

Special Issue

Molecular Mechanisms of Crops Resistant to Abiotic Stresses and Crop Genetic Improvement

Message from the Guest Editors

As sessile organisms, plants are often subjected to adverse abiotic environmental conditions such as drought, heat, cold, nutrient deficiencies and excess salt or toxic metals in the soil. These abiotic stresses limit the use of arable land worldwide and negatively affect crop productivity. Plants have formed complex regulatory networks over the course of long-term evolution, including the process of sensing, transmitting and responding to signals. Since plant stress responses must be coordinated with growth and development, it is important to understand stress signaling and its molecular mechanisms. Via the application of genetic improvement technology that is able to develop crop varieties with certain stress tolerances, combined with the development and utilization of adverse environments, the cultivated land area can be increased to a certain extent and food security can be guaranteed. However, there remain many shortcomings regarding researchers' understanding of the molecular mechanisms implicated in the response of plants to abiotic stress, particularly in relation to stress sensing, early signaling, translation and post-translational regulation, and growth regulation, etc.

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