

Special Issue

Insect Vector Physiology and Competence: Interactions and Adaptations

Message from the Guest Editors

This Special Issue highlights current advances in understanding the physiological, immunological, and ecological interactions that govern vector competence and adaptation, with a focus on arthropod disease vectors such as mosquitoes. As the global burden of vector-borne diseases persists and the effectiveness of traditional control strategies declines due to rising insecticide and drug resistance, there is an urgent need to uncover novel insights into the internal biology of vectors and their interactions with pathogens and symbionts. We welcome contributions that explore how physiological and immunological traits shape a vector's ability to acquire, maintain, and transmit pathogens. Topics of interest include—but are not limited to—innate immune responses, hemolymph circulation, reproduction, hormones, sensory systems, metabolic regulation, and how these systems are influenced by age, environmental stressors, microbial interactions, and infection history. This Special Issue aims to broaden our understanding of vector competence and physiology and promote innovative approaches for vector control and disease prevention.

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Deadline for manuscript submissions

30 April 2026



Insects

an Open Access Journal
by MDPI

Impact Factor 2.9
CiteScore 5.6
Indexed in PubMed



mdpi.com/si/250411

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Message from the Editor-in-Chief

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