

# RegPep2016



| International Regulatory Peptide Society |

Rouen, France July 12-14, 2016

Conception Graphique: Marie Chalandre

European Neuropeptide  
Club



Summer Neuropeptide  
Conference

Photographie: Fabrice Florin

[www.regpep2016.fr](http://www.regpep2016.fr)



**Inserm**



**UNIVERSITÉ  
DE ROUEN**

# Program

# RegPep 2016

International Regulatory Peptide Society

Rouen, France July 12-14, 2016



Dear Colleagues,

On behalf of the [International Regulatory Peptide Society](#), the [International Neuropeptide Society/Society for Biologically Active Peptides](#), the *Summer Neuropeptide Conferences*, the *European Neuropeptide Club* and the [Groupe Français des Peptides et des Protéines](#), we would like to invite you to Rouen (Normandy, France) from July 12<sup>th</sup> to 14<sup>th</sup>, 2016 to participate to the RegPep2016. The venue of the RegPep2016 will be the Law Faculty, a beautiful new building located in downtown Rouen, on the bank of the Seine River, within walking distance from the Place du Vieux-Marché (where Joan of Arc was burnt alive in 1431) and the famous Cathedral, painted by Claude Monet.

An International Scientific Program Committee has evaluated the Symposium proposals that we have collected and has established an exciting program that will favor translational research. Sessions will thus address both basic and clinical issues. Participation of clinicians and private companies is encouraged. Basic research will also be well represented with some sessions addressing for instance evolutionary aspects. Coming to RegPep2016, you will be able to learn about the most recent advances on peptides that regulate cell, tissue or organ functions in physiological or pathological conditions.

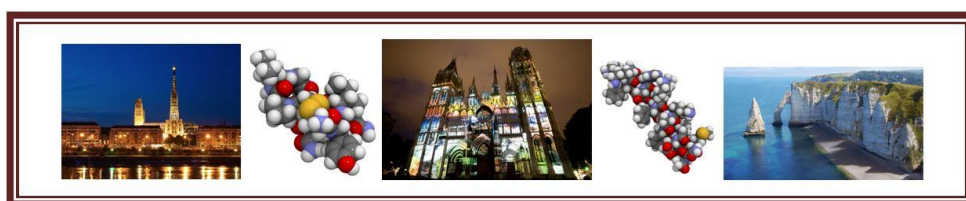
The scientific program will comprise a Lay-public Conference, 3 Plenary Lectures, 20 Symposia with 80 State-of-the-Art Lectures, 32 Free Oral Communications selected from the abstracts, 12 Communications from Young Investigators and 2 Poster Sessions. The social events, included in the registration fee of all participants and accompanying persons, will comprise a get-together party on Tuesday July 12<sup>th</sup>, a visit of Rouen Museums (**this summer, Rouen will accommodate a unique Impressionism festival**) and a Banquet Dinner on Wednesday July 13<sup>th</sup>, and a visit of Rouen plus a firework display on the Seine River on Thursday July 14<sup>th</sup>. Travel awards for young investigators (graduate students and postdoctoral fellows) will be available. Some satellite meetings will be organized before the RegPep2016 (July 11<sup>th</sup>) and an optional excursion to Etretat will be proposed after the meeting (July 15<sup>th</sup>). We very much hope that you will be able to join us for this major international meeting on bioactive peptides in Rouen in 2016. At this meeting, you will also meet old friends and colleagues, and initiate new relationships with others working in fields similar to your own.

In the meantime, if there is anything that we can do to help you attend the Congress; please do not hesitate to contact us directly at [david.vaudry@univ-rouen.fr](mailto:david.vaudry@univ-rouen.fr).

A handwritten signature in blue ink that reads "Vaudry".

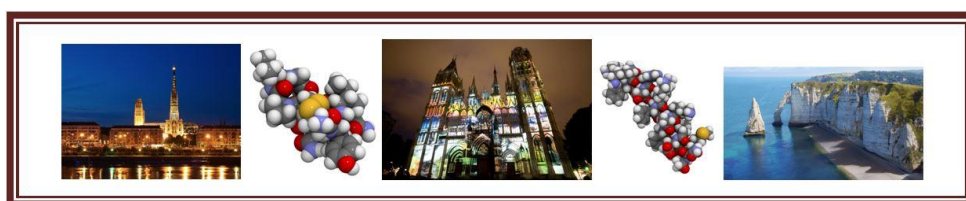
David Vaudry

Chairman, Local Organizing Committee



Please find website link for the program [here](#)

	July 11 <sup>th</sup>	July 12 <sup>th</sup>	July 13 <sup>th</sup>	July 14 <sup>th</sup>	July 15 <sup>th</sup>	
08:30	REGISTRATION				Optional excursion to Etretat Alabaster Coast	
08:45			Opening			
09:00			Plenary Lecture 1	Young investigators communications		Plenary Lecture 2 Victor Mutt Award
09:15						
09:30						
09:45			Coffee break	Coffee break		Coffee break
10:00						
10:15						
10:30			Symposiums 1, 2, 3, 4	Symposiums 9, 10, 11, 12		Symposiums 17, 18, 19, 20
10:45						
11:00	Satellite meetings and workshops					
11:15						
11:30						
11:45						
12:00						
12:15						
12:30			Lunch	Lunch	Lunch	
12:45						
13:00						
13:15						
13:30						
13:45		Session poster 1	Symposiums 13, 14, 15, 16	Session poster 2		
14:00						
14:15						
14:30						
14:45						
15:00		Coffee break		Coffee break		
15:15						
15:30						
15:45		Free oral communications		Plenary Lecture 3		
16:00						
16:15						
16:30						
16:45				Awards and closing		
17:00			Visit of Rouen museums			
17:15						
17:30		Symposiums 5, 6, 7, 8		Visit of Rouen		
17:45						
18:00						
18:15						
18:30						
18:45						
19:00						
19:15						
19:30						
19:45		Welcome Ceremony & Get-together party				
20:00						
20:15	Lay public conference					
20:30						
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21:00						
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22:30						
22:45						
23:00						
23:15						
23:30		Lights and show of the Cathedral		Firework on the Seine River		





## List of Plenary Lectures

**July 12<sup>th</sup> AM – 08:45 - 09:45**

1. **Jens Rehfeld** (University of Copenhagen): 'CCK – from local gut hormone to ubiquitous messenger system'

**July 14<sup>th</sup> AM – 08:45 - 09:45**

2. To be announced

**July 14<sup>th</sup> PM – 15:30 - 16:30**

1. To be announced

## List of Symposia

**July 12<sup>th</sup> AM – 10:15 - 12:15**

1. New insights on neuropeptides in obesity and metabolic disorders
2. Cardiovascular peptide hormone GPCRs: new insights into ligand-receptor interactions and implications for drug discovery
3. Evolution of neuropeptides
4. Peptidergic regulation of the immune system

