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DATA SHEET

Rabbit Anti-eIF2α (Ser51) Phosphorylated [MD434R]: RM0472

Intended Use: For Research Use Only

Description: eIF2α (eukaryotic translation initiation factor 2 subunit alpha), located predominantly in the cytoplasm, is a member of the eIF2 complex that regulates the initiation of protein synthesis by forming a ternary complex with GTP and initiator tRNA. The rate of formation of the ternary complex is modulated by the phosphorylation state of EIF2-alpha. While unphosphorylated eIF2α promotes normal protein synthesis, phosphorylation at Ser51 in response to cellular stress inhibits GDP/GTP exchange, leading to a reduction in protein synthesis. This regulatory mechanism allows cells to adapt to stress conditions such as nutrient deprivation, viral infection, and endoplasmic reticulum stress by conserving resources and preventing the accumulation of misfolded proteins. Dysregulation of eIF2α function is implicated in various diseases, including neurodegenerative disorders and cancer, underscoring its importance in maintaining cellular homeostasis.

Specifications:

Clone:	MD434R
Source:	Rabbit
Isotype:	IgG
Immunogen:	Synthetic p-eIF2α (Ser51) peptide corresponding to residues around Ser51
Reactivity:	Human, mouse, rat
Localization:	Cytoplasm
Formulation:	Purified antibody in PBS pH7.4, containing BSA and ≤ 0.09% sodium azide (NaN3)
Storage:	Store at 2°- 8°C
Applications:	IHC, IF, WB

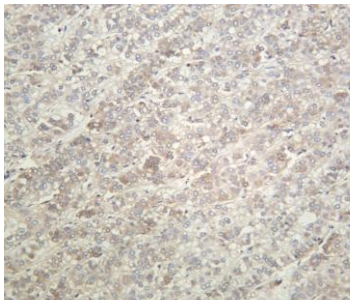
Package:

Description	Catalog No.	Size
eIF2α (Ser51) Phosphorylated [MD434R] Concentrated	RM0472	1 ml

IHC Procedure*:

Positive Control Tissue:	HCC, colon cancer, lung cancer
Concentrated Dilution:	10-100
Pretreatment:	Tris EDTA pH9.0, 15 minutes Pressure Cooker or 30-60 minutes water bath at 95°-99°C
Incubation Time and Temp:	30-60 minutes at RT
Detection:	Refer to the detection system manual

* Result should be confirmed by an established diagnostic procedure.



FFPE human HCC stained with anti-eIF2α (Ser51) using DAB

References:

1. Alterations in ether phospholipids metabolism activate the conserved UPR-Xbp1- PDIA3/ERp60 signaling to maintain intestinal homeostasis. Stephanie Makdissi, et al. iScience. Feb 4;28(3):111946, 2025. doi: 10.1016/j.isci.2025.111946.
2. Safety and Efficacy of Intraventricular Immunovirotherapy with Oncolytic HSV-1 for CNS Cancers. Kyung-Don Kang, et al. Clin Cancer Res. Dec 15;28(24):5419-5430, 2022. doi: 10.1158/1078-0432.CCR-22-1382.
3. Thalamo-hippocampal pathway regulates incidental memory capacity in mice. G Torromino, et al. Nat Commun. Jul 20;13(1):4194, 2022. doi: 10.1038/s41467-022-31781-8.

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