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Student Conference Abstract

CREB in Pathogenesis of Mesothelioma

Abstract:

Malignant mesothelioma (MM) is an aggressive cancer which originates in the cells of the mesothelium, the protective lining that covers most of the body's internal organs. MM is poorly responsive to current therapeutic approaches and effective new strategies are desperately needed (Shukla et al.). cAMP response element binding protein (CREB) is a cellular transcription factor which has previously been linked to cell proliferation, fibrogenesis and cell transformation in other cancers (Shukla et al.). Shukla et al. have reported that there is constitutive activation of CREB in human MM tumors. Since PTEN has been previously proven to be a direct phosphatase of CREB, we decided to examine the levels of PTEN in various MM cell lines (Tingtin et al.). The purpose of this experiment was to understand if decreased PTEN levels were responsible for the constitutive activation of CREB in MMs. Eight MM cell lines were thawed and cultured, cellular protein content was extracted and collected via an RC/DC protein assay and PTEN protein expression was quantified via Western Blot for each MM line. Results did not show a significant decrease in PTEN expression in any of the MM cell lines except for the Hmeso line. These finding suggest that some other factor may be responsible for increased CREB activation in MM. We are also interested in understanding the role of CREB in cell cycle distribution, so we created stably inhibited MM CREB lines and are presently studying their cell cycle distribution with flow cytometry. These results will be presented at the research conference.

References

Shukla A, et al. Activated cAMP Response Element Binding Protein is Overexpressed in Human Mesotheliomas and Inhibits Apoptosis. The American Journal of Pathology. 2009; 175:2191-2199.

Tingting G, et al. CREB Is a Novel Nuclear Target of PTEN Phosphatase. American Association for Cancer Research. 2011; 71:2821-2825.