

# Regulation of protein translation and c-Jun expression by prostate tumor overexpressed 1

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Prostate tumor overexpressed-1 (PTOV1), a modulator of the Mediator transcriptional regulatory complex, is expressed at high levels in prostate cancer and other neoplasias in association with a more aggressive disease. Here we show that PTOV1 interacts directly with receptor of activated protein C kinase 1 (RACK1), a regulator of protein kinase C and Jun signaling and also a component of the 40S ribosome. Consistent with this interaction, PTOV1 was associated with ribosomes and its overexpression promoted global protein synthesis in prostate cancer cells and COS-7 fibroblasts in a mTORC1-dependent manner. Transfection of ectopic PTOV1 enhanced the expression of c-Jun protein without affecting the levels of c-Jun or RACK1 mRNA. Conversely,

knockdown of PTOV1 caused significant declines in global protein synthesis and c-Jun protein levels. High levels of PTOV1 stimulated the motility and invasiveness of prostate cancer cells, which required c-Jun, whereas knockdown of PTOV1 strongly inhi