



Product Information

Nek7, Active

Human, recombinant, expressed in *E. coli*

Product Number **N 4537**

Storage Temperature: -70 °C

Synonyms: Never in Mitosis Gene A-Related Kinase 7;
NIMA-Related Kinase 7

Product Description

Nek7 is a member of the NIMA (Never In Mitosis, gene A) family of serine/threonine kinases. In contrast to the other documented NIMA-related kinases, Nek7 has its catalytic domain in its C-terminus. Immunofluorescence studies suggest that Nek7 is cytoplasmic and located on chromosome 1.¹ During early embryogenesis, Nek7 is expressed in the site of decidual reaction while later in embryogenesis, it is almost exclusively restricted to the nervous system in the dorsal thalamus.² Kimura³ found highest expression of Nek7 in lung, muscle, testis, brain, heart, liver, leukocyte, and spleen. Faint bands were detected in ovary, prostate, and kidney, and no transcript was amplified from small intestine. The major protein kinase that is active on the p70 S6 kinase hydrophobic regulatory site (FXXFS/TF/Y) Thr412, was purified from rat liver and identified as Nek7.⁴ Nek7 kinase activity is rapidly and efficiently increased by serum deprivation, and may be regulated in a cell cycle-dependent manner.⁵

The product is active recombinant, full-length human Nek7 containing an N-terminal GST tag. It is supplied at a concentration of approximately 100 µg/mL in 50 mM Tris-HCl, pH 7.5, 150 mM NaCl, 0.25 mM DTT, 0.1 mM EGTA, 0.1 mM EDTA, 0.1 mM PMSF and 25% glycerol.

Purity: ≥ 85% (SDS-PAGE)

Molecular weight: ~63 kDa

Specific Activity: ≥ 50 units/mg protein (Bradford).

Please refer to the Certificate of Analysis for the lot-specific activity.

Unit Definition: One unit will incorporate one nanomole of phosphate into β-casein per minute at 30 °C at pH 7.2 using a final concentration of 50 µM [³²P] ATP.

Precautions and Disclaimer

This product is for R&D use only, not for drug, household, or other uses. Please consult the Material Safety Data Sheet for information regarding hazards and safe handling practices.

Preparation instructions

For maximum product recovery, after thawing, centrifuge the vial before removing the cap

Storage/Stability

Stable for at least 12 months when stored as undiluted stock at -70 °C. After initial thawing, store in smaller, working aliquots at -70 °C. Use the working aliquots immediately upon thawing. Avoid repeated freeze-thaw cycles to prevent denaturing of the protein. Do not store in a frost-free freezer.

References:

1. Kandli M., et al., Isolation and characterization of two evolutionarily conserved murine kinases (Nek6 and nek7) related to the fungal mitotic regulator, NIMA., *Genomics*, **68**, 187-196 (2000).
2. Feige E., Motro B., The related murine kinases, Nek6 and Nek7, display distinct patterns of expression., *Mech. Dev.*, **110**, 219-223 (2002).
3. Belham C., et al., Identification of the NIMA family kinases NEK6/7 as regulators of the p70 ribosomal S6 kinase., *Curr. Biol.* **11**, 1155-1167 (2001).
4. Kimura M. and Okano Y. Identification and assignment of the human NIMA-related protein kinase 7 gene (NEK7) to human chromosome 1q31.3., *Cytogenet. Cell Genet.* **94**, 33-38 (2001).
5. Minoguchi S., et al., Differential control of the NIMA-related kinases, Nek6 and Nek7, by serum stimulation., *Biochem. Biophys. Res. Commun.*, **301**, 899-906 (2003).

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