



wwPDB EM Validation Summary Report ⓘ

Mar 20, 2026 – 05:30 AM UTC

PDB ID : 9CHS / pdb_00009chs
EMDB ID : EMD-45600
Title : Cryo-EM structure of the human ether-a-go-go related K⁺ channel (hERG) in 3 mM K⁺ without symmetry
Authors : Lau, C.H.Y.; Hunter, M.J.; Vandenberg, J.I.
Deposited on : 2024-07-01
Resolution : 3.40 Å(reported)

This is a wwPDB EM Validation Summary Report for a publicly released PDB entry.

We welcome your comments at validation@mail.wwpdb.org

A user guide is available at
<https://www.wwpdb.org/validation/2017/EMValidationReportHelp>
with specific help available everywhere you see the ⓘ symbol.

The types of validation reports are described at
<http://www.wwpdb.org/validation/2017/FAQs#types>.

The following versions of software and data (see [references ⓘ](#)) were used in the production of this report:

EMDB validation analysis : 0.0.1.dev132
MolProbity : 4-5-2 with Phenix2.0
Percentile statistics : 20250101.v01 (using entries in the PDB archive January 1st 2025)
EM percentile statistics : **NOT EXECUTED**
MapQ : **FAILED**
Ideal geometry (proteins) : Engh & Huber (2001)
Ideal geometry (DNA, RNA) : Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP) : 2.49

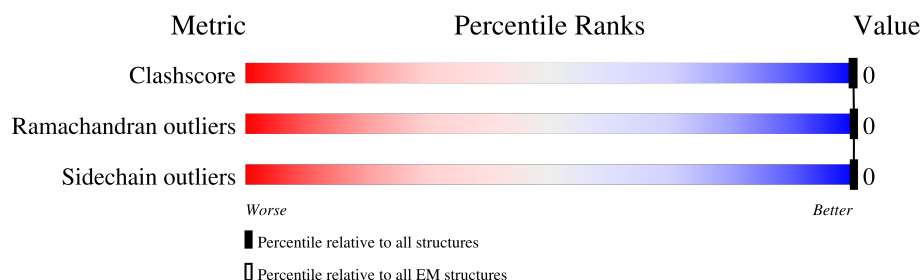
1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

ELECTRON MICROSCOPY

The reported resolution of this entry is 3.40 Å.

Percentile scores (ranging between 0-100) for global validation metrics of the entry are shown in the following graphic. The table shows the number of entries on which the scores are based.



Metric	Whole archive (#Entries)	EM structures (#Entries)
Clashscore	229148	23984
Ramachandran outliers	224038	23583
Sidechain outliers	223484	23102

The table below summarises the geometric issues observed across the polymeric chains and their fit to the map. The red, orange, yellow and green segments of the bar indicate the fraction of residues that contain outliers for ≥ 3 , 2, 1 and 0 types of geometric quality criteria respectively. A grey segment represents the fraction of residues that are not modelled. The numeric value for each fraction is indicated below the corresponding segment, with a dot representing fractions $\leq 5\%$.

Mol	Chain	Length	Quality of chain
1	A	784	
1	B	784	
1	C	784	
1	D	784	

2 Entry composition

There is only 1 type of molecule in this entry. The entry contains 19104 atoms, of which 9596 are hydrogens and 0 are deuteriums.

In the tables below, the AltConf column contains the number of residues with at least one atom in alternate conformation and the Trace column contains the number of residues modelled with at most 2 atoms.

- Molecule 1 is a protein called Potassium voltage-gated channel subfamily H member 2.

Mol	Chain	Residues	Atoms						AltConf	Trace
1	A	293	Total	C	H	N	O	S	0	0
			4776	1573	2399	392	400	12		
1	B	293	Total	C	H	N	O	S	0	0
			4776	1573	2399	392	400	12		
1	C	293	Total	C	H	N	O	S	0	0
			4776	1573	2399	392	400	12		
1	D	293	Total	C	H	N	O	S	0	0
			4776	1573	2399	392	400	12		

There are 1500 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
A	?	-	PRO	deletion	UNP Q12809
A	?	-	ALA	deletion	UNP Q12809
A	?	-	HIS	deletion	UNP Q12809
A	?	-	ASP	deletion	UNP Q12809
A	?	-	THR	deletion	UNP Q12809
A	?	-	ASN	deletion	UNP Q12809
A	?	-	HIS	deletion	UNP Q12809
A	?	-	ARG	deletion	UNP Q12809
A	?	-	GLY	deletion	UNP Q12809
A	?	-	PRO	deletion	UNP Q12809
A	?	-	PRO	deletion	UNP Q12809
A	?	-	THR	deletion	UNP Q12809
A	?	-	SER	deletion	UNP Q12809
A	?	-	TRP	deletion	UNP Q12809
A	?	-	LEU	deletion	UNP Q12809
A	?	-	ALA	deletion	UNP Q12809
A	?	-	PRO	deletion	UNP Q12809
A	?	-	GLY	deletion	UNP Q12809
A	?	-	ARG	deletion	UNP Q12809
A	?	-	ALA	deletion	UNP Q12809
A	?	-	LYS	deletion	UNP Q12809
A	?	-	THR	deletion	UNP Q12809

Continued on next page...

Continued from previous page...

Chain	Residue	Modelled	Actual	Comment	Reference
A	?	-	PHE	deletion	UNP Q12809
A	?	-	ARG	deletion	UNP Q12809
A	?	-	LEU	deletion	UNP Q12809
A	?	-	LYS	deletion	UNP Q12809
A	?	-	LEU	deletion	UNP Q12809
A	?	-	PRO	deletion	UNP Q12809
A	?	-	ALA	deletion	UNP Q12809
A	?	-	LEU	deletion	UNP Q12809
A	?	-	LEU	deletion	UNP Q12809
A	?	-	ALA	deletion	UNP Q12809
A	?	-	LEU	deletion	UNP Q12809
A	?	-	THR	deletion	UNP Q12809
A	?	-	ALA	deletion	UNP Q12809
A	?	-	ARG	deletion	UNP Q12809
A	?	-	GLU	deletion	UNP Q12809
A	?	-	SER	deletion	UNP Q12809
A	?	-	SER	deletion	UNP Q12809
A	?	-	VAL	deletion	UNP Q12809
A	?	-	ARG	deletion	UNP Q12809
A	?	-	SER	deletion	UNP Q12809
A	?	-	GLY	deletion	UNP Q12809
A	?	-	GLY	deletion	UNP Q12809
A	?	-	ALA	deletion	UNP Q12809
A	?	-	GLY	deletion	UNP Q12809
A	?	-	GLY	deletion	UNP Q12809
A	?	-	ALA	deletion	UNP Q12809
A	?	-	GLY	deletion	UNP Q12809
A	?	-	ALA	deletion	UNP Q12809
A	?	-	PRO	deletion	UNP Q12809
A	?	-	GLY	deletion	UNP Q12809
A	?	-	ALA	deletion	UNP Q12809
A	?	-	VAL	deletion	UNP Q12809
A	?	-	VAL	deletion	UNP Q12809
A	?	-	VAL	deletion	UNP Q12809
A	?	-	ASP	deletion	UNP Q12809
A	?	-	VAL	deletion	UNP Q12809
A	?	-	ASP	deletion	UNP Q12809
A	?	-	LEU	deletion	UNP Q12809
A	?	-	THR	deletion	UNP Q12809
A	?	-	PRO	deletion	UNP Q12809
A	?	-	ALA	deletion	UNP Q12809
A	?	-	ALA	deletion	UNP Q12809

Continued on next page...

Continued from previous page...

Chain	Residue	Modelled	Actual	Comment	Reference
A	?	-	PRO	deletion	UNP Q12809
A	?	-	SER	deletion	UNP Q12809
A	?	-	SER	deletion	UNP Q12809
A	?	-	GLU	deletion	UNP Q12809
A	?	-	SER	deletion	UNP Q12809
A	?	-	LEU	deletion	UNP Q12809
A	?	-	ALA	deletion	UNP Q12809
A	?	-	LEU	deletion	UNP Q12809
A	?	-	ASP	deletion	UNP Q12809
A	?	-	GLU	deletion	UNP Q12809
A	?	-	VAL	deletion	UNP Q12809
A	?	-	THR	deletion	UNP Q12809
A	?	-	ALA	deletion	UNP Q12809
A	?	-	MET	deletion	UNP Q12809
A	?	-	ASP	deletion	UNP Q12809
A	?	-	ASN	deletion	UNP Q12809
A	?	-	HIS	deletion	UNP Q12809
A	?	-	VAL	deletion	UNP Q12809
A	?	-	ALA	deletion	UNP Q12809
A	?	-	GLY	deletion	UNP Q12809
A	?	-	LEU	deletion	UNP Q12809
A	?	-	GLY	deletion	UNP Q12809
A	?	-	PRO	deletion	UNP Q12809
A	?	-	ALA	deletion	UNP Q12809
A	?	-	GLU	deletion	UNP Q12809
A	?	-	GLU	deletion	UNP Q12809
A	?	-	ARG	deletion	UNP Q12809
A	?	-	ARG	deletion	UNP Q12809
A	?	-	ALA	deletion	UNP Q12809
A	?	-	LEU	deletion	UNP Q12809
A	?	-	VAL	deletion	UNP Q12809
A	?	-	GLY	deletion	UNP Q12809
A	?	-	PRO	deletion	UNP Q12809
A	?	-	GLY	deletion	UNP Q12809
A	?	-	SER	deletion	UNP Q12809
A	?	-	PRO	deletion	UNP Q12809
A	?	-	PRO	deletion	UNP Q12809
A	?	-	ARG	deletion	UNP Q12809
A	?	-	SER	deletion	UNP Q12809
A	?	-	ALA	deletion	UNP Q12809
A	?	-	PRO	deletion	UNP Q12809
A	?	-	GLY	deletion	UNP Q12809

Continued on next page...

Continued from previous page...

Chain	Residue	Modelled	Actual	Comment	Reference
A	?	-	GLN	deletion	UNP Q12809
A	?	-	LEU	deletion	UNP Q12809
A	?	-	PRO	deletion	UNP Q12809
A	?	-	SER	deletion	UNP Q12809
A	?	-	PRO	deletion	UNP Q12809
A	?	-	ARG	deletion	UNP Q12809
A	?	-	ALA	deletion	UNP Q12809
A	?	-	HIS	deletion	UNP Q12809
A	?	-	SER	deletion	UNP Q12809
A	?	-	LEU	deletion	UNP Q12809
A	?	-	ASN	deletion	UNP Q12809
A	?	-	PRO	deletion	UNP Q12809
A	?	-	ASP	deletion	UNP Q12809
A	?	-	ALA	deletion	UNP Q12809
A	?	-	SER	deletion	UNP Q12809
A	?	-	GLY	deletion	UNP Q12809
A	?	-	SER	deletion	UNP Q12809
A	?	-	SER	deletion	UNP Q12809
A	?	-	CYS	deletion	UNP Q12809
A	?	-	SER	deletion	UNP Q12809
A	?	-	LEU	deletion	UNP Q12809
A	?	-	ALA	deletion	UNP Q12809
A	?	-	ARG	deletion	UNP Q12809
A	?	-	THR	deletion	UNP Q12809
A	?	-	ARG	deletion	UNP Q12809
A	?	-	SER	deletion	UNP Q12809
A	?	-	ARG	deletion	UNP Q12809
A	?	-	GLU	deletion	UNP Q12809
A	?	-	SER	deletion	UNP Q12809
A	?	-	CYS	deletion	UNP Q12809
A	?	-	ALA	deletion	UNP Q12809
A	?	-	SER	deletion	UNP Q12809
A	?	-	VAL	deletion	UNP Q12809
A	?	-	ARG	deletion	UNP Q12809
A	?	-	ARG	deletion	UNP Q12809
A	?	-	ALA	deletion	UNP Q12809
A	?	-	SER	deletion	UNP Q12809
A	?	-	SER	deletion	UNP Q12809
A	?	-	ALA	deletion	UNP Q12809
A	?	-	ASP	deletion	UNP Q12809
A	?	-	ASP	deletion	UNP Q12809
A	?	-	ILE	deletion	UNP Q12809

Continued on next page...

Continued from previous page...

