As 2014 comes to its close, the Roslin reporter is on hand to summarise the busy second half of The Roslin Institute’s year.

Bill Gates visits Easter Bush Campus

Bill Gates visited the Easter Bush Campus in July to hear about research to improve the health and welfare of people and farm animals worldwide. The renowned businessman and philanthropist was visiting in his capacity as co-Chair of the Bill & Melinda Gates Foundation. The organisation has a strategic focus on agricultural development and research to improve farming productivity in a sustainable way.
Mr Gates was greeted by Vice-Principal Professor Jonathan Seckl, Professor David Hume, Director of The Roslin Institute, Professor David Argyle, Head of the Royal (Dick) School of Veterinary Studies, Lord Jamie Lindsay, Chairman of Scotland’s Rural College (SRUC) and Dr Janet Swaddling, CEO SRUC.

The party toured The Roslin Institute before visiting SRUC’s beef research facility on the outskirts of Edinburgh. The party also visited the new National Avian Research Facility at The Roslin Institute. There, scientists are developing genetic technologies that are helping to breed chickens that are less susceptible to diseases, notably those affecting developing countries.

Among the scientists to highlight their work were Professor Ivan Morrison and Dr Liam Morrison of The Roslin Institute. Both are funded by the Gates Foundation to investigate new treatments for deadly trypanosome parasites that affect people and farm animals in sub-Saharan Africa.

SRUC’s Dr Dave Roberts and Dr Mizeck Chagunda also spoke about their work with dairy farmers in Malawi. It focuses on the use of performance recording to increase herd productivity.

Professor Jonathan Seckl, Vice-Principal Planning, Resources and Research Policy, said: “It has been a great pleasure to welcome Bill Gates to the Easter Bush Campus and showcase our work as world leaders in the field of animal bioscience.”
With the end of 2014 we find The Roslin Institute and wider Easter Bush Campus at the start of so many projects. With the demolition of the old vet school canteen and clearance of the ground we now have the space in which the Easter Bush Innovation Centre (EBIC) will be built. The EBIC will be housed as part of a wider ‘Centre Hub’ building that will provide a new focus for the Easter Bush Campus. In addition to the EBIC’s business incubator labs, the building will also house central scientific resources as well as providing social facilities including a shop, gym and meeting areas.

The ‘Centre Hub’ building will also house the Midlothian Science Centre, a teaching lab and exhibition area that will enable University of Edinburgh and Easter Bush staff and students to bring members of the public of all ages to the campus to experience science of all disciplines in a variety of different ways.

John Mackenzie has joined us at the Easter Bush Campus where he has taken up the role of Chief Executive Officer of the EBIC. Later in this Reporter you’ll read about the start of the working life of the National Avian Research Facility’s (NARF) Bumstead Building. The Bumstead Building is a poultry facility that will be maintained under specified pathogen free conditions and provide housing for important genetic studies in chickens. Alan Hart, who guided us through the development of these facilities, has moved on to a more senior position in Sheffield, but has left us in great shape.

The many ongoing developments are providing the Easter Bush Campus with the infrastructure to widen our research capabilities. A prime example of such opportunities is the Centre in Tropical Livestock Genetics and Health that The Roslin Institute and partners from the Royal (Dick) School of Veterinary Studies and Scotland’s Rural College have submitted to a major funder. I will keep you up-to-date with progress of this centre and with Campus Development in future issues of the Roslin Reporter.

As Director of The Roslin Institute I was delighted that The Roslin Institute has been awarded an Athena SWAN Silver Award. More about the award later in the Roslin Reporter, but this is my opportunity to thank the Career Development Committee, especially Helen Sang and Cat Eastwood, for all their hard work in providing new and equal opportunities for all our staff and students. Roslin was also at the forefront in the Women in Science and Engineering (WISE) awards. Jean Manson was highly-commended for her career achievements, and we were also short-listed in the best employer category.

Still on the theme of starts I am delighted to welcome Dr Sam Lycett as the latest of the University of Edinburgh’s Chancellor’s fellows to join The Roslin Institute. Sam is a Computational Epidemiologist and has joined the Division of Infection and Immunity. In October the BBSRC conducted their Midterm Review of The Roslin Institute’s strategic science programmes. I’d like to thank Tricia Hart and the programme conveners for all their work as well as Cat Eastwood, Nicola Stock and Helen Dundas for presenting our policies and procedures in a very impressive way. The review has given us the starting point for development of the next proposals for strategic funding, which will be a major focus of our energies in 2015.

Meanwhile, the outcome of the REF2014 assessment has just been released. The Royal (Dick) School of Veterinary Studies with which The Roslin Institute is incorporated was ranked the number one vet school once again; the submission to the panel was joint with Scotland’s Rural College. It is an outstanding result for us and will hopefully contribute to our ongoing financial sustainability.

The sad news is that Tricia Hart (amongst her many other skills, the editor of this newsletter and occasional ghost writer) is leaving us at the end of this year. Tricia has supported the development of the Institute is so many different ways, not least in the massive task of preparation of the ISPGs and the REF2014 submissions. I certainly owe her a personal debt for making my job possible for the past 6 years, and I am sure all of The Roslin Institute wishes her the very best for the future. As 2014 ends and I escape to the Australian sun for a few weeks, I wish all the Reporter’s readers well for the start of 2015.
Agricultural and veterinary research at the University of Edinburgh and Scotland’s Rural College (SRUC) has been ranked as most powerful in the UK in the Research Excellence Framework (REF).

The REF process is an assessment of the quality of the research being undertaken at UK Higher Education Institutions (HEIs) and the impact it has in society. Building on a long history of collaboration and complementary activities, SRUC and the University’s Royal (Dick) School of Veterinary Studies and Roslin Institute made a joint REF submission.

The collective strength and depth of agricultural and veterinary research at the University and SRUC is reflected in its top research power ranking. Three quarters of the research and related activity submitted by the University and SRUC was judged to be “world leading” (receiving the top REF grading of four star) or “internationally excellent” (three star).

The impact of group’s research scored particularly highly. This is an important area because it demonstrates how the research undertaken leads to practical benefits for society – for example in animal health and welfare, agricultural productivity and environmental protection. Over 76% of the impacts described in the submission were judged to be “outstanding” and over 83% either “outstanding” or “very considerable”.

The REF panel considered case studies that demonstrated how research is having an impact on the UK and worldwide economies. These included research from The Roslin Institute that is helping salmon farmers to breed fish that are more resistant to a deadly virus called infectious pancreatic necrosis (IPN). In a severe IPN outbreak, as many as 90% of farmed fish can be lost. The discovery is estimated be worth around £26 million per year to the UK salmon farming industry.

Professor David Argyle, Head of the Royal (Dick) School of Veterinary Studies at the University of Edinburgh, said: “This is an excellent result fulfilling SRUC’s ambition for a top three placing on research power and further strengthening SRUC’s ongoing discussions with the University of Edinburgh about a closer alignment. It is a fantastic independent endorsement of the returns to society from investment in agricultural research. We thank our University partners for their valuable guidance over several years as we worked towards our joint REF submission.”

Professor Geoff Simm, SRUC’s Vice Principal Research said: “This outstanding result is a clear demonstration of the benefits that University and SRUC research is bringing to human and animal health, as well as food and environmental security. Our attainment of a 4* rating across the board for research environment cements our position as a world-leading hub for agricultural and veterinary research. I congratulate the hard work and dedication of our exceptional staff that has enabled this achievement.”
PIC, a division of Genus plc, in collaboration with The Roslin Institute and Edinburgh Genomics at the University of Edinburgh, UK, announced earlier this year that they have been the first to complete exome sequencing in pigs. Exome sequencing is a cost-effective strategy to selectively sequence the most important parts of DNA and enables faster genomic progress.

The extensive results of this research, published in the journal BMC Genomics, were generated from a targeted set of 96 pigs representing the known variation in one of PIC’s leading global proprietary populations in order to capture as many mutations as possible.

Exome sequencing has been used in humans to aid in the diagnosis of Mendelian disorders (genetic disorders associated with the mutation of a single gene). PIC will use the information derived from this research, which also received funding from the Roslin Foundation and the Biotechnology and Biological Sciences Research Council (BBSRC), to achieve more accurate genomic selection in swine, including work to reduce embryonic and/or foetal death loss in pregnant pigs.

Professor David Hume, Director of The Roslin Institute and a co-author of the study said: “The development of a novel genomic platform is a significant output from the long term strategic partnership between The Roslin Institute and Genus. Within the Institute, we see many applications of this platform in biomedical research as well as more applied applications in animal breeding.”

Dr. Jonathan Lightner, Genus Chief Scientific Officer, congratulated the Edinburgh team for a well-conducted study achieving coverage statistics similar to those seen with commercially available human exome kits. He added “PIC will continue to invest in and partner with leading global institutions to develop the next generation of technologies that drive faster genomic progress. We are committed to using these techniques to deliver the best products to our customers.”

