

Ste20p (sterile 20 protein) is a putative yeast mitogen-activated protein kinase kinase kinase kinase (MAP4K) involved in the mating pathway. Its homologs in mammals, *Drosophila*, *Caenorhabditis elegans* and other organisms make up a large emerging group of protein kinases including 28 members in human. The Ste20 group kinases are further divided into the p21-activated kinase (PAK) and germinal center kinase (GCK) families. They are characterized by the presence of a conserved kinase domain and a noncatalytic region of great structural diversity that enables the kinases to interact with various signaling molecules and regulatory proteins of the cytoskeleton. This review describes the phylogenetic relationships of the Ste20 group kinases based on discussions with many researchers in this field. With the newly established phylogenetic relationships, crucial arguments can be advanced regarding the functions of these kinases as upstream activators of the MAPK pathways and possible activity as MAP4Ks. Their involvement in apoptosis, morphogenesis and cytoskeletal rearrangements is also discussed <sup>1)</sup>.

<sup>1)</sup>

Dan I, Watanabe NM, Kusumi A. The Ste20 group kinases as regulators of MAP kinase cascades. *Trends Cell Biol.* 2001 May;11(5):220-30. PubMed PMID: 11316611.

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