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Sommario/riassunto

Stomata, the tiny pores on leaf surface, are the gateways for CO2 uptake during photosynthesis as well as water loss in transpiration. Further, plants use stomatal closure as a defensive response, often triggered by elicitors, to prevent the entry of pathogens. The guard cells are popular model systems to study the signalling mechanism in plant cells. The messengers that mediate closure upon perception of elicitors or microbe associated molecular patterns (MAMPs) are quite similar to those during ABA effects. These components include reactive oxygen species (ROS), nitric oxide (NO), cytosolic pH and intracellular Ca2+. The main components are ROS, NO and cytosolic free Ca2+. The list extends to others, such as G-proteins, protein phosphatases, protein kinases, phospholipids and ion channels. The sequence of these signalling components and their interaction during stomatal signalling are complex and quite interesting. The present e-Book provides a set of authoritative articles from ‘Special Research Topic’ on selected areas of stomatal guard cells. In the first set of two articles, an overview of ABA and MAMPs as signals is presented. The next set of 4 articles, emphasize the role of ROS, NO, Ca2+ as well as pH, as secondary messengers. The next group of 3 articles highlight the recent advances on post-translational modification of guard cell proteins, with emphasis on 14-3-3 proteins and MAPK cascades. The last article described the method to isolate epidermis of grass species and monitor stomatal responses to different signals. Our e-Book is a

valuable and excellent source of information for all those interested in guard cell function as well as signal transduction in plant cells.