A link to the research paper can be found at: http://www.biomedcentral.com/1471-2164/15/550/abstract
Challenges faced by livestock farmers in tropical developing countries are the focus of a new alliance involving researchers from Scotland and Africa.

The new Centre for Tropical Livestock Genetics and Health will initially focus on the use of genetic information to improve the health and productivity of farmed animals in tropical climates.

The aim is to develop technologies that will help farmers in developing countries to identify the best animals to breed from, so they can improve the economic value and quality of their livestock.

Joint teams from Scotland and Africa will explore the genes that make some animals more resistant to diseases than others, as well as those that enable certain breeds to thrive in warmer, arid conditions.

Researchers will also use genetic techniques to characterise new diseases that emerge and to track outbreaks.

The University of Edinburgh and Scotland’s Rural College (SRUC) have joined forces with the International Livestock Research Institute (ILRI) in Kenya to launch the initiative.

The new Centre will have locations in Scotland and Africa. The Scotland site will be located on the University of Edinburgh’s Easter Bush Campus, which includes The Roslin Institute, The Royal (Dick) School of Veterinary Studies and Scotland’s Rural College.

Professor David Hume, Director of The Roslin Institute, said: “With the threat of rising temperatures due to climate change, the need for affordable techniques to improve farming and food security in warmer climates is becoming a global challenge. We are delighted to announce this new partnership to address the issue, which builds on existing, successful collaborations between our three organisations.”

Professor Geoff Simm, SRUC Vice-Principal Research, said: “We are proud to be working in partnership with the University and ILRI. This is a very significant alliance because it has the potential to transform our international efforts to help improve livestock genetics, enhancing food security but also reducing the environmental impact of global livestock production. We also anticipate that SRUC’s proposed strategic alignment with the University will significantly strengthen the potential for the new Centre.”

The Africa site will be located at the International Livestock Research Institute (ILRI) in Nairobi, Kenya. It will involve scientists from both ILRI’s new global livestock genetics program (LiveGene) and the Biosciences eastern and central Africa (BecA)-ILRI Hub and their partners in Africa.

Dr Jimmy Smith, Director General of ILRI said: “ILRI is delighted to be forming this new alliance with the eminent University of Edinburgh’s Roslin Institute and Scotland’s Rural College. Modern genetic approaches offer new opportunities to identify livestock suited to the diverse and demanding conditions under which African smallholder farmers work. This new alliance brings together a unique mix of skills to address these exciting and important challenges.”
Business Secretary Vince Cable visited The Roslin Institute in October to announce a boost for postgraduate training in Scotland’s biosciences.

A total investment of £14.5 million will train postgraduate students in world-class bioscience that will build on UK strengths in areas such as agriculture, food security, industrial biotechnology, bioenergy and bioscience for health.

Dr Cable made the announcement as he visited the Institute, where he met researchers and students.

The investment in the bioscience skills base will further boost research and innovation in Scotland and will help to secure the future of the UK as a global leader in bioscience research.

Highly skilled researchers are vital for addressing some of the world’s major challenges in the 21st century. They fuel discoveries aimed at solving issues such as sustainable food production, renewable energy sources and addressing the health challenges of an aging population.

A £7.5 million investment from the Biotechnology & Biological Sciences Research Council will be matched by £7 million funding committed by the Universities involved in the East of Scotland Bioscience Doctoral Training Partnership (EASTBIO).

EASTBIO is partnership between the Universities of Aberdeen, Dundee, Edinburgh and St Andrews. EASTBIO is led by the University of Edinburgh’s School of Biological Sciences and includes as associate partners the Scottish Universities Life Sciences Alliance (SULSA), James Hutton Institute and Scotland’s Rural College (SRUC).

Business Secretary Vince Cable said: “The UK punches far beyond its weight in science and innovation globally, which is a credit to our talented scientists and first-class universities. This new funding will safeguard Britain’s status as a world leader in life sciences and agricultural technology.”
Scientists at The Roslin Institute have joined other dementia experts at the Dementias Platform UK, which was launched in October when the ground-breaking, multimillion pound collaboration between industry and academia, set up by the Medical Research Council, held its inaugural conference.

The Dementias Platform UK received a huge investment through the Clinical Research Infrastructure (CRII), announced by the Chancellor of the Exchequer a week before the launch, bolstering its funding base to £53million.

World leading researchers from universities across the UK (Cambridge, Cardiff, Edinburgh, Imperial College, Oxford, Manchester, Newcastle, Swansea and UCL) and six companies (GlaxoSmithKline, Janssen Research & Development, AstraZeneca-MedImmune, Ixico, SomaLogic and Araclon) will use state of the art technology to:

• Get a better understanding who is at risk of developing dementia and why the progression of the disease varies from person to person
• Explore the anatomy of the disease to help develop new medicines and enable more accurate diagnosis
• Look into how existing drugs which are used to treat other conditions might help to treat the progression of dementia and improve symptoms.

Using health and lifestyle information from over two million people over the age of 50, as well as data from the lab, the Dementias Platform UK (DPUK) will focus on improving early detection, treatment and ultimately the prevention of dementias.

The Platform, formally known as the UK Dementia Research Platform (UKDP), will create the world’s largest study group for use in dementia research. It will allow researchers to examine dementia in a whole new way, investigating not just what is going wrong in the brain, but at the brain in the context of the whole body. The Platform will look at the causes of dementia across a range of neurodegenerative conditions, including Alzheimer’s, Parkinson’s and Motor Neurone Disease.

Professor Jean Manson (above), Head of the Division of Neurobiology at The Roslin Institute, said “This is an important initiative for dementia and it has the potential to have considerable impact in the diagnosis, treatment and prevention of these diseases. I am extremely pleased to be engaged with this initiative and hope to make a significant contribution to the UKDP.”

Professor Hugh Perry, Chair of the MRC Neurosciences and Mental Health Board said, “The Dementias Platform UK is the culmination of years of dedicated work undertaken by the Medical Research Council, to identify and tackle the problems facing dementia research. Talking to scientists, it became clear that a new way of researching the disease was needed – a collaborative approach that took advantage of the wealth of population studies in the UK. I think people will look back on the creation of the Platform as a watershed moment in the study of dementias, holding the key to accelerating treatments and ultimately prevention of the disease.”

Professor John Gallacher, Director of the Dementias Platform UK said: “If we can delay the onset of dementia by just a few years, we can halve the number of people who die from the disease. By bringing together the best scientific minds to discover the causes of these terrible diseases, we can and will beat them.”

For more information about the DPUK, please visit: http://www.mrc.ac.uk/research/facilities/dementias-research-platform/
Some MRSA bugs in UK hospitals can be traced back to a type of bacteria found in farm animals, a study involving scientists at The Roslin Institute suggests.

According to the study a strain of drug-resistant bacteria carried by some livestock – the MRSA strain Staphylococcus aureus CC398 – has also been found in patients. People and animals generally harbour distinct variants of CC398, which the team say evolved from the same original bacteria. However, the CC398 strain found in livestock can be transmitted to humans, and the study shows that this has happened on many occasions.

The study provides new evidence that the livestock-associated CC398 strain could spread in hospitals.

CC398 from farm animals is resistant to some common antibiotic drugs, which could make it harder to treat. The strain’s enhanced drug resistance in livestock is likely to be the result of widespread use of antibiotics on farms, scientists say.

Patients in hospitals and nursing homes are at increased risk of MRSA infection, but healthy people in the wider community can also become infected with some strains.

Scientists at the University of Edinburgh used a state-of-the-art genetic analysis technique to study how the CC398 strain evolved. For the first time, researchers unravelled the full genetic code of CC398 strains from the UK, and compared these with published genetic data on CC398 bugs from humans and livestock around the world.

They say that CC398 has entered the UK on several occasions since the mid-1940s, though the original source of the bacteria remains unclear.

Lead researcher Dr Melissa Ward, said: “Our findings emphasise the need for strict biosecurity practices in the food production industry, as well as continued surveillance and infection control of MRSA in hospitals. Responsible use of antibiotics in healthcare settings and agriculture is of utmost importance.”

Professor Ross Fitzgerald of The Roslin Institute said, “The cross-species transmission of bacteria may lead to new strains with potential for onward spread in the new host species.

“Our findings suggest that some livestock-associated MRSA may have the ability to persist and cause disease in humans in the hospital setting”.

The study, published in the journal Applied and Environmental Microbiology, was carried out by the University of Edinburgh’s Centre for Immunity, Infection and Evolution and The Roslin Institute, in collaboration with the Scottish MRSA Reference Laboratory.

The study was funded by the European Commission Framework Programme 7, the Biotechnology and Biological Sciences Research Council, the Wellcome Trust, the Scottish Universities Life Sciences Alliance, Pfizer and the Medical Research Council.
Animal health experts are joining forces to combat emerging infectious diseases, that affect farm animals and household pets across Europe.

They aim to track outbreaks of diseases such as tuberculosis and influenza, as well as bacterial infections that can cause food poisoning if they enter the food chain. The diseases can have devastating impacts on farmers' livelihoods and also pose a threat to human health.

