

TVV Workshop

Thursday, March 23, 2023
13:00 - 14:00, Lecture Hall 102

Updates in Animal Research - Transparency, Communication and Hot Topics

Roman Stilling and Laura Berg, Münster

Recent developments in Germany and the EU increase the pressure on science to reduce animal use and contribute to growing uncertainty within the scientific community. The general discussion about animal research crucially depends on information from and visibility of all stakeholders to become a factual and meaningful debate. Thus, open and transparent communication about animal-based research from within the scientific community is becoming increasingly important.

In Europe, Transparency Agreements were launched in nine countries before 2023 with exactly this goal: Transparent communication about animal experiments to inform the public and to help shape the public discussion. The German "Initiative Transparente Tierversuche" was launched in July 2021. More than 90 scientific institutions support this agreement since and have significantly added to comprehensive experience on and many good examples of successful communication about animals in research.

In this workshop we will give background information and updates on the most topical and pressing national and international developments regarding animal research and highlight activities from European and German stakeholders to address these issues. Importantly, communication activities like the recent German Transparency Agreement contribute to a culture of openness and shape the public debate. We offer an outlook on future actions, challenges and opportunities for the neuroscience community.



Tierversuche verstehen
Eine Informationsinitiative der Wissenschaft

Angelini Pharma

Thursday, March 23, 2023
14:00 - 15:00, Lecture Hall 103

Which ion channel? Precision medicine in treatment of epilepsy: from autoimmune encephalitis to Dravet

Nico Melzer and Konstantin Makridis, Duesseldorf and Berlin

The bedrock of accurate management of any disease is precision medicine; tailoring the treatment to that of a specific individual taking into account the genes, environment, lifestyle and the presenting condition. In this symposium, we take a look at two subtypes of epilepsy known to be drug resistant: autoimmune-induced encephalitis/epilepsies, and specific variants of the Dravet syndrome. In terms of seizure suppression and autoimmune encephalitis management, is there a correlation between the mechanism of action for Cenobamate and anti-inflammatory properties at the pathogenetic level? Likewise, could there be exceptions to the longstanding guideline of ruling out sodium channel blockers (SCBs) in any case of Dravet syndrome? Are there variants of this syndrome where SCBs could be efficacious?

These questions will be discussed extensively at this symposium featuring two speakers: PD Dr. Nico Melzer, a Senior Neurologist at the University Clinic in Duesseldorf and a specialist in autoimmune encephalitis with several publications in this topic, and Dr. Konstantin Makridis, a neuropediatrician at the Charite University Clinic Berlin with special interests in epilepsy, genetics and novel treatments.

- 14:00 **Welcome - Nico Melzer, Duesseldorf**
The importance of the persistence current in the treatment of epilepsy and inflammation
- 14:05 Nico Melzer, Duesseldorf
Seizure and immunosuppressive spectrum of action of cenobamate in autoimmune encephalitis with focal seizures
- 14:25 Konstantin Makridis, Berlin
The mechanism of action of cenobamate in LoF-Dravet variants - When are sodium channel blockers indicated or contraindicated?
- 14:45 **Questions | Discussion**
- 14:55 **Closing Remarks -**
Nico Melzer, Duesseldorf



Angelini
Pharma

LI-COR Biosciences

Thursday, March 23, 2023
14:00 - 14:30, Lecture Hall 101

The path to quantitative and reproducible Western Blots

Stefanie Merfort and Maria Ercu

“Although originally a qualitative or at best a semi-quantitative method, with the rise of computational systems biology, Western blotting has become increasingly important for fully quantitative applications.” (Degasperi et al, *PLoS ONE*, 2014)

“The development of the immunoblot to detect and characterize a protein with an antisera, even in a crude mixture, was a breakthrough with wide-ranging and unpredictable applications across physiology and medicine.” (Mc Donough et al, *Am J Physiol Cell Physiol*, 2015)

What is a quantitative Western Blot?

A quantitative Western Blot makes relative comparisons between different treatments possible. The goal of a quantitative Western is to accurately measure changes in protein expression.

Why do we need quantitative Western Blots?

Life-altering therapeutics. Increased crop yields. All of us want to make a difference with our life's work. Quantitative Westerns can be a powerful tool to advance discovery and make the world a better place.

The following topics regarding quantitative Western Blot requirements will be addressed in our workshop:

- How to choose the best normalization strategy?
- How to find the combined linear range of detection for your proteins of interest?
- How to keep experimental variability as low as possible?

What steps can you take today to improve your Western Blot results?

LI-COR provides products, protocols, and support for Western blotting that help reduce variability and increase replicability.



Maria Ercu – Solutions and Support Scientist
Stefanie Merfort – Sr. Technical Sales Consultant

Bruker Nano

Thursday, March 23, 2023
14:00 - 15:00, Lecture Hall 104

Multi-Scale Imaging: from molecules to organisms using Bruker Super-Resolution and Light Sheet Microscopy

Romina Macco and Jürgen Mayer

LCS SPIM – Light Sheet Microscopy for Large Cleared Samples
Light sheet microscopy has become the state of the art methodology to address a wide variety of biological questions. Key features of this technique are the extremely minimized photo bleaching, the high-speed image acquisition, and the large imaging depth. In parallel, more and more sophisticated techniques for tissue clearing have been developed over the last years. Tissue clearing renders biological samples transparent, a prerequisite for optical imaging in large (e.g. mesoscopic) samples.

