



## CONFERENCE 2017, Dublin, Ireland

### Genome edited animals

STANDING COMMITTEES / WORKSHOPS Information will be posted online

**Organised by a standing committee** yes

**Date and meeting time:** Monday 17<sup>th</sup> July at 2.30pm

**Chair, name and contact email:** Bruce Whitelaw

#### Agenda / programme:

<b>Genome edited animals</b>	
<b>Genome edited animals (MONDAY)</b>	
<b>Chair: Bruce Whitelaw</b>	
2:30 PM	<b>Introduction to Session and Update on Genome Editing Regulatory Position.</b> Bruce Whitelaw.
2:45 PM	<b>Pest off: Could gene drive help to drive out Australia's invasive pest animals.</b> Mark Tizard, <i>CSIRO-AAHL, Geelong, Australia.</i>
3:15 PM	71550 <b>Editing the future of the domestic pig.</b> Simon Lillico <sup>*1</sup> , Chris Proudfoot <sup>1</sup> , Christine Burkard <sup>1</sup> , Fyodor Urnov <sup>2</sup> , Jon Oatley <sup>3</sup> , Bhanu Telugu <sup>4</sup> , Alan Mileham <sup>5</sup> , and Bruce Whitelaw <sup>1</sup> , <sup>1</sup> <i>The Roslin Institute, Roslin, Midlothian, UK</i> , <sup>2</sup> <i>Sangamo Biosciences, Richmond, California, USA</i> , <sup>3</sup> <i>Washington State University, Pullman, Washington, USA</i> , <sup>4</sup> <i>University of Maryland, Beltsville, Maryland, USA</i> , <sup>5</sup> <i>Genus Plc., DeForest, Wisconsin, USA.</i>
3:45 PM	<b>Coffee/Tea Break.</b>
4:30 PM	70164 <b>The role of <i>Leptin</i> in nonalcoholic obesity, diabetes and hepatic fibrosis.</b> Tan Tan <sup>*1,2</sup> , Zhiyuan Song <sup>1</sup> , Yiming Xing <sup>1,2</sup> , XiaoXiang Hu <sup>1,2</sup> , and Ning Li <sup>1,2</sup> , <sup>1</sup> <i>College of Biological Sciences, China Agricultural University, Beijing, China</i> , <sup>2</sup> <i>State Key Laboratory for Agro-Biotechnology, Beijing, China.</i>
5:00 PM	71362 <b>Developing and exploiting new technologies to advance understanding of the avian immune system.</b> Adam Balic <sup>*</sup> , Helen Sang, and Mike McGrew, <i>The Roslin Institute, University of Edinburgh, Edinburgh, Scotland, UK.</i>
5:30 PM	<b>Discussion About Role of Genome Editing as a Functional Genomics Platform.</b> Bruce Whitelaw.

**Number of participants at meeting:** ~100 before the refreshment break, and ~80 after.

**Summary of the meeting** including votes, decisions taken and plans for future conferences

Bruce Whitelaw opened the Workshop by linking back to the Tad Sonstegard's Plenary Talk that morning where he enthused about the development phase genome editing of livestock is currently addressing. He illustrated this with the exciting progress of Recombinetic's editing of the Polled

and Slick loci in cattle. He highlighted the current lack of appropriate regulatory processes. Bruce Whitelaw then updated the participants by reporting on the Third International Workshop on animal Biotechnology Regulation recently held in the US.

This set the scene for the 4 Workshop speakers. The first of which was Mark Tizard (Australia). As an invited speaker Mark described RNA-based gene drive applications. This high profile application is currently limited to insects but has been modelled in a livestock breeding scenario. Mark emphasised that the safety aspects of this technology is driving research at the moment and eluded to mammalian applications that are in the pipeline.

The second speaker Simon Lillico (UK) informatively described the technology and illustrated how it can be successfully used to create point mutation, exon deletions and introgress SNPs into the pig genome. He presented data on both the CD163 and Nanos projects which are attracting considerable interest from the commercial animal breeding sector.

After the break there were two contrasting talks from young scientists. The first from Tan Tan was in the biomedical arena and presented the considerable data produced regarding the engineering of pigs to study obesity. The second by Adam Balic (UK) illustrated how this technology can be used to tease apart development of the avian immune system.

In the open discussion that followed off-targets was discussed reflecting the current media attention on the back of a recent publication describing mouse work. The discussion revolved around the lack of robust scientific design and interpretation in this publication. This developed into a more general discussion around the public debate around genome editing technology and its applications. Bruce Whitelaw posed the question: should ISAG have a visible presence in this debate? – participants were asked to vote on this question with 95% of the nearly 100 in attendance voting yes. In the subsequent open discussion there was a strong consensus that ISAG could have role in this public debate but that the mechanism of how and when would be for the ISAG Committee to ponder on.

#### **Committee members** (the new committee)

Chair	term of service	E mail address:
Bruce Whitelaw	2014-2019	<a href="mailto:bruce.whitelaaw@roslin.ed.ac.uk">bruce.whitelaaw@roslin.ed.ac.uk</a>

Other members	term of service	E mail address:
Tad Sonstergard	2016-2021	<a href="mailto:tad@recombinetics.com">tad@recombinetics.com</a>
Wang Xiaolong	2016-2021	<a href="mailto:xiaolongwang@nwafu.edu.cn">xiaolongwang@nwafu.edu.cn</a>

After the Workshop the Chair spoke to several individuals about their interest to join the Workshop committee. Two indicated they would consider and confirm by the end of the year.

Simon Lillico	to confirm	<a href="mailto:simon.lillico@roslin.ed.ac.uk">simon.lillico@roslin.ed.ac.uk</a>
Mark Tizard	to confirm	<a href="mailto:mark.tizard@csiro.au">mark.tizard@csiro.au</a>

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**COMPARISON TEST (2016-2017)      no**