

# NEUREX NEWSLETTER N° 30

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# **EDITO**

Our 30<sup>th</sup> newsletter marks a key step for Neurex. After 15 years of structuration of its network, and the implementation of several successive projects such as ELTEM, *neurex* + or Trineuron, Neurex was attributed last December a substantial funding of 3 M  $\in$  in the framework of the new Interreg V program. Aimed at encouraging the development of transborder actions, the Interreg V program supports several specific objectives, among which education & training.

Thanks to the strong networking of neuroscience research performed in the Upper Rhine Valley over the last decade, Neurex and its associated partners have reached a further step, aimed at building a common training platform called **NeuroCampus**. Taking profit of the unique opportunities offered by the complementary expertise in our 3 neuroscience federations, the **NeuroCampus** project aims at developing personalized neuroscience training for a broad range of curricula, from junior/senior researchers to clinicians/health professionals. Taking profit of the complementarity of the teaching programs of our 3 universities, it includes new scientific actions (see inside), but also encourages interactions with industry and the sharing of our respective trainings programs. This trinational **NeuroCampus** is the concretization of a successful collaborative effort between the universities of Basel, Freiburg and Strasbourg.

Recently funded as well by Interreg V, the European Campus project (Eurocampus) will dedicate to building in the Upper Rhine Valley an official framework for the implementation of a common platform dealing with different aspects of coordinated training, such as registration, validation of joint diploms. The implementation of such a trinational inter-universities facility should decrease the burden associated to the administrative problems inherent to international collaborations. Fruitful interactions between Neurex and the European Campus should thus pave the way for the development of a a training platform unique in Europe.

Nothing would have been possible without Interreg V and the strong involvement of our partners. We would like therefore to express our deep gratefulness to the University of Basel, UPK (Psychiatry Klinik), Swiss Confederation, Basel Stadt & Landschaft Kantons, Bernstein Center Freiburg, University of Freiburg, Psychiatrische Klinik Freiburg, Neurozentrum, Strasbourg University, HUS, Eurometropole, CNRS, Inserm, Region Alsace, Department Bas-Rhin & Haut-Rhin.

And as always, nothing would be possible without the precious participation of all researchers and clinicians who kindly dedicate some of their time for organizing the teaching & training of our events : many thanks to them !

We are looking forward to develop this challenging project with all of you !



## 

# **GREEN LIGHT FOR** THE NEUROCAMPUS PROJECT

## 

As you probably know, Neurex and its partners applied for a new project entitled «Trinational NeuroCampus» in the framework of the European program called Interreg V Upper Rhine. Recently the European authorities gave green light for our project. So our cross boarder cooperation can go on!



## **NEUROCAMPUS:** AN EDUCATIONAL PROGRAM IN NEUROSCIENCE

Over the last decade, Neurex and its partners were able to federate the neuroscience research structures of the Upper Rhine Valley and to link closer these three regional research centers: Strasbourg, Freiburg i. Br. and Basel. Each of these universities with their partners, strong in its own theoretical and technical specializations, could learn from the scientific experience of its neighbors, and so contributing to the establishment of a strong network useful for researchers and students.

Based on this network, we launch our new project, which aims at creating an excellence training program characterized by an integrated approach through the use of the complementarity of our 3 universities in order to promote a broadening of our competences in neuroscience and to enrich the expertise of everyone. The purpose of the NeuroCampus project is to develop a program of training in Neuroscience for students, doctoral candidates, researchers and healthcare professionals, as well as familiarize associations and general public to neuroscience.

This project is made of several actions such as the ones described thereafter. As in the past scientists are strongly encouraged to contact us in order to benefit from our network facilities and services, as well as to enrich them. All scientific and non-scientific suggestions are welcome: do not hesitate to contact us, if you have any. We will be pleased to co-organize scientific events on potential topics that you might want to suggest. Please contact us in an early stage of organization in order to make sure that the EU-rules which we must comply with (ou that apply to us) will be respected.

















## **A MULTIMEDIA PLATFORM**

A multimedia platform for training will be created that will be a key tool of the project, an instrument that will support the education from common curricula built from our German, French and Swiss universities. From there, you will be able either to upload videos (for instance to illustrate your lectures) or watch a recording of a previous workshop/conference, but also participate in expanding this platform by providing us a recorded lecture (existing or to be made).

## **MEETINGS & CONTROVERSIES DEBATES**

As in the past, neuroscientific meetings will be organized - be they fundamental, clinical or cross-disciplinary. They may involve academic as well as private laboratories. Web-conferences can also be organized. Do not hesitate to contact us, we will be pleased to co-organize scientific events on potential topics that you might want to suggest.

## SCIENTIFIC TRAINING ON CLINICAL TRIALS

A new activity will be launched: training on clinical trials. Indeed, this will familiarize interested junior & senior scientists to the world of clinical research, but also provide events for a more specialized audience.

## LAB TOURS

Thanks to the complementarity of our three universities, «lab tours» involving laboratories working on common topics with different approaches will be organized. Concretely, this will consist of a 2-days round trip by bus, with successive visits of laboratories working on the same scientific topic (expl. Memory, sleep etc.) in each of our three cities. This concept will allow to illustrate the range of techniques and resources used on each side of our border to address a topic. Mark your calendar! Memory Lab tour on 29<sup>th</sup> and 30<sup>th</sup> of November. Its program will be soon available. Further info on neurex.org

## JOURNAL CLUBS

We will develop «Journal clubs» in which Master's students and PhD students will work in groups in order to learn how to read and write scientific articles. Scientific publishing professionals will be asked to step in and to share their knowledge and experience of the editor's community. If you want to make suggestions, please let us know.

## INTERACTIONS WITH INDUSTRY

In order to illustrate the research strategies developed outside the academic context, and to stengthen interactions between universities and industry, we will organize meetings with private laboratories. Next meeting: Roche visit, October 13<sup>th</sup> (see coming events).

## GUEST SPEAKERS

In the framework of this new project, we have the possibility to invite neuroscientists to give a talk in the context of seminars, series of events or even teaching programs (master, graduate, etc.) and to support relevant travel and lodging costs. If you plan to invite a speaker, let us know, we can help by supporting and advertising.

## **PUBLIC LECTURES**

Recent years have shown an always increased interest of the population in neuroscience. Accordingly, we wish to keep the population informed, especially about the research conducted in our laboratories. Thus, we will continue to organize public events throughout the year and more particularly during the Brain Awareness Week. If you or one of your guests want(s) to give a public lecture, we will be pleased to contribute to the organization of the event.





