

#3398 Store at -20C

# Phospho-eIF2 $\alpha$ (Ser51) (D9G8) XP<sup>®</sup> Rabbit mAb



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**For Research Use Only. Not for Use in Diagnostic Procedures.**

Applications:	Reactivity:	Sensitivity:	MW (kDa):	Source/Isotype:	UniProt ID:	Entrez-Gene Id:
W, IP, IHC-P	H M R Mk Dm	Endogenous	38	Rabbit IgG	#P05198	1965

## Product Usage Information

### Application

Western Blotting  
Immunoprecipitation  
Immunohistochemistry (Paraffin)

### Dilution

1:1000  
1:100  
1:50 - 1:200

## 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.

For a carrier free (BSA and azide free) version of this product see product #95797.

## Specificity/Sensitivity

Phospho-eIF2 $\alpha$  (Ser51) (D9G8) XP<sup>®</sup> Rabbit mAb detects endogenous eIF2 $\alpha$  only when phosphorylated at Ser51. The antibody does not recognize eIF2 $\alpha$  phosphorylated at other sites. Human eIF2 $\alpha$  residue Ser52 historically has been referenced as Ser51.

## Source / Purification

Monoclonal antibody is produced by immunizing animals with a synthetic phosphopeptide corresponding to residues surrounding Ser51 of human eIF2 $\alpha$ .

## Background

Phosphorylation of the eukaryotic initiation factor 2 (eIF2)  $\alpha$  subunit is a well-documented mechanism to downregulate protein synthesis under a variety of stress conditions. eIF2 binds GTP and Met-tRNA<sup>i</sup> and transfers Met-tRNA to the 40S subunit to form the 43S preinitiation complex (1,2). eIF2 promotes a new round of translation initiation by exchanging GDP for GTP, a reaction catalyzed by eIF2B (1,2). Kinases that are activated by viral infection (PKR), endoplasmic reticulum stress (PERK/PEK), amino acid deprivation (GCN2), or heme deficiency (HRI) can phosphorylate the  $\alpha$  subunit of eIF2 (3,4). This phosphorylation stabilizes the eIF2-GDP-eIF2B complex and inhibits the turnover of eIF2B. Induction of PKR by IFN- $\gamma$  and TNF- $\alpha$  induces potent phosphorylation of eIF2 $\alpha$  at Ser51 (5,6).

## Background References

1. Kimball, S.R. (1999) *Int. J. Biochem. Cell Biol.* 31, 25-29.
2. de Haro, C. et al. (1996) *FASEB J.* 10, 1378-87.
3. Kaufman, R.J. (1999) *Genes Dev.* 13, 1211-33.
4. Sheikh, M.S. and Fornace Jr., A.J. (1999) *Oncogene* 18, 6121-8.
5. Cheshire, J.L. et al. (1999) *J. Biol. Chem.* 274, 4801-6.
6. Zamanian-Daryoush, M. et al. (2000) *Mol. Cell. Biol.* 20, 1278-90.

## 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

**W:** Western Blotting **IP:** Immunoprecipitation **IHC-P:** Immunohistochemistry (Paraffin)

## Cross-Reactivity Key

**H:** Human **M:** Mouse **R:** Rat **Mk:** Monkey **Dm:** D. melanogaster

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