**July 12<sup>th</sup> PM - 16:30 - 18:30**

5. Cationic host defence (antimicrobial) peptides and the immune system: mechanisms of immunomodulation and translational applications
6. Peptide GPCRs: A growing ambition as oncotarget
7. Neuropeptides in Brain Circuits Underlying Stress Perception and Response
8. In silico approaches to peptide identification and design

**July 13<sup>th</sup> AM - 10:15 - 12:15**

9. Role of peptides in stress-related modulation of visceral pain
10. Role of neuropeptides in the progression of tumours of the nervous system
11. Novel peptides with therapeutic potential from non-mammalian vertebrates
12. Apelin, from pharmacological strategies to clinical developments

**July 13<sup>th</sup> PM - 13:30 - 15:30**

13. Therapeutic potential of PACAP/VIP neuropeptide family and related peptides in neurodegenerative and neuropsychiatric diseases
14. Peptides and microbes
15. Gastrointestinal Peptides and their Receptors
16. Hypocretins/orexins in arousal, stress, reward and cognition

**July 14<sup>th</sup> AM - 10:15 - 12:15**

17. Neuropeptidomics: from mass spectrometry to discovery
18. Perspectives of Skin Regulating Peptides and Their Application in Dermatology
19. Peptide hormone-reactive immunoglobulins in normal and pathological conditions
20. Neuropeptides, inflammation, and auto-immunity

**Please find the website link for the symposia [here](#)**



# 1. « New insights on neuropeptides in obesity and metabolic disorders»

July 12<sup>th</sup> AM – 10:15 - 12:15

## Chairpersons

### Sebastien G. Bouret

Inserm U1172 Lille, France

### Laura Dearden

University of Cambridge, UK

## Short description

In the midst of a staggering obesity epidemic, there is a need to better understand the mechanisms and factors involved in the development of this pathological condition. Our current knowledge of the biological processes that underlie hunger and satiety is relatively recent. Classical lesion experiments and more recent studies using conditional gene targeting methods have shown that appetite, energy balance, and metabolism are carefully regulated by the central nervous system and involves highly plastic complex neuropeptidic and peptide hormone systems regulated on a daily basis and modulated from development to ageing.

This symposium will give an overview of novel neural mechanisms governing regulation of various neuropeptidergic systems involved in feeding behavior. It will also present recent advances in the neurobiology of obesity, e.g. using transgenic approaches as well as classical behavioral, electrophysiological, and optogenetic approaches. The selected speakers are world-class experts in the field of neurobiology of obesity and metabolic disorders and will cover diverse research fields from neuroendocrinology to behavior, to name a few.

## Confirmed speakers

### Suzanne Appleyard

College of Vet Med WSU, USA

Satiety peptide signals in the brainstem

### Serge Luquet

University of Paris Diderot-Paris 7, France

Hypothalamic agouti-related peptide-neurons control peripheral substrate utilization and nutrient partitioning

### Sophie Stecclorum

Max Planck Institute for Metabolism Research, Germany

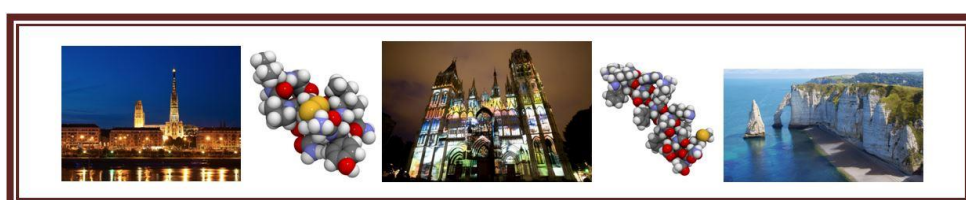
Novel regulator of agouti-related peptide neurons

### Jean-Louis Nahon

IPMC UMR 7275 CNRS/UNS, France

Brain inflammation-driven obesity and MCH network signaling

A 5<sup>th</sup> speaker will be selected from the submitted abstracts



## 2. « Cardiovascular peptide hormone GPCRs: new insights into ligand-receptor interactions and implications for drug discovery »

July 12<sup>th</sup> AM – 10:15 - 12:15

### Chairpersons

#### David Chatenet

Institut National de la Recherche Scientifique Armand Frappier - Quebec, Canada

#### Jérôme Leprince

University of Rouen, France

### Short description

G protein-coupled receptors (GPCR) play a critical role in cardiac physiology and pharmacology and therefore, they are among the most widely studied signaling systems in the heart. While over 200 GPCRs have been identified in the heart, only a few of them, including the  $\beta$ -adrenergic, the angiotensin, and the endothelin receptors, have been targeted for therapeutic intervention. Despite these successes, cardiovascular diseases (CVDs) continue to impose enormous health (around 20 million people die every year from CVDs) and financial burdens (almost 300 billion dollars per year) worldwide. Discovery of additional components (GPCR or GPCR complexes) or a better understanding of the molecular mechanisms (interactions ligand-receptor) involved in the control of cardiac activity, in healthy and failing hearts, may provide a mechanistic basis for improving CVD treatment and thus life expectancy. The symposium will cover new aspect of ligand-receptor interaction, i.e. biased agonism, and will describe new tools aimed at deciphering this new GPCR pharmacology ultimately highlighting new drug discovery concept.

### Confirmed speakers

#### Terry Hébert

McGill University - Montréal, Québec, Canada

Assessing allostery in GPCR heterodimers using conformational biosensors

#### Sudarshan Rajagopal

Duke University Medical Center - Durham NC, USA

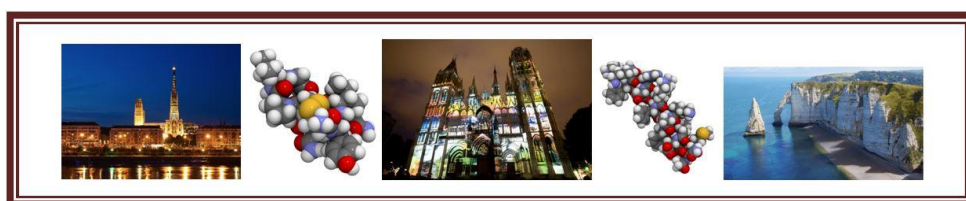
Biased Agonism – How to quantify it? And what does it mean?

#### Bernard Mouillac

CNRS UMR5203- INSERM U1191 - Université de Montpellier, France

Structural insights into biased agonism of the antidiuretic hormone vasopressin V2 receptor subtype

A 4<sup>th</sup> and 5<sup>th</sup> speaker will be selected from the submitted abstracts



### 3. « Evolution of neuropeptides »

July 12<sup>th</sup> AM – 10:15 - 12:15

#### Chairpersons

##### **Hervé Tostivint**

CNRS UMR 7221 Paris, France

#### Short description

This symposium will highlight the recent discoveries that have been made in the field of comparative endocrinology/neuroendocrinology. A special focus will be put on the identification of novel neuropeptides that have members in both protostomes and deuterostomes. This includes aspects related to genomics, bioinformatics, biochemical and physiological studies that point to the earliest functions of these peptides.