# EUCOR -THE EUROPEAN CAMPUS PROJECT

Anyone who as participated in setting up collaborations between 2 or 3 countries is aware of the numerous pitfalls (administrative, legal, etc) raised before, during and after the implementation of such joint projects. These concrete problems concern agreements on registrations, copyrights, deliveries of diploms, validation of credits, etc. The European Campus, through settling the organizational and administrative framework of collaborations between our universities of Basel, Freiburg and Strasbourg should thus offer a precious support in addressing the questions and needs raised by the concrete problems faced by a research & training network such as Neurex. Such actions may for example include the validation of common trainings put in place by Neurex, as well as organizing the landscape for a smooth implementation of PhD programs such as the Erasmus Mundus NeuroTime project raised by Neurex (http:// www.neurotime-erasmus.org/) or of its Joint Master in Neuroscience (JMN, http:// neuromaster.u-strasbg.fr/JMNO1homepage.html) created in 2006 (and attributed the Bartholdi price in 2010).

The articulation between Eurocampus and Neurocampus should hopefully be more than an utopy or simply a semantic proximity: we are hoping to establish the Upper Rhine Valley as a first choice international training platform.

## 



# THE EUROPEAN CAMPUS TAKES SHAPE

The five universities on the Upper Rhine unite their research and teaching potential

Eucor - The European Campus is made up of five universities in three countries with two languages. The Universities of Basel, Freiburg, Upper Alsace, and Strasbourg and the Karlsruhe Institute of Technology have established a single legal entity in the trinational Upper Rhine region in the form of a European Grouping of Territorial Cooperation (EGTC). The European Campus was officially opened on 11 Mai 2016 at the Palais universitaire de Strasbourg. In his ceremonial address, Dr. Carlos Moedas, European Union Commissioner for Research, Science, and Innovation, highlighted the significance of the European Campus for the European higher education landscape.

The universities on the Upper Rhine are breaking new ground with the European Campus: It is the first university alliance to take the form of a EGTC. In the coming years, the European Campus will use this legal cornerstone to build up common structures and a common research and teaching strategy. This will benefit the 115,000 students, 15,000 researchers, and 11,000 doctoral candidates matriculated at the five universities. "It's a model

project that's unique in the European research area," says Prof. Dr. Hans-Jochen Schiewer, Rector of the University of Freiburg and President of Eucor - The European Campus. "We're in the process of creating the first European university." The universities retain their autonomy, but they can now also submit joint research proposals, establish joint professorships, and offer joint degree programs as a common entity, because the EGTC enjoys rights similar to those of a university. The European Campus thus makes it possible to conduct research and study across national boundaries. Moreover, the alliance gives the universities a stronger voice on the international stage: "What we have to offer top international researchers, ambitious young scholars, and international students isn't just our own university but the entire Upper Rhine science and research region," says Schiewer.

At roughly the same time as the EGTC was established, a decision was made on a further important component for the European Campus: On 16 December 2015 the universities received approval for three Interreg projects that will help shape the European Campus in the coming three years. Interreg is an initiative of the European Regional Development Fund and is designed to promote cross-border cooperation in Europe. In this way, the European Union is providing a total of 5.5 million euros in funding to support the European Campus.

The central Interreg project "Eucor - The European Campus: Cross-Border Structures" involves removing bureaucratic barriers and planning a common future. The goal is to unleash existing potential at the universities - in research, teaching, continuing education, and administration. A second Interreg project will enable the creation of an Upper Rhine cluster for sustainability research. "On the one hand, what we aim to do is develop excellent cross-border and interdisciplinary joint research activities. On the other, we want to establish a beacon of knowledge transfer between the cluster and society," says Prof. Dr. Paul Burger from the University of Basel, who serves as director of the cluster. The main aim of the third Interreg project, submitted jointly by the University of Koblenz-Landau and the universities of the European Campus, is to establish a trinational graduate academy on risk management and risk appraisal.

The European Campus is taking shape against the backdrop of longstanding cooperation between the universities on the Upper Rhine. In 1989 they united to form a cross-border alliance by the name of "Eucor." By establishing the European Campus, the five universities now aim to create a new platform for this cross-border cooperation in research and teaching to consolidate their position in the competition for the greatest minds and ideas.

## 

For more information, please visit the website of Eucor - The European Campus: http://www.eucor-uni.org/en/home

Click here for contact information, links to European Campus pages on Facebook and Twitter and to subscribe to the monthly European Campus newsletter: http://www.eucor-uni.org/en/contact



We are very pleased to welcome the teams of **PROF ELINE VRIESELING** and **PROF ANDREW STRAW** who recently joined the Department of Biomedicine (DBM, Basel) and the BCF (Bernstein Center Freiburg).

Eline Vrieseling's laboratory is located at the Institute of Anatomy (Basel) while Andrew Straw's lab is in Biologie I (Freiburg). They describe thereafter their research interests: welcome to Neurex !

## 

## PORTRAIT

## **ELINE VRIESELING**

DEPARTMENT BIOMEDICINE.



Eline Pecho-Vrieseling, born 1977 in Wijns the Netherlands, studied Biology with Bionolecular Sciences at the University of Amsterdam, the Netherlands. She graduated n 2006 from the University of Basel with a loctorate in Neuroscience. From 2006 - 2008 he did a post doctorate at the Biozentrum Iniversity of Basel and Friedrich Mieschei nstitute, Basel. Followed by a presidential postdoc at Novartis Institute for Biomedical Research. Basel. In 2016 she received a Swiss National Science Foundation professor ship and will join the Department of Biome licine, University of Basel in November 2016

Her research interest is to understand the role and mechanism of cell-to-cell spreading of pathogenic proteins in neurodegenerative disorders.

Cell-to-cell spreading of pathogenic proteins is believed to be a novel disease pathway in a group of neurodegenerative disorders, collectively termed protein misfolding diseases (PMDs). PMDs are all caused by misfolding of a disease specific protein. Some well-known PMDs are Alzheimer's disease, Parkinson's disease, Huntington's diseases, Amyotrophic Lateral Sclerosis and Prion disorders.

In many of these unrelated illnesses the neurodegeneration progresses through the brain in a pattern very reminiscent to the pattern of neuronal connectivity of the healthy human brain. Recent data strongly suggest that for a large number of PMDs the sick proteins can propagate from one cell to another and even from one brain region to another.

Therefore, Eline Pecho-Vrieseling's laboratory aims to understand whether toxic protein spreading is a fundamental trigger for the onset and a key factor for the progression of neurodegeneration in PMDs. They want to understand the role neuronal connectivity plays in this process and elucidate the underlying cellular/molecular pathways involved in the spreading of toxic proteins. Initially Huntington's disease is used as a model disease, but the ultimate goal is to know whether toxic protein spreading is a disease pathway shared by Alzheimer's disease, Parkinson's disease, ALS and many others. As revealing the existence of a common disease pathway would create the unique possibility to develop the same or a similar therapeutic strategy for all these devastating illnesses.

