

Special Issue

Genetic and Molecular Mechanisms of Insect Resistance

Message from the Guest Editors

This Special Issue is dedicated to examining the genetic foundations and molecular mechanisms underlying insecticide resistance and adaptive evolution in insects. It offers a systematic analysis of the cloning and functional validation of genes associated with insect resistance. Furthermore, it elucidates the molecular mechanisms involved in the amplification and regulatory expression of detoxification enzyme genes, including cytochrome P450s and glutathione S-transferases. The Special Issue also uncovers the molecular bases of target-site mutations, reduced cuticular penetration, and behavioral resistance. By integrating genomics, transcriptomics, and gene-editing technologies, this Special Issue investigates the genetic factors driving the rapid evolution of insect resistance, thereby providing a theoretical framework for the development of novel insecticides, the formulation of resistance monitoring strategies, and sustainable pest management. We invite submissions from scholars in related disciplines to collaboratively advance the comprehensive development of insect resistance research.

Guest Editors

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Message from the Editor-in-Chief

Genes is central to our understanding of biology, and modern advances such as genomics and genome editing have maintained genetics as a vibrant, diverse and fast-moving field. There is a need for good quality, open access journals in this area, and the *Genes* team aims to provide expert manuscript handling, serious peer review, and rapid publication across the whole discipline of genetics. Starting in 2010, the journal is now well established and recognised. Why not consider *Genes* for your next genetics paper?

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