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simple movements controlled by complex mechanisms; 1.7 ABA as antagonizing signal to light in stomatal movement; 1.8 Concluding remarks; Acknowledgements; References

2 Auxin metabolism and signaling

2.1 Introduction; 2.2 Auxin metabolism; 2.2.1 Indole-3-acetic acid biosynthesis; 2.2.1.1 The tryptophan-independent pathway; 2.2.1.2 IAA biosynthesis from tryptophan; 2.2.2 IAA conjugates in plants; 2.2.2.1 IAA-peptide conjugates; 2.2.2.2 Amino acid conjugates; 2.2.2.3 Amide conjugate hydrolysis; 2.2.2.4 Ester conjugates; 2.2.3 IAA degradation; 2.3 Auxin signaling; 2.3.1 Auxin-responsive genes; 2.3.2 Auxin response factors; 2.3.3 Regulation of auxin response by the SCFTIR1 ubiquitin-ligase; 2.3.4 Regulation of SCFTIR1 activity; 2.3.5 Identification of an auxin receptor

2.4 Conclusions and future perspectives; Acknowledgements; References; 3 Integration of brassinosteroid biosynthesis and signaling; 3.1 Introduction; 3.2 Metabolism; 3.2.1 Biosynthesis; 3.2.1.1 DET2; 3.2.1.2 SAX1; 3.2.1.3 DWF4; 3.2.1.4 CPD; 3.2.1.5 ROT3 and CYP90D1; 3.2.1.6 CYP85A1 and CYP85A2; 3.2.1.7 Other biosynthetic functions; 3.2.2 Inactivation; 3.2.2.1 BAS1; 3.2.2.2 CHI2/SHK1/SOB7; 3.2.2.3 UGT73C5; 3.2.2.4 BNST3 and BNST4; 3.2.3 Functional aspects of BR metabolism; 3.2.3.1 Regulation of biosynthetic genes; 3.2.3.2 Regulation of BR-inactivating genes; 3.2.3.3 Conservation of BR synthesis in higher plants; 3.3 Signal transduction; 3.3.1 BRI1 and BAK1; 3.3.2 BIN2 and BSU1; 3.3.3 BZR1 and BZR2/BES1; 3.3.4 BIM1; 3.3.5 Signaling mechanism and other putative components; 3.4 Future perspectives; 3.4.1 Metabolism; 3.4.2 Signal transduction; 3.4.3 Crops; Acknowledgements; References; 4 Cytokinin metabolism and signal transduction; 4.1 Introduction; 4.2 Cytokinin metabolism; 4.2.1 Cytokinin biosynthesis; 4.2.2 Cytokinin interconversion and conjugation; 4.2.3 Cytokinin catabolism; 4.3 Cytokinin signal transduction

Sommario/riassunto

Plant growth is regulated by developmental programmes that can be modified by environmental cues acting through endogenous signaling molecules including plant hormones. This volume provides an overview of the biosynthesis, catabolism, perception and signal transduction of the individual hormone classes, followed by chapters on hormone distribution and transport, and the roles of hormone signaling in specific developmental processes. Particular attention is paid to the regulation of hormone signaling by environmental and developmental cues, sites of hormone metabolism and action, and int