

TVV Workshop

Thursday, March 27, 2025
12:30 - 13:30, Lecture Hall 102

Animal research in Europe: How can neuroscience shape upcoming developments?

Roman Stilling (TVV) and Nuno Miguel Gonçalves (EARA),
Muenster and London, UK

Neuroscience is one of the research fields most dependent on animal models. However, ongoing developments, especially in Europe, are increasing pressure on the scientific community to reduce or even eliminate the use of animals, contributing to growing uncertainty. The recent European Citizens' Initiative exposed the (neuro)scientific community's former lack of engagement and transparency, which has made it somewhat complacent and defensive and consequently ill-prepared to respond to this pressure.

Recently, however, international organisations are taking the issue more seriously and are collaborating to communicate more proactively with the public and policy makers about the necessity, regulation, and conditions of animal use in research.

Effective communication crucially depends on information provided by and visibility of all stakeholders in order to shape a well-informed and meaningful debate beyond academia. Thus, open and transparent communication on animal-based research from within the scientific community is essential.

This workshop provides background and updates on key national and international developments in animal research, highlighting activities of European stakeholders. Outreach and advocacy organisations such as the international European Animal Research Association (EARA) as well as neuroscience-focused institutions such as FENS or the European Brain Council foster openness and shape the public debate. We review existing initiatives – such as national Transparency Agreements – while exploring future actions, challenges, and opportunities for the neuroscience community, offering a forum for discussion.



Tierversuche verstehen
Eine Informationsinitiative der Wissenschaft

Bruker Nano

Thursday, March 27, 2025
13:30 - 14:30, Lecture Hall 101

Multi-Scale Imaging: from Molecules to Organisms using Bruker Super-Resolution and Light Sheet Microscopy

Clemens Schneider and Jürgen Mayer

This workshop consists of two parts: The first half will focus on Lightsheet systems, the second half on the Vutara VXL superresolution system.

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. 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.

In this workshop, participants will learn about tissue clearing of large samples. Different imaging strategies will be discussed, ways to achieve the best image quality will be explored, and the whole pipeline from acquiring a tiled stack, processing (i.e. stitch) and visualizing the data will be exercised.

Vutara VXL - Superresolution Microscopy

Modern fluorescence microscopy applications need to be performed in natural environments of the structures of interest. This requires using large samples, like tissue slices or even whole model organisms. One of the main limitations of most superresolution microscopes is their weak ability to image structures in great depth of the sample.

The Bruker Vutara VXL system is different, as it allows to resolve structures in 3D at 20 nm resolution (or better) in up to 50 μm depth inside a biological sample. This is ideal for studying the distribution of pre- and postsynaptic proteins or the cytoskeleton architecture of cells in their native environment.

This part of the workshop will provide application examples from neurobiology and demonstrate the workflow from data acquisition to processing and analysis.



Clemens Schneider - Sales product Specialist
Jürgen Mayer - Product Manager and Sr. Application Specialist

LICORbio

Thursday, March 27, 2025
13:30 - 14:00, Lecture Hall 103

Generation of reliable and reproducible Western blots and Protein Assay Data

Stefanie Merfort and Maria Ercu

LICORbio is known for leading-edge instruments, meaningful innovation, proven value, and uncompromising data integrity. We're who scientists turn to when accuracy matters. If questions arise, we offer unparalleled support. In your search for order within the chaos, LICORbio is your constant.

"The brilliant signal-to-noise ratio in combination with the ability to truly quantify the data is really outstanding." (Geir Bjørkøy, University College of Sør-Trøndelag)

"The customer support is good and the companion products (secondary antibodies, etc.) work very well." (Susan Burks, National Center for Toxicological Research)

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.

Quantitative Western Blot and Protein Assay Requirements

The following topics 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?

LICORbio provides products, protocols, and support for Western blotting and protein assays that help reduce variability and increase replicability.



INNOPSYS

Thursday, March 27, 2025
13:30 - 14:30, Lecture Hall 104

How to generate quantitative data from whole-brain IF imaging in record time?

