

## Technical Datasheet

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### rNuQ H4K16Ac Recombinant Mononucleosome

**Part number:** NUC0008

**Species:** Human

**Source:** *E. coli* and synthetic DNA

**Description:**

Recombinant nucleosomes were assembled *in vitro* using a 147 bp of 601 [1] positioning sequence DNA and four core histones (H2A, H2B and H3.1) purified from *E. coli* inclusion bodies, and synthetic H4 chemically synthesized with acetylation at lysine 16 (H4K16Ac). This histone contains acetylation at lysine 9 and a 3 amino acid substitution in the histone core [A47C-C96S-C110A], which is located within the nucleosome core and does not affect nucleosome functionality.

**Buffer composition:**

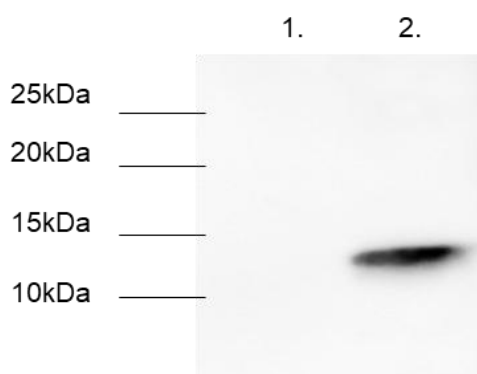
Triethanolamine hydrochloride - NaCl - EDTA - Azide.

**Applications:**

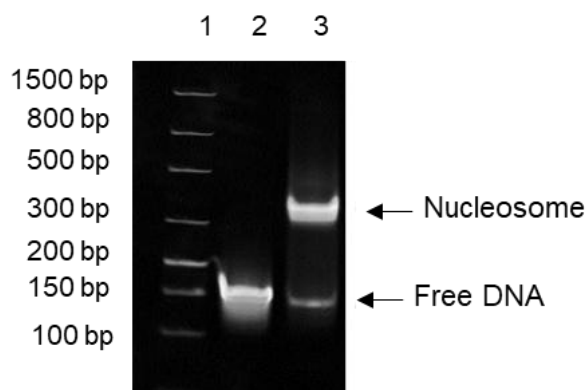
Human recombinant mononucleosomes are suitable for chromatin remodeling and accessibility studies, post-translational modifications (PTM)-specific antibody validation [2], chromatin research [3], as well as nucleosome binding assays in drug discovery and high-throughput screening (HTS) applications [4,5].

For a corresponding unmodified control, we recommend NUC0001 - rNuQ H3.1.

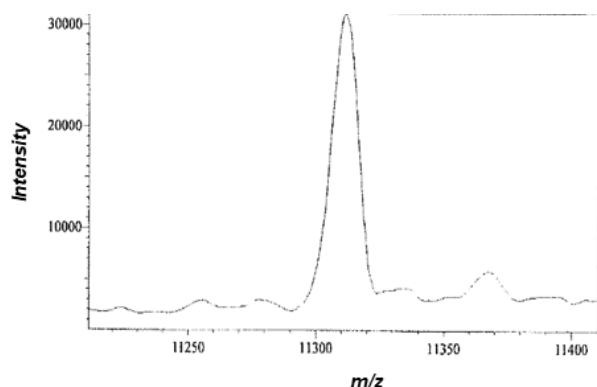
**Validation data:**



**Figure 1: Western blot analysis of rNuQ H4K16Ac mononucleosome versus unmodified H3.1 mononucleosome.** Lane 1 contains unmodified rNuQ H3.1 recombinant mononucleosomes (200ng; Volition, NUC0001), and Lane 2 contains rNuQ H4K16Ac (200ng; Volition, NUC0008). Probing with an anti-H4K16Ac antibody followed by enhanced chemiluminescence (ECL) detection reveals a signal only in the rNuQ H4K16Ac recombinant mononucleosome.



**Figure 2: Native PAGE analysis of rNuQ H4K16Ac mononucleosomes.** Lane 1 contains the DNA ladder, lane 2 shows free 147 bp 601 DNA, and lane 3 shows intact rNuQ H4K16Ac nucleosomes (500 ng). Samples were resolved on a native PAGE gel and stained with Midori Green to visualize the DNA. Intact nucleosomes, in lane 3, display reduced mobility relative to free DNA, consistent with correct nucleosome assembly.



**Figure 3: Mass spectrometry analysis of Synthetic H4K16Ac histone.** Confirming the expected mass (11,310.4 Da) matches the observed mass (11,311.5 Da).

### Storage and stability:

This product must be stored at 2-8°C and is stable for 6 months from date of receipt. Do not freeze. Use surface optimized tubes (e.g. low bind tubes) and tips for handling and storage.

### Precautions:

This product is for research use only. Not for use in diagnostic procedures. Not intended for use in humans or animals.

### Gene and protein information:

UniProt ID:

H2A - P04908

H2B - O60814

H3.1 - P68431

H4 - P62805

### References:

- [1] Lowary & Widom, 1998, J. Mol. Biol., 276:19–42.
- [2] Van den Ackerveken et al., 2025, J. Biol. Chem., 301:110352
- [3] Van den Ackerveken et al., 2021, Sci. Rep., 11:7256.
- [4] Kepert et al. (2003), Biophys. J., 85:4012–4022.
- [5] Maluchenko et al., 2022, Cells, 11(21):3343