

## BACKGROUND

Signal transducers and activators of transcription (STATs) comprise a unique family of transcription factors that transmit the interactions of cytokines, hormones, and growth factors with their cell surface receptors into transcriptional programs. The mechanism of STAT activation has been well-established and comprises tyrosine phosphorylation, dimerization, nuclear translocation, binding to specific DNA response elements, recruitment of co-activators or co-repressors, and transcriptional induction or repression of target genes.<sup>1</sup>

STAT3, a member of STAT family, has been known as a mediator for gene expression induced by many important cytokines and growth factors.<sup>2</sup> It plays diversified roles from cell growth, differentiation, apoptosis, oncogenesis, and stem cell renewal regulations. Stat3 is constitutively activated in many human cancers where it functions as a critical mediator of oncogenic signaling.<sup>3</sup> Thus Stat3 is also a target for cancer therapy.

Activation of STAT3 is triggered by phosphorylation of Tyr705 in its Src homology 2 domain, resulting in dimerization, nuclear translocation, and transcriptional activation of target genes. Additionally, phosphorylation of STAT3 on Ser727, situated in the C-terminal transactivation domain, results in enhanced transcriptional activation and DNA binding capacity. Various kinases have been shown to phosphorylate STAT3 on Ser727, depending on the cytokines and growth factors involved and the cellular context.<sup>4</sup>

### References:

1. Desrivieres S et al.: J Mammary Gland Biol Neoplasia. 11:75 (2006).
2. Fu XY: Cell Res. 16:214 (2006).
3. Jing N & Tweardy DJ: Anticancer Drugs. 16:601 (2005).
4. Plaza-Menacho I et al.: J. Biol. Chem. 282:6415-24 (2007).

## TECHNICAL INFORMATION

### Source:

Phospho-Stat3 (Ser727) antibody is a rabbit antibody raised against a short peptide from human Stat3 sequence surrounding and containing phosphor-Ser727.

### Specificity and Sensitivity:

This antibody detects endogenous phosphorylated Stat3 (Ser727) proteins without cross-reactivity with other family members.

**Storage Buffer** Rabbit IgG in phosphate buffered saline (without Mg<sup>2+</sup> and Ca<sup>2+</sup>), pH 7.4, 150mM NaCl, 0.02% sodium azide and 50% glycerol.

### Storage:

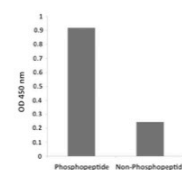
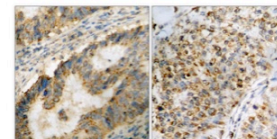
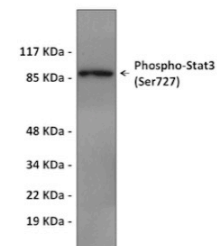
Store at -20°C for at least one year. Store at 4°C for frequent use. Avoid repeated freeze-thaw cycles.

## APPLICATIONS

Application:	*Dilution:
WB	1:500-1:1000
IP	1:200
IHC	1:50-1:100
ICC	n/d
FACS	n/d
ELISA	1:10000

*\*Optimal dilutions must be determined by end user.*

## QUALITY CONTROL DATA



**Top:** Western blot analysis of extracts from COS-7 cells.

**Middle:** Immunohistochemistry analysis of paraffin-embedded Human colon carcinoma (left) and Human kidney carcinoma (right).

**Bottom:** ELISA for Immunogen Phosphopeptide (left) and Non-Phosphopeptide (right).

