www.novusbio.com
technical@novusbio.com
P: 303.760.1950
P: 888.506.6887
F: 303.730.1966

ERK Inhibitory Peptide Set

Catalog No.: **NBP2-29333**

Content: **ERK Inhibitor peptide: 2 x 1 mg (lyophilized)**
DRQIKIWFQNRRMKWKKGMPKKKPTPIQLN
(ERK inhibitor sequence is underlined). Molecular weight: 3795.

Control peptide: 2 x 1 mg (lyophilized)
DRQIKIWFQNRRMKWKK
Molecular weight: 2361

Species Reactivity: Broad; the peptide sequence is 100% conserved among multiple species. Reactivity includes human, mouse, rat, hamster, rabbit, and xenopus.

Storage: The solid product is stable in the dessicator at room temperature for 1 year. However, we recommend storing dessicated at -20°C.

Form: White Solid

Application: Inhibition of Erk activation.

Inhibitory Mechanism: Functions as a MEK decoy by binding to ERK.

Solubility: Solubilize the peptides prior to use by making 5 mM PBS* stock solutions (please see **Preparation of 5 mM Stock Solutions**). The stock solutions are stable at -20°C for 6-8 months. Avoid repeated freeze/thaw cycles. For multiple uses, we suggest aliquoting the stock solution prior to freezing.

Background

ERK (extracellular signal-regulated kinase) is a member of the Mitogen-activated protein kinases (MAPK) family of protein kinases that are essential for cellular proliferation and differentiation. The activation of MAPKs requires a cascade mechanism whereby MAPK is phosphorylated by an upstream kinase MAPKK (MEK) which is then, in turn phosphorylated by a third kinase MAPKKK (MEKK). This inhibitory peptide contains the amino-terminal 13 amino acids (GMPKKKPTPIQLN) of MEK1 and binds to ERK.[1] This blocks ERK activation by MEK as ERK is unable to interact with MEK.

The ERK inhibitory peptide also contains a protein transduction (PTD) sequence (DRQIKIWFQNRRMKWKK) derived from antennapedia which renders the peptide cell permeable.[2] The control peptide consists of only the PTD sequence.

Research purposes only. Not for diagnostic or use in human. For use in animal, follow your Institution's Animal Handling Policy.

Preparation of 5 mM Stock Solutions

PBS* is added directly to the vials to prepare the stock solutions. ***Note:*** *Bring the solution to room temperature and quick spin the tubes before opening the caps.*

ERK Inhibitor Peptide: 1 mg of DRQIKIWFQNRRMKWKKGMPKKKPTPIQLN

Add 53 ul of PBS* to the vial to make a 5 mM stock solution. Mix by vortexing. Aliquot and store at -20°C or -80°C. Avoid repeated freeze thawing.

Control Peptide: 1 mg of DRQIKIWFQNRRMKWKK

Add 84.8 ul PBS* to the vial. Mix by vortexing. Aliquot and store at 20°C or -80°C. Avoid repeated freeze thawing.

***Recipe for 1X PBS:**

1. Dissolve the following in 800ml distilled H_2O.
   8g of NaCl
   0.2g of KCl
   1.44g of Na_2HPO_4
   0.24g of KH_2PO_4
2. Adjust pH to 7.5 with HCl.
3. Adjust volume to 1L with additional distilled H_2O.
4. Sterilize by autoclaving

Usage:

The inhibitor peptide is to block ERK activation by MEK. Optimal peptide concentrations and incubation times vary between model systems and should be determined empirically by users. A 100 uM final concentration may be a useful starting point. Please refer to Kalemen et al (2002) for additional information about how the inhibitor peptide has been used to block ERK activation by MEK.

Reference:

1. Kelemen BR, K Hsiao, SA Goueli. Selective *in vivo* inhibition of mitogen-activated protein kinase activation using cell-permeable peptides. 277:8741-8748 (2002).

2. Derossi D, AH Joliot, G Chassaings, A Prochiantz. The Third Helix of the Antennapedia Homeodomain Translocates through Biological Membranes. *J Biol Chem*. 269:10444-10450 (1994).

Research purposes only. Not for diagnostic or use in human. For use in animal, follow your Institution's Animal Handling Policy.