

PRODUCT INFORMATION

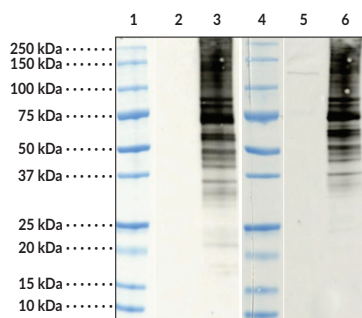
Anti-Carbamylation (Homocitrulline) Monoclonal Antibody - Biotinylated (Clone 1C6)

Item No. 44745

Overview and Properties

Contents:	This vial contains 100 µg of biotinylated protein G-purified monoclonal antibody.
Immunogen:	Carbamylated protein
Cross Reactivity:	(+) Carbamylated protein; (-) Unmodified or citrullinated proteins
Species Reactivity:	(+) Species independent
Form:	Liquid
Storage:	-20°C (as supplied)
Stability:	≥2 years
Storage Buffer:	PBS, pH 7.2, with 50% glycerol and 0.02% sodium azide
Clone:	1C6
Host:	Mouse
Isotype:	IgG1
Applications:	ELISA, Immunoprecipitation (IP), and Western blot (WB); the recommended starting dilution for ELISA and WB is 1:1,000 and 5 µg of antibody per IP test. Other applications were not tested, therefore working concentrations/dilutions should be determined empirically.

Image



Lane 1: MW
 Lane 2: Anti-Carbamylation (Homocitrulline) Monoclonal Antibody (Clone 1C6) (Item No. 23203) with HeLa cell lysate (10 µg)
 Lane 3: Anti-Carbamylation (Homocitrulline) Monoclonal Antibody (Clone 1C6) (Item No. 23203) with carbamylated HeLa cell lysate (5 µg)
 Lane 4: MW
 Lane 5: Anti-Carbamylation (Homocitrulline) Monoclonal Antibody - Biotinylated (Clone 1C6) (Item No. 44745) with HeLa cell lysate (10 µg)
 Lane 6: Anti-Carbamylation (Homocitrulline) Monoclonal Antibody - Biotinylated (Clone 1C6) (Item No. 44745) with carbamylated HeLa cell lysate (5 µg)

Western blot of non-carbamylated and carbamylated proteins in HeLa cell lysates. Anti-Carbamylation (Homocitrulline) Monoclonal Antibody (Clone 1C6) (Item No. 23203) (left panel) and Anti-Carbamylation (Homocitrulline) Monoclonal Antibody (Clone 1C6) - Biotinylated (Item No. 44745) (right panel) detect only carbamylated proteins in HeLa cell lysates. Goat Anti-Mouse IgG HRP (Item No. 10004302) was used to visualize Anti-Carbamylation (Homocitrulline) Monoclonal Antibody (Clone 1C6) and Streptavidin:HRP (Item No. 16747) was used to visualize Anti-Carbamylation (Homocitrulline) Monoclonal Antibody (Clone 1C6) - Biotinylated.

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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PRODUCT INFORMATION



Description

Carbamylation is a non-enzymatic and irreversible post-translational protein modification whereby cyanate/isocyanic acid adds a carbamoyl group to the ϵ -amino of lysine side chains, converting lysine to the non-standard amino acid homocitrulline.^{1,2} Cyanate is formed primarily from the breakdown of urea but can also be formed from the oxidation of thiocyanate by myeloperoxidase in the presence of hydrogen peroxide at sites of inflammation, such as atherosclerotic tissues.¹⁻³ LDL can be carbamylated and has atherogenic properties, disrupting LDL receptor binding and increasing vascular smooth muscle cell proliferation and endothelial cell death.^{3,4} Protein carbamylation and carbamylated LDL levels are increased in the plasma of patients with disorders resulting in high levels of urea, such as chronic and end-stage renal diseases.^{2,4} Furthermore, the levels of plasma protein-bound homocitrulline positively correlate with the frequency of, and mortality from, major adverse cardiac events and predict cardiovascular disease risk.³ Carbamylated proteins can also induce an immune response leading to the production of anti-homocitrulline autoantibodies, which have been found at higher levels in individuals with rheumatoid arthritis and are positively associated with the degree of joint damage.⁵ Cayman's Anti-Carbamylation (Homocitrulline) Monoclonal Antibody Clone 1C6 - Biotinylated can be used for ELISA, immunoprecipitation (IP), and Western blot (WB) applications. The antibody recognizes carbamylated proteins and does not detect unmodified or citrullinated proteins.

References

1. Stark, G.R., Stein, W.H., and Moore, S. Reactions of cyanate present in aqueous urea with amino acids and proteins. *J. Biol. Chem.* **235**(11), 3177-3181 (1960).
2. Long, J., Vela Parada, X., and Kalim, S. Protein carbamylation in chronic kidney disease and dialysis. *Adv. Clin. Chem.* **87**, 37-67 (2018).
3. Wang, Z., Nicholls, S.J., Rodriguez, E.R., *et al.* Protein carbamylation links inflammation, smoking, uremia and atherogenesis. *Nat. Med.* **13**(1), 1176-1184 (2007).
4. Ok, E., Basnakian, A.G., Apostolov, E.O., *et al.* Carbamylated low-density lipoprotein induces death of endothelial cells: A link to atherosclerosis in patients with kidney disease. *Kidney Int.* **68**(1), 173-178 (2005).
5. Shi, J., Knevel, R., Suwannalai, P., *et al.* Autoantibodies recognizing carbamylated proteins are present in sera of patients with rheumatoid arthritis and predict joint damage. *Proc. Natl. Acad. Sci. USA* **108**(42), 17372-17377 (2011).

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