

# RegPep24: Monday, August 1st, 2022

## 24<sup>th</sup> International Symposium on Regulatory Peptides



### RegPep24

Biennial  
Meeting

August 1 – 5, 2022, Stirling University Venues, Stirling, Scotland, UK



### Inaugural Ceremony

Cottrell Lecture Theatre

**Welcome (15:00-15:15)**

*Research and public health: The university and the world*

**Malcolm MacLeod**

Senior Deputy Principal, University of Stirling

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**Inaugural Plenary Lecture (15:15-16:00)**

*Peptidergic regulation of glucagon secretion: implication for diabetes pathophysiology and therapy*

**Patrik Rorsman**

Radcliffe Department of Medicine, Oxford University, UK

Musical Interlude (16:00-16:15)

**Victor Mutt Lecture (16:15-17:00)**

*Peptidergic descending control of pain*

**Xiaoke Chen**

Department of Biology, Stanford University, CA, USA

Musical Interlude (17:00-17:15)

**Lay Lecture (17:15-18:00)**

*The brain after acute stress*

**Marian Joëls**

Faculty of Medical Sciences, Groningen, The Netherlands

Musical Postlude (18:00-18:15)

**Welcome Reception and Dinner (18:30-21:30)**

Abbeycraig Hall

# RegPep24: Tuesday, August 2nd, 2022

Keynote symposium 1 (KS1: 08:00-10:00): Chair: **Luis de Lecea**, USA, Room: Wallace Monument

KS1-1: **Tallie Z. Baram**, University of California at Irvine, CA, USA:

- *Plasticity of the CRH stress circuitry to early-life adversity*

KS1-2: **Limei Zhang**, National Autonomous University of Mexico, Mexico

- *Placing neuropeptide signaling within glutamate/GABA contexts: extrahypothalamic synapses of magnocellular vasopressin neurons and their connections to behavioral circuits*

KS1-3: **Duan Chen**, Norwegian University of Science and Technology, Norway

- *Peptides and the gut: the unfinished story of gastrin*

## Coffee and cookies break (10:00-10:30)

### Symposium 1: *ISN sponsored young investigator symposium:* Oxytocin and Vasopressin: Circuits and Behavior

Chaired by **Vito S. Hernandez**, México

10:30-12:30: Room: Wallace

S1-1 **Lei Xiao**, Fudan University, China: *Morpho-electric properties and diversity of oxytocin neurons in mouse paraventricular nucleus of hypothalamus*

S1-2 **Quirin Krabichler**, Heidelberg University, Germany: *A novel transgenic arginine vasopressin (AVP)-IRES2-Cre rat line: Characterization, mapping of connectivity, and recording of neuronal activity*

S1-3 **Amelie Soumier**, Center National de la Recherche Scientifique, France: *3D mapping of oxytocin and vasopressin neuronal ontogenesis in the mouse brain*

S1-4: **Oscar R. Hernández-Pérez**, CIATEJ, Jalisco, México. *Differential activation of arginine-vasopressin receptor subtypes in distinct amygdaloid subdivisions modulating emotional responses in the rat by arginine-vasopressin*

S1-5 **Mario Zetter**, School of Medicine, National Autonomous University of México: *Vasopressin acts as a synapse organizer in limbic regions by boosting PSD95 and GluA1 expression*

### Symposium 2.

#### Critical Pathways for Peptide-based Drug Development: Recent Progress

Chaired by: **Esther Sabban**, USA

10:30-12:30: Room Erskine Fintry

S2-1 **Esther Sabban**, New York Medical College; USA: *Preclinical studies in a PTSD model with intranasal NPY in males and females*

S2-2 **Youssef Anouar**, INSERM U1239 & Normandy University Rouen, France: *The antioxidant selenoprotein T mimetic, PSELT, exerts a potent neuroprotective effect in PD after intranasal administration.*

S2-3 **Peter Holzer**, Otto Loewi Research Centre, Medical University of Graz, Austria: *NPY in gut-brain communication*