#### Confirmed speakers

##### **Pascal Favrel**

University of Caen - CNRS UMR 7208, France

The pacific oyster: an emerging model for comparative neuroendocrinology

##### **Isabel Beets**

University of Leuven, Belgium

Evolutionary conserved neuropeptide signaling and behavioral modulation in *C. elegans*

##### **Olivier Mirabeau**

Institut Curie - Inserm U830 Paris, France

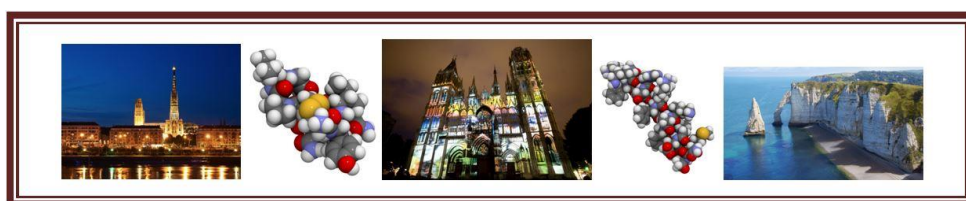
Molecular evolution of peptidergic signaling systems in bilaterians

##### **Dan Larhammar**

Uppsala University, Sweden

Extraordinary multiplicity of neuropeptides and receptors at the origin of vertebrates: Examples from the NPY, CRH and somatostatin systems

**A 5<sup>th</sup> speaker will be selected from the submitted abstracts**



## 4. « Peptidergic regulation of the immune system»

July 12<sup>th</sup> AM – 10:15 - 12:15

### Chairpersons

#### Barbara Kofler

Paracelsus Medical University - Salzburg, Austria

#### Peter Holzer

Medical University of Graz, Austria

### Short description

The increase of inflammatory diseases has fostered research to the neurogenic component in inflammation. The major symptoms of inflammation – pain, redness and swelling – leave no doubt that the activation of the nervous system contributes to the development of inflammatory diseases. Both the skin and the mucosa (airways, respiratory system) possess a dense network of sensory nerve fibers, which are found mainly at smooth muscles, endocrine elements, vessels and epithelia, and express and release a range of neuropeptides. Under normal circumstances this system is controlled by the nervous system. In the pathophysiological state, however, a close relationship between neural stimuli and immunological responses exists. Involvement of macrophages, T and B lymphocytes, natural killer cells, neutrophils, eosinophils and mast cells has been demonstrated. Thereby the classical classification of neuropeptides, regulatory peptides, cytokines and chemokines regarding their function is becoming more and more indistinct from each other.

The symposium will give an overview of different (neuro)peptidergic systems involved in the innate and adaptive immune system.

The selected speakers are internationally recognized experts in the field and will cover diverse research fields from innate immunity including first line immune defence by antimicrobial peptides to immunology and inflammation.

### Confirmed speakers

#### Elena Gonzalez-Rey

Institute of Parasitology and Biomedicine "López-Neyra" - Granada, Spain  
Fine-tuning of the immune response with neuropeptides

#### Zsuzanna Heyles

University of Pécs, Hungary  
LPS- and smoking-induced inflammatory mechanisms

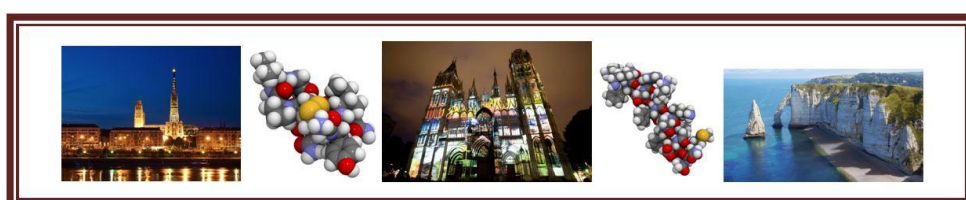
#### Susanne Brunner

Paracelsus Medical University - Salzburg, Austria  
Contribution of the galanin system to innate immunity and inflammation

#### JonathanThompson

Anaesthesia & Critical Care - Leicester Royal Infirmary - Leicester, UK  
Nociceptin/Orphanin FQ system as a target in sepsis

**A 5<sup>th</sup> speaker will be selected from the submitted abstracts**





## 5. « Cationic host defence (antimicrobial) peptides and the immune system: mechanisms of immunomodulation and translational applications»

July 12<sup>th</sup> PM – 16:30 - 18:30

### Chairpersons

#### Neeloffer Mookherjee

University of Manitoba Winnipeg, Canada

#### Donald Davidson

University of Edinburgh, Scotland

### Short description

Cationic host defence peptides (CHDPs) are essential in the control of infections (antimicrobial) and resolution of inflammation. Research in the last decade has made it clear that CHDPs impacts both innate and adaptive immunity, and play a critical role in immune homeostasis. The functional diversity of CHDPs with their ability to activate the immune system while simultaneously controlling inflammation has captured the interest of biomedical researchers. There are complex molecular mechanisms that govern the multifunctional capabilities of CHDPs. The focus of this symposium will be to discuss the role of CHDPs in immunity and how that impacts different biological processes such as infection control, inflammation, wound healing, the microbiome and even sterility. Recent research in this area has expanded to include the development of peptidomimics of CHDPs as potential antimicrobial and immunomodulatory therapies. This symposium will therefore explore the fundamental biology and transformative translational applications of CHDPs.

### Confirmed speakers

#### Pieter S. Hiemstra

Leiden University Medical Center, The Netherlands

Cationic host defence peptides in chronic respiratory diseases: regulation of expression and airway inflammation

#### Julia Dorin

Western General Hospital of Edinburgh, Scotland

Modulation of innate immune responses by human  $\alpha$ -defensins

#### Robert W. Hancock

University of British Columbia - Vancouver, Canada

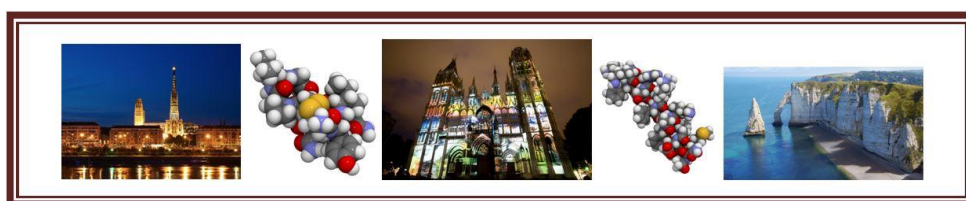
Innate defence regulator peptides as immunomodulatory therapy

