Recombinant Histone H3K27me1 (MLA)

Catalog No: 31214
Expressed In: *E. coli*

Quantity: 50 µg
Source: Xenopus

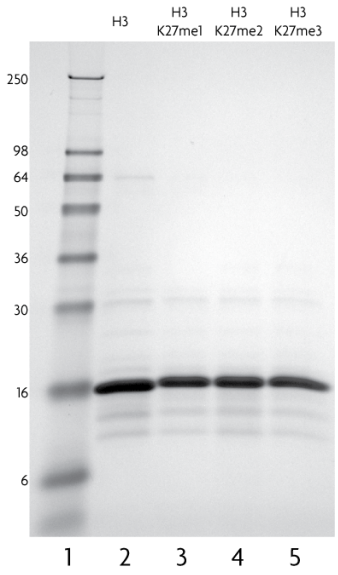
Methylated Lysine Analog: Recombinant Histone H3K27me1 (MLA) has been generated using the patented Methylated Lysine Analog (MLA) technology. In MLA, methylated histones are generated via a chemical alkylation reaction that substitutes a methylated analog of lysine, aminoethylcysteine, for the existing lysine at the desired residue. Aminoethylcysteine is structurally and chemically similar to lysine, though it contains a sulfide substitution in place of the lysine ϒ-methylene. The MLA technique provides precise control over the site and degree of methylation. The MLA technology is covered under U.S. Patent No. 8,278,112.

Buffer Contents: 50 µg supplied as lyophilized powder. Recombinant histones can be resuspended in water or any suitable buffer. We recommend a starting concentration of 1 mg/ml. To fully solubilize the histone we suggest resuspension in the buffer of choice at room temperature for 20-30 minutes with occasional pipetting. Addition of salt or Tris to the resuspension buffer may enhance histone solubility.

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.

Protein Details: Recombinant *Xenopus laevis* Histone H3 monomethyl Lys27 (H3K27me1) is produced in *E. coli* and purified using FPLC. The protein contains a substitution of cysteine to alanine at amino acid 110. Recombinant methylated histones are specifically methylated via a chemical alkylation reaction that introduces a methyl lysine analog (MLA). This specific chemical treatment enables the site and degree of methylation to be controlled precisely. Each methylation reaction is over 99% complete, as verified by high-resolution ESI-TOF mass spectrometry. Protein concentration was determined using the molar extinction coefficient for Histone H3 and absorbance at 280nm. The recombinant histone is >98% pure by SDS-PAGE. The molecular weight of the recombinant histone is 15,271 Daltons.

Application Notes: Recombinant histones are suitable for use as positive controls in the analysis of histone post-translational modifications, as substrates for histone modification enzymes, or to generate chromatin *in vitro*.



Recombinant Histone H3 monomethyl Lys27 analyzed by SDS-PAGE gel. SDS-PAGE analysis of 1.5 µg Recombinant Histone H3 (C110A) (lane 2), Recombinant Histone H3 monomethyl Lys27 (lane 3), Recombinant Histone H3 dimethyl Lys27 (lane 4), and Recombinant Histone H3 trimethyl Lys27 (lane 5). Molecular weight marker is in lane 1.

References:

This product was used in the following publications:

Shen, X., *et. al.* (2009). *Cell.* 139(7):1303-14. PMID: 20064376.
Ott, H.M.., *et. al.* (2014). *Mol. Cancer Ther.* 13(12):3062-73. PMID: 25253781.

Storage and Guarantee: Lyophilized proteins can be stored at -20°C or -80°C, preferably desiccated. 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.