Vets, scientists and technical specialists are teaming up to establish a new European research centre that will be coordinated from a hub at the Easter Bush Campus in Edinburgh. Experts hope to develop new diagnostic tools, vaccines and treatments that help to stop diseases from spreading.

The Centre of Excellence for Surveillance of Emerging Infectious Diseases in Europe is a collaboration between the Easter Bush Research Consortium (EBRC), of which The Roslin Institute is a member, and global animal health company Zoetis.

It will draw on the expertise of each consortium member to rapidly respond to disease outbreaks in animals and help protect the health and livelihoods of those who raise and care for them.

Professor David Hume, Director of The Roslin Institute, added: “Our goal is to detect at a very early stage new diseases appearing in Europe. By reaching out to our partners in Africa and Asia, we hope to identify potential threats, fully sequence the genetic material of the infectious agent very quickly and identify routes to develop diagnostics and therapeutics.”

Michelle Haven, a Senior Vice President and vet at Zoetis, said: “Enhanced surveillance to identify these threats early makes it possible to speed development of high quality, effective medicines and vaccines to help control these diseases. By working together, we can advance unique solutions to the evolving and complex threats of emerging infectious diseases in Europe.”

The Easter Bush Research Consortium brings together experts from the Royal (Dick) School of Veterinary Studies and The Roslin Institute at the University of Edinburgh, Scotland’s Rural College (SRUC) and the Moredun Research Institute.
A UK/India partnership is tackling tick borne disease of cattle

Controlling tick borne diseases (TBD) of cattle, buffalo and other livestock remains a world-wide priority. They affect over 80% of the world’s cattle populations and represent a significant threat to global food security.

As part of the India-UK collaboration in Farmed Animal Health and Disease jointly funded by the Biotechnology and Biological Sciences Research Council (BBSRC) and India’s Department of Biotechnology (DBT), a major new endeavour led by Prof Brian Shiels at the University of Glasgow will focus on the “Molecular Epidemiology of Ticks and Tick-Borne disease, Host Resistance and Development of Novel Pathogen Vaccines”. His UK collaborators include Profs Andy Tait and Rowland Kao, and Dr William Weir (all University of Glasgow) and Prof Liz Glass of The Roslin Institute at the University of Edinburgh. They have teamed up with Indian colleagues Drs Sunil Kolte, Nitin Kurkure and Suresh Jadhao of the Department of Parasitology, Nagpur Veterinary College, Maharashtra together with Prof G Ponnudurai Veterinary College and Research Institute, Namakkal, and Profs TJ Harikrishnan and Bhaskaran Ravi Latha, Madras Veterinary College, Chennai, Tamil Nadu Veterinary and Animal Sciences University. All participants have long standing expertise in aspects of ticks and TBD of livestock.

Control of TBD mainly relies on chemicals such as acaricides to kill tick vectors and/or drugs that kill the parasites, or live vaccines. These all have major drawbacks including development of resistance to chemicals and difficulties of preparing and delivering live vaccines which are often only partially effective. Young livestock are particularly susceptible to TBD. However the carrier state in older animals very likely causes major production losses, but this has not been well quantified in countries such as India.

The inaugural meeting took place at the Department of Parasitology, Nagpur Veterinary College from 26th – 29th November 2014 where most of the participants met for the first time. The UK visitors were treated very hospitably by the enthusiastic Indian hosts. They were welcomed by the Vice Chancellor, Professor Misra, followed by an invitation to Prof Shiels to light a candle as part of a traditional Indian ceremony of welcoming and all of the participants were presented with flowers. Over the course of the meeting the parties exchanged knowledge and ideas to formulate plans to tackle TBD in India.

India has many distinct breeds as well as “non-discribt” (i.e. not described) Bos indicus cattle and buffalo, but most are not well defined genetically and little has been documented about their resistance to infectious diseases. The UK team had tours of the Institute and the local farm where they saw Sahiwal/Jersey crosses (susceptible to ticks and TBD) and distinctive local breeds, such as the Gaolao, a dual purpose breed with a “coffin shaped skull” (may be more resistant) as well as buffalo breeds.

Host diversity and resistance will be explored using micro-satellite markers as well as experimental challenge of cattle breeds with T. annulata, a tropical protozoan. Their clinical and haematological responses as well as gene expression in blood (RNA-seq) will be compared with the aim of identifying biomarkers of resistance. Earlier studies by Prof Liz Glass has shown that purebred Sahiwal were much more resistant to T. annulata, compared to the more familiar Holstein-Frisian found in the UK and elsewhere.

The collaborators were interviewed and appeared in the local paper, the Hitavada. The UK group were taken out for dinner feasting on goat curry and Indian beer – it was cold enough in the evening for braziers, though the hardy Scots did not require their jackets! They also visited the beautiful Tadoba-Andhari Tiger Reserve where they were lucky enough to see a tiger! On their trip they also saw lots of cattle and buffalo at road edges. They were also invited to the Central India Institute of Medical Sciences which has a joint research project with the Nagpur Veterinary College on zoonoses including Mycobacterium bovis. India has a fantastic diversity of breeds with potential disease resistance traits awaiting discovery which could lead to targeted marker assisted selection in the future, whereby TBD resistance loci could selected along with loci controlling higher milk yield, resulting in higher performing cattle in local Indian environments.

By Liz Glass
Professor Kim Summers from The Roslin Institute’s Division of Genetics and Genomics has become the latest senior Roslin researcher to be elected as a Fellow of the Society of Biology.

The Society of Biology describes itself as “a single unified voice for biology: advising Government and influencing policy, advancing education and professional development and engaging and encouraging public interest in the life sciences.”

Elected fellows are those who have made a prominent contribution to the advancement of the biological sciences in many ways including research or training. Several other Roslin Institute group leaders are already Fellows of the Society, highlighting the position of the Institute in the forefront of biology in the UK.

Kim’s research interest is the molecular basis of disease, both in humans and animals. Since coming to the Institute in 2008 she has made links with the clinical staff at R(D)SVS to establish a number of projects in the area of canine genetic disease. The close relationship of such diseases in dogs to similar diseases in humans means that Kim’s research spans the human and veterinary medicine fields and is an excellent example of the “One Health” approach.

Also pursuing the One Health agenda, Kim established the MSc in Animal Biosciences in 2011, aiming to train future researchers in aspects of research for and with animals. The programme has now graduated 22 students, some of whom are currently undertaking PhD studies at the Institute or elsewhere while others are working in industry and government.

Kim said of the Fellowship, “I’m very pleased to join the other Roslin Institute Fellows in the Society of Biology. Thank you to those who nominated me – I appreciate your support and encouragement and the opportunities to do fun science that working at The Roslin Institute has given me.”
Keygene N.V., an Ag Biotech company, announced today that it has entered into a licence agreement with the University of Edinburgh in the field of Sequence-Based Genotyping (SBG).

Under the agreement, the University of Edinburgh obtains a non-exclusive licence for the use and application for research purposes of Keygene’s patented SBG technology including RAD-Seq. The SBG patents protect methods which allow discovery and scoring of genetic markers without genome sequence information in an extremely cost-effective way. Michiel van Eijk, CSO of KeyGene, said, “We are very pleased with licensing the University of Edinburgh in this important research field of next-generation sequencing based genetic marker analysis. The ability to perform genetic marker discovery and genotyping simultaneously finds widespread use in a huge range of species”.

The license will enable ARK-Genomics, a national capability based at The Roslin Institute and strategically funded by the Biotechnology and Biological Sciences Research Council (BBSRC), to deliver genotyping-by-sequence projects to the farm animal genomics community. The ARK-Genomics national capability forms part of Edinburgh Genomics, a leading academic next generation genomics facility based at the University of Edinburgh. Keygene’s SBG technology will be utilized at The Roslin Institute to investigate the genetic basis of important traits in animal health and food security, such as the genetic basis of disease resistance and key production traits. For more about this story, please visit: http://www.keygene.com/keygene-licences-sequenced-bases-genotyping-to-university-edinburgh/

Lord de Mauley visits Easter Bush Campus

Research to improve the health and welfare of animals, the livestock industry and food security were discussed when Lord de Mauley, Parliamentary Under Secretary of State for natural environment and science, visited the University of Edinburgh’s Easter Bush Campus. Lord de Mauley spoke to researchers from The Roslin Institute, the Royal (Dick) School of Veterinary Studies (R(D)SVS) and Scotland’s Rural College (SRUC) who are based at the Easter Bush Campus.

During the visit, Lord de Mauley highlighted the role of research in helping to reach the goal of the UK Government’s Agri-Tech Strategy to make the UK a world leader in agricultural technology, innovation and sustainability. During the visit Lord de Mauley learned about the opportunities UK organisations such as The Roslin Institute and SRUC can play in addressing key issues such as global Food Security. He was provided with an overview of one of The Roslin Institute’s key assets, the National Avian Research Facility, which is based at the Easter Bush Campus. Aims for the facility include addressing the need for improved sustainability in poultry production in light of an increasing global population, developing vaccines against infections and benefiting human health through reducing food-borne diseases.