#### Donald Davidson

University of Edinburgh, Scotland

Antiviral function of host defence peptides against respiratory viruses

A 5<sup>th</sup> speaker will be selected from the submitted abstracts



## 6. « Peptide GPCRs: A growing ambition as oncotarget »

July 12<sup>th</sup> PM – 16:30 - 18:30

### Chairpersons

**Daniel Fourmy**

University of Toulouse, France

**Hélène Castel**

University of Rouen, France

### Short description

G protein-coupled receptors (GPCRs) are the largest family of proteins involved in signal transduction across membranes and one of the most important pharmaceutical drug target classes. Despite this, it is rather surprising that the clinical practice of cancer treatment includes only a few drugs that act on GPCR-mediated signaling, including molecules acting on GnRH receptor to reduce testosterone levels and reduce prostate cancer cell growth or a synthetic somatostatin receptor agonist, octreotide, prescribed for cancer treatment/imaging. However, abnormal expression of GPCRs, their ligands and/or G proteins is directly observed in cancer cells of various origins that use GPCRs signaling to directly stimulate growth, induce angiogenesis, inhibit apoptosis, promote spreading/metastasis and induce immune responsiveness. In particular, peptides and their GPCRs, their G-protein coupling mechanisms and related signaling pathways in hypoxic and angiogenic tumoral context, remain poorly studied and understood. This symposium aims highlighting new role of peptide hormones in cancer, uncommon signaling pathways and new therapeutic strategies.

### Confirmed speakers

**Corinne Bousquet**

Inserm U1037 Toulouse, France

Deciphering the antitumoral potential of somatostatin receptor signal

**Daniel Fourmy**

University of Toulouse, France

GPCR internalization: new platforms of cell signaling

**Justo Castano**

University of Córdoba, Spain

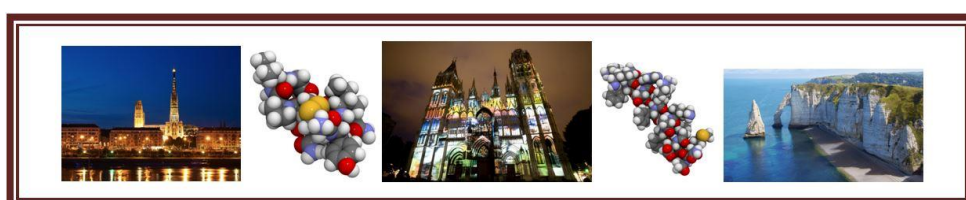
The truncated splice variant of somatostatin receptor subtype 5, sst5TMD4: A hallmark of endocrine cancers?

**Hélène Castel**

University of Rouen, France

The chemokine vasoactive peptide Urotensin II: The dark face of chemokine and angiogenic factors in glioma

A 5<sup>th</sup> speaker will be selected from the submitted abstracts



## 7. « Neuropeptides in Brain Circuits Underlying Stress Perception and Response »

July 12<sup>th</sup> PM – 16:30 - 18:30

### Chairpersons

#### Lee E. Eiden

NIMH-IRP, Bethesda Maryland, USA

### Short description

This symposium focuses on the neuropeptides corticotropin releasing hormone (CRH), pituitary adenylate cyclase-activating polypeptide (PACAP), and neuropeptide Y (NPY). While other neuropeptides are certainly involved in the physiology and pathophysiology of stress, these three are paradigmatic for the field of translational focusing of neuropeptide-neuropeptide receptor interaction in neuropsychiatric disorders associated with stress, including major depression (MD), post-traumatic stress disorder (PTSD), and generalized anxiety disorder (GAD) for several reasons. These are: i) all three peptides act at multiple loci within the hypothalamus, extended amygdala, and hippocampus to mediate stress responding, ii) all three peptides' receptors may signal differently at different cellular sites within the brain, iii) all three have been sufficiently studied with both traditional and cutting-edge neuroscience biotechniques that they are beginning to yield translationally actionable insights into their role(s) in stress responding, and the likely outcomes of drug engagement with their receptors with respect to both therapeutic targets and predicted off-target (i.e. non-therapeutic) effects that administration of antagonists (for PACAP and CRH) or agonists (for NPY) might be predicted to generate upon drug administration, first in animal models and then in the clinic. The speakers in this symposium are veteran neuropharmacologists, endocrinologists and neuroscientists, and combinations of the above, with a vast experience in grappling with the promises and pitfalls of neuropeptides and their receptors as stress-related transmitters and potential drug targets. We anticipate that their interaction at Regulatory Peptides 2016 will efficiently shed light rather than heat on this important subject for those in attendance, with clear and definite implications for translational neuropeptide research in other arenas being highlighted during Regpep 2016.

### Confirmed speakers

#### Lee E. Eiden

NIMH-IRP, Bethesda Maryland, USA

PACAPergic cell signaling, and cellular circuitry, mediating mammalian responses to psychogenic and systemic stressors

#### Tallie Z. Baram

University of California at Irvine, USA

The complex effects of modern-life stress on learning and memory: role of hippocampal CRH

#### Valery Grinevich

University of Heidelberg, Germany

CRH signaling in stress-induced inhibition of reproductive physiology

#### Esther Sabban

New York Medical College, USA

Single prolonged stress rodent model reveals a role for NPY as a mediator, and a therapeutic target, in PTSD

A 5<sup>th</sup> speaker will be selected from the submitted abstracts



## 8. « In silico approaches to peptide identification and design »

July 12<sup>th</sup> PM – 16:30 - 18:30

### Chairpersons

#### Martin Zacharias

Physik-Department T38 – Technische Universität München - Garching, Germany

#### Pierre Tufféry

In Silico Peptide Design - INSERM UMR-S 973, Université Paris Diderot Paris, France

### Short description

In silico approaches for the identification and design of candidate therapeutic peptides, even if not having reached yet the degree of maturity of those developed for chemicals, have made significant progress in the recent years. Methods to assist the rational discovery, identification, optimization of candidate peptides are the subject for the development of new in silico approaches, or the subject for the fine tuning of protocols developed for proteins. The aim of the proposed symposium is to increase the awareness of recent progress of in silico peptide protocols for experimental researchers in the peptide and neuropeptide area and to provide an overview of the ongoing work in the field of in silico peptide protocols, and to invite contribution on topics such as peptide identification from genomic information, peptide structure prediction, peptide-protein interactions, binding site identification, docking, peptide dynamics, peptide screening, peptide functional properties, peptide aggregation and amyloid formation.

