

## FRK (Human), Active

### Recombinant protein expressed in Sf9 cells

Cat# CY-SPF14

Lot No. K041-1  
5 µg 0.1 µg/µl

#### Background:

FRK (fyn-related kinase) or Rak is a nuclear tyrosine kinase and member of the Src sub-family. Restricted expression of FRK is detected in a broad range of cell lines with highest levels in epithelial cells. Increased expression of FRK has been shown in breast and renal cell carcinoma cell lines. In addition the retinoblastoma tumor susceptibility gene product pRb associates with FRK in vitro and in vivo (1). Overexpression of FRK in beta-cells from the pancreas increases the susceptibility of these cells to beta-cell-toxic events (hallmark of Type I diabetes)(2).

#### Product Description:

Recombinant human FRK (208-end) was expressed by baculovirus in Sf9 insect cells using a N-terminal GST tag. The gene accession number is NM\_002031.

#### Gene Aliases:

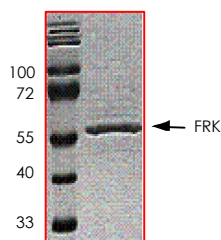
GTK; RAK; PTK5

#### Formulation:

Recombinant protein stored in 50mM Tris-HCl, pH 7.5, 150mM NaCl, 0.25mM DTT, 0.1mM EGTA, 0.1mM EDTA, 0.1mM PMSF, 25% glycerol.

#### Purity & Molecular Weight:

The purity was determined to be >90% by densitometry. Approx. MW 60kDa.



#### Storage:

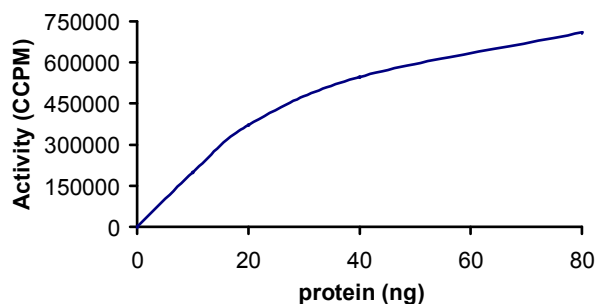
Store product at  $-70^{\circ}\text{C}$ . For optimal storage, aliquot target into smaller quantities after centrifugation and store at recommended temperature. For most favorable performance, avoid repeated handling and multiple freeze/thaw cycles.

#### Stability:

Unopened vial at  $-70^{\circ}\text{C}$ , 1 year from date of shipment.

**Specific Activity:**

The specific activity was determined to be 997 nmol/min/mg as per Activity Assay Protocol.

**Activity Assay Protocol:**

Assay activity of the kinase in a 25  $\mu$ L reaction consisting of 5  $\mu$ L of 5 X Kinase Assay Buffer, 10  $\mu$ L of 1 mg/ml the Substrate Solution, 5  $\mu$ L of diluted kinase and 5  $\mu$ L of 250  $\mu$ M ATP solution containing [ $\gamma$ - $^{32}$ P] ATP (0.167  $\mu$ Ci/ $\mu$ L). Start the reaction by adding the ATP solution. Incubate for 15 minutes at 30°C. Terminate the reaction by spotting 20  $\mu$ L of the reaction mixture onto phosphocellulose P81 paper. Air-dry the P81 paper and sequentially wash 4 times for approximately 10 minutes each in 1% phosphoric acid with constant gentle stirring. Count the P81 paper in a liquid scintillation counter.

**Substrate Solution:**

Poly (Glu:Tyr, 4:1) synthetic peptide substrate diluted in distilled H<sub>2</sub>O to a final concentration of 1 mg/ml.

**5 X Kinase Assay Buffer:**

25mM MOPS, 12.5mM  $\beta$ -glycerol-phosphate, 20mM MgCl<sub>2</sub>, 25mM MnCl<sub>2</sub>, 5mM EGTA, 2mM EDTA. Add 0.25mM DTT to Kinase Assay Buffer prior to use.

**References:**

1. Craven, R J. et al: The nuclear tyrosine kinase Rak associates with the retinoblastoma protein pRb. Cancer Res. 1995 Sep 15;55(18):3969-72.
2. Welsh, M. et al: The tyrosine kinase FRK/RAK participates in cytokine-induced islet cell cytotoxicity. Biochem J. 2004 Aug 15;382(Pt 1):261-8.

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