Development of intelligent technologies for early disease diagnostics and precise therapies
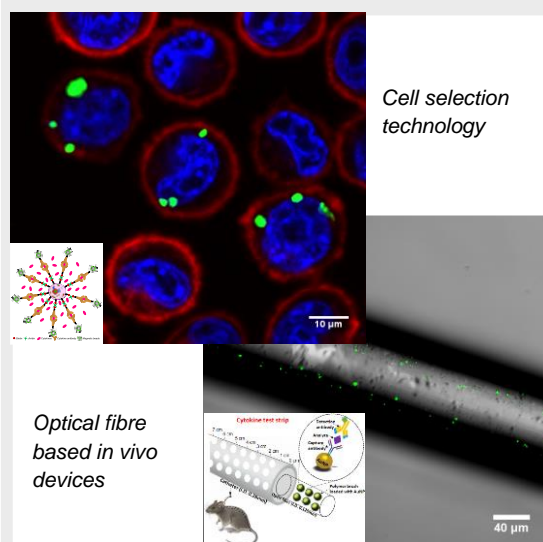
Nanotechnology and chemistry expertise addressing challenges in the Life Sciences

Interdisciplinary team of chemists, engineers, physicists and biologists.

Focus on translational research and end-users' engagement.

Cell selection technology

Optical fibre based in vivo devices

More information

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Precise Diagnostics and Therapy

Graduate School of Biomedical Engineering

ARC CoE for Nanoscale Biophotonics

Competitive advantages

Smart Sensing

- Ultra-sensitive, stable and specific.
- Low sample volume and raid assay time.
- User friendly and low cost.

Medical devices for personal health management

- Portable, wearable and implantable.
- Real-time continuous monitoring.
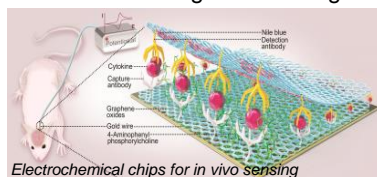- On-demand targeted drug delivery.

Research projects

- Test strips for insulin monitoring in blood using mobile phone technology.
- *In vivo* devices for monitoring and neurochemical modulation in behaving animals.
- Optical fibre based *in vivo* devices for bioimaging and biosensing.
- Development of intelligent nanoparticles for theranostics and neuroscience.
- Cell selection technology for regenerative medicine applications.
- Detection of mycotoxins in food safety.

Commercial track record

- Glucose tests strips with AgaMatrix Inc, USA

Facilities and infrastructure

- Well-equipped wet chemistry lab for nanomaterials and assay development.
- PC2 lab facility for cell culture work.
- An ISO13485 compliant Quality Management System and clean room for design and manufacture of medical devices including wearable and implantable chips.
- Laser micromachining, microelectronics and 3D printing facility for electronics and mechanical design and prototyping.
- Animal housing and full surgical suite for in vivo experiments.

Nanosensors to spot diseases

Electrochemical chips for in vivo sensing
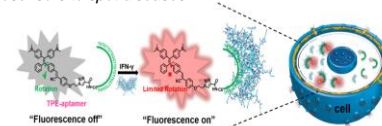
Our experts

Dr Guozhen Liu   Prof Ewa Goldys   Prof Nigel Lovell

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Torch Innovation Precinct at UNSW