They will approach the above questions by using a combination of genetic mouse models, patient-derived human induced pluripotent stem cells, molecular biology tools, imaging, optogenetics and electrophysiology in state-of-the art in vitro and in vivo experimental designs, including co-cultures of mouse organotypical brain slices with human stem cell-derived neurons to address disease specific questions in a human 



Figure Co-culture of organotypical brain slice obtained from Huntington's disease mouse (blue cells) with healthy human embrvonic stem cell derived neurons (human neurons; green), reveals transcellular spreading of sick huntingtin protein to human neurons (red; right image, arrow).



Figure 2 Synaptic integration of human neurons in mouse neuronal network is here demonstrated with viral tracing technique, visualizing synaptic connectivity between healthy human neuron (h ( vellow)) and Huntinaton's disease mouse neuron (m (red)). Right image shows the human neuron with sick huntingtin protein derived from the surrounding mouse cells (arrow)

## WELCOME TO ...



## ANDREW STRAW

BIOLOGY I.



Andrew Straw was born and raised in Albu uerque, USA. He did a Bachelors of Science at the University of Southern California (1997 and a PhD from the University of Adelaid (2004). He was a postdoc at the California Institute of Technology from 2004-2010 and then started a group at the Institute of Mole cular Pathology in Vienna (2010-2015). Sinc 2016, he has been a professor in the Insti tute of Biology I at the University of Freiburg

Every sensation we experience is determined, in part, by our location in space. As we move, these sensations are altered, and these altered sensations may lead to adjustments of our behavior. This movement induces new sensations and the cycle repeats forever. This coupling between motor output and sensory input, the action-perception cycle, is fundamental to the physics of moving organisms and has therefore been important during nervous system evolution. How is this coupling reflected in the physiology of neural circuits and how can neural circuits in such an action-perception cycle produce adaptive behavior? What important constraints arise from operating in "closed loop" and how do we, and all animals, deal with this situation? The lab of Andrew Straw researches these fundamental questions by developing and using state-of-the-art virtual reality systems and neuro-genetic tools in genetic model organisms.

## **Virtual Reality for Freely Moving Animals**

Technology development plays an important role in the Straw Lab and they have developed visually realistic virtual reality for freely moving organisms. These systems (think about the matrix from The Matrix or the holodeck from Star Trek) allow computer programs to control a naturalistic scene in precise ways that react almost instantaneously to an animals own movement. To implement these systems, the Straw Lab implemented novel computer vision systems such as multi-camera tracking and multi-display computer graphics. They are now using these systems to perform precise measurements of animal behavior in a highly controlled experimental settings. (Citation Stowers et al. 2014)

## Using neuro-genetics to modulate brain activity in freely moving flies

the visual control of flight.



## VIRTUAL REALITY, NEURAL CIRCUITS AND ANIMAL BEHAVIOR

The Straw Lab works on the genetic model organism, the fruit fly Drosophila melanogaster, to take advantage of the powerful genetic toolkit that allows a variety of specific but powerful manipulations to be performed with relative ease and in a high-throughput manner that complements the automation of the virtual reality systems. For example, an ongoing ERC Starting Grant to Andrew Straw is aimed at using genetically encoded neuronal "silencers" to block activity in specific visual neurons and, combined with extensive testing in virtual reality, to obtain a systematic view of the neural circuits involved in

WELCOME TO ... ANDREW STRAW

## References:

- "(Citation Stowers et al. 2014)"
- -> "For more information, see
- Stowers et al. (Computer, 2014, doi:10.1109/MC.2014.190)."
- 001.10.1109/1110.2014.190).

## "(Citation Bath et al. Nature Methods 2014)"

-> "For more information, see Bath et al. (Nature Methods, 2014, doi:10.1038/nmeth.2973)."

## "(Citation, Panser et al. Current Biology 2016)."

-> "For more information, see Panser et al. (Current Biology, 2016, doi:10.1016/j.cub.2016.05.052)."



Figure 1 Custom-built virtual reality arenas for freely flying Drosophila.

In one recent study in collaboration with the lab of Barry Dickson, they used a realtime fly tracker to target a laser directly on a freely walking fly to modulate neural activity in highly specific ways. Using different genetic tools, they could use light to activate neurons with optogenetics and heat to inactivate or inactivate neurons with thermogenetics. In this study, they discovered that a brief activation (seconds) of a single cell type in male *Drosophila* induced long lasting (minutes) courtship of nearby visual targets. (Citation Bath et al. Nature Methods 2014) Currently they are working on combining such realtime manipulations of specific neuronal circuitry during free behavior with the virtual reality systems that allow them to precisely control the sensory input of freely moving animals.

## Mapping the fly brain with unique Drosophila enhancer datasets

The Straw Lab has also taken advantage of the unique datasets associated with the *Drosophila* neuro-genetic toolkit to produce a map of the fly brain in a completely automated fashion based on patterns of genetic enhancer activity. Using this technique, they recently published a comprehensive map of the optic glomeruli of *Drosophila*, a region that had not previously been systematically described. This technique also extends to other regions of the fly brain and once similar datasets are available for other animals, it may be relevant there and ultimately could be useful in therapeutic targeting of the human brain. (Citation, Panser et al. Current Biology 2016).

## Identifying the role of neural circuits in cognitive models



Several neuron types in the visual regions of the Drosophila brain.





JUST PUBLISHED

# BERNSTEI

# SEMINARS

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## OPEN TO THE

04 . 10 . 2016 Mark van Ross

07.11.2016 Sandro Mussa

13.12.2016 Robert Gütig

**5:15 pm Lecture** Hall of the Bernstein Center Freiburg, Hansastraße 9a, 79104 Freiburg im Breisgau

# SINGLE-NEURON PROPERTIES AND NETWORK DYNAMICS

Ajith Sahasranamam, Dr. Ioannis Vlachos, Prof. Dr. Ad Aertsen and Prof. Dr. Arvind Kumar from the Bernstein Center Freiburg have studied the interaction between individual neuronal properties and the population dynamics in a neuronal network composed of these neurons in a computational model. Their study provides new insights into how and when properties like genetic, anatomical, biochemical and electrophysiological features of neurons affect the activity of an entire network of neurons. Their results have now been published in Scientific Reports, the online open-access journal of Nature Publishers.

In: Sahasranamam A, Vlachos I, Aertsen A, Kumar A (2016) Dynamical state of the network determines the efficacy of single neuron properties in shaping the network activity. Scientific Reports 6:26029 | doi:10.1038/srep26029

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um	27 . 10 . 2016 Niels Birbaumer	
Ivaldi	"Free Will and Brain Machine Interfaces: Are They Compatible?"	

