



wwPDB EM Validation Summary Report ⓘ

Mar 20, 2026 – 01:18 AM UTC

PDB ID : 8AKU / pdb_00008aku
EMDB ID : EMD-15493
Title : 250 A SynPspA rod after incubation with ATP
Authors : Junglas, B.; Hudina, E.; Schoennenbeck, P.; Ritter, I.; Santiago-Schuebel, B.;
Huesgen, P.; Sachse, C.
Deposited on : 2022-07-31
Resolution : 4.50 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

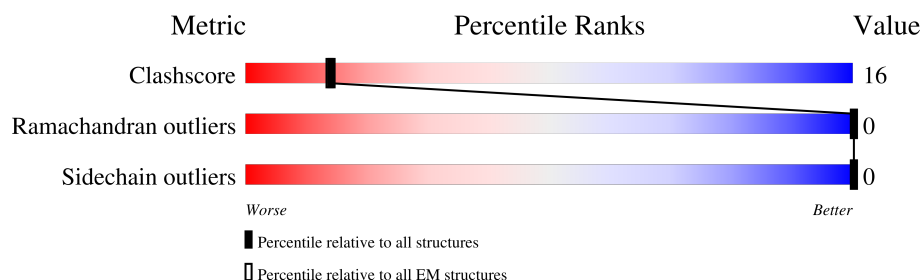
1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

ELECTRON MICROSCOPY

The reported resolution of this entry is 4.50 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.



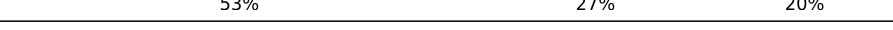
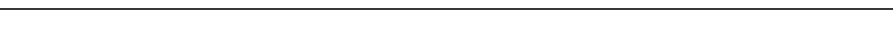
Metric	Whole archive (#Entries)	EM structures (#Entries)
Clashscore	229148	23984
Ramachandran outliers	224038	23583
Sidechain outliers	223484	23102

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	0	246	52% 28% 20%
1	1	246	52% 27% 20%
1	2	246	53% 26% 20%
1	3	246	54% 26% 20%
1	4	246	53% 26% 20%
1	5	246	54% 26% 20%
1	6	246	54% 25% 20%
1	7	246	54% 26% 20%
1	A	246	55% 25% 20%

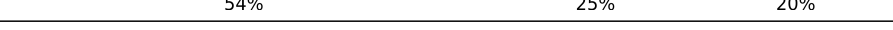
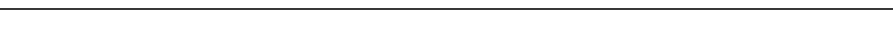
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Mol	Chain	Length	Quality of chain
1	B	246	
1	C	246	
1	D	246	
1	E	246	
1	F	246	
1	G	246	
1	H	246	
1	I	246	
1	J	246	
1	K	246	
1	L	246	
1	M	246	
1	N	246	
1	O	246	
1	P	246	
1	Q	246	
1	R	246	
1	S	246	
1	T	246	
1	U	246	
1	V	246	
1	W	246	
1	X	246	
1	Y	246	
1	Z	246	

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Mol	Chain	Length	Quality of chain
1	a	246	 52%28%20%
1	b	246	 54%26%20%
1	c	246	 54%26%20%
1	d	246	 54%25%20%
1	e	246	 53%26%20%
1	f	246	 52%28%20%
1	g	246	 54%26%20%
1	h	246	 56%24%20%
1	i	246	 54%25%20%
1	j	246	 52%28%20%
1	k	246	 54%26%20%
1	l	246	 54%26%20%
1	m	246	 52%27%20%
1	n	246	 54%25%20%
1	o	246	 54%26%20%
1	p	246	 55%25%20%
1	q	246	 53%27%20%
1	r	246	 54%26%20%
1	s	246	 53%26%20%
1	t	246	 54%25%20%
1	u	246	 54%26%20%
1	v	246	 53%27%20%
1	w	246	 54%26%20%
1	x	246	 54%26%20%
1	y	246	 54%26%20%

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Mol	Chain	Length	Quality of chain
1	z	246	 52% 28% 20%

2 Entry composition [i](#)

There is only 1 type of molecule in this entry. The entry contains 190860 atoms, of which 96240 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 Chloroplast membrane-associated 30 kD protein.

Mol	Chain	Residues	Atoms						AltConf	Trace
1	0	196	Total	C	H	N	O	S	0	0
			3181	978	1604	289	308	2		
1	1	196	Total	C	H	N	O	S	0	0
			3181	978	1604	289	308	2		
1	2	196	Total	C	H	N	O	S	0	0
			3181	978	1604	289	308	2		
1	3	196	Total	C	H	N	O	S	0	0
			3181	978	1604	289	308	2		
1	4	196	Total	C	H	N	O	S	0	0
			3181	978	1604	289	308	2		
1	5	196	Total	C	H	N	O	S	0	0
			3181	978	1604	289	308	2		
1	6	196	Total	C	H	N	O	S	0	0
			3181	978	1604	289	308	2		
1	7	196	Total	C	H	N	O	S	0	0
			3181	978	1604	289	308	2		
1	A	196	Total	C	H	N	O	S	0	0
			3181	978	1604	289	308	2		
1	B	196	Total	C	H	N	O	S	0	0
			3181	978	1604	289	308	2		
1	C	196	Total	C	H	N	O	S	0	0
			3181	978	1604	289	308	2		
1	D	196	Total	C	H	N	O	S	0	0
			3181	978	1604	289	308	2		
1	E	196	Total	C	H	N	O	S	0	0
			3181	978	1604	289	308	2		
1	F	196	Total	C	H	N	O	S	0	0
			3181	978	1604	289	308	2		
1	G	196	Total	C	H	N	O	S	0	0
			3181	978	1604	289	308	2		
1	H	196	Total	C	H	N	O	S	0	0
			3181	978	1604	289	308	2		
1	I	196	Total	C	H	N	O	S	0	0
			3181	978	1604	289	308	2		

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Mol	Chain	Residues	Atoms						AltConf	Trace
1	J	196	Total 3181	C 978	H 1604	N 289	O 308	S 2	0	0
1	K	196	Total 3181	C 978	H 1604	N 289	O 308	S 2	0	0
1	L	196	Total 3181	C 978	H 1604	N 289	O 308	S 2	0	0
1	M	196	Total 3181	C 978	H 1604	N 289	O 308	S 2	0	0
1	N	196	Total 3181	C 978	H 1604	N 289	O 308	S 2	0	0
1	O	196	Total 3181	C 978	H 1604	N 289	O 308	S 2	0	0
1	P	196	Total 3181	C 978	H 1604	N 289	O 308	S 2	0	0
1	Q	196	Total 3181	C 978	H 1604	N 289	O 308	S 2	0	0
1	R	196	Total 3181	C 978	H 1604	N 289	O 308	S 2	0	0
1	S	196	Total 3181	C 978	H 1604	N 289	O 308	S 2	0	0
1	T	196	Total 3181	C 978	H 1604	N 289	O 308	S 2	0	0
1	U	196	Total 3181	C 978	H 1604	N 289	O 308	S 2	0	0
1	V	196	Total 3181	C 978	H 1604	N 289	O 308	S 2	0	0
1	W	196	Total 3181	C 978	H 1604	N 289	O 308	S 2	0	0
1	X	196	Total 3181	C 978	H 1604	N 289	O 308	S 2	0	0
1	Y	196	Total 3181	C 978	H 1604	N 289	O 308	S 2	0	0
1	Z	196	Total 3181	C 978	H 1604	N 289	O 308	S 2	0	0
1	a	196	Total 3181	C 978	H 1604	N 289	O 308	S 2	0	0
1	b	196	Total 3181	C 978	H 1604	N 289	O 308	S 2	0	0
1	c	196	Total 3181	C 978	H 1604	N 289	O 308	S 2	0	0
1	d	196	Total 3181	C 978	H 1604	N 289	O 308	S 2	0	0

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Mol	Chain	Residues	Atoms						AltConf	Trace
1	e	196	Total 3181	C 978	H 1604	N 289	O 308	S 2	0	0
1	f	196	Total 3181	C 978	H 1604	N 289	O 308	S 2	0	0
1	g	196	Total 3181	C 978	H 1604	N 289	O 308	S 2	0	0
1	h	196	Total 3181	C 978	H 1604	N 289	O 308	S 2	0	0
1	i	196	Total 3181	C 978	H 1604	N 289	O 308	S 2	0	0
1	j	196	Total 3181	C 978	H 1604	N 289	O 308	S 2	0	0
1	k	196	Total 3181	C 978	H 1604	N 289	O 308	S 2	0	0
1	l	196	Total 3181	C 978	H 1604	N 289	O 308	S 2	0	0
1	m	196	Total 3181	C 978	H 1604	N 289	O 308	S 2	0	0
1	n	196	Total 3181	C 978	H 1604	N 289	O 308	S 2	0	0
1	o	196	Total 3181	C 978	H 1604	N 289	O 308	S 2	0	0
1	p	196	Total 3181	C 978	H 1604	N 289	O 308	S 2	0	0
1	q	196	Total 3181	C 978	H 1604	N 289	O 308	S 2	0	0
1	r	196	Total 3181	C 978	H 1604	N 289	O 308	S 2	0	0
1	s	196	Total 3181	C 978	H 1604	N 289	O 308	S 2	0	0
1	t	196	Total 3181	C 978	H 1604	N 289	O 308	S 2	0	0
1	u	196	Total 3181	C 978	H 1604	N 289	O 308	S 2	0	0
1	v	196	Total 3181	C 978	H 1604	N 289	O 308	S 2	0	0
1	w	196	Total 3181	C 978	H 1604	N 289	O 308	S 2	0	0
1	x	196	Total 3181	C 978	H 1604	N 289	O 308	S 2	0	0
1	y	196	Total 3181	C 978	H 1604	N 289	O 308	S 2	0	0

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Mol	Chain	Residues	Atoms						AltConf	Trace
1	z	196	Total	C	H	N	O	S	0	0
			3181	978	1604	289	308	2		

There are 1380 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
0	-22	MET	-	initiating methionine	UNP P74717
0	-21	GLY	-	expression tag	UNP P74717
0	-20	SER	-	expression tag	UNP P74717
0	-19	SER	-	expression tag	UNP P74717
0	-18	HIS	-	expression tag	UNP P74717
0	-17	HIS	-	expression tag	UNP P74717
0	-16	HIS	-	expression tag	UNP P74717
0	-15	HIS	-	expression tag	UNP P74717
0	-14	HIS	-	expression tag	UNP P74717
0	-13	HIS	-	expression tag	UNP P74717
0	-12	SER	-	expression tag	UNP P74717
0	-11	SER	-	expression tag	UNP P74717
0	-10	SER	-	expression tag	UNP P74717
0	-9	ALA	-	expression tag	UNP P74717
0	-8	ALA	-	expression tag	UNP P74717
0	-7	LEU	-	expression tag	UNP P74717
0	-6	GLU	-	expression tag	UNP P74717
0	-5	VAL	-	expression tag	UNP P74717
0	-4	LEU	-	expression tag	UNP P74717
0	-3	PHE	-	expression tag	UNP P74717
0	-2	GLN	-	expression tag	UNP P74717
0	-1	GLY	-	expression tag	UNP P74717
0	0	PRO	-	expression tag	UNP P74717
1	-22	MET	-	initiating methionine	UNP P74717
1	-21	GLY	-	expression tag	UNP P74717
1	-20	SER	-	expression tag	UNP P74717
1	-19	SER	-	expression tag	UNP P74717
1	-18	HIS	-	expression tag	UNP P74717
1	-17	HIS	-	expression tag	UNP P74717
1	-16	HIS	-	expression tag	UNP P74717
1	-15	HIS	-	expression tag	UNP P74717
1	-14	HIS	-	expression tag	UNP P74717
1	-13	HIS	-	expression tag	UNP P74717
1	-12	SER	-	expression tag	UNP P74717
1	-11	SER	-	expression tag	UNP P74717
1	-10	SER	-	expression tag	UNP P74717

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Chain	Residue	Modelled	Actual	Comment	Reference
1	-9	ALA	-	expression tag	UNP P74717
1	-8	ALA	-	expression tag	UNP P74717
1	-7	LEU	-	expression tag	UNP P74717
1	-6	GLU	-	expression tag	UNP P74717
1	-5	VAL	-	expression tag	UNP P74717
1	-4	LEU	-	expression tag	UNP P74717
1	-3	PHE	-	expression tag	UNP P74717
1	-2	GLN	-	expression tag	UNP P74717
1	-1	GLY	-	expression tag	UNP P74717
1	0	PRO	-	expression tag	UNP P74717
2	-22	MET	-	initiating methionine	UNP P74717
2	-21	GLY	-	expression tag	UNP P74717
2	-20	SER	-	expression tag	UNP P74717
2	-19	SER	-	expression tag	UNP P74717
2	-18	HIS	-	expression tag	UNP P74717
2	-17	HIS	-	expression tag	UNP P74717
2	-16	HIS	-	expression tag	UNP P74717
2	-15	HIS	-	expression tag	UNP P74717
2	-14	HIS	-	expression tag	UNP P74717
2	-13	HIS	-	expression tag	UNP P74717
2	-12	SER	-	expression tag	UNP P74717
2	-11	SER	-	expression tag	UNP P74717
2	-10	SER	-	expression tag	UNP P74717
2	-9	ALA	-	expression tag	UNP P74717
2	-8	ALA	-	expression tag	UNP P74717
2	-7	LEU	-	expression tag	UNP P74717
2	-6	GLU	-	expression tag	UNP P74717
2	-5	VAL	-	expression tag	UNP P74717
2	-4	LEU	-	expression tag	UNP P74717
2	-3	PHE	-	expression tag	UNP P74717
2	-2	GLN	-	expression tag	UNP P74717
2	-1	GLY	-	expression tag	UNP P74717
2	0	PRO	-	expression tag	UNP P74717
3	-22	MET	-	initiating methionine	UNP P74717
3	-21	GLY	-	expression tag	UNP P74717
3	-20	SER	-	expression tag	UNP P74717
3	-19	SER	-	expression tag	UNP P74717
3	-18	HIS	-	expression tag	UNP P74717
3	-17	HIS	-	expression tag	UNP P74717
3	-16	HIS	-	expression tag	UNP P74717
3	-15	HIS	-	expression tag	UNP P74717
3	-14	HIS	-	expression tag	UNP P74717

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Chain	Residue	Modelled	Actual	Comment	Reference
3	-13	HIS	-	expression tag	UNP P74717
3	-12	SER	-	expression tag	UNP P74717
3	-11	SER	-	expression tag	UNP P74717
3	-10	SER	-	expression tag	UNP P74717
3	-9	ALA	-	expression tag	UNP P74717
3	-8	ALA	-	expression tag	UNP P74717
3	-7	LEU	-	expression tag	UNP P74717
3	-6	GLU	-	expression tag	UNP P74717
3	-5	VAL	-	expression tag	UNP P74717
3	-4	LEU	-	expression tag	UNP P74717
3	-3	PHE	-	expression tag	UNP P74717
3	-2	GLN	-	expression tag	UNP P74717
3	-1	GLY	-	expression tag	UNP P74717
3	0	PRO	-	expression tag	UNP P74717
4	-22	MET	-	initiating methionine	UNP P74717
4	-21	GLY	-	expression tag	UNP P74717
4	-20	SER	-	expression tag	UNP P74717
4	-19	SER	-	expression tag	UNP P74717
4	-18	HIS	-	expression tag	UNP P74717
4	-17	HIS	-	expression tag	UNP P74717
4	-16	HIS	-	expression tag	UNP P74717
4	-15	HIS	-	expression tag	UNP P74717
4	-14	HIS	-	expression tag	UNP P74717
4	-13	HIS	-	expression tag	UNP P74717
4	-12	SER	-	expression tag	UNP P74717
4	-11	SER	-	expression tag	UNP P74717
4	-10	SER	-	expression tag	UNP P74717
4	-9	ALA	-	expression tag	UNP P74717
4	-8	ALA	-	expression tag	UNP P74717
4	-7	LEU	-	expression tag	UNP P74717
4	-6	GLU	-	expression tag	UNP P74717
4	-5	VAL	-	expression tag	UNP P74717
4	-4	LEU	-	expression tag	UNP P74717
4	-3	PHE	-	expression tag	UNP P74717
4	-2	GLN	-	expression tag	UNP P74717
4	-1	GLY	-	expression tag	UNP P74717
4	0	PRO	-	expression tag	UNP P74717
5	-22	MET	-	initiating methionine	UNP P74717
5	-21	GLY	-	expression tag	UNP P74717
5	-20	SER	-	expression tag	UNP P74717
5	-19	SER	-	expression tag	UNP P74717
5	-18	HIS	-	expression tag	UNP P74717

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Chain	Residue	Modelled	Actual	Comment	Reference
5	-17	HIS	-	expression tag	UNP P74717
5	-16	HIS	-	expression tag	UNP P74717
5	-15	HIS	-	expression tag	UNP P74717
5	-14	HIS	-	expression tag	UNP P74717
5	-13	HIS	-	expression tag	UNP P74717
5	-12	SER	-	expression tag	UNP P74717
5	-11	SER	-	expression tag	UNP P74717
5	-10	SER	-	expression tag	UNP P74717
5	-9	ALA	-	expression tag	UNP P74717
5	-8	ALA	-	expression tag	UNP P74717
5	-7	LEU	-	expression tag	UNP P74717
5	-6	GLU	-	expression tag	UNP P74717
5	-5	VAL	-	expression tag	UNP P74717
5	-4	LEU	-	expression tag	UNP P74717
5	-3	PHE	-	expression tag	UNP P74717
5	-2	GLN	-	expression tag	UNP P74717
5	-1	GLY	-	expression tag	UNP P74717
5	0	PRO	-	expression tag	UNP P74717
6	-22	MET	-	initiating methionine	UNP P74717
6	-21	GLY	-	expression tag	UNP P74717
6	-20	SER	-	expression tag	UNP P74717
6	-19	SER	-	expression tag	UNP P74717
6	-18	HIS	-	expression tag	UNP P74717
6	-17	HIS	-	expression tag	UNP P74717
6	-16	HIS	-	expression tag	UNP P74717
6	-15	HIS	-	expression tag	UNP P74717
6	-14	HIS	-	expression tag	UNP P74717
6	-13	HIS	-	expression tag	UNP P74717
6	-12	SER	-	expression tag	UNP P74717
6	-11	SER	-	expression tag	UNP P74717
6	-10	SER	-	expression tag	UNP P74717
6	-9	ALA	-	expression tag	UNP P74717
6	-8	ALA	-	expression tag	UNP P74717
6	-7	LEU	-	expression tag	UNP P74717
6	-6	GLU	-	expression tag	UNP P74717
6	-5	VAL	-	expression tag	UNP P74717
6	-4	LEU	-	expression tag	UNP P74717
6	-3	PHE	-	expression tag	UNP P74717
6	-2	GLN	-	expression tag	UNP P74717
6	-1	GLY	-	expression tag	UNP P74717
6	0	PRO	-	expression tag	UNP P74717
7	-22	MET	-	initiating methionine	UNP P74717

