PLANT HEAT STRESS FACTORS

Summary

Heat shock factors (Hsf) are essential for all eukaryotic organisms to survive under exposures to acute stress. They are transcriptional regulators of genes encoding molecular chaperones and other stress proteins. Compared with other eukaryotes, e.g. vertebrates with 4 members of the Hsf family, the plant Hsf family shows a large multiplicity, with more than 20 members. The plant Hsf family shows a strong diversification of expression pattern not only in response to stress, but also during various developmental programs. Despite many conserved features plant Hsf are allocated based on structural characteristics into three major classes (class A, B and C). In contrast to class A, a considerable number of Hsf assigned to classes B and C heave no evident function as transcription activators. Transcriptional regulation of Hsf dependent genes in plants is controlled by direct and indirect cooperation between distinct Hsf members and by interaction with chaperones. However our understanding of the function of plant Hsf network is far from complete. Certainly, they can functions as part of different signal transduction pathways operating in response to environmental stress and during development.