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Mps1

Monopolar spindle 1

Monopolar spindle 1 (Mps1/TTK) is a serine/threonine kinase conserved from yeast to human. It has been shown to function as the key kinase that activates the spindle assembly checkpoint (SAC) to secure proper distribution of chromosomes to daughter cells.

MPS1, a dual specificity protein kinase, is also one of the main components of the SAC and ensures cells do not progress from metaphase to anaphase until the kinetochores are properly attached to the microtubules and under the appropriate tension at the metaphase plate. Cancer cells heavily rely on MPS1 to cope with aneuploidy resulting from aberrant numbers of chromosomes. The kinase has been found to be upregulated in a large number of tumor types. Mps1 is an attractive oncology target due to its high expression level in cancer cells as well as the correlation of its expression levels with histological grades of cancers.