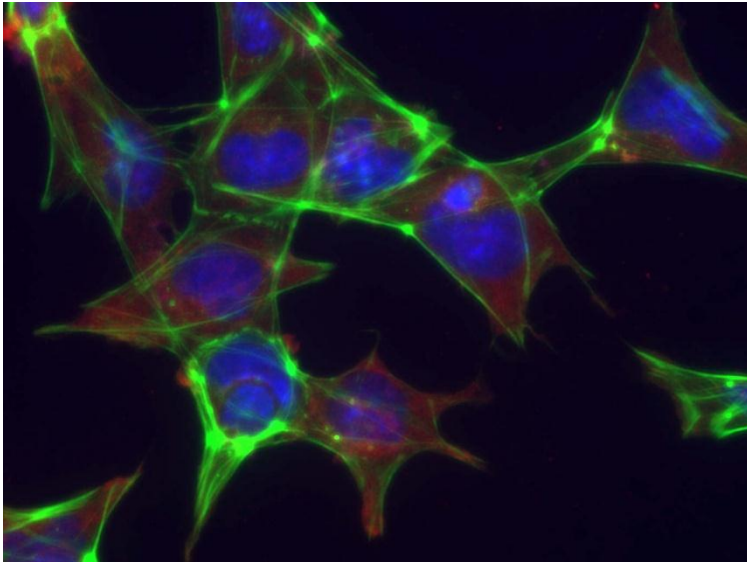


<p>Equipment Name: BioNano Laboratory</p>	<p>Category:</p> <p>D. In-vitro toxicity studies</p> <p>Institute: CRANN, Trinity College Dublin</p> <p>Location: CRANN, Trinity College Dublin, Dublin 2, Ireland</p> <p>Contact Details of Technology Expert: Name, Dr Despina Bazou Phone, 353 (01) 8964610 Fax, 353 (01) 8963033 E-mail Bazoud@tcd.ie</p>
<p>Short technology description/Overview:</p> <p>The BioNano Laboratory is a recent development of the Centre for Research on Adaptive Nanostructures and Nanodevices (CRANN) at Trinity College Dublin dedicated to research at the interface between the physical and life sciences. The BioNano group is comprised of 4 members who share an interest in nanotechnology, nanotoxicology and nanomedicine.</p> <p>The group possesses a breadth of research expertise for the investigation of molecular, cellular and physiological interactions using novel biophysical tools such as cell actuators, magnetic and ultrasound fields.</p> <p>The research activities of the group members are major components of a number of inter-disciplinary research initiatives, including Cell Biology and Genetics, Pharmacology, Magnetics and Nanomedicine Interdisciplinary Research Groups.</p> <p>Members of the BioNano group are also members of the Integrated Nanoscience Platform for Ireland (INSPIRE), a consortium of all Irish third level institutions with international leading research capability in nanoscience and nanotechnology. Furthermore, CRANN is also part of the Molecular Medicine Institute which is a not for profit company established by an extended network of Irish Universities and their associated academic hospitals.</p> <p>Therefore the BioNano lab hopes to facilitate and accelerate the translation of biomedical nanotechnology research into improved nanoscale diagnostics and nanomedicine.</p>	
<p>Main Features (Equipment Capabilities):</p> <ul style="list-style-type: none"> ▪ Cell Manipulation: Ultrasound and Magnetic fields <ul style="list-style-type: none"> • Transducers: Ferroperm 1-5 MHz • Function generator: Hewlett–Packard 33120A • 1 T static magnetic fields ▪ Sutter MP225 micromanipulator <ul style="list-style-type: none"> • 3 axis manipulator – max precision 0.2 μm/step • Manual or programmed control of each axis • Adaptable head connection for precise manipulation ▪ Fluorescence Microscopy <ul style="list-style-type: none"> • Olympus BX51M Upright fluorescent microscope <ul style="list-style-type: none"> • Fluorescence Filter Cubes: U-MNB2, U-MNG2, U-MNU2 • Objectives: MPLFLN5X, MPLFLN10X, Long WD M Plan Fluorite (LMPL50X/0.50) • Camera and Software Bundle: Olympus C-BUN-D-XM10-Bundle • XM10 camera with Cell D software • Olympus CKX41 Inverted fluorescent microscope 	

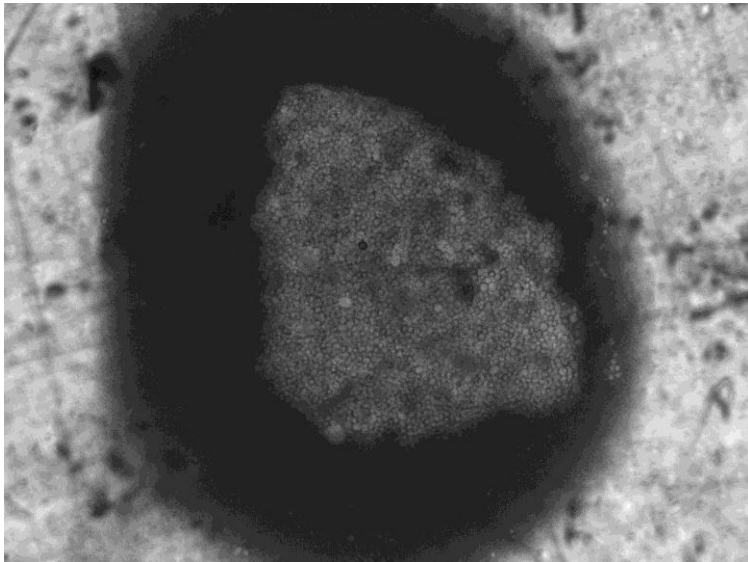
- Fluorescence Filter Cubes: DAPI, FITC, TRITC
- Objectives: Olympus Plan x4, x10, x20, x40
- Camera and Software Bundle: Micropublisher – QImaging, ImageJ

Typical Samples & Images:



Embryonic Stem cells triple stained for F-actin (green), Oct-4 (red) and nucleus (DAPI)

Bazou et al. (2010) Ultrasound Med Biol 37 (2): 321-330



Tumour cell-induced platelet aggregation (TCIPA) in suspension in an ultrasound trap. Cancer cells are surrounded by platelets (black crown).

Bazou et al. (2011) Br J Pharmacology 162 (7): 1577-1589

Any further Information: