Cyclin-B1: Key Player in G_2 to M Phase Transition

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Cyclins are a group of eukaryotic cellular proteins whose levels fluctuate through the course of the cell cycle. Cyclin B1 is a protein (enzyme) that is coded for by the *CCNB1* gene. It is also called the G2/mitotic-specific cyclin-B1 because it regulates the early stages in the mitotic phase of the cell cycle. Cyclin-B 1 combines with protein kinase called Cyclin dependent kinase 1(cdk1) to form an activated complex called Mitosis promoting factor (MPF). The formation of this complex is compulsory for the cell to start mitosis.The CyclinB1-Cdk1 complex is responsible for functions such as chromosomal condensation, dissolving the nuclear lamina, assembling the spindle pole and activation of anaphase-promoting complex (APC); latter when chromosomes are properly aligned i.e. metaphase- anaphase transition the same APC rapidly degrades the Cyclin B1 at, Cdk1on the other hand is recycled.
The goal of this project is to observe the cellular signals of Cyclin B1 in amphibian limb regeneration. The amputations were done on the hind limbs, through the mid tibia-fibula in the axolotls and mid-tarsus of stage-60 Xenopus. We used Immuno-fluorescence technique to stain the sections from axolotl and Xenopus laevis stage 60. Post limb amputation we treated the tissue sections at different time points from axolotl and xenopus with anti-Cyclin B1 antibody and measured the signal density under fluorescence microscope.

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