

nexus

LIFE-SCI VISIONS 2010 CALENDAR SUBMISSIONS

Submissions from West of Scotland
Life Science Related Organisations and Institutions

1. Artist's impression of neural cells from human embryonic stem cells



2. Artist's impression of the gut



3. Artist's impression of a cytoskeletal cell



Amici Procurement Solutions is a procurement agency specifically serving the biotech industry. Staffed by life science professionals with experience across the industry, it can provide an outsourced procurement resource and help deliver cost savings through improved supplier performance. In addition it offers consortium deals, consultancy, training and a virtual purchasing resource. (www.amiciprocurement.com)

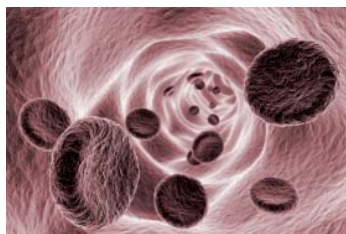
4. Computer generated image of Adenovirus particles in suspension



5. Computer enhanced representation of neuronal cells in a matrix



6. Red Blood Corpuscles circulating in a minor artery

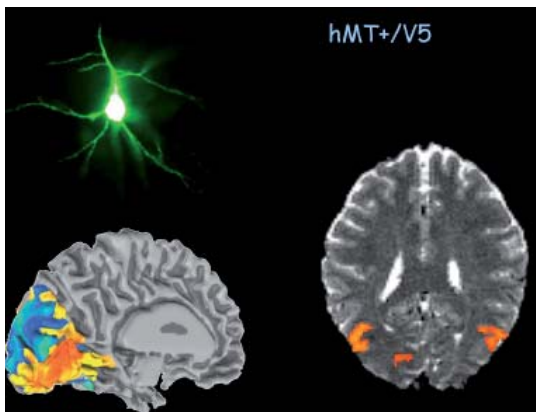


7. Cartoon representation of nerve cells firing



BioOutsource is Scotland's first GMP approved laboratory for safety and characterisation testing for vaccines and biologics. Founded in 2007 it was voted in 2008 as Scotland's most promising life sciences start up company. BioOutsource now has clients worldwide and is moving into an expansion phase both at home and abroad. (www.biooutsource.com)

8. Neuronal staining and human brain imaging (fMRI) of visual brain areas



9. Studying brain waves with MEG



The **CCNi (Centre for Cognitive NeuroImaging)** represents an interdisciplinary effort to advance the understanding of the complex relationship between the brain, cognition and behaviour at multiple levels of analysis. Located within the Psychology Department at the University of Glasgow, the Centre is equipped with state-of-the-art brain imaging facilities comprising a 3T fMRI scanner, an MEG system, a TMS system, and several EEG systems. (www.ccnigla.ac.uk)

10. Bloodstain Shape vs Impact Angle - the shape of a cast-off blood spot is relative to the angle in which it strikes a surface (here 10 degrees).



11. 3D Determination of Blood Source - tangential measurement of 2D blood spatter patterns can establish the area of convergence and 3D origin of the blood.



12. Transfer Bloodstain Pattern - transfer blood patterns establish the shape of the object creating the pattern and the direction of movement of the blood source.



The **Centre for Forensic Investigation, Glasgow Caledonian University** aims to advance forensic investigation in the widest sense through undergraduate & postgraduate teaching, research and professional practice and consultancy. Forensic investigation is the application of scientific and technical expertise to produce evidence acceptable in a court of law. Typical technologies include Human Identification by DNA profiling and Blood Pattern Analysis.

(www.gcal.ac.uk/sls/departments/deptofbiologicalbiomedicalsciences/research/centreforforensicinvestigation)



13. The RehaBike mobile paraplegic cycle system

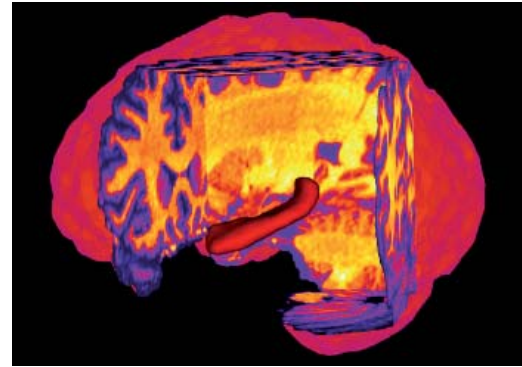
The **Centre for Rehabilitation Engineering at the University of Glasgow** has developed recumbent tricycle technology which allows people with paraplegia to cycle using their own paralysed leg muscles, activated by functional electrical stimulation. The system was evaluated in partnership with the Queen Elizabeth National Spinal Injuries Unit and commercialised as the RehaBike in collaboration with Hasomed GmbH. (www.gla.ac.uk/cre)

