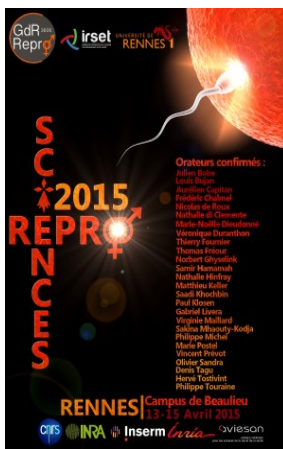




The Neuroscience Letter

SAVE THE DATE : ReproSciences 2015

The **ReproSciences 2015** event will be organized by the GDR REPRO from April 13 to 15, 2015 at Rennes 1 University (Beaulieu Campus, Rennes, France). ReproSciences 2015 will bring together scientists **working in the field of reproduction**, in both fundamental and applied research. It is aimed at presenting a **panorama as wide and complete as possible of the research led on this topic** in France. This event



occurs for the first time in France and it should continue to be organized in other French cities, every two years. The program includes one plenary lecture, one lay-public conference in partnership with *Espace des Sciences* in Rennes, 5 presentations from invited speakers, 21 oral presentations, 1 session for oral communications by young researchers and 2 poster sessions. Awards will be given to the best posters and oral presentations. Registration is free for students, 25 € for Post-Docs and 60 € for researchers.

For more information regarding the program : <https://gdrepro.files.wordpress.com/2014/12/programm-e-reprosciences-2015.pdf>

For registration : <http://gdrepro.com/reprosciences-2015/>

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Grants and Awards

Dr **Lenaig ABILY-DONVAL** received funding for a clinical protocol HEMO-PREMA, as part of the tender for young researchers of Rouen University Hospital (31 k€). The objective is to identify a predictive marker of cerebral hemorrhage in cord blood from extreme prema (born before 30 weeks of gestation) in order to envisage a specific treatment. The children will be monitored by ultrasound and transfontanellar echography and classified into 2 groups according to whether they have suffered from brain hemorrhage or not. The complex formed by the tissue plasminogen activator (t-PA) and its inhibitor PAI-1, free PAI-1, stromelysin and PDGF-C, all bleeding risk factors, will be measured in plasma obtained from cord blood samples. The polymorphism of PAI-1 gene, and eNOS will be studied on the cell pellets. This project developed under the supervision of Dr **Philippe LEROUX** (ERI 28 NeoVasc) implies Pediatric Neonatal and Intensive Care Services (Pr **Stéphane MARRET**) and Biochemistry (Pr **Soumeiya BAKRI**). It follows the clinical protocol

FIBRINAT (Sentilhes et al., *J. Pediatr.*, 158: 377-382, 2011).

On December 15th, 2014, Dr **Samuel VALABLE**, CNRS researcher at the Laboratory ISTCT (UMR6301 / CERVOxy team), was awarded in Caen (France) the 2014 Bronze Medal of CNRS. The medal was given to him by **Catherine JESSUS**, Scientific Director of the Institute of Life Sciences of CNRS (represented by **Florence NOBLE**, Deputy Scientific Director) and **Vincent GOUJON**, regional delegate of CNRS for Normandy. The award recognizes **Samuel VALABLE** research to characterize brain tumors such as glioblastoma and brain cancer, using multimodal imaging: magnetic resonance imaging (MRI) and positron emission tomography (PET) imaging using the equipments available at the biomedical imaging platform of Cyceron. This award encourages him to continue his work with the objective of developing new therapeutic strategies for the treatment of brain cancers.



Appointment

Dr **Thierry CHARLIER** recently joined the **NEED team**, headed by Dr **Olivier KAH** (INSERM U1085, University of Rennes 1, France) as a university Professor. **Thierry CHARLIER** obtained his PhD in Science in 2005 at the University of Liege, Belgium. He moved to the University of British Columbia, Canada, as an IBRO outstanding Postdoctoral Fellow for nearly three years before returning to Belgium, where he worked as a Research Associate. He was then hired in 2012 as an Assistant Professor and Director of graduate studies in Molecular and Cellular Biology at Ohio University (Athens, Ohio, USA). **Thierry CHARLIER** moved to France in September 2014, where he will be co-responsible with **Olivier KAH** of the **NEED team**. He will focus on strengthening the current research as well as developing new themes. The joint project will seek to understand the mechanisms of action of sex steroids on the central nervous system and to define the long-term modulations on physiology and social behaviors, including sexual and aggressive behaviors. This work will be closely associated with the study of the effects of potential **endocrine disruptors** on the physiology of the central nervous system and behavior.



Conferences

Dr **Olivier KAH** has given to three lay-public lectures in Saint-Malo, Tréguier and Morlaix (France) on the topic « New neurons every day ».

