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Plant Plasticity and Signalling Pathways in Adaptive Responses

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Deadline for manuscript submissions:
closed (31 January 2022)

Message from the Guest Editors

As sessile organisms, plants have had to develop a complex system to dynamically respond to ever-changing environmental conditions. Moreover, they possess a unique feature—the ability to form all organs from a single part of the plant body and adapt the size (and, to a limited extent, also shape) of developing organs. This ability enables adaptation to changing internal or external conditions. The fundamental role in adaptation processes is executed by plant signaling pathways, which sense environmental stimuli, react to them, and subsequently drive morphological and/or physiological changes. Variation in external conditions mainly correspond to abiotic and biotic stresses, while internal changes often reflect an imbalance in cellular homeostasis or developmental programs. Both phytohormone-dependent and independent regulatory pathways mediate plant adaptation. The resulting phenotype changes can be detected by a wide range of approaches, extending from cell biology techniques to field phenotyping. The obtained fundamental knowledge can lead to improvement of important agricultural parameters.

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Message from the Editor-in-Chief

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