

# PRODUCT INFORMATION

## Citrullinated Histone H4 (human, recombinant)

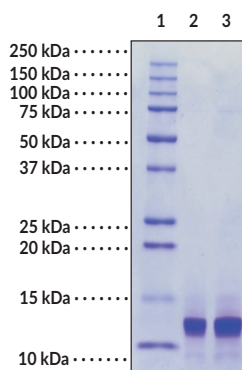
Item No. 17927

### Overview and Properties

**Source:** Recombinant protein expressed in *E. coli*, citrullinated with human recombinant PAD4  
**Amino Acids:** 1-103 (full-length)  
**Uniprot No.:** P62805  
**Molecular Weight:** 11.5 kDa  
**Storage:** -80°C (as supplied)  
**Stability:** ≥1 year  
**Purity:** *batch specific* (≥80% estimated by SDS-PAGE)  
**Supplied in:** A solution in PBS, pH 7.4  
**Protein Concentration:** *batch specific* mg/ml

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

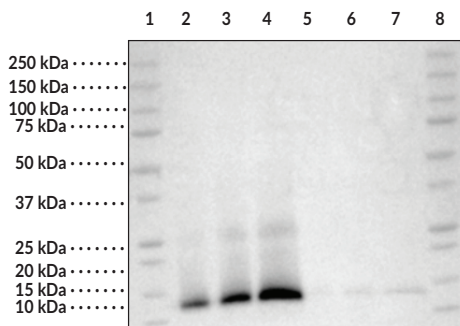
### Images



Lane 1: MW Markers  
 Lane 2: Citrullinated Histone H4 (2 µg)  
 Lane 3: Citrullinated Histone H4 (4 µg)

#### SDS-PAGE analysis of citrullinated histone H4.

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



Lane 1: MW Markers  
 Lane 2: Citrullinated Histone H4 (50 ng)  
 Lane 3: Citrullinated Histone H4 (100 ng)  
 Lane 4: Citrullinated Histone H4 (200 ng)  
 Lane 5: Histone H4 (50 ng)  
 Lane 6: Histone H4 (100 ng)  
 Lane 7: Histone H4 (200 ng)  
 Lane 8: MW Markers

Analysis of Histone H4 citrullination. Histone H4 and citrullinated histone H4 were reacted with Cayman's Citrulline-specific Probe-biotin (Item No. 17450) and detected using Streptavidin-HRP (Item No. 16747).

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

MSG<sup>10</sup>RGKGGK LGKGGAKRHR KVL<sup>30</sup>RDNIQGI TKPAI<sup>40</sup>RRLAR RGGVK<sup>50</sup>RISGL  
 IYEET<sup>60</sup>RGVLK VFLENV<sup>70</sup>IRDA VTYTEHAK<sup>80</sup>RK TVTAMDVVYA LKRQGR<sup>90</sup>TLYG

FGG

Identification of modified sites in Citrullinated Histone H4 (Item No. 17927). Citrullinated Histone H4 was detected by LC-MS/MS and analyzed using Mascot and Scaffold PTM software. Deiminated arginines are indicated in teal.

Citrullination sites shown are representative of typical results. Batch-to-batch variations may occur.

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  
 Buyer agrees to purchase the material subject to Cayman's Terms and Conditions. Complete Terms and Conditions including Warranty and Limitation of Liability information can be found on our website.

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## Description

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Histone H4 is one of four core histone proteins, the others being H3, H2B, and H2A, that are involved in the organization of DNA into chromatin.<sup>1</sup> Histones are subject to a variety of posttranslational modifications, such as methylation, acetylation, and citrullination, that can influence chromatin structure and regulate gene transcription. Histone H4 can be citrullinated at the arginine residue at position 3 (H4R3) by protein arginine deiminase 4 (PAD4; Item No. 10500).<sup>2</sup> Citrullination of H4R3 increases in U2OS cells following induction of DNA damage by adriamycin (doxorubicin; Item No. 15007) and is localized near fragmented nuclei.<sup>3</sup> H4R3 citrullination is associated with smaller tumor size and inversely associated with p53 levels in tumor tissue samples derived from patients with non-small cell lung cancer (NSCLC). Citrullinated histone H4 is present in neutrophil extracellular traps (NETs) generated by stimulation of granulocytes with phorbol 12-myristate 13-acetate (PMA; Item No. 10008014) and can be recognized by autoantibodies present in the serum of patients with rheumatoid arthritis.<sup>4</sup> This product contains purified histone H4 (human, recombinant) (Item No. 10264) that has been modified with PAD4 enzyme, which is subsequently depleted by affinity chromatography.

## References

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1. Wang, Y., Li, M., Stadler, S., *et al.* Histone hypercitrullination mediates chromatin decondensation and neutrophil extracellular trap formation. *J. Cell Biol.* **184**(2), 205-213 (2009).
2. Fuhrmann, J. and Thompson, P.R. Protein arginine methylation and citrullination in epigenetic regulation. *ACS Chem. Biol.* **11**(3), 654-668 (2016).
3. Tanikawa, C., Espinosa, M., Suzuki, A., *et al.* Regulation of histone modification and chromatin structure by the p53-PADI4 pathway. *Nat. Commun.* **3**:676 (2012).
4. Pratesi, F., Dioni, I., Tommasi, C., *et al.* Antibodies from patients with rheumatoid arthritis target citrullinated histone 4 contained in neutrophils extracellular traps. *Ann. Rheum. Dis.* **73**(7), 1414-1422 (2014).

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