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Chain	Residue	Modelled	Actual	Comment	Reference
7	-21	GLY	-	expression tag	UNP P74717
7	-20	SER	-	expression tag	UNP P74717
7	-19	SER	-	expression tag	UNP P74717
7	-18	HIS	-	expression tag	UNP P74717
7	-17	HIS	-	expression tag	UNP P74717
7	-16	HIS	-	expression tag	UNP P74717
7	-15	HIS	-	expression tag	UNP P74717
7	-14	HIS	-	expression tag	UNP P74717
7	-13	HIS	-	expression tag	UNP P74717
7	-12	SER	-	expression tag	UNP P74717
7	-11	SER	-	expression tag	UNP P74717
7	-10	SER	-	expression tag	UNP P74717
7	-9	ALA	-	expression tag	UNP P74717
7	-8	ALA	-	expression tag	UNP P74717
7	-7	LEU	-	expression tag	UNP P74717
7	-6	GLU	-	expression tag	UNP P74717
7	-5	VAL	-	expression tag	UNP P74717
7	-4	LEU	-	expression tag	UNP P74717
7	-3	PHE	-	expression tag	UNP P74717
7	-2	GLN	-	expression tag	UNP P74717
7	-1	GLY	-	expression tag	UNP P74717
7	0	PRO	-	expression tag	UNP P74717
A	-22	MET	-	initiating methionine	UNP P74717
A	-21	GLY	-	expression tag	UNP P74717
A	-20	SER	-	expression tag	UNP P74717
A	-19	SER	-	expression tag	UNP P74717
A	-18	HIS	-	expression tag	UNP P74717
A	-17	HIS	-	expression tag	UNP P74717
A	-16	HIS	-	expression tag	UNP P74717
A	-15	HIS	-	expression tag	UNP P74717
A	-14	HIS	-	expression tag	UNP P74717
A	-13	HIS	-	expression tag	UNP P74717
A	-12	SER	-	expression tag	UNP P74717
A	-11	SER	-	expression tag	UNP P74717
A	-10	SER	-	expression tag	UNP P74717
A	-9	ALA	-	expression tag	UNP P74717
A	-8	ALA	-	expression tag	UNP P74717
A	-7	LEU	-	expression tag	UNP P74717
A	-6	GLU	-	expression tag	UNP P74717
A	-5	VAL	-	expression tag	UNP P74717
A	-4	LEU	-	expression tag	UNP P74717
A	-3	PHE	-	expression tag	UNP P74717

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Chain	Residue	Modelled	Actual	Comment	Reference
A	-2	GLN	-	expression tag	UNP P74717
A	-1	GLY	-	expression tag	UNP P74717
A	0	PRO	-	expression tag	UNP P74717
B	-22	MET	-	initiating methionine	UNP P74717
B	-21	GLY	-	expression tag	UNP P74717
B	-20	SER	-	expression tag	UNP P74717
B	-19	SER	-	expression tag	UNP P74717
B	-18	HIS	-	expression tag	UNP P74717
B	-17	HIS	-	expression tag	UNP P74717
B	-16	HIS	-	expression tag	UNP P74717
B	-15	HIS	-	expression tag	UNP P74717
B	-14	HIS	-	expression tag	UNP P74717
B	-13	HIS	-	expression tag	UNP P74717
B	-12	SER	-	expression tag	UNP P74717
B	-11	SER	-	expression tag	UNP P74717
B	-10	SER	-	expression tag	UNP P74717
B	-9	ALA	-	expression tag	UNP P74717
B	-8	ALA	-	expression tag	UNP P74717
B	-7	LEU	-	expression tag	UNP P74717
B	-6	GLU	-	expression tag	UNP P74717
B	-5	VAL	-	expression tag	UNP P74717
B	-4	LEU	-	expression tag	UNP P74717
B	-3	PHE	-	expression tag	UNP P74717
B	-2	GLN	-	expression tag	UNP P74717
B	-1	GLY	-	expression tag	UNP P74717
B	0	PRO	-	expression tag	UNP P74717
C	-22	MET	-	initiating methionine	UNP P74717
C	-21	GLY	-	expression tag	UNP P74717
C	-20	SER	-	expression tag	UNP P74717
C	-19	SER	-	expression tag	UNP P74717
C	-18	HIS	-	expression tag	UNP P74717
C	-17	HIS	-	expression tag	UNP P74717
C	-16	HIS	-	expression tag	UNP P74717
C	-15	HIS	-	expression tag	UNP P74717
C	-14	HIS	-	expression tag	UNP P74717
C	-13	HIS	-	expression tag	UNP P74717
C	-12	SER	-	expression tag	UNP P74717
C	-11	SER	-	expression tag	UNP P74717
C	-10	SER	-	expression tag	UNP P74717
C	-9	ALA	-	expression tag	UNP P74717
C	-8	ALA	-	expression tag	UNP P74717
C	-7	LEU	-	expression tag	UNP P74717

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Chain	Residue	Modelled	Actual	Comment	Reference
C	-6	GLU	-	expression tag	UNP P74717
C	-5	VAL	-	expression tag	UNP P74717
C	-4	LEU	-	expression tag	UNP P74717
C	-3	PHE	-	expression tag	UNP P74717
C	-2	GLN	-	expression tag	UNP P74717
C	-1	GLY	-	expression tag	UNP P74717
C	0	PRO	-	expression tag	UNP P74717
D	-22	MET	-	initiating methionine	UNP P74717
D	-21	GLY	-	expression tag	UNP P74717
D	-20	SER	-	expression tag	UNP P74717
D	-19	SER	-	expression tag	UNP P74717
D	-18	HIS	-	expression tag	UNP P74717
D	-17	HIS	-	expression tag	UNP P74717
D	-16	HIS	-	expression tag	UNP P74717
D	-15	HIS	-	expression tag	UNP P74717
D	-14	HIS	-	expression tag	UNP P74717
D	-13	HIS	-	expression tag	UNP P74717
D	-12	SER	-	expression tag	UNP P74717
D	-11	SER	-	expression tag	UNP P74717
D	-10	SER	-	expression tag	UNP P74717
D	-9	ALA	-	expression tag	UNP P74717
D	-8	ALA	-	expression tag	UNP P74717
D	-7	LEU	-	expression tag	UNP P74717
D	-6	GLU	-	expression tag	UNP P74717
D	-5	VAL	-	expression tag	UNP P74717
D	-4	LEU	-	expression tag	UNP P74717
D	-3	PHE	-	expression tag	UNP P74717
D	-2	GLN	-	expression tag	UNP P74717
D	-1	GLY	-	expression tag	UNP P74717
D	0	PRO	-	expression tag	UNP P74717
E	-22	MET	-	initiating methionine	UNP P74717
E	-21	GLY	-	expression tag	UNP P74717
E	-20	SER	-	expression tag	UNP P74717
E	-19	SER	-	expression tag	UNP P74717
E	-18	HIS	-	expression tag	UNP P74717
E	-17	HIS	-	expression tag	UNP P74717
E	-16	HIS	-	expression tag	UNP P74717
E	-15	HIS	-	expression tag	UNP P74717
E	-14	HIS	-	expression tag	UNP P74717
E	-13	HIS	-	expression tag	UNP P74717
E	-12	SER	-	expression tag	UNP P74717
E	-11	SER	-	expression tag	UNP P74717

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Chain	Residue	Modelled	Actual	Comment	Reference
E	-10	SER	-	expression tag	UNP P74717
E	-9	ALA	-	expression tag	UNP P74717
E	-8	ALA	-	expression tag	UNP P74717
E	-7	LEU	-	expression tag	UNP P74717
E	-6	GLU	-	expression tag	UNP P74717
E	-5	VAL	-	expression tag	UNP P74717
E	-4	LEU	-	expression tag	UNP P74717
E	-3	PHE	-	expression tag	UNP P74717
E	-2	GLN	-	expression tag	UNP P74717
E	-1	GLY	-	expression tag	UNP P74717
E	0	PRO	-	expression tag	UNP P74717
F	-22	MET	-	initiating methionine	UNP P74717
F	-21	GLY	-	expression tag	UNP P74717
F	-20	SER	-	expression tag	UNP P74717
F	-19	SER	-	expression tag	UNP P74717
F	-18	HIS	-	expression tag	UNP P74717
F	-17	HIS	-	expression tag	UNP P74717
F	-16	HIS	-	expression tag	UNP P74717
F	-15	HIS	-	expression tag	UNP P74717
F	-14	HIS	-	expression tag	UNP P74717
F	-13	HIS	-	expression tag	UNP P74717
F	-12	SER	-	expression tag	UNP P74717
F	-11	SER	-	expression tag	UNP P74717
F	-10	SER	-	expression tag	UNP P74717
F	-9	ALA	-	expression tag	UNP P74717
F	-8	ALA	-	expression tag	UNP P74717
F	-7	LEU	-	expression tag	UNP P74717
F	-6	GLU	-	expression tag	UNP P74717
F	-5	VAL	-	expression tag	UNP P74717
F	-4	LEU	-	expression tag	UNP P74717
F	-3	PHE	-	expression tag	UNP P74717
F	-2	GLN	-	expression tag	UNP P74717
F	-1	GLY	-	expression tag	UNP P74717
F	0	PRO	-	expression tag	UNP P74717
G	-22	MET	-	initiating methionine	UNP P74717
G	-21	GLY	-	expression tag	UNP P74717
G	-20	SER	-	expression tag	UNP P74717
G	-19	SER	-	expression tag	UNP P74717
G	-18	HIS	-	expression tag	UNP P74717
G	-17	HIS	-	expression tag	UNP P74717
G	-16	HIS	-	expression tag	UNP P74717
G	-15	HIS	-	expression tag	UNP P74717

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Chain	Residue	Modelled	Actual	Comment	Reference
G	-14	HIS	-	expression tag	UNP P74717
G	-13	HIS	-	expression tag	UNP P74717
G	-12	SER	-	expression tag	UNP P74717
G	-11	SER	-	expression tag	UNP P74717
G	-10	SER	-	expression tag	UNP P74717
G	-9	ALA	-	expression tag	UNP P74717
G	-8	ALA	-	expression tag	UNP P74717
G	-7	LEU	-	expression tag	UNP P74717
G	-6	GLU	-	expression tag	UNP P74717
G	-5	VAL	-	expression tag	UNP P74717
G	-4	LEU	-	expression tag	UNP P74717
G	-3	PHE	-	expression tag	UNP P74717
G	-2	GLN	-	expression tag	UNP P74717
G	-1	GLY	-	expression tag	UNP P74717
G	0	PRO	-	expression tag	UNP P74717
H	-22	MET	-	initiating methionine	UNP P74717
H	-21	GLY	-	expression tag	UNP P74717
H	-20	SER	-	expression tag	UNP P74717
H	-19	SER	-	expression tag	UNP P74717
H	-18	HIS	-	expression tag	UNP P74717
H	-17	HIS	-	expression tag	UNP P74717
H	-16	HIS	-	expression tag	UNP P74717
H	-15	HIS	-	expression tag	UNP P74717
H	-14	HIS	-	expression tag	UNP P74717
H	-13	HIS	-	expression tag	UNP P74717
H	-12	SER	-	expression tag	UNP P74717
H	-11	SER	-	expression tag	UNP P74717
H	-10	SER	-	expression tag	UNP P74717
H	-9	ALA	-	expression tag	UNP P74717
H	-8	ALA	-	expression tag	UNP P74717
H	-7	LEU	-	expression tag	UNP P74717
H	-6	GLU	-	expression tag	UNP P74717
H	-5	VAL	-	expression tag	UNP P74717
H	-4	LEU	-	expression tag	UNP P74717
H	-3	PHE	-	expression tag	UNP P74717
H	-2	GLN	-	expression tag	UNP P74717
H	-1	GLY	-	expression tag	UNP P74717
H	0	PRO	-	expression tag	UNP P74717
I	-22	MET	-	initiating methionine	UNP P74717
I	-21	GLY	-	expression tag	UNP P74717
I	-20	SER	-	expression tag	UNP P74717
I	-19	SER	-	expression tag	UNP P74717

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Chain	Residue	Modelled	Actual	Comment	Reference
I	-18	HIS	-	expression tag	UNP P74717
I	-17	HIS	-	expression tag	UNP P74717
I	-16	HIS	-	expression tag	UNP P74717
I	-15	HIS	-	expression tag	UNP P74717
I	-14	HIS	-	expression tag	UNP P74717
I	-13	HIS	-	expression tag	UNP P74717
I	-12	SER	-	expression tag	UNP P74717
I	-11	SER	-	expression tag	UNP P74717
I	-10	SER	-	expression tag	UNP P74717
I	-9	ALA	-	expression tag	UNP P74717
I	-8	ALA	-	expression tag	UNP P74717
I	-7	LEU	-	expression tag	UNP P74717
I	-6	GLU	-	expression tag	UNP P74717
I	-5	VAL	-	expression tag	UNP P74717
I	-4	LEU	-	expression tag	UNP P74717
I	-3	PHE	-	expression tag	UNP P74717
I	-2	GLN	-	expression tag	UNP P74717
I	-1	GLY	-	expression tag	UNP P74717
I	0	PRO	-	expression tag	UNP P74717
J	-22	MET	-	initiating methionine	UNP P74717
J	-21	GLY	-	expression tag	UNP P74717
J	-20	SER	-	expression tag	UNP P74717
J	-19	SER	-	expression tag	UNP P74717
J	-18	HIS	-	expression tag	UNP P74717
J	-17	HIS	-	expression tag	UNP P74717
J	-16	HIS	-	expression tag	UNP P74717
J	-15	HIS	-	expression tag	UNP P74717
J	-14	HIS	-	expression tag	UNP P74717
J	-13	HIS	-	expression tag	UNP P74717
J	-12	SER	-	expression tag	UNP P74717
J	-11	SER	-	expression tag	UNP P74717
J	-10	SER	-	expression tag	UNP P74717
J	-9	ALA	-	expression tag	UNP P74717
J	-8	ALA	-	expression tag	UNP P74717
J	-7	LEU	-	expression tag	UNP P74717
J	-6	GLU	-	expression tag	UNP P74717
J	-5	VAL	-	expression tag	UNP P74717
J	-4	LEU	-	expression tag	UNP P74717
J	-3	PHE	-	expression tag	UNP P74717
J	-2	GLN	-	expression tag	UNP P74717
J	-1	GLY	-	expression tag	UNP P74717
J	0	PRO	-	expression tag	UNP P74717

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Chain	Residue	Modelled	Actual	Comment	Reference
K	-22	MET	-	initiating methionine	UNP P74717
K	-21	GLY	-	expression tag	UNP P74717
K	-20	SER	-	expression tag	UNP P74717
K	-19	SER	-	expression tag	UNP P74717
K	-18	HIS	-	expression tag	UNP P74717
K	-17	HIS	-	expression tag	UNP P74717
K	-16	HIS	-	expression tag	UNP P74717
K	-15	HIS	-	expression tag	UNP P74717
K	-14	HIS	-	expression tag	UNP P74717
K	-13	HIS	-	expression tag	UNP P74717
K	-12	SER	-	expression tag	UNP P74717
K	-11	SER	-	expression tag	UNP P74717
K	-10	SER	-	expression tag	UNP P74717
K	-9	ALA	-	expression tag	UNP P74717
K	-8	ALA	-	expression tag	UNP P74717
K	-7	LEU	-	expression tag	UNP P74717
K	-6	GLU	-	expression tag	UNP P74717
K	-5	VAL	-	expression tag	UNP P74717
K	-4	LEU	-	expression tag	UNP P74717
K	-3	PHE	-	expression tag	UNP P74717
K	-2	GLN	-	expression tag	UNP P74717
K	-1	GLY	-	expression tag	UNP P74717
K	0	PRO	-	expression tag	UNP P74717
L	-22	MET	-	initiating methionine	UNP P74717
L	-21	GLY	-	expression tag	UNP P74717
L	-20	SER	-	expression tag	UNP P74717
L	-19	SER	-	expression tag	UNP P74717
L	-18	HIS	-	expression tag	UNP P74717
L	-17	HIS	-	expression tag	UNP P74717
L	-16	HIS	-	expression tag	UNP P74717
L	-15	HIS	-	expression tag	UNP P74717
L	-14	HIS	-	expression tag	UNP P74717
L	-13	HIS	-	expression tag	UNP P74717
L	-12	SER	-	expression tag	UNP P74717
L	-11	SER	-	expression tag	UNP P74717
L	-10	SER	-	expression tag	UNP P74717
L	-9	ALA	-	expression tag	UNP P74717
L	-8	ALA	-	expression tag	UNP P74717
L	-7	LEU	-	expression tag	UNP P74717
L	-6	GLU	-	expression tag	UNP P74717
L	-5	VAL	-	expression tag	UNP P74717
L	-4	LEU	-	expression tag	UNP P74717