### Confirmed speakers

#### Ora Furman

The Hebrew University of Jerusalem, Israel

The use of Rosetta FlexPepDock and FlexPepBind protocols for the characterization, prediction, and manipulation of protein interactions: what we learned and where we are going

#### Philippe Derreumaux

Institut de Biologie Physico Chimique - CNRS UPR 9080 Paris, France

Folding peptides with atomistic and coarse-grained models

#### Denis Shields

University College Dublin - Belfield, Ireland

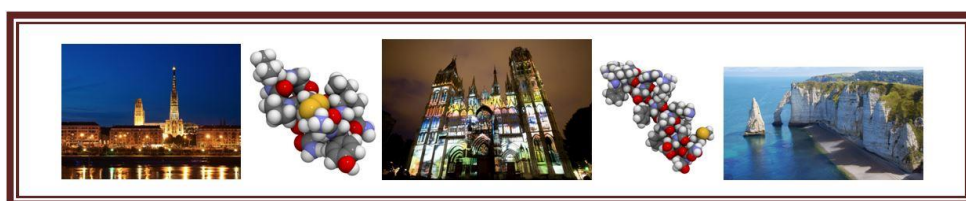
Opportunities and challenges in moving from computational prediction to experimental validation of peptide function

#### Maude Pupin

Université Lille 1 INRIA CNRS - Villeneuve d'Ascq, France

How to study nonlinear peptides? Presentation of Norine, a bioinformatics platform dedicated to nonribosomal peptides

A 5<sup>th</sup> speaker will be selected from the submitted abstracts



## 9. «Role of peptides in stress-related modulation of visceral pain»

July 13<sup>th</sup> AM – 10:15 - 12:15

### Chairpersons

#### **Yvette Taché**

University of California Los Angeles, USA

#### **Dervla O'Malley**

University College Cork, Ireland

### Short description

Stress plays an important role in modulating pain including in the development or intensity of irritable bowel syndrome manifestations of which visceral pain is a landmark. The corticotropin releasing factor (CRF) signaling is a key pathway in the underlying mechanisms of stress. The symposium will provide insight how CRF receptors in the brain and the gut contribute to the modulation of visceral pain and gut response in different experimental models of acute or chronic stress. Recent advances in peptides activating proteinase activated receptor 4 will be addressed. This symposium will provide better understanding of potential targets to alleviate stress-related visceral manifestations.

### Confirmed speakers

#### **Muriel Larauche**

University of California Los Angeles, USA

Role of brain and peripheral peptides in the modulation of stress-related visceral pain: sex differences

#### **Dervla O'Malley**

University College Cork, Ireland

The role of CRF in the exacerbation of visceral pain in functional bowel disorders

#### **Mulugeta Million**

University of California Los Angeles, USA

Role of urocortins in stress related modulation of visceral responses

**A 4<sup>th</sup> and 5<sup>th</sup> speaker will be selected from the submitted abstracts**





## 10. « Role of neuropeptides in the progression of tumours of the nervous system »

July 13<sup>th</sup> AM – 10:15 - 12:15

### Chairpersons

**Jean-Marc Muller**

University of Poitiers, France

**James Waschek**

University of California Los Angeles, USA

### Short description

Several types of more or less aggressive tumors derive from tissues of the nervous system. Childhood or adult CNS tumors are for example astrocytoma, brain stem glioma, ependymoma, germ cell tumors and medulloblastoma. Neuroblastoma is the most frequent childhood tumor arising from the peripheral nervous system. Adult forms of brain tumors mostly derive from astrocytes. The highest grade of astrocytoma (grade IV) is represented by glioblastoma, a very aggressive type of cancer whose prognosis is still extremely poor. A number of bioactive peptides, for example NPY, Somatostatin, Substance P, VIP and PACAP have been demonstrated to play important roles in the progression of all these tumors of the nervous system.

This symposium will give an overview of mechanisms implicated in the effects of different regulatory peptides in tumor proliferation, survival and invasion. It will also present novel therapeutic strategies aiming to target the receptors of these peptides.

### Confirmed speakers

**Corinne Chadéneau**

University of Poitiers, France

Anti-tumor effect of VIP and analogs of PACAP in high-risk neuroblastoma cells and glioblastoma

**Fabrice Morin**

University of Rouen, France

Modulation of autophagic activity by chemotactic GPCRs controls the invasive potential of glioblastoma cells

**Pawel Newiadomski**

University of Warsaw, Poland

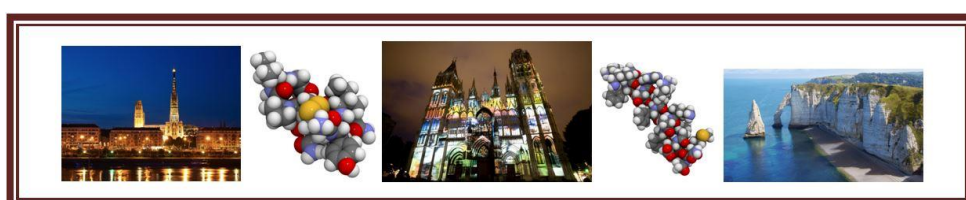
Interaction of PACAP with Sonic hedgehog reveals complex regulation of the hedgehog pathway by PKA

**Annette G. Beck-Sickinger**

Leipzig University, Germany

Peptide-drug conjugation for cancer targeting

**A 5<sup>th</sup> speaker will be selected from the submitted abstracts**



## 11. « Novel peptides with therapeutic potential from non-mammalian vertebrates»

July 13<sup>th</sup> AM – 10:15 - 12:15

### Chairpersons

**J. Michael Conlon**

University of Ulster, UK

**Hubert Vaudry**

University of Rouen, France

### Short description

Translation research is the theme of the symposium and will address the importance of studies with non-mammalian vertebrates in drug discovery. The speakers will highlight (a) the role of peptides isolated from frog skin in combating the threat to public health posed by the emergence of multidrug resistant Gram-negative bacteria, (b) the potential of dogfish glucagon for development into agents to treat patients with Type 2 diabetes (c) the possibility of developing frog peptides into anti-cancer agents and drugs for treatment of sepsis and (d) examples of peptides and proteins from snake venom with anti-angiogenic, anti-cancer and other potentially therapeutically valuable properties.

### Confirmed speakers

**Maria Luisa Mangoni**

Sapienza University of Rome, Italy

Amphibian skin-derived peptides as new weapons against *Pseudomonas aeruginosa* infections

**Finbarr O'Harte**

University of Ulster, UK

Stable analogues of dogfish glucagon with GLP-1 and glucagon dual agonist activities and therapeutic potential for treatment of patients with Type 2 diabetes

**Miodrag L. Lukic**

University of Kragujevac, Serbia

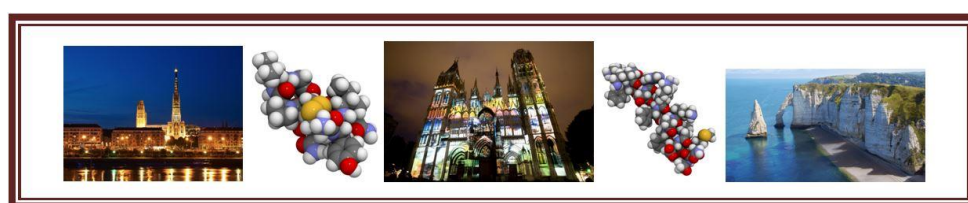
Immunomodulatory peptides from frogs: implications for anti-inflammatory and anti-cancer therapy

