Technical Datasheet

rNuQ H3R2Cit Recombinant Mononucleosome

Part number: NUC0042

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 H4) purified from *E. coli* inclusion bodies, and histone H3.1 chemically synthesized as H3R2Cit. This histone contains citrullination at position 2 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].

Validation data:

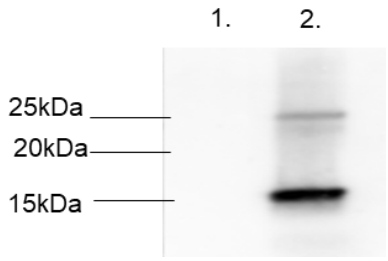

Figure 1: Western blot analysis of rNuQ H3R2Cit mononucleosome versus unmodified mononucleosome. Lane 1 contains unmodified rNuQ H3.1 recombinant mononucleosomes (200ng; Volition, NUC0001), and Lane 2 contains rNuQ H3R2Cit (200ng; Volition, NUC0042). Probing with an anti-H3R2Cit antibody followed by enhanced chemiluminescence (ECL) detection reveals a signal only in the rNuQ H3R2Cit recombinant mononucleosome.

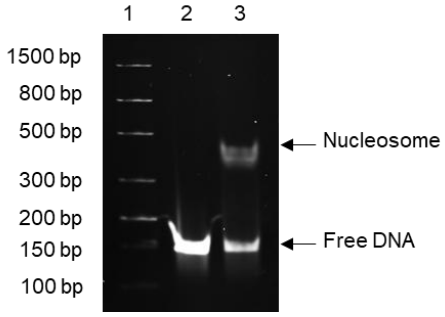

Figure 2: Native PAGE analysis of rNuQ H3R2Cit mononucleosomes. Lane 1 contains the DNA ladder, lane 2 shows free 147 bp 601 DNA, and lane 3 shows intact rNuQ H3R2Cit nucleosomes (500 ng). Samples were resolved on a native PAGE gel and stained with Midori Green to visualize the DNA. Intact nucleosomes, in lane 3, display reduced mobility relative to free DNA, consistent with correct nucleosome assembly.

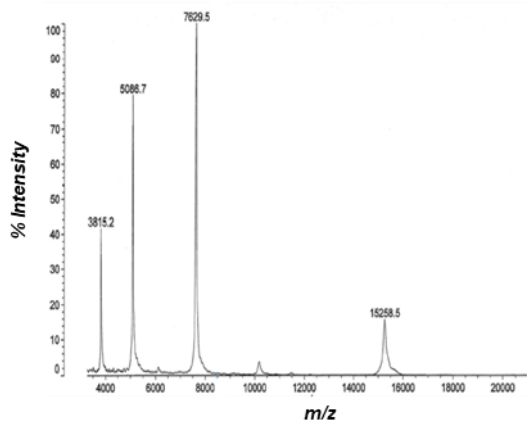

Figure 3: Mass spectrometry analysis of Synthetic H3R2Cit histone. Confirming the expected mass (15,258 Da) matches the observed mass (15,258.5 Da).

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