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Chain	Residue	Modelled	Actual	Comment	Reference
L	-3	PHE	-	expression tag	UNP P74717
L	-2	GLN	-	expression tag	UNP P74717
L	-1	GLY	-	expression tag	UNP P74717
L	0	PRO	-	expression tag	UNP P74717
M	-22	MET	-	initiating methionine	UNP P74717
M	-21	GLY	-	expression tag	UNP P74717
M	-20	SER	-	expression tag	UNP P74717
M	-19	SER	-	expression tag	UNP P74717
M	-18	HIS	-	expression tag	UNP P74717
M	-17	HIS	-	expression tag	UNP P74717
M	-16	HIS	-	expression tag	UNP P74717
M	-15	HIS	-	expression tag	UNP P74717
M	-14	HIS	-	expression tag	UNP P74717
M	-13	HIS	-	expression tag	UNP P74717
M	-12	SER	-	expression tag	UNP P74717
M	-11	SER	-	expression tag	UNP P74717
M	-10	SER	-	expression tag	UNP P74717
M	-9	ALA	-	expression tag	UNP P74717
M	-8	ALA	-	expression tag	UNP P74717
M	-7	LEU	-	expression tag	UNP P74717
M	-6	GLU	-	expression tag	UNP P74717
M	-5	VAL	-	expression tag	UNP P74717
M	-4	LEU	-	expression tag	UNP P74717
M	-3	PHE	-	expression tag	UNP P74717
M	-2	GLN	-	expression tag	UNP P74717
M	-1	GLY	-	expression tag	UNP P74717
M	0	PRO	-	expression tag	UNP P74717
N	-22	MET	-	initiating methionine	UNP P74717
N	-21	GLY	-	expression tag	UNP P74717
N	-20	SER	-	expression tag	UNP P74717
N	-19	SER	-	expression tag	UNP P74717
N	-18	HIS	-	expression tag	UNP P74717
N	-17	HIS	-	expression tag	UNP P74717
N	-16	HIS	-	expression tag	UNP P74717
N	-15	HIS	-	expression tag	UNP P74717
N	-14	HIS	-	expression tag	UNP P74717
N	-13	HIS	-	expression tag	UNP P74717
N	-12	SER	-	expression tag	UNP P74717
N	-11	SER	-	expression tag	UNP P74717
N	-10	SER	-	expression tag	UNP P74717
N	-9	ALA	-	expression tag	UNP P74717
N	-8	ALA	-	expression tag	UNP P74717

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Chain	Residue	Modelled	Actual	Comment	Reference
N	-7	LEU	-	expression tag	UNP P74717
N	-6	GLU	-	expression tag	UNP P74717
N	-5	VAL	-	expression tag	UNP P74717
N	-4	LEU	-	expression tag	UNP P74717
N	-3	PHE	-	expression tag	UNP P74717
N	-2	GLN	-	expression tag	UNP P74717
N	-1	GLY	-	expression tag	UNP P74717
N	0	PRO	-	expression tag	UNP P74717
O	-22	MET	-	initiating methionine	UNP P74717
O	-21	GLY	-	expression tag	UNP P74717
O	-20	SER	-	expression tag	UNP P74717
O	-19	SER	-	expression tag	UNP P74717
O	-18	HIS	-	expression tag	UNP P74717
O	-17	HIS	-	expression tag	UNP P74717
O	-16	HIS	-	expression tag	UNP P74717
O	-15	HIS	-	expression tag	UNP P74717
O	-14	HIS	-	expression tag	UNP P74717
O	-13	HIS	-	expression tag	UNP P74717
O	-12	SER	-	expression tag	UNP P74717
O	-11	SER	-	expression tag	UNP P74717
O	-10	SER	-	expression tag	UNP P74717
O	-9	ALA	-	expression tag	UNP P74717
O	-8	ALA	-	expression tag	UNP P74717
O	-7	LEU	-	expression tag	UNP P74717
O	-6	GLU	-	expression tag	UNP P74717
O	-5	VAL	-	expression tag	UNP P74717
O	-4	LEU	-	expression tag	UNP P74717
O	-3	PHE	-	expression tag	UNP P74717
O	-2	GLN	-	expression tag	UNP P74717
O	-1	GLY	-	expression tag	UNP P74717
O	0	PRO	-	expression tag	UNP P74717
P	-22	MET	-	initiating methionine	UNP P74717
P	-21	GLY	-	expression tag	UNP P74717
P	-20	SER	-	expression tag	UNP P74717
P	-19	SER	-	expression tag	UNP P74717
P	-18	HIS	-	expression tag	UNP P74717
P	-17	HIS	-	expression tag	UNP P74717
P	-16	HIS	-	expression tag	UNP P74717
P	-15	HIS	-	expression tag	UNP P74717
P	-14	HIS	-	expression tag	UNP P74717
P	-13	HIS	-	expression tag	UNP P74717
P	-12	SER	-	expression tag	UNP P74717

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Chain	Residue	Modelled	Actual	Comment	Reference
P	-11	SER	-	expression tag	UNP P74717
P	-10	SER	-	expression tag	UNP P74717
P	-9	ALA	-	expression tag	UNP P74717
P	-8	ALA	-	expression tag	UNP P74717
P	-7	LEU	-	expression tag	UNP P74717
P	-6	GLU	-	expression tag	UNP P74717
P	-5	VAL	-	expression tag	UNP P74717
P	-4	LEU	-	expression tag	UNP P74717
P	-3	PHE	-	expression tag	UNP P74717
P	-2	GLN	-	expression tag	UNP P74717
P	-1	GLY	-	expression tag	UNP P74717
P	0	PRO	-	expression tag	UNP P74717
Q	-22	MET	-	initiating methionine	UNP P74717
Q	-21	GLY	-	expression tag	UNP P74717
Q	-20	SER	-	expression tag	UNP P74717
Q	-19	SER	-	expression tag	UNP P74717
Q	-18	HIS	-	expression tag	UNP P74717
Q	-17	HIS	-	expression tag	UNP P74717
Q	-16	HIS	-	expression tag	UNP P74717
Q	-15	HIS	-	expression tag	UNP P74717
Q	-14	HIS	-	expression tag	UNP P74717
Q	-13	HIS	-	expression tag	UNP P74717
Q	-12	SER	-	expression tag	UNP P74717
Q	-11	SER	-	expression tag	UNP P74717
Q	-10	SER	-	expression tag	UNP P74717
Q	-9	ALA	-	expression tag	UNP P74717
Q	-8	ALA	-	expression tag	UNP P74717
Q	-7	LEU	-	expression tag	UNP P74717
Q	-6	GLU	-	expression tag	UNP P74717
Q	-5	VAL	-	expression tag	UNP P74717
Q	-4	LEU	-	expression tag	UNP P74717
Q	-3	PHE	-	expression tag	UNP P74717
Q	-2	GLN	-	expression tag	UNP P74717
Q	-1	GLY	-	expression tag	UNP P74717
Q	0	PRO	-	expression tag	UNP P74717
R	-22	MET	-	initiating methionine	UNP P74717
R	-21	GLY	-	expression tag	UNP P74717
R	-20	SER	-	expression tag	UNP P74717
R	-19	SER	-	expression tag	UNP P74717
R	-18	HIS	-	expression tag	UNP P74717
R	-17	HIS	-	expression tag	UNP P74717
R	-16	HIS	-	expression tag	UNP P74717

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Chain	Residue	Modelled	Actual	Comment	Reference
R	-15	HIS	-	expression tag	UNP P74717
R	-14	HIS	-	expression tag	UNP P74717
R	-13	HIS	-	expression tag	UNP P74717
R	-12	SER	-	expression tag	UNP P74717
R	-11	SER	-	expression tag	UNP P74717
R	-10	SER	-	expression tag	UNP P74717
R	-9	ALA	-	expression tag	UNP P74717
R	-8	ALA	-	expression tag	UNP P74717
R	-7	LEU	-	expression tag	UNP P74717
R	-6	GLU	-	expression tag	UNP P74717
R	-5	VAL	-	expression tag	UNP P74717
R	-4	LEU	-	expression tag	UNP P74717
R	-3	PHE	-	expression tag	UNP P74717
R	-2	GLN	-	expression tag	UNP P74717
R	-1	GLY	-	expression tag	UNP P74717
R	0	PRO	-	expression tag	UNP P74717
S	-22	MET	-	initiating methionine	UNP P74717
S	-21	GLY	-	expression tag	UNP P74717
S	-20	SER	-	expression tag	UNP P74717
S	-19	SER	-	expression tag	UNP P74717
S	-18	HIS	-	expression tag	UNP P74717
S	-17	HIS	-	expression tag	UNP P74717
S	-16	HIS	-	expression tag	UNP P74717
S	-15	HIS	-	expression tag	UNP P74717
S	-14	HIS	-	expression tag	UNP P74717
S	-13	HIS	-	expression tag	UNP P74717
S	-12	SER	-	expression tag	UNP P74717
S	-11	SER	-	expression tag	UNP P74717
S	-10	SER	-	expression tag	UNP P74717
S	-9	ALA	-	expression tag	UNP P74717
S	-8	ALA	-	expression tag	UNP P74717
S	-7	LEU	-	expression tag	UNP P74717
S	-6	GLU	-	expression tag	UNP P74717
S	-5	VAL	-	expression tag	UNP P74717
S	-4	LEU	-	expression tag	UNP P74717
S	-3	PHE	-	expression tag	UNP P74717
S	-2	GLN	-	expression tag	UNP P74717
S	-1	GLY	-	expression tag	UNP P74717
S	0	PRO	-	expression tag	UNP P74717
T	-22	MET	-	initiating methionine	UNP P74717
T	-21	GLY	-	expression tag	UNP P74717
T	-20	SER	-	expression tag	UNP P74717

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Chain	Residue	Modelled	Actual	Comment	Reference
T	-19	SER	-	expression tag	UNP P74717
T	-18	HIS	-	expression tag	UNP P74717
T	-17	HIS	-	expression tag	UNP P74717
T	-16	HIS	-	expression tag	UNP P74717
T	-15	HIS	-	expression tag	UNP P74717
T	-14	HIS	-	expression tag	UNP P74717
T	-13	HIS	-	expression tag	UNP P74717
T	-12	SER	-	expression tag	UNP P74717
T	-11	SER	-	expression tag	UNP P74717
T	-10	SER	-	expression tag	UNP P74717
T	-9	ALA	-	expression tag	UNP P74717
T	-8	ALA	-	expression tag	UNP P74717
T	-7	LEU	-	expression tag	UNP P74717
T	-6	GLU	-	expression tag	UNP P74717
T	-5	VAL	-	expression tag	UNP P74717
T	-4	LEU	-	expression tag	UNP P74717
T	-3	PHE	-	expression tag	UNP P74717
T	-2	GLN	-	expression tag	UNP P74717
T	-1	GLY	-	expression tag	UNP P74717
T	0	PRO	-	expression tag	UNP P74717
U	-22	MET	-	initiating methionine	UNP P74717
U	-21	GLY	-	expression tag	UNP P74717
U	-20	SER	-	expression tag	UNP P74717
U	-19	SER	-	expression tag	UNP P74717
U	-18	HIS	-	expression tag	UNP P74717
U	-17	HIS	-	expression tag	UNP P74717
U	-16	HIS	-	expression tag	UNP P74717
U	-15	HIS	-	expression tag	UNP P74717
U	-14	HIS	-	expression tag	UNP P74717
U	-13	HIS	-	expression tag	UNP P74717
U	-12	SER	-	expression tag	UNP P74717
U	-11	SER	-	expression tag	UNP P74717
U	-10	SER	-	expression tag	UNP P74717
U	-9	ALA	-	expression tag	UNP P74717
U	-8	ALA	-	expression tag	UNP P74717
U	-7	LEU	-	expression tag	UNP P74717
U	-6	GLU	-	expression tag	UNP P74717
U	-5	VAL	-	expression tag	UNP P74717
U	-4	LEU	-	expression tag	UNP P74717
U	-3	PHE	-	expression tag	UNP P74717
U	-2	GLN	-	expression tag	UNP P74717
U	-1	GLY	-	expression tag	UNP P74717

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Chain	Residue	Modelled	Actual	Comment	Reference
U	0	PRO	-	expression tag	UNP P74717
V	-22	MET	-	initiating methionine	UNP P74717
V	-21	GLY	-	expression tag	UNP P74717
V	-20	SER	-	expression tag	UNP P74717
V	-19	SER	-	expression tag	UNP P74717
V	-18	HIS	-	expression tag	UNP P74717
V	-17	HIS	-	expression tag	UNP P74717
V	-16	HIS	-	expression tag	UNP P74717
V	-15	HIS	-	expression tag	UNP P74717
V	-14	HIS	-	expression tag	UNP P74717
V	-13	HIS	-	expression tag	UNP P74717
V	-12	SER	-	expression tag	UNP P74717
V	-11	SER	-	expression tag	UNP P74717
V	-10	SER	-	expression tag	UNP P74717
V	-9	ALA	-	expression tag	UNP P74717
V	-8	ALA	-	expression tag	UNP P74717
V	-7	LEU	-	expression tag	UNP P74717
V	-6	GLU	-	expression tag	UNP P74717
V	-5	VAL	-	expression tag	UNP P74717
V	-4	LEU	-	expression tag	UNP P74717
V	-3	PHE	-	expression tag	UNP P74717
V	-2	GLN	-	expression tag	UNP P74717
V	-1	GLY	-	expression tag	UNP P74717
V	0	PRO	-	expression tag	UNP P74717
W	-22	MET	-	initiating methionine	UNP P74717
W	-21	GLY	-	expression tag	UNP P74717
W	-20	SER	-	expression tag	UNP P74717
W	-19	SER	-	expression tag	UNP P74717
W	-18	HIS	-	expression tag	UNP P74717
W	-17	HIS	-	expression tag	UNP P74717
W	-16	HIS	-	expression tag	UNP P74717
W	-15	HIS	-	expression tag	UNP P74717
W	-14	HIS	-	expression tag	UNP P74717
W	-13	HIS	-	expression tag	UNP P74717
W	-12	SER	-	expression tag	UNP P74717
W	-11	SER	-	expression tag	UNP P74717
W	-10	SER	-	expression tag	UNP P74717
W	-9	ALA	-	expression tag	UNP P74717
W	-8	ALA	-	expression tag	UNP P74717
W	-7	LEU	-	expression tag	UNP P74717
W	-6	GLU	-	expression tag	UNP P74717
W	-5	VAL	-	expression tag	UNP P74717

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Chain	Residue	Modelled	Actual	Comment	Reference
W	-4	LEU	-	expression tag	UNP P74717
W	-3	PHE	-	expression tag	UNP P74717
W	-2	GLN	-	expression tag	UNP P74717
W	-1	GLY	-	expression tag	UNP P74717
W	0	PRO	-	expression tag	UNP P74717
X	-22	MET	-	initiating methionine	UNP P74717
X	-21	GLY	-	expression tag	UNP P74717
X	-20	SER	-	expression tag	UNP P74717
X	-19	SER	-	expression tag	UNP P74717
X	-18	HIS	-	expression tag	UNP P74717
X	-17	HIS	-	expression tag	UNP P74717
X	-16	HIS	-	expression tag	UNP P74717
X	-15	HIS	-	expression tag	UNP P74717
X	-14	HIS	-	expression tag	UNP P74717
X	-13	HIS	-	expression tag	UNP P74717
X	-12	SER	-	expression tag	UNP P74717
X	-11	SER	-	expression tag	UNP P74717
X	-10	SER	-	expression tag	UNP P74717
X	-9	ALA	-	expression tag	UNP P74717
X	-8	ALA	-	expression tag	UNP P74717
X	-7	LEU	-	expression tag	UNP P74717
X	-6	GLU	-	expression tag	UNP P74717
X	-5	VAL	-	expression tag	UNP P74717
X	-4	LEU	-	expression tag	UNP P74717
X	-3	PHE	-	expression tag	UNP P74717
X	-2	GLN	-	expression tag	UNP P74717
X	-1	GLY	-	expression tag	UNP P74717
X	0	PRO	-	expression tag	UNP P74717
Y	-22	MET	-	initiating methionine	UNP P74717
Y	-21	GLY	-	expression tag	UNP P74717
Y	-20	SER	-	expression tag	UNP P74717
Y	-19	SER	-	expression tag	UNP P74717
Y	-18	HIS	-	expression tag	UNP P74717
Y	-17	HIS	-	expression tag	UNP P74717
Y	-16	HIS	-	expression tag	UNP P74717
Y	-15	HIS	-	expression tag	UNP P74717
Y	-14	HIS	-	expression tag	UNP P74717
Y	-13	HIS	-	expression tag	UNP P74717
Y	-12	SER	-	expression tag	UNP P74717
Y	-11	SER	-	expression tag	UNP P74717
Y	-10	SER	-	expression tag	UNP P74717
Y	-9	ALA	-	expression tag	UNP P74717

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Chain	Residue	Modelled	Actual	Comment	Reference
Y	-8	ALA	-	expression tag	UNP P74717
Y	-7	LEU	-	expression tag	UNP P74717
Y	-6	GLU	-	expression tag	UNP P74717
Y	-5	VAL	-	expression tag	UNP P74717
Y	-4	LEU	-	expression tag	UNP P74717
Y	-3	PHE	-	expression tag	UNP P74717
Y	-2	GLN	-	expression tag	UNP P74717
Y	-1	GLY	-	expression tag	UNP P74717
Y	0	PRO	-	expression tag	UNP P74717
Z	-22	MET	-	initiating methionine	UNP P74717
Z	-21	GLY	-	expression tag	UNP P74717
Z	-20	SER	-	expression tag	UNP P74717
Z	-19	SER	-	expression tag	UNP P74717
Z	-18	HIS	-	expression tag	UNP P74717
Z	-17	HIS	-	expression tag	UNP P74717
Z	-16	HIS	-	expression tag	UNP P74717
Z	-15	HIS	-	expression tag	UNP P74717
Z	-14	HIS	-	expression tag	UNP P74717
Z	-13	HIS	-	expression tag	UNP P74717
Z	-12	SER	-	expression tag	UNP P74717
Z	-11	SER	-	expression tag	UNP P74717
Z	-10	SER	-	expression tag	UNP P74717
Z	-9	ALA	-	expression tag	UNP P74717
Z	-8	ALA	-	expression tag	UNP P74717
Z	-7	LEU	-	expression tag	UNP P74717
Z	-6	GLU	-	expression tag	UNP P74717
Z	-5	VAL	-	expression tag	UNP P74717
Z	-4	LEU	-	expression tag	UNP P74717
Z	-3	PHE	-	expression tag	UNP P74717
Z	-2	GLN	-	expression tag	UNP P74717
Z	-1	GLY	-	expression tag	UNP P74717
Z	0	PRO	-	expression tag	UNP P74717
a	-22	MET	-	initiating methionine	UNP P74717
a	-21	GLY	-	expression tag	UNP P74717
a	-20	SER	-	expression tag	UNP P74717
a	-19	SER	-	expression tag	UNP P74717
a	-18	HIS	-	expression tag	UNP P74717
a	-17	HIS	-	expression tag	UNP P74717
a	-16	HIS	-	expression tag	UNP P74717
a	-15	HIS	-	expression tag	UNP P74717
a	-14	HIS	-	expression tag	UNP P74717
a	-13	HIS	-	expression tag	UNP P74717