Chain	Residue	Modelled	Actual	Comment	Reference
A	?	-	GLU	deletion	UNP Q12809
A	?	-	ALA	deletion	UNP Q12809
A	?	-	MET	deletion	UNP Q12809
A	?	-	ARG	deletion	UNP Q12809
A	?	-	ALA	deletion	UNP Q12809
A	?	-	GLY	deletion	UNP Q12809
A	?	-	VAL	deletion	UNP Q12809
A	?	-	LEU	deletion	UNP Q12809
A	?	-	PRO	deletion	UNP Q12809
A	?	-	PRO	deletion	UNP Q12809
A	?	-	PRO	deletion	UNP Q12809
A	?	-	PRO	deletion	UNP Q12809
A	?	-	ARG	deletion	UNP Q12809
A	?	-	HIS	deletion	UNP Q12809
A	?	-	ALA	deletion	UNP Q12809
A	?	-	SER	deletion	UNP Q12809
A	?	-	THR	deletion	UNP Q12809
A	?	-	GLY	deletion	UNP Q12809
A	?	-	ALA	deletion	UNP Q12809
A	?	-	MET	deletion	UNP Q12809
A	?	-	HIS	deletion	UNP Q12809
A	?	-	PRO	deletion	UNP Q12809
A	?	-	LEU	deletion	UNP Q12809
A	?	-	ARG	deletion	UNP Q12809
A	?	-	SER	deletion	UNP Q12809
A	?	-	GLY	deletion	UNP Q12809
A	?	-	LEU	deletion	UNP Q12809
A	?	-	LEU	deletion	UNP Q12809
A	?	-	ASN	deletion	UNP Q12809
A	?	-	SER	deletion	UNP Q12809
A	?	-	THR	deletion	UNP Q12809
A	?	-	SER	deletion	UNP Q12809
A	?	-	ASP	deletion	UNP Q12809
A	?	-	SER	deletion	UNP Q12809
A	?	-	ASP	deletion	UNP Q12809
A	?	-	LEU	deletion	UNP Q12809
A	?	-	VAL	deletion	UNP Q12809
A	?	-	ARG	deletion	UNP Q12809
A	?	-	TYR	deletion	UNP Q12809
A	?	-	ARG	deletion	UNP Q12809
A	?	-	THR	deletion	UNP Q12809
A	?	-	ILE	deletion	UNP Q12809

Continued on next page...

Continued from previous page...

Chain	Residue	Modelled	Actual	Comment	Reference
A	?	-	SER	deletion	UNP Q12809
A	?	-	LYS	deletion	UNP Q12809
A	?	-	ILE	deletion	UNP Q12809
A	?	-	PRO	deletion	UNP Q12809
A	?	-	GLN	deletion	UNP Q12809
A	?	-	ILE	deletion	UNP Q12809
A	?	-	THR	deletion	UNP Q12809
A	?	-	LEU	deletion	UNP Q12809
A	?	-	ASN	deletion	UNP Q12809
A	?	-	PHE	deletion	UNP Q12809
A	?	-	VAL	deletion	UNP Q12809
A	?	-	ASP	deletion	UNP Q12809
A	?	-	LEU	deletion	UNP Q12809
A	?	-	LYS	deletion	UNP Q12809
A	?	-	GLY	deletion	UNP Q12809
A	?	-	ASP	deletion	UNP Q12809
A	?	-	PRO	deletion	UNP Q12809
A	?	-	PHE	deletion	UNP Q12809
A	?	-	LEU	deletion	UNP Q12809
A	?	-	ALA	deletion	UNP Q12809
A	?	-	SER	deletion	UNP Q12809
A	?	-	PRO	deletion	UNP Q12809
A	?	-	THR	deletion	UNP Q12809
A	?	-	SER	deletion	UNP Q12809
A	?	-	ASP	deletion	UNP Q12809
A	?	-	ARG	deletion	UNP Q12809
A	?	-	GLU	deletion	UNP Q12809
A	?	-	ILE	deletion	UNP Q12809
A	?	-	ILE	deletion	UNP Q12809
A	?	-	ALA	deletion	UNP Q12809
A	?	-	PRO	deletion	UNP Q12809
A	?	-	LYS	deletion	UNP Q12809
A	?	-	ILE	deletion	UNP Q12809
A	?	-	LYS	deletion	UNP Q12809
A	?	-	GLU	deletion	UNP Q12809
A	?	-	ARG	deletion	UNP Q12809
A	?	-	THR	deletion	UNP Q12809
A	?	-	HIS	deletion	UNP Q12809
A	?	-	ASN	deletion	UNP Q12809
A	?	-	VAL	deletion	UNP Q12809
A	?	-	THR	deletion	UNP Q12809
A	?	-	GLU	deletion	UNP Q12809

Continued on next page...

Continued from previous page...

Chain	Residue	Modelled	Actual	Comment	Reference
A	?	-	LYS	deletion	UNP Q12809
A	?	-	VAL	deletion	UNP Q12809
A	?	-	THR	deletion	UNP Q12809
A	?	-	GLN	deletion	UNP Q12809
A	?	-	VAL	deletion	UNP Q12809
A	?	-	LEU	deletion	UNP Q12809
A	?	-	SER	deletion	UNP Q12809
A	?	-	LEU	deletion	UNP Q12809
A	?	-	SER	deletion	UNP Q12809
A	?	-	PRO	deletion	UNP Q12809
A	?	-	GLY	deletion	UNP Q12809
A	?	-	SER	deletion	UNP Q12809
A	?	-	THR	deletion	UNP Q12809
A	?	-	GLU	deletion	UNP Q12809
A	?	-	LEU	deletion	UNP Q12809
A	?	-	GLU	deletion	UNP Q12809
A	?	-	GLY	deletion	UNP Q12809
A	?	-	GLY	deletion	UNP Q12809
A	?	-	PHE	deletion	UNP Q12809
A	?	-	SER	deletion	UNP Q12809
A	?	-	ARG	deletion	UNP Q12809
A	?	-	GLN	deletion	UNP Q12809
A	?	-	ARG	deletion	UNP Q12809
A	?	-	LYS	deletion	UNP Q12809
A	?	-	ARG	deletion	UNP Q12809
A	?	-	LYS	deletion	UNP Q12809
A	?	-	LEU	deletion	UNP Q12809
A	?	-	SER	deletion	UNP Q12809
A	?	-	PHE	deletion	UNP Q12809
A	?	-	ARG	deletion	UNP Q12809
A	?	-	ARG	deletion	UNP Q12809
A	?	-	ARG	deletion	UNP Q12809
A	?	-	THR	deletion	UNP Q12809
A	?	-	ASP	deletion	UNP Q12809
A	?	-	LYS	deletion	UNP Q12809
A	?	-	ASP	deletion	UNP Q12809
A	?	-	THR	deletion	UNP Q12809
A	?	-	GLU	deletion	UNP Q12809
A	?	-	GLN	deletion	UNP Q12809
A	?	-	PRO	deletion	UNP Q12809
A	?	-	GLY	deletion	UNP Q12809
A	?	-	GLU	deletion	UNP Q12809

Continued on next page...

Continued from previous page...

Chain	Residue	Modelled	Actual	Comment	Reference
A	?	-	VAL	deletion	UNP Q12809
A	?	-	SER	deletion	UNP Q12809
A	?	-	ALA	deletion	UNP Q12809
A	?	-	LEU	deletion	UNP Q12809
A	?	-	GLY	deletion	UNP Q12809
A	?	-	PRO	deletion	UNP Q12809
A	?	-	GLY	deletion	UNP Q12809
A	?	-	ARG	deletion	UNP Q12809
A	?	-	ALA	deletion	UNP Q12809
A	?	-	GLY	deletion	UNP Q12809
A	?	-	ALA	deletion	UNP Q12809
A	?	-	GLY	deletion	UNP Q12809
A	?	-	PRO	deletion	UNP Q12809
A	?	-	SER	deletion	UNP Q12809
A	?	-	SER	deletion	UNP Q12809
A	?	-	ARG	deletion	UNP Q12809
A	?	-	GLY	deletion	UNP Q12809
A	?	-	ARG	deletion	UNP Q12809
A	?	-	PRO	deletion	UNP Q12809
A	?	-	GLY	deletion	UNP Q12809
A	?	-	GLY	deletion	UNP Q12809
A	?	-	PRO	deletion	UNP Q12809
A	?	-	TRP	deletion	UNP Q12809
A	?	-	GLY	deletion	UNP Q12809
A	?	-	GLU	deletion	UNP Q12809
A	?	-	SER	deletion	UNP Q12809
A	?	-	PRO	deletion	UNP Q12809
A	?	-	SER	deletion	UNP Q12809
A	?	-	SER	deletion	UNP Q12809
A	?	-	GLY	deletion	UNP Q12809
A	?	-	PRO	deletion	UNP Q12809
A	?	-	SER	deletion	UNP Q12809
A	?	-	SER	deletion	UNP Q12809
A	?	-	PRO	deletion	UNP Q12809
A	?	-	GLU	deletion	UNP Q12809
A	?	-	SER	deletion	UNP Q12809
A	?	-	SER	deletion	UNP Q12809
A	?	-	GLU	deletion	UNP Q12809
A	?	-	ASP	deletion	UNP Q12809
A	?	-	GLU	deletion	UNP Q12809
A	?	-	GLY	deletion	UNP Q12809
A	?	-	PRO	deletion	UNP Q12809

Continued on next page...

Continued from previous page...

Chain	Residue	Modelled	Actual	Comment	Reference
A	?	-	GLY	deletion	UNP Q12809
A	?	-	ARG	deletion	UNP Q12809
A	?	-	SER	deletion	UNP Q12809
A	?	-	SER	deletion	UNP Q12809
A	?	-	SER	deletion	UNP Q12809
A	?	-	PRO	deletion	UNP Q12809
A	?	-	LEU	deletion	UNP Q12809
A	?	-	ARG	deletion	UNP Q12809
A	?	-	LEU	deletion	UNP Q12809
A	?	-	VAL	deletion	UNP Q12809
A	?	-	PRO	deletion	UNP Q12809
A	?	-	PHE	deletion	UNP Q12809
A	?	-	SER	deletion	UNP Q12809
A	?	-	SER	deletion	UNP Q12809
A	?	-	PRO	deletion	UNP Q12809
A	?	-	ARG	deletion	UNP Q12809
A	?	-	PRO	deletion	UNP Q12809
A	?	-	PRO	deletion	UNP Q12809
A	?	-	GLY	deletion	UNP Q12809
A	?	-	GLU	deletion	UNP Q12809
A	?	-	PRO	deletion	UNP Q12809
A	?	-	PRO	deletion	UNP Q12809
A	?	-	GLY	deletion	UNP Q12809
A	?	-	GLY	deletion	UNP Q12809
A	?	-	GLU	deletion	UNP Q12809
A	?	-	PRO	deletion	UNP Q12809
A	?	-	LEU	deletion	UNP Q12809
A	?	-	MET	deletion	UNP Q12809
A	?	-	GLU	deletion	UNP Q12809
A	?	-	ASP	deletion	UNP Q12809
A	?	-	CYS	deletion	UNP Q12809
A	?	-	GLU	deletion	UNP Q12809
A	?	-	LYS	deletion	UNP Q12809
A	?	-	SER	deletion	UNP Q12809
A	?	-	SER	deletion	UNP Q12809
A	?	-	ASP	deletion	UNP Q12809
A	?	-	THR	deletion	UNP Q12809
A	?	-	CYS	deletion	UNP Q12809
A	?	-	ASN	deletion	UNP Q12809
A	?	-	PRO	deletion	UNP Q12809
A	?	-	LEU	deletion	UNP Q12809
A	?	-	SER	deletion	UNP Q12809

Continued on next page...

Continued from previous page...

