

eIF3 α (H-1): sc-376651

The Power to Question

BACKGROUND

The initiation of protein synthesis in eukaryotic cells is regulated by interactions between protein initiation factors and RNA molecules. Eukaryotic initiation factors (eIFs) are utilized in a sequence of reactions that lead to 80S ribosomal assembly and, ultimately, translation. The eukaryotic initiation factor-3 (eIF3) scaffolding structure is the largest of the eIF complexes and includes eIF3 α , eIF3 β , eIF3 γ , eIF3 δ , eIF3 ϵ , eIF3 ζ , eIF3 η and eIF3 θ , all of which function to control the assembly of the 40S ribosomal subunit. Association of eIF3 proteins with the 40S ribosomal subunit stabilizes eIF2-GTP-Met-tRNA^{iMet} complex association and mRNA binding, and promotes dissociation of 80S ribosomes into 40S and 60S subunits, thereby promoting the assembly of the pre-initiation complex. Overexpression of eIF3 proteins is common in several cancers, suggesting a role for eIF3 proteins in tumorigenesis.

REFERENCES

1. Valásek, L., et al. 2004. Interactions of eukaryotic translation initiation factor 3 (eIF3) subunit NIP1/c with eIF1 and eIF5 promote preinitiation complex assembly and regulate start codon selection. *Mol. Cell. Biol.* 24: 9437-9455.
2. Peterson, T.R., et al. 2005. eIF3: a connectOR of S6K1 to the translation preinitiation complex. *Mol. Cell* 20: 655-657.
3. Dong, Z., et al. 2006. Initiation factor eIF3 and regulation of mRNA translation, cell growth, and cancer. *Crit. Rev. Oncol. Hematol.* 59: 169-180.
4. LeFebvre, A.K., et al. 2006. Translation initiation factor eIF4G-1 binds to eIF3 through the eIF3 ϵ subunit. *J. Biol. Chem.* 281: 22917-22932.
5. Hinnebusch, A.G. 2006. eIF3: a versatile scaffold for translation initiation complexes. *Trends Biochem. Sci.* 31: 553-562.
6. Masutani, M., et al. 2007. Reconstitution reveals the functional core of mammalian eIF3. *EMBO J.* 26: 3373-3383.
7. Zhang, L., et al. 2007. Individual overexpression of five subunits of human translation initiation factor eIF3 promotes malignant transformation of immortal fibroblast cells. *J. Biol. Chem.* 282: 5790-5800.

CHROMOSOMAL LOCATION

Genetic locus: EIF3J (human) mapping to 15q21.1; Eif3j1 (mouse) mapping to 2 E5.

SOURCE

eIF3 α (H-1) is a mouse monoclonal antibody raised against amino acids 9-258 mapping at the C-terminus of eIF3 α of human origin.

PRODUCT

Each vial contains 200 μ g IgM kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

STORAGE

Store at 4 $^{\circ}$ C, ****DO NOT FREEZE****. Stable for one year from the date of shipment. Non-hazardous. No MSDS required.

APPLICATIONS

eIF3 α (H-1) is recommended for detection of eIF3 α of mouse, rat and human origin by Western Blotting (starting dilution 1:100, dilution range 1:100-1:1000), immunoprecipitation [1-2 μ g per 100-500 μ g of total protein (1 ml of cell lysate)], immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

Suitable for use as control antibody for eIF3 α siRNA (h): sc-40547, eIF3 α siRNA (m): sc-40548, eIF3 α shRNA Plasmid (h): sc-40547-SH, eIF3 α shRNA Plasmid (m): sc-40548-SH, eIF3 α shRNA (h) Lentiviral Particles: sc-40547-V and eIF3 α shRNA (m) Lentiviral Particles: sc-40548-V.

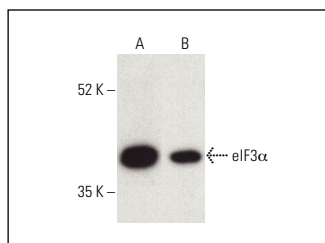
Molecular Weight of eIF3 α : 36 kDa.

Positive Controls: Jurkat whole cell lysate: sc-2204, WI-38 whole cell lysate: sc-364260 or K-562 whole cell lysate: sc-2203.

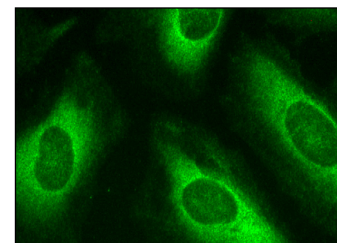
RECOMMENDED SUPPORT REAGENTS

To ensure optimal results, the following support reagents are recommended: 1) Western Blotting: use m-IgG κ BP-HRP: sc-516102 or m-IgG κ BP-HRP (Cruz Marker): sc-516102-CM (dilution range: 1:1000-1:10000), Cruz MarkerTM Molecular Weight Standards: sc-2035, UltraCruz[®] Blocking Reagent: sc-516214 and Western Blotting Luminol Reagent: sc-2048. 2) Immunoprecipitation: use Protein L-Agarose: sc-2336 (0.5 ml agarose/2.0 ml). 3) Immunofluorescence: use m-IgG κ BP-FITC: sc-516140 or m-IgG κ BP-PE: sc-516141 (dilution range: 1:50-1:200) with UltraCruz[®] Mounting Medium: sc-24941 or UltraCruz[®] Hard-set Mounting Medium: sc-359850.

DATA



eIF3 α (H-1): sc-376651. Western blot analysis of eIF3 α expression in K-562 (A) and WI-38 (B) whole cell lysates. Detection reagent used: m-IgG κ BP-HRP: sc-516102.



eIF3 α (H-1): sc-376651. Immunofluorescence staining of methanol-fixed HeLa cells showing cytoplasmic localization.

SELECT PRODUCT CITATIONS

1. Li, T., et al. 2018. Knockdown of eIF3 α inhibits TGF β 1-induced extracellular matrix protein expression in keloid fibroblasts. *Mol. Med. Rep.* 17: 4057-4061.
2. Kim, J., et al. 2021. Stress-induced accumulation of HnRNP K into stress granules. *J. Cancer Sci. Clin. Ther.* 5: 434-447.

RESEARCH USE

For research use only, not for use in diagnostic procedures.