S2-4. **Chun-Mei Zhao**, Department of Clinical and Molecular Medicine, Norwegian University of Science and Technology, Norway: *Repurposing peptide-based drugs for treatment of gastric cancer: a proof of concept*

Box lunch and posters viewing + DB supported by IBRO+JNE (12:30-13:30) (Room Silver Glen)

### Symposium 3 Novel Aspects of Neuropeptides and Behaviour

Chaired by: **Arpad Dobolyi**, Hungary

13:30-15:30: Room: Wallace

S3-1. 1 **Árpád Dobolyi**, Department of Physiology and Neurobiology, Eötvös Loránd University, Budapest, Hungary: *A new peptidergic thalamo-preoptic pathway promoting positive valence physical contact*

S3-2 **Tim Viney**, Department of Pharmacology, University of Oxford, UK: *Neuropeptides and rhythmic neuronal firing in brain networks*

S3-3 **Chun-Xia Yi**, Amsterdam University Medical Centre, Department of Endocrinology and Metabolism, The Netherlands: *Regulatory peptides and microglial immunometabolism in hypothalamic regulation of feeding behaviour*

S3-4 **Kristof Laszlo**, Neuroscience Center, University of Pécs, Hungary: *Intraamygdaloid oxytocin reduces anxiety in valproate induced autism rat model*

### Symposium 4. Peptide Interactions

Chaired by: **Greti Aguilera**, USA

13:30-15:30: Room Erskine Fintry

S4-1. **Marisela Morales**, NIDA/NIH, USA: *Fast and slow co-transmission and their role in reward and cocaine-seeking behavior*

S4-2. **Annette D. de Kloet**, University of Florida, USA: *Angiotensin-vasopressin interactions and blood pressure regulation*

S4-3. **Jeff Jones**, Texas A&M University, USA: *Circadian neurons in the paraventricular nucleus entrain and sustain daily rhythms in glucocorticoids*

S4-4. **Becky Conway-Campbell**, Medical School, University of Bristol, UK: *Phase-shifting the circadian glucocorticoid profile induces disordered feeding behavior by dysregulating hypothalamic neuropeptide gene expression.*

Coffee and cookies break (Wallace & Monument rooms merged) (15:30-16:00)

Theme discussion. Panelists: plenary & keynote speakers. (16:00-17:00)

## Chen Institute Plenary Lecture (17:00-18:00): Room: Wallace Monument

**Inga Neumann**, University of Regensburg, Germany:

*Still more to learn about the brain oxytocin system in the context of socio-emotional behaviour*

Free evening

# RegPep24: Wednesday, August 3rd, 2022

## Keynote Symposium 2 (KS2: 08:00-10:00): Chair: Geert de Vries, USA, Room: Wallace Monument

KS2-1: **Andries Kalsbeek**, the Netherlands Institute for Neuroscience (NIN), The Netherlands

- *Vasopressin neurons in the suprachiasmatic nuclei (SCN): critical signalling inside and outside the biological clock*

KS2-2: **Bice Chini**, CNR Neuroscience Institute, Veduggia al Lambro, Italy.

- *Oxytocin receptor in neurodevelopmental disorders: sex and age-dependent regional distribution and modulation*

KS2-3: **Patrick Sexton**, Monash University, Australia

- *Understanding the structure, ligand-binding and function of family B G Protein-coupled receptors*

Coffee and cookies break (10:00-10:30)

### Symposium 5

Neuropeptides and Regulation of Homeostasis and Allostasis

Chair: **Robert Millar**, South Africa

10:30-12:30: Room: Wallace

S5-1 **Dave Grattan**, University of Otago, New Zealand: *Modulation of complex neuronal circuits by peripherally-derived peptide hormones*

S5-2 **Aras Petruilis**, Georgia State University, USA: *Sexually differentiated vasopressin pathways: connective architecture and role in social behavior*

S5-3 **Carolina Escobar**, School of Medicine, UNAM, Mexico: *Peptides involved in food anticipation*

