

## **Editorial: Special issue on Invertebrate Peptides**

Jozef Vanden Broeck <sup>a,\*</sup>, Shinji Nagata <sup>b</sup> and Young-Joon Kim <sup>c</sup>

<sup>a</sup> Molecular Developmental Physiology and Signal Transduction Lab; Animal Physiology and Neurobiology Division; Department of Biology; University of Leuven (KU Leuven); Naamsestraat 59 box 2465, B-3000 Leuven, Belgium.

<sup>b</sup> Department of Integrated Biosciences, Graduate School of Frontier Sciences, the University of Tokyo, 5-1-5 Kashiwa no ha, Kashiwa City, Chiba 277-8562, Japan.

<sup>c</sup> School of Life Sciences, Gwangju Institute of Science and Technology, 61005 Gwangju, Republic of Korea

Electronic addresses:

[jozef.vandenbroeck@kuleuven.be](mailto:jozef.vandenbroeck@kuleuven.be)

[shinjin@edu.k.u-tokyo.ac.jp](mailto:shinjin@edu.k.u-tokyo.ac.jp)

[kimyj@gist.ac.kr](mailto:kimyj@gist.ac.kr)

\* Corresponding author: Prof. Dr. Jozef Vanden Broeck, Molecular Developmental Physiology and Signal Transduction Lab, Animal Physiology and Neurobiology Division - Department of Biology, University of Leuven (KU Leuven), Naamsestraat 59 box 2465, 3000 Leuven, Belgium; E-mail: [jozef.vandenbroeck@kuleuven.be](mailto:jozef.vandenbroeck@kuleuven.be)

As Guest Editors, we are extremely proud to present to the readers of the international peer-reviewed journal, *Peptides*, this special issue (SI) on Invertebrate Peptides. The full title of this SI is “**Bioactive Peptides in Invertebrates: Structure, Function and Application**”. We have welcomed manuscripts reporting on the characterization of bioactive peptides in invertebrate species, as well as on their molecular mode(s)-of-action and physiological functions.

The scope of this SI is relatively broad, since ‘peptides’ are a very diverse and versatile class of biologically active molecules and ‘invertebrates’ represent the vast majority of animal species on Earth. Manuscripts had to fit within this scope, as well as the general scope of the journal, *Peptides*, and report on (i) original experimental studies with novel findings on structure, function or application potential of invertebrate peptides and their receptors, (ii) interesting topics for review/opinion papers, or a (iii) mix of both. Although pure *in silico* studies were outside the journal’s focus, experimental articles involving the use of ‘omics’ approaches for comparison of peptide (gene) expression repertoires and/or functional effects of peptides in an original experimental context were considered eligible. In addition, (iv) original methods papers describing novel approaches, advanced/optimized procedures and good practices in invertebrate peptide research were also welcomed. Review or methods papers were requested to contain at least one Figure and Table. In line with the high standards of this journal, all manuscripts submitted to the SI were subjected to a rigorous peer-review procedure. We are very grateful to the editor-in-chief, Dr. Karl-Heinz Herzig, and Elsevier’s support team for guiding us through this process.

This SI is also linked with the **Invertebrate Neuropeptide Conference (INC)**, held under the auspices of *The International Neuropeptide Society*. INC is an annual gathering of international experts in the field of invertebrate peptide research. INC2020 took place in February 16-20, 2020, just before many countries imposed very strict lockdown measures that blocked international travel. The conference was organized by Prof. Shinji Nagata (Tokyo, Japan) and Prof. Young-Joon Kim (Gwangju, South Korea) and its venue was situated on the Okinawa main island (Japan). We are very grateful to everyone who assisted in the organization of this international meeting. In particular, we would like to express our special thanks to Tomoko Kobayashi, Zhou Yi Jun, Mack Yin Shan Isa, and Hitomi Seike for their help in preparing a successful INC2020. Moreover, we congratulate the colleague who received the *Invertebrate Neuropeptide Award* (cf. the announcement contributed by Dr. Ron Nachman). Furthermore, we would like to thank all our attendees, who contributed so actively to INC2020 by presenting and discussing their scientific progress.

Unfortunately, the past two years were characterized by so many problems with an international dimension. These included in the first place the global spread of different SARS-CoV-2 variants, from alpha to omicron, in consecutive waves. Multiple natural catastrophes occurred that may have resulted from changing climate conditions. On top of all this misfortune, the appearance of locust swarms, the largest ones since many decades, caused devastation of agricultural crops in many countries on different continents. INC2020 still is

the most recent INC, because since then several (semi)lockdowns due to the COVID-19 pandemic disturbed international travel and organization of on-site meetings. This global crisis has also affected ongoing research programs, delaying the completion of manuscripts as well as the research activities required to revise them. Therefore, as guest editors, we gratefully thank all authors who have submitted a manuscript in these difficult conditions, and we are now very pleased to present this SI to the readers of Peptides.

During the submission period of this SI, we received the extremely sad news that **Prof. em. Stephen Tobe (University of Toronto, Canada)** passed away (December 31<sup>st</sup>, 2020). Steve was an outstanding scientist with a strong international reputation in the field of invertebrate peptides. A limited selection from his impressive list of publications is noted below (see reference list). Many researchers around the globe have now lost a great inspirer, mentor, collaborator, or friend. In the past twenty years, Steve organized multiple INCs and he still attended INC2020 (see picture below). Therefore, to honor his legacy an obituary (*cf. In memoriam*) is included and we decided to dedicate this SI to Dr. Stephen Tobe in memory of his important contributions to science.

Jozef Vanden Broeck, Shinji Nagata, Young-Joon Kim

Guest editors

#### References (in chronological order)

- Tobe, S. S. and Pratt, G. E. 1974. Dependence of juvenile hormone release from corpora allata on intraglandular content. *Nature* **252**: 474-476.
- Tobe, S. S. and Stay, B. 1979. Modulation of juvenile hormone synthesis by JH analog in the cockroach. *Nature* **281**: 481-482.
- Woodhead, A. P., Stay, B., Seidel, S. L., Khan, M. A. and Tobe, S. S. 1989. Primary structure of four allatostatins: neuropeptide inhibitors of juvenile hormone synthesis. *Proc. Natl. Acad. Sci. USA* **86**: 5997-6001.
- Donly, B. C., Ding, Q., Tobe, S. S., Bendena, W. G. 1993. Molecular cloning of the gene for the allatostatin family of neuropeptides from the cockroach *Diploptera punctata*. *Proc. Natl. Acad. Sci. USA* **90**: 8807-8811.
- Nachman, R. J., Garside, C. S. and Tobe, S. S. 1999. Hemolymph and tissue-bound peptidase-resistant analogs of the insect allatostatins - An octadecapeptide amide with tyrosine-rich address sequence. *Peptides* **20**: 23-29.
- McNeil, J. N. and Tobe, S. S. 2001. Flights of fancy: possible roles of allatostatin and allatotropin in migration and reproduction success of *Pseudaletia unipuncta*. *Peptides* **22**: 271-277.
- Stay, B., Tobe, S. S. 2007. The role of allatostatins in juvenile hormone synthesis in insects and crustaceans. *Annu. Rev. Entomol.* **52**: 277-299.



This Special Issue of Peptides is dedicated to Dr. Stephen Tobe (1944-2020). The picture was taken at the INC2020 on Okinawa (Japan) and shows Steve (middle), together with his wife Martha (left) and Dr. Ron Nachman (right), with whom he has co-organized the majority of the INCs during the past twenty years. (Credit is given to Jozef Vanden Broeck.)