Revision 1

Store at -20C

#25009

Phospho-SF3B1 (Thr313) (D8D8V) Rabbit mAb

Cell Signaling TECHNOLOGY®

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Applications:	Reactivity:	Sensitivity:	MW (kDa):	Source/Isotype:	UniProt ID:	Entrez-Gene Id:
W	H M	Endogenous	155	Rabbit IgG	#O75533	23451

Product Usage Information

Application	Dilution
Western Blotting	1:1000

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

Phospho-SF3B1 (Thr313) (D8D8V) Rabbit mAb recognizes endogenous levels of SF3B1 protein only when phosphorylated at Thr313.

Species predicted to react based on 100% sequence homology

Hamster, Xenopus, Zebrafish

Source / Purification

Monoclonal antibody is produced by immunizing animals with a synthetic peptide corresponding to residues surrounding Thr313 of human SF3B1 protein.

Background

Splicing factor 3b subunit 1 (SF3B1) is an integral component of the U2 small nuclear ribonucleoprotein (U2 snRNP) and plays an important role in the splicing of pre-mRNA that involves the removal of introns and the joining of exons to form mature mRNA (1-3). The assembly and proper recognition of splice sites are driven by sequences at the pre-mRNA intron-exon splice sites. The 5′ splice donor site is recognized by the U1 snRNP complex, while U2 snRNP binds to the 3′ splice site (branch point), ensuring the anchoring of the spliceosome machinery at the splice sites (3,4). Recent whole exome sequencing studies have demonstrated a high incidence of somatic mutations of *SF3B1* in patients with various hematological malignancies such as chronic lymphocytic leukemia and myelodysplastic syndromes (2,3,5,6). Misregulation of pre-mRNA splicing arising from mutations of the spliceosome components such as SF3B1 is thought to contribute to changes in the expression patterns of key proteins that are involved in pathways such as cell cycle progression, cell death, and cancer metabolism (2,3).
Phosphorylation of SF3B1 at Thr313 is only found in catalytically active spliceosomes and associates mainly with chromatin, where about 80% of pre-mRNA splicing occurs. Treatment with a transcription inhibitor 5,6-dichloro-1-β-d-ribofuranosylbenzimidazole (DRB) leads to a decreased supply of pre-mRNA, resulting in the loss of phospho-SF3B1 (Thr313), consistent with its association with active splicing (7).

Background References

1. Jurica, M.S. and Moore, M.J. (2003) *Mol Cell* 12, 5-14.
2. Cazzola, M. et al. (2013) *Blood* 121, 260-9.
3. Bonnal, S. et al. (2012) *Nat Rev Drug Discov* 11, 847-59.
4. Gozani, O. et al. (1998) *Mol Cell Biol* 18, 4752-60.
5. Quesada, V. et al. (2012) *Nat Genet* 44, 47-52.
6. Baliakas, P. et al. (2015) *Leukemia* 29, 329-36.
7. Girard, C. et al. (2012) *Nat Commun* 3, 994.

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 nonfat dry milk, 1X TBS, 0.1% Tween® 20 at 4°C with gentle shaking, overnight.

Applications Key

W: Western Blotting

Cross-Reactivity Key

H: Human **M:** Mouse

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