Chain	Residue	Modelled	Actual	Comment	Reference
A	?	-	GLY	deletion	UNP Q12809
A	?	-	ALA	deletion	UNP Q12809
A	?	-	PHE	deletion	UNP Q12809
A	?	-	SER	deletion	UNP Q12809
A	?	-	GLY	deletion	UNP Q12809
A	?	-	VAL	deletion	UNP Q12809
A	?	-	SER	deletion	UNP Q12809
A	?	-	ASN	deletion	UNP Q12809
A	?	-	ILE	deletion	UNP Q12809
A	?	-	PHE	deletion	UNP Q12809
A	?	-	SER	deletion	UNP Q12809
A	?	-	PHE	deletion	UNP Q12809
A	?	-	TRP	deletion	UNP Q12809
A	?	-	GLY	deletion	UNP Q12809
A	?	-	ASP	deletion	UNP Q12809
A	?	-	SER	deletion	UNP Q12809
A	?	-	ARG	deletion	UNP Q12809
B	?	-	PRO	deletion	UNP Q12809
B	?	-	ALA	deletion	UNP Q12809
B	?	-	HIS	deletion	UNP Q12809
B	?	-	ASP	deletion	UNP Q12809
B	?	-	THR	deletion	UNP Q12809
B	?	-	ASN	deletion	UNP Q12809
B	?	-	HIS	deletion	UNP Q12809
B	?	-	ARG	deletion	UNP Q12809
B	?	-	GLY	deletion	UNP Q12809
B	?	-	PRO	deletion	UNP Q12809
B	?	-	PRO	deletion	UNP Q12809
B	?	-	THR	deletion	UNP Q12809
B	?	-	SER	deletion	UNP Q12809
B	?	-	TRP	deletion	UNP Q12809
B	?	-	LEU	deletion	UNP Q12809
B	?	-	ALA	deletion	UNP Q12809
B	?	-	PRO	deletion	UNP Q12809
B	?	-	GLY	deletion	UNP Q12809
B	?	-	ARG	deletion	UNP Q12809
B	?	-	ALA	deletion	UNP Q12809
B	?	-	LYS	deletion	UNP Q12809
B	?	-	THR	deletion	UNP Q12809
B	?	-	PHE	deletion	UNP Q12809
B	?	-	ARG	deletion	UNP Q12809
B	?	-	LEU	deletion	UNP Q12809

Continued on next page...

Continued from previous page...

Chain	Residue	Modelled	Actual	Comment	Reference
B	?	-	LYS	deletion	UNP Q12809
B	?	-	LEU	deletion	UNP Q12809
B	?	-	PRO	deletion	UNP Q12809
B	?	-	ALA	deletion	UNP Q12809
B	?	-	LEU	deletion	UNP Q12809
B	?	-	LEU	deletion	UNP Q12809
B	?	-	ALA	deletion	UNP Q12809
B	?	-	LEU	deletion	UNP Q12809
B	?	-	THR	deletion	UNP Q12809
B	?	-	ALA	deletion	UNP Q12809
B	?	-	ARG	deletion	UNP Q12809
B	?	-	GLU	deletion	UNP Q12809
B	?	-	SER	deletion	UNP Q12809
B	?	-	SER	deletion	UNP Q12809
B	?	-	VAL	deletion	UNP Q12809
B	?	-	ARG	deletion	UNP Q12809
B	?	-	SER	deletion	UNP Q12809
B	?	-	GLY	deletion	UNP Q12809
B	?	-	GLY	deletion	UNP Q12809
B	?	-	ALA	deletion	UNP Q12809
B	?	-	GLY	deletion	UNP Q12809
B	?	-	GLY	deletion	UNP Q12809
B	?	-	ALA	deletion	UNP Q12809
B	?	-	GLY	deletion	UNP Q12809
B	?	-	ALA	deletion	UNP Q12809
B	?	-	GLY	deletion	UNP Q12809
B	?	-	ALA	deletion	UNP Q12809
B	?	-	PRO	deletion	UNP Q12809
B	?	-	GLY	deletion	UNP Q12809
B	?	-	ALA	deletion	UNP Q12809
B	?	-	VAL	deletion	UNP Q12809
B	?	-	VAL	deletion	UNP Q12809
B	?	-	VAL	deletion	UNP Q12809
B	?	-	ASP	deletion	UNP Q12809
B	?	-	VAL	deletion	UNP Q12809
B	?	-	ASP	deletion	UNP Q12809
B	?	-	LEU	deletion	UNP Q12809
B	?	-	THR	deletion	UNP Q12809
B	?	-	PRO	deletion	UNP Q12809
B	?	-	ALA	deletion	UNP Q12809
B	?	-	ALA	deletion	UNP Q12809
B	?	-	PRO	deletion	UNP Q12809
B	?	-	SER	deletion	UNP Q12809
B	?	-	SER	deletion	UNP Q12809

Continued on next page...

Continued from previous page...

Chain	Residue	Modelled	Actual	Comment	Reference
B	?	-	GLU	deletion	UNP Q12809
B	?	-	SER	deletion	UNP Q12809
B	?	-	LEU	deletion	UNP Q12809
B	?	-	ALA	deletion	UNP Q12809
B	?	-	LEU	deletion	UNP Q12809
B	?	-	ASP	deletion	UNP Q12809
B	?	-	GLU	deletion	UNP Q12809
B	?	-	VAL	deletion	UNP Q12809
B	?	-	THR	deletion	UNP Q12809
B	?	-	ALA	deletion	UNP Q12809
B	?	-	MET	deletion	UNP Q12809
B	?	-	ASP	deletion	UNP Q12809
B	?	-	ASN	deletion	UNP Q12809
B	?	-	HIS	deletion	UNP Q12809
B	?	-	VAL	deletion	UNP Q12809
B	?	-	ALA	deletion	UNP Q12809
B	?	-	GLY	deletion	UNP Q12809
B	?	-	LEU	deletion	UNP Q12809
B	?	-	GLY	deletion	UNP Q12809
B	?	-	PRO	deletion	UNP Q12809
B	?	-	ALA	deletion	UNP Q12809
B	?	-	GLU	deletion	UNP Q12809
B	?	-	GLU	deletion	UNP Q12809
B	?	-	ARG	deletion	UNP Q12809
B	?	-	ARG	deletion	UNP Q12809
B	?	-	ALA	deletion	UNP Q12809
B	?	-	LEU	deletion	UNP Q12809
B	?	-	VAL	deletion	UNP Q12809
B	?	-	GLY	deletion	UNP Q12809
B	?	-	PRO	deletion	UNP Q12809
B	?	-	GLY	deletion	UNP Q12809
B	?	-	SER	deletion	UNP Q12809
B	?	-	PRO	deletion	UNP Q12809
B	?	-	PRO	deletion	UNP Q12809
B	?	-	ARG	deletion	UNP Q12809
B	?	-	SER	deletion	UNP Q12809
B	?	-	ALA	deletion	UNP Q12809
B	?	-	PRO	deletion	UNP Q12809
B	?	-	GLY	deletion	UNP Q12809
B	?	-	GLN	deletion	UNP Q12809
B	?	-	LEU	deletion	UNP Q12809
B	?	-	PRO	deletion	UNP Q12809

Continued on next page...

Continued from previous page...

Chain	Residue	Modelled	Actual	Comment	Reference
B	?	-	SER	deletion	UNP Q12809
B	?	-	PRO	deletion	UNP Q12809
B	?	-	ARG	deletion	UNP Q12809
B	?	-	ALA	deletion	UNP Q12809
B	?	-	HIS	deletion	UNP Q12809
B	?	-	SER	deletion	UNP Q12809
B	?	-	LEU	deletion	UNP Q12809
B	?	-	ASN	deletion	UNP Q12809
B	?	-	PRO	deletion	UNP Q12809
B	?	-	ASP	deletion	UNP Q12809
B	?	-	ALA	deletion	UNP Q12809
B	?	-	SER	deletion	UNP Q12809
B	?	-	GLY	deletion	UNP Q12809
B	?	-	SER	deletion	UNP Q12809
B	?	-	SER	deletion	UNP Q12809
B	?	-	CYS	deletion	UNP Q12809
B	?	-	SER	deletion	UNP Q12809
B	?	-	LEU	deletion	UNP Q12809
B	?	-	ALA	deletion	UNP Q12809
B	?	-	ARG	deletion	UNP Q12809
B	?	-	THR	deletion	UNP Q12809
B	?	-	ARG	deletion	UNP Q12809
B	?	-	SER	deletion	UNP Q12809
B	?	-	ARG	deletion	UNP Q12809
B	?	-	GLU	deletion	UNP Q12809
B	?	-	SER	deletion	UNP Q12809
B	?	-	CYS	deletion	UNP Q12809
B	?	-	ALA	deletion	UNP Q12809
B	?	-	SER	deletion	UNP Q12809
B	?	-	VAL	deletion	UNP Q12809
B	?	-	ARG	deletion	UNP Q12809
B	?	-	ARG	deletion	UNP Q12809
B	?	-	ALA	deletion	UNP Q12809
B	?	-	SER	deletion	UNP Q12809
B	?	-	SER	deletion	UNP Q12809
B	?	-	ALA	deletion	UNP Q12809
B	?	-	ASP	deletion	UNP Q12809
B	?	-	ASP	deletion	UNP Q12809
B	?	-	ILE	deletion	UNP Q12809
B	?	-	GLU	deletion	UNP Q12809
B	?	-	ALA	deletion	UNP Q12809
B	?	-	MET	deletion	UNP Q12809

Continued on next page...

Continued from previous page...

Chain	Residue	Modelled	Actual	Comment	Reference
B	?	-	ARG	deletion	UNP Q12809
B	?	-	ALA	deletion	UNP Q12809
B	?	-	GLY	deletion	UNP Q12809
B	?	-	VAL	deletion	UNP Q12809
B	?	-	LEU	deletion	UNP Q12809
B	?	-	PRO	deletion	UNP Q12809
B	?	-	PRO	deletion	UNP Q12809
B	?	-	PRO	deletion	UNP Q12809
B	?	-	PRO	deletion	UNP Q12809
B	?	-	PRO	deletion	UNP Q12809
B	?	-	ARG	deletion	UNP Q12809
B	?	-	HIS	deletion	UNP Q12809
B	?	-	ALA	deletion	UNP Q12809
B	?	-	SER	deletion	UNP Q12809
B	?	-	THR	deletion	UNP Q12809
B	?	-	GLY	deletion	UNP Q12809
B	?	-	ALA	deletion	UNP Q12809
B	?	-	MET	deletion	UNP Q12809
B	?	-	HIS	deletion	UNP Q12809
B	?	-	PRO	deletion	UNP Q12809
B	?	-	LEU	deletion	UNP Q12809
B	?	-	ARG	deletion	UNP Q12809
B	?	-	SER	deletion	UNP Q12809
B	?	-	GLY	deletion	UNP Q12809
B	?	-	LEU	deletion	UNP Q12809
B	?	-	LEU	deletion	UNP Q12809
B	?	-	ASN	deletion	UNP Q12809
B	?	-	SER	deletion	UNP Q12809
B	?	-	THR	deletion	UNP Q12809
B	?	-	SER	deletion	UNP Q12809
B	?	-	ASP	deletion	UNP Q12809
B	?	-	SER	deletion	UNP Q12809
B	?	-	ASP	deletion	UNP Q12809
B	?	-	LEU	deletion	UNP Q12809
B	?	-	VAL	deletion	UNP Q12809
B	?	-	ARG	deletion	UNP Q12809
B	?	-	TYR	deletion	UNP Q12809
B	?	-	ARG	deletion	UNP Q12809
B	?	-	THR	deletion	UNP Q12809
B	?	-	ILE	deletion	UNP Q12809
B	?	-	SER	deletion	UNP Q12809
B	?	-	LYS	deletion	UNP Q12809
B	?	-	ILE	deletion	UNP Q12809

Continued on next page...

Continued from previous page...

Chain	Residue	Modelled	Actual	Comment	Reference
B	?	-	PRO	deletion	UNP Q12809
B	?	-	GLN	deletion	UNP Q12809
B	?	-	ILE	deletion	UNP Q12809
B	?	-	THR	deletion	UNP Q12809
B	?	-	LEU	deletion	UNP Q12809
B	?	-	ASN	deletion	UNP Q12809
B	?	-	PHE	deletion	UNP Q12809
B	?	-	VAL	deletion	UNP Q12809
B	?	-	ASP	deletion	UNP Q12809
B	?	-	LEU	deletion	UNP Q12809
B	?	-	LYS	deletion	UNP Q12809
B	?	-	GLY	deletion	UNP Q12809
B	?	-	ASP	deletion	UNP Q12809
B	?	-	PRO	deletion	UNP Q12809
B	?	-	PHE	deletion	UNP Q12809
B	?	-	LEU	deletion	UNP Q12809
B	?	-	ALA	deletion	UNP Q12809
B	?	-	SER	deletion	UNP Q12809
B	?	-	PRO	deletion	UNP Q12809
B	?	-	THR	deletion	UNP Q12809
B	?	-	SER	deletion	UNP Q12809
B	?	-	ASP	deletion	UNP Q12809
B	?	-	ARG	deletion	UNP Q12809
B	?	-	GLU	deletion	UNP Q12809
B	?	-	ILE	deletion	UNP Q12809
B	?	-	ILE	deletion	UNP Q12809
B	?	-	ALA	deletion	UNP Q12809
B	?	-	PRO	deletion	UNP Q12809
B	?	-	LYS	deletion	UNP Q12809
B	?	-	ILE	deletion	UNP Q12809
B	?	-	LYS	deletion	UNP Q12809
B	?	-	GLU	deletion	UNP Q12809
B	?	-	ARG	deletion	UNP Q12809
B	?	-	THR	deletion	UNP Q12809
B	?	-	HIS	deletion	UNP Q12809
B	?	-	ASN	deletion	UNP Q12809
B	?	-	VAL	deletion	UNP Q12809
B	?	-	THR	deletion	UNP Q12809
B	?	-	GLU	deletion	UNP Q12809
B	?	-	LYS	deletion	UNP Q12809
B	?	-	VAL	deletion	UNP Q12809
B	?	-	THR	deletion	UNP Q12809

Continued on next page...

