

DNA Polymerase γ (D1Y6R) Rabbit mAb

Orders: 877-616-CELL (2355)
orders@cellsignal.com

Support: 877-678-TECH (8324)

Web: info@cellsignal.com
cellsignal.com

3 Trask Lane | Danvers | Massachusetts | 01923 | USA

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| Applications: W, IP | Reactivity: H Mk | Sensitivity: Endogenous | MW (kDa): 140 | Source/Isotype: Rabbit IgG | UniProt ID: #P54098 | Entrez-Gene Id: 5428 |
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Product Usage Information**Application**

Western Blotting
Immunoprecipitation

Dilution

1:1000
1:50

Storage

Supplied in 10 mM sodium HEPES (pH 7.5), 150 mM NaCl, 100 μ g/ml BSA, 50% glycerol and less than 0.02% sodium azide. Store at -20°C . Do not aliquot the antibody.

Specificity/Sensitivity

DNA Polymerase γ (D1Y6R) Rabbit mAb recognizes endogenous levels of total DNA polymerase γ protein.

Source / Purification

Monoclonal antibody is produced by immunizing animals with a synthetic peptide corresponding to residues surrounding Pro560 of human DNA polymerase γ protein.

Background

DNA polymerase γ (POLG, pol gamma) is a nuclear encoded protein that is responsible for mitochondrial genome replication in eukaryotic cells. The 140 kDa polymerase γ catalytic subunit forms a holoenzyme complex with a 55 kDa accessory protein (POLG2, pol γ B) dimer, which confers processivity (1). In addition to polymerase activity, polymerase γ contains 3'-5' exonuclease activity for proofreading and 5'-deoxyribonucleic phosphate lyase activity that functions in DNA base excision repair (BER). The rate at which the catalytic subunit recognizes damaged DNA during DNA repair is enhanced by the pol γ B accessory subunit (2). Mutations in the corresponding *POLG* gene are associated with several inherited neuropathies including progressive external ophthalmoplegia, myocerebrohepatopathy spectrum disorders and Alpers-Huttenlocher syndrome (3,4). Research studies indicate that mutations in the corresponding *POLG* gene may promote breast tumorigenesis (5).

Background References

1. Kaguni, L.S. (2004) *Annu Rev Biochem* 73, 293-320.
2. Pinz, K.G. and Bogenhagen, D.F. (2006) *DNA Repair (Amst)* 5, 121-8.
3. Stumpf, J.D. et al. (2013) *Cold Spring Harb Perspect Biol* 5, a011395.
4. Finsterer, J. (2011) *J Neurol Sci* 304, 9-16.
5. Singh, K.K. et al. (2009) *J Hum Genet* 54, 516-24.

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 **IP:** Immunoprecipitation

Cross-Reactivity Key

H: Human **Mk:** Monkey

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