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Mechanism of phosphorylation of STBP-1

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STBP-1 protein is ubiquitously expressed, mainly localized in the cell nucleus; however, little is known about the biological functions and mechanisms of action. We have been revealed STBP-1 affect cytokine-induced gene expression in HepG2 cells.

In this study, we further studied the regulatory mechanism of STBP-1. Upon stimulation of cytokines that activate NFkB signaling, STBP-1 was phosphorylated within 10 min and reached a plateau at 30 min, then decreased phosphorylation by 90 min. We identified a newly phosphorylation site in the STBP-1 protein. Stable knockdown of STBP-1 by RNA interference in HepG2 cells resulted in decreased cytokine-driven gene expression. Mutation of phosphorylation site to alanine revealed that significantly reduced the cytokine-induced expression of cxcl8 mRNA. Using kinase inhibitor panel, we identified possible kinases which are responsible for phosphorylation of STBP-1. Over expression of dominant-negative form of putative kinases caused decreased phosphorylation level of STBP-1. Furthermore, we generated antibodies raised against phospho-STBP-1 containing peptides. We will discuss how STBP-1 functions are regulated by candidate STBP-1 kinases.