POSTER PRESENTATION ABSTRACTS | AUGUST 01 2025

Abstract P40: Ubiquitin specific peptidase 14 (USP-14) mediate oncogenesis in Cervical cancer by interacting and modulating activity of Monocarboxylate transporter 4 (MCT-4) FREE

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Abstract

Cervical cancer (CC) poses a significant challenge in term of therapeutic options in developing countries where HPV vaccine coverage is still low. In the current study we explored the Oncogenic network of Ubiquitin specific peptidase 14 (USP14) in context of CC. We did a TCGA data analysis on the available cohort of patient and found that elevated USP14 level correlated with reduced overall survival in CC patients and levels of USP14 were also found to be elevated, USP14 level were also found to be elevated in panel of CC cell lines (HeLa, SiHa, CaSki) as compared in to non-transformed cells (MCF10A) demonstrating that USP14 correlate with cellular oncogenic transformation, Furthermore reduction in USP14 using SiRNA leads to reduced survival in CC cells. We did a comparative proteomic analysis of CC cells in which USP14 was overexpressed as well as depleted, Many known target of USP14 were identified in this analysis along with a new target monocarboxylate transporter 4 (MCT-4) which is involved in cellular lactate transportation. It was further seen that reduction in USP14 level leads to reduced MCT-4 level and USP14 activity correlates with stability of MCT-4. USP14 physically interacted with MCT-4 as seen in immunoprecipitation experiments and possibly mediated deubiquitination of MCT-4. All of the interaction of USP14 with MCT-4 were further studied using molecular dynamic studies which identified distinct sites for the interaction of these proteins. We further

insight in to the oncogenic network of USP14 by identification of its novel interacting partner thereby tying activity of USP14 to tumor metabolism.

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