Continued from previous page...

Chain	Residue	Modelled	Actual	Comment	Reference
B	?	-	GLN	deletion	UNP Q12809
B	?	-	VAL	deletion	UNP Q12809
B	?	-	LEU	deletion	UNP Q12809
B	?	-	SER	deletion	UNP Q12809
B	?	-	LEU	deletion	UNP Q12809
B	?	-	SER	deletion	UNP Q12809
B	?	-	PRO	deletion	UNP Q12809
B	?	-	GLY	deletion	UNP Q12809
B	?	-	SER	deletion	UNP Q12809
B	?	-	THR	deletion	UNP Q12809
B	?	-	GLU	deletion	UNP Q12809
B	?	-	LEU	deletion	UNP Q12809
B	?	-	GLU	deletion	UNP Q12809
B	?	-	GLY	deletion	UNP Q12809
B	?	-	GLY	deletion	UNP Q12809
B	?	-	PHE	deletion	UNP Q12809
B	?	-	SER	deletion	UNP Q12809
B	?	-	ARG	deletion	UNP Q12809
B	?	-	GLN	deletion	UNP Q12809
B	?	-	ARG	deletion	UNP Q12809
B	?	-	LYS	deletion	UNP Q12809
B	?	-	ARG	deletion	UNP Q12809
B	?	-	LYS	deletion	UNP Q12809
B	?	-	LEU	deletion	UNP Q12809
B	?	-	SER	deletion	UNP Q12809
B	?	-	PHE	deletion	UNP Q12809
B	?	-	ARG	deletion	UNP Q12809
B	?	-	ARG	deletion	UNP Q12809
B	?	-	ARG	deletion	UNP Q12809
B	?	-	THR	deletion	UNP Q12809
B	?	-	ASP	deletion	UNP Q12809
B	?	-	LYS	deletion	UNP Q12809
B	?	-	ASP	deletion	UNP Q12809
B	?	-	THR	deletion	UNP Q12809
B	?	-	GLU	deletion	UNP Q12809
B	?	-	GLN	deletion	UNP Q12809
B	?	-	PRO	deletion	UNP Q12809
B	?	-	GLY	deletion	UNP Q12809
B	?	-	GLU	deletion	UNP Q12809
B	?	-	VAL	deletion	UNP Q12809
B	?	-	SER	deletion	UNP Q12809
B	?	-	ALA	deletion	UNP Q12809

Continued on next page...

Continued from previous page...

Chain	Residue	Modelled	Actual	Comment	Reference
B	?	-	LEU	deletion	UNP Q12809
B	?	-	GLY	deletion	UNP Q12809
B	?	-	PRO	deletion	UNP Q12809
B	?	-	GLY	deletion	UNP Q12809
B	?	-	ARG	deletion	UNP Q12809
B	?	-	ALA	deletion	UNP Q12809
B	?	-	GLY	deletion	UNP Q12809
B	?	-	ALA	deletion	UNP Q12809
B	?	-	GLY	deletion	UNP Q12809
B	?	-	PRO	deletion	UNP Q12809
B	?	-	SER	deletion	UNP Q12809
B	?	-	SER	deletion	UNP Q12809
B	?	-	ARG	deletion	UNP Q12809
B	?	-	GLY	deletion	UNP Q12809
B	?	-	ARG	deletion	UNP Q12809
B	?	-	PRO	deletion	UNP Q12809
B	?	-	GLY	deletion	UNP Q12809
B	?	-	GLY	deletion	UNP Q12809
B	?	-	PRO	deletion	UNP Q12809
B	?	-	TRP	deletion	UNP Q12809
B	?	-	GLY	deletion	UNP Q12809
B	?	-	GLU	deletion	UNP Q12809
B	?	-	SER	deletion	UNP Q12809
B	?	-	PRO	deletion	UNP Q12809
B	?	-	SER	deletion	UNP Q12809
B	?	-	SER	deletion	UNP Q12809
B	?	-	GLY	deletion	UNP Q12809
B	?	-	PRO	deletion	UNP Q12809
B	?	-	SER	deletion	UNP Q12809
B	?	-	SER	deletion	UNP Q12809
B	?	-	PRO	deletion	UNP Q12809
B	?	-	GLU	deletion	UNP Q12809
B	?	-	SER	deletion	UNP Q12809
B	?	-	SER	deletion	UNP Q12809
B	?	-	GLU	deletion	UNP Q12809
B	?	-	ASP	deletion	UNP Q12809
B	?	-	GLU	deletion	UNP Q12809
B	?	-	GLY	deletion	UNP Q12809
B	?	-	PRO	deletion	UNP Q12809
B	?	-	GLY	deletion	UNP Q12809
B	?	-	ARG	deletion	UNP Q12809
B	?	-	SER	deletion	UNP Q12809

Continued on next page...

Continued from previous page...

Chain	Residue	Modelled	Actual	Comment	Reference
B	?	-	SER	deletion	UNP Q12809
B	?	-	SER	deletion	UNP Q12809
B	?	-	PRO	deletion	UNP Q12809
B	?	-	LEU	deletion	UNP Q12809
B	?	-	ARG	deletion	UNP Q12809
B	?	-	LEU	deletion	UNP Q12809
B	?	-	VAL	deletion	UNP Q12809
B	?	-	PRO	deletion	UNP Q12809
B	?	-	PHE	deletion	UNP Q12809
B	?	-	SER	deletion	UNP Q12809
B	?	-	SER	deletion	UNP Q12809
B	?	-	PRO	deletion	UNP Q12809
B	?	-	ARG	deletion	UNP Q12809
B	?	-	PRO	deletion	UNP Q12809
B	?	-	PRO	deletion	UNP Q12809
B	?	-	GLY	deletion	UNP Q12809
B	?	-	GLU	deletion	UNP Q12809
B	?	-	PRO	deletion	UNP Q12809
B	?	-	PRO	deletion	UNP Q12809
B	?	-	GLY	deletion	UNP Q12809
B	?	-	GLY	deletion	UNP Q12809
B	?	-	GLU	deletion	UNP Q12809
B	?	-	PRO	deletion	UNP Q12809
B	?	-	LEU	deletion	UNP Q12809
B	?	-	MET	deletion	UNP Q12809
B	?	-	GLU	deletion	UNP Q12809
B	?	-	ASP	deletion	UNP Q12809
B	?	-	CYS	deletion	UNP Q12809
B	?	-	GLU	deletion	UNP Q12809
B	?	-	LYS	deletion	UNP Q12809
B	?	-	SER	deletion	UNP Q12809
B	?	-	SER	deletion	UNP Q12809
B	?	-	ASP	deletion	UNP Q12809
B	?	-	THR	deletion	UNP Q12809
B	?	-	CYS	deletion	UNP Q12809
B	?	-	ASN	deletion	UNP Q12809
B	?	-	PRO	deletion	UNP Q12809
B	?	-	LEU	deletion	UNP Q12809
B	?	-	SER	deletion	UNP Q12809
B	?	-	GLY	deletion	UNP Q12809
B	?	-	ALA	deletion	UNP Q12809
B	?	-	PHE	deletion	UNP Q12809

Continued on next page...

Continued from previous page...

Chain	Residue	Modelled	Actual	Comment	Reference
B	?	-	SER	deletion	UNP Q12809
B	?	-	GLY	deletion	UNP Q12809
B	?	-	VAL	deletion	UNP Q12809
B	?	-	SER	deletion	UNP Q12809
B	?	-	ASN	deletion	UNP Q12809
B	?	-	ILE	deletion	UNP Q12809
B	?	-	PHE	deletion	UNP Q12809
B	?	-	SER	deletion	UNP Q12809
B	?	-	PHE	deletion	UNP Q12809
B	?	-	TRP	deletion	UNP Q12809
B	?	-	GLY	deletion	UNP Q12809
B	?	-	ASP	deletion	UNP Q12809
B	?	-	SER	deletion	UNP Q12809
B	?	-	ARG	deletion	UNP Q12809
C	?	-	PRO	deletion	UNP Q12809
C	?	-	ALA	deletion	UNP Q12809
C	?	-	HIS	deletion	UNP Q12809
C	?	-	ASP	deletion	UNP Q12809
C	?	-	THR	deletion	UNP Q12809
C	?	-	ASN	deletion	UNP Q12809
C	?	-	HIS	deletion	UNP Q12809
C	?	-	ARG	deletion	UNP Q12809
C	?	-	GLY	deletion	UNP Q12809
C	?	-	PRO	deletion	UNP Q12809
C	?	-	PRO	deletion	UNP Q12809
C	?	-	THR	deletion	UNP Q12809
C	?	-	SER	deletion	UNP Q12809
C	?	-	TRP	deletion	UNP Q12809
C	?	-	LEU	deletion	UNP Q12809
C	?	-	ALA	deletion	UNP Q12809
C	?	-	PRO	deletion	UNP Q12809
C	?	-	GLY	deletion	UNP Q12809
C	?	-	ARG	deletion	UNP Q12809
C	?	-	ALA	deletion	UNP Q12809
C	?	-	LYS	deletion	UNP Q12809
C	?	-	THR	deletion	UNP Q12809
C	?	-	PHE	deletion	UNP Q12809
C	?	-	ARG	deletion	UNP Q12809
C	?	-	LEU	deletion	UNP Q12809
C	?	-	LYS	deletion	UNP Q12809
C	?	-	LEU	deletion	UNP Q12809
C	?	-	PRO	deletion	UNP Q12809

Continued on next page...

Continued from previous page...

Chain	Residue	Modelled	Actual	Comment	Reference
C	?	-	ALA	deletion	UNP Q12809
C	?	-	LEU	deletion	UNP Q12809
C	?	-	LEU	deletion	UNP Q12809
C	?	-	ALA	deletion	UNP Q12809
C	?	-	LEU	deletion	UNP Q12809
C	?	-	THR	deletion	UNP Q12809
C	?	-	ALA	deletion	UNP Q12809
C	?	-	ARG	deletion	UNP Q12809
C	?	-	GLU	deletion	UNP Q12809
C	?	-	SER	deletion	UNP Q12809
C	?	-	SER	deletion	UNP Q12809
C	?	-	VAL	deletion	UNP Q12809
C	?	-	ARG	deletion	UNP Q12809
C	?	-	SER	deletion	UNP Q12809
C	?	-	GLY	deletion	UNP Q12809
C	?	-	GLY	deletion	UNP Q12809
C	?	-	ALA	deletion	UNP Q12809
C	?	-	GLY	deletion	UNP Q12809
C	?	-	GLY	deletion	UNP Q12809
C	?	-	ALA	deletion	UNP Q12809
C	?	-	GLY	deletion	UNP Q12809
C	?	-	ALA	deletion	UNP Q12809
C	?	-	PRO	deletion	UNP Q12809
C	?	-	GLY	deletion	UNP Q12809
C	?	-	ALA	deletion	UNP Q12809
C	?	-	VAL	deletion	UNP Q12809
C	?	-	VAL	deletion	UNP Q12809
C	?	-	VAL	deletion	UNP Q12809
C	?	-	ASP	deletion	UNP Q12809
C	?	-	VAL	deletion	UNP Q12809
C	?	-	ASP	deletion	UNP Q12809
C	?	-	LEU	deletion	UNP Q12809
C	?	-	THR	deletion	UNP Q12809
C	?	-	PRO	deletion	UNP Q12809
C	?	-	ALA	deletion	UNP Q12809
C	?	-	ALA	deletion	UNP Q12809
C	?	-	PRO	deletion	UNP Q12809
C	?	-	SER	deletion	UNP Q12809
C	?	-	SER	deletion	UNP Q12809
C	?	-	GLU	deletion	UNP Q12809
C	?	-	SER	deletion	UNP Q12809
C	?	-	LEU	deletion	UNP Q12809

Continued on next page...

