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endotransglucosylase/hydrolases; 2.4.3 Pectins involved in cell wall structure and intercellular adhesion; 2.5 Concluding remarks; Acknowledgements; References; 3 Vascular cell differentiation; 3.1 TE differentiation as a model of cell-cell connection 3.2 Early processes induced by cell separation 3.3 Factors that regulate TE cell differentiation; 3.3.1 Auxin; 3.3.2 Plant sterols; 3.3.3 Xylogen; 3.4 Effects of tissue organization on cell differentiation; 3.5 Cell wall components characteristic of TE and/or vascular cells; 3.5.1 Cellulose; 3.5.2 Hemicellulose; 3.5.3 Pectin; 3.5.4 Lignin; 3.5.5 Cell wall component proteins; 3.6 The degradation of TE primary cell walls and pore formation; 3.7 Co-regulation of cell wall degradation and PCD; 3.8 Conclusion; References; 4 Cell adhesion, separation and guidance in compatible plant reproduction 4.1 Introduction 4.2 Pollen formation and microspore separation; 4.2.1 Pollen mother cell and tetrad walls; 4.2.2 Microspore separation; 4.2.3 Pollen grain wall and pollen coat; 4.3 Pollen-stigma adhesion and pollen tube guidance; 4.3.1 Adhesion of pollen grain; 4.3.2 Pollen tube emergence and guidance on the stigma; 4.4 Adhesion and guidance of pollen tubes in the style; 4.4.1 Proline/hydroxyproline-rich glycoproteins; 4.4.1.1 Pollen and pistil AGPs; 4.4.1.2 Pex, pollen-specific leucine-rich repeat extensin chimeras; 4.4.2 Pollen and pistil cysteine-rich proteins; 4.4.2.1 SCA-pectin complex 4.4.2.2 Cys-rich protein's interaction with pollen LRR receptor kinases 4.4.3 Wall-associated kinases; 4.5 Cell wall modifying proteins and pollen tube growth in the ECM; 4.5.1 Cell wall modifying proteins from pollen; 4.5.2 Cell-wall-modifying proteins in the pistil; 4.6 Pollen tube adhesion, interaction and guidance in the ovary; 4.6.1 Pollen tube attraction by sporophytic cells; 4.6.2 Pollen tube guidance by gametophytic cells; 4.6.3 Interaction during fertilization: female control of male gamete delivery; 4.7 Conclusions and perspectives; Acknowledgements; References 5 Cell separation in roots

Sommario/riassunto

Cell separation is an important process that occurs throughout the life cycle of a plant. It enables the radicle to emerge from the germinating seed, vascular tissue to differentiate, sculpturing of leaves and flowers to take place, pollen to be shed from the mature anther, fruit to soften, senescent and non-functional organs to be lost, and seeds to be shed. In addition to its intrinsic scientific interest, many of the developmental processes to which it contributes have importance for agriculture and horticulture. This is the first volume to focus exclusively on these processes
