

PRODUCT INFORMATION

Citrullinated Histone H3 (R2 + R8 + R17) (2-22)-biotin Peptide

Item No. 37626

Overview and Properties

Contents:	This vial contains 1 mg of lyophilized peptide.
Synonyms:	Biotin-A-Cit-TKQTA-Cit-KSTGGKAP-Cit-KQLA, Biotin-AXTKQTAXKSTGGKAPXKQLA (X=Citrulline), Citrullinated Histone H3.1-biotin
Uniprot No.:	P68431
Molecular Weight:	2,483.8
Form:	Solid
Storage:	-20°C (as supplied)
Stability:	≥3 years

Description

Citrullinated histone H3 (R2 + R8 + R17) (2-22)-biotin peptide is a biotinylated version of tri-citrullinated histone H3, a nuclear protein that interacts with linker DNA regions between nucleosomes to provide nucleosome core structure stabilization.¹ Histone H3 is subject to citrullination by protein-arginine deiminase 4 (PAD4) at arginine 2 (R2), R8, and R17 during neutrophil extracellular trap formation (NETosis).² Citrullination of histone H3 at these residues reduces the positive charge of histone H3 and leads to decondensed chromatin, which is expelled into the extracellular space when the neutrophil membrane ruptures.^{3,4} Increased serum levels of histone H3 citrullinated at R2, R8, and R17 have been found in patients with asthma and in septic shock patients where they are positively associated with a sequential organ failure assessment (SOFA) score and poor survival.^{5,6} Sputum levels of histone H3 citrullinated at R2, R8, and R17 are increased in patients with rheumatoid arthritis, as well as in individuals identified as at risk for developing rheumatoid arthritis based on their seropositivity for IgA anti-citrullinated protein antibodies (ACPAs).⁷ Cayman's Citrullinated Histone H3 (R2 + R8 + R17) (2-22)-biotin Peptide is intended for use in the detection of autoantibodies against histone H3 citrullinated at R2, R8, and R17.

References

1. Roque, A., Ponte, I., and Suau, P. Interplay between histone H1 structure and function. *Biochim. Biophys. Acta* **1859(3)**, 444-454 (2016).
2. Sever, P.S., Dahlöf, B., Poulter, N.R., et al. Prevention of coronary and stroke events with atorvastatin in hypertensive patients who have average or lower-than-average cholesterol concentrations, in the Anglo-Scandinavian Cardiac Outcomes Trial-Lipid Lowering Arm (ASCOT-LLA): A multicentre randomised controlled trial. *Lancet* **361(9364)**, 1149-1158 (2003).
3. Li, M., Lin, C., Leso, A., et al. Quantification of citrullinated histone H3 bound DNA for detection of neutrophil extracellular traps. *Cancers (Basel)* **12(11)**, 3424 (2020).
4. 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).
5. Kuczia, P., Zuk, J., Iwaniec, T., et al. Citrullinated histone H3, a marker of extracellular trap formation, is increased in blood of stable asthma patients. *Clin. Transl. Allergy* **10**, 31 (2020).
6. Tian, Y., Russo, R.M., Li, Y., et al. Serum citrullinated histone H3 concentrations differentiate patients with septic versus non-septic shock and correlate with disease severity. *Infection* **49(1)**, 83-93 (2021).
7. Okamoto, Y., Devoe, S., Seto, N., et al. Association of sputum neutrophil extracellular trap subsets with IgA anti-citrullinated protein antibodies in subjects at risk for rheumatoid arthritis. *Arthritis Rheumatol.* **74(1)**, 38-48 (2022).

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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