Continued from previous page...

Chain	Residue	Modelled	Actual	Comment	Reference
C	?	-	ALA	deletion	UNP Q12809
C	?	-	LEU	deletion	UNP Q12809
C	?	-	ASP	deletion	UNP Q12809
C	?	-	GLU	deletion	UNP Q12809
C	?	-	VAL	deletion	UNP Q12809
C	?	-	THR	deletion	UNP Q12809
C	?	-	ALA	deletion	UNP Q12809
C	?	-	MET	deletion	UNP Q12809
C	?	-	ASP	deletion	UNP Q12809
C	?	-	ASN	deletion	UNP Q12809
C	?	-	HIS	deletion	UNP Q12809
C	?	-	VAL	deletion	UNP Q12809
C	?	-	ALA	deletion	UNP Q12809
C	?	-	GLY	deletion	UNP Q12809
C	?	-	LEU	deletion	UNP Q12809
C	?	-	GLY	deletion	UNP Q12809
C	?	-	PRO	deletion	UNP Q12809
C	?	-	ALA	deletion	UNP Q12809
C	?	-	GLU	deletion	UNP Q12809
C	?	-	GLU	deletion	UNP Q12809
C	?	-	ARG	deletion	UNP Q12809
C	?	-	ARG	deletion	UNP Q12809
C	?	-	ALA	deletion	UNP Q12809
C	?	-	LEU	deletion	UNP Q12809
C	?	-	VAL	deletion	UNP Q12809
C	?	-	GLY	deletion	UNP Q12809
C	?	-	PRO	deletion	UNP Q12809
C	?	-	GLY	deletion	UNP Q12809
C	?	-	SER	deletion	UNP Q12809
C	?	-	PRO	deletion	UNP Q12809
C	?	-	PRO	deletion	UNP Q12809
C	?	-	ARG	deletion	UNP Q12809
C	?	-	SER	deletion	UNP Q12809
C	?	-	ALA	deletion	UNP Q12809
C	?	-	PRO	deletion	UNP Q12809
C	?	-	GLY	deletion	UNP Q12809
C	?	-	GLN	deletion	UNP Q12809
C	?	-	LEU	deletion	UNP Q12809
C	?	-	PRO	deletion	UNP Q12809
C	?	-	SER	deletion	UNP Q12809
C	?	-	PRO	deletion	UNP Q12809
C	?	-	ARG	deletion	UNP Q12809

Continued on next page...

Continued from previous page...

Chain	Residue	Modelled	Actual	Comment	Reference
C	?	-	ALA	deletion	UNP Q12809
C	?	-	HIS	deletion	UNP Q12809
C	?	-	SER	deletion	UNP Q12809
C	?	-	LEU	deletion	UNP Q12809
C	?	-	ASN	deletion	UNP Q12809
C	?	-	PRO	deletion	UNP Q12809
C	?	-	ASP	deletion	UNP Q12809
C	?	-	ALA	deletion	UNP Q12809
C	?	-	SER	deletion	UNP Q12809
C	?	-	GLY	deletion	UNP Q12809
C	?	-	SER	deletion	UNP Q12809
C	?	-	SER	deletion	UNP Q12809
C	?	-	CYS	deletion	UNP Q12809
C	?	-	SER	deletion	UNP Q12809
C	?	-	LEU	deletion	UNP Q12809
C	?	-	ALA	deletion	UNP Q12809
C	?	-	ARG	deletion	UNP Q12809
C	?	-	THR	deletion	UNP Q12809
C	?	-	ARG	deletion	UNP Q12809
C	?	-	SER	deletion	UNP Q12809
C	?	-	ARG	deletion	UNP Q12809
C	?	-	GLU	deletion	UNP Q12809
C	?	-	SER	deletion	UNP Q12809
C	?	-	CYS	deletion	UNP Q12809
C	?	-	ALA	deletion	UNP Q12809
C	?	-	SER	deletion	UNP Q12809
C	?	-	VAL	deletion	UNP Q12809
C	?	-	ARG	deletion	UNP Q12809
C	?	-	ARG	deletion	UNP Q12809
C	?	-	ALA	deletion	UNP Q12809
C	?	-	SER	deletion	UNP Q12809
C	?	-	SER	deletion	UNP Q12809
C	?	-	ALA	deletion	UNP Q12809
C	?	-	ASP	deletion	UNP Q12809
C	?	-	ASP	deletion	UNP Q12809
C	?	-	ILE	deletion	UNP Q12809
C	?	-	GLU	deletion	UNP Q12809
C	?	-	ALA	deletion	UNP Q12809
C	?	-	MET	deletion	UNP Q12809
C	?	-	ARG	deletion	UNP Q12809
C	?	-	ALA	deletion	UNP Q12809
C	?	-	GLY	deletion	UNP Q12809

Continued on next page...

Continued from previous page...

Chain	Residue	Modelled	Actual	Comment	Reference
C	?	-	VAL	deletion	UNP Q12809
C	?	-	LEU	deletion	UNP Q12809
C	?	-	PRO	deletion	UNP Q12809
C	?	-	PRO	deletion	UNP Q12809
C	?	-	PRO	deletion	UNP Q12809
C	?	-	PRO	deletion	UNP Q12809
C	?	-	ARG	deletion	UNP Q12809
C	?	-	HIS	deletion	UNP Q12809
C	?	-	ALA	deletion	UNP Q12809
C	?	-	SER	deletion	UNP Q12809
C	?	-	THR	deletion	UNP Q12809
C	?	-	GLY	deletion	UNP Q12809
C	?	-	ALA	deletion	UNP Q12809
C	?	-	MET	deletion	UNP Q12809
C	?	-	HIS	deletion	UNP Q12809
C	?	-	PRO	deletion	UNP Q12809
C	?	-	LEU	deletion	UNP Q12809
C	?	-	ARG	deletion	UNP Q12809
C	?	-	SER	deletion	UNP Q12809
C	?	-	GLY	deletion	UNP Q12809
C	?	-	LEU	deletion	UNP Q12809
C	?	-	LEU	deletion	UNP Q12809
C	?	-	ASN	deletion	UNP Q12809
C	?	-	SER	deletion	UNP Q12809
C	?	-	THR	deletion	UNP Q12809
C	?	-	SER	deletion	UNP Q12809
C	?	-	ASP	deletion	UNP Q12809
C	?	-	SER	deletion	UNP Q12809
C	?	-	ASP	deletion	UNP Q12809
C	?	-	LEU	deletion	UNP Q12809
C	?	-	VAL	deletion	UNP Q12809
C	?	-	ARG	deletion	UNP Q12809
C	?	-	TYR	deletion	UNP Q12809
C	?	-	ARG	deletion	UNP Q12809
C	?	-	THR	deletion	UNP Q12809
C	?	-	ILE	deletion	UNP Q12809
C	?	-	SER	deletion	UNP Q12809
C	?	-	LYS	deletion	UNP Q12809
C	?	-	ILE	deletion	UNP Q12809
C	?	-	PRO	deletion	UNP Q12809
C	?	-	GLN	deletion	UNP Q12809
C	?	-	ILE	deletion	UNP Q12809

Continued on next page...

Continued from previous page...

Chain	Residue	Modelled	Actual	Comment	Reference
C	?	-	THR	deletion	UNP Q12809
C	?	-	LEU	deletion	UNP Q12809
C	?	-	ASN	deletion	UNP Q12809
C	?	-	PHE	deletion	UNP Q12809
C	?	-	VAL	deletion	UNP Q12809
C	?	-	ASP	deletion	UNP Q12809
C	?	-	LEU	deletion	UNP Q12809
C	?	-	LYS	deletion	UNP Q12809
C	?	-	GLY	deletion	UNP Q12809
C	?	-	ASP	deletion	UNP Q12809
C	?	-	PRO	deletion	UNP Q12809
C	?	-	PHE	deletion	UNP Q12809
C	?	-	LEU	deletion	UNP Q12809
C	?	-	ALA	deletion	UNP Q12809
C	?	-	SER	deletion	UNP Q12809
C	?	-	PRO	deletion	UNP Q12809
C	?	-	THR	deletion	UNP Q12809
C	?	-	SER	deletion	UNP Q12809
C	?	-	ASP	deletion	UNP Q12809
C	?	-	ARG	deletion	UNP Q12809
C	?	-	GLU	deletion	UNP Q12809
C	?	-	ILE	deletion	UNP Q12809
C	?	-	ILE	deletion	UNP Q12809
C	?	-	ALA	deletion	UNP Q12809
C	?	-	PRO	deletion	UNP Q12809
C	?	-	LYS	deletion	UNP Q12809
C	?	-	ILE	deletion	UNP Q12809
C	?	-	LYS	deletion	UNP Q12809
C	?	-	GLU	deletion	UNP Q12809
C	?	-	ARG	deletion	UNP Q12809
C	?	-	THR	deletion	UNP Q12809
C	?	-	HIS	deletion	UNP Q12809
C	?	-	ASN	deletion	UNP Q12809
C	?	-	VAL	deletion	UNP Q12809
C	?	-	THR	deletion	UNP Q12809
C	?	-	GLU	deletion	UNP Q12809
C	?	-	LYS	deletion	UNP Q12809
C	?	-	VAL	deletion	UNP Q12809
C	?	-	THR	deletion	UNP Q12809
C	?	-	GLN	deletion	UNP Q12809
C	?	-	VAL	deletion	UNP Q12809
C	?	-	LEU	deletion	UNP Q12809

Continued on next page...

Continued from previous page...

Chain	Residue	Modelled	Actual	Comment	Reference
C	?	-	SER	deletion	UNP Q12809
C	?	-	LEU	deletion	UNP Q12809
C	?	-	SER	deletion	UNP Q12809
C	?	-	PRO	deletion	UNP Q12809
C	?	-	GLY	deletion	UNP Q12809
C	?	-	SER	deletion	UNP Q12809
C	?	-	THR	deletion	UNP Q12809
C	?	-	GLU	deletion	UNP Q12809
C	?	-	LEU	deletion	UNP Q12809
C	?	-	GLU	deletion	UNP Q12809
C	?	-	GLY	deletion	UNP Q12809
C	?	-	GLY	deletion	UNP Q12809
C	?	-	PHE	deletion	UNP Q12809
C	?	-	SER	deletion	UNP Q12809
C	?	-	ARG	deletion	UNP Q12809
C	?	-	GLN	deletion	UNP Q12809
C	?	-	ARG	deletion	UNP Q12809
C	?	-	LYS	deletion	UNP Q12809
C	?	-	ARG	deletion	UNP Q12809
C	?	-	LYS	deletion	UNP Q12809
C	?	-	LEU	deletion	UNP Q12809
C	?	-	SER	deletion	UNP Q12809
C	?	-	PHE	deletion	UNP Q12809
C	?	-	ARG	deletion	UNP Q12809
C	?	-	ARG	deletion	UNP Q12809
C	?	-	ARG	deletion	UNP Q12809
C	?	-	THR	deletion	UNP Q12809
C	?	-	ASP	deletion	UNP Q12809
C	?	-	LYS	deletion	UNP Q12809
C	?	-	ASP	deletion	UNP Q12809
C	?	-	THR	deletion	UNP Q12809
C	?	-	GLU	deletion	UNP Q12809
C	?	-	GLN	deletion	UNP Q12809
C	?	-	PRO	deletion	UNP Q12809
C	?	-	GLY	deletion	UNP Q12809
C	?	-	GLU	deletion	UNP Q12809
C	?	-	VAL	deletion	UNP Q12809
C	?	-	SER	deletion	UNP Q12809
C	?	-	ALA	deletion	UNP Q12809
C	?	-	LEU	deletion	UNP Q12809
C	?	-	GLY	deletion	UNP Q12809
C	?	-	PRO	deletion	UNP Q12809

Continued on next page...

Continued from previous page...

