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Sent: Tuesday, July 27, 2004 6:36 PM

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Subject: Abstract for Symposium

A COMPARATIVE STUDY OF A NUCLEAR AND MITOCHONDRIAL APOPTOSIS STAIN.

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Apoptosis is a common event in the development of varying systems in the body. Apoptotic endothelial cells of the postnatal rat eye are found during vascular regression. The Transformed Rat Eye Endothelial (TREE) cell line was developed as an in vitro model of vascular regression. When the TREE cell line is subjected to given a dose of camptothecin, apoptosis is induced. Two dyes, JC-1 and Hoechst stain were visualized in the fluorescent microscope for analysis of apoptosis. JC-1 indicates mitochondrial membrane potential by shifting its fluorescence emission from green to red due to "J aggregates" formed when JC-1 is concentrated in mitochondria. Mitochondria of living cells would stain red while mitochondria of apoptotic cells stain green. Hoechst stain stains the nuclei of living cells. Apoptotic cells showed condensed clumped chromatin patterns. This study compared both stains to see the number of apoptotic cells detected. Results showed JC-1, the mitochondrial staining agent, is more sensitive in revealing apoptotic cells than the Hoechst stain. Previous studies, however, suggests that mitochondrial permeability transition measured by JC-1 staining may occur reversibly without progressing to cell death. Future studies will test cell viability to investigate the validity of the Hoechst and JC-1 methods of detecting apoptotic cells.