STIRLING SCOTLAND, AUGUST 2022

REPORT OF ISN-SUPPORTED SYMPOSIUM

RegPep 24 Meeting:

24th International Symposium on Regulatory Peptides (RegPep24)

Venue: University of Stirling, Scotland, UK

Date: August 1-5, 2022

Organizers: Dr. Lee E. Eiden (Chair of the program committee)

Dr. Limei Zhang (Chair of the organizing committee)

Website: http://www.regpep.org/

ISN-sponsored young investigator symposium:

Oxytocin and Vasopressin: Circuits and Behavior (Symposium No.1, Tuesday, August 2nd, 2022)

Chair: Vito Hernández

1. Speakers

Symposium 1 Oxytocin and Vasopressin: Circuits and Behavior

Chaired by: Vito Hernandez (México)

S1-1 Lei Xiao Fudan

University, Shanghai, China.

Morpho-electric properties and diversity of oxytocin neurons in mouse paraventricular nucleus of hypothalamus

S1-2 Quirin Krabichler

University of Heidelberg, Mannheim, Germany.

A novel transgenic arginine vasopressin (AVP)-IRES2-Cre rat line: Characterization, mapping of connectivity, and recording of neuronal activity

S1-3 Amelie Soumier

le Vinatier Hospital and Institute of Cognitive Science Marc Jeannerod, CNRS, Bron, France. 3D mapping of oxytocin and vasopressin neurons ontogenesis in the mouse brain

S1-4 Oscar R. Hernández-Perez

Centro de Investigación y Asistencia en Tecnología y Diseño del Estado de Jalisco, A.C. and UNAM, México City, México

Differential activation of arginine-vasopressin receptor subtypes in distinct amygdaloid subdivisions modulating emotional responses in the rat

S1-5 Mario Zetter

National Autonomous University of Mexico, Mexico City, México.

Vasopressin acts as a synapse organizer by boosting PSD95 and GluA1 expression

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2. Description of the RegPep24 meeting

Throughout these years, RegPep has been a constant source of intellectual renewal in the promise of peptides for understanding fundamental neuroscience and endocrinology and focusing this knowledge clinically and in new drug discovery. RegPep celebrates the triad of physiology, medicine, and pharmacology in both a practical and an intellectual way. Intellectually, knowledge about new peptides in various species is of basic interest no matter in what species the initial discoveries are made. Information about the pharmacological effects of administered peptides in humans, or detection of altered peptide levels in various human diseases such as hypoparathyroidism, diabetes, epilepsy, and so forth allows confirmation of the importance of the new peptide research findings in clinical medicine.

RegPep meetings promote the exchange of scientific information, peer-to-peer interaction, themes discussion re: overarching issues among regulatory peptide scientists; establishment of collaborations; testing of new hypotheses for experiments in break-out and informal discussion groups; introduction of new and early career scientists; cross-disciplinary information exchange; creation through discussion of 'virtual drug pipeline' for discussion/resolution of problems associated with translation of basic research, pooling of reagents and resources

This 24th celebration of the RegPep meeting was attended by: 91 participants with the following demographics: origin: 16 from the UK and 75 international participants (Australia, Austria, Brazil, Canada, China, France, Germany, Italy, Hungary, Malaysia, Mexico, Netherlands, New Zealand, Norway, Poland, South Africa, United States); gender distribution: 40% female, 60% male; education level: 80% post-doctoral, 20% pre-doctoral.

3. Description of ISN-CC supported Young Investigator Symposium



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ISN-sponsored young investigator symposium: Oxytocin and Vasopressin: Circuits and Behavior

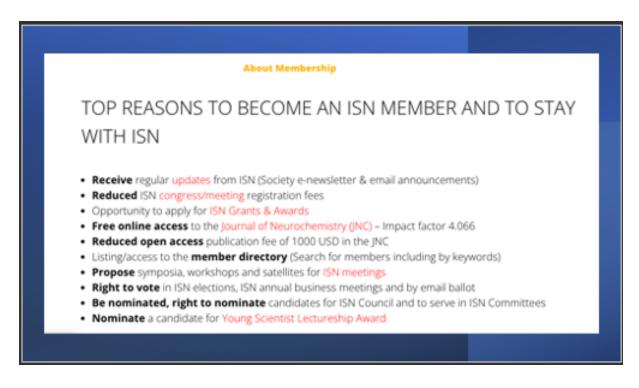
(Symposium No.1, Tuesday, August 2nd, 2022)

Chair: Vito Hernández

This symposium started with a brief statement by Dr. Vito Hernández to acknowledge the financial support received from the International Society for Neurochemistry for the organization of the Young Investigator symposium. Then Dr. Hernandez communicated the aims of the Conference Committee (ISN-CC) program that supports the organization of small conferences or symposia within meetings of other scientific societies that have a focus on neurochemical topics. Finally, an invitation to join the ISN, and the reasons to become a member were presented to the audience.