Chain	Residue	Modelled	Actual	Comment	Reference
C	?	-	GLY	deletion	UNP Q12809
C	?	-	ARG	deletion	UNP Q12809
C	?	-	ALA	deletion	UNP Q12809
C	?	-	GLY	deletion	UNP Q12809
C	?	-	ALA	deletion	UNP Q12809
C	?	-	GLY	deletion	UNP Q12809
C	?	-	PRO	deletion	UNP Q12809
C	?	-	SER	deletion	UNP Q12809
C	?	-	SER	deletion	UNP Q12809
C	?	-	ARG	deletion	UNP Q12809
C	?	-	GLY	deletion	UNP Q12809
C	?	-	ARG	deletion	UNP Q12809
C	?	-	PRO	deletion	UNP Q12809
C	?	-	GLY	deletion	UNP Q12809
C	?	-	GLY	deletion	UNP Q12809
C	?	-	PRO	deletion	UNP Q12809
C	?	-	TRP	deletion	UNP Q12809
C	?	-	GLY	deletion	UNP Q12809
C	?	-	GLU	deletion	UNP Q12809
C	?	-	SER	deletion	UNP Q12809
C	?	-	PRO	deletion	UNP Q12809
C	?	-	SER	deletion	UNP Q12809
C	?	-	SER	deletion	UNP Q12809
C	?	-	GLY	deletion	UNP Q12809
C	?	-	PRO	deletion	UNP Q12809
C	?	-	SER	deletion	UNP Q12809
C	?	-	SER	deletion	UNP Q12809
C	?	-	PRO	deletion	UNP Q12809
C	?	-	GLU	deletion	UNP Q12809
C	?	-	SER	deletion	UNP Q12809
C	?	-	SER	deletion	UNP Q12809
C	?	-	GLU	deletion	UNP Q12809
C	?	-	ASP	deletion	UNP Q12809
C	?	-	GLU	deletion	UNP Q12809
C	?	-	GLY	deletion	UNP Q12809
C	?	-	PRO	deletion	UNP Q12809
C	?	-	GLY	deletion	UNP Q12809
C	?	-	ARG	deletion	UNP Q12809
C	?	-	SER	deletion	UNP Q12809
C	?	-	SER	deletion	UNP Q12809
C	?	-	SER	deletion	UNP Q12809
C	?	-	PRO	deletion	UNP Q12809

Continued on next page...

Continued from previous page...

Chain	Residue	Modelled	Actual	Comment	Reference
C	?	-	LEU	deletion	UNP Q12809
C	?	-	ARG	deletion	UNP Q12809
C	?	-	LEU	deletion	UNP Q12809
C	?	-	VAL	deletion	UNP Q12809
C	?	-	PRO	deletion	UNP Q12809
C	?	-	PHE	deletion	UNP Q12809
C	?	-	SER	deletion	UNP Q12809
C	?	-	SER	deletion	UNP Q12809
C	?	-	PRO	deletion	UNP Q12809
C	?	-	ARG	deletion	UNP Q12809
C	?	-	PRO	deletion	UNP Q12809
C	?	-	PRO	deletion	UNP Q12809
C	?	-	GLY	deletion	UNP Q12809
C	?	-	GLU	deletion	UNP Q12809
C	?	-	PRO	deletion	UNP Q12809
C	?	-	PRO	deletion	UNP Q12809
C	?	-	GLY	deletion	UNP Q12809
C	?	-	GLY	deletion	UNP Q12809
C	?	-	GLU	deletion	UNP Q12809
C	?	-	PRO	deletion	UNP Q12809
C	?	-	LEU	deletion	UNP Q12809
C	?	-	MET	deletion	UNP Q12809
C	?	-	GLU	deletion	UNP Q12809
C	?	-	ASP	deletion	UNP Q12809
C	?	-	CYS	deletion	UNP Q12809
C	?	-	GLU	deletion	UNP Q12809
C	?	-	LYS	deletion	UNP Q12809
C	?	-	SER	deletion	UNP Q12809
C	?	-	SER	deletion	UNP Q12809
C	?	-	ASP	deletion	UNP Q12809
C	?	-	THR	deletion	UNP Q12809
C	?	-	CYS	deletion	UNP Q12809
C	?	-	ASN	deletion	UNP Q12809
C	?	-	PRO	deletion	UNP Q12809
C	?	-	LEU	deletion	UNP Q12809
C	?	-	SER	deletion	UNP Q12809
C	?	-	GLY	deletion	UNP Q12809
C	?	-	ALA	deletion	UNP Q12809
C	?	-	PHE	deletion	UNP Q12809
C	?	-	SER	deletion	UNP Q12809
C	?	-	GLY	deletion	UNP Q12809
C	?	-	VAL	deletion	UNP Q12809

Continued on next page...

Continued from previous page...

Chain	Residue	Modelled	Actual	Comment	Reference
C	?	-	SER	deletion	UNP Q12809
C	?	-	ASN	deletion	UNP Q12809
C	?	-	ILE	deletion	UNP Q12809
C	?	-	PHE	deletion	UNP Q12809
C	?	-	SER	deletion	UNP Q12809
C	?	-	PHE	deletion	UNP Q12809
C	?	-	TRP	deletion	UNP Q12809
C	?	-	GLY	deletion	UNP Q12809
C	?	-	ASP	deletion	UNP Q12809
C	?	-	SER	deletion	UNP Q12809
C	?	-	ARG	deletion	UNP Q12809
D	?	-	PRO	deletion	UNP Q12809
D	?	-	ALA	deletion	UNP Q12809
D	?	-	HIS	deletion	UNP Q12809
D	?	-	ASP	deletion	UNP Q12809
D	?	-	THR	deletion	UNP Q12809
D	?	-	ASN	deletion	UNP Q12809
D	?	-	HIS	deletion	UNP Q12809
D	?	-	ARG	deletion	UNP Q12809
D	?	-	GLY	deletion	UNP Q12809
D	?	-	PRO	deletion	UNP Q12809
D	?	-	PRO	deletion	UNP Q12809
D	?	-	THR	deletion	UNP Q12809
D	?	-	SER	deletion	UNP Q12809
D	?	-	TRP	deletion	UNP Q12809
D	?	-	LEU	deletion	UNP Q12809
D	?	-	ALA	deletion	UNP Q12809
D	?	-	PRO	deletion	UNP Q12809
D	?	-	GLY	deletion	UNP Q12809
D	?	-	ARG	deletion	UNP Q12809
D	?	-	ALA	deletion	UNP Q12809
D	?	-	LYS	deletion	UNP Q12809
D	?	-	THR	deletion	UNP Q12809
D	?	-	PHE	deletion	UNP Q12809
D	?	-	ARG	deletion	UNP Q12809
D	?	-	LEU	deletion	UNP Q12809
D	?	-	LYS	deletion	UNP Q12809
D	?	-	LEU	deletion	UNP Q12809
D	?	-	PRO	deletion	UNP Q12809
D	?	-	ALA	deletion	UNP Q12809
D	?	-	LEU	deletion	UNP Q12809
D	?	-	LEU	deletion	UNP Q12809

Continued on next page...

Continued from previous page...

Chain	Residue	Modelled	Actual	Comment	Reference
D	?	-	ALA	deletion	UNP Q12809
D	?	-	LEU	deletion	UNP Q12809
D	?	-	THR	deletion	UNP Q12809
D	?	-	ALA	deletion	UNP Q12809
D	?	-	ARG	deletion	UNP Q12809
D	?	-	GLU	deletion	UNP Q12809
D	?	-	SER	deletion	UNP Q12809
D	?	-	SER	deletion	UNP Q12809
D	?	-	VAL	deletion	UNP Q12809
D	?	-	ARG	deletion	UNP Q12809
D	?	-	SER	deletion	UNP Q12809
D	?	-	GLY	deletion	UNP Q12809
D	?	-	GLY	deletion	UNP Q12809
D	?	-	ALA	deletion	UNP Q12809
D	?	-	GLY	deletion	UNP Q12809
D	?	-	GLY	deletion	UNP Q12809
D	?	-	ALA	deletion	UNP Q12809
D	?	-	GLY	deletion	UNP Q12809
D	?	-	ALA	deletion	UNP Q12809
D	?	-	PRO	deletion	UNP Q12809
D	?	-	GLY	deletion	UNP Q12809
D	?	-	ALA	deletion	UNP Q12809
D	?	-	VAL	deletion	UNP Q12809
D	?	-	VAL	deletion	UNP Q12809
D	?	-	VAL	deletion	UNP Q12809
D	?	-	ASP	deletion	UNP Q12809
D	?	-	VAL	deletion	UNP Q12809
D	?	-	ASP	deletion	UNP Q12809
D	?	-	LEU	deletion	UNP Q12809
D	?	-	THR	deletion	UNP Q12809
D	?	-	PRO	deletion	UNP Q12809
D	?	-	ALA	deletion	UNP Q12809
D	?	-	ALA	deletion	UNP Q12809
D	?	-	PRO	deletion	UNP Q12809
D	?	-	SER	deletion	UNP Q12809
D	?	-	SER	deletion	UNP Q12809
D	?	-	GLU	deletion	UNP Q12809
D	?	-	SER	deletion	UNP Q12809
D	?	-	LEU	deletion	UNP Q12809
D	?	-	ALA	deletion	UNP Q12809
D	?	-	LEU	deletion	UNP Q12809
D	?	-	ASP	deletion	UNP Q12809

Continued on next page...

Continued from previous page...

Chain	Residue	Modelled	Actual	Comment	Reference
D	?	-	GLU	deletion	UNP Q12809
D	?	-	VAL	deletion	UNP Q12809
D	?	-	THR	deletion	UNP Q12809
D	?	-	ALA	deletion	UNP Q12809
D	?	-	MET	deletion	UNP Q12809
D	?	-	ASP	deletion	UNP Q12809
D	?	-	ASN	deletion	UNP Q12809
D	?	-	HIS	deletion	UNP Q12809
D	?	-	VAL	deletion	UNP Q12809
D	?	-	ALA	deletion	UNP Q12809
D	?	-	GLY	deletion	UNP Q12809
D	?	-	LEU	deletion	UNP Q12809
D	?	-	GLY	deletion	UNP Q12809
D	?	-	PRO	deletion	UNP Q12809
D	?	-	ALA	deletion	UNP Q12809
D	?	-	GLU	deletion	UNP Q12809
D	?	-	GLU	deletion	UNP Q12809
D	?	-	ARG	deletion	UNP Q12809
D	?	-	ARG	deletion	UNP Q12809
D	?	-	ALA	deletion	UNP Q12809
D	?	-	LEU	deletion	UNP Q12809
D	?	-	VAL	deletion	UNP Q12809
D	?	-	GLY	deletion	UNP Q12809
D	?	-	PRO	deletion	UNP Q12809
D	?	-	GLY	deletion	UNP Q12809
D	?	-	SER	deletion	UNP Q12809
D	?	-	PRO	deletion	UNP Q12809
D	?	-	PRO	deletion	UNP Q12809
D	?	-	ARG	deletion	UNP Q12809
D	?	-	SER	deletion	UNP Q12809
D	?	-	ALA	deletion	UNP Q12809
D	?	-	PRO	deletion	UNP Q12809
D	?	-	GLY	deletion	UNP Q12809
D	?	-	GLN	deletion	UNP Q12809
D	?	-	LEU	deletion	UNP Q12809
D	?	-	PRO	deletion	UNP Q12809
D	?	-	SER	deletion	UNP Q12809
D	?	-	PRO	deletion	UNP Q12809
D	?	-	ARG	deletion	UNP Q12809
D	?	-	ALA	deletion	UNP Q12809
D	?	-	HIS	deletion	UNP Q12809
D	?	-	SER	deletion	UNP Q12809

Continued on next page...

Continued from previous page...

Chain	Residue	Modelled	Actual	Comment	Reference
D	?	-	LEU	deletion	UNP Q12809
D	?	-	ASN	deletion	UNP Q12809
D	?	-	PRO	deletion	UNP Q12809
D	?	-	ASP	deletion	UNP Q12809
D	?	-	ALA	deletion	UNP Q12809
D	?	-	SER	deletion	UNP Q12809
D	?	-	GLY	deletion	UNP Q12809
D	?	-	SER	deletion	UNP Q12809
D	?	-	SER	deletion	UNP Q12809
D	?	-	CYS	deletion	UNP Q12809
D	?	-	SER	deletion	UNP Q12809
D	?	-	LEU	deletion	UNP Q12809
D	?	-	ALA	deletion	UNP Q12809
D	?	-	ARG	deletion	UNP Q12809
D	?	-	THR	deletion	UNP Q12809
D	?	-	ARG	deletion	UNP Q12809
D	?	-	SER	deletion	UNP Q12809
D	?	-	ARG	deletion	UNP Q12809
D	?	-	GLU	deletion	UNP Q12809
D	?	-	SER	deletion	UNP Q12809
D	?	-	CYS	deletion	UNP Q12809
D	?	-	ALA	deletion	UNP Q12809
D	?	-	SER	deletion	UNP Q12809
D	?	-	VAL	deletion	UNP Q12809
D	?	-	ARG	deletion	UNP Q12809
D	?	-	ARG	deletion	UNP Q12809
D	?	-	ALA	deletion	UNP Q12809
D	?	-	SER	deletion	UNP Q12809
D	?	-	SER	deletion	UNP Q12809
D	?	-	ALA	deletion	UNP Q12809
D	?	-	ASP	deletion	UNP Q12809
D	?	-	ASP	deletion	UNP Q12809
D	?	-	ILE	deletion	UNP Q12809
D	?	-	GLU	deletion	UNP Q12809
D	?	-	ALA	deletion	UNP Q12809
D	?	-	MET	deletion	UNP Q12809
D	?	-	ARG	deletion	UNP Q12809
D	?	-	ALA	deletion	UNP Q12809
D	?	-	GLY	deletion	UNP Q12809
D	?	-	VAL	deletion	UNP Q12809
D	?	-	LEU	deletion	UNP Q12809
D	?	-	PRO	deletion	UNP Q12809

Continued on next page...

