

#13609 Store at -20C

## DNA Polymerase $\gamma$ (D1Y6R) Rabbit mAb



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Applications:	Reactivity:	Sensitivity:	MW (kDa):	Source/Isotype:	UniProt ID:	Entrez-Gene Id:
WB, IP	H Mk	Endogenous	140	Rabbit IgG	#P54098	5428

### 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  $\mu$ g/ml BSA, 50% glycerol and less than 0.02% sodium azide. Store at  $-20^{\circ}\text{C}$ . Do not aliquot the antibody.

### Specificity / Sensitivity

DNA Polymerase  $\gamma$  (D1Y6R) Rabbit mAb recognizes endogenous levels of total DNA polymerase  $\gamma$  protein.

### Source / Purification

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

### Background

DNA polymerase  $\gamma$  (POLG, pol gamma) is a nuclear encoded protein that is responsible for mitochondrial genome replication in eukaryotic cells. The 140 kDa polymerase  $\gamma$  catalytic subunit forms a holoenzyme complex with a 55 kDa accessory protein (POLG2, pol  $\gamma$ B) dimer, which confers processivity (1). In addition to polymerase activity, polymerase  $\gamma$  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  $\gamma$ 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  $4^{\circ}\text{C}$  with gentle shaking, overnight.

### Applications Key

**WB:** Western Blotting **IP:** Immunoprecipitation

### Cross-Reactivity Key

**H:** human **M:** mouse **R:** rat **Hm:** hamster **Mk:** monkey **Vir:** virus **Mi:** mink **C:** chicken **Dm:** D. melanogaster  
**X:** Xenopus **Z:** zebrafish **B:** bovine **Dg:** dog **Pg:** pig **Sc:** S. cerevisiae **Ce:** C. elegans **Hr:** horse  
**GP:** Guinea Pig **Rab:** rabbit **All:** all species expected

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