

CALL FOR PAPERS

Laboratory animals are increasingly used in imaging studies, including PET, SPECT, CT, MRI, ultrasound, and optical (bioluminescence, fluorescence, photoacoustics, etc.) systems. Traditionally, these methods have provided either macroscopic/volumetric representations of the organs of interest, haemodynamic measures of the cardiovascular system, or semiquantitative/empirical parameters of the cellular uptake of tracers. In this way, disease progression can be followed noninvasively over time, providing a unique insight into the pathophysiology of diseases, while at the same time reducing the total number of experimental animals used per study. It is obvious that the experimental animals must be physiologically stable to ensure useful scan data. Nonetheless, little attention has been drawn to the impact of the choice of anaesthesia, sex, choice of species, and strain/stock, housing conditions, diet/fasting, behavioural scores, circadian rhythm, and so forth on the acquired data. The failure to directly translate from animals to humans, reported in past literature, is likely due, in part, to poor methodology and failure of the models to accurately mimic the human disease condition. However, it is likely that a deeper insight into the above-mentioned parameters could change this lack of translation ability of preclinical animal models. Completing the lacuna of this understanding may become increasingly important as the field of molecular imaging is rapidly growing. Developments in molecular imaging will improve our understanding of diseases via measurements of biochemical activities of cells and their molecules. Thus, the sensitivity and reliability of molecular tracers to link to cellular surface, pharmaceutical substances, or endogenous molecules may critically depend on inherent conditions associated with the animal conditions in which the bioimaging is performed but equally important depend on parameters such as genetic characteristics, age, sex, species, strain/stock, environmental factors, housing, choice of anaesthesia, and food/hydration status.

Thus, the main focus of this special issue will be the relationship between molecular imaging measures and the impact/choice of animal species, strain/stock, sex, and so forth. This special issue particularly would like to address the following: How do we ensure that the results of imaging studies become as usable/standardized as possible? What effect does anaesthesia have, and can scanning of alert animals sometimes be a useful alternative to anaesthesia? How do we best monitor the animals during scanning?

Potential topics include but are not limited to the following:

- ▶ Selection of species for imaging studies
- ▶ Anaesthesia effects on molecular imaging in animal experiments
- ▶ Effects of sex, age, and strains/stocks on animal molecular imaging
- ▶ Optimal monitoring of laboratory animals during imaging studies
- ▶ Optimal doses of tracers used in experimental imaging studies
- ▶ How does blood sampling affect the physiology of the animals during the scans and are there alternatives to serial blood sampling?

Authors can submit their manuscripts through the Manuscript Tracking System at <https://mts.hindawi.com/submit/journals/cmami/ulam/>.

Papers are published upon acceptance, regardless of the Special Issue publication date.

Lead Guest Editor

Aage K. O. Alstrup, Aarhus University Hospital, Aarhus, Denmark
aagealst@rm.dk

Guest Editors

Svend B. Jensen, Aalborg University Hospital, Aalborg, Denmark
svbj@rn.dk

Michael Pedersen, Aarhus University, Aarhus, Denmark
michael@clin.au.dk

Pia Afzelius, North Zealand Hospital, Hillerød, Denmark
pia.maria.tullia.afzelius@regionh.dk

Pedro Rosa-Neto, McGill University, Montreal, Canada
pedro.rosa@mcgill.ca

Submission Deadline

Friday, 4 January 2019

Publication Date

May 2019