Lord de Mauley, Minister for the Natural Environment, said, “The Roslin Institute and SRUC play vital roles in the UK Government’s Agri-Tech Strategy. I was fascinated to see funding being used to develop technology to feed cattle more efficiently while reducing greenhouse gas emissions, which will greatly benefit farmers, consumers and the environment. The Roslin Institute is the UK’s leading farm animal research institution and SRUC is a brilliant model for disseminating new technology to farmers across Britain and the world.”

Professor Hume said of the visit, “It is a pleasure to discuss with Lord de Mauley the opportunities for world leading UK agricultural research to develop at Easter Bush Campus.”

The Roslin Institute to benefit from new Sequence-Based Genotyping

The license will enable ARK-Genomics, a national capability based at The Roslin Institute and strategically funded by the Biotechnology and Biological Sciences Research Council (BBSRC), to deliver genotyping-by-sequence projects to the farm animal genomics community. The ARK-Genomics national capability forms part of Edinburgh Genomics, a leading academic next generation genomics facility based at the University of Edinburgh. Keygene’s SBG technology will be utilized at The Roslin Institute to investigate the genetic basis of important traits in animal health and food security, such as the genetic basis of disease resistance and key production traits. For more about this story, please visit: http://www.keygene.com/keygene-licences-sequenced-bases-genotyping-to-university-edinburgh/
New Research Partnership to Advance Broiler Genetics

A three-year research agreement between Cobb-Vantress, Inc., a global industry leader in poultry genetics, and The Roslin Institute, at the University of Edinburgh, will facilitate collaboration on avian disease resistance, genome analysis and genome preservation.

Cobb is putting almost $1 million into avian research programs at The Roslin Institute to identify innovative ways to improve avian health as well as developing unique technologies to understand and preserve the current and heritage poultry genomes.

The investment creates a strategic partnership between Cobb and The Roslin Institute which leverages each world class entity’s strengths. Mitch Abrahamsen, Cobb vice president of research and development, stated: “This research partnership provides a wonderful opportunity for Cobb to continue a close collaborative relationship with The Roslin Institute and their new National Avian Research Facility (NARF).”

“The continued financial investments by The Roslin Institute in people and infrastructure demonstrate their commitment to making significant contributions toward improving poultry health and capitalizing on the opportunities afforded by the ever expanding understanding of the chicken genome.”

Professor David Hume, director of The Roslin Institute, said of the new agreement: “The joint partnership with Cobb is an excellent example of the kind of industrial interactions that allow The Roslin Institute’s research to drive sustainable improvements in animal health and livestock productivity.

“I am delighted to be able to formalize the relationship we have with Cobb and capitalize on a number of key opportunities that we will be pursuing under the agreement.”

One of the applications of this joint partnership is an effort to develop new technology enabling pedigree or heritage lines to be maintained without the need to physically maintain the bird stock. In addition, several projects will investigate DNA markers in the genome, targeting some of the more difficult to select for traits such as avian immunity, disease tolerance and disease resistance.

“These are exciting new areas which we hope will lead to major breakthroughs in avian health and preservation,” said Dr Christine Daugherty, chief technology officer of Cobb.

“Cobb has an extensive gene pool and to be able to better understand the poultry genome will be critical to meeting future demands for poultry products. We’re always striving to breed more robust chickens that will withstand disease and environmental challenges. We’re looking for birds with greater immunity to diseases or with the ability to tolerate disease without affecting their performance.”

The collaboration will support research by graduate students and is for an initial three years, with potential for renewal. The agreement with The Roslin Institute, which receives strategic funding from the Biotechnology and Biological Sciences Research Council, is one of more than 30 research projects that Cobb has been supporting in 18 different universities across the globe over the past five years.
Declan King, a PhD student from The Roslin Institute, had his image shortlisted in the BBSRC’s Images with Impact competition.

The competition sought images that represented how life sciences are changing the world, in areas such as: food, farming, bioenergy, biotech, industry and health.

The shortlist was selected by an esteemed panel of judges. The public then had their say and voted for the category winners and runners up.

Great Britain has always been the home of bioscience discovery. Penicillin, the DNA double helix and The Roslin Institute’s very own sheep called ‘Dolly’ were all born of UK research, but never before has bioscience moved at such a pace.

With this competition the BBSRC aimed to capture the exciting developments and challenges happening in bioscience today, with images from the Great British public, its students and its researchers.

Declan’s image was shortlisted in the “Images from a student” category and is a microscopy image of the complex networks established between nerve cells grown in the laboratory.

Sadly Declan’s image was not one of the final three category winners that went on to be shown at the Great British Bioscience Festival in London in November, but we thought it was the best!
There is much progress and change to report in this issue of the Roslin Reporter as the National Avian Research Facility (NARF) continues to move forward to provide The Roslin Institute and further afield with the most advanced facilities to perform avian research. Change brings exciting opportunities for all willing to embrace the possibilities and it is something that as scientists we should grasp to provide the opportunities to progress.

**NARF News**  
*By Alan Hart (NARF Coordinator)*

**The Bumstead Building**

The Bumstead Building is now fully operational with the keys handed to Kim and her team early in November. Willie has moved from The Greenwood Building to join Kim and two new members of staff Tomasz and Graham. All have been getting to grips with the facility and the procedures that are required to maintain the integrity of the building. If you walk by Willie and the guys the sweet scent of lavender, or rose petals will be apparent from the numerous showers that are taken to enter their place of work. This is just the sweet smell of success!

The first eggs arrived just days after Kim got the keys and it was commendable to all involved in this build that we were able to open on time. Many thanks to all the guys involved in the construction, Miller Construction, Shepherd Engineering and others companies. With special thanks to the E&B project lead and others from the E&B team.

As this Reporter was going to print the first chicks hatched in the Bumstead Building so congratulations to Kim and the Bumstead team for hitting the ground chirping!

**NARF changes**

After 40 years of first-class service Margaret Murray decided to hatch her last chick and retire. Margaret’s last day was on the 3rd October 2014 and as a group we all headed out to the local Italian restaurant, Cibo. It was a fun lunch with the waiters making a fuss of Margaret which was well deserved. We all wish Margaret well and a long and happy retirement.

In August we had two new starts in the Greenwood and both Mark and Richard have settled in very well. We are awaiting Margaret’s replacement with the new incumbent in place by late November.

**Dave Burt** (above) has taking over as acting director for NARF and he’ll be your first port of call for all matters relating to NARF; enquires through narf@roslin.ed.ac.uk. As I have intimated earlier Kim Bernard is your contact for all matters relating to The Bumstead Building and SPF eggs. Kim will be happy to receive enquires through the spf.eggs@roslin.ed.ac.uk account. Adrian Sherman will continue to be your contact for matters relating to avian work at The Greenwood Building and transgenic chicken work, enquiries through gm.eggs@roslin.ed.ac.uk account.

As for myself I have moved on to pastures new to take up my new post at the University of Sheffield. Exciting times are ahead for both myself and NARF and I look forward to watching the success of NARF as it puts chicken at the forefront of scientific discovery.
Postdoctoral researcher at The Roslin Institute, Dr Laura McCulloch, has been named as the winner of a Merck Millipore competition to win the company’s new Luminex MAGPIX® System, 40-072.

Merck Millipore ran the competition asking entrants to describe how they would use the MAGPIX® System in their own research. The MAGPIX® System, 40-072 provides rapid, accurate biomarker quantitation in a variety of sample matrices. In essence it provides a means by which researchers can study how protein expression differs between samples.

Laura said of the prize, “I was delighted to win the MAGPIX® System and can’t wait to use it in my research. This is going to be a great addition to The Roslin Institute’s technical capacity and there are a lot of researchers here that are already planning how they can use the MAGPIX® System in their projects.”

Laura’s proposal and entry to the competition described a study aimed at assessing blood biomarkers of immunosuppression in mice, following a stroke, which could then be correlated in human blood samples.

Dr Steven Suchyta, Product Manager at Merck Millipore said of the winning entry, “Of over 150 entries from around the world, Laura won the prize because her proposal is the most novel and translatable. “Millipore welcomes all opportunities to work with cutting edge research organisations such as The Roslin Institute and this is a great example of such interactions.”

The MAGPIX® System was delivered to The Roslin Institute in June from Merck Millipore who provided Laura with some £10,000 of multiplex kits to get her started.

Dr Suchyta said, “I am pleased to say that Merck Millipore will be running a Magpix grant program again this year and I look forward to receiving more proposals as imaginative and innovative as Laura’s.”

For more information about the MAGPIX® System, 40-072 please see http://www.millipore.com/catalogue/item/40-072

Kits for the MAGPIX® System are available for many protein markers across multiple species please see http://goo.gl/sijRXn

Merck Millipore representatives will be holding a seminar at The Roslin institute soon with information on how the MAGPIX® System may be useful to researchers across multiple fields of research in The Roslin Institute, R(D)SVS and SRUC and future grant programs available from Merck Millipore.