**Juan J. Calvete**

Instituto de Biomedicina de Valencia, Spain

On the origin of neurotoxicity in Nearctic snakes: relevance for the development of a pan-American antivenom

**A 5<sup>th</sup> speaker will be selected from the submitted abstracts**



## 12. « Apelin, from pharmacological strategies to clinical developments»

July 13<sup>th</sup> AM – 10:15 - 12:15

### Chairpersons

#### Philippe Valet

Université Paul Sabatier Toulouse, France

#### Jens Peter Gøtze

University of Copenhagen, Denmark

### Short description

The G protein-coupled receptor APJ and its cognate ligand, apelin, are widely expressed throughout human body. They are implicated in different key physiological processes such as angiogenesis, cardiovascular functions, fluid homeostasis and energy metabolism regulation. On the other hand, this couple ligand-receptor is also involved in the development and progression of different pathologies including diabetes, obesity, cardiovascular disease and cancer. An increased number of publication are dedicated to the design of new Apelin receptor ligands either agonist or antagonist. Moreover there are growing evidences that apelin is efficient in humans through recent clinical trials.

This symposium will be the opportunity to gather worldwide information regarding both pharmacological and clinical developments through selected speaker experts in the field of apelin and its receptor.

### Confirmed speakers

#### Catherine Llorens-Cortes

CNRS UMR 7241 Paris, France

Insights into apelin receptor function and new drug development

#### Eric Marsault

University of Sherbrooke, Canada

Molecular engineering of apelin to modulate stability, signalling and cardiovascular functions

#### Isabelle Castan-Laurell

INSERM U1048 Toulouse, France

Proof of concept of apelin effect on insulin sensitivity in Human

#### Anthony Davenport

University of Cambridge, UK

Role of apelin, Elabela/Toddler and action of novel biased receptor agonists in the cardiovascular system

**A 5<sup>th</sup> speaker will be selected from the submitted abstracts**



## 13. « Therapeutic potential of PACAP/VIP neuropeptide family and related peptides in neurodegenerative and neuropsychiatric diseases »

July 13<sup>th</sup> PM – 13:30 - 15:30

### Chairpersons

#### **Illana Gozes**

Tel Aviv University, Israel

#### **Seiji Shioda**

Hoshi University, Japan

### Short description

From diverse parts of the globe, we shall provide news about the translational potential of VIP (vasoactive intestinal peptide), PACAP (pituitary adenylate cyclase activating polypeptide) and the VIP/PACAP regulated, ADNP (activity-dependent neuroprotective protein) and its snippet, drug candidate, NAP. We will cover spinal cord injury and brain ischemia, androgen receptor toxicity in spinal bulbar muscular atrophy (SBMA), Parkinson disease, Alzheimer's disease, autism and schizophrenia. Novel drug candidates, stem cells and intricate gene regulation will be highlighted combining molecular, behavioral and translational neuroscience of regulatory peptides.

### Confirmed speakers

#### **Illana Gozes**

Tel Aviv University, Israel

Regulated by VIP and PACAP: The autism mutated ADNP and NAP (davunetide) in research and development

#### **Seiji Shioda**

Hoshi University, Japan

Neuroprotection and molecular mechanism of brain ischemia and spinal cord injury by PACAP

#### **Maria Pennuto**

University of Trento, Italy

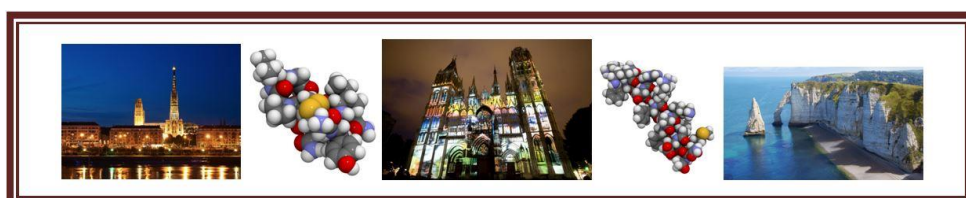
PACAP/PKA axis to attenuate the toxicity of polyglutamine-expanded androgen receptor

#### **Nese Tuncel**

Eskisehir Osmangazi University, Turkey

What type of cards are held by VIP for the future treatment of Parkinson's disease

**A 5<sup>th</sup> speaker will be selected from the submitted abstracts**



## 14. « Peptides and microbes »

July 13<sup>th</sup> PM – 13:30 - 15:30

### Chairpersons

#### Joerg Overhage

University of Karlsruhe, Germany

#### Olivier Lesouhaitier

University of Rouen, France

### Short description

We are living in harmony with bacteria and in some cases the balance is disrupted. There is ample evidence that eukaryotic communication molecules including peptides are detected by bacteria and modify their physiology and virulence potential. These observations suggest that peptide hormones have additional effects on micro-organisms, in addition to their well characterized physiological effects in mammalian organisms. In parallel, micro-organisms release numerous peptides in order to protect themselves against both host defence compounds and other microbes that enter in competition with them. The goal of the symposium “peptides and microbes” is to show examples of the effect of peptides released by eukaryotic cells or micro-organisms on microbe adaptation into the infected host and how these findings can be used for developing novel therapeutic strategies.

### Confirmed speakers

#### Oscar Kuipers

University of Groningen, The Netherlands

Designing and producing novel modified peptides for antimicrobial or hormonal bioactivity

#### Peter Nielsen

University of Copenhagen, Denmark

Antimicrobial peptide nucleic acid (PNA): Genetic antibiotics, synergy of two worlds

#### Joerg Overhage

University of Karlsruhe, Germany

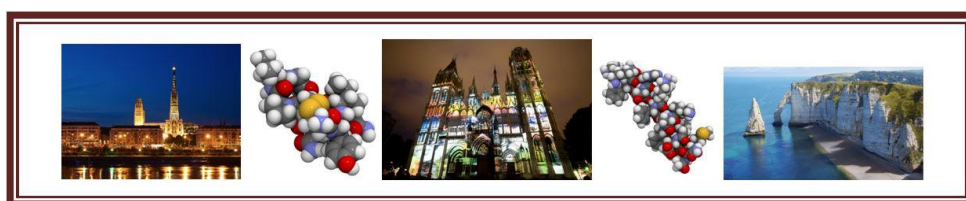
Potential application of host defense peptides in the treatment of bacterial biofilms

#### Olivier Lesouhaitier

University of Rouen, France

C-type natriuretic peptide, a human hormone which prevents *Pseudomonas aeruginosa* biofilm formation through a specific human receptor-like target

A 4<sup>th</sup> and 5<sup>th</sup> speaker will be selected from the submitted abstracts





## 15. « Gastrointestinal Peptides and their Receptors »

July 13<sup>th</sup> PM – 13:30 - 15:30

### Chairpersons

**Joseph R. Pisegna**

University of California Los Angeles, USA

**Michael Wolfe**

Case Western Reserve University, USA

### Short description

This symposium would focus on gastrointestinal peptides and their regulation of integrative physiology. Areas of potential focus in attracting abstracts to this session would be in the regulation of feeding, obesity, NAFLD, colitis and irritable bowel syndrome by gastrointestinal hormones. Other disease states would include peptic ulcer disease, neuroendocrine tumors and diabetes.

