



# SZABO SCANDIC

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## Produktinformation



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# PRODUCT INFORMATION



## Citrullinated Core Histones (bovine)

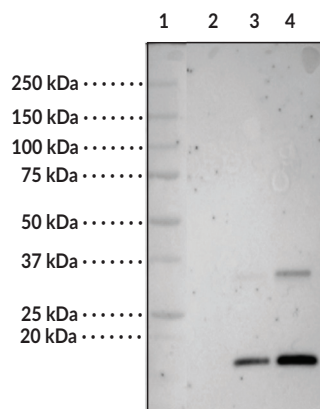
Item No. 20582

### Overview and Properties

**Source:** Calf thymus  
**Storage:** -20°C (as supplied)  
**Stability:** ≥2 years  
**Purity:** *batch specific* (≥80% estimated by SDS-PAGE)  
**Supplied in:** Lyophilized from 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.

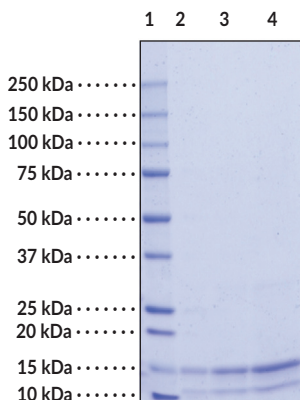
### Images



Lane 1: MW  
Lane 2: Core Histones pre-citrullination  
Lane 3: Core Histones post-citrullination  
Lane 4: Core Histone post-PAD depletion

**Figure 1: Western blot analysis of core histone citrullination.** Core histones and citrullinated core histones were reacted with Histone H3 (Citrullinated R2 + R8 + R17) Monoclonal Antibody (Item No. 17939) and detected using Goat Anti-Mouse IgG HRP (Item No. 10004302).

*Representative gel image shown.*



Lane 1: MW  
Lane 2: Citrullinated core histones (1 µg)  
Lane 3: Citrullinated core histones (2 µg)  
Lane 4: Citrullinated core histones (5 µg)

**Figure 2: SDS-PAGE analysis of citrullinated core histones.**

*Representative gel image shown.*

**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.

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# PRODUCT INFORMATION



## Description

Nucleosomes are the basic repeating units of chromatin in which DNA is wrapped twice around a histone octamer consisting of two copies of each of the core histones, H2A, H2B, H3, and H4.<sup>1</sup> Peripheral proteins, including the histone H1, interact with nucleosomes to affect chromatin structure. Histones undergo many modifications, which include acetylation, methylation, and phosphorylation, that are important for the regulation of gene transcription.<sup>1</sup> Citrullination is another important post-translational modification that is catalyzed by the peptidylarginine deiminases PAD4 and PAD2. Hypercitrullination of histones leads to the development of neutrophil extracellular traps (NETs), which are a part of the inflammatory response.<sup>2,3</sup> Neutrophils release these NETs to trap and eradicate bacteria and fungi. Failure to clear citrullinated proteins and NET components following inflammation can result in the production of autoantibodies and anti-citrullinated protein antibodies.<sup>4</sup> The persistence of these antibodies and citrullinated proteins is associated with a number of human diseases including rheumatoid arthritis, systemic lupus erythematosus, Alzheimer's disease, and multiple sclerosis.<sup>5</sup> This product contains a mixture of H1, H2A, H2B, H3, and H4 histones isolated from calf thymus. The mixture is modified by PAD4 enzyme, which is subsequently depleted by affinity chromatography.

## References

1. Bhaumik, S.R., Smith, E., and Shilatifard, A. Covalent modifications of histones during development and disease pathogenesis. *Nat. Struct. Mol. Biol.* **14**(11), 1008-1016 (2007).
2. Baka, Z., György, B., Géher, P., et al. Citrullination under physiological and pathological conditions. *Joint Bone Spine* **79**, 431-436 (2012).
3. Neeli, I. and Radic, M. Knotting the NETs: Analyzing histone modifications in neutrophil extracellular traps. *Arthritis Res. Ther.* **14**(2), 1-2 (2012).
4. Foulquier, C., Sebbag, M., Clavel, C., et al. Peptidyl arginine deiminase type 2 (PAD-2) and PAD-4 but not PAD-1, PAD-3, and PAD-6 are expressed in rheumatoid arthritis synovium in close association with tissue inflammation. *Arthritis Rheum.* **56**(11), 3541-3553 (2007).
5. Horibata, S., Coonrod, S.A., and Cherrington, B.D. Role for peptidylarginine deiminase enzymes in disease and female reproduction. *J. Reprod. Dev.* **58**(3), 274-282 (2012).

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