

CDPK1

PDB:3HX4

Revision

Revision Type:created

Revised by:created

Revision Date:created

Entry Clone Accession:

Entry Clone Source:

SGC Clone Accession:TgCDPK4:MAC03F-A01:C208088

Tag:C-terminal His6-tag

Host:BL21(DE3)V2RpACYC-LIC+LamP-phosphatase

Construct

Prelude:

Sequence:

MMGQQESTLGGAAGEPRSRGHAAGTSGGPGDHLHATPGMFVQHSTAIFSDRYKGQQRVLGKGSFGEVILCKDKITGQECAVKVISKRQ
VKQKTDKESLLREVQLLKQLDHPNIMKLYEFFEDKGYFYLVGEVYTGGELFDEIISRKRFSEVDAARIIRQVLSGITYMHKNKIVHR
DLKPENLLLESKSKDANIRIIDFGLSTHFEASKMKDKIGTAYYIAPEVLHGTYDEKCDVWSTGVILYILLSGCPPNGANEYDILK
KVEKGKYTFELPKWKKVSEAKDLIRKMLTYVPSMRISARDALDHEWIQTYTKEQISVDVPSLDNAILNIRQFQGTQKLAQALLYM
GSKLTSQDETTELTAIFHKMDKNGDGQLDRAELIEGYKELMRMKGQDASMLDASAVEHEVDQVLDAVDFDKNGYIEYSEFVTAMDR
KTLLSRERLERAFRMFDSNDNGKISSTELATIFGVSDVDSETWKSVLSEVDKNNDGEVDFDEFQQMLLKLCGNLEHHHHHH

Vector:PET22

Growth

Medium:TB

Antibiotics:

Procedure:Express plasmid in E. coli BL21(DE3)V2RpACYC-LIC+LamP-phosphatase on LB(Luria broth) plate in the presence of carbenicillin(100mg/ml)+chloramphenicol (34 mg/mL). A single colony was inoculated into 25 mL of TB with carbenicillin(100mg/ml)+chloramphenicol (34 mg/mL) in a 50 mL falcon tube and incubated with shaking at 250 rpm overnight at 37 °C. Then the culture was transfer into 1L of TB with carbenicillin(100mg/ml)+chloramphenicol (34 mg/mL) and 0.3 mL of antifoam (Sigma) in a 1 L bottle and cultured using the LEX system to an OD600 of ~5, cooled to 15 °C, and induced with 0.5 mM isopropyl-1-thio-D-galactopyranoside (IPTG) overnight at 15 °C.

Purification

Procedure

Affinity column:The cleared lysate was loaded onto a column prepacked with 10 g DE52 (Whatman) anion exchange resin (previously activated with 2.5 M NaCl and equilibrated with

Binding Buffer); and subsequently onto a 2.5 mL Ni-NTA (Qiagen) column pre-equilibrated with Binding Buffer at approximately 1 - 1.5 mL/min. After the lysate was loaded, the DE52 was further washed with 20 mL of Binding Buffer. The Ni-NTA column was then washed with 200 mL of Wash Buffer at 2 - 2.5 mL/min. After washing, the protein was eluted with 15 mL of Elution Buffer. TCEP was then added to 1 - 5 mM.

Gel filtration: The sample was loaded onto a Sephadex S200 26/60 column equilibrated with Gel Filtration Buffer. The fractions from the peak corresponding to monomer protein were collected.

Extraction

Procedure

The culture was harvested by centrifugation. Pellets from 4 L of culture were resuspended to approximately 40 mL/L of cell culture in Binding Buffer with the addition of protease inhibitors (1 mM benzamidine and 1 mM phenylmethyl sulfonyl fluoride (PMSF)). Resuspended pellets stored at 80 degC were thawed overnight at 4 °C on the day before purification. Prior to mechanical lysis, each pellet from 1 L of culture was pretreated with protease inhibitors, 0.5% CHAPS and 500 units of benzonase for 40 minutes at room temperature. Cells were sonicated for effective time 10 minutes (about 120 watts, pulsed 10s on, 10s off) and the cell lysate was centrifuged using a Beckman JA-25.25 rotor at 24,000 rpm for 20 minutes at 10 °C

Concentration: protein concentration: 15mg/ml

Ligand

MassSpec:

Crystallization: The protein was crystallized at 20 °C in 26.36% peg3350, tris8.0 and 0.2M LiSO4 with ligand 2mMAMPPNP, 2mMCaCl2, 4mM MgCl2 and 6.25mMTCEP using the Sitting drop method.

NMR Spectroscopy:

Data Collection:

Data Processing: