

# Plenary Papers

## **Animals Rule: Immuno-Bridges and Regulatory Scaffolds for Emergency R&D**

Ann H. Kelly (King's College London)

This paper considers the epistemic and moral weight research animals take in the context of a public health emergency. The 2013-2016 West African Ebola Outbreak marks watershed in emergency research and development, culminating in the rapid approval and deployment of several experimental vaccine candidates. Data from animal models were critical to compressing those R&D timelines; under the 'Animal Rule' regulatory provision, the extrapolation of those preclinical studies were allowed to 'bridge' gaps in evidence of vaccine efficacy in humans. Drawing from experience serving on the WHO SAGE Working Group on Ebola Vaccines and Vaccination, the paper reflects on the regulatory challenges and moral afterlives of 'immunobridging' and the animal-based inferential-repertoire to which these strategies of R&D acceleration have given rise. This rather fragile regulatory scaffold ultimately provides critical insight into the moral economies of emergency R&D enterprise and the challenges in squaring the humanitarian exigencies of public health care crisis, commercial investment in medical countermeasures and the biomaterial realities of animal laboratory life.

## **Challenge experiments, and the choreographies of time and temporalities in contemporary comparative immunology**

Tone Druglitrø (TIK Centre for technology innovation and culture, University of Oslo)

This paper explores the new role of fish in immunology and the possible implications it has for how biological life is compared and valued in the life sciences. To do this, I share empirical insights from recent ethnographic fieldwork among immunologists in Norway working to map the immune system of the Atlantic cod. I focus on a specific part of this fieldwork, where we followed scientists doing challenge experiments to identify specificity in the cod's immune responses. The cod is of interest to the scientists because it is known to have a "poor antibody response" yet still being able to reproduce and live sustainable lives. Where immunological memory is located in cod, is described as the "cod immune puzzle", and if solved promises to meet challenges of innovation in cod aqua culture as well as the treatment of autoimmune disease in humans. This paper is a first effort to unfold the multiple and intersecting temporalities at play in doing challenge experiments. In doing this, I hope to tease out the choreographies of time and temporalities required for doing experimental work on cod – a non-model organism - that aims to understand immunological memory, and to say something about how the cod immune system mapping represents new trajectories in immunology that is oriented towards sustainable life through diversity and involves new ways of valuing fish and fish-human relations.

# Emerging voices

## Exploring Stakeholder Expectations for the Institutional Ethical Review of Animal Research

Kathleen Salter (School of Sociology and Social Policy, University of Nottingham)

Animal Welfare and Ethical Review Bodies (“AWERBs”) are required in all organisations that use or supply research animals and play a key role in UK animal research regulation. This paper draws on an ongoing ESRC-funded project that aims to critically reflect on the role of ‘ethical review’ in these committees by better understanding the relationship between ethics, ‘publics’, and laboratory animal science. It details an in-depth document analysis of key policy and guidance for the AWERB as produced by various stakeholders. The theoretical focus is collectively held values/visions developed throughout the documents, which indicate (often tacitly) a ‘desirable’ future of animal research practice achievable through ‘successful’ ethical review (or “Imaginarities of Ethical Futures”). Findings include the way in which, (1) the legitimate stake of ‘the public’ in animal research is positioned as ‘consumers’ of its outputs, (2) ‘ethical review’ in the AWERB is driven to pursue a ‘common morality’ and, (3) ‘ethical science’, ultimately, being positioned as ‘good’ (refined and productive) science. Potential implications of these ‘imaginarities’ on AWERB discussion/decision-making will be discussed further, alongside a brief introduction of the second phase of this research project which involved focus groups with ‘lay publics’ that placed such ideas at their centre.

## Targeted vaccines for targeted population groups: translating and aligning obesities and immune systems into a workable mouse model

Hanne Castberg Tresselt (TIK Centre for Technology, Innovation and Culture, University of Oslo)

This paper will explore how relations between human populations and animal models are negotiated within cutting-edge vaccine development. It draws on my PhD research on a group of immunologists and their work to develop new DNA-vaccines. Using gene technology allows them to work on the immune system in new ways, one that aims to be more effective, targeted and tailor-made. While development of prophylactic vaccines tailored to the specific individual is not feasible today, targeted vaccines allow them to work on subgroups of the population such as age, genetics, gender, immunological history, and weight. In this paper I focus specifically on the work they do around obesity and how they construct relations between obesity and the immune system as part of this. More specifically, I focus on the challenges of establishing an animal model that can work as a translational space for human obesity and human immunological challenges. While the BALB/c mouse is regarded as a better model for the human immune system and therefore the one most commonly used, Black6 is a better model for obesity. How do they practically and conceptually navigate the inherent tensions in this translation work? The aim of this paper is to begin to explore this novel empirical terrain and possible analytical trajectories for understanding the role of animals as epistemic things in current immunological science.

## **“How I handle rats depends on how the rat wants to be handled”: An exploratory investigation of the motivations and perceptions underlying choice of handling method for laboratory rats**

Jo Hockenull, Trinity Camacho and Charlotte C Burn (Animal Welfare Science and Ethics, The Royal Veterinary College, Hertfordshire)

How laboratory rats are handled has implications for their welfare and the validity of results, yet little is known about routine practice. An online survey was completed by 249 international respondents on their choice of handling method, and their perceptions and concerns associated with it. Data encompassed eight distinct handling techniques, plus an additional ‘other’ category. Choice of handling method appeared largely driven by perception of rat comfort across all handling methods, with the exception of tail handling where speed and handler training were the main drivers. Comfort was a fluid construct, varying with the size, sex, experience, age and temperament of the rat, and the type of procedure they were involved in. Respondents typically prioritised rat wellbeing and the minimisation of a stress response, but how they acted to achieve this varied widely with their perception of best practice. There were concerns associated with each method including the risk of injury to handlers, causing pain or stress to the rat, and the time needed to train the rats for the method to be effective. The findings provide an insight into the decision-making processes surrounding laboratory rat handling which can be used to inform future interventions to improve rat welfare.

## **Flying Monkeys and Frogs in Space: towards a logistical history of laboratory animals**

Tom Quick (Maastricht University)

This paper will present an intellectual frame through which we might re-think the history and present status of laboratory animals. Specifically, it will contend that it is not possible to disentangle the post-WWII history of laboratory animals from that of the contemporary emergence of logistics as a driving force of global economic change. I will ground this claim through study of entanglements between rhesus macaque and the biomedical, transportation and animal capture industries of the 1950s. I will place particular emphasis on ways in which the bulk air transportation of rhesus macaque helped constitute new sets of conditions through which they were conceived of and related to; both as resources for the creation and verification of biomedical material, and as beings with their own sets of needs, desires and interests. The logistical requirements of polio vaccine manufacture helped motivate significant alterations in attitudes towards these animals amongst governments (especially India, the UK and the US), animal advocate organizations (e.g. the RSPCA and affiliated organizations), and scientists themselves (e.g. at the UK's Laboratory Animals Bureau). I will further outline potential extensions of this approach, for example in relation to the emergence of standardized frog breeding programs during the 1970s and 80s.