## Programme

<table>
<thead>
<tr>
<th>Time</th>
<th>Event</th>
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<tbody>
<tr>
<td>9.30am</td>
<td>Registration (tea, coffee)</td>
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<tr>
<td>10.00am</td>
<td>What is Gene Therapy? Dr Stuart Nicklin, University of Glasgow</td>
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<tr>
<td>10.30am</td>
<td>CAV-2 - Another reason why dogs are man’s best friend Dr Eric Kremer</td>
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<tr>
<td>11.00am</td>
<td>Stem Cells – Hope not Hype Dr Jo Mountford, University of Glasgow</td>
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<tr>
<td>11.30am</td>
<td>Lunch, careers advice, Meet the Scientist, DNA origami &amp; speak to the exhibitors</td>
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<tr>
<td>1.15pm</td>
<td>Cystic fibrosis in science and everyday life Tanita Casci</td>
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<tr>
<td>1.45pm</td>
<td>Guest Lecture – Communicating Science Prof Vincent Racaniello (This week in virology), Columbia University, USA</td>
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<tr>
<td>2.30pm</td>
<td>Panel Discussion / Podcast</td>
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#BSGCT2015

Download the official app for the BSGCT annual conference 2015, including the Public Engagement Day
Available at

BSGCT Secretariat and Conference Organisation
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www.azuraevents.co.uk
British Society for Gene & Cell Therapy

The British Society of Gene and Cell Therapy (BSGCT) was founded in 2003 with the intention of providing a professional network for scientists and clinicians researching genetic disease and novel therapies. The BSGCT society membership is made up of hundreds of research scientists from PhD level to Professor. Since 2003, we have provided a forum for discussion and debate in the area of cell and gene-based therapies, engaging not only researchers but reaching out to patient groups and the general public. We are particularly committed to improving public awareness of gene therapy and providing education to students and young scientists. The BSGCT have run the annual Public Engagement Day since 2005 and every year it has gone from strength to strength. Our intention is to inform, and ultimately to stimulate discussion and debate within the public on many important issues including stem cell research, personalised medicine, genetic screening and emerging radical therapeutic approaches. We hope that our public engagement days inspire young GCSE or A-level students to pursue life sciences or medicine at university level, and to potentially become the shining stars in research for the future. It is essential that we attract the brightest minds to the field.

Glasgow Science Festival

The MRC-University of Glasgow Centre for Virus Research (CVR) is running an event as part of the 2015 Glasgow Science Festival. This event, entitled ‘microTALKS’ seeks to bring infectious disease research to the public in a fun, informative and engaging manner. microTALKS will run on the evening of Thursday 11th of June between 7 and 10:30 pm in the Boyd Orr building rm 407 at the main Glasgow University Campus near Byres Road. This event is importantly free but only runs with support from the Society for General Microbiology (SGM), British Society for Gene and Cell Therapy (BSGCT) and Glasgow University.

The event will feature a number of short TED style talks, a presentation from Dr Adam Kurcharski who will talk about emerging infections followed by a podcast for This Week in Virology (http://www.virology.ws/twiv/). We look forward to your participation in this event.

You can find out more information here http://www.gla.ac.uk/events/sciencefestival/events/adult/headline_325568_en.html and book tickets.
Hands-on activities

During lunchtime, try your hand at making DNA origami, participate in several hands-on activities and find out about “Blood Pharming”. Come to meet and interact with some of the world’s leading experts who will be talking about what gene and cell therapy is. Discover how these novel therapies are used to treat a huge range of serious illness such as cancer, blindness as well as many rare diseases for which there is currently no cure. Chat to PhD students and post-doctoral researchers about their career choices and their current research projects.

DNA origami
DNA, or deoxyribonucleic acid, is an instruction code for life. Nearly every cell in our body contains the DNA required to make a new copy of ourselves. The “story” of DNA is split up into “paragraphs” called genes. Each gene contains enough information to make a different protein. Other stretches of DNA are important in telling the cell how much protein to make. DNA manages to do all of this using a four letter code comprising A, T, C and G which stand for Adenine, Thymine, Cytosine and Guanine. DNA is wound into a double helix structure. This is then wound up even further and each compacted strand makes a chromosome. We have 23 pairs of chromosomes in each of our cells however a species of fern called “Adders tongue” beats us by having 630 pairs! At the DNA origami stand you’ll learn how to fold a normal sheet of A4 paper into the shape of the DNA double helix.

