly efficient biofuel cell due to advances in nanostructured electromaterials and novel fabrication methods.

"The development of innovative implantable energy sources is critical to the realisation of next generation medical bionic devices. Such developments will have an immediate impact on the design and development of new bionic devices for muscle and nerve regeneration," Professor Wallace said.

The structure of the new cell provides a number of benefits that enables the effective transport of fuel to the bioactive sites to create a higher power output. The structure also keeps out factors that would normally rapidly degrade the performance of biofuel cells.

Professor Wallace said the research outcome is a direct result of combining the expertise and facilities of four institutions, including Hanyang University, Korea; Dankook University, Korea; the University of Wollongong-headquartered ACES, Australia; and the University of Texas at Dallas, USA.

ENDS

Professor Gordon Wallace is available for interview.

A copy of the paper is available on the Nature Communications website.

Contact: Sarah McMaster, ACES Communication and Media Officer 02 4221 3788.

Australian Government
Australian Research Council