Continued from previous page...

Chain	Residue	Modelled	Actual	Comment	Reference
D	?	-	PRO	deletion	UNP Q12809
D	?	-	PRO	deletion	UNP Q12809
D	?	-	PRO	deletion	UNP Q12809
D	?	-	ARG	deletion	UNP Q12809
D	?	-	HIS	deletion	UNP Q12809
D	?	-	ALA	deletion	UNP Q12809
D	?	-	SER	deletion	UNP Q12809
D	?	-	THR	deletion	UNP Q12809
D	?	-	GLY	deletion	UNP Q12809
D	?	-	ALA	deletion	UNP Q12809
D	?	-	MET	deletion	UNP Q12809
D	?	-	HIS	deletion	UNP Q12809
D	?	-	PRO	deletion	UNP Q12809
D	?	-	LEU	deletion	UNP Q12809
D	?	-	ARG	deletion	UNP Q12809
D	?	-	SER	deletion	UNP Q12809
D	?	-	GLY	deletion	UNP Q12809
D	?	-	LEU	deletion	UNP Q12809
D	?	-	LEU	deletion	UNP Q12809
D	?	-	ASN	deletion	UNP Q12809
D	?	-	SER	deletion	UNP Q12809
D	?	-	THR	deletion	UNP Q12809
D	?	-	SER	deletion	UNP Q12809
D	?	-	ASP	deletion	UNP Q12809
D	?	-	SER	deletion	UNP Q12809
D	?	-	ASP	deletion	UNP Q12809
D	?	-	LEU	deletion	UNP Q12809
D	?	-	VAL	deletion	UNP Q12809
D	?	-	ARG	deletion	UNP Q12809
D	?	-	TYR	deletion	UNP Q12809
D	?	-	ARG	deletion	UNP Q12809
D	?	-	THR	deletion	UNP Q12809
D	?	-	ILE	deletion	UNP Q12809
D	?	-	SER	deletion	UNP Q12809
D	?	-	LYS	deletion	UNP Q12809
D	?	-	ILE	deletion	UNP Q12809
D	?	-	PRO	deletion	UNP Q12809
D	?	-	GLN	deletion	UNP Q12809
D	?	-	ILE	deletion	UNP Q12809
D	?	-	THR	deletion	UNP Q12809
D	?	-	LEU	deletion	UNP Q12809
D	?	-	ASN	deletion	UNP Q12809

Continued on next page...

Continued from previous page...

Chain	Residue	Modelled	Actual	Comment	Reference
D	?	-	PHE	deletion	UNP Q12809
D	?	-	VAL	deletion	UNP Q12809
D	?	-	ASP	deletion	UNP Q12809
D	?	-	LEU	deletion	UNP Q12809
D	?	-	LYS	deletion	UNP Q12809
D	?	-	GLY	deletion	UNP Q12809
D	?	-	ASP	deletion	UNP Q12809
D	?	-	PRO	deletion	UNP Q12809
D	?	-	PHE	deletion	UNP Q12809
D	?	-	LEU	deletion	UNP Q12809
D	?	-	ALA	deletion	UNP Q12809
D	?	-	SER	deletion	UNP Q12809
D	?	-	PRO	deletion	UNP Q12809
D	?	-	THR	deletion	UNP Q12809
D	?	-	SER	deletion	UNP Q12809
D	?	-	ASP	deletion	UNP Q12809
D	?	-	ARG	deletion	UNP Q12809
D	?	-	GLU	deletion	UNP Q12809
D	?	-	ILE	deletion	UNP Q12809
D	?	-	ILE	deletion	UNP Q12809
D	?	-	ALA	deletion	UNP Q12809
D	?	-	PRO	deletion	UNP Q12809
D	?	-	LYS	deletion	UNP Q12809
D	?	-	ILE	deletion	UNP Q12809
D	?	-	LYS	deletion	UNP Q12809
D	?	-	GLU	deletion	UNP Q12809
D	?	-	ARG	deletion	UNP Q12809
D	?	-	THR	deletion	UNP Q12809
D	?	-	HIS	deletion	UNP Q12809
D	?	-	ASN	deletion	UNP Q12809
D	?	-	VAL	deletion	UNP Q12809
D	?	-	THR	deletion	UNP Q12809
D	?	-	GLU	deletion	UNP Q12809
D	?	-	LYS	deletion	UNP Q12809
D	?	-	VAL	deletion	UNP Q12809
D	?	-	THR	deletion	UNP Q12809
D	?	-	GLN	deletion	UNP Q12809
D	?	-	VAL	deletion	UNP Q12809
D	?	-	LEU	deletion	UNP Q12809
D	?	-	SER	deletion	UNP Q12809
D	?	-	LEU	deletion	UNP Q12809
D	?	-	SER	deletion	UNP Q12809

Continued on next page...

Continued from previous page...

Chain	Residue	Modelled	Actual	Comment	Reference
D	?	-	PRO	deletion	UNP Q12809
D	?	-	GLY	deletion	UNP Q12809
D	?	-	SER	deletion	UNP Q12809
D	?	-	THR	deletion	UNP Q12809
D	?	-	GLU	deletion	UNP Q12809
D	?	-	LEU	deletion	UNP Q12809
D	?	-	GLU	deletion	UNP Q12809
D	?	-	GLY	deletion	UNP Q12809
D	?	-	GLY	deletion	UNP Q12809
D	?	-	PHE	deletion	UNP Q12809
D	?	-	SER	deletion	UNP Q12809
D	?	-	ARG	deletion	UNP Q12809
D	?	-	GLN	deletion	UNP Q12809
D	?	-	ARG	deletion	UNP Q12809
D	?	-	LYS	deletion	UNP Q12809
D	?	-	ARG	deletion	UNP Q12809
D	?	-	LYS	deletion	UNP Q12809
D	?	-	LEU	deletion	UNP Q12809
D	?	-	SER	deletion	UNP Q12809
D	?	-	PHE	deletion	UNP Q12809
D	?	-	ARG	deletion	UNP Q12809
D	?	-	ARG	deletion	UNP Q12809
D	?	-	ARG	deletion	UNP Q12809
D	?	-	THR	deletion	UNP Q12809
D	?	-	ASP	deletion	UNP Q12809
D	?	-	LYS	deletion	UNP Q12809
D	?	-	ASP	deletion	UNP Q12809
D	?	-	THR	deletion	UNP Q12809
D	?	-	GLU	deletion	UNP Q12809
D	?	-	GLN	deletion	UNP Q12809
D	?	-	PRO	deletion	UNP Q12809
D	?	-	GLY	deletion	UNP Q12809
D	?	-	GLU	deletion	UNP Q12809
D	?	-	VAL	deletion	UNP Q12809
D	?	-	SER	deletion	UNP Q12809
D	?	-	ALA	deletion	UNP Q12809
D	?	-	LEU	deletion	UNP Q12809
D	?	-	GLY	deletion	UNP Q12809
D	?	-	PRO	deletion	UNP Q12809
D	?	-	GLY	deletion	UNP Q12809
D	?	-	ARG	deletion	UNP Q12809
D	?	-	ALA	deletion	UNP Q12809

Continued on next page...

Continued from previous page...

Chain	Residue	Modelled	Actual	Comment	Reference
D	?	-	GLY	deletion	UNP Q12809
D	?	-	ALA	deletion	UNP Q12809
D	?	-	GLY	deletion	UNP Q12809
D	?	-	PRO	deletion	UNP Q12809
D	?	-	SER	deletion	UNP Q12809
D	?	-	SER	deletion	UNP Q12809
D	?	-	ARG	deletion	UNP Q12809
D	?	-	GLY	deletion	UNP Q12809
D	?	-	ARG	deletion	UNP Q12809
D	?	-	PRO	deletion	UNP Q12809
D	?	-	GLY	deletion	UNP Q12809
D	?	-	GLY	deletion	UNP Q12809
D	?	-	PRO	deletion	UNP Q12809
D	?	-	TRP	deletion	UNP Q12809
D	?	-	GLY	deletion	UNP Q12809
D	?	-	GLU	deletion	UNP Q12809
D	?	-	SER	deletion	UNP Q12809
D	?	-	PRO	deletion	UNP Q12809
D	?	-	SER	deletion	UNP Q12809
D	?	-	SER	deletion	UNP Q12809
D	?	-	GLY	deletion	UNP Q12809
D	?	-	PRO	deletion	UNP Q12809
D	?	-	SER	deletion	UNP Q12809
D	?	-	SER	deletion	UNP Q12809
D	?	-	PRO	deletion	UNP Q12809
D	?	-	GLU	deletion	UNP Q12809
D	?	-	SER	deletion	UNP Q12809
D	?	-	SER	deletion	UNP Q12809
D	?	-	PRO	deletion	UNP Q12809
D	?	-	GLU	deletion	UNP Q12809
D	?	-	ASP	deletion	UNP Q12809
D	?	-	GLU	deletion	UNP Q12809
D	?	-	GLY	deletion	UNP Q12809
D	?	-	PRO	deletion	UNP Q12809
D	?	-	GLY	deletion	UNP Q12809
D	?	-	ARG	deletion	UNP Q12809
D	?	-	SER	deletion	UNP Q12809
D	?	-	SER	deletion	UNP Q12809
D	?	-	SER	deletion	UNP Q12809
D	?	-	PRO	deletion	UNP Q12809
D	?	-	LEU	deletion	UNP Q12809
D	?	-	ARG	deletion	UNP Q12809
D	?	-	LEU	deletion	UNP Q12809

Continued on next page...

Continued from previous page...

Chain	Residue	Modelled	Actual	Comment	Reference
D	?	-	VAL	deletion	UNP Q12809
D	?	-	PRO	deletion	UNP Q12809
D	?	-	PHE	deletion	UNP Q12809
D	?	-	SER	deletion	UNP Q12809
D	?	-	SER	deletion	UNP Q12809
D	?	-	PRO	deletion	UNP Q12809
D	?	-	ARG	deletion	UNP Q12809
D	?	-	PRO	deletion	UNP Q12809
D	?	-	PRO	deletion	UNP Q12809
D	?	-	GLY	deletion	UNP Q12809
D	?	-	GLU	deletion	UNP Q12809
D	?	-	PRO	deletion	UNP Q12809
D	?	-	PRO	deletion	UNP Q12809
D	?	-	GLY	deletion	UNP Q12809
D	?	-	GLY	deletion	UNP Q12809
D	?	-	GLU	deletion	UNP Q12809
D	?	-	PRO	deletion	UNP Q12809
D	?	-	LEU	deletion	UNP Q12809
D	?	-	MET	deletion	UNP Q12809
D	?	-	GLU	deletion	UNP Q12809
D	?	-	ASP	deletion	UNP Q12809
D	?	-	CYS	deletion	UNP Q12809
D	?	-	GLU	deletion	UNP Q12809
D	?	-	LYS	deletion	UNP Q12809
D	?	-	SER	deletion	UNP Q12809
D	?	-	SER	deletion	UNP Q12809
D	?	-	ASP	deletion	UNP Q12809
D	?	-	THR	deletion	UNP Q12809
D	?	-	CYS	deletion	UNP Q12809
D	?	-	ASN	deletion	UNP Q12809
D	?	-	PRO	deletion	UNP Q12809
D	?	-	LEU	deletion	UNP Q12809
D	?	-	SER	deletion	UNP Q12809
D	?	-	GLY	deletion	UNP Q12809
D	?	-	ALA	deletion	UNP Q12809
D	?	-	PHE	deletion	UNP Q12809
D	?	-	SER	deletion	UNP Q12809
D	?	-	GLY	deletion	UNP Q12809
D	?	-	VAL	deletion	UNP Q12809
D	?	-	SER	deletion	UNP Q12809
D	?	-	ASN	deletion	UNP Q12809
D	?	-	ILE	deletion	UNP Q12809

Continued on next page...