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Chain	Residue	Modelled	Actual	Comment	Reference
a	-12	SER	-	expression tag	UNP P74717
a	-11	SER	-	expression tag	UNP P74717
a	-10	SER	-	expression tag	UNP P74717
a	-9	ALA	-	expression tag	UNP P74717
a	-8	ALA	-	expression tag	UNP P74717
a	-7	LEU	-	expression tag	UNP P74717
a	-6	GLU	-	expression tag	UNP P74717
a	-5	VAL	-	expression tag	UNP P74717
a	-4	LEU	-	expression tag	UNP P74717
a	-3	PHE	-	expression tag	UNP P74717
a	-2	GLN	-	expression tag	UNP P74717
a	-1	GLY	-	expression tag	UNP P74717
a	0	PRO	-	expression tag	UNP P74717
b	-22	MET	-	initiating methionine	UNP P74717
b	-21	GLY	-	expression tag	UNP P74717
b	-20	SER	-	expression tag	UNP P74717
b	-19	SER	-	expression tag	UNP P74717
b	-18	HIS	-	expression tag	UNP P74717
b	-17	HIS	-	expression tag	UNP P74717
b	-16	HIS	-	expression tag	UNP P74717
b	-15	HIS	-	expression tag	UNP P74717
b	-14	HIS	-	expression tag	UNP P74717
b	-13	HIS	-	expression tag	UNP P74717
b	-12	SER	-	expression tag	UNP P74717
b	-11	SER	-	expression tag	UNP P74717
b	-10	SER	-	expression tag	UNP P74717
b	-9	ALA	-	expression tag	UNP P74717
b	-8	ALA	-	expression tag	UNP P74717
b	-7	LEU	-	expression tag	UNP P74717
b	-6	GLU	-	expression tag	UNP P74717
b	-5	VAL	-	expression tag	UNP P74717
b	-4	LEU	-	expression tag	UNP P74717
b	-3	PHE	-	expression tag	UNP P74717
b	-2	GLN	-	expression tag	UNP P74717
b	-1	GLY	-	expression tag	UNP P74717
b	0	PRO	-	expression tag	UNP P74717
c	-22	MET	-	initiating methionine	UNP P74717
c	-21	GLY	-	expression tag	UNP P74717
c	-20	SER	-	expression tag	UNP P74717
c	-19	SER	-	expression tag	UNP P74717
c	-18	HIS	-	expression tag	UNP P74717
c	-17	HIS	-	expression tag	UNP P74717

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Chain	Residue	Modelled	Actual	Comment	Reference
c	-16	HIS	-	expression tag	UNP P74717
c	-15	HIS	-	expression tag	UNP P74717
c	-14	HIS	-	expression tag	UNP P74717
c	-13	HIS	-	expression tag	UNP P74717
c	-12	SER	-	expression tag	UNP P74717
c	-11	SER	-	expression tag	UNP P74717
c	-10	SER	-	expression tag	UNP P74717
c	-9	ALA	-	expression tag	UNP P74717
c	-8	ALA	-	expression tag	UNP P74717
c	-7	LEU	-	expression tag	UNP P74717
c	-6	GLU	-	expression tag	UNP P74717
c	-5	VAL	-	expression tag	UNP P74717
c	-4	LEU	-	expression tag	UNP P74717
c	-3	PHE	-	expression tag	UNP P74717
c	-2	GLN	-	expression tag	UNP P74717
c	-1	GLY	-	expression tag	UNP P74717
c	0	PRO	-	expression tag	UNP P74717
d	-22	MET	-	initiating methionine	UNP P74717
d	-21	GLY	-	expression tag	UNP P74717
d	-20	SER	-	expression tag	UNP P74717
d	-19	SER	-	expression tag	UNP P74717
d	-18	HIS	-	expression tag	UNP P74717
d	-17	HIS	-	expression tag	UNP P74717
d	-16	HIS	-	expression tag	UNP P74717
d	-15	HIS	-	expression tag	UNP P74717
d	-14	HIS	-	expression tag	UNP P74717
d	-13	HIS	-	expression tag	UNP P74717
d	-12	SER	-	expression tag	UNP P74717
d	-11	SER	-	expression tag	UNP P74717
d	-10	SER	-	expression tag	UNP P74717
d	-9	ALA	-	expression tag	UNP P74717
d	-8	ALA	-	expression tag	UNP P74717
d	-7	LEU	-	expression tag	UNP P74717
d	-6	GLU	-	expression tag	UNP P74717
d	-5	VAL	-	expression tag	UNP P74717
d	-4	LEU	-	expression tag	UNP P74717
d	-3	PHE	-	expression tag	UNP P74717
d	-2	GLN	-	expression tag	UNP P74717
d	-1	GLY	-	expression tag	UNP P74717
d	0	PRO	-	expression tag	UNP P74717
e	-22	MET	-	initiating methionine	UNP P74717
e	-21	GLY	-	expression tag	UNP P74717

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Chain	Residue	Modelled	Actual	Comment	Reference
e	-20	SER	-	expression tag	UNP P74717
e	-19	SER	-	expression tag	UNP P74717
e	-18	HIS	-	expression tag	UNP P74717
e	-17	HIS	-	expression tag	UNP P74717
e	-16	HIS	-	expression tag	UNP P74717
e	-15	HIS	-	expression tag	UNP P74717
e	-14	HIS	-	expression tag	UNP P74717
e	-13	HIS	-	expression tag	UNP P74717
e	-12	SER	-	expression tag	UNP P74717
e	-11	SER	-	expression tag	UNP P74717
e	-10	SER	-	expression tag	UNP P74717
e	-9	ALA	-	expression tag	UNP P74717
e	-8	ALA	-	expression tag	UNP P74717
e	-7	LEU	-	expression tag	UNP P74717
e	-6	GLU	-	expression tag	UNP P74717
e	-5	VAL	-	expression tag	UNP P74717
e	-4	LEU	-	expression tag	UNP P74717
e	-3	PHE	-	expression tag	UNP P74717
e	-2	GLN	-	expression tag	UNP P74717
e	-1	GLY	-	expression tag	UNP P74717
e	0	PRO	-	expression tag	UNP P74717
f	-22	MET	-	initiating methionine	UNP P74717
f	-21	GLY	-	expression tag	UNP P74717
f	-20	SER	-	expression tag	UNP P74717
f	-19	SER	-	expression tag	UNP P74717
f	-18	HIS	-	expression tag	UNP P74717
f	-17	HIS	-	expression tag	UNP P74717
f	-16	HIS	-	expression tag	UNP P74717
f	-15	HIS	-	expression tag	UNP P74717
f	-14	HIS	-	expression tag	UNP P74717
f	-13	HIS	-	expression tag	UNP P74717
f	-12	SER	-	expression tag	UNP P74717
f	-11	SER	-	expression tag	UNP P74717
f	-10	SER	-	expression tag	UNP P74717
f	-9	ALA	-	expression tag	UNP P74717
f	-8	ALA	-	expression tag	UNP P74717
f	-7	LEU	-	expression tag	UNP P74717
f	-6	GLU	-	expression tag	UNP P74717
f	-5	VAL	-	expression tag	UNP P74717
f	-4	LEU	-	expression tag	UNP P74717
f	-3	PHE	-	expression tag	UNP P74717
f	-2	GLN	-	expression tag	UNP P74717

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Chain	Residue	Modelled	Actual	Comment	Reference
f	-1	GLY	-	expression tag	UNP P74717
f	0	PRO	-	expression tag	UNP P74717
g	-22	MET	-	initiating methionine	UNP P74717
g	-21	GLY	-	expression tag	UNP P74717
g	-20	SER	-	expression tag	UNP P74717
g	-19	SER	-	expression tag	UNP P74717
g	-18	HIS	-	expression tag	UNP P74717
g	-17	HIS	-	expression tag	UNP P74717
g	-16	HIS	-	expression tag	UNP P74717
g	-15	HIS	-	expression tag	UNP P74717
g	-14	HIS	-	expression tag	UNP P74717
g	-13	HIS	-	expression tag	UNP P74717
g	-12	SER	-	expression tag	UNP P74717
g	-11	SER	-	expression tag	UNP P74717
g	-10	SER	-	expression tag	UNP P74717
g	-9	ALA	-	expression tag	UNP P74717
g	-8	ALA	-	expression tag	UNP P74717
g	-7	LEU	-	expression tag	UNP P74717
g	-6	GLU	-	expression tag	UNP P74717
g	-5	VAL	-	expression tag	UNP P74717
g	-4	LEU	-	expression tag	UNP P74717
g	-3	PHE	-	expression tag	UNP P74717
g	-2	GLN	-	expression tag	UNP P74717
g	-1	GLY	-	expression tag	UNP P74717
g	0	PRO	-	expression tag	UNP P74717
h	-22	MET	-	initiating methionine	UNP P74717
h	-21	GLY	-	expression tag	UNP P74717
h	-20	SER	-	expression tag	UNP P74717
h	-19	SER	-	expression tag	UNP P74717
h	-18	HIS	-	expression tag	UNP P74717
h	-17	HIS	-	expression tag	UNP P74717
h	-16	HIS	-	expression tag	UNP P74717
h	-15	HIS	-	expression tag	UNP P74717
h	-14	HIS	-	expression tag	UNP P74717
h	-13	HIS	-	expression tag	UNP P74717
h	-12	SER	-	expression tag	UNP P74717
h	-11	SER	-	expression tag	UNP P74717
h	-10	SER	-	expression tag	UNP P74717
h	-9	ALA	-	expression tag	UNP P74717
h	-8	ALA	-	expression tag	UNP P74717
h	-7	LEU	-	expression tag	UNP P74717
h	-6	GLU	-	expression tag	UNP P74717

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Chain	Residue	Modelled	Actual	Comment	Reference
h	-5	VAL	-	expression tag	UNP P74717
h	-4	LEU	-	expression tag	UNP P74717
h	-3	PHE	-	expression tag	UNP P74717
h	-2	GLN	-	expression tag	UNP P74717
h	-1	GLY	-	expression tag	UNP P74717
h	0	PRO	-	expression tag	UNP P74717
i	-22	MET	-	initiating methionine	UNP P74717
i	-21	GLY	-	expression tag	UNP P74717
i	-20	SER	-	expression tag	UNP P74717
i	-19	SER	-	expression tag	UNP P74717
i	-18	HIS	-	expression tag	UNP P74717
i	-17	HIS	-	expression tag	UNP P74717
i	-16	HIS	-	expression tag	UNP P74717
i	-15	HIS	-	expression tag	UNP P74717
i	-14	HIS	-	expression tag	UNP P74717
i	-13	HIS	-	expression tag	UNP P74717
i	-12	SER	-	expression tag	UNP P74717
i	-11	SER	-	expression tag	UNP P74717
i	-10	SER	-	expression tag	UNP P74717
i	-9	ALA	-	expression tag	UNP P74717
i	-8	ALA	-	expression tag	UNP P74717
i	-7	LEU	-	expression tag	UNP P74717
i	-6	GLU	-	expression tag	UNP P74717
i	-5	VAL	-	expression tag	UNP P74717
i	-4	LEU	-	expression tag	UNP P74717
i	-3	PHE	-	expression tag	UNP P74717
i	-2	GLN	-	expression tag	UNP P74717
i	-1	GLY	-	expression tag	UNP P74717
i	0	PRO	-	expression tag	UNP P74717
j	-22	MET	-	initiating methionine	UNP P74717
j	-21	GLY	-	expression tag	UNP P74717
j	-20	SER	-	expression tag	UNP P74717
j	-19	SER	-	expression tag	UNP P74717
j	-18	HIS	-	expression tag	UNP P74717
j	-17	HIS	-	expression tag	UNP P74717
j	-16	HIS	-	expression tag	UNP P74717
j	-15	HIS	-	expression tag	UNP P74717
j	-14	HIS	-	expression tag	UNP P74717
j	-13	HIS	-	expression tag	UNP P74717
j	-12	SER	-	expression tag	UNP P74717
j	-11	SER	-	expression tag	UNP P74717
j	-10	SER	-	expression tag	UNP P74717

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Chain	Residue	Modelled	Actual	Comment	Reference
j	-9	ALA	-	expression tag	UNP P74717
j	-8	ALA	-	expression tag	UNP P74717
j	-7	LEU	-	expression tag	UNP P74717
j	-6	GLU	-	expression tag	UNP P74717
j	-5	VAL	-	expression tag	UNP P74717
j	-4	LEU	-	expression tag	UNP P74717
j	-3	PHE	-	expression tag	UNP P74717
j	-2	GLN	-	expression tag	UNP P74717
j	-1	GLY	-	expression tag	UNP P74717
j	0	PRO	-	expression tag	UNP P74717
k	-22	MET	-	initiating methionine	UNP P74717
k	-21	GLY	-	expression tag	UNP P74717
k	-20	SER	-	expression tag	UNP P74717
k	-19	SER	-	expression tag	UNP P74717
k	-18	HIS	-	expression tag	UNP P74717
k	-17	HIS	-	expression tag	UNP P74717
k	-16	HIS	-	expression tag	UNP P74717
k	-15	HIS	-	expression tag	UNP P74717
k	-14	HIS	-	expression tag	UNP P74717
k	-13	HIS	-	expression tag	UNP P74717
k	-12	SER	-	expression tag	UNP P74717
k	-11	SER	-	expression tag	UNP P74717
k	-10	SER	-	expression tag	UNP P74717
k	-9	ALA	-	expression tag	UNP P74717
k	-8	ALA	-	expression tag	UNP P74717
k	-7	LEU	-	expression tag	UNP P74717
k	-6	GLU	-	expression tag	UNP P74717
k	-5	VAL	-	expression tag	UNP P74717
k	-4	LEU	-	expression tag	UNP P74717
k	-3	PHE	-	expression tag	UNP P74717
k	-2	GLN	-	expression tag	UNP P74717
k	-1	GLY	-	expression tag	UNP P74717
k	0	PRO	-	expression tag	UNP P74717
l	-22	MET	-	initiating methionine	UNP P74717
l	-21	GLY	-	expression tag	UNP P74717
l	-20	SER	-	expression tag	UNP P74717
l	-19	SER	-	expression tag	UNP P74717
l	-18	HIS	-	expression tag	UNP P74717
l	-17	HIS	-	expression tag	UNP P74717
l	-16	HIS	-	expression tag	UNP P74717
l	-15	HIS	-	expression tag	UNP P74717
l	-14	HIS	-	expression tag	UNP P74717

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Chain	Residue	Modelled	Actual	Comment	Reference
l	-13	HIS	-	expression tag	UNP P74717
l	-12	SER	-	expression tag	UNP P74717
l	-11	SER	-	expression tag	UNP P74717
l	-10	SER	-	expression tag	UNP P74717
l	-9	ALA	-	expression tag	UNP P74717
l	-8	ALA	-	expression tag	UNP P74717
l	-7	LEU	-	expression tag	UNP P74717
l	-6	GLU	-	expression tag	UNP P74717
l	-5	VAL	-	expression tag	UNP P74717
l	-4	LEU	-	expression tag	UNP P74717
l	-3	PHE	-	expression tag	UNP P74717
l	-2	GLN	-	expression tag	UNP P74717
l	-1	GLY	-	expression tag	UNP P74717
l	0	PRO	-	expression tag	UNP P74717
m	-22	MET	-	initiating methionine	UNP P74717
m	-21	GLY	-	expression tag	UNP P74717
m	-20	SER	-	expression tag	UNP P74717
m	-19	SER	-	expression tag	UNP P74717
m	-18	HIS	-	expression tag	UNP P74717
m	-17	HIS	-	expression tag	UNP P74717
m	-16	HIS	-	expression tag	UNP P74717
m	-15	HIS	-	expression tag	UNP P74717
m	-14	HIS	-	expression tag	UNP P74717
m	-13	HIS	-	expression tag	UNP P74717
m	-12	SER	-	expression tag	UNP P74717
m	-11	SER	-	expression tag	UNP P74717
m	-10	SER	-	expression tag	UNP P74717
m	-9	ALA	-	expression tag	UNP P74717
m	-8	ALA	-	expression tag	UNP P74717
m	-7	LEU	-	expression tag	UNP P74717
m	-6	GLU	-	expression tag	UNP P74717
m	-5	VAL	-	expression tag	UNP P74717
m	-4	LEU	-	expression tag	UNP P74717
m	-3	PHE	-	expression tag	UNP P74717
m	-2	GLN	-	expression tag	UNP P74717
m	-1	GLY	-	expression tag	UNP P74717
m	0	PRO	-	expression tag	UNP P74717
n	-22	MET	-	initiating methionine	UNP P74717
n	-21	GLY	-	expression tag	UNP P74717
n	-20	SER	-	expression tag	UNP P74717
n	-19	SER	-	expression tag	UNP P74717
n	-18	HIS	-	expression tag	UNP P74717

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Chain	Residue	Modelled	Actual	Comment	Reference
n	-17	HIS	-	expression tag	UNP P74717
n	-16	HIS	-	expression tag	UNP P74717
n	-15	HIS	-	expression tag	UNP P74717
n	-14	HIS	-	expression tag	UNP P74717
n	-13	HIS	-	expression tag	UNP P74717
n	-12	SER	-	expression tag	UNP P74717
n	-11	SER	-	expression tag	UNP P74717
n	-10	SER	-	expression tag	UNP P74717
n	-9	ALA	-	expression tag	UNP P74717
n	-8	ALA	-	expression tag	UNP P74717
n	-7	LEU	-	expression tag	UNP P74717
n	-6	GLU	-	expression tag	UNP P74717
n	-5	VAL	-	expression tag	UNP P74717
n	-4	LEU	-	expression tag	UNP P74717
n	-3	PHE	-	expression tag	UNP P74717
n	-2	GLN	-	expression tag	UNP P74717
n	-1	GLY	-	expression tag	UNP P74717
n	0	PRO	-	expression tag	UNP P74717
o	-22	MET	-	initiating methionine	UNP P74717
o	-21	GLY	-	expression tag	UNP P74717
o	-20	SER	-	expression tag	UNP P74717
o	-19	SER	-	expression tag	UNP P74717
o	-18	HIS	-	expression tag	UNP P74717
o	-17	HIS	-	expression tag	UNP P74717
o	-16	HIS	-	expression tag	UNP P74717
o	-15	HIS	-	expression tag	UNP P74717
o	-14	HIS	-	expression tag	UNP P74717
o	-13	HIS	-	expression tag	UNP P74717
o	-12	SER	-	expression tag	UNP P74717
o	-11	SER	-	expression tag	UNP P74717
o	-10	SER	-	expression tag	UNP P74717
o	-9	ALA	-	expression tag	UNP P74717
o	-8	ALA	-	expression tag	UNP P74717
o	-7	LEU	-	expression tag	UNP P74717
o	-6	GLU	-	expression tag	UNP P74717
o	-5	VAL	-	expression tag	UNP P74717
o	-4	LEU	-	expression tag	UNP P74717
o	-3	PHE	-	expression tag	UNP P74717
o	-2	GLN	-	expression tag	UNP P74717
o	-1	GLY	-	expression tag	UNP P74717
o	0	PRO	-	expression tag	UNP P74717
p	-22	MET	-	initiating methionine	UNP P74717

