

Histone H1⁰ Human, Recombinant



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www.neb.com



M2501S



100 µg **1.0 mg/ml** **Lot: 0051206**
RECOMBINANT **Store at -20°C** **Exp: 6/14**

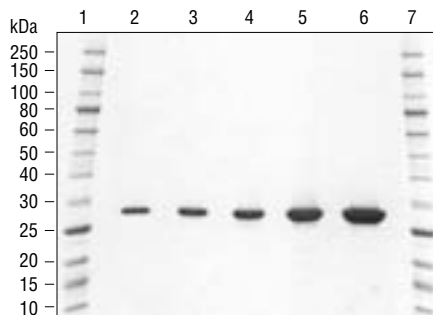
Description: Histone H1 acts on the linker region of polynucleosome DNA to condense the chromatin into structures of ~30 nm (1). It is not necessary for octamer or nucleosome core particle formation. Eight different Histone H1 proteins have been identified in the human genome (2). Histone H1⁰ is a non replication-dependent histone that is highly expressed in cells that are terminally differentiated (3).

Source: An *E. coli* strain that carries a plasmid encoding the human histone H1 gene, H1F0 or H1FV. (Genbank accession number: X03473)

Supplied in: 20 mM Sodium Phosphate (pH 7.0), 300 mM NaCl and 1 mM EDTA.

Note: The protein concentration (1 mg/ml, 48 µM) is calculated using the molar extinction coefficient for Histone H1 (3840) and its absorbance at 280 nm (4,5). 1.0 A₂₈₀ units = 5.4 mg/ml

Synonyms: Histone H1.0, Histone H1(0), Histone H1'



SDS-PAGE analysis of Histone H1⁰ Human, Recombinant.
Lane 1 and 7: NEB Protein Ladder (NEB #P7703), Lanes 2 thru 6: 0.5, 1.0, 2.0, 5.0, 10.0 µg Histone H1⁰ Human, Recombinant.

Quality Control Assays:

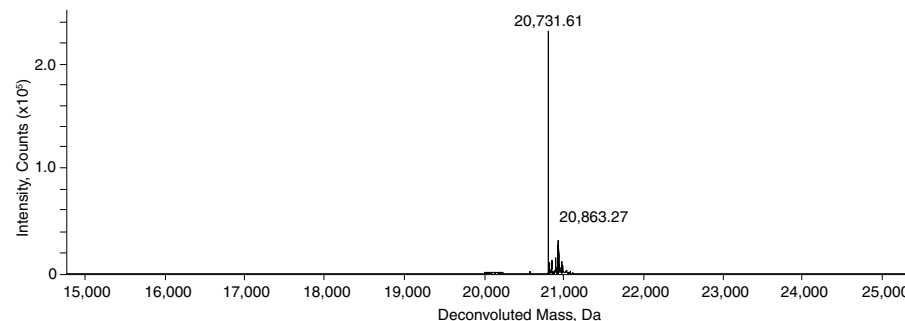
SDS-PAGE: 0.5, 1.0, 2.0, 5.0, 10.0 µg of Histone H1⁰ Human, Recombinant were loaded on a 10–20% Tris-Glycine SDS-PAGE gel and stained with Coomassie Blue. The calculated molecular weight is 20731.53 Da. Its apparent molecular weight on 10–20% Tris-Glycine SDS-PAGE gel is ~27 kDa.

Mass Spectrometry: The mass of purified Histone H1⁰ Human, Recombinant is 20731.61 Da as determined by ESI-TOF MS (Electrospray Ionization-Time of Flight Mass Spectrometry). The

average mass calculated from primary sequence is 20731.53 Da. This confirms the protein identity as well as the absence of any modifications of the histone. There is a small percentage of histone H1⁰ with a mass of 20863.27 which is a +131 Da difference from the major species. This correlates to histone H1⁰ with an intact N-terminal methionine (6).

N-terminal Protein Sequencing: Protein identity was confirmed using Edman Degradation to sequence the intact protein.

(see other side)



ESI-TOF Analysis of Histone H1⁰ Human, Recombinant.