S5-4 **Ruud Buijs**, Institute of Biomedical Research, UNAM, Mexico: *Suprachiasmatic nucleus-driven vasopressin release prepares for the inactivity period*

### Symposium 6

Ghrelin and Related Peptides: Crossing Many Barriers

Chair: **Patrick Sexton**, Australia

10:30-12:30: Room Erskine Fintry

S6-1 **Mitchell Ringue**, The University of Melbourne, Australia: *Ghrelin receptor, GHSR1a: emerging evidence as a GPCR modulator*

S6-2 **Ki Goosens**, Icahn School of Medicine at Mount Sinai, USA: *The ghrelin system as a driver of heterogeneity in psychiatric disease*

S6-3 **Sebastian G.B. Furness**, Faculty of Medicine, University of Queensland, Australia: *The physiological role for modulation of transducer coupling at GHSR1a and other peptide-liganded GPCRs*

S6-4 **Sarah Melzer** Medical University of Vienna. *Neuropeptidergic modulation of fear memories in the auditory cortex*

Box lunch and posters viewing + DB supported by IBRO+JNE (12:30-13:30) (Room Silver Glen)

### Symposium 7

The physiology and function of hypothalamic magnocellular neurons

Chair: **David Murphy**, UK

13:30-15:30: Room: Wallace

S7-1 **André Mecawi**, Federal University of São Paulo, Brazil: *Dissecting the molecular profile of the hypothalamic magnocellular neurones: a MultiOMIC journey*

S7-2 **Tom Cunningham**, The University of North Texas Health Science Center at Fort Worth, USA: *Sex Differences in Neurohypophyseal Hormone Release in a Model of Dilutional Hyponatremia*

S7-3 **Ryoichi Teruyama**, Louisiana State University, Louisiana, USA: *Sexually Dimorphic Expression of Oxytocin Receptors in the CNS*

S7-4 **Soledad Báñez-López**, Medical School, University of Bristol, UK: *Shining light into the role of a non-visual opsin in the suprachiasmatic nucleus*

### Symposium 8

PACAP and related peptides in central and peripheral regulation of stress responses

Chair: **Lee Eiden**, USA

13:30-15:30: Room: Erskine Fintry

S8-1 **Sarah Gray**, University of Northern British Columbia, Canada: *PACAP expression in central and peripheral neuronal networks regulating adipose tissue*

S8-2 **Sunny Z. Jiang**, NIMH-IRP, NIH, USA: *Prefrontal cortico-hypothalamic and parabrachio-extended amygdalar PACAPergic projections separately control HPA and food intake responses to psychogenic stress*

S8-3 **Arun Anantharam**, University of Toledo, USA: *PACAP and acetylcholine regulate distinct calcium responses and secretory outputs in chromaffin cells*

S8-4 **Vito S. Hernandez**, UNAM, México: *PACAP co-expression in GABAergic or glutamatergic circuits and its relevance for behavioural adaptation.*

Coffee and cookies break (Wallace & Monument rooms merged) (15:30-16:00)

Theme discussion. Panelists: plenary & keynote speakers (16:00-17:00)

## Plenary Lecture (17:00-18:00): Room: Wallace Monument

**Luis de Lecea**, Stanford University, USA

*Neuropeptide S: Five neuronal clusters, one function?*

Free evening

# RegPep24: Thursday, August 4th, 2022

## Keynote symposium 3 (KS-3: 08:00-10:00) Chair: Javier Stern, USA

KS3-1: **Alan Watts**, University of Southern California, USA

- *Brain neuropeptidergic networks and the control of energy balance*

KS3-2: **William Wisden**, Imperial College London, UK

- *Peptides and sleep-promoting circuitry*

KS3-3: **Francesco Ferraguti**, Department of Pharmacology, Medical University of Innsbruck, Austria

- *Metabotropic glutamate receptors' role in cortical peptide-expressing interneurons*

