9-5-2013

Functional Morphology of Rat Hands and Feet: Correlation with the Ability to Grip Tree Branches During Locomotion

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Function of a novel checkpoint protein in the germ line

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Abstract

Successful reproduction of *Saccharomyces cerevisiae* relies on the organism's ability to complete the meiotic cell cycle and produce viable gametes. Zip1 is a protein that constitutes the central component of a protein structure that connects homologous chromosomes known as the synaptonemal complex. Zip1 is important for progression through the meiotic cell cycle. The C terminus of the coiled-coil Zip 1 protein is responsible for localization to the axes of the chromosomes. An internal deletion near the C terminus of Zip1, called zip1-c1, yields a stronger meiotic arrest than a mutation where Zip1 is completely deleted. The more efficient meiotic progression in a Zip1 deletion mutation versus the zip1-c1 mutant suggests that zip1-c1 prevents an alternative pathway of meiotic progression. A genomic screen of the Nasmyth genomic library revealed candidate plasmids N5 and N89 containing yeast genes which, when overexpressed, increase spore viability and bypass meiotic arrest in the zip1-c1 mutant. This has implications that the genes on the overexpression plasmids serve some function in correcting mistakes in meiosis when Zip1 is mutated.