### Confirmed Speakers

**Stephen A. Wank**

National Institutes of Health, USA

Identification of a novel gene mutation which causes familial small bowel carcinoids

**Juanita Merchant**

University of Michigan, USA

Murine model of gastrinoma, neuroendocrine tumor

**Michael Wolfe**

Case Western Reserve University, USA

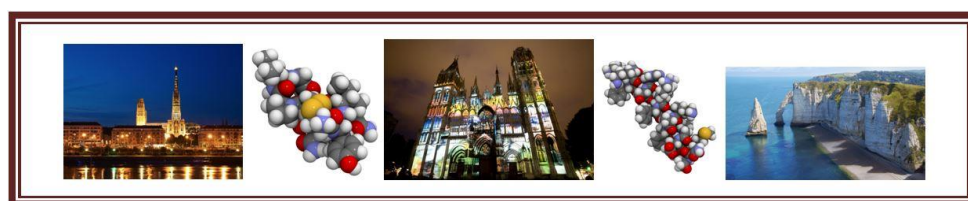
Role of GIP on Metabolic Syndrome

**Joseph Pisegna**

University of California Los Angeles, USA

Role of High Protein Diet on Body Mass Composition and Hepatic Steatosis

**A 5<sup>th</sup> speaker will be selected from the submitted abstracts**



## 16. « Hypocretins/orexins in arousal, stress, reward and cognition»

July 13<sup>th</sup> PM – 13:30 - 15:30

### Chairpersons

#### Luis de Lecea

Stanford University School of Medicine, USA

#### Zhian Hu

Third Medical University - Chongqing, China

### Short description

Hypocretins, also known as orexins, are excitatory neuropeptides secreted by neurons specifically located in lateral hypothalamus and perifornical areas. Hcrt axon fibers are extensively distributed in various brain regions and involved in a number of physiological functions, such as arousal, cognition, stress, appetite, and metabolism. Arousal is the most important function of Hcrt system as dysfunction of Hcrt signaling leads to narcolepsy. In addition to narcolepsy, Hcrt dysregulation is associated with important neural disorders, including addiction, depression, and anxiety. As a new class of Orexin receptor antagonists has been approved by the FDA for the treatment of insomnia, strategies targeted to orexin system (e.g., antagonists to orexin receptors, gene delivery, and cell transplantation) are likely to be applied to treat arousal disorders, including anxiety, depression and PTSD.

### Confirmed speakers

#### Luis de Lecea

Stanford University School of Medicine, USA

Hypocretins in control of sleep transitions

#### Patricia Bonnavion

Free University of Brussels, Belgium

Hypocretin and leptin modulate stress

#### Zhian Hu

Third Medical University - Chongqing, China

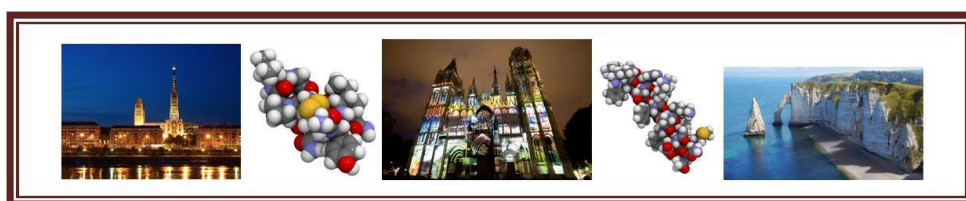
Orexins, histamine and cognitive function

#### Veronique Fabre

University Pierre and Marie Curie - Paris, France

The role of hypocretin-serotonin interactions in sleep and mood regulation

**A 5<sup>th</sup> speaker will be selected from the submitted abstracts**



## 17. « Neuropeptidomics: from mass spectrometry to discovery»

July 14<sup>th</sup> AM – 10:15 - 12:15

### Chairpersons

**Jonathan V. Sweedler**

University of Illinois, USA

**Anders H. Johnsen**

Department of Clinical Biochemistry Copenhagen, Denmark

### Short description

Neuropeptidomics, the study of the neuropeptide/hormone complement of a tissue, is of growing importance. The last few years has seen an increasing number of brain peptides reported each year. The acceleration of peptide discovery is due to striking technological advances in mass spectrometry that enable the peptidome to be characterized from ever smaller samples with increasing chemical detail. Recent sampling approaches allow neuropeptides to be characterized from an individual cell, peptide release to be measured from cultured neuronal networks and *ex vivo* brain slices, and the spatial distributions of unknown peptides to be measured via mass spectrometry imaging. This symposium will highlight the latest technology development and emerging applications of mass spectrometry-based neuropeptidomics, including novel sampling strategies, chemical characterization approaches, spatial mapping via mass spectrometry imaging, and functional studies of peptide release across a range of animal models.

### Confirmed speakers

**Per Andrén**

Uppsala University, Sweden

Mass spectrometry imaging and profiling of neuropeptides and neurotransmitters in models of Parkinson's disease

**Liesbet Temmerman**

University of Leuven, Belgium

*C. elegans* neuropeptidomics and behavior

**Lloyd Fricker**

Einstein School Medicine, USA

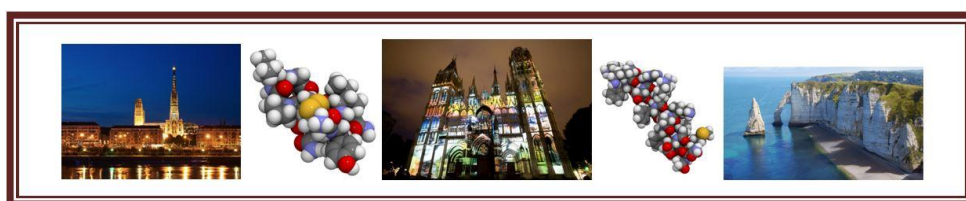
Intracellular peptides in disease: insights from peptidomic studies

**Lingjun Li**

University of Wisconsin Madison, USA

Comparative peptidomic analysis towards functional discovery of neuropeptides

**A 5<sup>th</sup> speaker will be selected from the submitted abstracts**



## 18. « Perspectives of Skin Regulating Peptides and Their Application in Dermatology»

July 14<sup>th</sup> AM – 10:15 - 12:15

### Chairpersons

**Paul L. Bigliardi**

National University Hospital, Singapore

**Alex N. Eberle**

University of Basel and Collegium Helveticum - Zurich, Switzerland

### Short description

The skin as an endocrine organ is the source of various peptides that regulate skin function such as pigmentation, neurotransmitter release and host-defense reactions. Apart from skin cells, there are skin-resident microbes that also release peptides which are equally important for host-defense reactions. All these peptides have received renewed interest with regard to the development of potential novel peptide pharmaceuticals.

