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Negative Regulation of G2 to M Transition

National Cancer Institute

Source

National Cancer Institute. *Negative Regulation of G2 to M Transition*. NCI Thesaurus. Code C19829.

G2/M Arrest consists of cellular biochemical mechanisms, responsive to diverse conditions, that control cellular transition from the G2 to M phase of the cell cycle. Cdc2/cycB regulates this transition. During G2, Cdc2 is inactivated by Wee1 and Mt1 kinases. Activation of Cdc25 phosphatase activates Cdc2. If genome damage has occurred, activated DNA-PK/ATM/ATR kinases inactivate Cdc2/cycB by two channels. First, Cdc25 is inactivated by CHK kinases. Second, phosphorylated p53 dissociates from MDM2, is acetylated by p300/PCAF, binds DNA, and activates transcription of genes that inhibit Cdc2/cyclin (14-3-3s, GADD45, and p21Cip1).