

## Introductory Remarks to Symposium 5

## Trends in small-animal neuroimaging: assessing functional connectivity of the whole brain

Andreas Hess and Jürgen Goldschmidt, Erlangen and Magdeburg

Neuroimaging of the whole brain is of utmost importance for investigating the whole CNS and the armamentarium is continuously increasing. This is true not only with respect to the dedicated imaging modalities but also in terms of sophisticated analysis strategies. Moreover due to latest improvements these techniques can be applied not only to humans but also to small animals like mice or rats. Recent analytical advancements allow for investigating the functional connectivity of the whole CNS. fMRI and functional connectivity will be addressed focusing on plasticity in the first talk and on CNS networks under physiological and pathological conditions in the second talk. The third talk will elaborate on imaging normal behavior in awake animals by SPECT, a very new but powerful small-animal-imaging method. Moreover, due to the non-invasive nature of the imaging modalities, they are ideal for translational research from animals to humans. This aspect will be the major focus of the last presentation and exemplified for pain processing under anti-TNF therapy on (transgenic) mice as well as for human diseases like rheumatoid arthritis or Crohns disease.

## Symposium 5

Wednesday, March 22, 2017  
14:30 - 16:30, Lecture Hall 10

Chairs: Andreas Hess and Jürgen Goldschmidt,  
Erlangen and Magdeburg

- 14:30 **Opening Remarks**
- 14:40 Mathias Hoehn, Cologne  
CHECKING PLASTICITY: FUNCTIONAL  
CONNECTIVITY IMAGING OF THE BRAIN  
(S5-1)
- 15:00 David Bühlmann, Zürich  
fMRI OF THE MOUSE BRAIN - PSEUDOSTATIC  
AND DYNAMIC FUNCTIONAL NETWORKS  
UNDER PHYSIOLOGICAL AND PATHOLOGICAL  
CONDITIONS (S5-2)
- 15:20 Jürgen Goldschmidt, Magdeburg  
SMALL-ANIMAL SPECT IN NEUROSCIENCE -  
PRINCIPLES AND APPLICATIONS (S5-3)
- 15:40 Andreas Hess, Erlangen  
TRANSLATIONAL fMRI FROM MOUSE TO  
MAN: VALIDATION OF ANTINOCICEPTIVE  
DRUG THERAPY IN DYNAMIC FUNCTIONAL  
BRAIN NETWORKS (S5-4)
- 16:00 Franziska Melanie Collmann, Cologne  
UNDERSTANDING MICROGLIA ACTIVITY IN  
THE STROKED BRAIN USING IN VIVO  
IMAGING (S5-5)
- 16:10 Andrea Mendez Torrijos, Erlangen  
FOOD AS A MODULATOR OF FUNCTIONAL  
CONNECTIVITY IN RODENTS AND HUMANS  
(S5-6)
- 16:20 **Concluding Remarks**