Eric Dyrzcz and Perrine Borel

“Special attention should be paid when images are used for quantitative analysis, like colocalization studies, ratio imaging, deconvolution, and segmentation. In these cases, one should carefully characterize the field illumination.” (Faklaris et al, Journal of Cell Biology, 2021)

Innopsys, a leader in the field of fluorescence scanners, recently launched InnoQuant, a next-generation whole slide fluorescence scanner offering:

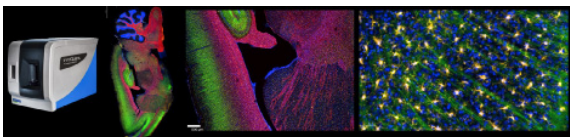
- Simultaneous 4-color quantitative imaging with unmatched uniformity, and full slide width imaging in one pass
- Optical sectioning with laser scanning and PMT detection for high signal-to-noise ratio in immunofluorescence

InnoQuant scans independently of staining intensity, making it faster and more efficient than traditional widefield scanners. It is ideal for studying CNS cell arrangements, neurodegenerative and neurodevelopmental diseases. Its seamless integration into workflows ensures rapid access to quantitative results.

The following topics will be addressed:

- How to generate multichannel large field images with a perfect focus in record time?
- How to generate quantitative images to study brain sections labeled with immunofluorescence?

Our experts will guide you through the complete experience, from acquiring a multi-labeled mouse brain section to obtaining quantitative data compared to standard widefield microscopy techniques.



Molecular Devices

Thursday, March 27, 2025
13:30 - 14:30, Lecture Hall 105

Sensitive and Reliable: How the Spectral Optimization Wizard and AutoPMT can help you get the most out of your fluorescence experiments

*Marie Pape-Bub - Applications Scientist
Molecular Devices UK Ltd.*

Optimizing fluorescence measurements can be a daunting task, often requiring hours or even days to determine the best excitation and emission wavelength pairs and the optimal gain setting for your fluorescence detector. In this workshop, we will introduce you to two powerful tools that can transform your fluorescence research: the Spectral Optimization Wizard (SOW) and AutoPMT.

The Spectral Optimization Wizard (SOW) saves you valuable time by automatically finding the optimal wavelengths with the highest signal-to-noise ratio, scanning every possible excitation and emission wavelength combination. This ensures that you achieve the best results for your specific setup and chemical environment.

In addition to finding the right wavelength pair, it is crucial to set the correct gain for your photomultiplier tube (PMT) or detector. AutoPMT addresses this challenge by selecting the appropriate gain setting for each well on your plate, allowing you to measure the lowest and highest possible concentrations in the same run. This eliminates the need for diluting samples or repeatedly reading your plate, ultimately enhancing the flexibility and reliability of your assays.

Join us to discover how these innovative tools can help you maximize the dynamic range of your fluorescence measurements, ensuring sensitive and reliable results every time.

Don't miss this opportunity to learn how to get the most out of your fluorescence experiments and take your research to the next level.



DFG Workshop

Friday, March 28, 2025
13:30 - 14:30, Lecture Hall 102
Consultations - Oeconomicum - Room 1.165

Starting your research career - DFG funding programs and application procedures

*Andreas Görlich,
Melina Overhoff-Bühnen and Stephanie Wegener
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

Publishing Workshop

Friday, March 28, 2025
13:30 - 14:30, Lecture Hall 103

Why publish in society journals: *Neuroscience*, IBRO's journal, as a model

Francesca Cirulli, Roma, Italy

Scientific publishing has evolved significantly: while the rise of open access has made it easier than ever for the public to access research reports, this has not been followed by increased scientific quality. This session will deal with the changing landscape of scientific publishing, addressing the role of society journals in this changing world. In particular, we will address how these journals have an important mission: to keep the quality of published science high while, at the same time, ensuring diversity and inclusion of scientists from different backgrounds. In this workshop, we aim to engage the public, especially early-career researchers, in understanding the importance of publishing in society-owned journals, such as *Neuroscience*. In addition, we will discuss how they could become more actively involved in the editorial process.

The workshop will be facilitated by Neuroscience Chief Editor Francesca Cirulli:

- Opening remarks and introduction by the Session Chair
- Benefits of publishing in Society Journals
- The publishing process disclosed
- What is the publishing gap for researchers? How to get involved in the publishing process.
- Discussion with the public



Neuroscience - the flagship journal of IBRO.