

## Recombinant Histone H3.1 (K4I)

**Catalog No:** 81228, 81928

**Expressed In:** *E. coli*

**Quantity:** 100, 1000 µg

**Concentration:** 1.2 µg/µl

**Source:** Human

**Buffer Contents:** Recombinant Histone H3.1 (K4I) is supplied in 25 mM Tris-HCl pH 7.4, 150 mM NaCl, and 10% glycerol.

**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). Deposition of the Histone H3.1 variant into the nucleosome correlates with the canonical DNA synthesis-dependent deposition pathway.

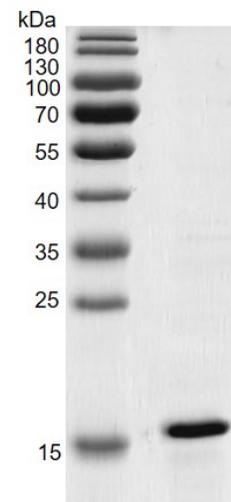
Histones are linked to tumorigenesis primarily through alterations in their PTMs and the enzymes regulating these modifications, suggesting that they might disrupt the reading, writing, and/or erasing of these marks. Mutations in histone H3 occur with high genetic penetrance within rare paediatric gliomas and sarcomas. In H3 variants, the mutation is most often a lysine-to-methionine (K-M) mutation, occasionally glycine mutations (G34R/V/W/L) occur too. According to researchers, mutations at H3K4: out of a total of 9 mutations at this site, 8 were a K4M/I substitution. More K-to-M/I mutations were observed, raising the possibility that the functional effects associated with known K-to-M/I changes (that is, function in a dominant fashion to block the methylation of corresponding lysines on wild type histones) may extend to additional contexts.

**Protein Details:** Recombinant Histone H3.1 (K4I) was expressed in *E. coli* cells as full length protein (accession number: NP\_003520.1) with a point mutation Lys4Ile and has an observed molecular weight of 15.4 kDa.

**Application Notes:** This product was manufactured as described in Protein Details. Where possible, Active Motif has developed functional or activity assays for recombinant proteins. Additional characterization such as enzyme kinetic activity assays, inhibitor screening or other biological activity assays may not have been performed for every product. All available data this product is shown.

**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 for research use only and is not for use in diagnostic procedures. This product is guaranteed for 6 months from date of arrival.

### Histone H3.1 (K4I)



**Recombinant Histone H3.1 (K4I) gel**  
12.5% SDS-PAGE gel with Coomassie blue staining  
MW: 15.4 kDa  
Purity: >90%