14. Retrievable pessary for childbirth



Controlled Therapeutics' brands Cervidil® and Propess® are placed in the vagina to induce childbirth and have now assisted in the delivery of over five million babies across 40 countries in the last 15 years. Their key advantages are in the novel controlled release properties and the ability to be withdrawn easily at any time. (www.ctscotland.com)

15. Magnetic Resonance Image highlighting the hippocampus, the memory centre of the brain



The Department of Clinical Physics and Bioengineering of NHS Greater Glasgow and Clyde specialises in medical imaging, equipment management, physiological measurement and radiotherapy. Through links with Universities it has a significant research profile, and it has a major programme of innovation in partnership with Scottish Health Innovations Ltd. (E: d.wyper@udcf.gla.ac.uk)

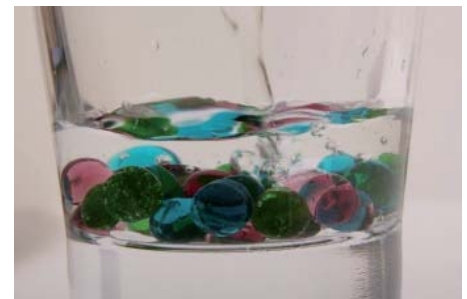
16. CorGlaes® Active beads



17. CorGlaes® Active discs

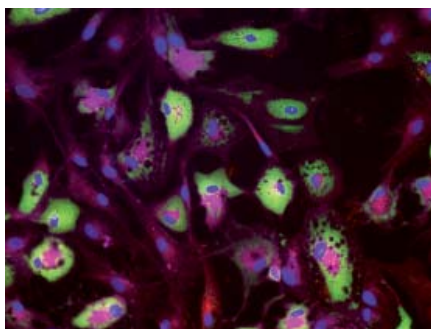


18. CorGlaes® Active beads dissolving in water

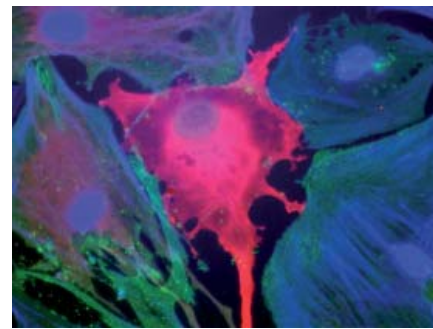


Giltech is a specialist co-development partner that works with customers to help differentiate their products through the creation of bespoke formulations of its biodegradable and controlled release technology, CorGlaes®. The CorGlaes® Active range offers precise control over the most efficient transfer of metal ions available in the market today. (www.giltech.biz)

