CONFIDENTIAL MATERIAL

THE UNIVERSITY OF BIRMINGHAM

Animal Welfare and Ethical Review Body (AWERB)

9th November 2023 (via Zoom)

### MINUTES

### Present:

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| 23/11-01 | Apologies |
| 23/11-02 | MinutesThe minutes of the meeting held on 28th September 2023 were considered by the Committee and were approved. |

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| 23/11-03 | Matters Arising23/09-07-1 *The impact of inflammation on the propagation and resolution of deep vein thrombosis.* The application was submitted to ASRU and has now been approved.23/09-07-2 *Repairing the damaged brain after traumatic brain injury (amendment)* minor changes have been completed and the application has been submitted to ASRU. |
| 23/11-04 | Chairperson’s ItemsThere were no Chairperson’s items. |
| 23/11-05 | Verbal Reports from the Director of BMSU, NVS and NACWOsDirector:* The lift work has now been completed. Noise disturbance was not as significant as expected and there has been no impact on animal welfare.
* Having previously replaced the source of irradiation used in the BMSU, some experiments were not progressing as predicted. An engineer from the supplier has visited BMSU and they are working with the PI, technicians, and the Named Persons to address any concerns.
* The level and type of comments received from the Home Office on project licence applications and amendments varies. BMSU and the PI are responding to all comments, some of which lead to changes in the PPL wording itself.

NVS:* A new Teams site has been set up for the NVS recommendations for NVS-related tasks and issues to be stored. These are available to senior Technicians.
* The Named Persons and the PI involved have successfully worked together to resolve issues with maintaining a surgical plane of anaesthesia in sickle cell mice.
* The latest rodent health screening results indicate that there are no areas for concern.

NACWOs:* NACWOs stated that there was nothing to report.
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| 23/11-06 | Report from the Fast Track ProcedureAll applications are uploaded to Teams for comments and are then progressed.There are two ongoing applications for animal work being undertaken outside of UoB:* Undertaking work under a Home Office Project Licence held at another Establishment involving the use of mice to investigate treatments for dry age-related macular degeneration.
* There were some further questions raised on an application to undertake collaborative work overseas that involved surgery in pigs. Whilst many of the questions have been addressed, there are still a few concerns around humane end points. It was queried whether this application had been referred to the NC3Rs Peer Review system by the funding body that considered this project. This will be followed-up with the applicant.
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| 23/11-07-1 | Project Licence Applications1. *Carotid chemoreflex activity and cardiovascular risk*

SummaryThe project aims to investigate the mechanisms that make carotid bodies hyperactive following repeated falls in blood oxygen levels (called intermittent hypoxia) as seen in sleep apnoea patients, and how changes in the associated reflex responses contribute to the increased cardiovascular risk that is also present in sleep apnoea patients.* The prevalence of sleep apnoea is increasing globally and is often linked to the global increase in obesity (a risk factor for developing it)
* Sleep apnoea patients are also at much greater risk of developing cardiovascular diseases such as hypertension (high blood pressure) and atrial fibrillation (a disturbed rhythm and function of the heart).
* The carotid bodies are sensors located in the neck that detect many circulating factors including oxygen levels in the blood.
* In sleep apnoea, there are multiple periods of intermittent hypoxia that over time drive changes (called remodelling) in the carotid bodies making them hyperactive even during normal oxygen levels.
* Current treatments are often focused on treating the outcomes (e.g. lowering blood pressure by drug treatment) rather than addressing the driving force behind the cardiovascular disease.

The Committee raised the following points:* The maximum number of times that an individual animal will be placed in restraint tube in order to measure blood pressure was questioned. It was confirmed that this is normally twice per week for up to 4 weeks and that a maximum number would be included in the relevant step of the licence.
* The location of the test chamber used for acute hypoxia experiments in relation to where the animals were housed in the environmental chamber was questioned. It was confirmed that animals were housed in a separate room and did need to be moved between rooms. This was seen as a positive point in the design of the study as the animals would not show any conditioned responses.
* The NVS questioned whether the PI has experience of animals who do not respond in the anticipated way to hypoxia. The PI confirmed that animals are expected to show reduced behavioural activity and increased breathing, and it is very rare for an animal not to respond in this way. Over many years of experience, he had not seen an animal which did not respond in the expected way. Nevertheless, the PI confirmed that animals would be observed to monitor breathing rates etc and removed from the study if they failed to respond in the expected way.
* It was confirmed that the animals explore initially when put into the test chamber, and are allowed to settle down prior to the protocol beginning.
* It was confirmed that the oxygen levels do not go below 10% in experiments done on conscious animals in the test chamber.