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Chain	Residue	Modelled	Actual	Comment	Reference
p	-21	GLY	-	expression tag	UNP P74717
p	-20	SER	-	expression tag	UNP P74717
p	-19	SER	-	expression tag	UNP P74717
p	-18	HIS	-	expression tag	UNP P74717
p	-17	HIS	-	expression tag	UNP P74717
p	-16	HIS	-	expression tag	UNP P74717
p	-15	HIS	-	expression tag	UNP P74717
p	-14	HIS	-	expression tag	UNP P74717
p	-13	HIS	-	expression tag	UNP P74717
p	-12	SER	-	expression tag	UNP P74717
p	-11	SER	-	expression tag	UNP P74717
p	-10	SER	-	expression tag	UNP P74717
p	-9	ALA	-	expression tag	UNP P74717
p	-8	ALA	-	expression tag	UNP P74717
p	-7	LEU	-	expression tag	UNP P74717
p	-6	GLU	-	expression tag	UNP P74717
p	-5	VAL	-	expression tag	UNP P74717
p	-4	LEU	-	expression tag	UNP P74717
p	-3	PHE	-	expression tag	UNP P74717
p	-2	GLN	-	expression tag	UNP P74717
p	-1	GLY	-	expression tag	UNP P74717
p	0	PRO	-	expression tag	UNP P74717
q	-22	MET	-	initiating methionine	UNP P74717
q	-21	GLY	-	expression tag	UNP P74717
q	-20	SER	-	expression tag	UNP P74717
q	-19	SER	-	expression tag	UNP P74717
q	-18	HIS	-	expression tag	UNP P74717
q	-17	HIS	-	expression tag	UNP P74717
q	-16	HIS	-	expression tag	UNP P74717
q	-15	HIS	-	expression tag	UNP P74717
q	-14	HIS	-	expression tag	UNP P74717
q	-13	HIS	-	expression tag	UNP P74717
q	-12	SER	-	expression tag	UNP P74717
q	-11	SER	-	expression tag	UNP P74717
q	-10	SER	-	expression tag	UNP P74717
q	-9	ALA	-	expression tag	UNP P74717
q	-8	ALA	-	expression tag	UNP P74717
q	-7	LEU	-	expression tag	UNP P74717
q	-6	GLU	-	expression tag	UNP P74717
q	-5	VAL	-	expression tag	UNP P74717
q	-4	LEU	-	expression tag	UNP P74717
q	-3	PHE	-	expression tag	UNP P74717

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Chain	Residue	Modelled	Actual	Comment	Reference
q	-2	GLN	-	expression tag	UNP P74717
q	-1	GLY	-	expression tag	UNP P74717
q	0	PRO	-	expression tag	UNP P74717
r	-22	MET	-	initiating methionine	UNP P74717
r	-21	GLY	-	expression tag	UNP P74717
r	-20	SER	-	expression tag	UNP P74717
r	-19	SER	-	expression tag	UNP P74717
r	-18	HIS	-	expression tag	UNP P74717
r	-17	HIS	-	expression tag	UNP P74717
r	-16	HIS	-	expression tag	UNP P74717
r	-15	HIS	-	expression tag	UNP P74717
r	-14	HIS	-	expression tag	UNP P74717
r	-13	HIS	-	expression tag	UNP P74717
r	-12	SER	-	expression tag	UNP P74717
r	-11	SER	-	expression tag	UNP P74717
r	-10	SER	-	expression tag	UNP P74717
r	-9	ALA	-	expression tag	UNP P74717
r	-8	ALA	-	expression tag	UNP P74717
r	-7	LEU	-	expression tag	UNP P74717
r	-6	GLU	-	expression tag	UNP P74717
r	-5	VAL	-	expression tag	UNP P74717
r	-4	LEU	-	expression tag	UNP P74717
r	-3	PHE	-	expression tag	UNP P74717
r	-2	GLN	-	expression tag	UNP P74717
r	-1	GLY	-	expression tag	UNP P74717
r	0	PRO	-	expression tag	UNP P74717
s	-22	MET	-	initiating methionine	UNP P74717
s	-21	GLY	-	expression tag	UNP P74717
s	-20	SER	-	expression tag	UNP P74717
s	-19	SER	-	expression tag	UNP P74717
s	-18	HIS	-	expression tag	UNP P74717
s	-17	HIS	-	expression tag	UNP P74717
s	-16	HIS	-	expression tag	UNP P74717
s	-15	HIS	-	expression tag	UNP P74717
s	-14	HIS	-	expression tag	UNP P74717
s	-13	HIS	-	expression tag	UNP P74717
s	-12	SER	-	expression tag	UNP P74717
s	-11	SER	-	expression tag	UNP P74717
s	-10	SER	-	expression tag	UNP P74717
s	-9	ALA	-	expression tag	UNP P74717
s	-8	ALA	-	expression tag	UNP P74717
s	-7	LEU	-	expression tag	UNP P74717

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Chain	Residue	Modelled	Actual	Comment	Reference
s	-6	GLU	-	expression tag	UNP P74717
s	-5	VAL	-	expression tag	UNP P74717
s	-4	LEU	-	expression tag	UNP P74717
s	-3	PHE	-	expression tag	UNP P74717
s	-2	GLN	-	expression tag	UNP P74717
s	-1	GLY	-	expression tag	UNP P74717
s	0	PRO	-	expression tag	UNP P74717
t	-22	MET	-	initiating methionine	UNP P74717
t	-21	GLY	-	expression tag	UNP P74717
t	-20	SER	-	expression tag	UNP P74717
t	-19	SER	-	expression tag	UNP P74717
t	-18	HIS	-	expression tag	UNP P74717
t	-17	HIS	-	expression tag	UNP P74717
t	-16	HIS	-	expression tag	UNP P74717
t	-15	HIS	-	expression tag	UNP P74717
t	-14	HIS	-	expression tag	UNP P74717
t	-13	HIS	-	expression tag	UNP P74717
t	-12	SER	-	expression tag	UNP P74717
t	-11	SER	-	expression tag	UNP P74717
t	-10	SER	-	expression tag	UNP P74717
t	-9	ALA	-	expression tag	UNP P74717
t	-8	ALA	-	expression tag	UNP P74717
t	-7	LEU	-	expression tag	UNP P74717
t	-6	GLU	-	expression tag	UNP P74717
t	-5	VAL	-	expression tag	UNP P74717
t	-4	LEU	-	expression tag	UNP P74717
t	-3	PHE	-	expression tag	UNP P74717
t	-2	GLN	-	expression tag	UNP P74717
t	-1	GLY	-	expression tag	UNP P74717
t	0	PRO	-	expression tag	UNP P74717
u	-22	MET	-	initiating methionine	UNP P74717
u	-21	GLY	-	expression tag	UNP P74717
u	-20	SER	-	expression tag	UNP P74717
u	-19	SER	-	expression tag	UNP P74717
u	-18	HIS	-	expression tag	UNP P74717
u	-17	HIS	-	expression tag	UNP P74717
u	-16	HIS	-	expression tag	UNP P74717
u	-15	HIS	-	expression tag	UNP P74717
u	-14	HIS	-	expression tag	UNP P74717
u	-13	HIS	-	expression tag	UNP P74717
u	-12	SER	-	expression tag	UNP P74717
u	-11	SER	-	expression tag	UNP P74717

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Chain	Residue	Modelled	Actual	Comment	Reference
u	-10	SER	-	expression tag	UNP P74717
u	-9	ALA	-	expression tag	UNP P74717
u	-8	ALA	-	expression tag	UNP P74717
u	-7	LEU	-	expression tag	UNP P74717
u	-6	GLU	-	expression tag	UNP P74717
u	-5	VAL	-	expression tag	UNP P74717
u	-4	LEU	-	expression tag	UNP P74717
u	-3	PHE	-	expression tag	UNP P74717
u	-2	GLN	-	expression tag	UNP P74717
u	-1	GLY	-	expression tag	UNP P74717
u	0	PRO	-	expression tag	UNP P74717
v	-22	MET	-	initiating methionine	UNP P74717
v	-21	GLY	-	expression tag	UNP P74717
v	-20	SER	-	expression tag	UNP P74717
v	-19	SER	-	expression tag	UNP P74717
v	-18	HIS	-	expression tag	UNP P74717
v	-17	HIS	-	expression tag	UNP P74717
v	-16	HIS	-	expression tag	UNP P74717
v	-15	HIS	-	expression tag	UNP P74717
v	-14	HIS	-	expression tag	UNP P74717
v	-13	HIS	-	expression tag	UNP P74717
v	-12	SER	-	expression tag	UNP P74717
v	-11	SER	-	expression tag	UNP P74717
v	-10	SER	-	expression tag	UNP P74717
v	-9	ALA	-	expression tag	UNP P74717
v	-8	ALA	-	expression tag	UNP P74717
v	-7	LEU	-	expression tag	UNP P74717
v	-6	GLU	-	expression tag	UNP P74717
v	-5	VAL	-	expression tag	UNP P74717
v	-4	LEU	-	expression tag	UNP P74717
v	-3	PHE	-	expression tag	UNP P74717
v	-2	GLN	-	expression tag	UNP P74717
v	-1	GLY	-	expression tag	UNP P74717
v	0	PRO	-	expression tag	UNP P74717
w	-22	MET	-	initiating methionine	UNP P74717
w	-21	GLY	-	expression tag	UNP P74717
w	-20	SER	-	expression tag	UNP P74717
w	-19	SER	-	expression tag	UNP P74717
w	-18	HIS	-	expression tag	UNP P74717
w	-17	HIS	-	expression tag	UNP P74717
w	-16	HIS	-	expression tag	UNP P74717
w	-15	HIS	-	expression tag	UNP P74717

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Chain	Residue	Modelled	Actual	Comment	Reference
w	-14	HIS	-	expression tag	UNP P74717
w	-13	HIS	-	expression tag	UNP P74717
w	-12	SER	-	expression tag	UNP P74717
w	-11	SER	-	expression tag	UNP P74717
w	-10	SER	-	expression tag	UNP P74717
w	-9	ALA	-	expression tag	UNP P74717
w	-8	ALA	-	expression tag	UNP P74717
w	-7	LEU	-	expression tag	UNP P74717
w	-6	GLU	-	expression tag	UNP P74717
w	-5	VAL	-	expression tag	UNP P74717
w	-4	LEU	-	expression tag	UNP P74717
w	-3	PHE	-	expression tag	UNP P74717
w	-2	GLN	-	expression tag	UNP P74717
w	-1	GLY	-	expression tag	UNP P74717
w	0	PRO	-	expression tag	UNP P74717
x	-22	MET	-	initiating methionine	UNP P74717
x	-21	GLY	-	expression tag	UNP P74717
x	-20	SER	-	expression tag	UNP P74717
x	-19	SER	-	expression tag	UNP P74717
x	-18	HIS	-	expression tag	UNP P74717
x	-17	HIS	-	expression tag	UNP P74717
x	-16	HIS	-	expression tag	UNP P74717
x	-15	HIS	-	expression tag	UNP P74717
x	-14	HIS	-	expression tag	UNP P74717
x	-13	HIS	-	expression tag	UNP P74717
x	-12	SER	-	expression tag	UNP P74717
x	-11	SER	-	expression tag	UNP P74717
x	-10	SER	-	expression tag	UNP P74717
x	-9	ALA	-	expression tag	UNP P74717
x	-8	ALA	-	expression tag	UNP P74717
x	-7	LEU	-	expression tag	UNP P74717
x	-6	GLU	-	expression tag	UNP P74717
x	-5	VAL	-	expression tag	UNP P74717
x	-4	LEU	-	expression tag	UNP P74717
x	-3	PHE	-	expression tag	UNP P74717
x	-2	GLN	-	expression tag	UNP P74717
x	-1	GLY	-	expression tag	UNP P74717
x	0	PRO	-	expression tag	UNP P74717
y	-22	MET	-	initiating methionine	UNP P74717
y	-21	GLY	-	expression tag	UNP P74717
y	-20	SER	-	expression tag	UNP P74717
y	-19	SER	-	expression tag	UNP P74717

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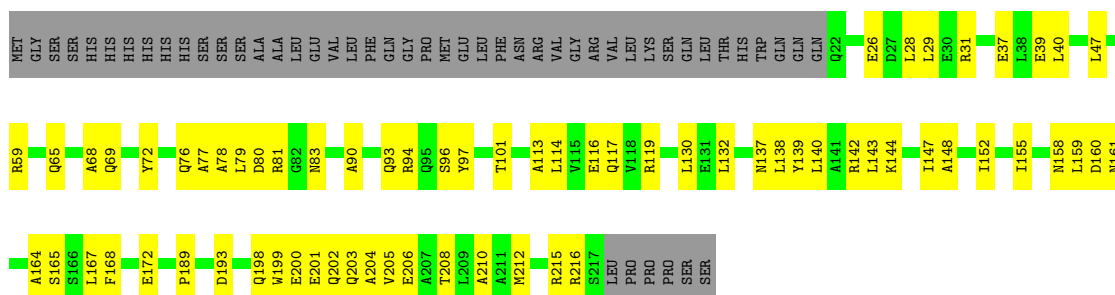
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y	-16	HIS	-	expression tag	UNP P74717
y	-15	HIS	-	expression tag	UNP P74717
y	-14	HIS	-	expression tag	UNP P74717
y	-13	HIS	-	expression tag	UNP P74717
y	-12	SER	-	expression tag	UNP P74717
y	-11	SER	-	expression tag	UNP P74717
y	-10	SER	-	expression tag	UNP P74717
y	-9	ALA	-	expression tag	UNP P74717
y	-8	ALA	-	expression tag	UNP P74717
y	-7	LEU	-	expression tag	UNP P74717
y	-6	GLU	-	expression tag	UNP P74717
y	-5	VAL	-	expression tag	UNP P74717
y	-4	LEU	-	expression tag	UNP P74717
y	-3	PHE	-	expression tag	UNP P74717
y	-2	GLN	-	expression tag	UNP P74717
y	-1	GLY	-	expression tag	UNP P74717
y	0	PRO	-	expression tag	UNP P74717
z	-22	MET	-	initiating methionine	UNP P74717
z	-21	GLY	-	expression tag	UNP P74717
z	-20	SER	-	expression tag	UNP P74717
z	-19	SER	-	expression tag	UNP P74717
z	-18	HIS	-	expression tag	UNP P74717
z	-17	HIS	-	expression tag	UNP P74717
z	-16	HIS	-	expression tag	UNP P74717
z	-15	HIS	-	expression tag	UNP P74717
z	-14	HIS	-	expression tag	UNP P74717
z	-13	HIS	-	expression tag	UNP P74717
z	-12	SER	-	expression tag	UNP P74717
z	-11	SER	-	expression tag	UNP P74717
z	-10	SER	-	expression tag	UNP P74717
z	-9	ALA	-	expression tag	UNP P74717
z	-8	ALA	-	expression tag	UNP P74717
z	-7	LEU	-	expression tag	UNP P74717
z	-6	GLU	-	expression tag	UNP P74717
z	-5	VAL	-	expression tag	UNP P74717
z	-4	LEU	-	expression tag	UNP P74717
z	-3	PHE	-	expression tag	UNP P74717
z	-2	GLN	-	expression tag	UNP P74717
z	-1	GLY	-	expression tag	UNP P74717
z	0	PRO	-	expression tag	UNP P74717

3 Residue-property plots [i](#)

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.

