

PLANT EFFECTORS OF CYCLIC NUCLEOTIDES

Summary

The mechanisms by which intra- and extra-cellular signals induce a specific biological response are important for the regulation of cell function, processes of growth and development and responses to environmental changes. In recent years, enormous progress has been made in studies of elements involved in the regulation of processes occurring in plant cells. Cyclic nucleotides (cNMP) are signaling molecules whose presence and involvement in a number of processes in plant cells is well documented. From the physiological point of view, the concentration of cNMP's

at a site of their action could be neither too high nor too low, as it is controlled by the systems that lead to their synthesis or inactivation. In addition, the final biological effect depends on the efficiency of the effector systems such as cyclic nucleotide phosphodiesterases, cNMP-dependent or cNMP-regulated protein kinase and cyclic-nucleotide gated channels, that are sensitive to changes in cNMP concentration. In this paper we summarize the current knowledge on the cyclic nucleotide effectors, focusing both on their structure and functioning in plant cells..