**6:15 pm** Lecture Hall, Inst. Of Biology I, Hauptstr. 1, 79104 Freiburg im Breisgau

## NEUREX MEETING

# **SEPTEMBER** 29th - 30th 2016





Program Interreg V Upper Rhine «Transcending borders with every project», Neurex, CNRS, INSERM. Université de Strasbourg, Région Grand Est, Département du Bas-Rhin, Département Hockmin, olimote of orazologi, hogion factoria ca, boganica da Da Simin, coparative di du Haut-Bhin, Eurométropole Strasbourg, Hópitaux Universitaires de Strasbourg, Bernstein Center Freiburg, Klinik für Psychiatrie und Psychotherapie Freiburg, Neurozentrum Freiburg, Universität Freiburg, Universität Basel, Universitäre Psychiatrische Kliniken Basel, Kantor Basel-Stadt Kanton Basel-Landschaft Confédération suisse



# 10<sup>TH</sup> ANN VERSARY OF THE JOINT MASTER **IN NEUROSCIENCE**

## PROGRAM

## TUI IDSDAV 20TH SEDTEMBED 2016

HUI	KSDAY ZY SEPTEMDER ZUIO
0.00	Welcome coffee and Registration
0.25	Foreword
0.30	OPENING CEREMONY Prof Catherine Florentz - Vice President Research and Doctoral training, University of Strasbourg
	<b>Prof Jacky de Montigny</b> - Vice dean of the faculty Life sciences, University of Strasbourg
	Prof Juliane Besters-Dilger - Vice Rector Academic affairs, University of Freiburg
	Prof Edwin Constable - Vice Rector Research, University of Basel
	Janosch Nieden - Director of Eucor - The European Campus
.20	JOINT MASTER IN NEUROSCIENCE – PAST, PRESENT & FUTUR Dr Paul Pévet & Prof Vincent Lelièvre
2.00	Lunch
1.00	KEYNOTE LECTURE Prof Greg Lemke - Salk Institute, San Diego, CA, USA "FINDING TAM (AND OTHER) RECEPTORS"

## SYMPOSIUM 1: COMPUTATIONAL NEUROSCIENCE

PLENARY LECTURE: 15.00 Prof Ad Aertsen - Bernstein Center, Freiburg, Germany "COMPUTATIONAL NEUROSCIENCE - EXPERIMENTS AND THEORY ON A JOURNEY TOGETHER"

- Presentation by **Dr Elise Savier** (JMN 2012-2014), Strasbourg, France 16.00
- Presentation by **Dr Julien Guy** (JMN 2006-2008), Göttingen, Germany 16.15
- Presentation by Han Lu (JMN 2014-2016), Freiburg, Germany 16.30
- 16.45 Coffee Break

## SYMPOSIUM 2: NEUROPHYSIOLOGY

## PLENARY LECTURE: 17.00

- Prof Dr Josef Bischofberger University of Basel, Switzerland "BRAIN PLASTICITY: SYNAPTIC INTEGRATION OF NEW NEURONS INTO THE ADULT HIPPOCAMPUS"
- Presentation by Anna Mikhaleva (JMN 2010-12), Lausanne, Switzerland 18.00
- Presentation by Juliane Schiweck (JMN 2013-2015), Berlin, Germany 18.15
- Presentation by Nikolaos Dokalis (JMN 2014 -2016), Freiburg, Germany 18.3O

## FRIDAY 30TH SEPTEMBER 2016

- Roundtable 1: JMN to Job O9:15
- Coffee break 10:00

## SYMPOSIUM 3: COGNITIVE NEUROSCIENCE AND BEYOND

## PLENARY LECTURE: 10.15

Prof Jean-Christophe Cassel - LNCA, Strasbourg, France "HOW SERENDIPITY AND CHANCE INVITED A NEW ACTOR IN THE SYSTEMS -LEVEL CONSOLIDATION DEBATE"

- Presentation by Claire Senelonge (JMN 2009-2011), Lyon, France 11.15 Presentation by Ricardo Paricio Montesinos (JMN 2013 -2015). 11.30
- Max Delbrück Centrum (MDC), Berlin, Germany Presentation by Darren Ó hAilín (JMN 2012-2014), Freiburg, Germany 11.45
- Presentation by **Dr Sofia Kulikova** (JMN 2009-2011), Moscow, Russia 11.45 Lunch Buffet

## 14.00

- **KEYNOTE LECTURE** Prof Pierre Gressens- King's College London, UK & Hôpital Robert Debré, Paris, France) MECHANISMS OF MICROGLIAL ACTIVATION IN A MODEL OF ENCEPHALOPATHY OF PREMATURITY
- Roundtable 2: Designing the future of the JMN 15:00
- Closing remarks 16:00



# **10TH ANNIVERSARY OF THE JOINT MASTER IN NEUROSCIENCE**

are kept intact.



In just a decade, we have trained more than 150 students from more than 70 different countries, more than 80% that went on to pursue doctoral studies, while the rest either joined other academic programs or industry. On September 29-30, the JMN will celebrate its 10th anniversary with a scientific gathering. The whole JMN team is delighted to invite you for those very special days.

In September 2006, the very first students of the then new trinational master in neurosciences, the Joint Master in Neuroscience (JMN) registered at the Life Science Faculty of the Louis Pasteur University (now the University of Strasbourg). This unique program was made possible by the educational partnership of our three Universities -Basel, Freiburg and Strasbourg, and financially supported and sustained by the Neurex network. In the following 10 years, our respective Universities and Research Centers have changed a lot, so did the JMN! We have since gained coherence, competence and international visibility and acclaim, although our philosophy and initial enthusiasm

INVITATION

The steering committee of the Joint Master in Neuroscience & its partners are pleased to invite you to

# 10<sup>th</sup> anniversary of the Joint Master in Neuroscience

This event will take place on September 29<sup>th</sup>-30<sup>th</sup>, 2016 at MISHA, campus esplanade in Strasbourg

## NEUREX MEETING

## **OCTOBER** > 11<sup>TH</sup> 2016

VENUE / STRASBOURG > SALLE DES THÈSES NOUVEAU PATIO 20 RUE RENÉ DESCARTES

www.neurex.org or contact@neurex.org







Program Interreg V Upper Rhine «Transcending borders with every project». Neurex, CNRS INSERM, Université de Strasbourg, Région Grand Est, Département du Bas-Rhin, Département du Haut-Rhin, Eurométropole Strasbourg, Hôpitaux Universitaires de Strasbourg, Bernstein Center Freiburg, Klinik für Psychiatrie und Psychotherapie Freiburg, Neurozentrum Freiburg Universität Freiburg, Universität Basel, Universitäre Psychiatrische Kliniken Basel, Kantor Basel-Stadt, Kanton Basel-Landschaft, Confédération suiss



## THIS MEETING DAY IS ORGANIZED BY NEUREX IN THE FRAMEWORK OF THE NEUROCAMPUS PROJECT **DOES OPTOGENETICS STILL SHINE AFTER 11 YEARS?**

Domitille BOUDARD

Considering the development, utility and future of optogenetic tools in the field of Neuroscience beyond the "gee wiz" first glimmers of hope.

On September 2005, **Edward Boyden**, Karl Deisseroth et  $\alpha l$ . published a study in Nature Neuroscience in which they describe how neurons expressing the light-sensitive microbial protein Channelrhodopsin-2 can be activated by light pulses in a very temporally precise manner.