Laura’s research continues to be successful, winning poster prizes at the Edinburgh Infectious Diseases annual symposium in May and the Inflammation and Disease meeting held by the British Society for Immunology Inflammation Affinity group in Manchester in September. Laura has also recently been awarded a $1,500 scholarship from the American National Institute of Neurological Disorders and Stroke (NINDS) to attend a Keystone meeting “Neuroinflammation in diseases of the CNS” in New Mexico.
September saw the The Roslin Institute hold its biannual celebration of staff achievement, the “Recognising Excellence” Awards.

The Roslin Institute’s HR Manager, Cat Eastwood, explained, “We feel that it is incredibly important to recognise our staff for the outstanding work they undertake in pursuit of The Roslin Institute’s research goals. The fact that we had so many very strong nominations from both the scientific and the operational sectors of the Institute is indicative of how highly the staff are regarded.”

The Institute’s Impact Committee, chaired by Professor Helen Sang, made recommendations for the award recipients based on the nominations received from staff and students from across the Institute. The recommendations then went to the Institute’s Science Management Group for final approval.

On presenting the awards, Professor David Hume, Director of The Roslin Institute, said, “I am so proud of what the individual staff and students achieve at The Roslin Institute and their combined force is what makes the Institute so strong. These awards recognise those who have really gone above and beyond in their work, but I know there are many more who would also be worthy winners.”

The full list of winners is:

Outstanding Science Team – Team Sheep led by Iseabail Farquhar and Emily Clark

Excellent Scientific Support – Rhona Muirhead

Outstanding Operational Support – Liz Brown

Outstanding Operational Support (Team)
– Cleaning Team

KEC – John Hickey

PE – Katie Nightingale

Inspiring Supervisor/Mentor Award
– Steve Bishop

Emerging Researcher (PhD Student)
– Natasha Whenam

Emerging Research (Post-doc award)
– Louise Stephen

Outstanding Researcher – Barry McColl

Special Recognition – Bob Fleming

Roslin Recognises Excellence in Staff Awards
From 4-19 October, science-themed events were happening all over Midlothian as part of the third annual Midlothian Science Festival. The Roslin Institute is a major partner of the festival and staff and students from the Institute were involved in six events this year in addition to the Easter Bush Campus Open Day, including a genetics talk for students at Beeslack High School and ‘Farm Detectives’ workshop for P4 and P5 pupils at Roslin Primary School and a science cycle ride with the Midlothian Ranger Service and a family tour of Langhill Dairy Farm. All the events were extremely well received, with participants really appreciating the chance to find out more about the research happening on their doorsteps.

The Midlothian Science Festival is a volunteer-run festival dedicated to sharing science with communities in Midlothian. Most of the events are based in community venues and as many as possible are offered free of charge. For more information about the festival visit www.midlothiansciencefestival.com

Dr Nils Lindström has come 16th in the Nikon Small World Competition. His amazing image, taken while Nils was a postdoc at The Roslin Institute, shows three transgenic kidneys cultured together, showing colliding branching collecting duct systems.

Nils, who is now based at the Edinburgh Cancer Research Centre, said of the placing, “I am very happy with this outcome because it is a very competitive section and I was the top UK-based image.”

To see all the winning images and to find out more about the competition, please visit: http://www.nikonsmallworld.com/galleries/photo/2014-photomicrography-competition
Easter Bush Campus Open Day

The Easter Bush Campus hosted its annual Public Open Day at The Roslin Institute Building and Veterinary Teaching Building on 4 October, welcoming around 400 members of the public onto campus for the afternoon. The 2014 event had the privilege to be the opening event of this year’s Midlothian Science Festival and it featured a programme packed with hands-on activities, science shows, talks and building tours in both buildings.

The Roslin Institute Building had over 100 volunteers from The Roslin Institute and Scotland’s Rural College running 25 activities across three floors. Visitors had the opportunity to see, amongst other things, the Institute’s BBSRC Great British Bioscience Festival exhibit “Flu Fighters” as well as finding out about farming of the future, how genes determine coat colour in Labradors and a chance to meet the infamous Dr Poo!

Thanks to support from the Midlothian Science Festival, The Roslin Institute was also delighted to be able to welcome Simon Watt with his Superhero Genetics Show, which was a big hit with visitors.

As always, the visitor feedback was overwhelmingly positive, with many compliments about our engaging, friendly staff and student volunteers who made the science interesting and accessible to everyone. The only complaint was that we should have been open for longer to allow time to see it all!
The bacterially inclined visit Firbush  

November is not traditionally the time of year people think about doing too many outdoor activities, but we’re a hardy bunch in infection and immunity. So, November 17th-20th saw about 27 members of the bacterial-focused research groups from infection and immunity head off to the University-owned Firbush outdoor centre for a two-day retreat.

After arriving Monday around mid-day, we had our first activity—a friendly competition of orienteering, which of course doubles as a team-building exercise! (Orienteering, map-reading, bumbling around in the bushes up and down hills to find a little punch to mark your scorecard.)

After recovering with a bit of a hot drink, we had the first round of talks from the students and post-docs before dinner. Post dinner games and a bit of networking were the order of the evening before falling (well, for me anyway!) into bed for some quality sleep.

Tuesday morning saw two more sessions of talks, interrupted by a further activity period for a change of pace. Overall, it was a great opportunity to hear what our colleagues are doing and to get feedback on direction of research or offers of help with techniques and suggestions for experiments.

It was also interesting to see the commonalities and diversity of research happening across the groups from the more clinically-related research to very basic research, and to get to know some of the members a bit better.

It was a great experience, I think everyone got something out of it, and I look forward (hopefully) to more of them in the future!

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Ethics Prize Winners

Earlier this year, Dr Doug Vernimmen repeated his course on Ethics about what scientific issues to expect in the future and how we would solve these. Science has dramatically progressed since the full sequencing of the human genome a decade ago but also the research on stem cells. Stem cells can be differentiated in any cell type, giving new horizons for cell therapy but also in livestock. Together with the high throughput sequencing techniques, the secret of the genome can now be uncovered, which implies several ethical issues.

The course used well known films to prompt discussion groups that were followed by students writing an essay of 2-4 pages. The format was presented as a competition within the Institute with two winners receiving a prize. Congratulations to Anuj and Selene.

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By Robin Cassady-Cain
In mid-November a team of virology researchers from The Roslin Institute headed to a marquee in Bethnal Green, East London to bring the best of British Bioscience to the general public. The Great British Bioscience Festival was the culmination of a year-long programme of activities to mark the 20th anniversary of the Biotechnology and Biological Sciences Research Council (BBSRC), enabling members of the public to explore the fascinating world of biology through interactive science exhibits with real scientists.

The Roslin Institute exhibit ‘Flu Fighters’ was developed alongside colleagues from The Pirbright Institute and focused on the many ways in which our researchers are fighting influenza, a major global threat to both human and animal health. It showcases current research including creating flu-resistant poultry, novel approaches to vaccines and diagnostic tests and host/virus genetics.

Visitors to the exhibit had the opportunity to get hands-on and run a diagnostic test on a (very realistic model!) chicken to discover whether it was infected with flu, create their own flu virus strain and discover more about the virus, including its huge range of host species and details of the virus life cycle. The exhibit also demonstrated how flu transmits from animals to humans and highlighted the challenges of preventing large-scale outbreaks.

The Great British Bioscience Festival, a partnership between the BBSRC and LND Science Festival, was a huge success, attracting over 6,700 visitors across three days. On the Flu Fighters stand over 1,000 diagnostic tests were performed, 750 flu logo bugs and hundreds of Flu Fighters stickers were given away and there were countless conversations with visitors of all ages about flu research at The Roslin Institute.

Nicola Stock, Public Engagement Officer at The Roslin Institute, said “The Great British Bioscience Festival was a great opportunity for the public to meet scientists, learn about the amazing research happening around the UK and find out about the impact that it could have on their life. We were really impressed with the interest and enthusiasm of the visitors, many of whom came back for a second visit as there was so much to see.”

Flu Fighters will be appearing at a range of events in 2015, including ‘Discover Science’ at the National Museum of Scotland, part of the Edinburgh International Science Festival, from 14-18 April.
This July The Roslin Institute hosted ‘Science Insights’ a brand new work experience programme for High School students interested in a career in biological and biomedical science. Created in collaboration with colleagues at the Institute of Genetics and Molecular Medicine (IGMM) and the University of Edinburgh’s Widening Participation team, Science Insights provided sixteen S5 students from across the region with unique access to researchers and facilities at The Roslin Institute and IGMM.

The students, who gave up a week of their summer holiday to attend the programme, had a packed timetable for the week which included four lab placements with IGMM and Roslin scientists, tours of facilities including Dryden Farm and IGMM’s Bioimaging Suite and talks on current research, scientific ethics and careers in science. The two days at The Roslin Institute involved over twenty PhD students and members of staff, who kindly gave up their time to inspire these potential future scientists.