The **following slides were presented during the first five minutes of the symposium** to acknowledge support from the ISN to the symposium





Vito Hernández, the recipient of the ISN-CC support for this symposium was suggested by the Chair of the program committee (Dr. Lee Eiden) to present his talk "PACAP expression within glutamate or GABA circuits of the brain" during the symposium # 8 while keeping him as the chair of the ISN-sponsored young investigator symposium. This was aimed to increase the visibility of the ISN by having two symposia in which there was specific mention to the ISN-CC support.



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ISN-supported Symposium highlights:

During this symposium the presenters shared their most recent discoveries on diverse and complementary aspects of the oxytocin and vasopressinergic brain circuits. Dr. Lei Xiao, used transgenic mice lines in which by electrophysiological recordings and reconstruction of the neurons, he was able to resolve some previously undescribed subpopulations of oxytocin parvocellular and magnocellular neurons in the PVN, some of the populations were activated specifically under some feeding conditions, his results highlighted the need to study in further detail the specific circuits and associated functions of these oxytocinergic sub-clusters. Dr Quirin Kravichler presented a novel transgenic tool with significant translational implications for the study of the vasopressinergic circuits. CRISPR-CAS was used to generate a Sprague-Dawley rat line in which an IRES2-CRE transgene was inserted in the UTR region of the AVP gene. Stereotaxic injections of CRE-dependent viral vectors allowed the exploration of differential axonal projection patterns of the paraventricular (PVN) and supraoptic (SON) neuronal populations. Multiple previously identified target-regions of these hypothalamic vasopressinergic neurons were described, and new previously undescribed target-regions were reported. The work of Amelie Soumier highlights the ontogenic development of the OT and AVP neurons with an emphasis on the temporal and spatial location of their peptide co-expression. Oscar Hernández-Perez using pharmacological, anatomical and behavioral approaches, described new findings on the participation of the V1a and V1b vasopressin receptors within the amygdala on social behavior. Demonstrating that when hydro-electrolytic equilibrium is compromised, the hypothalamic vasopressinergic system can serve as a hub, that links control of fluid homeostasis with the social component of allostatic adaptation. On the molecular mechanisms for the effects of vasopressin at their intracerebral targets, Mario Zetter showed that water deprivation in rats increase the expression of the postsynaptic proteins PSD95 and GluA1. The increased expression of these proteins, classically associated with excitatory synapses was recapitulated in vitro, when slices of regions targeted by AVP fibers were incubated with vasopressin. The involvement of AVP receptors was confirmed using V1a and V1b antagonists, these new results show that AVP is able to exert plastic changes in the excitatory synapses, on regions targeted by the hypothalamic AVP magnocellular neurons. Vito Hernández, the recipient of the ISN-CC support for this symposium was suggested by the Chair of the program committee (Dr. Lee Eiden) to present his talk "PACAP expression within glutamate or GABA circuits of the brain" during the symposium #8 while keeping him as the chair of the ISN-sponsored young investigator symposium. This was aimed to increase the visibility of the ISN by having two symposia in which there were specific mention to the ISN-CC support.

This ISN supported symposium was attended by more than 40 participants including consolidated scientists, junior investigators, graduate students, (at the end of the document is attached a list of all the participants of the meeting). At the end of each talk a round of questions that promoted interaction between the audience and the speakers ensued, however because of the time constrains the discussion continued in the coffee break and was appreciated by the young investigators of this symposium, as an excellent forum to communicate their

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findings and opening the possibility to discuss them with leading figures of the field, see opinions below:

- "The conference was an excellent place to meet colleges and explore new tendencies and approaches to studying neuropeptides. The young investigator symposium resulted in a perfect opportunity to share my work and receive feedback from investigators, which motivates me to continue working hard." Oscar Hernández-Perez (Speaker in the ISNsupported Young Investigator Symposium)
- "The symposium was very well planned and conveyed young researchers covering important areas of neuropeptide research and showing the importance of new techniques for studying neuropeptide function in the brain, I felt very honoured to participate" Mario Zetter (speaker in the ISN-supported Young Investigator symposium)
- "This was an excellent symposium covering a very important and timely topic in the neuroendocrine field. The panel was very diverse and presented cutting edge science in this area. Very useful for trainees, junior and senior researchers." Javier Stern (Principal Investigator, Georgia State University, attendee to the symposium)
- "This symposium was very illustrative allowing young researchers to show new exciting ideas and very well organized by the chair" (Apolonia Sales, predoctoral attendee to the symposium)
- "This was a high quality symposium that gave the opportunity to young researchers to present the latest advances in neuroendocrinology. There was an international representation and a rich diversity of topics. It was useful to initiate discussions about current hypotheses and ongoing projects." (Arthur Lefevre, UCSD postdoctoral researcher, attendee to the symposium).
- "The RegPep24 was an event that incorporated most of Neuroendocrinology science with good lectures presenting even traditional to the most advanced techniques that encompass the peptides. Notwithstanding, the symposium allowed new researchers to present their works by entering them into this professional field." (Tays A. Camilo , post-doctoral of Federal University of São Paulo, Brazil.)
- "The ISN Young Investigator symposium covered high quality, diverse and broad interest scientific research topics related to regulatory peptides" (André Mecawi, Principal Investigator, Federal University of São Paulo, Brazil)

