POSTER 34

AFFECTS OF THE INHIBITION OF MICRORNA REGULATORY MACHINERY IN LYMPHOMA CELLS

Autumn Han (M2)

(Lynda Bennett, PhD)

(Charles Caldwell, MD, PhD)
Department of Pathology and Anatomical Sciences

Introduction: MicroRNAs influence many processes such as development, cell proliferation and differentiation and cell death. MicroRNAs are intergrated into a complex called RISC with Argonatue proteins to target mRNAs. Recent studies are finding microRNAs to have a significant role in the pathogenesis of cancer cells.

The hypothesis is inhibiting the microRNA regulatory machinery in lymphoma cell lines (CLL, ALL, and follicular lymphoma) will lead to global alterations in regions of active chromatin.

Methods: First, three lymphoma cell lines (CLL, ALL, and follicular lymphoma) were transfected with siRNA that is specific for Argonaute 2. Then the cells were harvested at 48 hours and at 72 hours. RNAs were extracted from these cells. PCR was performed on all of the samples to obtain the degree of Argonaute 2 knockdown. Then the RNAs were run under microarray and microRNA array to be analyzed for the changes of genomic expressions.

Result: PCR amplication of RNA showed 18% knockdown of Argonaute 2 at 48 hours and 50% knockdown at 72 hours in ALL cell line. No knockdown at 48 hours and 30% knockdown of Argonaute 2 at 72 hours in CLL cell line. 62% and 60% of knockdown at 48 hours and 72 hours in follicular lymphoma cell line. Microarray data revealed no significant changes in genomic expression of the active chromatins.

Conclusion: Inhibition of microRNA did not lead to significant changes in genomic expression. This could be due to incomplete knockdown of Argonaute 2 within these cells, leaving some functional microRNA behind.