Dimerization Domain of SSRP1 as a Dominant Negative FACT Inhibitor

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FACT is a complex of 2 subunits: SSRP1 and SPT16. Both subunits are required to be present and associated with each other through their dimerization domain (DD) in order for FACT functionality and stability. FACT has been shown to play a critical role in cancer cell viability. Its chemical and genetic inhibition has proven to have anticancer efficacy. In this study the aim is to directly inhibit FACT in cancer cells using a dominant negative mutant of FACT, and to develop anti FACT as a novel anticancer therapy approach, in the future. The purpose of this experiment was to test the stability of FACT complex, and whether or not the DD (dimerization domain) of SSRP1 is cytotoxic as a dominant-negative FACT mutant. Through expressing recombinant DNA in vivo and protein measurement, we were able to conclude the following: Presence of SSRP1DD leads to a decrease in the expression of FACT subunits and which may cause the cytotoxic effects. To prove cell death was solely due to the introduction of SSRP1DD lentiviral transduction and drug treatment were used. Protein samples were then collected for western blot analysis to demonstrate that SSRP1DD works as a dominant-negative FACT mutant.

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