Publications of teams from the LARC-Neuroscience Network

M. Kermorgant, F. Lancien, N. Mimassi, J.C. Le Mével. **Central actions of serotonin and fluoxetine on the QT interval of the electrocardiogram in trout.** In this paper published in *Comparative Biochemistry and Physiology* (167:190-199, 2014), researchers from the Laboratory of Neurophysiology (LaTIM U1101, University of Brest, France) demonstrate that fluoxetine, a selective serotonin reuptake inhibitor, mimics the effects of serotonin after intracerebroventricular injection, and provokes a prolongation of the QT corrected (QTc) interval of the ECG in trout. Intra-arterial injection of blockers of the autonomic nervous system indicates that only the sympathetic nervous system modulates the QTc interval. These data demonstrate for the first time in any animal species that cardiac electrophysiology is sensitive to central serotonin and that fluoxetine in the brain may disrupt the autonomic control of ventricular repolarization.

C. Aligny, C. Roux, N. Dourmap, Y. Ramdani, J.C. Do-Rego, S. Jégou, P. Leroux, I. Leroux-Nicollet, S. Marret, B.J. Gonzalez. **Ketamine alters cortical integration of GABAergic interneurons and induces long-term sex-dependent impairments in transgenic Gad67-GFP mice.** In this paper published in *Cell Death and Disease* (2014, PMID: 24991763), researchers from the “NeoVasc” laboratory (ERI 28), in collaboration with the Departments of Pediatrics and Neonatal Resuscitation, demonstrated by *ex vivo* and *in vivo* approaches that prenatal exposure to the anesthetic, ketamine, affects differentiation and long-term integration of a particular population of neurons, the immature GABAergic interneurons. In particular, the molecular effects of anesthetic during the neonatal period resulted in sex-dependent disorders in adults. This study sheds new light on the use of certain classes of anesthetics in premature.

T. Gaberel, C. Gakuba, R. Goulay, S. Martinez De Lizarondo, J.L. Hanouz, E. Emery, E. Touze, D. Vivien, M Gaudberti. **Impaired glymphatic perfusion after strokes revealed by contrast-enhanced MRI: a new target for fibrinolysis?** In this paper published in *Stroke* (45:3092-3096, 2014) researchers investigated the impact of different stroke subtypes on the glymphatic system using MRI. They found that subarachnoid hemorrhage (SAH) and acute ischemic stroke impair the glymphatic system perfusion. In this context, injection of tissue-type plasminogen activator either intracerebroventricularly to clear perivascular spaces (for SAH) or intravenously to restore

arterial patency (for ischemic stroke) may improve glymphatic function.

P. Coumilleau, E. Pellegrini, F. Adrio, N. Diotel, J. Cano-Nicolau, A. Nasri, C. Vaillant, O. Kah. **Aromatase, estrogen receptors and brain development in fish and amphibians.** In this paper published in *Biochimica et Biophysica Acta* (S1874-9399(14)00190-4, 2014), the authors review the available information on the expression, regulation and potential functions of aromatase during brain development in fish and amphibians. One of the objectives is to better understand when and how endocrine disruptors may affect estrogen signaling.

P. Coumilleau, O. Kah. **Cyp19a1 aromatase and estrogen receptors expression in the Xenopus brain at different developmental stages.** In this paper published in *Neuroendocrinology* (26:226-236, 2014), the authors report for the first time a detailed mapping of aromatase expression sites during brain development in an anurian amphibian, the African claw frog. The data show that, in contrast to what was observed in fishes where aromatase is exclusively expressed in neuronal progenitors, in *Xenopus* aromatase, is present in neurons, similar to what is found in other tetrapods.

E. Balland, J. Dam, F. Langlet, E. Caron, S. Steculorum, A. Messina, S. Rasika, A. Falluel-Morel, Y. Anouar, B. Dehouck, E. Trinquet, R. Jockers, S.G. Bouret, V. Prévot. **Hypothalamic tanycytes are an ERK-gated conduit for leptin into the brain.** In this article published in *Cell Metabolism* (19:293-301, 2014), the authors show that tanycytes are involved in regulating energy homeostasis in the central nervous system by controlling leptin access to the hypothalamus in a leptin-receptor- and ERK-pathway-dependent manner. ERK-dependent leptin transport by tanycytes could thus play a critical role in the pathophysiology of the central resistance to this anorexigenic hormone that is released by fat cells, and holds therapeutic potential for treating obesity.

C. Lecoutey, D. Hedou, T. Freret, P. Giannoni, F. Gaven, M. Since, V. Bouet, C. Ballandonne, S. Corvaisier, A. Malzert Fréon, S. Mignani, T. Cresteil, M. Boulouard, S. Claeysen, C. Rochais, P. Dallemagne. **Design of donecopride, a dual serotonin subtype 4 receptor agonist/acetylcholinesterase inhibitor with potential interest for Alzheimer’s disease treatment.** In this paper published in *Proc. Natl. Acad. Sci.* (111:3825-3830, 2014), the authors describe the development of donecopride, the first multi-target directed ligand acting both on the catalytic and peripheral sites of acetylcholinesterase and on 5-HT4 receptor. Donecopride would be able to restore cholinergic neurotransmission, a consequence of neurodegeneration in Alzheimer’s disease patients, to limit the production of neurotoxic amyloid β -peptide and to promote instead the synthesis of the SAPPa neurotrophic protein. These effects, that have been characterized *in vitro* and *in vivo*, led to marked improvements of the observed animal cognitive effects.

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