

# Human pantothenate kinase 3 (PANK3)

PDB:2I7P

## Revision

**Revision Type:**created

**Revised by:**created

**Revision Date:**created

**Entry Clone Accession:**

**Entry Clone Source:**synthetic DNA from GenScript

**SGC Clone Accession:**

**Tag:**N-terminal hexa histiden tag with thrombin cleavage site: mgsshhhhhhssglvprgs

**Host:**E.coli BL21 (DE3)

## Construct

**Prelude:**

**Sequence:**

```
mgsshhhhhhssglvprgsPWFGMDIGGTLVKLSYFEPIDITAEQQEEVESLKSIRKYLTNSVAYGSTGIRDVHLELKDLTFGR
GNLHFIRFPTQDLPTFIQMGRDKNFSTLQTVLCATGGGAYKFEKDFRTIGNLHLHKLDELDCLVKGLLYIDSVSFNGQAECYYFANA
SEPERCQKMPFNDDPYPLLVNIGSGVSIHAVHSKDNYKRVGTSLGGTFLGLCSLLTGCESFEAELEMASKGDSTQADKLVRI
YGGDYERFGLPGWAVASSFGNMIYKEKRESVSKEDLARATLVTITNNIGSVARMCANKEKINRVVFGNFLRVNTLSMKLLAYALDY
WSKGQLKALFLEHEGYFGAVGALLGLPN
```

**Vector:**p28a-LIC

## Growth

**Medium:**

**Antibiotics:**

**Procedure:**The target was expressed in E. coli by inoculating 100 mL of overnight culture grown in Luria-Bertani medium into a 1.8 L of Terrific Broth medium in the presence of 50  $\mu$ g/mL kanamycin at 37°C. When OD600 was ~2.5 to 3.5, the culture was induced with 1mM IPTG and the temperature was reduced to 18°C, and the cells were allowed to grow overnight before harvesting and flash frozen by liquid N2.

## Purification

**Procedure**

The thawed cell pellets were suspended in 100 mL of the binding buffer (10 mM Tris pH 7.5, 0.5 M NaCl, 5% glycerol, 5 mM imidazole) with a protease inhibitor cocktail (0.1 mM M benzamidine-HCl and 0.1 mM phenylmethyl sulfonyl fluoride), and 0.5% CHAPS. The cells were lysed by liquid fluidizer. The lysate was centrifuged at 15000 rpm for 30 min and the supernatant was passed through DE52 (Whatman) column equilibrated with the binding buffer and then loaded onto 3 mL Ni-NTA column (Qiagen) equilibrated with the same binding buffer at

4 °C. The Ni-NTA column was washed with 150 mL of the wash buffer (10mM Tris pH 7.5, 0.5 M NaCl, 5% glycerol, 30 mM imidazole) and the protein was eluted with 15 mL of the elution buffer (10mM Tris pH 7.5, 0.5 M NaCl, 5% glycerol, 250 mM imidazole). The protein were further purified and desalted using gel filtration column, Superdex 200 (26/60), which was pre-equilibrated with 20 mM Tris pH 8.0, 0.2 M NaCl, and 10 mM DTT. All proteins were concentrated using an Amicon Ultra centrifugal filter to a final concentration of 25 mg/mL. Protein concentrations were measured using Bradford assay with purity >95% based on SDS-PAGE analysis.

## **Extraction**

### **Procedure**

**Concentration:** 25 mg/mL

**Ligand**

**MassSpec:**

**Crystallization:** Crystallization trials were set up using the sitting drop vapor diffusion method and the protein drop was equilibrated against a reservoir solution with 1:1 volume ratio. PANK3 was crystallized in 0.1M Tris-HCl, 16% PEG, 0.2M DiNH4Citrate, and 0.02M octaethylene glycol dodecyl ether.

**NMR Spectroscopy:**

**Data Collection:**

**Data Processing:**