Stem cells for blood transfusions
With the University of Edinburgh and the SNBTS, Dr Jo Mountford has developed an interactive exhibit that explains how pluripotent stem cells might be used as therapeutics, and more specifically how in the future blood for transfusions may be generated in the lab from stem cells rather than relying on donor supplies. They initially built the display for the Royal Society’s 350th Anniversary Summer Science Exhibition in 2010 and over the last 3 years have demonstrated the exhibit to over 20,000 members of public and school groups.

More information can be found at www.stemcellsforblood.org
Speakers

Dr Stuart Nicklin is a Reader in the British Heart Foundation Glasgow Cardiovascular Research Centre, Institute of Cardiovascular and Medical Sciences, University of Glasgow. Dr Nicklin’s research interests are in the development of gene therapies for cardiovascular diseases using viral gene transfer vectors. Research encompasses investigation into furthering basic understanding of how viral gene transfer vectors, particularly adenoviral vectors, interact with and infect host cells in order to be able to engineer the vectors to provide improved efficiency for delivering gene therapy in the cardiovascular system. Using adenoviral and adeno-associated viral gene transfer approaches further research is investigating therapeutic gene delivery approaches to improve heart structure and function following myocardial infarction. Dr Nicklin has been a member of BSGCT since it was founded in 2003, was elected to the Board in 2010 and became General Secretary in 2014. Dr Nicklin is also a member of the Editorial Boards of Molecular Therapy and Human Gene Therapy.

Twitter: @StuNicklin
Website: http://www.gla.ac.uk/researchinstitutes/icams/staff/stuartnicklin/

EJ Kremer received bachelors of science degrees in biology and chemistry at Bowling Green State University in Ohio (USA). He received his Ph.D. from the University of South Carolina (USC) in 1990. He started his thesis hoping to become a synthetic organic chemist, but quickly switched to transcriptional regulation in the biochemistry department. After his thesis, he joined Grant Sutherland’s lab in Adelaide, South Australia to clone the “fragile X site” and better understand the genetics of Fragile X syndrome. In Adelaide, he became interested in diseases of the brain and joined the growing ranks of gene therapist. In 1993 he moved to Paris, France. Since 1997, his own laboratories have been working on viral vector mediated gene transfer, immune responses and therapy for orphan diseases that touch the brain – in particular a subsection of lysosomal storage disorders called mucopolysaccharidoses.
Jo Mountford PhD. I graduated from Birmingham University in 1995 with a PhD in biochemistry/haematopoiesis. My background is in the differentiation of normal and leukemic blood cells (1993-2008) and more recently (2008-) my lab has concentrated more on human pluripotent stem cells (hPSC) and their capacity to generate haematopoietic and vascular lineages. This includes molecular and biochemical analyses and the overall aim is to fully dissect key signalling events, transcriptional networks and epigenetic changes that lead to effective differentiation to these two closely linked lineages. We have developed novel, clinically relevant protocols for the generation of hematopoietic stem/progenitor cells from hPSC and their subsequent differentiation into red blood cells for transfusion. We are funded by the Wellcome Trust and the Scottish funding Council (2011-1016) to realise this therapeutic goal and to dissect the mechanisms governing the generation of red cells in order to optimise the process. With Professor Andy Baker, I have published on the role of miRNA in endothelial specification and differentiation from hPSC and have developed a novel clinically relevant method for the production of vascular endothelium for the treatment of ischemic diseases. We are currently undertaking projects funded by the MRC TSCRC, EPSRC-CASE scheme, the BHF and are part of the BHF Mending Broken Hearts Centre for Vascular Regeneration. In my role as Head of Tissue and Cellular Therapeutics at the Scottish National Blood Transfusion Service (SNBTS) I am leading the development of novel cellular therapies including products generated from mesenchymal stem cells (MSC) and endothelial and haematopoietic lineages.

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More information can be found at: www.novosang.co.uk
Vincent Racaniello has done laboratory research on viruses for over 30 years. He received an A.B. degree in Biology from Cornell University in 1974, and the Ph.D. in Biomedical Sciences from Mt. Sinai School of Medicine of the City University of New York. After postdoctoral work with Dr. David Baltimore at the Massachusetts Institute of Technology, in 1982 he joined the Columbia University faculty. Dr. Racaniello is the recipient of an Irma T. Hirschl Career Scientist Award, the Searle Scholars Award, the Eli Lilly Award of the American Society for Microbiology in 1992, and an NIH Merit Award. He was a Harvey Society Lecturer, University Lecturer at Columbia University, the First Lamb Professor at Vanderbilt University and presented the Hilleman Lecture at the University of Chicago.

Dr. Racaniello has served as an editor for the Journal of Virology, the Journal of Clinical Investigation, and PLoS Pathogens. He was a member of the WHO Steering Committee on Hepatitis/Polio, Chair of the Virology Study Section of the NIH, and Co-Chair of the Gordon Conference on Viruses and Cells. The research in Dr. Racaniello’s laboratory has focused on the mechanisms of poliovirus replication and pathogenesis. His work produced the first infectious clone of an RNA virus, the discovery of the cell receptor for poliovirus, and the establishment of a transgenic mouse model for poliomyelitis. Following his belief that scientists must communicate their work to the public, he has co-authored a virology textbook, taught virology, distributed video casts of his lectures online, written a blog about viruses, and produced podcasts on viruses, parasites, and bacteria. His goal is to be Earth’s virology Professor.

Twitter: @profvrr
Website: http://www.virology.ws/twiv
Dr Tanita Casci
Tanita’s role is to shape policies that help research and researchers at Glasgow to be the best they can be, taking into account the ambitions of the University, and influenced by the external higher-education, funder and policy environment.

After obtaining a PhD in Genetics, Tanita switched to academic publishing and joined a small editorial team in London that launched Nature Reviews Genetics. During her 12 years as commissioning editor of the journal, genetics quickly developed into the data-rich field that we know now. In 2012 she helped to set up a big-data research facility at the University of Glasgow (Glasgow Polyomics). This fed a growing interest in the analysis of biological big-data, and expanded her knowledge of genomics to include proteins and small molecules.

A theme of Tanita’s career has been an interest in how research is done, and how research practices evolve. She is interested in the rapid changes that are happening in scientific publishing, particularly how the open sharing of data benefits progress in science and accelerates the application of research findings.

She is also the mother of an eight-year-old boy with cystic fibrosis, and so appreciates the realities of textbook genetic diseases, and how scientific advances affect the understanding and management of this life-limiting condition.

Twitter: @tanitacasci
Web: www.gla.ac.uk/services/rsio/staffcontacts/strategypolicy/drtanitacasci/
Exhibitors

**Stem Cells for Blood.** More than 90 million red blood cell transfusions are carried out worldwide every year and globally the transfusion services are faced with increased pressure to meet demand. As such, there is a need to find an alternative source of blood cells to alleviate the burden of meeting this demand and to ensure sufficient blood supplies.

As well as addressing the challenges of supply and transfusion-transmitted infection, cultured red blood cells grown in the lab from stem cells might offer a more efficient product. They could benefit patients who need regular transfusions, such as those suffering from a chronic anaemic conditions. These patients are at risk of iron loading – when iron builds up in their bodies – which can lead to organ damage.

Cultured red blood cells may reduce this risk, because the cells would be fresher, younger and better-matched than those in donated blood. This means they would survive in the body for longer, resulting in less frequent transfusions and therefore reduce the build-up of toxic iron.

A new source of red blood cells would thus not only increase blood supplies, but could also ensure immune compatibility with recipients, prevent the transmission of infection and reduce iron loading. Come and visit our stand to find out all about blood transfusion today and the plans to use stem cell derived red blood cells in the future.

http://www.novosang.co.uk

**The Society of Biology** is a single unified voice for biology: advising Government and influencing policy; advancing education and professional development; supporting our members, and engaging and encouraging public interest in the life sciences. The Society represents a diverse membership of individuals, learned societies and other organisations. Individual members include practising scientists, students at all levels, professionals in academia, industry and education, and non-professionals with an interest in biology.