CERTIFICATE OF ANALYSIS

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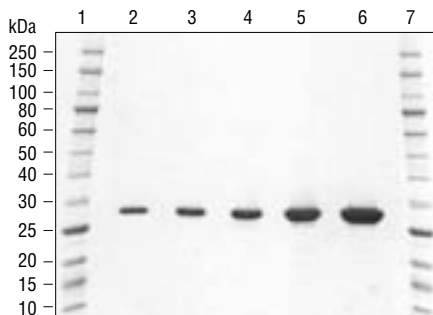
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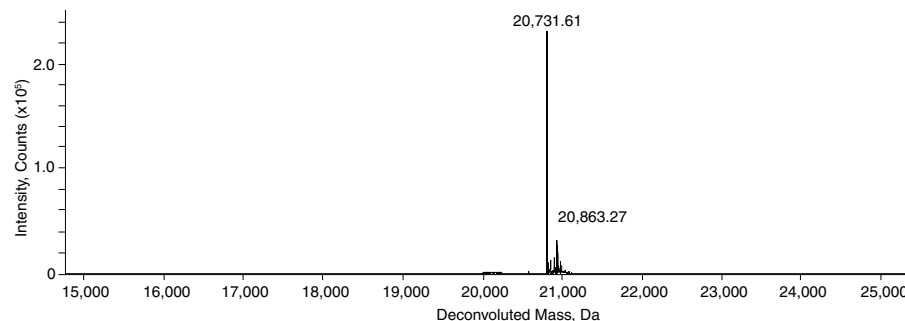
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ESI-TOF Analysis of Histone H1⁰ Human, Recombinant.

CERTIFICATE OF ANALYSIS

Enzyme Modification: After incubation of a 30 µl reaction containing 50 units (pmol/min) of CDK2-cyclin A (P6025) for 1 minute at 30°C, 96 pmols of phosphate were transferred to Histone H1⁰ Human, Recombinant (10 µM).

Protease Assay: After incubation of 5 µg of Histone H1⁰ Human, Recombinant with a standard mixture of proteins for 4 hours at 37°C, no proteolytic activity could be detected by SDS-PAGE.

Exonuclease Assay: Incubation of a 50 µl reaction containing 10 µg of Histone H1⁰ Human, Recombinant with 1 µg of a mixture of single and double-stranded [³H] *E. coli* DNA (200,000 cpm/µg) for 4 hours at 37°C released < 0.1% of the total radioactivity.

Endonuclease Assay: Incubation of a 50 µl reaction containing 10 µg of Histone H1⁰

Human, Recombinant with 1 µg of ϕX174 RF I (suprecoiled) plasmid DNA for 4 hours at 37°C resulted in < 5.0% conversion to RF II form (nicked circle) as determined by agarose gel electrophoresis.

Protein Sequence: TENSTSAPAAKPKRAKASKK
STDHPKYSDMIVAAIQAEKNRAGSSRQSIQYIKSH
YKVGENADSIKLSIKRLVTTGVLKQTKGVBGASGS
FRLAKSDEPKKSVAFKTKKEIKKVATPKKASKPKK
AASKAPTKKPKATPVKKAKKKLAATPKKAKKPKTV
KAKPVKASKPKKAKPVKPKAKSSAKRAGKKK
(Genbank accession number: P07305)

References:

1. van Holde, K.E. (1989) *Chromatin*, 1–497
2. Marzluff, W.F., et al. (2002) *Genomics*, 80, 487–497
3. Pehrson, J.R. and Cole, R.D. (1982) *Biochem.*, 21, 456–460
4. Gill, S.C. and von Hippel, P.H. (1989) *Anal. Biochem.*, 182, 319–326
5. Pace, C.N. et al. (1995) *Protein Science*, 4, 2411–2423
6. Qing, X. et al. (2010) *Biochemistry*, 49, 5588–5599.

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FRLAKSDEPKKSVAFKTKKEIKKVATPKKASKPKK
AASKAPTKKPKATPVKKAKKKLAATPKKAKKPKTV
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