Revision 3

Store at -20C

#74829

Histone H3 (K27M Mutant Specific) (D3B5T) Rabbit mAb

Cell Signaling TECHNOLOGY®

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For Research Use Only. Not for Use in Diagnostic Procedures.

Applications:	Reactivity:	Sensitivity:	MW (kDa):	Source/Isotype:	UniProt ID:	Entrez-Gene Id:
W, IF-IC, FC-FP	H M	Endogenous	17	Rabbit IgG	#P84243	3020

Product Usage Information

Application	Dilution
Western Blotting	1:1000
Immunofluorescence (Immunocytochemistry)	1:1600
Flow Cytometry (Fixed/Permeabilized)	1:400 - 1:1600

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.

For a carrier free (BSA and azide free) version of this product see product #10376.

Specificity/Sensitivity

Histone H3 (K27M Mutant Specific) (D3B5T) Rabbit mAb recognizes endogenous levels of K27M mutant histone H3.1, H3.2, and H3.3 proteins. The antibody may cross-react with wild-type histone H3.1, 3.2, and 3.3 when used at a high concentration. Careful titration of this antibody may be required to obtain optimal specificity.

Species predicted to react based on 100% sequence homology

Rat, Xenopus, Pig

Source / Purification

Monoclonal antibody is produced by immunizing animals with a synthetic peptide corresponding to K27M mutant sequence of human histone H3.3 protein.

Background

Diffuse intrinsic pontine glioma (DIPG) is an aggressive brainstem astrocyte tumor arising mostly in children, leading to a long-term survival rate of less than 10%. Multiple whole-genome sequencing studies of DIPG patients identified commonly occurring mutations in the H3F3A gene encoding histone H3.3. One of these mutations, a lysine to methionine amino acid substitution (K27M), is found in up to 78% of DIPGs and 22% of non-brainstem pediatric gliomas (1-3). This mutation is associated with poor prognosis, with a mean survival time of 0.73 years for patients with the K27M mutation versus 4.6 years for patients without the mutation (1-3). Expression of the K27M mutant histone H3 is accompanied by a dramatic reduction in the levels of polycomb repressive complex 2 (PRC2)-mediated trimethylation of histone H3, changes in the distribution of PRC2 on the genome, and altered expression of genes associated with various cancer pathways (4-6).

Background References

1. Wu, G. et al. (2012) *Nat Genet* 44, 251-3.
2. Schwartzentruber, J. et al. (2012) *Nature* 482, 226-31.
3. Khuong-Quang, D.A. et al. (2012) *Acta Neuropathol* 124, 439-47.
4. Chan, K.M. et al. (2013) *Genes Dev* 27, 985-90.
5. Lewis, P.W. et al. (2013) *Science* 340, 857-61.
6. Piunti, A. et al. (2017) *Nat Med* 23, 493-500.

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 **IF-IC:** Immunofluorescence (Immunocytochemistry) **FC-FP:** Flow Cytometry (Fixed/Permeabilized)

Cross-Reactivity Key

H: Human **M:** Mouse

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