

Recombinant Histone H3.3 (K36M)

Catalog No: 31553, 31953

Expressed In: *E. coli*

Quantity: 100 µg

Concentration: 1 µg/µl

Source: Human

Buffer Contents: Recombinant Histone H3.3 (K36M) is supplied in 50 mM Tris pH 8.0, 150 mM NaCl, 5% glycerol. Please refer to product insert upon arrival for lot-specific concentration.

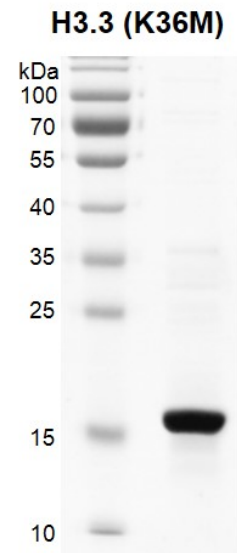
Background: Histone H3 is one of the core components of the nucleosome. The nucleosome is the smallest subunit of chromatin and consists of 146 base pairs of DNA wrapped around an octamer of core histone proteins (two each of H2A, H2B, H3 and H4). Histone H1 is a linker protein, present at the interface between the nucleosome core and DNA entry/exit points. Histone H3.1 and Histone H3.3 are the two main Histone H3 variants found in plants and animals. They are known to be important for gene regulation. Histone H3.1 and H3.3 have been shown to demonstrate unique genomic localization patterns thought to be associated with their specific functions in regulation of gene activity. Specifically, Histone H3.1 localization is found to coincide with genomic regions containing chromatin repressive marks (H3K9me3, H3K27me3 and DNA methylation), whereas Histone H3.3 primarily colocalizes with marks associated with gene activation (H3K4me3, H2BK120ub1, and RNA pol II occupancy). Deposition of the Histone H3.1 variant into the nucleosome correlates with the canonical DNA synthesis-dependent deposition pathway, whereas Histone H3.3 primarily serves as the replacement Histone H3 variant outside of S-phase, such as during gene transcription. Histone H3.3 point mutations (K27 and G34) are present in 1/3 of pediatric glioblastomas. Up to 78% of diffuse intrinsic pontine gliomas (DIPGs) carries K27M and 36% of non-brainstem gliomas carries either K27M or G34R/V mutations. More than 90% of chondroblastomas contain a heterozygous mutation replacing lysine-36 with methionine-36 (K36M) in the histone H3 variant H3.3. H3K36 methylation is reduced globally in human chondroblastomas and in chondrocytes harboring the same genetic mutation, due to inhibition of at least two H3K36 methyltransferases, MMSET and SETD2, by the H3.3K36M mutant proteins.

Protein Details: Recombinant Histone H3.3 (K36M) was expressed in *E. coli* cells as full length protein (accession number: NP_002098.1) with a point mutation Lys36Met and has an observed molecular weight of 15.4 kDa. The recombinant histone H3.3 (K36M) is >85% pure by SDS-PAGE.

Application Notes: Recombinant Histone H3.3 (K36M) is suitable for use as substrate for histone modification enzymes, or to generate chromatin *in vitro*.

Storage and Guarantee: Recombinant proteins in solution are temperature sensitive and must be stored at -80°C to prevent degradation. Avoid repeated freeze/thaw cycles and keep on ice when not in storage. This product is guaranteed for 6 months from date of receipt.

This product is for research use only and is not for use in diagnostic procedures.



Recombinant Histone H3.3 (K27M) gel. Histone H3.3 (K27M) was run on an 12% SDS-PAGE gel and stained with Coomassie Blue. The purity of Histone H3.3 (K27M): ≥ 85%