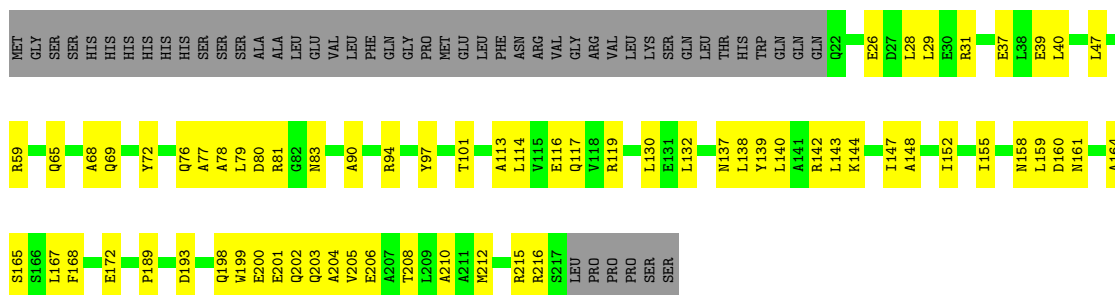
- Molecule 1: Chloroplast membrane-associated 30 kD protein

Chain 0: 



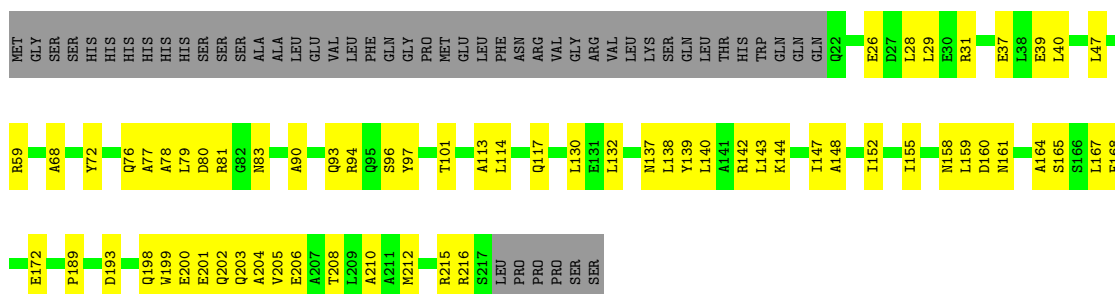
- Molecule 1: Chloroplast membrane-associated 30 kD protein

Chain 1: 



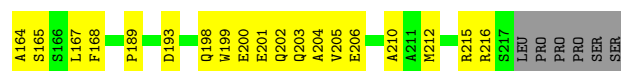
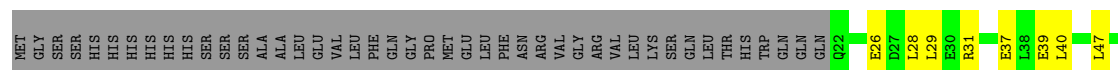
- Molecule 1: Chloroplast membrane-associated 30 kD protein

Chain 2: 

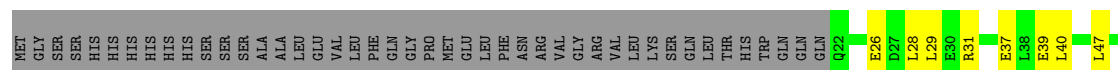


- | | | | | | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| R59 | A68 | Y72 | Q76 | A77 | A78 | L79 | D80 | R81 | G82 | N83 | A90 | R94 | Y97 | T101 | Q111 | E112 | A113 | L114 | Q117 | L130 | E131 | L132 | N137 | L138 | Y139 | L140 | A141 | R142 | L143 | K144 | I147 | A148 | I152 | I156 | N158 | L159 | D160 | N161 | A164 | S165 | S166 | L167 | L168 | | | | | | |
| MET | GLY | SER | HIS | HIS | HIS | HIS | SER | SER | ALA | ALA | LEU | GLU | VAL | PHE | GLN | GLY | PRO | MET | GLU | LEU | PHE | ASN | ARG | VAL | GLY | ARG | VAL | LEU | LYS | SER | GLN | THR | HIS | TRP | GLN | GLN | GLN | Q22 | E26 | D27 | L28 | L29 | E30 | R31 | E37 | L38 | E39 | L40 | L47 |

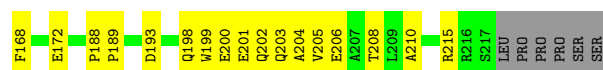
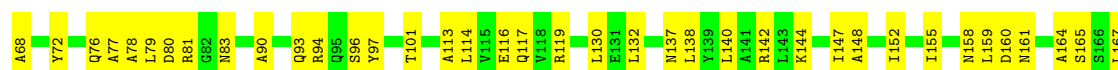
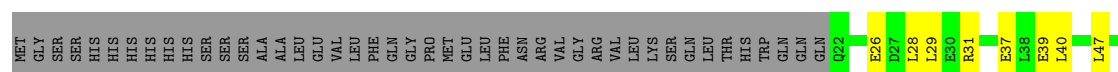
- Molecule 1: Chloroplast membrane-associated 30 kD protein



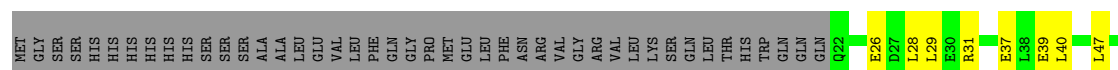
- Molecule 1: Chloroplast membrane-associated 30 kD protein.

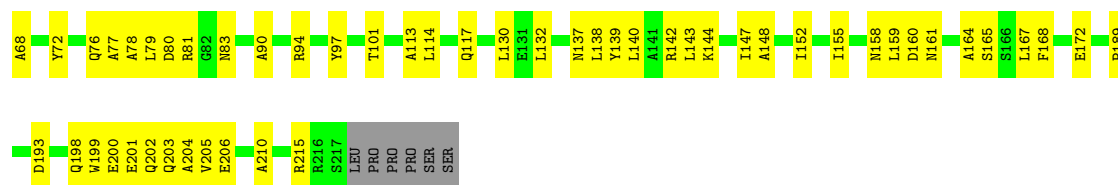


- Molecule 1: Chloroplast membrane-associated 30 kD protein.



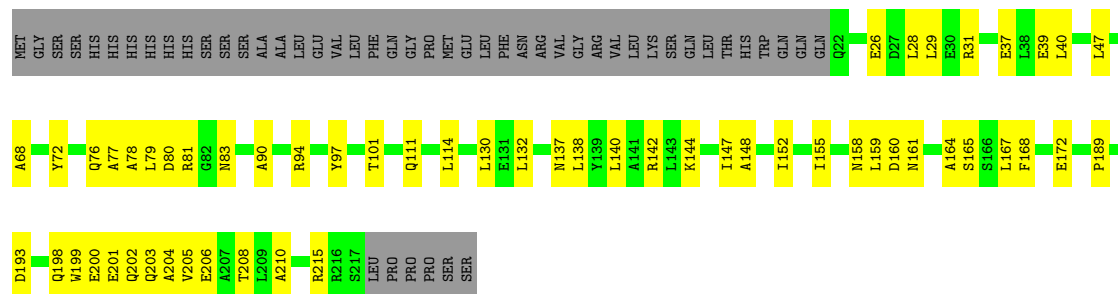
- Molecule 1: Chloroplast membrane-associated 30 kD protein





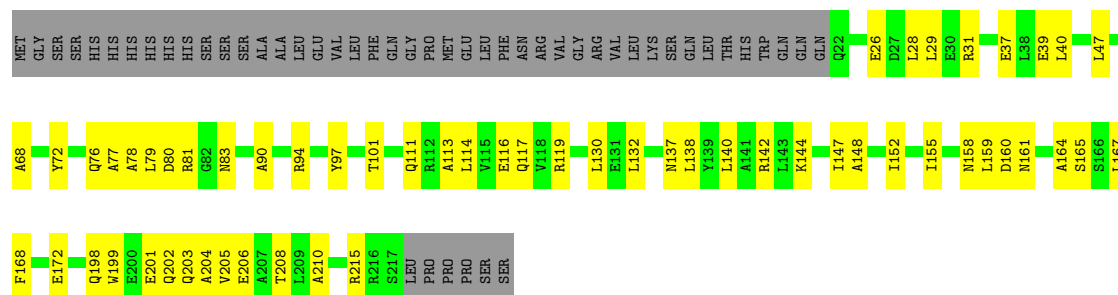
- Molecule 1: Chloroplast membrane-associated 30 kD protein

Chain D: 57% 23% 20%



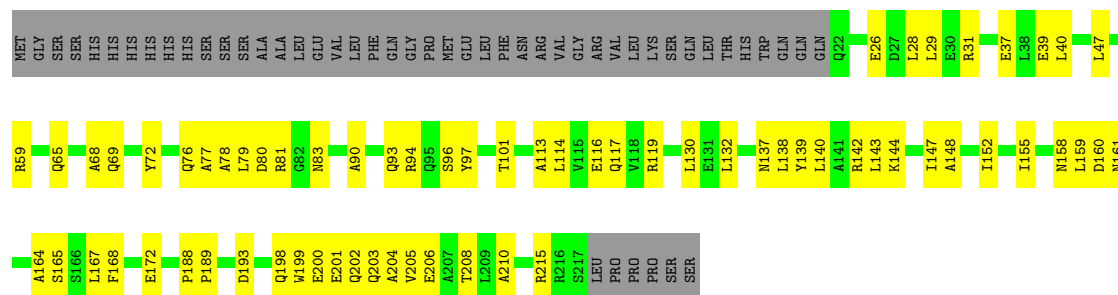
- Molecule 1: Chloroplast membrane-associated 30 kD protein

Chain E: 56% 24% 20%



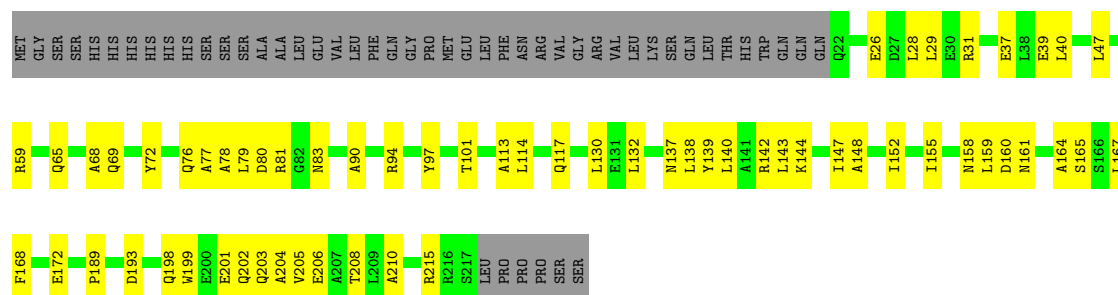
- Molecule 1: Chloroplast membrane-associated 30 kD protein

Chain F: 52% 28% 20%



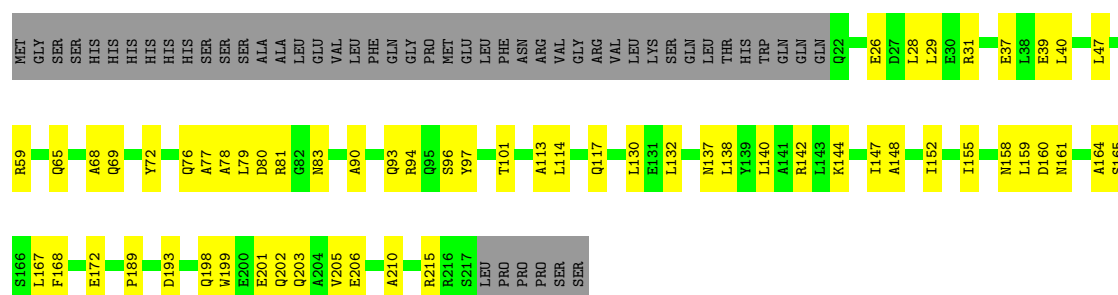
- Molecule 1: Chloroplast membrane-associated 30 kD protein

Chain G: 54% 25% 20%



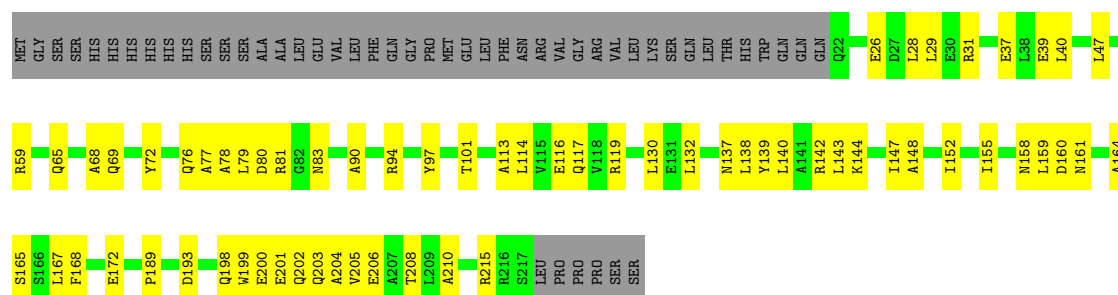
- Molecule 1: Chloroplast membrane-associated 30 kD protein

Chain H: 55% 24% 20%



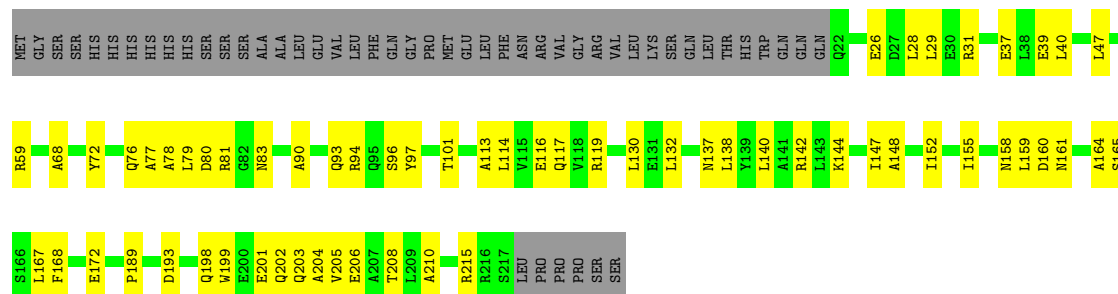
- Molecule 1: Chloroplast membrane-associated 30 kD protein

Chain I: 53% 26% 20%



- Molecule 1: Chloroplast membrane-associated 30 kD protein

Chain J: 54% 25% 20%

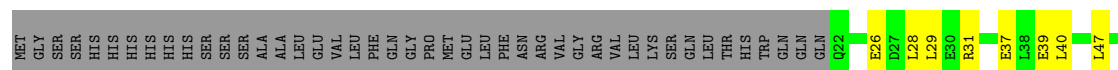


- Molecule 1: Chloroplast membrane-associated 30 kD protein



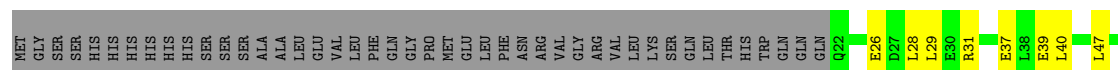
- Molecule 1: Chloroplast membrane-associated 30 kD protein

Chain O: 53% 27% 20%



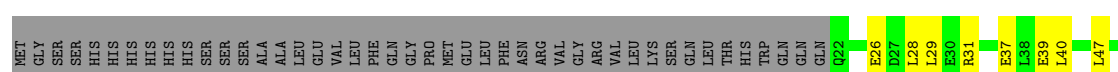
- Molecule 1: Chloroplast membrane-associated 30 kD protein

Chain P: 54% 25% 20%



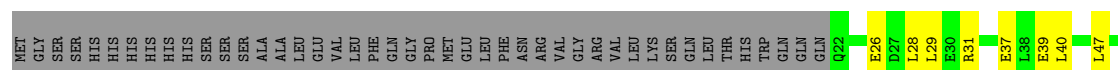
- Molecule 1: Chloroplast membrane-associated 30 kD protein

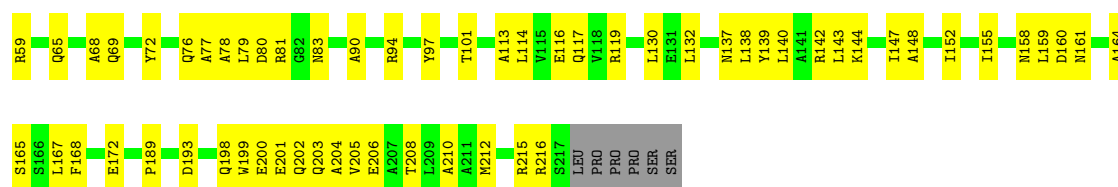
Chain Q: 55% 24% 20%



- Molecule 1: Chloroplast membrane-associated 30 kD protein

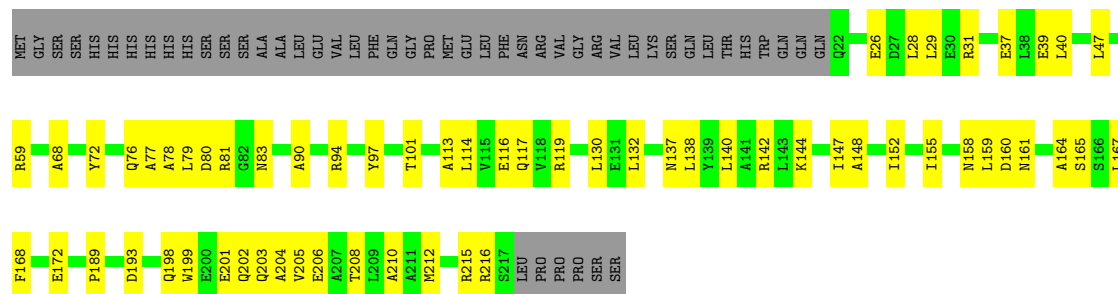
Chain R: 52% 27% 20%





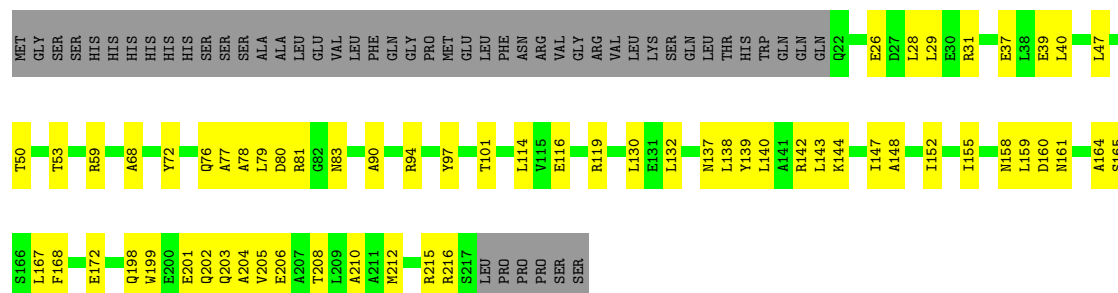
- Molecule 1: Chloroplast membrane-associated 30 kD protein

Chain S: 54% 25% 20%



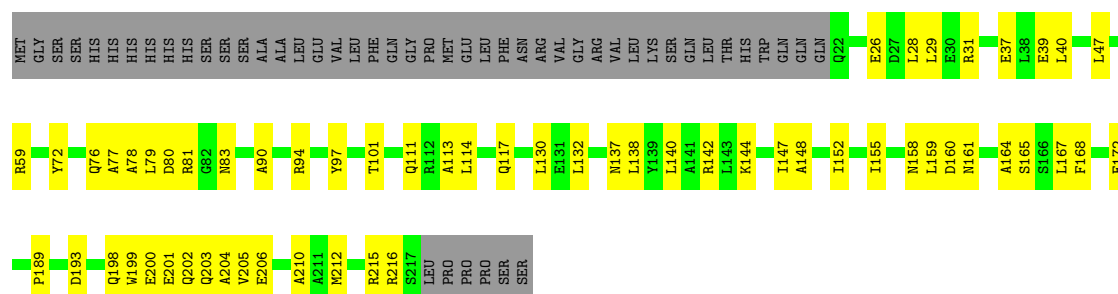
- Molecule 1: Chloroplast membrane-associated 30 kD protein

