

## Recombinant Histone Octamer (H3.1)

**Catalog No:** 31470, 31870

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

**Quantity:** 100, 1000 µg

**Concentration:** 2 µg/µl

**Source:** Human

**Buffer Contents:** Recombinant histone octamer (H3.1) is supplied in 10 mM Tris pH 7.4, 2 M NaCl, 1 mM EDTA, 10% glycerol, 5 mM β-mercaptoethanol. Please refer to product insert upon arrival for lot-specific concentration.

**Background:** The **Histone octamer** is the eight protein complex found at the center of a nucleosome core particle. It consists of two copies of each of the four core histone proteins (H2A, H2B, H3 and H4). The octamer assembles when a tetramer, containing two copies of both H3 and H4, complexes with two H2A/H2B dimers. Each histone has both an N-terminal tail and a C-terminal histone-fold. Both of these key components interact with DNA in their own way through a series of weak interactions, including hydrogen bonds and salt bridges.

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. Aberrant localization of these variants is also known to correlate with certain cancers.

**Protein Details:** Recombinant Histone Octamer (H3.1), Human consists of two molecules each of histones H2A that includes amino acids 1-130 (end) (accession number NM\_003512), H2B that includes amino acids 1-126 (end) (accession number NM\_003518), H3.1 that includes amino acids 1-136 (end) (accession number NM\_003529), and H4 that includes amino acids 1-103 (end) (accession number NM\_003548). Recombinant Histone Octamer (H3.1), Human, was generated in *E. coli* cells and has an observed molecular weight of 108 kDa.

**Application Notes:** Recombinant Histone Octamer (H3.1) is suitable for use in the study of enzyme kinetics, inhibitor screening, and selectivity profiling.

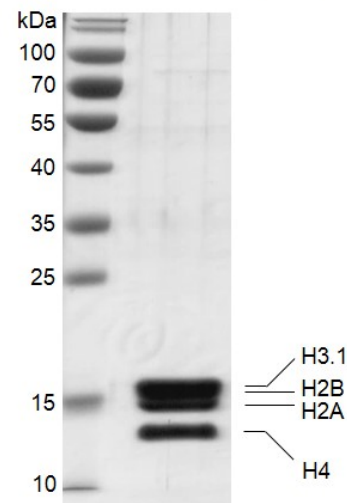
**References:** This product was used in the following publications:

*J. Biol. Chem.* (2016). 291(47): 24756-24767. PMID: 27634040.

*Nat. Commun.* (2018). 9:3244. PMID: 30108214. (*in vitro* cytokine activation)

**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 Octamer (H3.1)



### Recombinant Histone Octamer (H3.1) protein gel.

Recombinant Histone Octamer (H3.1) was run on a 12% SDS-PAGE gel and stained with Coomassie Blue.