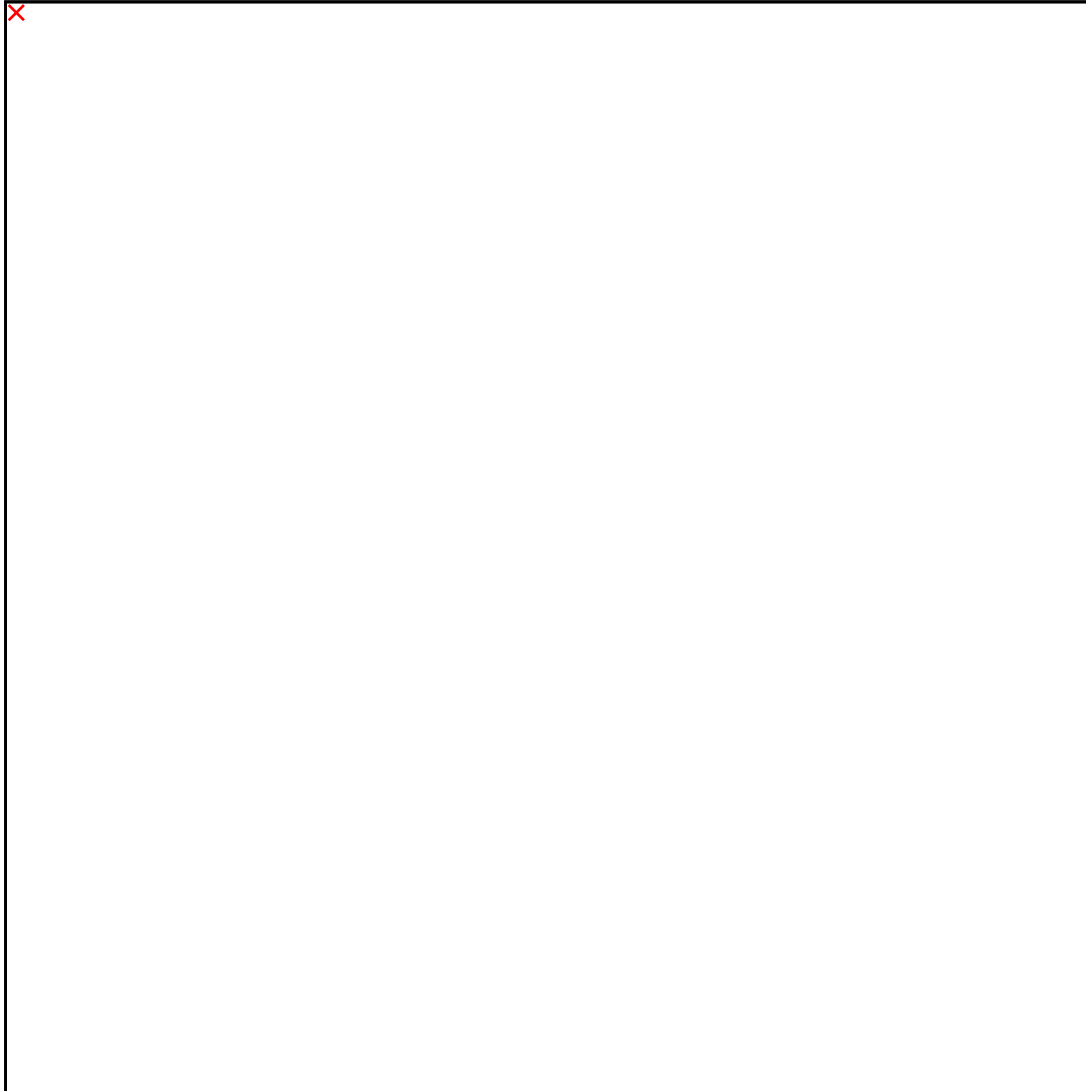




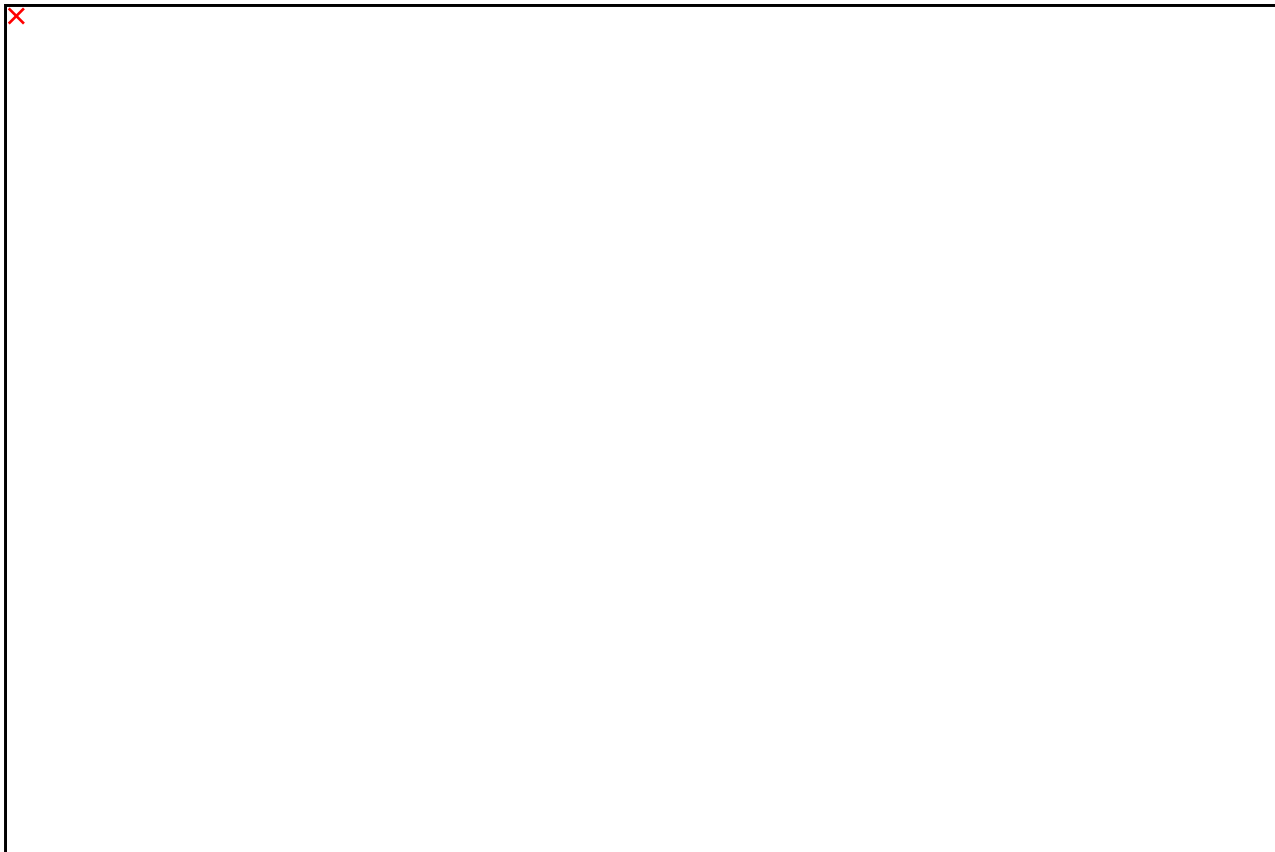
LSI (Life Science Interface) ICT4Health



The Life Sciences Interface Laboratory is a multifunctional interdisciplinary facility accommodating a range of equipment and infrastructure as required for development and characterisation of ICT devices and systems at the life sciences interface. It includes workstations for electrochemistry, injection moulding, 3D printing, ozone cleaning, contact angle analysis of surfaces, sterilization, and nanodispensing of solutions on devices.

Researchers in the Life Sciences Interface Group in Tyndall are actively engaged with end users, industrial and academic partners leveraging innovative ICT technologies to provide solutions for applications in healthcare, security, agrifood and environment. New opportunities in these application sectors are being advanced through the convergence of ICT research in photonics, electronics, advanced materials and smart systems, with collaborators engaged from clinical, biotechnology, bioengineering and pharmaceutical research including industry partners (i.e. large multinational and SME companies) in many cases. Several research projects are currently ongoing in the Life Sciences Interface Group, based on research grants from EC (H2020) and national (e.g. Science Foundation Ireland and Enterprise Ireland) funding programmes.





Bioanalysis

laboratory for research involving evaluation of novel devices and systems for characterization of biomarkers in biological material

The Life Sciences Interface Group in Tyndall is exploiting the extensive design, fabrication and characterisation tools available in Tyndall, to detect and characterize analytes, nucleic acids, proteins and cells. Integrated systems for analysis of various biomolecules have been developed which comprise of novel advanced sensors, electronic subsystems, software to interface with those sensors, and optimized surface chemistries to capture target molecules. The