Feedback from the programme was excellent, with students reporting that they found the week useful and inspiring and many of them suggesting that the programme should have been two weeks long! Science Insights will be back again in 2015 and more information about the programme is available at www.scienceinsights.ed.ac.uk

Pip wins Royal College of Pathology Award

Roslin Institute Career Track Fellow, Dr Pip Beard, has been awarded the Royal College of Pathologists’ Specialty Research Medal for 2014 for her paper entitled “TRAF2 Facilitates Vaccinia Virus Replication by Promoting Rapid Virus Entry”.

The work was carried out in Pip’s laboratory, in particular by postdoctoral scientist Ismar Haga. It describes the role of the cellular protein TRAF2 in allowing Vaccinia virus to enter a cell.

Ismar and Pip showed that when TRAF2 was removed or suppressed the virus was unable to enter efficiently. The crucial experiment in the work involved visualising individual fluorescently labelled viruses using high powered microscopes in The Roslin Institute’s bioimaging suite.

The Royal College of Pathologists’ Specialty Research Medals are awarded annually for outstanding research work undertaken by pathologists or scientists in training. Pip will be traveling to London to receive the medal in March 2015.
Public Engagement and Science Communication Roundup

By Nicola Stock (Public Engagement Officer)

2014 has been a busy year for public engagement and science communication at The Roslin Institute, with well over eighty different activities happening through the year. These ranged from participation in external events such as the Royal Highland Show and the Edinburgh and Midlothian Science festivals, public lectures and lab placements, to work with schools both on and off campus, press articles and appearances on television and radio.

This year has seen The Roslin Institute working with some new partners here in Edinburgh, including closer work with the National Museum of Scotland and a new relationship with the Edinburgh branch of the British Science Association (BSA). The Institute contributed to three of the National Museum of Scotland’s popular ‘Museum Lates’ events in 2014 and we were invited to launch the BSA’s new ‘SciScreen’ programme of film screenings with accompanying scientific talks and discussion. We also had our first experience of the Edinburgh Festival Fringe, with a show entitled ‘We’d Eat GM Meat – Would You?’ as part of the Cabaret of Dangerous Ideas, performed in a yurt on St Andrew’s Square!

The Institute’s work with schools continues to grow and 2014 has seen eleven institute visits by groups from high schools across the region. Staff and students have also gone out to schools, participating in eighteen science and careers events, several as part of the STEM Ambassadors scheme. In addition to our new ‘Science Insights’ work placement scheme, Institute staff and students also hosted four high school students on Nuffield Research Placements for 4-6 weeks during the summer, which culminated in a celebration event at the Royal College of Physicians in Edinburgh.

None of this would be possible without the time and hard work of our staff and student volunteers, so a huge thank you goes out to everyone who has been involved this year. Look out for more exciting public engagement events in 2015!

Coaching for Success

By Pip Beard

Six Roslin Institute female scientists at various stages of their career were recently sponsored to participate in the ‘Coaching for Success’ programme run by Equate Scotland. Professional career coaching is a process that helps coachees understand more about their work role and the issues they need to address to realise their potential and ultimately increase their job satisfaction. A coach can help you learn more about yourself and your abilities, and help you formulate your own solutions to problems - the coach will not tell you what to do, but will help you think through the options.

Equate’s Coaching for Success programme is specifically aimed at SET (Science, Engineering and Technology) women who would like to progress in their career, including those who are looking to return to work after a career break. The programme at The Roslin Institute consisted of five hour long meetings with the coach, plus email and phone contact between meetings. Coaches helped participants set career goals, develop managerial skills, build confidence, and enrich professional relationships.

Participant’s comments:

• I found the experience to be exceptionally valuable and positive, feeding into aspects of both my work and home life.
• Having recently returned to a research role after a break due to family responsibilities, coaching helped to build my confidence, and gave me the opportunity to evaluate my priorities and longer term personal and professional goals.
• I especially valued the time to initially reflect on strengths and weaknesses, and later to reflect on the impact of implementing the new tools and strategies.
• I particularly appreciated being able to talk through the issues facing me with someone external who has an independent perspective.
• I found coaching to be an amazingly powerful technique for highlighting my strengths, and identifying my priorities and goals.
• The coaching sessions allowed me to distinguish between unnecessary pressure that I was putting on myself from real pressures that needed to be resolved.
• I was able to focus and prioritise my tasks better and reduced the amount of worry and stress over career progression.
• I would recommend professional coaching to anyone facing challenges or change in their career – it provides focus and self-assurance.

Established in 2006, Equate Scotland is Scotland’s expert in gender equality in Science, Engineering and Technology (SET). Their Coaching for Success programme was instigated in response to a considerable body of evidence which shows that women can encounter structural barriers to their progression in the SET professions - the “glass ceiling”. There is also evidence which points to the ‘sticky floors’ that can prevent women from making the most of their skills, knowledge and abilities. For example: Many more women train in SET subjects than they qualified in compared with 52% of male graduates.

There is an under-representation of women in the highest academic ranks and in decision-making positions. For the past 20 years the bioscience undergraduate population in Scotland has been predominantly female (>50%), however the proportion of female senior lecturers in 2008-2009 was 30% and for female professors just 15%.

In other words there are internal barriers which can hold women back in both SET industry and academia. In Scotland, the loss of female scientists (the so called “leaky pipeline”) results in a loss of potential income to the Scottish economy estimated at as much as £170 million per annum.

Any Roslin Institute scientist who is interested in learning more about the coaching experience and what it involves should contact Pip Beard. For information about future Coaching for Success programmes contact Easter Bush HR (ebcamhr@exseed.ed.ac.uk).
The Roslin Institute Career development Committee has been working towards submitting an Athena SWAN silver award over the last 3 years. Athena SWAN is a UK government-backed charter for women in science aimed at advancing the representation of women in science, technology, engineering, medicine and maths (STEMM) http://www.athensawan.org.uk/content/athena-swan.

In the application submitted in April we had to present data, for example on the proportion of women at different levels at the Institute, and describe actions that we have taken to support career development that will encourage women to progress their careers. These include our Grant Writing Course, Mentoring Scheme for postdocs, Fellowship Support Group and grants for childcare costs for parents attending conferences. The full application can be read at http://www.roslin.ed.ac.uk/about-roslin/athena-swan/

We were delighted to be successful in our application and Helen Sang (research leader at The Roslin Institute) and Cat Eastwood (HR Manager) went to the Athena SWAN awards event hosted by Cambridge University in November.

Cambridge University received a silver award (organisation award), based on a big commitment from the university to make changes to systems, for example promotions and appointments, to ensure that they are fair, transparent and recognise all academic activities, including research, teaching and community contributions e.g. public engagement. They have produced an interesting book about perceptions of “The meaning of success” by consulting female staff – this book is online http://issuu.com/unicambridge/docs/the_meaning_of_success_final_revised

The Athena SWAN awards require major commitment to change that must be sustained: 83 organisations/departments applied in April, of which 69% were successful with 63 receiving bronze awards and 20 silver, so it is a significant achievement for The Roslin Institute to reach the silver award standard.

We were interested in seeing how our actions are viewed in a wider context and in developing our activities towards applying for an Athena SWAN gold award. We applied for a Workingmums.co.uk Top Employer Award (http://www.workingmums.co.uk/topemployerawards/), which recognise employers of all kinds who are progressive in their flexible working practices and proactive in seeking to retain talented staff, particularly working parents who want to combine successful careers with being a parent.

27 organisations were shortlisted in a range of categories: The Roslin Institute was shortlisted in the Family Support category alongside BAE Systems, Danone Nutricia Early Life Nutrition and the eventual category winners, Bank of America Merrill Lynch. Helen and Cat represented the Institute at the awards event.

We were very impressed by the commitment of a range of companies and organisations, large and small, to providing flexible working where possible to employees and seeing real benefits in employee satisfaction and productivity as a consequence. One category that was won by the London School of Economics was the “Best for Dads” employer – any suggestions of additional support for dads that we could put in place or suggest that the University implement?

We also nominated The Roslin Institute for a WISE Award (Women in Science and Engineering (http://www.wisecampaign.org.uk/) in the “Employer Award” category, which recognises an employer who can demonstrate an increase in the retention and progression of women in scientific, technology, engineering or mathematical roles as a result of actions they have taken to enable women to achieve their potential.

Professor Jean Manson, Head of the Institute’s Neurobiology Division was also shortlisted for a WISE Lifetime Achievement Award.

This award celebrates the achievements of a woman who has had a truly outstanding career in science, technology, engineering or mathematics and has inspired and supported other women to follow in her footsteps. Jean and Helen Sang attended the WISE Awards event in London, a formal dinner hosted by Princess Anne, requiring the wearing of “cocktail” dresses and corsages to identify us as short-listed nominees.

The event was very interesting, with some very impressive women nominated in different categories, including young engineering apprentices, dealing with being very much in the minority in their roles and visiting schools to encourage other girls to consider engineering as a career.

It is very clear that major employers are making big changes to their recruitment and working practices as they recognise that they need to increase the reach of their recruitment and retention to be able to have the skilled employees they need. Several commented on additional benefits to all employees and to company performance from the introduction of flexible working, for example.

