

Mononucleosomes H3.1 Recombinant Protein | H3.1 recombinant protein

Recombinant Mononucleosomes H3.1 (K18I)-biotin

CATALOG #
AAA60195

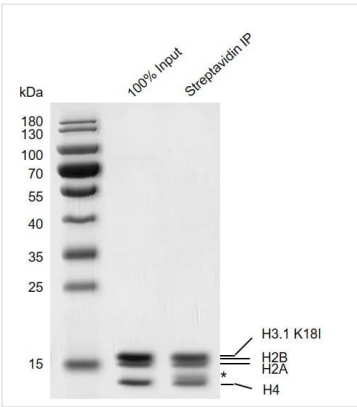
HOST
E Coli

PRODUCT SYNONYMS

Mononucleosomes H3.1; Recombinant Mononucleosomes H3.1 (K18I)-biotin; H3.1 recombinant protein

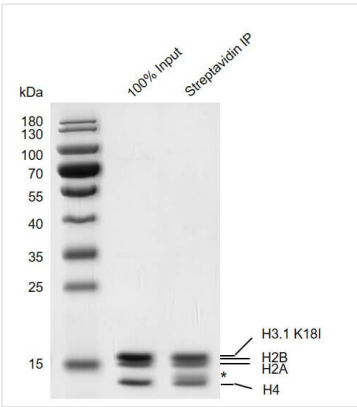
PRODUCT SPECIFICATIONS

Host	E Coli
Form/Format	Recombinant Mononucleosomes H3.1 (K18I)-biotin (20ug protein + 20ug DNA) is supplied in 10mM Tris-HCl pH8.0, 1mM EDTA, 2mM DTT, 20% glycerol.
Protein Species	Human
Conjugation	Biotinylated
Protein Details	Recombinant Mononucleosomes H3.1 (K18I)-biotin consist of a 167 bp of 601 DNA with 5' biotin tag and 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) with a point mutation Lys18Ile, and H4 that includes amino acids 1-103 (end)(accession number NM_003548). All of these histones were expressed in E Coli cells.
Notes	Recombinant Mononucleosomes H3.1 (K18I)-biotin is suitable for use as substrate for histone modification enzymes, or to generate chromatin in vitro.
Dry Ice Note	The product may be shipped with dry ice, and an additional fee may be added to your shipping cost.
Preparation and Storage	Recombinant proteins in solution are temperature sensitive and must be stored at -80 degree C to prevent degradation. Avoid repeated freeze/thaw cycles and keep on ice when not in storage. Shipping Temp: Dry Ice



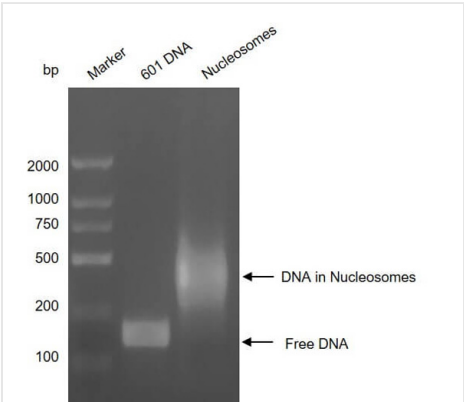
SDS-PAGE

Streptavidin pull down assay for Recombinant Mononucleosomes H3.1 (K181) - biotin 24 ug biotinylated mononucleosomes were incubated with 10 ul streptavidin beads in 400 ul binding buffer containing 25 mM Tris pH 8.0, 150 mM NaCl, 5% glycerol, 0.1% Triton X-100 for 1hours at 4?. Streptavidin beads were washed 3 times with 1 ml binding buffer. Then the beads were added 60 ul 2xSDS loading buffer and boiled for 10 min. at 9 degree C. 2.4 ul samples were loaded and run on a 12.5% SDSPAGE gel and stained by Coomassie Blue. The SDS-PAGE gel result showed that 80% of biotinylated mononucleosomes were pulled down by streptavidin beads. * indicates streptavidin.



SDS-PAGE

Recombinant Mononucleosomes H3.1 (K181) - biotin 12.5% SDS-PAGE gel stained with Coomassie Blue. MW: 108 kDa Purity: >95%



Application Data

Recombinant Mononucleosomes H3.1 (K181) - biotin DNA gel Recombinant Mononucleosomes H3.1 (K181) - biotin were run on a 2% agarose gel and stained with ethidium bromide. Lane 1: DNA marker. Lane 2: 601 DNA which was used for assembly of nucleosomes. Lane 3: Intact mononucleosomes H3.1 (K181) - biotin. Intact mononucleosomes H3.1 (K181) - biotin migrated much higher than free 601 DNA. The agarose gel shows that almost all of 601 DNA wrapped histone octamers to form nucleosomes.

ADDITIONAL INFORMATION

Related Product Information for H3.1 recombinant protein	Short Description: In vivo, histones are wrapped around by DNA in chromatin. Therefore, nucleosomes are more physiologically relevant substrates than histones and histone-derived peptides for in vitro studies. More importantly, some histone methyltransferases are significantly more active, as well as specific, when using nucleosomal substrates in HMT assays, such as DOT1L and NSD family enzymes. Nucleosomes are also widely used in histone methyltransferase screening assays to identify small molecular inhibitors for drug discovery. 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 pediatric 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. 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. Researchers found that mutations in the subset with a TMB <= 2 mutations per Mb included H3 (K27M) and H3 (G34W), and other mutations like H3 (E105K/Q), mutations at H3 N-terminal residues at or near PTM sites including R2, R8, K18 and R26, as well as residues in the acidic patch such as H2A residues E56, E64, E9, and E92 and H2B residues E105 and E133, which might act as oncohistones. According to the structural analysis, specifically for the KDM6 family, the hydrophobic mutation-histone H3 K18I- showed a significantly higher affinity towards the KDM6 enzymes. Background: In vivo, histones are wrapped around by DNA in chromatin. Therefore, nucleosomes are more physiologically relevant substrates than histones and histone-derived peptides for in vitro studies. More importantly, some histone methyltransferases are significantly more active, as well as specific, when using nucleosomal substrates in HMT assays, such as DOT1L and NSD family enzymes. Nucleosomes are also widely used in histone methyltransferase screening assays to identify small molecular inhibitors for drug discovery. 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 pediatric 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. 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. Researchers found that mutations in the subset with a TMB <= 2 mutations per Mb included H3 (K27M) and H3 (G34W), and other mutations like H3 (E105K/Q), mutations at H3 N-terminal residues at or near PTM sites including R2, R8, K18 and R26, as well as residues in the acidic patch such as H2A residues E56, E64, E9, and E92 and H2B residues E105 and E133, which might act as oncohistones. According to the structural analysis, specifically for the KDM6 family, the hydrophobic mutation-histone H3 K18I- showed a significantly higher affinity towards the KDM6 enzymes.
Product Categories/Family for H3.1 recombinant protein	Recombinant Proteins; Histone

NCBI AND UNIPROT INFORMATION

NCBI GenBank Nucleotide #	NM_003512
Molecular Weight	Molecular weight of histone octamer is 108kDa

For Research Use Only. Not for use in diagnostic or therapeutic procedures. Small volumes of product may become entrapped in the seal of the vial during shipment and storage; if necessary, briefly centrifuge the vial on a tabletop centrifuge to dislodge any liquid in the cap.

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Online datasheet: <https://stage.aaabiotech.com/mononucleosomes-h3-1-recombinant-protein-e-coli/60195>