holistic approach within the Life Sciences Interface Group is typically based on identification of the user requirements specification of each application scenario, and proceeding through the development and integration of system building blocks. These include devices and modules for sample preparation, isolation, concentration / amplification, detection and characterisation of the target biomolecules. Integration of these modules into prototype systems with easy to use control systems has led to innovations in surface engineering, microfluidics, packaging, and signal processing.

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Related Publications

- [Nanoparticle-based drug delivery: case studies for cancer and cardiovascular applications](#)
Cellular and Molecular Life Sciences volume **69** issue **3** pages **389 to 404** (2011)
Authors: Paul Galvin, Damien Thompson, Katie B. Ryan, Anna McCarthy, Anne C. Moore, Conor S. Burke, Maya Dyson, Brian D. MacCraith, Yurii K. Gun'ko, Michelle T. Byrne, Yuri Volkov, Chris Keely, Enda Keehan, Michael Howe, Conor Duffy, Ronan MacLoughlin
 - [Silicon microfluidic flow focusing devices for the production of size-controlled PLGA based drug loaded microparticles](#)
International Journal of Pharmaceutics volume **467** issue **1-2** pages **60 to 69** (2014)
Authors: Kieran Keohane, Des Brennan, Paul Galvin, Brendan T. Griffin
-

- [Design, fabrication and skin-electrode contact analysis of polymer microneedle-based ECG electrodes](#)

Journal of Micromechanics and Microengineering volume **26** issue **8** page **084005** (2016)

Authors: Conor O'Mahony, Konstantin Grygoryev, Antonio Ciarlone, Giuseppe Giannoni, Anan Kenthao, Paul Galvin

- [Development of an on-disc isothermal in vitro amplification and detection of bacterial RNA](#)

Sensors and Actuators B: Chemical volume **239** pages **235 to 242** (2017)

Authors: Des Brennan, Helena Coughlan, Eoin Clancy, Nikolay Dimov, Thomas Barry, David Kinahan, Jens Ducreé, Terry J. Smith, Paul Galvin