Coffee and cookies break (10:00-10:30)

### Symposium 9 Neuropeptides, stress and sex differences

Chair: **Tallie Z. Baram**, USA

10:30-12:30: Room: Wallace

S9-1 **Joanna Dabrowska**, Rosalind Franklin University of Medicine and Science, USA: *It takes three to dance - neuropeptidergic modulation of the BNST activity and fear processing by oxytocin, vasopressin, and CRF*

S9-2 **Gil Levkowitz**, Weizmann Institute of Science, Israel. *What makes some individuals fitter than others: The developmental underpinnings of stress resilience*

S9-3 **Javier Stern**, Georgia State University, USA: *Novel intercellular communication modalities mediated by hypothalamic neuropeptides in health and disease states*

S9-4 **Geert de Vries**, Georgia State University, USA: *Development and function of sex differences in the brain seen from a vasopressin and oxytocin perspective*

### Symposium 10 Vasopressinergic regulation of social behavior

Chair: **Dora Zelena**, Hungary

10:30-12:30: Room Erskine Fintry

S10-1 **Matthew Paul**, University at Buffalo SUNY, Buffalo, NY, USA: *Social Development and Vasopressin: Investigations into the atypical social behavior of Brattleboro rats*

S10-2 **Alexa Veenema**, Michigan State University, USA: *Neural circuitry of social play: involvement of oxytocin and vasopressin*

S10-3 **Dora Zelena**, University of Pécs, Hungary: *Vasopressinergic influence on disturbed sociability in autism and schizophrenia*

S10-4 **Abimael Gonzalez-Hernandez**, Neurobiology Institute, UNAM, Mexico: *The role of oxytocinergic neurotransmission in pain processing at trigeminal level*

JNE publication workshop (12:30-13:30) (Room Silver Glen)

### Symposium 11 Molecular and structural biology of neuropeptides at their cognate GPCRs

Chair: **John Furness**, Australia (13:30-14:30)

13:30-14:30: Room: Wallace

S11-1 **Robert P. Millar**, University of Pretoria, South Africa: *Rescue of function in human mutant peptide GPCRs with cell permeant small molecules: a more viable approach than gene therapy*

S11-2 **Helene Castel**, University of Rouen Normandy, INSERM U1239: *Urotensin II-based local hydrogel trap leads to immune control associated with improved survival and cognitive functions in a mouse model of glioblastoma resection*

### Symposium 12 Neurohypophysial hormone regulation in pathophysiological states

Chair: **Quentin Pittman**, Canada

13:30-14:30: Room: Wallace

S12-1 **Andrés Quintanar-Stephano**, Universidad Autonoma de Aguascalientes, Mexico: *Vasopressin deficiency and V1a-V2 receptors blockade revert liver damage and fibrosis in rats with protracted liver disease: A new therapeutic approach?*

S12-2 **Margarita Currás-Collazo**, University of California Riverside, USA: *Maternal T4 supplementation normalizes deficient social behavior and reduced hypothalamic oxytocin content produced by perinatal exposure to PBDE*

Visit to Stirling Castle (14:30-18:30)

Conference dinner (19:00-23:00)  
River House



# *RegPep24: Friday, August 5th, 2022*

## **IRPS General Assembly (09:00-10:00)**

Cottrell Lecture Theatre

## **IBRO Neuroscience Special Lecture (10:00-10:45)**

Cottrell Lecture Theatre

*Interaction of amyloid beta oligomers and alpha3-GABAA receptors in locus coeruleus neuronal excitability and Alzheimer's pathology*

**Jerome Swinny**

University of Portsmouth, UK

## **Closing Lecture (10:45-11:30)**

*A long research and translational arc to CGRP-based treatment of migraine*

**Peter Goadsby**

2021 Brain Prize Laureate  
King's College London, UK

## **Closing Ceremony (11:30-12:00)**

Group Photo at Stirling University Campus

**Journal of Neuroendocrinology**



[RegPep.org](http://RegPep.org)  
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