4. ISN support was acknowledged in the webpage and the proceedings of RegPep24



RegPep.org main website (www.regpep.org)



Proceedings of RegPep24

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5. ISN budget:

The funds granted by the ISN for the organization of this symposium were transferred directly to the International Regulatory Peptide Society (organizer of the meeting). Those funds were used to partially cover the registration, accommodation, and flight tickets of the participants.

Detailed budget used for each speaker

Each speaker registration Fee + accommodation was covered:
 740USD x 5 speakers = 3700 USD

2) The flight tickets for the following participants were reimbursed

a. Vito Hernández: 900 USD
b. Mario Zetter: 850 USD
c. Oscar Hernandez-Perez: 2000 USD
TOTAL: 3750 USD

Total cost for the ISN-Supported symposium: 7250 USD

During the General Assembly of the IRPS the ISN was acknowledged and the support that was received was listed in the Acta. The IRPS GA acta can be found <u>in this link</u>. Some screenshots are presented below:

2.Revenue for RegPep24	,	, ,
2.1 Institution/academic organization		
Support from Chen Institute (Feb. 18, 2022)	\$127,459.50	\$6,372.98
Support from IBRO 80% (July 19, 2022)	\$195,979.20	\$9,798.96
Support from JNE/BSN (July 21, 2022)	\$139,677.71	\$6,983.89
Support from ISN 80% to ECR symposium (July 26, 2022)	\$101,926.43	\$5,096.32
Subtotal of 2.1	\$565,042.84	\$28,252.14
r	MXN	Grey numbers are estimated in USD

From the IRPS acta: Report of the income to RegPep24 from institutional sources with ISN received funds listed.

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3.2 RegPep24 expenditures				
Pre-conference logistics/LOC travel and food expenses				
(only partially spported)	\$900.00			
Printings and conference materials	\$2,635.18			
RegPep24 cost at Stirling University Venues	\$42,368.43 £33,314.69			
Music band	\$1,195.74			
1 Car & 1 coach rental	\$1,368.75			
Six transcontinental roundtrip tickets for plenaries/Chen Writer/ISN ECRs	\$8,554.47			
Conference dinner and Stirling castle visit	\$8,618.88			
Subtotal of "3.2"	\$65,641.4			
Total expenditures ("3.1"+"3.2")	\$71,532.7			
Grants awarded by the RegPep24 LOC to RegPep24 delegates (all amount):	ready included in the above expenditure			
 Conference fee waivers for 56 invited speakers - plenaries and syr 	nposium speakers: \$14,000 USD (56 x \$250 USD)			
- ISN sponsored ECR intercontinental travel: \$3700 (3 ECRs)	,			
- ISN sponsored ECRs conference fees and delegate packages: \$370	00 (5 ECRs) 4			
- RegPep24 LOC grant to ECRs Data blitz presenter \$5390 USD				
- Airfares for plenaries and Chen Writer: \$3400 USD				

From the IRPS acta: report for expenses of the IRPS for covering flight tickets to ISN-supported speakers (aprox. 3700 USD)

Chen Writer conference fee and accommodation: \$1040 USD

The rest of the money received by the IRPS was used to partially cover the registration fees and accommodation of the speakers, see the screenshot below that shows the cost of the conference registration and accommodation fees.

