Cp-HSP40

PDB:2Q2G

Revision

Revision Type:created
Revised by:created
Revision Date:created
Entry Clone Accession:cgd2_1800
Entry Clone Source:
SGC Clone Accession:cgd2_1800:A148-D326; plate MAC01Y:C3
Tag:N-terminal His6-tag with integrated TEV cleavage site (*): mhhhhhhssgrenlyfq*g
Host:E. coli BL21-(DE3)-R3-pRARE2

Construct

Prelude:
Sequence:

GAPRSHEVPLLVTLEELYLGKRKKIKVTRKRFIEHKVRNEENIVEVEIKPGWKDGTKLTYSGEGDQESPGTSPGDLVLIIQTKTHPR
FTRDDCHLIMKVTIPLVRALTGFTCPVTTLDNRNLQIPIKEIVNPKTRKIVPNEGMPIKNQPGQKGDLILEFDICFPKSLTPEQKKL
IKEALD

Vector:p15TV-L

Growth

Medium:M9
Antibiotics:100 microG/mL ampicillin and 34 microG/mL chloramphenicol
Procedure:A single colony was inoculated into 10 mL of LB with of Antibiotics and incubated with shaking at 250 rpm overnight at 37 degC. The culture was transferred into 50 mL of TB with Antibiotics in a 250 mL shaking flask and incubated at 37 degC for 3 hours. The culture was then transferred into 1.8 L of above-specified growth medium with Antibiotics and 0.3 mL of antifoam (Sigma) in a 2L bottle and cultured using the LEX system to an OD600 of ~1, cooled to 15 degC and induced with 0.5 mM isopropyl-1-thio-D-galactopyranoside (IPTG) overnight at 20 degC.

Purification

Procedure
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 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 10 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. EDTA was

immediately added to the elution fraction to 1 mM; and DTT was added to 2 mM after 15 minutes.
The sample was loaded onto a Sephadex S200 26/60 column equilibrated with Gel Filtration Buffer. The fractions from the peak corresponding to dimeric protein were pooled and DTT was added to 1 mM. The protein was incubated with TEV protease overnight at 4 deg C. Cleaved, untagged protein was removed from the histidine tag and TEV protease by passage through another Ni-NTA column.
The protein was then concentrated to 11.3 mg/mL by Amicon spin concentrator. Sample identity and purity were respectively evalulated by mass spectroscopy and SDS-PAGE. The concentrated protein was stored at -80 degC.

Extraction

Procedure
Cells were resuspended to approximately 40 mL/L of cell culture in Binding Bufferwith protease inhibitor (1 mM benzamidine-HCl and 1 mM phenylmethyl sulfonyl fluoride, PMSF). Resuspended pellets stored at -80 degC were thawed overnight at 4 degC on the day before purification. Prior to mechanical lysis, each pellet from 1 L of culture was pretreated with 0.5% CHAPS and 500 units of benzonase for 40 minutes at room temperature. Cells were mechanically lysed with a microfluidizer (Microfluidizer Processor, M-110EH) at approximately 18000 psi; and the cell lysate was centrifuged using at ~75000 x g for 20 minutes at 10 degC.
Concentration:
Ligand
MassSpec:
Crystallization: The protein was crystallized at 20 degC in 19% P3350, 0.2 M LiS04, 0.1 M Bis-Tris, pH 5.8, with 2 microL buffer added to 2 microL protein using the hanging drop vapour diffusion method.
NMR Spectroscopy:
Data Collection:
Data Processing: