Mammalian Cdc14 dual specificity phosphatase regulates cell cycle progression

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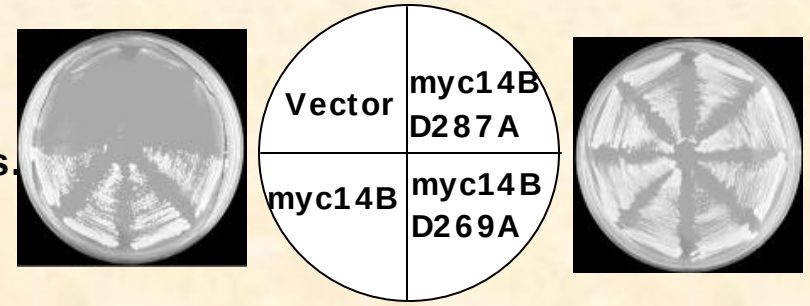
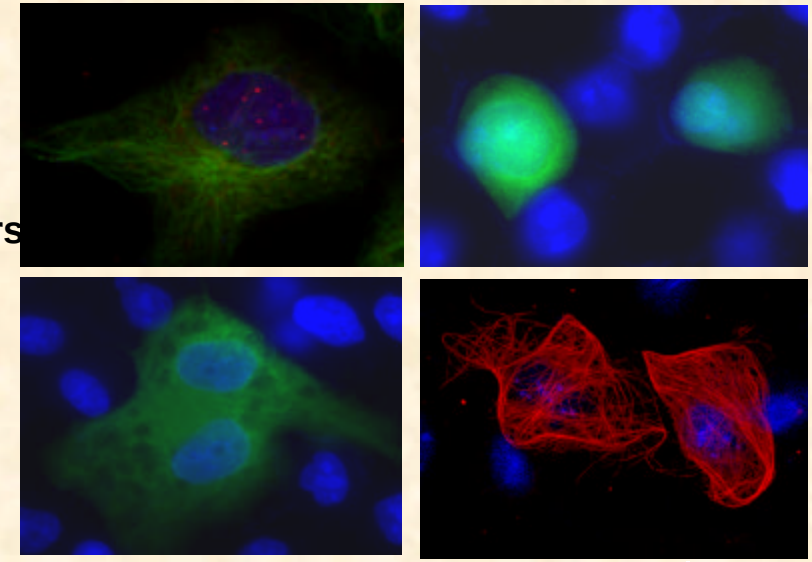
A common feature of cancer cells is their uncontrolled proliferation and survival. Mutations in genes that regulate cell cycle progression are often found in tumors and loss of cell cycle checkpoint control is involved in tumorigenesis. Discovering how mitosis and other coordinating events are controlled by protein phosphorylation is a major challenge in cancer research.



We have found mammalian wild-type cdc14 but not its catalytic dead mutant can complement yeast ts cdc14 mitotic exit defect. The phosphatase activity of cdc14 may be regulated by subcellular translocation. Site-directed mutagenesis and biochemical studies identified important domains for its function. Depletion of its function leads to failure of cell cycle progression. The study indicates that mutation or inactivation of cdc14 might lead to genomic instability. Potential substrates have been identified through mass spec. approach and are currently under investigation. Understanding key cell cycle regulators is pertinent to both cancer therapy and prevention.



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