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FOXP3 (Forkhead Box Protein P3) / Scurfin Antibody - With BSA and Azide

Mouse Monoclonal Antibody [Clone SPM579]
Catalog # AH10649

Product Information

Application	IF, FC, IHC-P
Primary Accession	Q9BZS1
Other Accession	50943, 247700
Reactivity	Human, Mouse, Monkey
Host	Mouse
Clonality	Monoclonal
Isotype	Mouse / IgG1, kappa
Clone Names	SPM579
Calculated MW	47244

Additional Information

Gene ID	50943
Other Names	Forkhead box protein P3, Scurfin, FOXP3, IPEX
Application Note	IF~~1:50~200 FC~~1:10~50 IHC-P~~N/A
Format	200ug/ml of Ab purified from Bioreactor Concentrate by Protein A/G. Prepared in 10mM PBS with 0.05% BSA & 0.05% azide. Also available WITHOUT BSA & azide at 1.0mg/ml.
Storage	Store at 2 to 8°C.Antibody is stable for 24 months.
Precautions	FOXP3 (Forkhead Box Protein P3) / Scurfin Antibody - With BSA and Azide is for research use only and not for use in diagnostic or therapeutic procedures.

Protein Information

Name	FOXP3
Synonyms	IPEX
Function	Transcriptional regulator which is crucial for the development and inhibitory function of regulatory T-cells (Treg) (PubMed:17377532, PubMed:21458306, PubMed:23947341, PubMed:24354325, PubMed:24722479, PubMed:24835996, PubMed:30513302, PubMed:32644293). Plays an essential role in maintaining homeostasis of the immune system by allowing the acquisition of full suppressive function and stability of the Treg lineage, and by directly modulating the expansion and function of conventional T-cells

(PubMed:23169781). Can act either as a transcriptional repressor or a transcriptional activator depending on its interactions with other transcription factors, histone acetylases and deacetylases (PubMed:17377532, PubMed:21458306, PubMed:23947341, PubMed:24354325, PubMed:24722479). The suppressive activity of Treg involves the coordinate activation of many genes, including CTLA4 and TNFRSF18 by FOXP3 along with repression of genes encoding cytokines such as interleukin-2 (IL2) and interferon-gamma (IFNG) (PubMed:17377532, PubMed:21458306, PubMed:23947341, PubMed:24354325, PubMed:24722479). Inhibits cytokine production and T-cell effector function by repressing the activity of two key transcription factors, RELA and NFATC2 (PubMed:15790681). Mediates transcriptional repression of IL2 via its association with histone acetylase KAT5 and histone deacetylase HDAC7 (PubMed:17360565). Can activate the expression of TNFRSF18, IL2RA and CTLA4 and repress the expression of IL2 and IFNG via its association with transcription factor RUNX1 (PubMed:17377532). Inhibits the differentiation of IL17 producing helper T-cells (Th17) by antagonizing RORC function, leading to down-regulation of IL17 expression, favoring Treg development (PubMed:18368049). Inhibits the transcriptional activator activity of RORA (PubMed:18354202). Can repress the expression of IL2 and IFNG via its association with transcription factor IKZF4 (By similarity).

Cellular Location

Nucleus {ECO:0000255|PROSITE-ProRule:PRU00089, ECO:0000269|PubMed:17360565, ECO:0000269|PubMed:18354202, ECO:0000269|PubMed:22678915, ECO:0000269|PubMed:23396208, ECO:0000269|PubMed:23973222, ECO:0000269|PubMed:23973223, ECO:0000269|PubMed:32644293}. Cytoplasm Note=Predominantly expressed in the cytoplasm in activated conventional T-cells whereas predominantly expressed in the nucleus in regulatory T- cells (Treg). The 41 kDa form derived by proteolytic processing is found exclusively in the chromatin fraction of activated Treg cells (By similarity). {ECO:0000250|UniProtKB:Q99JB6, ECO:0000269|PubMed:22678915}

Background

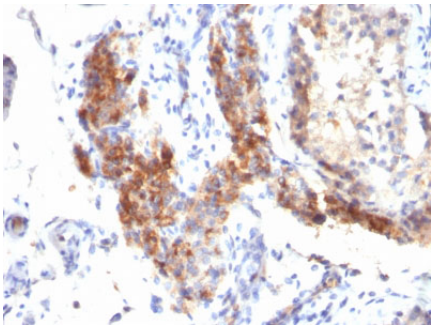
Recognizes a protein of 47-55kDa, which is identified as FOXP3. Its precise epitope is not known, but it has been mapped to the N-terminal portion of the protein. The FOX family of transcription factors is a large group of proteins that share a common DNA binding domain termed a winged-helix or forkhead domain. During early development, FOXP1 and FOXP2 are expressed abundantly in the lung, with lower levels of expression in neural, intestinal and cardiovascular tissues, where they act as transcription repressors. FOXP1 is widely expressed in adult tissues, while neoplastic cells often exhibit a dramatic change in expression level or localization of FOXP1. Mutations in FOXP3 gene cause IPEX, a fatal, X-linked inherited disorder characterized by immune dysregulation. The FOXP3 protein is essential for normal immune homeostasis. Specifically, FOXP3 represses transcription through a DNA binding forkhead domain, thereby regulating T cell activation.

References

Schubert, L.A., et al. 2001. Scurfin (FOXP3) acts as a repressor of transcription and regulates T cell activation. J. Biol. Chem. 276: 37672-37679

Images

Formalin-fixed, paraffin-embedded human Testicular Carcinoma stained with FOXP3 Monoclonal Antibody (SPM579).



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