

Propionyl-Lysine [Prop-K] (D3A9R) Rabbit mAb**Orders:** 877-616-CELL (2355)
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Applications:	Reactivity:	Sensitivity:	Source/Isotype:
W	All	Endogenous	Rabbit IgG
Product Usage Information	Application	Dilution	
	Western Blotting	1:1000	
Storage	Supplied in 10 mM sodium HEPES (pH 7.5), 150 mM NaCl, 100 µg/ml BSA and 50% glycerol. Store at -20°C. Do not aliquot the antibody.		
Specificity/Sensitivity	Propionyl-Lysine (D3A9R) Rabbit mAb recognizes endogenous levels of proteins only when propionylated at a lysine residue. This antibody does not cross-react with other lysine modifications.		
Source / Purification	Monoclonal antibody is produced by immunizing animals with a synthetic peptide library containing propionyl-lysine.		
Background	<p>Lysine is subject to a wide array of regulatory post-translational modifications due to its positively charged ε-amino group side chain. The most prevalent of these are ubiquitination and acetylation, which are highly conserved among prokaryotes and eukaryotes (1,2). Acyl group transfer from the metabolic intermediates acetyl-, succinyl-, malonyl-, glutaryl-, butyryl-, propionyl-, and crotonyl-CoA all neutralize lysine's positive charge and confer structural alterations affecting substrate protein function. Lysine acetylation is catalyzed by histone acetyltransferases, HATs, using acetyl-CoA as a cofactor (3,4). Deacetylation is mediated by histone deacetylases, HDACs 1-11, and NAD-dependent Sirtuins 1-7. Some sirtuins have little to no deacetylase activity, suggesting that they are better suited for other acyl lysine substrates (5).</p> <p>Protein propionyl and butyryl transferase activity has been reported for p300 and CREB-binding protein, two acetyltransferases that can autoacylate as well as target histone proteins and p53 in vitro. Sirt1 (Sir2 in yeast) has been shown to have depropionylase activity and may be a major eukaryotic depropionylase (6,7). In the cytosol, acetyl-CoA carboxylase (ACC) converts acetyl-CoA to Malonyl-CoA and the reverse reaction is catalyzed by Malonyl-CoA decarboxylase (MCD), but in the mitochondria, propionyl-CoA carboxylase takes the role of ACC. Both MCD and ACC are regulated by AMPK, glucose levels, and insulin, underscoring their importance in intermediary metabolism (8).</p>		
Background References	<ol style="list-style-type: none"> Liu, Z. et al. (2014) <i>Nucleic Acids Res</i> 42, D531-6. Lee, S. (2013) <i>Toxicol Res</i> 29, 81-6. Lin, H. et al. (2012) <i>ACS Chem Biol</i> 7, 947-60. Zhang, Z. et al. (2011) <i>Nat Chem Biol</i> 7, 58-63. Du, J. et al. (2011) <i>Science</i> 334, 806-9. Chen, Y. et al. (2007) <i>Mol Cell Proteomics</i> 6, 812-9. Cheng, Z. et al. (2009) <i>Mol Cell Proteomics</i> 8, 45-52. Newman, J.C. et al. (2012) <i>J Biol Chem</i> 287, 42436-43. 		
Species Reactivity	Species reactivity is determined by testing in at least one approved application (e.g., western blot).		
Western Blot Buffer	IMPORTANT: For western blots, incubate membrane with diluted primary antibody in 5% w/v BSA, 1X TBS, 0.1% Tween® 20 at 4°C with gentle shaking, overnight.		
Applications Key	W: Western Blotting		
Cross-Reactivity Key	All: All Species Expected		
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