

## Special Issue

# Molecular Evolution of Toxins in Invertebrates

### Message from the Guest Editor

The wide scattering of invertebrate animals, for example, some species of mollusc, arthropod, cnidarian, sea urchins, ribbon worm, and starfish, carries biological toxins. Some of these animals can deliver toxins in the form of venom for the purpose of predation, defense, or competitor deterrence. Invertebrate toxins have potential applications in human medicine and agriculture and are of basic interest to evolutionary scientists due to their potential for rapid and/or extensive evolutionary changes and for arms races. This Special Issue contains articles relating to numerous aspects of the molecular evolution of invertebrate animal toxins: 1) convergent recruitment of protein toxins into venom; 2) the deep evolutionary history of toxin families; 3) adaptive divergent evolution of venom toxins; 4) acquisition of toxin genes by horizontal transfer; 5) directed evolution and engineering of invertebrate toxins for applications in medicine, agriculture, and other fields. Articles in this issue may also focus on the discovery of toxins in animal lineages that are not previously known to harbor them.

### Guest Editor

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### Deadline for manuscript submissions

closed (1 May 2023)



## Toxins

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## About the Journal

### Message from the Editor-in-Chief

Toxinology is an incredibly diverse area of study, ranging from field surveys of environmental toxins to the study of toxin action at the molecular level. The editorial board and staff of *Toxins* are dedicated to providing a timely, peer-reviewed outlet for exciting, innovative primary research articles and concise, informative reviews from investigators in the myriad of disciplines contributing to our knowledge on toxins. We are committed to meeting the needs of the toxin research community by offering useful and timely reviews of all manuscripts submitted. Please consider *Toxins* when submitting your work for publication.

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### Editor-in-Chief

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#### Rapid Publication:

manuscripts are peer-reviewed and a first decision is provided to authors approximately 18.4 days after submission; acceptance to publication is undertaken in 2.8 days (median values for papers published in this journal in the first half of 2025).