

A

SHF

Structural Homolog Finder: find a structural homolog for a gene in another organism.

Source Organism: *Homosapiens*

Target Organism: *Escherichia coli*

Search gene name or Uniprot ID

B

P40939

(1) Homolog Protein P77399: Fatty acid oxidation complex subunit alpha [Includes: Enoyl-CoA hydratase/3-hydroxybutyryl-CoA epimerase (EC 4.2.1.17) (EC 5.1.2.3); 3-hydroxyacyl-CoA dehydrogenase (EC 1.1.1.35)]

Queried Protein Structure	Homolog Protein Structure	Similarity	
AlphaFold Structure P40939 36-762 aa	Protein Data Bank 6Y5V 1-714 aa	93.1%	Visualize Alignment
AlphaFold Structure P40939 36-762 aa	AlphaFold Structure P77399 3-706 aa	93.0%	Visualize Alignment

(2) Homolog Protein P21177: Fatty acid oxidation complex subunit alpha [Includes: Enoyl-CoA hydratase/(Delta(3)-cis-Delta(2)-trans-enoyl-CoA isomerase/3-hydroxybutyryl-CoA epimerase (EC 4.2.1.17) (EC 5.1.2.3) (EC 5.3.3.8); 3-hydroxyacyl-CoA dehydrogenase (EC 1.1.1.35)]

Queried Protein Structure	Homolog Protein Structure	Similarity	
AlphaFold Structure P40939 36-762 aa	AlphaFold Structure P21177 1-720 aa	89.9%	Visualize Alignment

(3) Homolog Protein P76083: 3-hydroxyadipyl-CoA dehydrogenase (EC 1.1.1.1)

Queried Protein Structure	Homolog Protein Structure	Similarity	
AlphaFold Structure P40939 36-762 aa	AlphaFold Structure P76083 1-474 aa	50.1%	Visualize Alignment

C

Queried & Homolog Protein Structure

Sequence of P40939_36-762aa_Chen_1_Polymer1_hh_A_A

Sequence of P21177_1-720aa_Chen_1_Polymer1_hh_A_A

Sequence-independent structural alignment

Sequence of P76083_1-474aa_Chen_1_Polymer1_hh_A_A

Supplemental Figure S5. SHF: An online resource for Structural homolog Identification

(A) Screenshot for the input page

(B) Screenshot for an example of the output. A query for structural homologs of human HADHA (Uniprot ID: P40939) in *E. coli* proteomes returns three homologous proteins.

(C) Visualization of the structural alignment between the AlphaFold2 predicted structure of human HADHA and experimental structure *E. coli* fadJ (PDB ID: 6Y5V)