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5 The Small RNAs of Physcomitrella patens: Expression, Function and Evolution5.1 Introduction to small RNAs; 5.2 Classes of small silencing RNAs; 5.3 Expression of P. patens small RNAs; 5.4 Biogenesis of P. patens small RNAs: Dicers, Slicers and other utensils; 5.5 Targets of P. patens small RNAs; 5.6 Evolution of plant miRNAs; 5.7 Conclusions; 6 Tip Growth in the Moss Physcomitrella patens; 6.1 Introduction; 6.2 Morphology and structure of a tip cell; 6.3 Environmental signals affecting polar cell elongation; 6.4 Cellular structural components involved in polar cell elongation
7 Gametangia Development in the Moss Physcomitrella patens7.1 Introduction; 7.2 Development of the gametangia; 7.3 Development of the gametangia after fertilization is accompanied by growth of the sporophyte; 7.4 Gene-trap lines with GUS expression in the gametangia; 7.5 Future prospects; 8 Chloroplasts; 8.1 Chloroplasts of Physcomitrella patens; 8.2 Plastid DNA; 8.3 Transcription of plastid genes by two plastid RNA polymerases PEP and NEP; 8.4 Rhythmic expression of the plastid Psbd gene; 8.5 Post-transcriptional regulation in plastids; 8.6 Plastid transformation; 8.7 Chloroplast import
8.8 Plastid division8.9 Chloroplast movement; 9 Carbon and Energy Metabolism; 9.1 Introduction; 9.2 Carbon and energy allocation; 9.3 Sucrose metabolism and transport; 9.4 Hexose metabolism and transport; 9.5 Energy homeostasis and Snf1-related kinases; 9.6 Conclusions; 9.7 Technical note on database searches and tree construction; 10 Hormonal Regulation of Development by Auxin and Cytokinin in Moss; 10.1 Major plant hormone routes are established in bryophytes; 10.2 Auxin; 10.3 Cytokinin; 10.4 Auxin and cytokinin interaction; 10.5 Other growth regulating substances
11 The Role of Abscisic Acid in Stress Tolerance

Sommario/riassunto

Commencing with a chapter which places Physcomitrella into phylogenetic position, this important publication then covers the following major topics. Population genetics, genome, transcripts and metabolomics, gene targeting, hormones, small RNAs, tip growth, chloroplasts, sporophyte development, desiccation and oxidative stress, sugar metabolism, and pathogenesis. With chapters contributed by many of the World's leading workers in the area, this landmark book is essential reading for all those studying plant evolutionary biology, genomics, molecular and cell biology and genetics.