Revision 1

Store at -20C

#13285

Sara (D5X4F) Rabbit mAb

Cell Signaling TECHNOLOGY®

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Applications:	Reactivity:	Sensitivity:	MW (kDa):	Source/Isotype:	UniProt ID:	Entrez-Gene Id:
W, IP	H	Endogenous	190, 210	Rabbit IgG	#O95405	9372

Product Usage Information

Application	Dilution
Western Blotting	1:1000
Immunoprecipitation	1:100

Storage

Supplied in 10 mM sodium HEPES (pH 7.5), 150 mM NaCl, 100 µg/ml BSA, 50% glycerol and less than 0.02% sodium azide. Store at –20°C. Do not aliquot the antibody.

Specificity/Sensitivity

Sara (D5X4F) Rabbit mAb recognizes endogenous levels of total Sara protein. This antibody also recognizes a non-specific band of unknown origin at 50 kDa.

Source / Purification

Monoclonal antibody is produced by immunizing animals with a synthetic peptide corresponding to residues surrounding Val488 of human Sara protein.

Background

The Smad anchor for receptor activation (SARA, ZFYVE9) protein is an FYVE domain-containing protein originally identified as a regulator of TGF-β signaling (1). FYVE domains are zinc finger-like domains that bind to phosphatidylinositol 3-phosphate and are responsible for endosomal trafficking (2). While the role of Sara in TGF-β signaling has been questioned (3,4), early research studies demonstrate that Sara enhances TGF-β signaling by binding and recruiting non-activated Smad2 and Smad3 to the TGF-β receptor complex (1). Upon Smad2 activation, Sara dissociates from the complex while phosphorylated Smad2/3 translocates to the nucleus to bind to the common Smad, Smad4. Sara can also function as an anchor for the protein phosphatase 1 (PP1c) catalytic subunit, which is involved in the Smad7-mediated dephosphorylation of TGF-β type I receptor (5,6). Additional research studies show that expression of Sara plays a critical role in maintenance of the epithelial cell phenotype and that expression is regulated during the epithelial-to-mesenchymal transition (EMT) and fibrosis (7,8).

Background References

1. Tsukazaki, T. et al. (1998) *Cell* 95, 779-91.
2. Itoh, F. et al. (2002) *Genes Cells* 7, 321-31.
3. Bakkebø, M. et al. (2012) *FEBS Lett* 586, 3367-72.
4. Goto, D. et al. (2001) *Biochem Biophys Res Commun* 281, 1100-5.
5. Bennett, D. and Alphey, L. (2002) *Nat Genet* 31, 419-23.
6. Shi, W. et al. (2004) *J Cell Biol* 164, 291-300.
7. Runyan, C.E. et al. (2009) *J Biol Chem* 284, 25181-9.
8. Zhao, B.M. and Hoffmann, F.M. (2006) *Mol Biol Cell* 17, 3819-31.

Species Reactivity

Species reactivity is determined by testing in at least one approved application (e.g., western blot).

Western Blot Buffer

IMPORTANT: For western blots, incubate membrane with diluted primary antibody in 5% w/v BSA, 1X TBS, 0.1% Tween® 20 at 4°C with gentle shaking, overnight.

Applications Key

W: Western Blotting **IP:** Immunoprecipitation

Cross-Reactivity Key

H: Human

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Limited Uses

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