Chain T: 54% 25% 20%



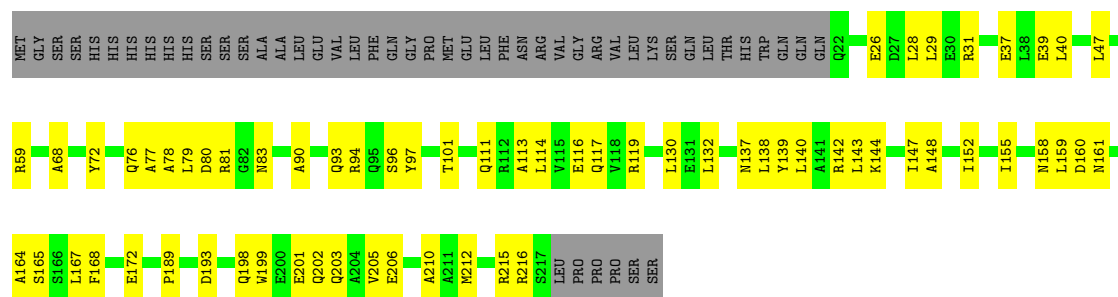
- Molecule 1: Chloroplast membrane-associated 30 kD protein

Chain U: 55% 24% 20%

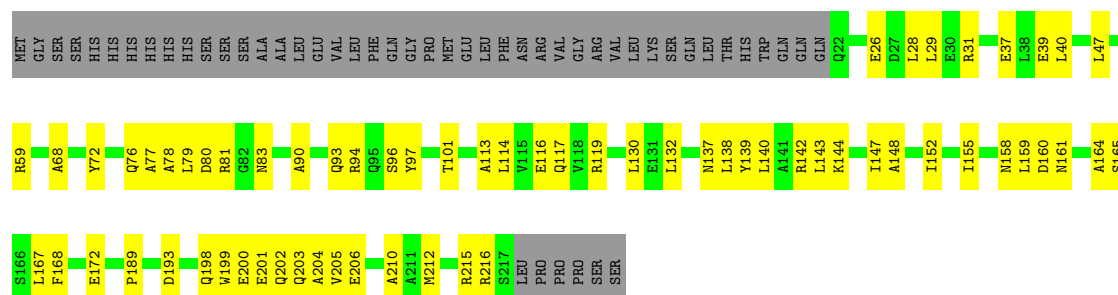


- Molecule 1: Chloroplast membrane-associated 30 kD protein

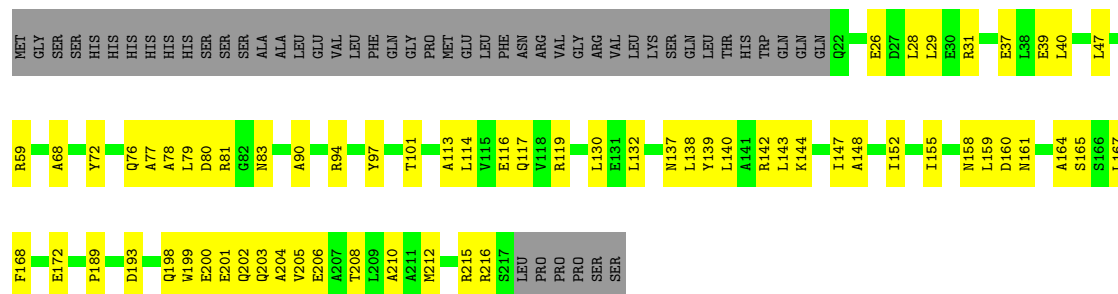
Chain V: 53% 26% 20%



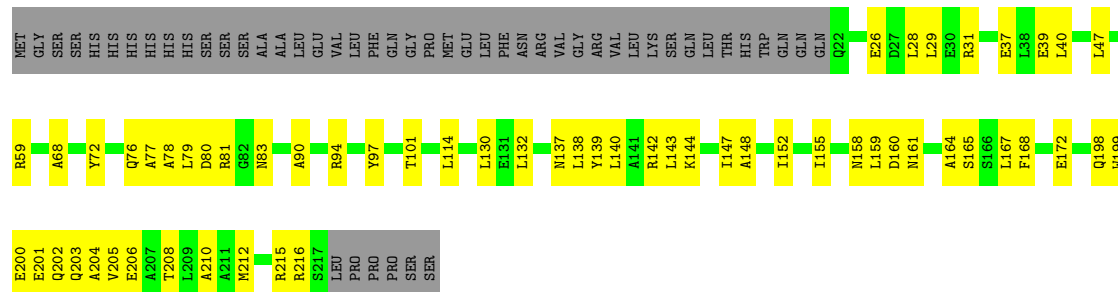
- Molecule 1: Chloroplast membrane-associated 30 kD protein.



- Molecule 1: Chloroplast membrane-associated 30 kD protein.

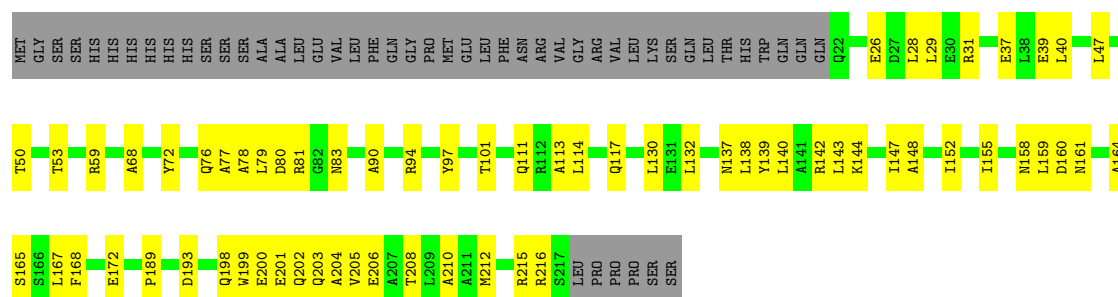


- Molecule 1: Chloroplast membrane-associated 30 kD protein.



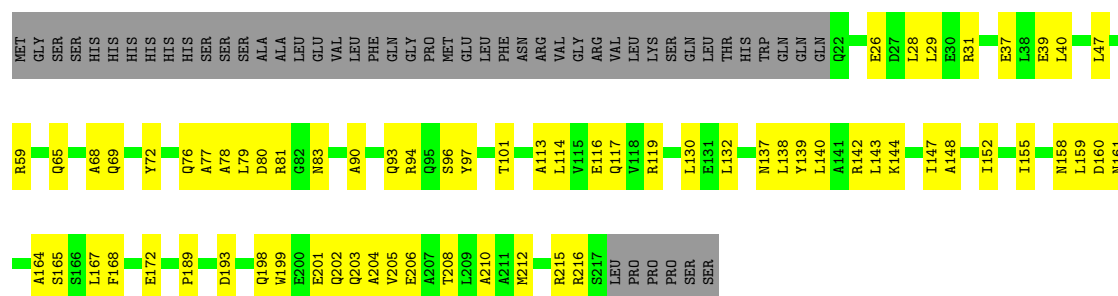
- Molecule 1: Chloroplast membrane-associated 30 kD protein.

Chain Z:  53% 27% 20%



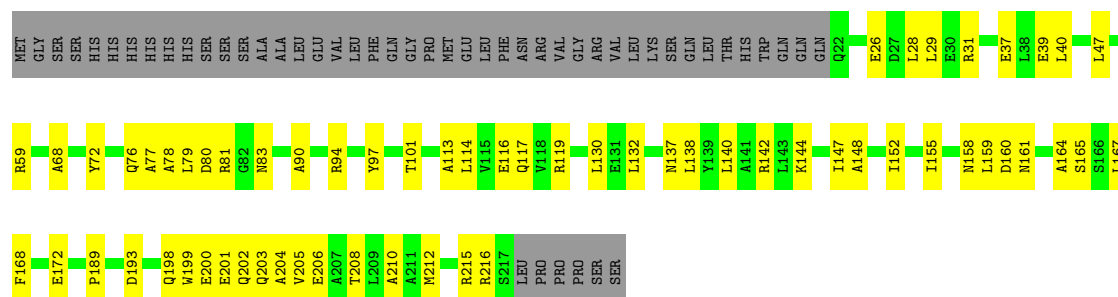
- Molecule 1: Chloroplast membrane-associated 30 kD protein

Chain a:  52% 28% 20%



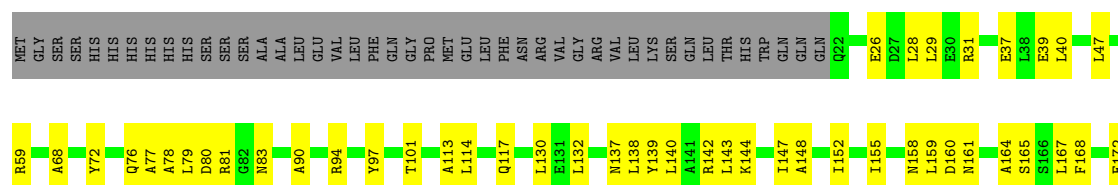
- Molecule 1: Chloroplast membrane-associated 30 kD protein

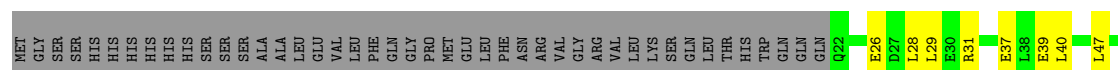
Chain b:  54% 26% 20%

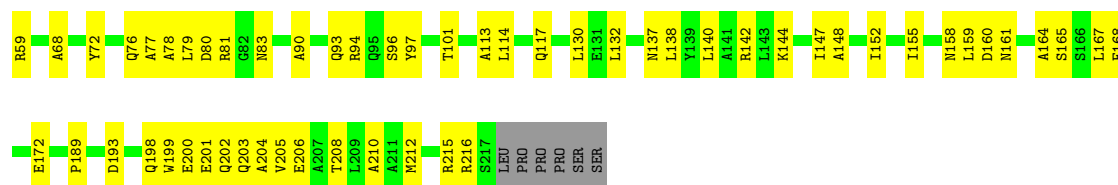


- Molecule 1: Chloroplast membrane-associated 30 kD protein

Chain c:  54% 26% 20%

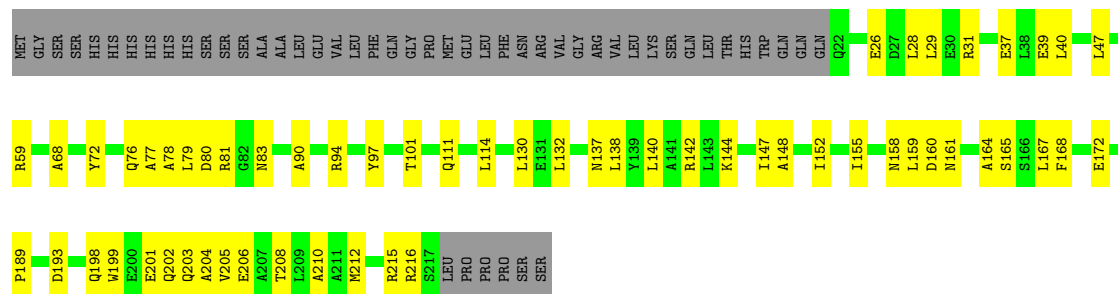






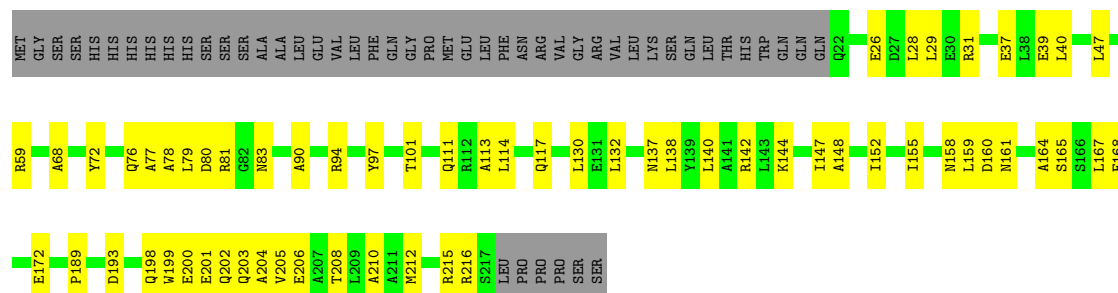
- Molecule 1: Chloroplast membrane-associated 30 kD protein

Chain h: 56% 24% 20%



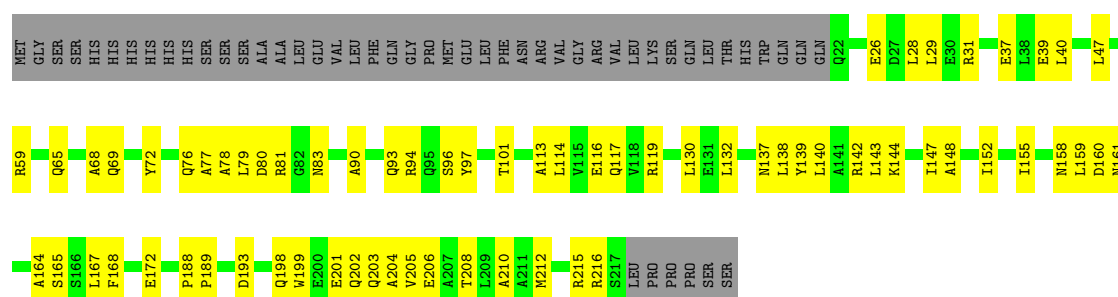
- Molecule 1: Chloroplast membrane-associated 30 kD protein

Chain i: 54% 25% 20%



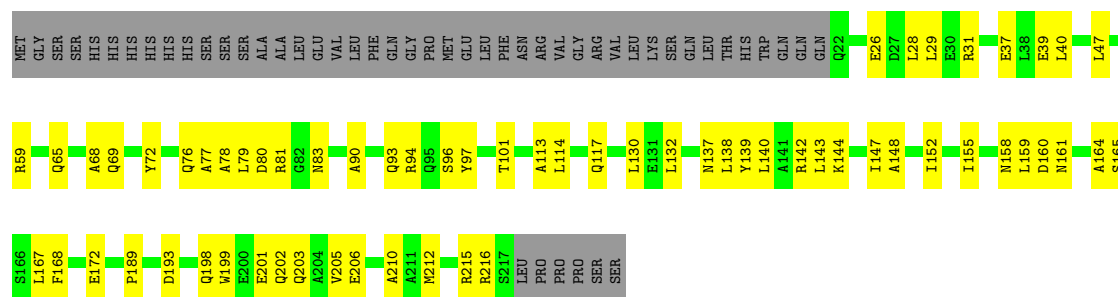
- Molecule 1: Chloroplast membrane-associated 30 kD protein

Chain j: 52% 28% 20%



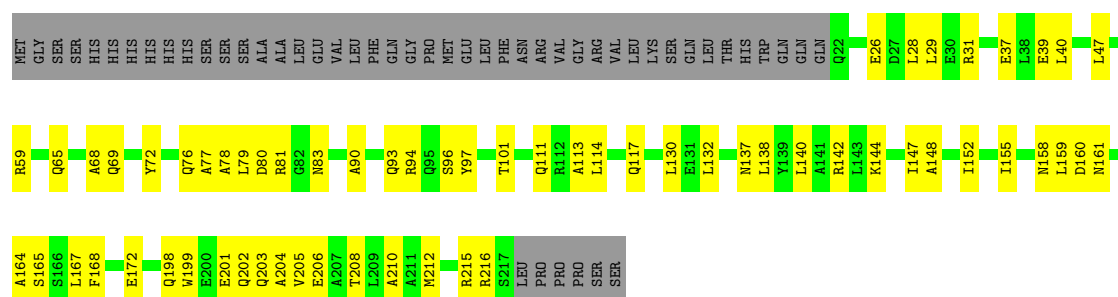
- Molecule 1: Chloroplast membrane-associated 30 kD protein

Chain k: 54% 26% 20%



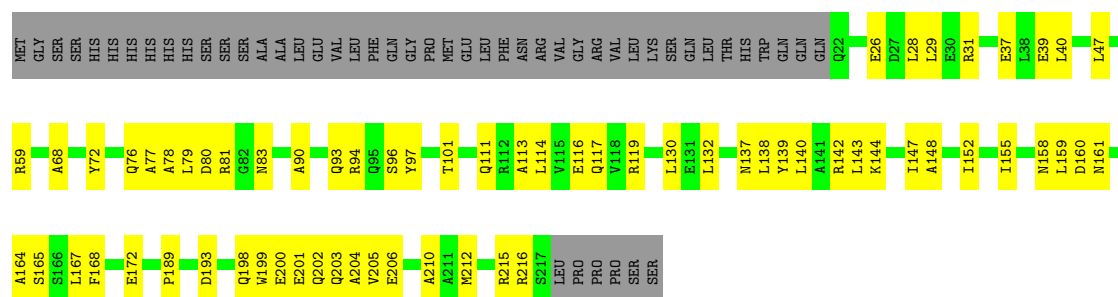
- Molecule 1: Chloroplast membrane-associated 30 kD protein

Chain l: 54% 26% 20%



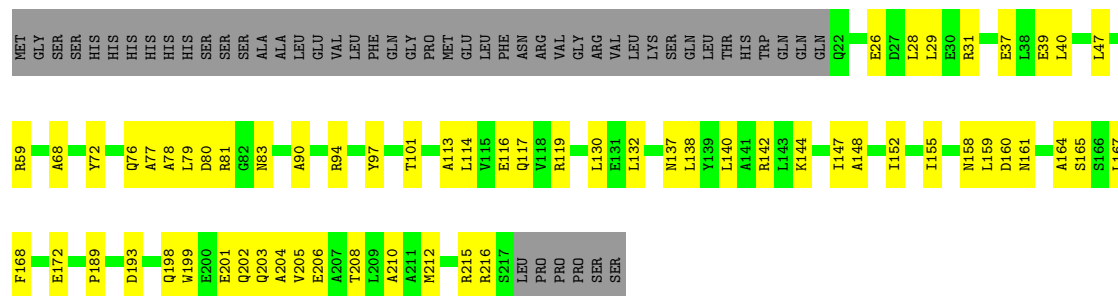
- Molecule 1: Chloroplast membrane-associated 30 kD protein

