SSX2 Antibody

Cat. No. CA1235

Applications:	**WB, IHC**
Detected MW:	**25 kDa**
Species & Reactivity:	**Human, Mouse, Rat**
Isotype:	**Rabbit IgG**

BACKGROUND

SSX2 belongs to the family of highly homologous synovial sarcoma X (SSX) breakpoint proteins.
The *SSX* gene family is composed of at least 9 functional and highly homologous members and shown to be located on chromosome X. The normal testis expresses *SSX1*, *2*, *3*, *4*, *5*, and *7*, but not *6*, *8*, or *9*. In tumors, *SSX1*, *2*, and *4* are expressed at varying frequencies, whereas *SSX3*, *5*, and *6* are rarely expressed. In addition, no expression of *SSX8*, or *9* has been observed. *SSX1* to *SSX5* are also normally expressed in thyroid.[1] The *SSX* family shares nucleotide homology ranging from 88% to 95%, and amino acid homology ranging from 77% to 91%. The NH_2-terminal moieties of the SSX proteins exhibit homology to the Krüppel-associated box (KRAB) domain, a domain that is known to be involved in transcriptional repression. Considerably stronger transcriptional repression was exerted by the highly acidic COOH-terminal 34 amino acids of SSX. Therefore, this sequence was designated SSX repression domain. The SSX proteins are localized in the nucleus, being distributed both diffusely and in nuclear speckles. These speckles were found to also harbor several polycomb group (PcG) proteins, i.e., HPC2, BMI1, and RING1. PcG proteins form multimeric protein complexes that induce the repression of target genes through modulation of chromatin structures. SSX1, SSX2 and SSX4 genes have been involved in the t(X;18) translocation characteristically found in all synovial sarcomas. This translocation results in the fusion of the synovial sarcoma translocation (SYT) gene on chromosome 18 to one of the SSX genes on chromosome X. The resulting chimeric product, *SYT-SSX*, generates a fusion protein derived from both genes. The t(X;18)(p11;q11) rearrangement is detected in greater than 95% of synovial sarcoma tumors and is thought to play a crucial role in the genesis and progression of this cancer.[2] The oncogenic capacity of SYT-SSX2 was demonstrated in a transgenic mouse model whereby SYT-SSX2, expressed in *Myf5* lineage myoblasts, generated synovial sarcoma-like tumors with 100% penetrance. It was also shown that SYT-SSX2 disrupted cellular positioning by remodeling the cytoskeleton and altering both cytoarchitecture and microtubule stability. The former was caused by activation of the ephrin pathway. Moreover, it was demonstrated that the SYT-SSX2 fusion protein interacts with the polycomb repressive complex and modulates its gene silencing activity. SYT-SSX2 causes destabilization of the polycomb subunit Bmi1, resulting in impairment of polycomb-associated histone H2A ubiquitination and reactivation of polycomb target genes.[3] In addition, the *SSX1, SSX2, SSX4,* and *SSX5* genes were found to be aberrantly expressed in several other malignancies. Furthermore, SSX proteins are also capable of eliciting spontaneously humoral and cellular immune responses in cancer patients, and are potentially useful targets in cancer vaccine-based immunotherapy.[4] Two transcript variants encoding distinct isoforms have been identified for SSX2 gene. SSX2 is thought to function in development and germ line cells as a repressive gene regulator. Its control of gene expression is believed to be epigenetic in nature and to involve chromatin modification and remodeling. It is most likely mediated by the association of SSX2 with the Polycomb gene silencing complex at the SSXRD domain. Polycomb silencing involves chromatin compaction, DNA methylation, repressive histone modifications and inaccessibility of promoter regions to transcription machineries. Other SSX2-interacting partners include the LIM homeobox protein LHX4, a Ras-like GTPase Interactor, RAB3IP thought to be involved in vesicular transport, and SSX2IP, a putative cell cycle/circadian rhythm regulator.

References:

1. Gure, A.O. et al: Int. J. Cancer 72: 965-71,1997
2. Fligman, I. et al: Am. J. Pathol.147: 1592-1599, 1995
3. Barco, R. et al: PloS ONE 4:e5060, 2009
4. Atanackovic, D. et al: Blood 109:1103-12, 2007

TECHNICAL INFORMATION

Source:
SSX2 Antibody is a rabbit antibody raised against a short peptide from human SSX2 sequence.

Specificity and Sensitivity:
This antibody detects endogenous levels of SSX2 proteins without cross-reactivity with other related proteins.

Storage Buffer: PBS and 30% 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	1:1000
IP	n/d
IHC	1:50-200
ICC	n/d
FACS	n/d

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

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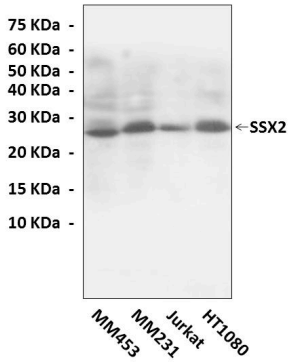
QUALITY CONTROL DATA



Western Blot detection of SSX2 proteins various cell lysates using SSX2 Antibody.