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Mixed Lineage Kinase

MLKs

Mixed lineage kinases (MLKs) are mitogen activated protein kinase kinase kinases (MAPKKKs) with features of both serine-threonine and tyrosine kinases that regulate the c-Jun N-terminal kinase (JNK) mitogen activated protein kinase (MAPK) signaling cascade, and also regulate p38 and extracellular signal-regulated kinase (ERK).

MLK3 (MAP3K11) is the most widely expressed MLK family member, and is expressed in neurons (as well as other cell types). At the cellular level, MLK3 is activated by stress, including reactive oxygen species, ceramide, and TNF α . At the molecular level, it is activated by Cdc42 and Rac, which interact with MLK3, and can cause it to dimerize via a leucine zipper interface, resulting in autophosphorylation and enzyme activation.