http://www.societyofbiology.org
**Exhibitors**

**Progress Educational Trust** (PET) is a charity that informs public debate on genetics, embryo/stem cell research and assisted conception, and engages with policymakers and medical professionals to influence changes to law and regulation. PET believes this is important, because it creates an environment in which ethically sound research and practices thrive - for everyone’s benefit. We hold regular, free public events at which we welcome school parties. If you need to research a particular topic for an assignment, you should also check out PET’s flagship publication BioNews -www.bionews.org.uk - a weekly digest of news, comment and reviews read by around 18,000 people. You can subscribe to BioNews by email for FREE at www.bionews.org.uk/subscribe. Visit our stand today to win a Guide to Genetics in our Gene-ius Quiz, and to enter our headline writing competition to win a £20 Amazon voucher. Facebook at www.facebook.com/ProgressEducationalTrust Follow us on Twitter @BioNewsUK

http://www.progress.org.uk

**UK Cystic Fibrosis Gene Therapy Consortium.** The aim of the Consortium was to bring three research groups together to focus on a single common goal of making gene therapy for Cystic Fibrosis a clinical reality. Come and discover more about the disease, how it affects patients and their families and our efforts to develop gene therapy.

http://www.cfgenetherapy.org.uk

**AADC.** An International Organisation dedicated to children suffering Aromatic Amino Acid Decarboxylase Deficiency (AADC), a rare genetic disorder affecting neurotransmitters dopamine and serotonin. Cutting-edge research into AADC deficiency is providing hope for AADC families and at the forefront in the development of novel approaches to investigate and treat neurological disease.

http://www.aadcresearch.org
**Exhibitors**

**Viruses - from bad to good.** BUILD A VIRUS: Adenoviruses are used routinely in experimental research. Increasingly they are also being used clinically as vaccines, for gene therapy applications and even to help fight cancer. Our stand will allow you to build your own “customised” adenovirus, 1 million times bigger than the real thing.

**British Heart Foundation Scotland.** Coronary heart disease is Scotland’s single biggest killer. For over 50 years we’ve pioneered research that’s transformed the lives of people living with heart and circulatory conditions. Our work has been central to the discoveries of vital treatments that are changing the fight against heart disease. But so many people still need our help. From babies born with life-threatening heart problems to the many mums, dads and grandparents who survive a heart attack and endure the daily battles of heart failure. Join our fight for every heartbeat in Scotland. Every pound raised, minute of your time and donation to our shops will help make a difference to people’s lives. Find out more at facebook.com/BHFScotland or http://bhf.org.uk

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**Nuffield Research Placements** provide over 1,000 students each year with the opportunity to work alongside professional scientists, technologists, engineers and mathematicians. S5 students in Scotland (first year post-16 in England) undertaking science, technology, engineering and/or maths courses are eligible to apply. Placements are available across the UK, in universities, commercial companies, voluntary organisations and research institutions. http://www.nuffieldfoundation.org/nrp
The ADVance ITN integrates 8 leading academic centres and 4 companies under a single umbrella to train young scientists in adenovirus (AdV) research. Our partners are internationally leading centres of excellence in key facets of the basic biology of AdV and their application as vectors for clinical protocols in cancer, cardiovascular disease and vaccination. All partners represent key areas critical to improved understanding of adenovirus biology and development of key underpinning technology for translational AdV research at the highest level.

AD-VEC: Marie Curie Industry-Academia Partnerships and Pathways (IAPP) AD-VEC involves two industrial and three academic partners with the aim to identify new adenoviral vectors as vehicles in novel medical applications for cardiovascular disease and infectious disease. This will be achieved through broad knowledge exchange between partners with complimentary and cutting edge technological and in-depth skills relating to adenovirus phylogeny, biology and pathology in order to explore and exploit adenovirus existing in nature as new vectors in areas of unmet clinical need such as cardiovascular disease and infectious disease.

Science Connects co-ordinates the STEM Ambassador Programme and School Advisory Network Service in the West of Scotland. We offer teachers information on STEM related activities from a wide range of STEM Providers, identifying opportunities appropriate for each school’s needs. STEM Ambassadors are volunteers from academia and industry, from a variety of STEM disciplines, who can provide career talks, practical help and real life links relevant to CfE.
http://www.gla.ac.uk/about/scienceconnects