The Conference Fee includes:			The Delegate Package includes:			
Abstract submission Printed book with program and proceedings of RegPep24 Access to all scientific sessions Welcome reception-dinner All lunches and coffee breaks during the meeting Access code for video streaming of all the conference sessioneeting and for 3 months after the meeting	ions during the	Three lun Six coffee Welcome Stirling Cour recommend	e breaks	Pep24 Organising Committee		
REGISTRATION FEE	EARLY BIRD ¹ JAN 10 - MAY 15, 20		REGULAR MAY 16 - JULY 31, 2022	ON SITE AUGUST 1 - 5, 2022		
Regular Members	250 USD: conference + 490 USD: delegate		350 USD: conference fee + 490 USD: delegate package	450 USD: conference fee + 490 USD: delegate package		
Nonmembers	400 USD: conferent		500 USD: conference fee + 490 USD: delegate package	600 USD: conference fee + 490 USD: delegate package		

From RegPep.org (registration and accommodation fees)

5. Photographs of the symposium and from RegPep:



ISN YOUNG INVESTIGATOR SYMPOSIUM



ISN YOUNG INVESTIGATOR SYMPOSIUM



COUNCIL MEETING



GENERAL ASSEMBLY



GENERAL ASSEMBLY





SOCIAL MEDIA



GROUP PICTURE

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Attachment: REGPEP 24, LIST OF PATICIPANTS

Surname	Name	Country	Gender	42 Jiang Sunny Z. USA	F
Abu Samah	Norshahida	Malaysa	F	43 Joels Marian The Netherland	F
Aguilera	Greti	USA	F	44 Jones Jeff USA	N
3 Anantharam	Arun	USA	M	88 Kalsbeek Thea The Netherland	s F
Anouar	Youssef	France	M	45 Kalsbeek Andries The Netherland	s N
Bakalar	Dana	USA	F	48 Kozlova Elena USA	F
Baram	Tallie Z	USA	F	47 Krabichler Quirin Germany	N
Barez Lopez	Soledad	UK	F	48 Laszlo Krisztof Hungary	1
Barrio	Rafael	Mexico	M	49 Lefevre Arthur USA	٨
Barrio	Hernán	UK	M	50 Levkowitz Gil Israel	٨
Camilo	Tays	Brazil	F	51 Leyden Genevieve UK	F
1 Chen	Duan	Norway	M	52 Limón Adrián Mexico	1
2 Chen	Xiaoke	USA	M	53 Lin Panjiao UK	F
Conway-Campbe	Becky	UK	F	54 MacLeod Malcolm UK	N
Cunningham	Rebeca	USA	F	55 Mecawi Andre Brazil	N
Cunningham	Thomas	USA	M	56 Melzer Sarah Austria	F
Curras-Collazo	Margarita	USA	F	57 Mercer Julian UK	٨
7 Dabrowska	Joanna	USA	F	58 Millar Robert South Africa	٨
de Kloet	Annette D.	USA	F	59 Morales Marisela USA	F
De Lecea	Luis	USA	М	60 Murphy David UK	,
de Vries	Geert	USA	M	91 Neurmann Inga Germany	F
Dobolyi	Arpad	Hungary	M	61 Paul Matthew USA	1
2 Dudchenko	Paul	UK	М	62 Petrulis Aras USA	,
3 Egry	Carlos	Mexico	M	63 Pittman Quentin Canada	,
Eiden	Lee E.	USA	M	90 Quintanar-Steph Graciela Mexico	F
Elsamad	Ghadir	UK	F	64 Quintanar-Steph Andres Mexico	,
Ferraguti	Francesco	Austria	M	65 Rigney Nicole USA	i
7 Fink	George	Australia	M	87 Ringuet Sophie Australia	i
Fumess	John	Australia	M	66 Ringuet Mitchell Australia	i
Fumess	Sebastian	Australia	M	67 Rorsman Patrick UK	i
) Gillard	Ben	UK	M	68 Sabban Esther USA	Ė
Goadsby	Peter	UK	M	69 Sales Apolonia Mexico	Ė
González-Hemái		Mexico	M	70 Sexton Patrick Australia	
Goosens	Ki	USA	F	71 Soumier Amelie France	F
Grattan	David	New Zealand	M	72 Stern Javier USA	N
Gray	Sarah	Canada	F	73 Teruyama Ryiochi USA	N
Gundlach	Andrew	Australia	M	73 Terdyama Ryiociii USA 74 Veenema Alexa USA	F
7 Habart	Marie	France	F	75 Viney Tim UK	N
Hartwood	Jim	USA	M	75 Viney Tim OK 76 Watts Alan UK	i
B Hedden	Julius Julius	USA	M	77 Wisden William UK	i
Heoden Hemández	Vito S.	Mexico	M		i
				10 1000	F
Hemández-Péres		Mexico	M	79 Xu Wenqin USA	
Holzer	Peter	Austria	M	80 Yi Chun-Xia The Netherland	
				81 Yitzchak Sabban USA	N
				82 Yoichi Ueta Japan	N
				63 Zetter-Samfor Mail O. Mexico	N
				84 Zhang MeiMei Canada	F
				85 Zhang Limei Mexico	