The combination of cleared tissues with light sheet microscopy is an ideal synergy that allows addressing new questions in biology. In this workshop, participants will be familiarized with tissue clearing, and preparation of large samples. Different imaging strategies will be discussed and participants will learn how to mount the sample accordingly, adjust all necessary parameters to achieve the best quality, acquire a tiled acquisition, process (i.e. stitch) and visualize the data.

Vutara VXL - Superresolution Microscopy

Modern fluorescence microscopy applications need to be performed under conditions that resemble the natural environments of the structures of interests. This requires using large samples, like tissue slices or even whole model organisms, instead of the classical cell cultures. One of the main limitations of most super-resolution microscopes is their weak ability to image structures in great depth of the sample.

The Bruker Vutara VXL system is different in that sense, as it allows to resolve structures in 3D at 20 nm resolution in up to 30 μm depth inside a neurobiological sample. This is ideal for studying the distribution of pre- and postsynaptic proteins or the cytoskeleton architecture of cells embedded in their native environment.

This part of the workshop will provide application examples from neurobiology and demonstrate the capabilities of the SRX software in data analysis and processing.



Romina Macco - European Application and Service Manager
Jürgen Mayer - Product Manager and Sr. Application Specialist

Carl Zeiss Research Microscopy

Thursday, March 23, 2023
14:00 - 15:00, Lecture Hall 105

Introducing high-throughput serial section acquisition for ZEISS MultiSEM

Anna Lena Eberle - Product Management
Carl Zeiss Research Microscopy GmbH

Over the past several years, scanning electron microscopy has become a standard method for 3D tissue volume-imaging experiments. However, all scanning technologies are inherently slow, so for large-scale experiments a faster acquisition workflow is needed. The multibeam SEM from ZEISS utilizes up to 91 electron beams in parallel to scan the sample. Of the various approaches existing for the acquisition of 3D tissue data, a workflow in which ultra-thin serial sections are obtained and then imaged sequentially is the most established one for the multibeam SEM. Here, we want to give an overview of the high-throughput serial section acquisition workflow with the ZEISS MultiSEM.

Visit us at ZEISS booth on the ground floor!

Our product and application specialists will introduce to you our new Artificial Intelligence (AI) powered Axiovert 5 digital as well as our latest software solutions for 3D imaging. In addition, do not hesitate to ask your questions about 3D tissue volume imaging.

Looking forward to meeting you at the conference!

DFG Workshop

Friday, March 24, 2023

12:00 - 13:00, Lecture Hall 102 and 1.141 (consultations)

Starting your research career - DFG funding programs and application procedures

Thomas Baumgarten, Andreas Görlich and
Michael Müller
DFG Head Office, Bonn

This workshop intends to introduce the German Research Foundation (DFG), its funding programs and the application and review procedures to researchers at an early stage of their scientific careers. Among others, we will cover research grants, the Emmy Noether- and the Heisenberg Program and will give valuable tips and tricks for a successful application, with a focus on grants in the neurosciences.

After the workshop, appointments for individual consultations are available. For further information on these, please refer to the announcements given on site.

Topics:

The DFG –
Germany's largest research funding organization

DFG funding programs

Application and review procedures

News from the DFG

Discussion

Deutsche
Forschungsgemeinschaft

DFG

Publishing Workshop

Friday, March 24, 2023
12:00 - 13:00, Lecture Hall 104

How and why to publish in neuroscience society journals?

Juan Lerma and Manfred Heckmann,
Alicante, Spain and Wuerzburg

Journals exist to disseminate new research findings and the latest new thinking to scholarly and professional communities worldwide. This is a rare opportunity for early career researchers and students to hear from the Editors of *Neuroscience* and ask them the questions they want answered in a friendly and collegiate environment. The aim is to train and inform early career researchers on various aspects of the scholarly research and communication process. One aspect of this is to help provide information on how to write and review for a scientific journal and give researchers an insight into how the publishing process works, taking as an example *Neuroscience*, the flagship journal of the International Brain Research Organization (IBRO). During this workshop, the following topics will be at least addressed:

What happens to your paper once submitted to a journal: what an editor looks for in a good paper, what makes a paper worthy of going into the peer-review process and, by extrapolation, what an editor considers a 'bad' paper or bad aspect of a paper.

The peer-review process: what Editors expect Reviewers to do. What editors expect from their reviewers and describe how we handle reviews once returned.

Preparing your Manuscript: it will outline the various important steps that, as an Author, you need to follow in preparing your manuscript for a successful publication.

Structuring an Article: it will provide advice about how to properly structure your article. From the title and keywords, right through to the conclusion and references, all the essential criteria are covered to make sure it can be a success.



Juan Lerma is Editor-in-Chief and Manfred Heckman is Senior Editor of *Neuroscience* - the flagship journal of IBRO.