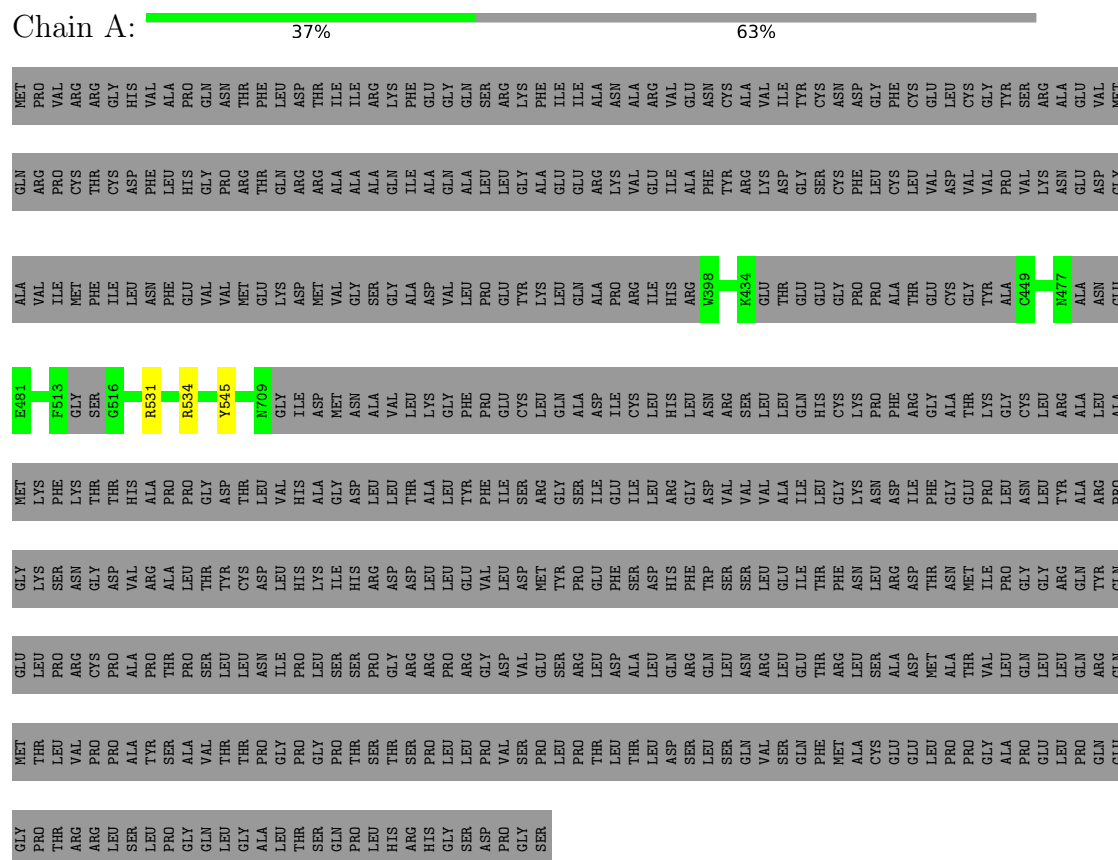
Continued from previous page...

Chain	Residue	Modelled	Actual	Comment	Reference
D	?	-	PHE	deletion	UNP Q12809
D	?	-	SER	deletion	UNP Q12809
D	?	-	PHE	deletion	UNP Q12809
D	?	-	TRP	deletion	UNP Q12809
D	?	-	GLY	deletion	UNP Q12809
D	?	-	ASP	deletion	UNP Q12809
D	?	-	SER	deletion	UNP Q12809
D	?	-	ARG	deletion	UNP Q12809

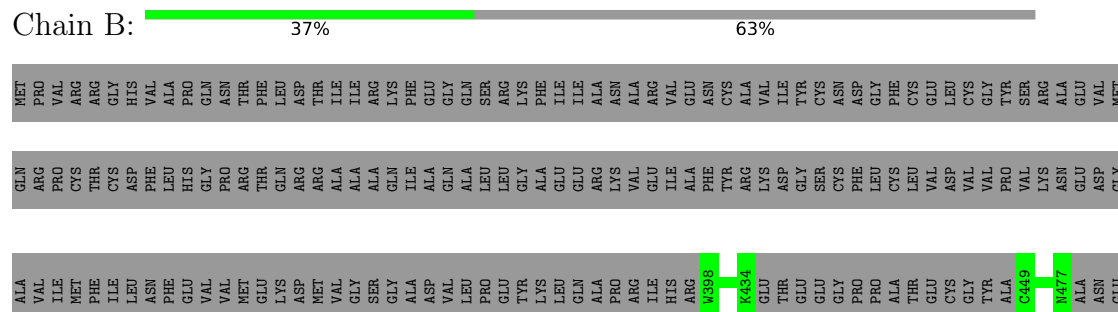
3 Residue-property plots

These plots are drawn for all protein, RNA, DNA and oligosaccharide chains in the entry. The first graphic for a chain summarises the proportions of the various outlier classes displayed in the second graphic. The second graphic shows the sequence view annotated by issues in geometry. Residues are color-coded according to the number of geometric quality criteria for which they contain at least one outlier: green = 0, yellow = 1, orange = 2 and red = 3 or more. Stretches of 2 or more consecutive residues without any outlier are shown as a green connector. Residues present in the sample, but not in the model, are shown in grey.

- Molecule 1: Potassium voltage-gated channel subfamily H member 2



- Molecule 1: Potassium voltage-gated channel subfamily H member 2





4 Experimental information

Property	Value	Source
EM reconstruction method	SINGLE PARTICLE	Depositor
Imposed symmetry	POINT, C1	Depositor
Number of particles used	358026	Depositor
Resolution determination method	FSC 0.143 CUT-OFF	Depositor
CTF correction method	PHASE FLIPPING AND AMPLITUDE CORRECTION	Depositor
Microscope	FEI TITAN KRIOS	Depositor
Voltage (kV)	300	Depositor
Electron dose ($e^-/\text{\AA}^2$)	50	Depositor
Minimum defocus (nm)	500	Depositor
Maximum defocus (nm)	2000	Depositor
Magnification	Not provided	
Image detector	GATAN K2 SUMMIT (4k x 4k)	Depositor

5 Model quality

5.1 Standard geometry

The Z score for a bond length (or angle) is the number of standard deviations the observed value is removed from the expected value. A bond length (or angle) with $|Z| > 5$ is considered an outlier worth inspection. RMSZ is the root-mean-square of all Z scores of the bond lengths (or angles).

Mol	Chain	Bond lengths		Bond angles	
		RMSZ	$\# Z > 5$	RMSZ	$\# Z > 5$
1	A	0.76	0/2444	1.25	1/3322 (0.0%)
1	B	0.76	0/2444	1.26	2/3322 (0.1%)
1	C	0.76	0/2444	1.24	2/3322 (0.1%)
1	D	0.76	0/2444	1.24	1/3322 (0.0%)
All	All	0.76	0/9776	1.25	6/13288 (0.0%)

Chiral center outliers are detected by calculating the chiral volume of a chiral center and verifying if the center is modelled as a planar moiety or with the opposite hand. A planarity outlier is detected by checking planarity of atoms in a peptide group, atoms in a mainchain group or atoms of a sidechain that are expected to be planar.

Mol	Chain	#Chirality outliers	#Planarity outliers
1	A	0	2
1	B	0	1
1	C	0	1
1	D	0	1
All	All	0	5

There are no bond length outliers.

The worst 5 of 6 bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	B	681	ARG	NE-CZ-NH2	5.99	124.59	119.20
1	B	531	ARG	NE-CZ-NH2	5.65	124.28	119.20
1	D	531	ARG	NE-CZ-NH2	5.57	124.21	119.20
1	C	531	ARG	NE-CZ-NH2	5.56	124.21	119.20
1	C	681	ARG	NE-CZ-NH2	5.10	123.79	119.20

There are no chirality outliers.

All (5) planarity outliers are listed below:

Mol	Chain	Res	Type	Group
1	A	534	ARG	Sidechain
1	A	545	TYR	Sidechain
1	B	534	ARG	Sidechain
1	C	534	ARG	Sidechain
1	D	534	ARG	Sidechain

5.2 Too-close contacts [i](#)

In the following table, the Non-H and H(model) columns list the number of non-hydrogen atoms and hydrogen atoms in the chain respectively. The H(added) column lists the number of hydrogen atoms added and optimized by MolProbity. The Clashes column lists the number of clashes within the asymmetric unit, whereas Symm-Clashes lists symmetry-related clashes.

Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
1	A	2377	2399	2395	0	0
1	B	2377	2399	2395	0	0
1	C	2377	2399	2395	0	0
1	D	2377	2399	2395	0	0
All	All	9508	9596	9580	0	0

The all-atom clashscore is defined as the number of clashes found per 1000 atoms (including hydrogen atoms). The all-atom clashscore for this structure is 0.

There are no clashes within the asymmetric unit.

There are no symmetry-related clashes.

5.3 Torsion angles [i](#)

5.3.1 Protein backbone [i](#)

In the following table, the Percentiles column shows the percent Ramachandran outliers of the chain as a percentile score with respect to all PDB entries followed by that with respect to all EM entries.

The Analysed column shows the number of residues for which the backbone conformation was analysed, and the total number of residues.

Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
1	A	285/784 (36%)	281 (99%)	4 (1%)	0	100	100
1	B	285/784 (36%)	279 (98%)	6 (2%)	0	100	100
1	C	285/784 (36%)	281 (99%)	4 (1%)	0	100	100

Continued on next page...

Continued from previous page...

Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
1	D	285/784 (36%)	277 (97%)	8 (3%)	0	100	100
All	All	1140/3136 (36%)	1118 (98%)	22 (2%)	0	100	100

There are no Ramachandran outliers to report.

5.3.2 Protein sidechains ⓘ

In the following table, the Percentiles column shows the percent sidechain outliers of the chain as a percentile score with respect to all PDB entries followed by that with respect to all EM entries.

The Analysed column shows the number of residues for which the sidechain conformation was analysed, and the total number of residues.

Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
1	A	255/671 (38%)	255 (100%)	0	100	100
1	B	255/671 (38%)	255 (100%)	0	100	100
1	C	255/671 (38%)	255 (100%)	0	100	100
1	D	255/671 (38%)	255 (100%)	0	100	100
All	All	1020/2684 (38%)	1020 (100%)	0	100	100

There are no protein residues with a non-rotameric sidechain to report.

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. 5 of 16 such sidechains are listed below:

Mol	Chain	Res	Type
1	D	691	ASN
1	D	587	HIS
1	C	492	HIS
1	C	695	GLN
1	B	695	GLN

5.3.3 RNA ⓘ

There are no RNA molecules in this entry.

5.4 Non-standard residues in protein, DNA, RNA chains [i](#)

There are no non-standard protein/DNA/RNA residues in this entry.

5.5 Carbohydrates [i](#)

There are no oligosaccharides in this entry.

5.6 Ligand geometry [i](#)

There are no ligands in this entry.

5.7 Other polymers [i](#)

There are no such residues in this entry.

5.8 Polymer linkage issues [i](#)

There are no chain breaks in this entry.

6 Map visualisation

This section contains visualisations of the EMDB entry EMD-45600. These allow visual inspection of the internal detail of the map and identification of artifacts.

Images derived from a raw map, generated by summing the deposited half-maps, are presented below the corresponding image components of the primary map to allow further visual inspection and comparison with those of the primary map.

6.1 Orthogonal projections

This section was not generated.

6.2 Central slices

This section was not generated.

6.3 Largest variance slices

This section was not generated.

6.4 Orthogonal standard-deviation projections (False-color)

This section was not generated.

6.5 Orthogonal surface views

This section was not generated.

6.6 Mask visualisation

This section was not generated. No masks/segmentation were deposited.

7 Map analysis ⓘ

This section contains the results of statistical analysis of the map.

7.1 Map-value distribution ⓘ

This section was not generated.

7.2 Volume estimate versus contour level ⓘ

This section was not generated.

7.3 Rotationally averaged power spectrum ⓘ

This section was not generated. The rotationally averaged power spectrum had issues being displayed.

8 Fourier-Shell correlation

This section was not generated. No FSC curve or half-maps provided.

9 Map-model fit

This section was not generated.