

PRODUCT INFORMATION



Histone H3 (human, recombinant)

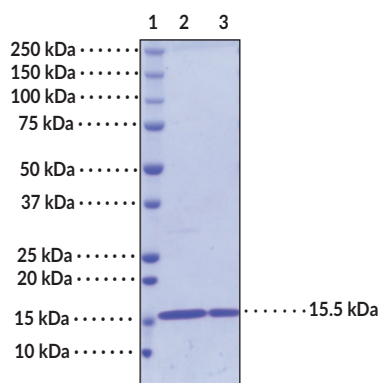
Item No. 10263

Overview and Properties

Synonyms: H3C1, Histone H3.1
Source: Recombinant human histone H3 expressed in *E. coli*
Amino Acids: 1-136 (full length)
Uniprot No.: P68431
Molecular Weight: 15.5 kDa
Storage: -80°C (as supplied); avoid freeze/thaw cycles by aliquoting protein
Stability: ≥1 year
Purity: ≥95% estimated by SDS-PAGE
Supplied as: A solution in water (frozen)

Information represents the product specifications. Batch specific analytical results are provided on each certificate of analysis.

Image



Lane 1: MW Markers
Lane 2: Histone H3 (1 µg)
Lane 3: Histone H3 (2 µg)

Representative gel image shown; actual purity may vary between each batch

WARNING
THIS PRODUCT IS FOR RESEARCH ONLY - NOT FOR HUMAN OR VETERINARY DIAGNOSTIC OR THERAPEUTIC USE.

SAFETY DATA
This material should be considered hazardous until further information becomes available. Do not ingest, inhale, get in eyes, on skin, or on clothing. Wash thoroughly after handling. Before use, the user must review the [complete](#) Safety Data Sheet, which has been sent via email to your institution.

WARRANTY AND LIMITATION OF REMEDY
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CAYMAN CHEMICAL
1180 EAST ELLSWORTH RD
ANN ARBOR, MI 48108 · USA
PHONE: [800] 364-9897
[734] 971-3335
FAX: [734] 971-3640
CUSTSERV@CAYMANCHEM.COM
WWW.CAYMANCHEM.COM

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Description

Histone H3 is a nuclear protein and a component of the nucleosome core, a basic unit of chromatin, that is essential for organizing genomic DNA in eukaryotic nuclei.¹ It is a globular protein that contains an unstructured N-terminal tail that extends outside of the nucleosome core and is subject to various post-translational modifications (PTMs), including methylation, phosphorylation, acetylation, and citrullination.^{1,2} Histone H3 PTMs function as epigenetic regulators of gene transcription by affecting chromatin structure and providing binding sites for many transcription factors, thus regulating several cellular functions including gene expression, cell cycle, and DNA replication and repair.^{1,3} Differential methylation of histone H3 at various lysine residues is catalyzed by SET domain-containing methyltransferases and marks sites of transcriptional activation or repression.¹ Citrullination of histone H3 by protein arginine deiminase 4 (PAD4; Item Nos. 10500 | 25915 | 28910) or PAD2 (Item No. 10785) induces the release of neutrophil extracellular traps (NETs), a network of decondensed DNA and intracellular proteins secreted by neutrophils as a pathogen defense mechanism.^{4,5} Histone H3 mutations have been found in patients with diffuse intrinsic pontine glioma, leukemia, or chondroblastoma.⁶

References

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3. Filipescu, D., Müller, S., and Almouzni, G. Histone H3 variants and their chaperones during development and disease: Contributing to epigenetic control. *Annu. Rev. Cell Dev. Biol.* **30**, 615-646 (2014).
4. Leshner, M., Wang, S., Lewis, C., *et al.* PAD4 mediated histone hypercitrullination induces heterochromatin decondensation and chromatin unfolding to form neutrophil extracellular trap-like structures. *Front. Immunol.* **3**, 307 (2012).
5. Liang, Y., Pan, B., Alam, H.B., *et al.* Inhibition of peptidylarginine deiminase alleviates LPS-induced pulmonary dysfunction and improves survival in a mouse model of lethal endotoxemia. *Eur. J. Pharmacol.* **833**, 432-440 (2018).
6. Lowe, B.R., Maxham, L.A., Hamey, J.J., *et al.* Histone H3 mutations: An updated view of their role in chromatin deregulation and cancer. *Cancers (Basel)* **11(5)**, 660 (2019).

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1180 EAST ELLSWORTH RD
ANN ARBOR, MI 48108 · USA
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FAX: [734] 971-3640
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