The highlight of the evening (for The Roslin Institute) was the award of a Highly Commended WISE Lifetime Achievement Award to Jean Manson.

We learnt a lot from these events and are always looking for suggestions for new initiatives that we can develop, either within The Roslin Institute or discuss at a College or University level – so please get in touch with catherine.eastwood@roslin.ed.ac.uk or helen.sang@roslin.ed.ac.uk
Promotion success

The Roslin Institute is delighted to announce that three of its Career Track Fellow, Dr Gerry McLachlan, Dr Ross Houston and Dr Barry McColl have all recently progressed to be fully fledged Group Leaders at The Roslin Institute.

Professor Bruce Whitelaw, Head of the Developmental Biology Division at The Roslin Institute, oversees Career Track Fellow development, the scheme by which they can achieve group leader status. He said of the three recent promotions, “The Roslin Institute is committed to recruiting the most talented researchers then providing them with the resources, training and mentoring that will underpin their research in its early stages of independence.

“Ross, Barry and Gerry are all talented researchers who have all made excellent use of what is available to them at The Roslin Institute. Each has developed excellent, competitive programmes of research on which they will now continue to build their careers.”

Gerry’s focus is the development of lung gene transfer technology. Through a range of animal models he aims to understand the lung response to physical injury and evaluate new respiratory disease treatments. For more about his research go to http://www.roslin.ed.ac.uk/gerry-mclachlan/.

Ross Houston undertakes research that aims to advance the understanding of host genetic regulation of disease resistance in aquacultured species through the application of genomics. More at http://www.roslin.ed.ac.uk/ross-houston/.

Barry McColl (centre) has developed a group that is focusing on the neuro-immune interactions in health and disease. Much of his research centres on the role of the inflammatory response following a stroke. For more, visit Barry’s web pages at http://www.roslin.ed.ac.uk/barry-mccoll/.
Cake Bake
Karen Bryson and Edith Paxton were two of the Roslin Baking Army that raised an impressive £260 at a bake sale in aid of Macmillan Cancer Support. Well done to all the bakers and also to all those with a sweet tooth who briefly put aside will power and succumbed to the temptation of brownies, cupcakes, flapjacks and much more.

Cycle to Work Day
Research scientist Marie O’Shea got The Roslin Institute on its bike in September as part of National Cycle to Work Day. Since moving to its new building in 2011, The Roslin Institute has been taking part in schemes run by the University of Edinburgh to get more of its staff and students cycling to work. Covered cycle storage facilities, showers and dedicated cycle paths have all improved the lot of the Institute’s cyclists. However, Marie and a small group of like-minded colleagues are beginning to find new ways of encouraging others to join them as they get to work in a healthy and sustainable way.

One such activity was to get involved with the National Cycle To Work Day 2014. Marie was joined by 45 other cyclists who, between them, covered 605.8 miles (roughly the distance from Edinburgh to Land’s End). To encourage everyone to get involved the Institute provided participants with a free pastry and hot drink in exchange for the hard-burned calories! Marie congratulated all those who had taken to two wheels for the day saying, “The conditions were perfect for cycling and hopefully more people will have been inspired to do it on a daily basis! It was great to see the bike sheds so full. The standard has been set for next year!”

Marathon Man!
Dr Ross Houston, Group Leader at The Roslin Institute, ditched his labcoat in favour of running shoes as he donned the Scotland Team’s running strip and represented his country in the 2014 Commonwealth Games. Not only is Ross an outstanding geneticist but he also showed himself to be the 16th fastest man in the Commonwealth over a distance of 26 miles when he took part in the Commonwealth Games marathon. Ross’ time was an impressive 2 hours 18 minutes and 42 seconds.

Everyone at The Roslin Institute was immensely proud of Ross’ achievement and it was almost as much of a talking point as the uniform he wore at the opening and closing ceremonies. Go Ross! Next stop Rio de Janeiro!!
**BBSRC Postdoc group**

Dr Prerna Vohra (right), a postdoctoral research fellow in Professor Mark Stevens’ Group at The Roslin Institute has recently been selected as a BBSRC postdoc representative on the BBSRC Bioscience Skills and Careers (BSC) Strategy Panel Postdoc Advisory Group. Prerna recently attended a panel meeting at which one of the main objectives was to find ways to build the BBSRC postdoc community. She said, “It was the first time postdocs have been involved in skills and careers discussions with the BBSRC, which is a huge opportunity for us. To involve postdocs from all over the country, a BBSRC Postdocs LinkedIn group has been formed where we can discuss issues and ideas that will go onto the agenda for the next meeting. It is also a platform for sharing knowledge and materials and supporting one another.

“We, the postdoc representatives on the panel, are also discussing ideas such as the organisation of symposia for BBSRC funded postdocs to showcase the variety of research funded by the BBSRC and provide opportunities for networking and building collaborations. I would encourage all postdocs to join the LinkedIn group.”

If you would like to know more or get involved, please contact Prerna on Prerna.Vohra@roslin.ed.ac.uk or the BBSRC on postdoc.researchers@bbsrc.ac.uk and join the discussion on the BBSRC Postdocs LinkedIn group.

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**Roslin Imaging’s Got Talent**

The University of Edinburgh has a wide variety of outstanding, state-of-the-art imaging facilities across its campuses. These facilities provide excellent resources for PhD students at the University and their outputs were celebrated at the recent “Imaging’s Got Talent” competition organised by Edinburgh Imaging and sponsored by Prof Joanna Wardlaw, from Neuroimaging Sciences. The winners, including two from The Roslin Institute, were:

- **Rebecca Saleeb**, IB3 (Best Presentation Style)
- **Claire Davies**, The Roslin Institute (Best Scientific Content)
- **Anuj Sehgal**, The Roslin Institute (Most entertaining Presentation)

Anuj Sehgal, a PhD student in Dr Neil Mabott’s group at The Roslin Institute, said of the competition, “Imaging’s Got Talent was a very enjoyable meeting! The standards of presentation were extremely high and impressive; it is amazing how much information people can get across in 3 minutes and also manage to make it fun! I felt fairly confident when I went to the meeting, but upon watching some of the presentations before mine, I got extremely nervous. In the end my three minute presentation (‘Surveillance of CCTVs in the gut’) was made easier because my nerves made me speak faster.”

Claire Davies, a PhD student in Dr Barry McColl’s group, won the prize for Best Scientific Content (above). She presented a time course of confocal images depicting the inflammatory response in the brain and discussed future plans to investigate cellular changes and visualise cell interactions. She hopes that understanding the mechanisms that underlie inflammation and resolution will eventually lead to the development of novel therapeutics that could promote efficient resolution in the brain and would have an impact on numerous neurological conditions that have an inflammatory aspect.

After the presentations the participants, including students, post-docs, and senior researchers from different universities across Edinburgh, had the opportunity to mix over pizza and refreshments.

Claire noted that The Roslin Institute was represented well at ‘Imaging’s Got Talent’. She was keen to thank Bob Fleming, manager of The Roslin Institute’s Bioimaging Facility, for all the help he has provided to Institute scientists when their projects involved imaging. It is a view shared by the many who have benefited from the support offered by Bob and his team and The Roslin Reporter would like to congratulate Anuj and Claire for being excellent ambassadors for Roslin Bioimaging.

For more about Edinburgh Imaging please visit its website www.ed.ac.uk/edinburgh-imaging and watch http://www.youtube.com/watch?v=CDXT-2OhgS8.
The Roslin Institute was saddened to hear of the death of Thomas Christopher (Toby) Carter who was director of the Poultry Research Centre, one of the early forms of The Roslin Institute, in the 1960s.

Toby’s scientific career was initiated when he obtained a first class Honours BA in Natural Science at Cambridge University, followed by an MA in the same discipline. While at Cambridge Toby was involved, too, under John Cockcroft, in the development of what later became known as Radar.

When the Second World War broke out, Toby’s Natural Science background, his flying experience and his work on radar meant that he was a natural choice when it came to selecting people to set up radar stations throughout Britain.

Toby was awarded an OBE Mil for a variety of heroics during action in Asia and was promoted to Wing Commander.

Toby moved to Cambridge after the war where he embarked on a career in Animal Genetics, which took him to Edinburgh, in 1948, where he started to work on his first doctorate, a DSc in Natural Sciences, and then, a couple of years later, his second one, a PhD in Animal Genetics. Toby worked in the MRC group of the Institute of Animal Genetics, at King’s Building, under Conrad Hal Waddington.

In 1954 Toby moved to Harwell with the MRC. There he stayed until 1958, as Head of the Genetics Section, working in the Animal Genetics Division of the Medical Research Council. A short break from Academia followed. Toby was appointed scientific director of all Western Chickens, based in Devizes, Wiltshire. When Western Chickens merged with Buxton Chickens, Toby returned to Edinburgh, where he became scientific director of Danny Marshall’s Chunky Chicks.

