Special Issue

Insect Chemosensory Systems and Semiochemicals: From Molecular Genetics to Neuroethology

Message from the Guest Editors

The olfactory and gustatory senses connect insects with their abiotic and biotic chemical environment, mediating critical behaviors, including host and mate seeking and selection, feeding, migration, and social interactions. A tremendous body of literature describes the mechanisms of chemosensation, from the chemistry of the signals and their molecular detection by sensory neurons to their neurological coding and resulting behavior. Genes that underlie chemosensory mechanisms are studied for their contributions to behavioral phenotype and speciation and as novel targets to manipulate insect pest and disease vector behavior in novel strategies to mitigate their economic impacts. Next-generation DNA sequencing, RNA interference, and CRISPR-Cas9 gene editing expand the genetic toolbox to insects beyond traditional model species, opening research avenues for economically relevant and evolutionarily interesting insects far and wide. This Special Issue focuses on integrative research that employs recent technological advances to chemosensory topics ranging from receptor structure and function to electrophysiology, neuroethology, and chemical ecology.

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Deadline for manuscript submissions

closed (29 February 2024)

Insects

an Open Access Journal by MDPI

Impact Factor 2.9
CiteScore 5.6
Indexed in PubMed

mdpi.com/si/154569

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Message from the Editor-in-Chief

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