**Decision: The Committee agreed that minor changes should be discussed between the NVS, BMSU, NACWO and PI prior to the application being amended and submitted to ASRU.**  |
| 23/11-07-2 | 1. *Understanding the role of inflammation in stroke development (amendment)*

The amendments include: * Altering the adverse effects and humane endpoints for animals that have undergone middle cerebral artery occlusion (MCAO) to better reflect the reality of the model based on in-house experience and to align with the IMPROVE guidelines.
* In the previous version of the licence, it was proposed that the monitoring of cerebral blood flow would be carried out by attaching a probe to the skin over the skull. This does not allow for accurate monitoring and so the PPL is being amended to allow attachment directly to the skull. This approach is commonly used elsewhere where the MCAO model is performed and does not cause any additional harm to the mouse as it is performed under the same anaesthetic event as the MCAO itself.

The Committee raised the following points:* There was a query regarding the attachment of the probe as it needs to be removed before the animal recovers from the anaesthesia. It was confirmed that the probe is temporarily attached and can be easily removed.
* Based on previous experience and information from other Establishments, it is expected that most animals reaching humane endpoints will do so in the first 3-4 hours post-surgery. Nevertheless, a pilot study will be undertaken to confirm the appropriate monitoring schedule for these mice. This will involve surgery being performed early in the day so that animals can be very closely monitored for the first 12 hours, followed by a late-night final check, and then an early morning check.
* It was acknowledged that this remains a severe protocol, and the amendment will clarify the permitted adverse effects and humane endpoints so as to assist those making decisions regarding these animals.
* A further review will be undertaken following a pilot study of 10-20 animals.

**Decision: The Committee agreed that the amendment will be uploaded to the Teams site and submitted to ASRU.**  |
| 23/11-08 | Matters relating to the 3RsBMSU* Following an internal retrospective review of a recently expired licence, replacement activities have been identified and the PI will be asked to share this information with relevant parties when opportunities arise.
* A summary of the recent Midlands 3Rs Symposium has been shared. This includes feedback from attendees that confirms the symposium led to sharing of best practice and opportunities for networking.

NC3Rs* NC3Rs are excited to launch the refined mouse handling e-learning course, created by the NC3Rs and US-based 3Rs Collaborative ([**3RsC**](https://www.na3rsc.org/)) in an international collaboration with academia and industry. The course is a comprehensive and accessible overview of the evidence base, benefits and practicalities of refined handling, for the mice, the handler and the research. Designed for anyone who works with mice in research at all levels of experience it should take no longer than 45 minutes to complete. [Refined mouse handling course | NC3Rs](https://nc3rs.org.uk/3rs-resources/refined-mouse-handling-course)
* Last month marks eight years since the launch of the Experimental Design Assistant (EDA) to help researchers design more rigorous in vivo experiments and reduce their animal use. To celebrate NC3Rs have updated the EDA application and website, adding new functionality, making the programme easier to use and rewriting the experimental design support pages to help all researchers find the information they need. You can find out more here: [Updates to the Experimental Design Assistant | NC3Rs](https://www.nc3rs.org.uk/news/updates-experimental-design-assistant?utm_medium=email&utm_source=govdelivery)
* As part of the 20-year anniversary celebrations we recently launched our public engagement awards. These are open to anyone whose work advances the 3Rs – regardless of role, career stage or funder. This award provides up to £2,000 to support an activity or event which engages the public with 3Rs advances and innovation. This is an open rolling call with internal review taking place in January, April and July 2024.We are particularly keen to fund awards from early careers researchers to develop their science communication skills. Full information can be found on our website: <https://www.nc3rs.org.uk/our-funding-schemes/public-engagement-awards-20-year-anniversary>.
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| 23/11-09 | Condition 18 ReportsThere have been no Condition 18 reports since the last meeting.  |
| 23/11-10 | Retrospective ReviewThere have been 3 retrospective reviews submitted. |
| 23/11-11 | Any Other Business. No other business. |
| 23/11-12 | Date of Next MeetingDates of future meeting:14th December 2023 in person (Stanley Barnes Meeting Room, Medical School)25th January 2024 via Zoom7th March 2024 via Zoom18th April 2024 in person (room tbc)6th June 2024 via Zoom11th July 2024 via ZoomAll will be from 10am until 1pm. |

**GLOSSARY**

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| 3Rs | Replacement, Reduction and Refinement |
| ASPA | Animals (Scientific Procedures) Act 1986 |
| ASRU | Animals in Science Regulation Unit  |
| AWERB | Animal Welfare and Ethical Review Body |
| BMSU | Biomedical Services Unit |
| CPD | Continuing Professional Development |
| IMPROVE | Ischaemia Models: Procedural Refinement Of in Vivo Experiments |
| LDF | Laser Doppler Flowmetry |
| MCAO | Middle Cerebral Artery Occlusion |
| NC3Rs | National Centre for the Replacement, Refinement and Reduction of Animals in Research |
| NCTO | Named Competency and Training Officer |
| NACWO | Named Animal Care and Welfare Officer |
| NIO | Named Information Officer |
| NTS | Non-Technical Summary |
| NVS | Named Veterinary Surgeon |
| PI | Principal Investigator |
| PIL | Personal licence (Procedure Individual Licence) |
| PPLs | Project licence (Procedure Project Licence) |
| SOPs | Standard Operating Procedures |
| UoB | University of Birmingham |