Soon, the publication of this basic curiosity-driven discovery got the Neuroscience community all hepped up by the evident usefulness of the technology. Researchers quickly grasped, with a frenzied enthusiasm, how remotely controlling the activity of a specific neuronal type in a fine temporal scale, whether in culture, its sue or freely moving animals, could apply to a vast array of questions. Above all, the main game-changer in the field of Neuroscience remained the hope to actually make causal connections between neuronal circuit activity patterns and a given behavior. In other words, optogenetics allowed the possibility to move the entire neuroscience research field forward from the observational and correlational stage to the causality era.

Since 2005, improvements to early techniques have provided the community with a very powerful kit of optogenetic tools. However some technical challenges still need to be taken to make the technology more accessible and usable to its full potential: gaining selective and comprehensive genetic access to the neurons of interest, controlling variation in the expression of the optogenetic tools (when using viruses) and its precise localization (axon vs. presynaptic terminals), tailoring light-delivery system signals to individual cells in a population rather than the population as a whole, developing observation techniques which have the same spatial and temporal resolution as those tools... to cite only a few of them.

This special **Optogenetics day** will be the occasion to take stock of this groundbreaking technique progresses and achievements in Neuroscience beyond the viral buzz created by the seminal publication of Boyden et  $\alpha l$ . 11 years ago, and notably to:

- 1/ go back into the historical context of the discovery of the technique, 2/ describe the basic principle of the technology, list the genetically encoded light-activated sensors available and technical obstacles that remained to be
- 3/ review the major impacts and breakthroughs achieved with the use of these tools in our field.
- 4/ consider and discuss the challenges to be tackled and possible perspectives.

Mandatory registration on the Neurex website at http://www.neurex.org/

## PROGRAM

11.00 am «STATE OF ART OF THE TECHNIQUE: HISTORICAL BACKGROUND AND DISCOVERY » PHILIPPE ISOPE, CNRS UPR 3212, Institute of Cellular and Integrative Neuroscience, Strasbourg, France

## 12.00 am Lunch

- 01.30 pm «HOW DOES OPTOGENETICS WORK? GENERAL MECHANISMS AND TECHNICAL PRINCIPLE OF THE MAIN TOOLS »
- WILFRIED WEBER, Faculty of Biology / BIOSS Center for Biological Signalling Studies, University of Freiburg, Germany 02.30 pm « POSSIBILITIES OF USES: FIELDS OF APPLICATION, DISCOVERIES
- AND MAJOR BREAKTHROUGHS IN NEUROSCIENCE » PHILIP TOVOTE. Friedrich Miescher Institute for Biomedical Research Basel, Switzerland
- 03.30 pm Coffee break
- 04.00 pm «LIMITATIONS AND FUTURE CHALLENGES» ANDREW STRAW, Department of Neurobiology and Behavior,

titute of Tec

MEETING **Optogenetics** will take place on the 11<sup>th</sup> of October 201

in Strasbourg

# Salle des Thèses, Nouveau Patio, EDWARD BOYDEN



ineering and brain and cognitive science nstitute, USA, where he leads the Synthet Neurobiology group. His group applies tech eal ground truth scientific understandings o iological systems, which in turn reveal rad al new approaches for curing diseases an epairing disabilities. These tools, create often in interdisciplinary collaborations, ir clude expansion microscopy, which enable complex biological systems to be image vith nanoscale precision, optogenetic tool and optical, nanofabricated, and robotic in erfaces that enable recording and control o

## neural dynamics.

Boyden received his PhD in neuroscience rom Stanford University, where he discovere hat the molecular mechanisms used to stor a memory are determined by the content t be learned. Before that, he received degree n electrical engineering, computer science

nvestigator Award (2015), the Carneg. Prize in Mind and Brain Sciences (2015) an

n May 2011, Ed gave at a talk at the TEL

Video of the conference can be watched at https://www.youtube.com /watch?v=hupHAPF1fHY.



This first technic-specific symposium will focus on Optogenetics technique, a technique which involves the use of light to control cell activity in living cells that have been genetically modified to express light-sensitive channels proteins. The fine temporal scale offered allows to precisely measure the effects of those manipulations in real-time. In 2010, Optogenetics was chosen as the «Method of the Year» across all fields of science and engineering by Nature Methods. At the same time, Optogenetics was highlighted in the article on "Breakthroughs of the Decade" in the academic research iournal Science. Beyond the sharing of knowledge, this conference seeks to gather all the members of our community interested in this subject. We would like to express our gratefulness to all the scientists who kindly accepted to participate in the event. We hope that many of you will join us and are looking forward to meeting you at this event.

We are looking forward to meeting you there!

# **DOES OPTOGENETICS STILL SHINE AFTER 11 YEARS?**

A special event on Optogenetics will take place on the 11<sup>th</sup> of October 2016 in Strasbourg, Salle des Thèses, Nouveau Patio, 20 rue René Descartes. Entitled «Does optogenetics still shine after 11 years?», it will be the occasion to take stock of this groundbreaking technique progresses and achievements in Neuroscience beyond the viral buzz created by the seminal publication of Edward Boyden (MIT) et al. 11 years ago. Edward Boyden (MIT) will give the keynote lecture of the meeting.

## NEUREX EVENT

# **OCTOBER** 13<sup>th</sup> 2016

> ROCHE, BAU 1 **GRENZACHERSTRASSE 124** BASEL

# **VISIT OF ROCHE pRED NEUROSCIENCES** BASEL

Roger Redondo (Roche, Basel) & Josef Bischofberger (DBM, Basel)







Program Interreg V Upper Rhine «Transcen ding borders with every project», Neurex, CNRS, INSERM, Université de Strasbourg, Région Grand Est, Département du Bas-Rhin, Département du Haut-Rhin, Eurométropole Strasbourg, Hôpitaux Universitaires de Stras-bourg, Bernstein Center Freiburg, Klinik für bourg, bernstein Center Freiburg, killink tur Psychiatrie und Psychotherapie Freiburg, Neurozentrum Freiburg, Universität Freiburg, Universität Basel, Universitäre Psychiatrische Kliniken Basel, Kanton Basel-Stadt, Kanton Basel-I andschaft Confektration suisse



## Thursday 13<sup>th</sup> >>>

9.30	am	Welcome at ROCHE, BAU 1 GRENZACHERSTRASSE 124 BASEL
10.00	am	VOLKER HERDTWECK Welcome to Roche and Careers at Roche
10.45	am	<b>ROGER REDONDO</b> Introduction to Roche Research and Early Development (pRED) Neurosciences
12.00	am	Lunch at the Roche Canteen
O1.15	pm	JOHANNES MOSBACHER How does Neuroscience Drug Discovery work - based on the successful discovery and development of Orexin-R antagonists for Insomnia
02.00	pm	NEUROSCIENCE LAB TOURS FROM SCREENING TO IN VIVO IMAGING - High throughput screening - In vitro Physiology - In vivo Optogenetics - In vivo fMRI
04.00	pm	Meeting Roche Neuroscientists Reception in pebbles, 38 <sup>th</sup> floor of Building 1
04.45	pm	End of visit
		Please note that the fMRI can only be visited by people, who did not enter another rodent animal facility and did not have contact with Lab rodents for at least 48h before the visit.