19. Mesenchymal stem cells differentiating into adipocytes by immunocytochemical methods

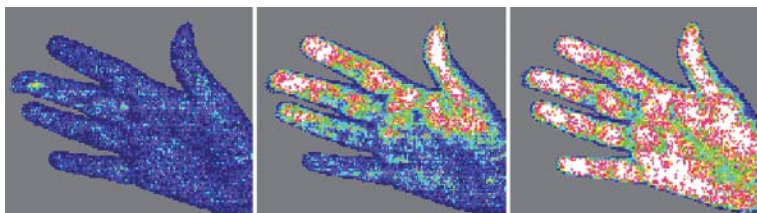


20. Mesenchymal stem cells differentiating into adipocytes by fluorescent staining methods



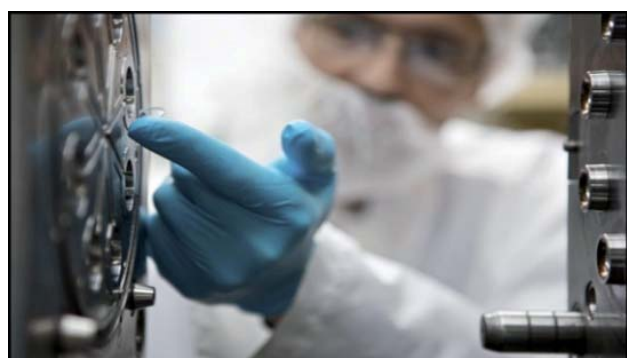
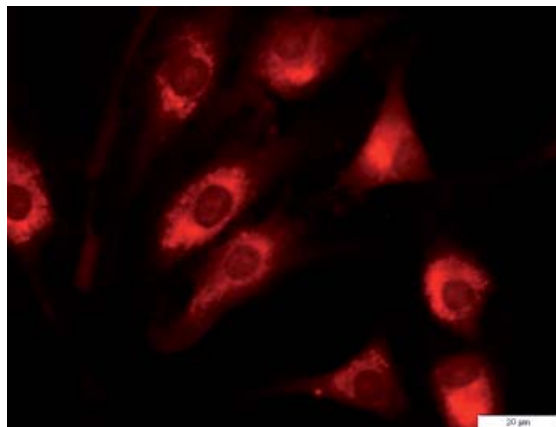
Life Technologies Corporation is a global biotechnology tools company dedicated to improving the human condition. Its systems, consumables and services enable researchers to accelerate scientific exploration, driving to discoveries and developments that make life even better. (www.lifetechnologies.com)

21. Vasomotor response due to hormonal instability, commonly known as a menopausal hot flush



The Neurovascular Inflammation Group (NIG) is a collaboration headed by Professors John Lockhart (University of the West of Scotland) and Bill Ferrell (University of Glasgow). The group's main focus is the investigation of arthritis, to advance understanding of the disease and thereby identify novel therapeutic targets. Currently there are two main targets identified by the group, PAR-2 (protease activated receptor-2) and AT receptors. (www.uws.ac.uk/research)

22. Proteinase activated receptor 2 expression on synovial-like fibroblasts



23. Thermoplasticity gives opportunity for mass production of lenses by injection moulding

Ocutec is a young innovative Scottish company with a polyethylene glycol (PEG)-based platform technology with multiple applications in the medtech and biopharma sectors. The initial focus has been on thermoplastic hydrogel polymer soft contact lenses which offer contact lens wearers a more comfortable wearing experience, and which Ocutec believes can be manufactured at a fundamentally lower cost than is available today. (www.ocutec.com)

24. The Indian Neem Tree (*Azadirachta indica*)



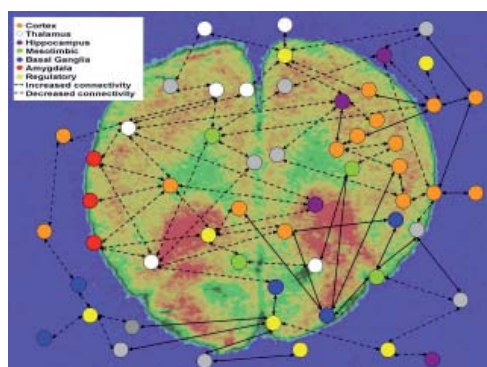
25. Seeds of the Indian Neem Tree (*Azadirachta indica*)



26. The Indian Neem Tree (*Azadirachta indica*)



The Pesticides Research Group, University of the West of Scotland are examining the efficacy of Neem insecticides. Through collaborative efforts with the University of Glasgow and Forest Research, the group have undertaken innovative research utilising the plethora of triterpenoids from the seeds of *Azadirachta indica*. (www.uws.ac.uk/research)



27. Altered functional connectivity in brain networks in a model of Schizophrenia

PsyRING - the Psychiatric Research Institute of Neuroscience in Glasgow - is a collaborative venture between the Universities of Glasgow and Strathclyde and NHS Greater Glasgow and Clyde. PsyRING aims to add value to the psychiatric drug discovery process with focus on schizophrenia, to reduce the clinical failure of drug candidates by using novel translational models and state-of-the-art technology. (www.psyring.co.uk)

28. Adult stage of the parasitic worm, *Acanthocheilonema viteae*, which is being employed in novel drug development

Strathclyde Institute of Pharmacy and Biomedical Sciences (SIPBS) is a new centre which focuses on drug and vaccine design, discovery, development and use. The centre is conducting research on *Acanthocheilonema viteae*, a parasitic worm which secretes ES-62, an anti-inflammatory molecule being employed to develop novel treatments for diseases like arthritis and asthma. (www.strath.ac.uk/sipbs)