In 1961 Toby was lured away from the business world and made Director of the PRC (Poultry Research Centre), part of the Agricultural Research Council. Toby retired from the PRC based in Roslin, at the Roslin Institute at the age of 60, in 1978. During the course of his work at the PRC he was awarded an FRSE from the Royal Society of Edinburgh. Toby died on 18th August. He is survived by his wife Jacquie and daughters Susan, Lucy and Rosemary.
Doug Vernimmen (Roslin) and Sari Pennings (QMRI) launched the idea to bridge the 4 campus together (Roslin, IGMM, SCRM/QMRI and KB) and to meet other people within the UoE working on this topic.

Connecting Science between Research Institutes within the University

Chromatin, Epigenetics, and Transcriptional Regulation

UoE NETWORK

Wednesday 14th January 2015
HRB Lecture Theatre, George Square
4.00-6.00pm

Speakers:

Philipp Voigt (WTCCB)
*Roles of H3K27me3 at bivalent domains*

Abdenour Soufi (SCRM)
*Mechanistic insights into the initiation of cell fate conversion*

Michael Moffat (IGMM)
*Non-catalytic functions of polycomb repressive complexes*

Anna Mantsoki (Roslin)
*Comprehensive analysis of bivalent domains in mammalian embryonic stem cells*

Organisers: Doug Vernimmen (Roslin) & Sari Pennings (QMRI)
Contact: douglas.vernimmen@roslin.ed.ac.uk / Sari.Pennings@ed.ac.uk

With this connection, Edinburgh may be becoming the most powerful University in the UK for this topic. So lets do what we can to make it stronger!

This meeting will take place 3 times a year (October, January and May) and will be a good opportunity for students and postdocs to present their work in front of a specialised audience. Moreover, it would give the opportunity to get feedback at the start/end of their project and also good practice for conference, viva exams, grant/fellowship application, etc...

We also hope that these meetings will help to foster programme grants, PhD programmes between labs and institutes in Edinburgh.
As any of our longer term residents will know, at our old site we used to now and again allow a sole supplier to loiter behind a table in the Reception area for a day. This was purportedly a “Supplier Exhibition” where the rep would desperately try to raise interest from sparse passing traffic in the various products they had on offer. There were varying degrees of success over the years and in comparison to similar events round the Edinburgh area ours were definitely low key.

However, once the dust sheets were cleared from our wonderful new building in 2011, it was immediately apparent that we had the facilities to take things to a whole new level. Initial sage advice from those in the know (the editor included) was that we could perhaps comfortably fit in 12-15 suppliers on the day. Armed with a copy of the ground floor plan, (and as our fledgling Summer Supplier Fair became our Autumn Supplier fair and then finally our Inaugural Xmas Supplier Fair) we stretched the seams of that hypothesis somewhat. Eventually on the day we had 30 Suppliers in the building and many lessons learned for the future, mainly don’t do talks at the same time as a Supplier Fair. We repeated the event with similar numbers in 2012 & 2013 with its reputation growing as one of the key supplier events in the Calendar. Coolest person on the day was Kevin from Dundee Cell Products who was already calmly having his first meeting at 9.30 while all around chaos gradually subsided for the 10.00 start.

We have to extend thanks to all who got involved on the day, the servitors team for helping to shift every stick of furniture on the ground floor and then putting it back how it was before, our facilities team for pitching in with extension leads and assistance at no notice, Dryden for once again loan of extra tables, our comms team for bouncing e-mail far and wide, Ray at Reception for helping to shepherd lost suppliers, and of course everyone else in the building who isn’t lab based for putting up with it all.

As usual various fun activities and prize draws enjoyed by all on the day. Our Star prize of an iPad was won by one of the Senior Technicians at SBS who had “enjoyed” the one glitch we had in our bus scheduling which involved a tour of Edinburgh via IGMM into the bargain. Her comments on the card though summed up the spirit of the event, “Only visited the stands related to my work”.

The Supplier Fair will take place again next year on 29th October so if you would like to know more, please contact the Institute’s procurement office via roslin.stores@roslin.ed.ac.uk.
Breeding for Bacon, Beer and Biofuels

16–17 April 2015. The Roslin Institute, Edinburgh

The growing world population demands a sustainable intensification of agricultural production across the globe. At the same time there is competition for land use and we have to mitigate both the causes and consequences of climate change. This poses a range of challenges for plant and animal breeders who have to select the genotypes that are best suited to future production circumstances which are uncertain. At the same time, technological and methodological advances provide breeders with a range of tools to accelerate genetic progress and enable ‘precision breeding’. This meeting will bring together scientists from different disciplines related to artificial selection and highlight different aspects on how genetics continues to be a cornerstone of food production. The topics of the meeting will be across plant and animal species and range from domestication of new species for agriculture to genomic selection, genetic modification and novel phenotyping approaches.

Speakers
Li-Hua Zhu, Swedish University of Agricultural Sciences
Thomas Lubberstedt, Iowa State University
Jennie Pryce, La Trobe University
Helen Sang, The Roslin Institute, University of Edinburgh
Chris-Carolin Schön, Technische Universität München
Alison Bentley, The John Bingham Laboratory
Graham Moore, John Innes Centre
Catherine Howarth, University of Aberystwyth
John Hickey, The Roslin Institute, University of Edinburgh
Anna Sonesson, Nofima

Scientific Organisers
Helen Sang, Roslin Institute, University of Edinburgh
Alan Archibald, Roslin Institute, University of Edinburgh
Ian Mackay, NIAB
DJ de Koning, Swedish University of Agricultural Sciences

for registration, visit www.genetics.org.uk
Coming and Going

As always, The Roslin Institute has seen a large number of new starts in recent months. Of particular note on that score is the new cohort of PhD students, which has been settling in and getting to grips with lab life. We

Of course, as we welcome new faces we also bid fond farewells to the slightly better known. One such face is that of Lesley Penny who has been the named vet at The Roslin Institute since 1999. Lesley has been a key member of many research teams and has been really important in providing robust advice and animal care throughout her tenure at the Institute. At a very well attended gathering in July, Institute Director, David Hume, thanked Lesley for her dedication to her job and for being such a great person to work with. Lesley has moved on to take the role of Director of Veterinary Services at the University of Edinburgh and we wish her well and look forward to continued interactions with her in that role.

The other big loss to The Roslin Institute team is Sheelagh Strachan who retires this year. Sheelagh joined the Institute in 1989 (when it was still part of the Agricultural and Food Research Council) and has since worked at the farm, in finance and latterly as a Departmental Administrator for the Division of Developmental Biology. Over the years she has become an asset to the Division and the wider Institute and Bruce Whitelaw, Head of the Division said, “It has been a real pleasure working with Sheelagh over the years. From being a welcoming face for new starts to resolving issues for the older faces in the Division, Sheelagh will be fondly remembered by all in Developmental Biology. We wish her a wonderful retirement.” Sheelagh is looking forward to retirement and spending more time with family. It’s well deserved.
Yes, it’s that time of year again! The Roslin Institute Building Players were back in full costume to sing and giggle their way through the annual pantomime, which this year was “The Wizard of Roslin”. Complete with flying monkeys and super-sized Toto the cast were on fine form. Dorothy, the tin man, the scarecrow and the cowardly lion all managed to get themselves through a series of challenging seminars and lab incidents before finally finding the way to secure their dreams and kill the wicked witch, thus overcoming her constant rejection of their funding applications.

2014 Pantomime

Our third big loss is the departure of Tricia Hart. Tricia has been with Roslin and its predecessors since 2001. First as post doc in NPU and latterly as the Scientific Administrator. She will be hard act to follow, both as science administrator and pantomime villain. Bruce Whitelaw, Head of Division said “Tricia’s energy and diplomacy has been felt by most people in the Institute. Her willingness to prompt, ability to see things before they happen and determination to get things done have been a real asset to Roslin. I am sure everyone but especially the SMG wish her all the very best in her future position.”

In her own words “my wanderlust has got the better of me so I am lacing up my seriously cool new DMs and disappearing to Sheffield”. Hopefully Tricia will not disappear and find the opportunity to visit Roslin in the future.

Tricia follows her man to pastures new

In her own words “my wanderlust has got the better of me so I am lacing up my seriously cool new DMs and disappearing to Sheffield”. Hopefully Tricia will not disappear and find the opportunity to visit Roslin in the future.
Recent Roslin Institute Publications


Cytokine expression in the placenta of pregnant cattle after inoculation with Neospora caninum. Veterinary Immunology and Immunopathology 161(1-2), 77-89, DOI: 10.1016/j.vetimm.2014.07.004.


Sandøe, P., Hocking, P.M., Førkman, B., Haldane, K., Kristensen, H.H. and Palmer, C. (2014) The blind hens’ challenge: Does it undermine the view that only welfare matters in our dealings with animals? Environmental Values 23(6), 727-742, DOI: 10.3197/096327114X13947900181950


Staines, K.A., Zhu, D., Farquharson, C. and MacRae, V.E. (2014) Identification of novel regulators of osteoblast matrix mineralization by...


