

SCIENTIFIC SEMINAR



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Stress adaptation from yeast to mammals; regulation of gene expression and cell cycle progression by stress-activated protein kinases

Exposure of cells to osmostress results in the activation of the Hog1/p38 family of stress-activated protein kinases (SAPKs). Activation of these highly conserved MAP kinases is required to generate a set of osmoadaptive responses essential for cell survival. Adaptation to osmostress requires the induction of a large number of genes as well as the control of cell cycle progression. Upon stress, in yeast there is a major downregulation of gene expression that is bypassed specifically in stress-responsive genes by the action of the Hog1 SAPK which acts in multiple steps of mRNA biogenesis. In addition to regulate transcription, SAPKs control cell cycle progression. For instance, in yeast and mammals, SAPKs modulate the G1/S transition by targeting core components of the cell cycle machinery such as CDK inhibitors as well as by regulating cell cycle gene expression- this regulation may have an impact in tumorigenesis. All together highlights the relevance of these SAPK signaling pathways in the control of several aspects of the cell physiology to maximize cell survival in the presence of stress.

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March 1
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12.00H



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