# INTERACTIONS WITH INDUSTRY

# **VISIT OF ROCHE pRED NEUROSCIENCES, BASEL OCTOBER 13<sup>TH</sup> 2016**

The new training program of the Neurex network, NeuroCampus (see page 4) includes the development of activities aimed at encouraging interactions between university and industry. An introduction to the field of Research and Early Development at Roche laboratories will take place on the 13<sup>th</sup> of October and allow scientists from academic laboratories to interact with their colleagues from Roche.

An introduction on Research & Early Development in neuroscience will be made, and the concept of drug discovery will be addressed throughout the example of Orexin R antagonists for the treatment of insomnia. These presentations will be followed by a visit of laboratories (High throughput screening, In vitro Physiology, In vivo Optogenetics).



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# WORKSHOP **22<sup>TH</sup> 2016** BASEL

# **CLINICAL TRIALS** IN DRUG DEVELOPMENT

I. From general concepts to practical & methodological considerations

(to be followed by a second event in 2017 « Clinical trials in drug development».II. )

When it comes to disease -identifying pathophysiological mechanisms & developing potential therapies- the approaches of fundamental and clinical research differ substantially. The two disciplines face distinct problems and limits -ethical, methodological, etc- in animals and humans, which has led to a significant gap between their investigational approaches. Clinical trials have to deal with many ethical issues, which may be as varied as investigations in young children, when to use placebos or how to manage trusteeship, as well as methodological aspects such as how to correctly plan statistics, etc. The field of clinical trials per se is the object of a specific teaching, like in the French DIU-FIEC (Inter-University Diplom of Training Investigators in Clinical Research) proposed at the Strasbourg University. However, despite a theoretical continuity between fundamental & clinical research, many scientists remain unfamiliar with the structure and burdens of clinical trials.

A workshop held on the 22nd of November 2016 will address the concept of Clinical Trials in drug Development. It will detail the development of a Clinical Trial, its structure and rules, as well as associated difficulties & pitfalls. What are the ethical concerns and difficulties associated to the planning & implementation of a clinical trial? Which statistical tests to perform and how to plan the study design accordingly? Input will be given on these matters by experts in the field (see next page) and a practical example in the field of neurology will be studied at the end of the presentations. It will be followed by a visit of Actelion laboratories, where the company (located in Allschwil, close to Basel) will be presented and in which a tour will be organized, illustrating some aspects of the implementation of a clinical trial (clinical studies of sleep disorders; data management; Drug safety).

This first event is aimed at initiating all interested scientists and clinicians not fami-liar to the field with clinical trials. It is planned to be followed by a second workshop in 2017 that will deepen further aspects of the question, especially in the field of neuroscience.

We would like to express our gratefulness to Prof Laurent Monassier, Prof Nicolas Meyer and Prof Philippe Wolf (see expertise thereafter) for their kind participation & teaching in this event. We would like also to express our gratefulness to Actelion laboratories (Allschwil) which will welcome us and participate in the practical training of this event, including a guided tour of their clinical facilities.

## 



## PROF. LAURENT MONASSIER

I ABORATORY OF NEUROBIOLOGY & CARDIOVASCULAR PHARMACOLOGY EA 7296. STRASBOURG

Prof. Laurent Monassier is a pharmacolo pecialized in the field of cardiac remodeling n particular, he is interested in the role of serotonin and its receptors in cardiac hype trophy and valvulopathies. Prof Laurent Monassier has also investigated the pre-motor control by brainstem regions of arterial pressure, and in particular the putative relevance of centrally-acting drugs. He has been coordinating for several years the teaching dedicated to the training of assistants and investigators in clinical trials on drugs (DIU-FIEC & DIU-FARC-TEC). He is also a pharmacologist member of the «Comité de Protection des Personnes de la Région Est», a committee which is in charge of supervising the protection of healthy volunteers & patients enrolled in clinical trials. He will explain the role of clinical research in drug development by detailing the narrow links between research methodology and the medical & regulatory constraints associated to it.



POI F OF PUBLIC HEALTH. STRASBOURG

istics. He exerts within the University Hos pital Center (CHU) of Strasbourg when ne leads the team «Methods in Clinica Pesearch» and works in close collaboration with the Direction of Clinical Research of the above-mentioned CHU. He develops, among others, the use of bayesian methods in clinical research. He is also involved in medi cal teaching and give lectures at all levels of medical curricula (PACES, Masters, DIU FIEC, FARC, DU of bayesian statistics), in biostatistics, on critical reading of articles and nethodology of clinical research. He is also a member of the «Comité de Protection des Personnes Est-IV». Prof. Nicolas Meyer wil address the most important methodological and statistical aspects of clinical research «The statistical and methodological do's and don'ts of clinical research».

PROF. NICOLAS MEYER

Prof. Nicolas Meyer is specialized in biosto

N.M



## PROF. **PHILIPPE WOLF**

GENERAL SURGERY & TRANSPLANTATIONS. CHRU STRASBOURG

Prof. Philippe Wolf is a multiorgan (kidney iver, pancreas) transplant surgeon. Pro essor of Surgery at Strasbourg Universit ince 1990, he coordinates the removal and grafting facility at the University Hospita Strasbourg (HUS). Inter-regional coordinator of studies in Surgery, Prof. Wolf is also the President of the CPP «Comité de Protection des Personnes», a Committee of Ethics in Research) and is Professor of Ethics in the School of Management of Strasbourg. He works as an expert for the Biomedicine Agency and is risk manager for the HUS (Coordinator of the risks associated to medical care).

