SANTA CRUZ BIOTECHNOLOGY, INC.

elF4E (1-217): sc-4341 WB



BACKGROUND

The initiation of protein synthesis in eukaryotic cells is regulated by interactions between protein initiation factors and RNA molecules. The eukaryotic initiation complex eIF4F exists *in vitro* as a trimeric complex of eIF4G, eIF4E, and eIF4A. Together, the complex allows ribosome binding to mRNA by inducing the unwinding of mRNA secondary structures. eIF4E is a 25 kDa protein that binds to the mRNA "cap" during an early step in the initiation of protein synthesis. eIF4A is a 46 kDa protein that acts as an ATP-dependent RNA helicase. eIF4G is 154 kDa protein that acts as a bridge between eIF4E, eIF4A, and the eIF3 complex.

REFERENCES

- Rychlik, W., Domier, L.L., Gardner, P.R., Hellmann, G.M., and Rhoads, R.E. 1987. Amino acid sequence of the mRNA cap-binding protein from human tissues. Proc. Natl. Acad. Sci. USA 84: 945-949.
- 2. Reddy, N.S., Roth, W.W., Bragg, P.W., and Wahba, A.J. 1988. Isolation and mapping of a gene for protein synthesis initiation factor 4A and its expression during differentiation of murine erythroleukemia cells. Gene 70: 231-243.
- Rozen, F., Edery, I., Meerovitch, K., Dever, T.E., Merrick, W.C., and Sonenberg, N. 1990. Bidirectional RNA helicase activity of eucaryotic translation initiation factors 4A and 4F. Mol. Cell. Biol. 10: 1134-1144.
- Jaramillo, M., Dever, T.E., Merrick, W.C., and Sonenberg, N. 1991. RNA unwinding in translation: assembly of helicase complex intermediates comprising eukaryotic initiation factors eIF-4F and eIF-4B. Mol. Cell. Biol. 11: 5992-5997.
- Scheper, G.C., Voorma, H.O., and Thomas, A.A. 1992. Eukaryotic initiation factors-4E and -4F stimulate 5' cap-dependent as well as internal initiation of protein synthesis. J. Biol. Chem. 267: 7269-7274.
- Yan, R., Rychlik, W., Etchison, D., and Rhoads, R.E. 1992. Amino acid sequence of the human protein synthesis initiation factor eIF-4 γ. J. Biol. Chem. 267: 23226-23231.
- 7. Merrick, W.C. 1994. Eukaryotic protein synthesis: an *in vitro* analysis. Biochimie 76: 822-830.
- Lamphear, B.J., Kirchweger, R., Skern, T., and Rhoads, R.E. 1995. Mapping of functional domains in eukaryotic protein synthesis initiation factor 4G (eIF4G) with picornaviral proteases. Implications for cap-dependent and cap-independent translational initiation. J. Biol. Chem. 270: 21975-21983.

SOURCE

eIF4E (1-217) is expressed in *E. coli* as a 51 kDa tagged fusion protein corresponding to amino acids 1-217 representing full length eIF4E of human origin.

PRODUCT

elF4E (1-217) is purified from bacterial lysates (>98%) by column chromotography; supplied as 10 μg in 0.1 ml SDS-PAGE loading buffer.

APPLICATIONS

eIF4E (1-217) is suitable as a Western blotting control for sc-6967, sc-9976 and sc-13963.

STORAGE

Store at -20° C; stable for one year from the date of shipment.

RESEARCH USE

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