Improving peer review of *in vivo* research proposals

9 May 2018

Central London

Pioneering Better Science

About the meeting

Recent years have seen a number of important initiatives aimed at raising the sometimes-inadequate standard of experimental design and reporting of animal experiments. For example, the NC3Rs ARRIVE Guidelines lay out the criteria that should be met in reporting animal studies in order that their results and conclusions can be properly evaluated by readers. These criteria address a range of issues relating to transparency and validity of experimental design, the avoidance or minimisation of bias, and the adequacy of statistical aspects of the study, such as power and analysis methods.

Considering these initiatives, the NC3Rs, MRC, BBSRC and other research funders have revised and updated their guidance to applicants on what information needs to be provided to allow proper evaluation of the scientific strengths and weaknesses of research proposals involving animal use. To help guide researchers through the design of their experiments, the NC3Rs has also launched the Experimental Design Assistant (EDA), which is recommended as a resource by the funders.

The workshop aims to raise awareness about the importance of good experimental design and reporting, the revised guidance, and the crucial role of expert members in assessing the quality of information provided in *in vivo* research proposals.

Agenda

10.00 – 10.30	**Registration and refreshments**
10.30 – 10.40	**Welcome and introduction** Chair: Dr Mark Prescott, NC3Rs
10.40 – 11.00	**Background to the MRC's revised guidance and its implementation** Dr Frances Rawle, Medical Research Council
11.00 – 11.20	**The importance of good experimental design (e.g. randomisation and blinding), and the consequences of getting it wrong** Professor Malcolm Macleod, University of Edinburgh
11.20 – 11.40	**Statistical power and the perils of chance** Dr Kate Button, University of Bath
11.40 – 12.00	**Study design: effect sizes and statistical analyses** Professor Hazel Inskip, University of Southampton
12.00 – 13.00	**Lunch**
13.00 – 13.20	**Improving the design and reporting of animal studies: the ARRIVE Guidelines and Experimental Design Assistant** Dr Nathalie Percie du Sert, NC3Rs
13.20 – 13.40	**Making each subject count: examples from industry** Dr Mandy Bergquist, GlaxoSmithKline
13:40 – 13:50	**Introduction to the breakout session**
13.50 – 14.50	**Break-out group discussion**
14.50 – 15.10	**Refreshments**
15.10 – 15.40	**KEYNOTE: Improving bench-to-bedside translation** Professor Ulrich Dirnagl, Charité
15.40 – 15.50	**Closing remarks** Chair: Dr Mark Prescott, NC3Rs
15.50~	**Meeting close**

Speaker biographies

Dr Frances Rawle, Medical Research Council

Frances is Director of Policy and Governance at the MRC. Amongst the policy areas she leads on are the use of animals in research, open science, and the MRC's work aimed at improving the reproducibility and reliability of biomedical research.

Professor Malcolm Macleod, University of Edinburgh

Malcolm is Professor in Neurology and Translational Neuroscience at the Centre for Clinical Brain Sciences, University of Edinburgh, and Head of Neurological Diseases and Stroke at NHS Forth Valley. One of his main interests is the development of techniques to allow the systematic review and meta-analysis of data from animal studies.

Dr Kate Button, University of Bath

Kate is a Lecturer in Clinical Psychology at the University of Bath, and a leading voice in the debate on scientific rigour and reproducibility. Her research focusses on the cognitive mechanisms of common mental health disorders and their treatment. Her meta-science work explores systematic weakness in the published evidence, and by promoting transparent and rigorous practices, Kate hopes to improve the rate of translation of experimental psychological findings into clinical practice.

Professor Hazel Inskip, University of Southampton

Hazel is a statistical epidemiologist and deputy director of the MRC Lifecourse Epidemiology Unit at the University of Southampton. She served on MRC's Population and Systems Medicine Board from 2012 to 2017, and for the last four years was its deputy chair. She was involved in developing MRC's revised guidance for grant applications involving animal experiments. Her research involves cohort studies and trials focusing on improving pre-conception health and fetal, infant and child development. She has run the Southampton Women's Survey since its inception in 1998, a cohort of women and their children in which the women were recruited before conception of the child.

Nathalie Percie du Sert, NC3Rs

Nathalie leads the NC3Rs' programme of work on experimental design and reporting of animal studies, which include resources such as the ARRIVE guidelines and the Experimental Design Assistant. Nathalie holds a PhD from St George's University of London and worked as a post-doctoral researcher in the field of nausea and emesis at UCSF and at the Chinese University of Hong Kong, where she developed expertise in in vivo research and systematic reviews and meta-analysis of animal models.

Dr Mandy Bergquist, GlaxoSmithKline

Mandy has worked in non-clinical statistics at GlaxoSmithKline (GSK) for over 15 years, consulting with biologists, chemists, and physicians on projects across pharmaceutical research and development. Currently, she leads the statistical team in the Target Sciences group at GSK, which provides statistical consulting for GSK's programmes and collaborations.

Professor Ulrich Dirnagl, Charité Universitätsmedizin Berlin

Ulrich is Professor for Clinical Neurosciences and serves as Director of the Department of Experimental Neurology at Charité. Since 2017 he is also the founding director of the QUEST Center for Transforming Biomedical Research at the Berlin Institute of Health. QUEST aims at overcoming the roadblocks in translational medicine by increasing the value and impact of biomedical research through maximizing the quality, reproducibility, generalizability, and validity of research.

Notes