P.W

## WORKSHOP

# NOVEMBER

## > 22<sup>nd</sup> 201

## VENUE / BASEL

 Museum Kleines Klingental, Unterer Rheinweg 26, Basel

**REGISTRATION & MORE INFO** www.neurex.org





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## **CLINICAL TRIALS IN DRUG DEVELOPMENT**

## FROM GENERAL CONCEPTS TO **PRACTICAL & METHODOLOGICAL** CONSIDERATIONS

Organizers Laurent Monassier (Strasbourg) **Pascale Piguet** (Basel) & Angelika Rose-Hüll (Basel)

## Tuesday 22<sup>nd</sup> >>>

09.30 - 10.00 Welcome

## LAURENT MONASSIER 10.00 - 10.45

Laboratory of Neurobiology & Cardiovascular Pharmacology EA 7296, Strasbourg « FROM EXPERIMENTAL RESEARCH TO CLINICAL TRIALS: MILESTONES AND MAIN CAVEATS »

## PHILIPPE WOLF 10.45 - 11.30

General Surgery & Transplantations, CHRU Strasbourg « INFORMED CONSENT IN CLINICAL RESEARCH »

## 11.30 - 12.00 Coffee break

## NICOLAS MEYER 12.00 - 12.45

Pole of Public Health, CHRU Strasbourg « THE STATISTICAL AND METHODOLOGICAL DO'S AND DON'TS OF CLINICAL RESEARCH »

12.45 - 13.15 LAURENT MONASSIER, PHILIPPE WOLF & NICOLAS MEYER « CLINICAL DESIGN FOR CLINICAL TRIALS IN NEUROLOGY: PRACTICAL EXAMPLES »

## Lunch break 13 15 - 14 30

VISIT OF ACTELION CLINICAL FACILITIES 15.00 - 17.00 Allschwil, Base



## MEETING DEC 2<sup>ND</sup> 2016 **STRASBOURG**



At the heart of today's preoccupations, air pollution is now suspected to extend its damages beyond the traditional pulmonary and cardiovascular effects. Thus, an increasing number of neuro-epidemiological studies suggests a significant link between environmental pollution and neurological disorders. In adult humans, exposure to an air loaded with pollutants is associated to depression and an increase in the prevalence of stroke. In children, air pollution correlates with an accumulation of biomarkers of neurodegenerative disorders (Parkinson's disease, Alzheimer's disease), and an increase in the prevalence of cognitive disorders. Finally, a pre/perinatal exposure to environmental pollutants has been shown to correlate with an increased risk for autism.

Just as pollutants are varied in nature (fine & ultrafine particulate matter [PM], metals, ozone, etc), there are probably several paths of entry of toxics into the CNS. In children exposed to environmental pollutants, a chronic inflammation of the upper and lower respiratory tracts is associated to a lesion of the olfactory nasal barrier. Interestingly, these data may be paralleled with scientific studies which have suggested a role for the olfactive and trigeminal nerves in the invasion of brain parenchyma by pathogens (in particular, viruses). The presence of olfactory lesions in children and dogs exposed to polluted air thus suggests that there is a path of entry into the brain for fine and ultrafine PM, but also metals. The unique biokinetic properties (size, shape) of some pollutants - in particular nanoparticles- may contribute to their toxicity, given the potential endogenous capacity of some of them to enter the brain. Moreover, PM may adsorb toxics as varied as bacterial LPS or polycyclic aromatic hydrocarbons. Finally, in addition to the deleterious effect induced by the entry of pollutants into the CNS, there is probably an indirect neuroinflammatory component due to the entry into the nervous system of peripheral inflammatory molecules.

Importantly, scientific data accumulate which allow elaborating plausible hypotheses on the pathophysiological mechanisms involved in the neurological harm induced by environmental pollution. The first studies made in dogs naturally exposed to polluted air have demonstrated oxidative lesions, the premature presence of diffuse amyloid plaques and alterations of DNA in olfactory bulbs, frontal cortex and hippocampus. Moreover, an accumulation of metals and tissues lesions has been shown in the mucosa, olfactory bulbs and frontal cortex of dogs exposed to strong pollutions, thus underlining the role of nasal pathways in intracerebral access. Remarkably, Alzheimer's and Parkinson's disease share common pathophysiological signs, including lesions of the olfactory bulbs and nuclei and an olfactory deficit which be be observed early in the course of the disease.

# **AIR POLLUTION AS AN ENVIRONMENTAL RISK FACTOR FOR BRAIN DISEASES: THE NEUROINFLAMMATORY HYPOTHESIS**



In dogs exposed to polluted air, amyloid plaque deposits are observed a decade be fore the one observed in control dogs. Studies at the cell level have demonstrated that an exposure of primate and rodents brains to heavy metals (lead) induces an increase (later, in aging animals) in the transcription of a certain number of genes -in particular of beta amyloid protein and its precursor APP. Importantly, this effect is observed in aged animals that were exposed to lead while they were young, but not in animals that were exposed when adults, thus underlining the important role of chronicity. In children, the demonstration of biomarkers of neurodegenerative disorders (hyperphosphorylated tau, amyloid plaques and misfolded synuclein) is paralleled by an increase in circulatory inflammatory molecules (cytokines, chemokines, etc), by a systemic, intrathecal & intracerebral immune dysregulation, a neuroinflammation and oxydative stress. It has been proposed that circulating cytokines activate in turn an innate immune response, at the neurovascular level, but also in microglia, thus triggering a neuroinflammatory and neurodegenerative cascade. It is also known that a peripheral inflammation may induce a lasting (several months) inflammatory cascade in the brain parenchyma, through mechanisms involving both humoral and neuronal signalling. The presence of activated lymphocytes, macrophages and mastocytes was shown in the brain of children exposed to polluted air, thus demonstrating the existence of chronic inflammatory processes. Thus, data accumulate which suggest a neuroinflammatory cascade in brains exposed to polluted air, which might underlie the development of neurological disorders and/or their biomarkers suggested by epidemiological studies. The potential role of pollution as an environmental risk factor for brain diseases will be addressed during a meeting next December.

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A one-day workshop will assess the current data that suggest a role for neuroinflammation in underlying the deleterious effects of air pollution.

Held on the 2<sup>nd</sup> of december 2016 in Strasbourg, this event organized by Neurex will close a series of events – for scientists and for the public– dedicated to this topic, such as the 7<sup>th</sup> meeting on Health & Environment (Nov. 28<sup>th</sup> & 29<sup>th</sup>), and the International Meeting on Environment and Health (CNE/ENRG-WEN/EAEH consortium, Nov 30<sup>th</sup> & Dec. 1<sup>st</sup>).

After an introduction on the different kinds of pollutants and the putative paths of entry into the brain, neuro-epidemiological data will be followed by a description of fundamental/clinical studies which have assessed the different effects induced by pollutants (increase in cytokines, etc). A clear effort will be made to separate facts from speculations and identify the necessary future areas of investigation. We would like to express our gratefulness to the scientists who kindly agreed to participate in this event.

We are looking forward to meeting you there !

