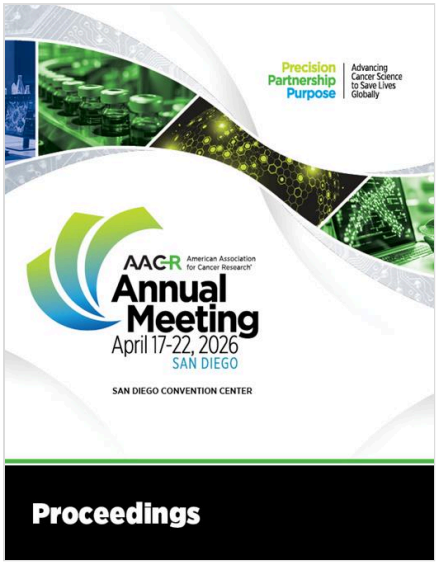
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Abstract

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Abstract 589: Ubiquitin specific peptidase 37 (USP37) facilitate Replication stress tolerance to promote prostate cancer oncogenesis. FREE

Suraja Kumar Das; Lakshay Malhotra; Gunjan Dagar; Teena Haritwal; Atul Batra; Ajaz A. Bhat; Mayank Singh

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Abstract

Several reports have suggested that the DUBs (Deubiquitinating enzymes) are highly-elevated in various cancers, Reverses the process of ubiquitination and are responsible for stabilization of oncoproteins. Among DUBs, Ubiquitin-specific peptidase 37 (USP37) is one of the least studied member of the Ubiquitin specific protease family. USP37 controls numerous aspects of oncogenesis, including stabilizing many oncoproteins as reported in our recent studies. Prostate cancer (PC) is the most common cancer diagnosis made in men remains the leading cause of cancer death in men. However, the biological functions of USP37 in prostate cancer remain unclear. Analysis of TCGA data indicated that overexpression of USP37 correlated with reduced progression free survival (PFS) in prostate cancer patients. Mass spectrometry

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its depletion enhances sensitivity for cell killing in PC cells. USP37 overexpressing cells were able to resolve DNA damage foci much more rapidly than the control cells or cells in which USP37 was depleted in response to genotoxic stress. USP37 depletion results in reduced resolution of γ H2AX and 53BP1 DNA damage foci which indicates the reduced ability of cells to carry out constitutive DNA replication. USP37 was found to interact with different replication factors as also seen in our MS analysis including many previously reported partners. We further correlated our data with archived tissue blocks of PC patients by analyzing if USP37 overexpression correlated with disease progression. Present data suggests that USP37 is required for tolerance of replication stress in PC and is required to dock additional replication factors and stabilize DNA replication fork. The current data provides novel pathways regulated by USP37 in PC cells which reinforce development of targeting strategies against USP37 in context of Prostate Cancer.

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