This session will give an overview about the state of the art of the physiological and functional role of skin regulating peptides as well as the application of the first skin peptide pharmaceuticals. Wound healing and the impact of opioid peptides in its regulation is another important aspect, followed by the topic of the mechanism of action of host-defense peptides in the skin. Finally, receptor-mediated targeting of melanoma cells and melanocytes with synthetic MSH peptides represents the basis for the application of specific photodynamic therapy of pigmentary disorders. The selected speakers are well-known experts in the field of peptides in dermatology and they will cover some highlights in this fascinating and novel field.

### Confirmed speakers

**Thomas A. Luger**

University of Münster, Germany

Functional roles of skin-derived peptides– state of the art

**Mei Bigliardi-Qi**

Institute of Medical Biology, Singapore

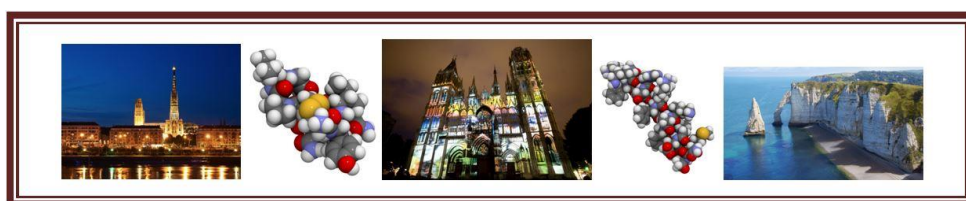
Opioid peptides affect epidermal homeostasis and wound healing

**Alex N. Eberle**

University of Basel and Collegium Helveticum - Zurich, Switzerland

MSH-based targeting of skin melanocytes and melanoma cells for specific photodynamic therapy

**A 4<sup>th</sup> and 5<sup>th</sup> speaker will be selected from the submitted abstracts**



## 19. « Peptide hormone-reactive immunoglobulins in normal and pathological conditions »

July 14<sup>th</sup> AM – 10:15 - 12:15

### Chairpersons

#### **Tomas Hökfelt**

Karolinska Institutet, Sweden

#### **Akio Inui**

Kagoshima University, Japan

### Short description

It is generally assumed that peptide hormones in the circulation are transported by large proteins. It appears that the role of such peptide carrier molecules can be played by immunoglobulins (Ig). In fact, during the last decade it has been established that peptide-hormone reactive IgG and other Ig classes of natural autoantibodies (autoAbs) are ubiquitously present in humans and rodents. Several studies have been undertaken to understand the origin and regulation of such autoAbs production as well as their possible involvement in peptide-hormone signaling in normal and pathological conditions. The obtained results show that IgG may protect peptide hormones from degradation by plasma enzymes and that they may modulate activation of peptide receptors. Stress and intestinal inflammation were shown to affect plasma levels of peptide-reactive autoAbs and several microbial proteins have been identified as possible antigenic source of autoAbs cross-reactive with peptide hormones. The variable nature of IgG molecules underlies the finding of different affinity kinetics parameters of peptide-reactive IgG in humans and animals associated with modulation of peptide signaling. Significant correlations between peptide-reactive Ig characteristics and behavioral parameters were reported for pathological conditions including eating and sleep disorders, aggressive behavior, anxiety and depression. Thus, detection and targeting of peptide hormone-reactive Ig appears as a new diagnostic and therapeutic approach for several neuropsychiatric disorders.

### Confirmed speakers

#### **Csaba Adori**

Karolinska Institutet, Sweden

Screening for peptide reactive IgG in sleep disorders

#### **Sergueï Fetissov**

University of Rouen, France

Role of immunoglobulins in peptidergic signaling

#### **Henning Vaeroy**

Akershus University Hospital, Norway

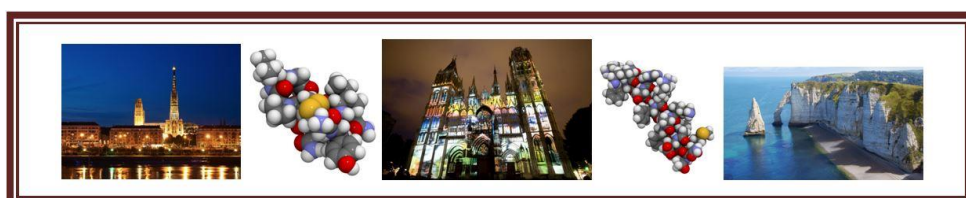
ACTH-reactive IgG in stress and aggression

#### **Gregory Lambert**

TargEDys, France

New diagnostic and therapeutic opportunities for eating disorders

**A 5<sup>th</sup> speaker will be selected from the submitted abstracts**





## 20. « Neuropeptides, inflammation, and auto-immunity »

July 14<sup>th</sup> AM – 10:15 - 12:15

### Chairpersons

**Alain Couvineau**

INSERM U1149 Paris, France

**Yossan-Var Tan**

University of Rouen, France

### Short description

Inflammation is a coordinated process designed by evolution to eliminate pathogens and enable healing. However, this is carefully orchestrated in the sense that when it is no longer necessary, it must be actively terminated to avoid tissue damage and/or auto-immunity. Can we find modulators outside the immune system?

The proposed symposium will address this issue and illustrate the multifaceted function of peculiar neuropeptides/peptides enabling a dialogue between the immune and nervous systems. Indeed, it will gather three speakers who will provide remarkable examples on how they can efficiently regulate the immune response during inflammatory and/or auto-immune pathologies.

### Confirmed speakers

**Rosa P. Gomariz**

Universidad Complutense de Madrid, Spain

VIP and their receptors as biomarkers in rheumatic diseases

**Catalina Abad**

University of Rouen, France

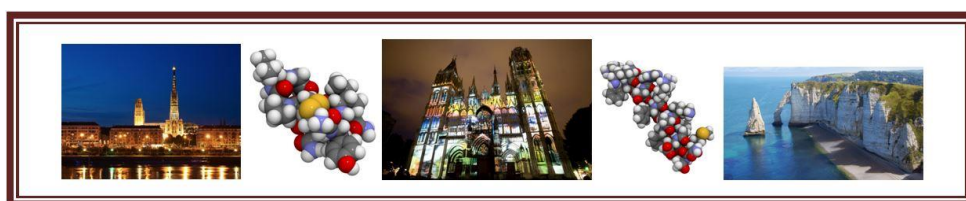
Therapies for multiple sclerosis: VIP/PACAP receptor analogs

**Nassima Messal**

INSERM U1149 Paris, France

Anti-inflammatory properties of the neuropeptide orexin in ulcerative colitis: a new promising therapeutical molecule

**A 4<sup>th</sup> and 5<sup>th</sup> speaker will be selected from the submitted abstracts**



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