# WORKSHOP

# DECEMBER

## > 2<sup>nd</sup> 2016

VENUE / STRASBOURG > COLLÈGE DOCTORAL EUROPÉEN 46 BOULEVARD DE LA VICTOIRE

REGISTRATION & MORE INFO / www.neurex.org or contact@neurex.org





Schweiderliche Filigenossense Confeceration susse Confecerazione Skizzera Confecerazione Skizzera

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## AIR POLLUTION AS AN ENVIRONMENTAL RISK FACTOR FOR BRAIN DISEASES: THE NEUROINFLAMMATORY HYPOTHESIS

Pascale Piguet	(Basel)
Jacques Reis	(Strasbourg)
	Jacques Reis

>>> Friday 2<sup>nd</sup>

09.00 - 09.30	Registration & Welcome coffee
<b>SESSION 1</b>	
09.30 - 10.00	PETER SPENCER (Portland, USA) « INTRODUCTION: AIR POLLUTION & NEURO-DISORDERS »
10.00 - 10.45	ALISON ELDER (New-York, USA) « TOXICOLOGY OF AIR POLLUTION » - Definition of the various types of pollutants: PM, NP, ozone, etc. - Concepts of (nano)toxicology - Portals of entry of Particles into the brain
10.45 - 11.15	Coffee break
11.15 - 12.00	ANNETTE PETERS (Neuherberg, Germany) « BRAIN ENTRY & POTENTIAL NEUROLOGICAL EFFECTS OF FINE AND ULTRAFINE PARTICLES: A CRITICAL UPDATE »
12.00 - 13.15	Lunch break
SESSION 2	
13.15 - 14.00	MICHELLE BLOCK (Richmond, USA) « INTRODUCTION: UPDATE ON THE CONCEPT OF NEUROINFLAMMATION»
	ENVIRONMENTAL POLLUTION: THE CHALLENGING SHIFT FROM EPIDEMIOLOGY TO NEUROEPIDEMIOLOGY
14.00 - 14.45	LILIAN CALDERON (Missoula, USA) « (Neuro)inflammatory markers in humans and animals exposed to pollution: potential relevance to Parkinson's and Alzheimer's disease »
14.45 - 15.30	BEATE RITZ (Los Angeles, USA) « Genetic alterations induced by pollutants: relevance for Parkinson's disease »
15.30 - 16.00	Coffee break
	PATHOPHYSIOLOGICAL MECHANISMS INVOLVED IN ENVIRONMENTAL TOXICOLOGY
16.00 - 16.45	NASSER ZAWIA (Rhode Island, USA) « Epigenetic mechanisms involved in lead toxicity: relevance to AD»
16.45 - 17.30	MICHELLE BLOCK (Richmond, USA) « Activation of PRRs on microglia: a role in triggering neuroinflammation?»
17.30	PERSPECTIVES ON OTHER NEUROLOGICAL DISORDERS: ROUND TABLE

NOVEMBER 29<sup>TH</sup>- 30<sup>TH</sup> 2016 **STRASBOURG FREIBURG** BASEL

# LAB TOUR ON MEMORY

The trinational NeuroCampus project is a great occasion for Neurex to launch new activities for members of its network.

Lab Tours is one of them. The concept of this new activity is to allow members to focus, during 2 to 3, on one specific thematic of the Neuroscience field and visit labs working on this topic in Strasbourg, Freiburg and Basel.

Mark your calendar! Memory Lab tour on 29<sup>th</sup> and 30<sup>th</sup> of November. Participants will visit labs working on fundamental research on animal models or human but also clinical institutions. Visits of labs in the 3 cities will allow participants to comprehend the complementarity of the different approaches (molecular, physiology, behavior, cognition...) to study a same function in the network.

The Memory Lab Tour will take place on November 29<sup>th</sup> and 30<sup>th</sup>. Do not forget to register on our website!

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## **COMING EVENTS**

## **SEPTEMBER 2016**

29TH - 30TH - MEETING «10TH ANNIVERSARY OF THE JOINT MASTER IN NEUROSCIENCE» STRASBOURG, FRANCE

## **OCTOBER 2016**

11TH - MEETING «DOES OPTOGENETICS STILL SHINE AFTER 11 YEARS? » STRASBOURG, FRANCE

**APRIL 2017** 10TH - 12TH - MEETING «NEUROTIME ANNUAL MEETING»

AMSTERDAM, NL

«CLINICAL TRIALS

BASEL, SWITZERLAND

**DECEMBER 2017** 

STRASBOURG, FRANCE

DECEMBER - MEETING

4TH-5TH MEETING

MEETING

«NEUROETHICS»

MARCH 2017

**«ADDICTIONS»** 

FREIBURG, GERMANY

28TH-29TH - MEETING

STRASBOURG, FRANCE

«VISIT OF ROCHE PRED NEUROSCIENCES»

12TH - 16TH - SEN «NEUROSCIENCE 2016» SAN DIEGO, USA

**NOVEMBER 2016** 

13TH - VISIT OF ROCHE

BASEL. SWITZERLAND

22TH - WORKSHOP & VISIT OF ACTELION «CLINICAL TRIALS IN DRUG DEVELOPMENT. I. FROM GENERAL CONCEPTS TO PRACTICAL & METHODOLOGICAL CONSIDERATIONS» BASEL, SWITZERLAND

29TH - 30TH - LAB TOUR «MEMODV» STRASBOURG, FREIBURG, BASEL

## **DECEMBER 2016**

2ND - MEETING «AIR POLLUTION AS AN ENVIRONMENTAL RISK FACTOR FOR BRAIN DISEASES THE NEUROINEL AMMATORY HYPOTHESIS» STRASBOURG, FRANCE

8TH - 9TH «NEUROIMMUNOLOGY» STRASBOURG, FRANCE

«NEURO IMMUNOLOGY» STRASBOURG, FRANCE

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This description is not definitive, but lists the events which are ready or in preparation. Please check again on www.neurex.org or in the next newsletter for additional events.

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## WINTER 2016-2017

## **SPRING-SUMMER – WORKSHOP**

IN DRUG DEVELOPMENT, IL.»

## « EARLY SIGNS OF MEMORY DECLINE: **OBJECTOR PLACE FIRST?»**

# **INFO & LINKS**

## **NEUROSCIENCE FEDERATIONS** & LABORATORIES IN THE UPPER RHINE VALLEY

THE NEUREX NETWORK INCLUDES THE **3 NEUROSCIENCE FEDERATIONS OF BASEL** (NNB, NEUROSCIENCE NETWORK BASEL), FREIBURG (NEURAG) AND STRASBOURG (NEUROPÔLE) PLUS ADDITIONAL RESEARCH UNITS PERFORMING

RESEARCH IN THE NS. FOR A DETAILED DESCRIPTION OF THE INSTITUTES MAKING UP THE NEUROSCIENCE LANDSCAPE IN NEUREX, YOU MAY DOWNLOAD OUR SUPPLEMENT TO NEWSLETTER 30 ON **www.neurex.org**.

- NEUROPÔLE http://neuropole.u-strasbg.fr/
- NEURAG http://www.neurag.uni-freiburg.de
- NNB http://www.neuronetwork.unibas.ch

## **NEWSLETTERS**

- UNIBASEL http://www.unibas.ch/ Section newsletter
- A.L.UNI FREIBURG http://www.studium.uni-freiburg.de/ newsletter
- UNISTRASBOURG http://www.unistra.fr/index.php?id=1180
- COMPUTATIONAL NEUROSCIENCE: **BERNSTEIN NEWSLETTER** http://www.nncn.de/en/news/ BernsteinNewsletter-en/Newsletter-en







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# NEUREX NEWSLETTER N° 30

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## STRASBOURG

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