Mononucleosomes, Recombinant Human, Biotinylated

Catalog No	16-0006	**Species**	Human
Lot No	25345019-02	**Source**	*E. coli* & synthetic DNA
Pack Size	50 µg	**Tag**	Biotinylated
Concentration	5 µM	**MW**	199,742 Da

DESCRIPTION

Recombinant mononucleosomes (rNuc) consist of 147 base pairs of DNA wrapped around an octamer core of histone proteins (two each of H2A, H2B, H3.1, and H4) to form a nucleosome, the basic repeating unit of chromatin. The 147 bp 601 sequence, identified by Lowary and Widom [1], has high affinity for histone octamers and is useful for nucleosome assembly. The DNA in this nucleosome contains a 5' biotin-TEG group.

TECHNICAL INFORMATION

Storage	Stable for six months at -80°C from date of receipt. For best results, aliquot and avoid freeze/thaws.
Formulation	0.998 mg/mL mononucleosome in 50.1 µL 10 mM Tris-HCl pH 7.5, 25 mM NaCl, 1 mM EDTA, 2 mM DTT and 20% glycerol (27.2 µg protein, 50 µg DNA + protein).

APPLICATION NOTES

rNuc is highly purified and suitable for a variety of applications, including use as a substrate in enzyme assays, high-throughput screening and inhibitor testing, chromatin binding studies, protein-protein interaction assays, structural studies, and in effector protein binding experiments.

GENE & PROTEIN INFORMATION

UniProt ID	H2A - P04908 (alt. names: H2A type 1-B/E, H2A.2, H2A/a, H2A/m) H2B - O60814 (alt. names: H2B K, HIRA-interacting protein 1) H3.1 - P68431 (alt. names: H3, H3/a, H3/b, H3/c, H3/d) H4 - P62805

REFERENCES

[1] Lowary & Widom *J. Mol. Biol.* (1998). PMID: 9514715

VALIDATION DATA

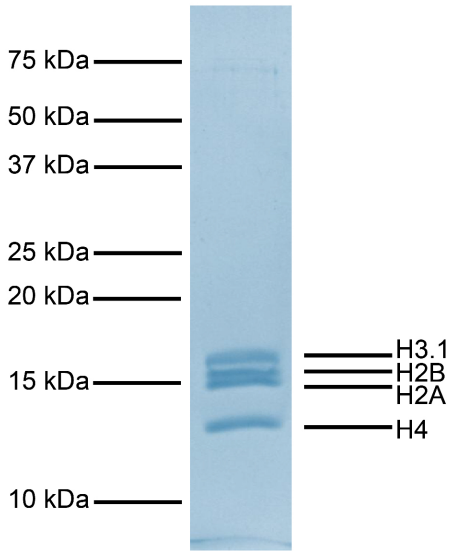

FIGURE 1 Protein gel data. Coomassie stained SDS-PAGE gel of proteins in recombinant mononucleosomes (2 µg) demonstrates the purity of histones in the preparation. Sizes of molecular weight markers and positions of the core histones (H2A, H2B, H3.1, and H4) are indicated.

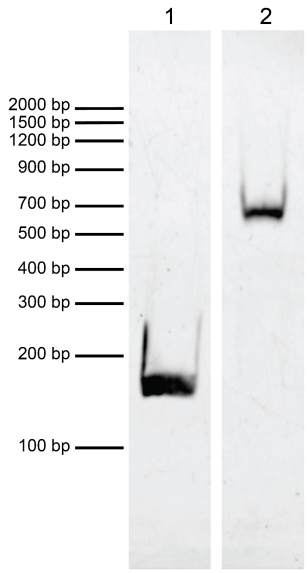

FIGURE 2 DNA gel data. Recombinant mononucleosomes resolved via native PAGE and stained with ethidium bromide to visualize DNA. All lanes were resolved on a single gel. **Lane 1:** Free DNA (EpiCypher 18-0005; 100 ng). **Lane 2:** Intact nucleosomes (400 ng).

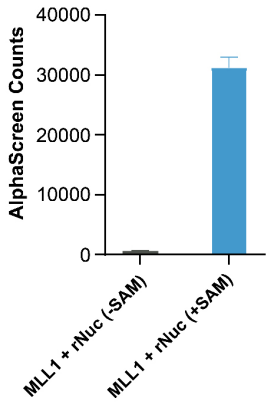

FIGURE 3 Histone methyltransferase assay data. Recombinant mononucleosomes (rNuc) used as a substrate in a Captify nucleosome methyltransferase assay. MLL1 methyltransferase will methylate rNuc in the presence of SAM to catalyze the monomethylation of lysine 4 on histone H3, which can be probed with an anti-H3K4me1 antibody. The proximity of the biotinylated rNuc and the antibody can be detected with Streptavidin Donor Beads and Protein A Acceptor Beads (PerkinElmer) and measured on an Envision Plate Reader (PerkinElmer).