

2007 Ohio Student Research Forum

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RESEARCH ABSTRACT FORM

TITLE: Protein Targeting to The Inner Nuclear Membrane: Possible Roles of The Spindle Pole Body Components, The ER Protein Ice2 and The NatC Acetyltransferase

AUTHOR: Gina King

MENTOR(S): Dr. Anita Hopper

DEPARTMENT: Department of Molecular Genetics

INSTITUTION: Ohio State University

The structural integrity of the inner and outer nuclear membrane is important for the well being of humans. Miss-targeted proteins can cause a variety of diseases involving the tissues of the heart, skeletal muscle, and tendons. Targeting proteins do not go to the inner nuclear membrane because of other mutations in the cell. This alters the structure and function of the nuclear membranes, which lead to the development of tissue diseases such as Emery-Dreifuss muscular dystrophy; Hutchinson-Gilford progeria syndrome; and dilated cardiomyopathy with conduction system disease.

This experiment was an attempt to study the mechanism of Trm1-II localization which is a tRNA methyltransferase found in eukaryotes and archaea. The possible roles of the spindle body components, the ER protein Ice2 and the NatC acetyltransferase were investigated using *Saccharomyces cerevisiae* as a model system. We have shown that it is possible to knock out the Ice2 gene in the Wild type cells. Future studies will concentrate on creating double mutants in the temperature sensitive mutants of this type.

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