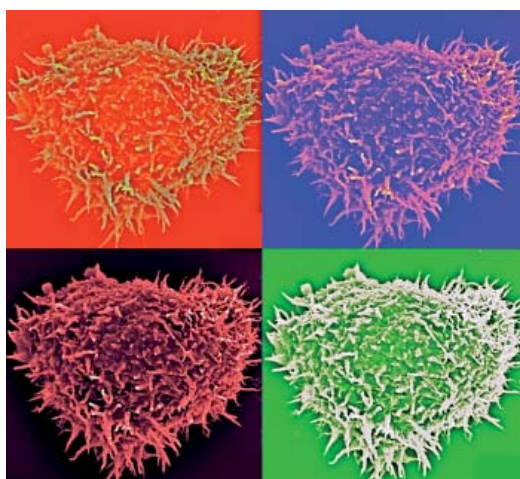
29. The new Small Animal Hospital - the most advanced of its kind in Europe



30. An environmentally friendly building made of stone with a grass roof to blend in with its leafy surroundings



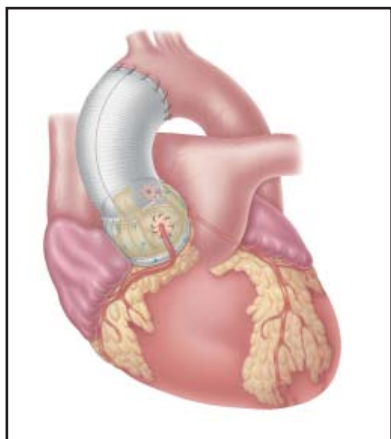
The University of Glasgow Faculty of Veterinary Medicine's new Small Animal Hospital is open 24/7 all year; operations can be performed day or night. It houses state of the art technology including CT and MRI scanners, an endoscopy suite, four operating theatres, and a pain and rehabilitation centre with an underwater treadmill all run by specialists in their field. (www.gla.ac.uk/faculties/vet/smallanimalhospital)



31. *Acanthamoeba trophozoite* displaying an unusual heart-like morphology. (Fiona L. Henriquez/Craig W. Roberts)

Parasitologists from the **University of the West of Scotland's School of Science and Strathclyde Institute of Pharmacy and Biomedical Science (SIPBS)** are developing new and improved eye care products to prevent *Acanthamoeba keratitis*. *Acanthamoeba* is a common contaminant of contact lenses that can cause infection and blindness. (www.uws.ac.uk; www.strath.ac.uk/sipbs)

32. BioValsalva™ is a unique surgical implant



33. Cobrahood™ is an expanded PTFE vascular prosthesis with flared outflow



Vascutek, a Terumo Company is a world leader in the design and manufacture of vascular and stent grafts. Our portfolio includes BioValsalva™, a unique surgical implant which combines a porcine aortic valve with a graft material for valve replacement surgery and Cobrahood™, an expanded PTFE vascular prosthesis with flared outflow for bypass surgery in the leg. (www.vascutek.com)

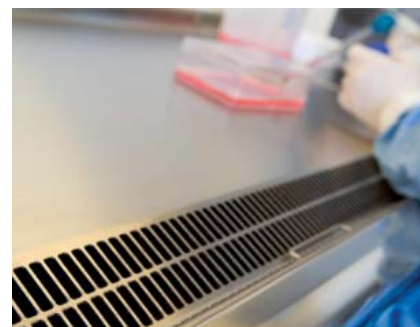
34. Preparation of sample for electron microscope



35. Cryopreservation Biostore validation



36. Viral screening of influenza vaccine



Vitrology, established in 2007, is a customer-focused global biopharmaceutical and vaccine testing organisation with operations in Glasgow Scotland, France, the United States and Asia. Vitrology is committed to providing a high quality portfolio of services for quicker and more cost effective commercialisation of new medicines. (www.vitrologybiotech.com)



Since its inception, Nexus has been funded by the European Regional Development Fund, the Scottish Enterprise Network, Glasgow City Council and the University of Glasgow. Additional funding is now also provided by East Dunbartonshire Council; the Edinburgh Science Triangle (comprising the University of Edinburgh, Heriot-Watt University, Moredun Research Institute, Roslin Foundation, NHS Lothian, Scottish Enterprise, Edinburgh Technopole, Heriot-Watt Research Park, Pentlands Science Park, Roslin BioCentre and the councils of The City of Edinburgh, Midlothian, West Lothian and East Lothian); Glasgow Caledonian University; the Glasgow:Edinburgh Collaboration; NHS Greater Glasgow and Clyde; North Lanarkshire Council; Renfrewshire Council; SEEKIT; the University of Strathclyde and the University of the West of Scotland.