Chain m: 52% 27% 20%



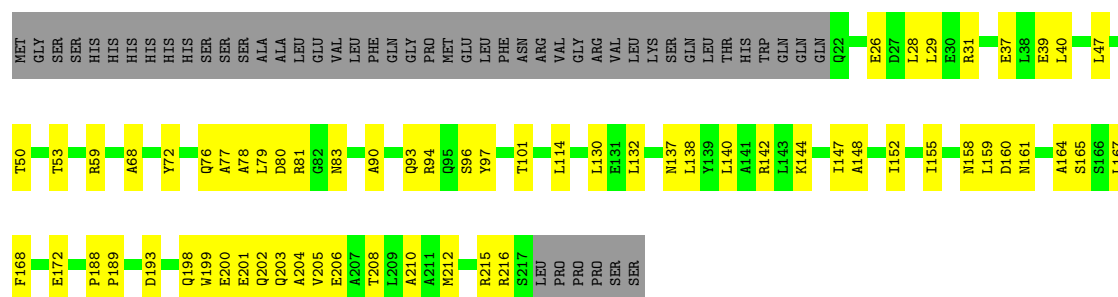
- Molecule 1: Chloroplast membrane-associated 30 kD protein

Chain n: 54% 25% 20%



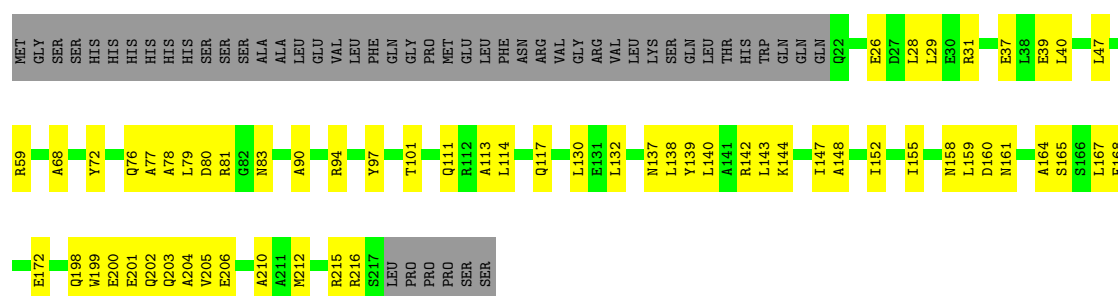
- Molecule 1: Chloroplast membrane-associated 30 kD protein

Chain o:  54% 26% 20%



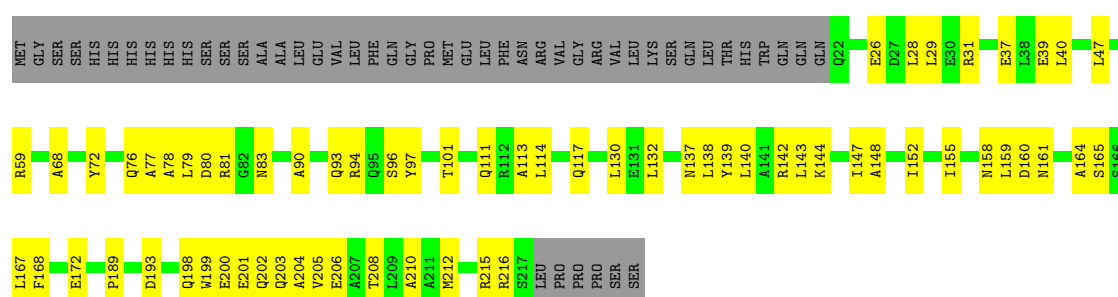
- Molecule 1: Chloroplast membrane-associated 30 kD protein

Chain p:  55% 25% 20%



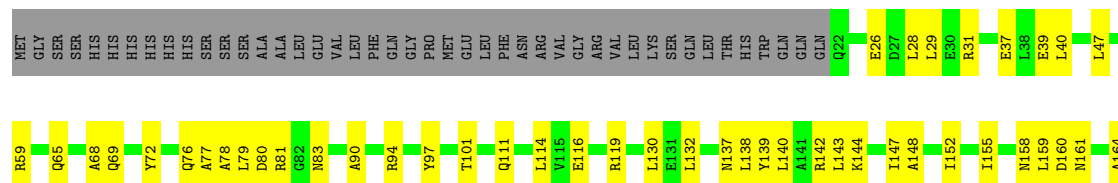
- Molecule 1: Chloroplast membrane-associated 30 kD protein

Chain q:  53% 27% 20%



- Molecule 1: Chloroplast membrane-associated 30 kD protein

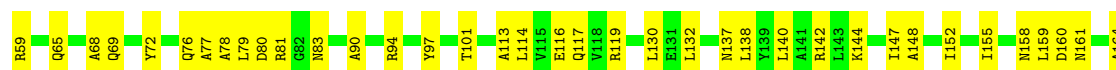
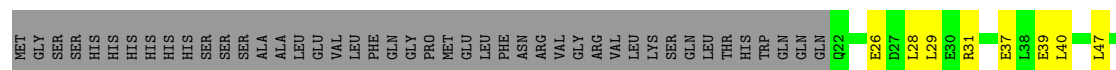
Chain r:  54% 26% 20%





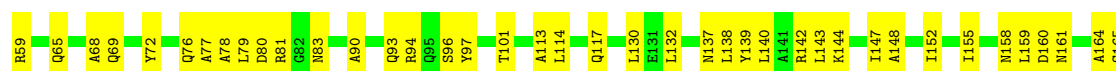
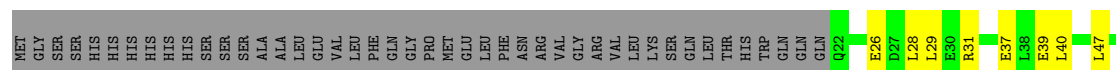
- Molecule 1: Chloroplast membrane-associated 30 kD protein

Chain s: 53% 26% 20%



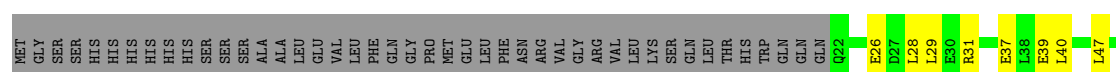
- Molecule 1: Chloroplast membrane-associated 30 kD protein

Chain t: 54% 25% 20%



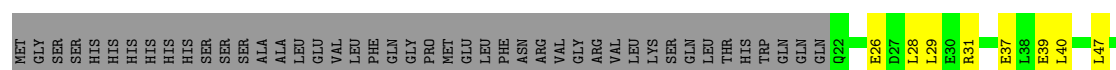
- Molecule 1: Chloroplast membrane-associated 30 kD protein

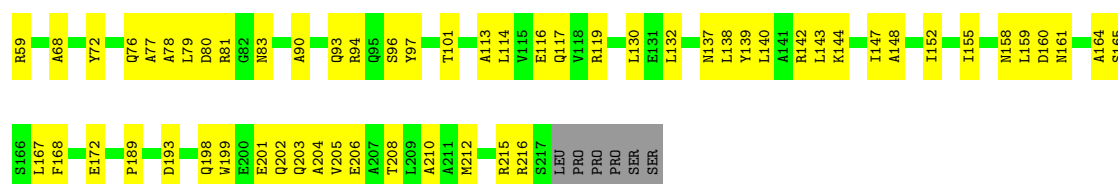
Chain u: 54% 26% 20%



- Molecule 1: Chloroplast membrane-associated 30 kD protein

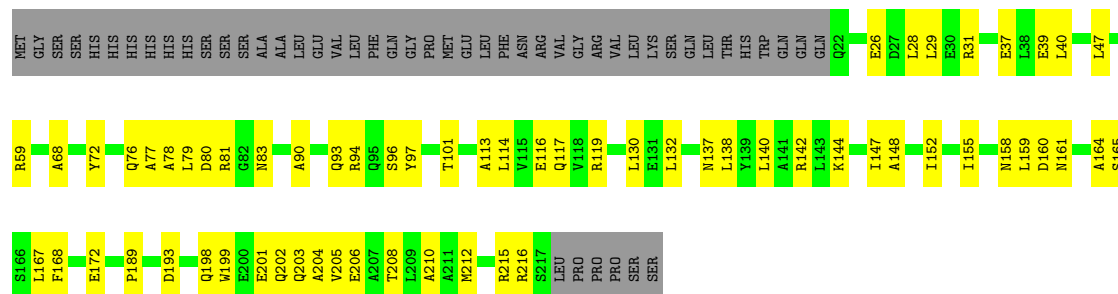
Chain v: 53% 27% 20%





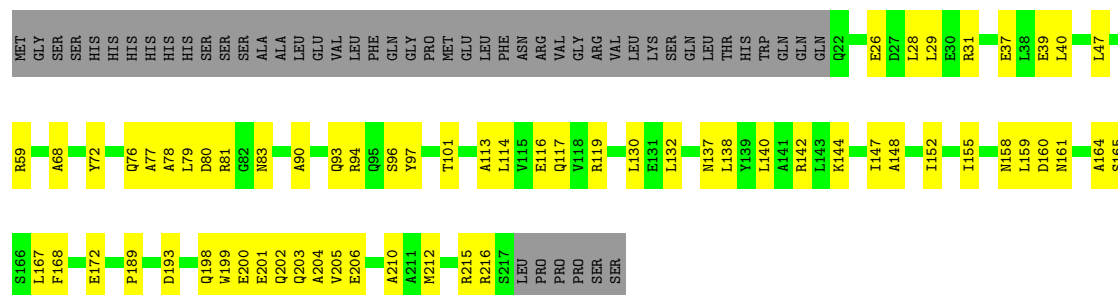
- Molecule 1: Chloroplast membrane-associated 30 kD protein

Chain w: 54% 26% 20%



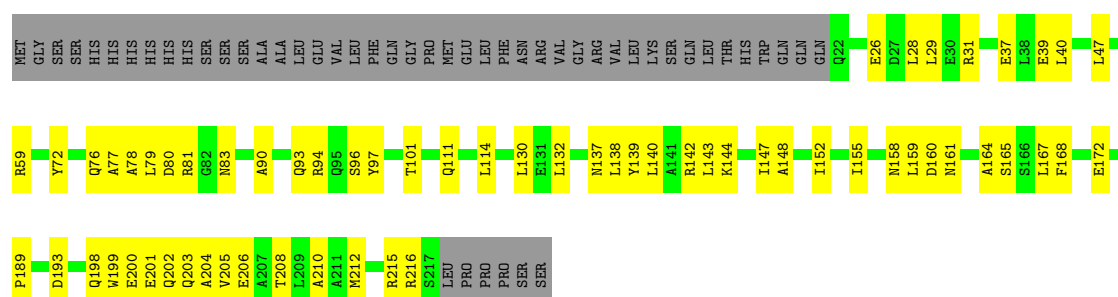
- Molecule 1: Chloroplast membrane-associated 30 kD protein

Chain x: 54% 26% 20%



- Molecule 1: Chloroplast membrane-associated 30 kD protein

Chain y: 54% 26% 20%



- Molecule 1: Chloroplast membrane-associated 30 kD protein

Chain z: 52% 28% 20%

L159	D160	N161	A164	S165	S166	L167	F168	E172	P189	D193	Q198	W199	E200	E201	Q202	Q203	A204	V205	E206	A207	T208	L209	A210	A211	M212	R215	R216	S217	LEU	PRO	PRO	PRO	SER	SER																				
T50	T53	R59	A68	Y72	Q76	A77	A78	L79	D80	R81	G82	N83	A90	Q93	R94	Q95	S96	Y97	T101	Q111	R112	A113	L114	V115	E116	Q117	V118	R119	L130	E131	L132	N137	L138	Y139	L140	A141	R142	L143	K144	I147	A148	I152	I155	N158										
MET	GLY	SER	SER	HIS	HIS	HIS	HIS	HIS	SER	SER	SER	ALA	ALA	LEU	GLU	VAL	LEU	PHE	GLN	GLY	PRO	MET	GLU	LEU	PHE	ASN	ARG	VAL	GLY	ARG	VAL	LEU	LYS	SER	GLN	LEU	THR	HIS	TRP	GLN	GLN	GLN	Q22	E26	D27	L28	L29	E30	R31	E37	L38	E39	L40	L47

4 Experimental information

Property	Value	Source
EM reconstruction method	HELICAL	Depositor
Imposed symmetry	HELICAL, twist=-83.6°, rise=2.10 Å, axial sym=C1	Depositor
Number of segments used	55285	Depositor
Resolution determination method	FSC 0.143 CUT-OFF	Depositor
CTF correction method	PHASE FLIPPING AND AMPLITUDE CORRECTION	Depositor
Microscope	FEI TALOS ARCTICA	Depositor
Voltage (kV)	200	Depositor
Electron dose ($e^-/\text{\AA}^2$)	58	Depositor
Minimum defocus (nm)	1000	Depositor
Maximum defocus (nm)	4000	Depositor
Magnification	Not provided	
Image detector	GATAN K3 BIOQUANTUM (6k x 4k)	Depositor

5 Model quality [i](#)

5.1 Standard geometry [i](#)

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	0	0.19	0/1593	0.28	0/2138
1	1	0.19	0/1593	0.28	0/2138
1	2	0.19	0/1593	0.28	0/2138
1	3	0.19	0/1593	0.28	0/2138
1	4	0.19	0/1593	0.28	0/2138
1	5	0.19	0/1593	0.28	0/2138
1	6	0.19	0/1593	0.28	0/2138
1	7	0.19	0/1593	0.28	0/2138
1	A	0.19	0/1593	0.28	0/2138
1	B	0.19	0/1593	0.28	0/2138
1	C	0.19	0/1593	0.28	0/2138
1	D	0.19	0/1593	0.28	0/2138
1	E	0.19	0/1593	0.28	0/2138
1	F	0.19	0/1593	0.28	0/2138
1	G	0.19	0/1593	0.28	0/2138
1	H	0.19	0/1593	0.28	0/2138
1	I	0.19	0/1593	0.28	0/2138
1	J	0.19	0/1593	0.28	0/2138
1	K	0.19	0/1593	0.28	0/2138
1	L	0.19	0/1593	0.28	0/2138
1	M	0.19	0/1593	0.28	0/2138
1	N	0.19	0/1593	0.28	0/2138
1	O	0.19	0/1593	0.28	0/2138
1	P	0.19	0/1593	0.28	0/2138
1	Q	0.19	0/1593	0.28	0/2138
1	R	0.19	0/1593	0.28	0/2138
1	S	0.19	0/1593	0.28	0/2138
1	T	0.19	0/1593	0.28	0/2138
1	U	0.19	0/1593	0.28	0/2138
1	V	0.19	0/1593	0.28	0/2138
1	W	0.19	0/1593	0.28	0/2138
1	X	0.19	0/1593	0.28	0/2138
1	Y	0.19	0/1593	0.28	0/2138
1	Z	0.19	0/1593	0.28	0/2138

Mol	Chain	Bond lengths		Bond angles	
		RMSZ	# Z >5	RMSZ	# Z >5
1	a	0.19	0/1593	0.28	0/2138
1	b	0.19	0/1593	0.28	0/2138
1	c	0.19	0/1593	0.28	0/2138
1	d	0.19	0/1593	0.28	0/2138
1	e	0.19	0/1593	0.28	0/2138
1	f	0.19	0/1593	0.28	0/2138
1	g	0.19	0/1593	0.28	0/2138
1	h	0.19	0/1593	0.28	0/2138
1	i	0.19	0/1593	0.28	0/2138
1	j	0.19	0/1593	0.28	0/2138
1	k	0.19	0/1593	0.28	0/2138
1	l	0.19	0/1593	0.28	0/2138
1	m	0.19	0/1593	0.28	0/2138
1	n	0.19	0/1593	0.28	0/2138
1	o	0.19	0/1593	0.28	0/2138
1	p	0.19	0/1593	0.28	0/2138
1	q	0.19	0/1593	0.28	0/2138
1	r	0.19	0/1593	0.28	0/2138
1	s	0.19	0/1593	0.28	0/2138
1	t	0.19	0/1593	0.28	0/2138
1	u	0.19	0/1593	0.28	0/2138
1	v	0.19	0/1593	0.28	0/2138
1	w	0.19	0/1593	0.28	0/2138
1	x	0.19	0/1593	0.28	0/2138
1	y	0.19	0/1593	0.28	0/2138
1	z	0.19	0/1593	0.28	0/2138
All	All	0.19	0/95580	0.28	0/128280

There are no bond length outliers.

There are no bond angle outliers.

There are no chirality outliers.

There are no planarity outliers.

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	0	1577	1604	1603	55	0
1	1	1577	1604	1603	54	0
1	2	1577	1604	1603	53	0
1	3	1577	1604	1603	52	0
1	4	1577	1604	1603	51	0
1	5	1577	1604	1603	50	0
1	6	1577	1604	1603	50	0
1	7	1577	1604	1603	50	0
1	A	1577	1604	1603	50	0
1	B	1577	1604	1603	52	0
1	C	1577	1604	1603	49	0
1	D	1577	1604	1603	49	0
1	E	1577	1604	1603	50	0
1	F	1577	1604	1603	56	0
1	G	1577	1604	1603	53	0
1	H	1577	1604	1603	51	0
1	I	1577	1604	1603	54	0
1	J	1577	1604	1603	52	0
1	K	1577	1604	1603	50	0
1	L	1577	1604	1603	52	0
1	M	1577	1604	1603	56	0
1	N	1577	1604	1603	55	0
1	O	1577	1604	1603	57	0
1	P	1577	1604	1603	54	0
1	Q	1577	1604	1603	53	0
1	R	1577	1604	1603	57	0
1	S	1577	1604	1603	54	0
1	T	1577	1604	1603	54	0
1	U	1577	1604	1603	53	0
1	V	1577	1604	1603	56	0
1	W	1577	1604	1603	55	0
1	X	1577	1604	1603	56	0
1	Y	1577	1604	1603	53	0
1	Z	1577	1604	1603	57	0
1	a	1577	1604	1603	57	0
1	b	1577	1604	1603	55	0
1	c	1577	1604	1603	55	0
1	d	1577	1604	1603	54	0
1	e	1577	1604	1603	56	0
1	f	1577	1604	1603	58	0
1	g	1577	1604	1603	55	0
1	h	1577	1604	1603	53	0
1	i	1577	1604	1603	55	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
1	j	1577	1604	1603	58	0
1	k	1577	1604	1603	55	0
1	l	1577	1604	1603	55	0
1	m	1577	1604	1603	58	0
1	n	1577	1604	1603	54	0
1	o	1577	1604	1603	56	0
1	p	1577	1604	1603	54	0
1	q	1577	1604	1603	57	0
1	r	1577	1604	1603	56	0
1	s	1577	1604	1603	56	0
1	t	1577	1604	1603	54	0
1	u	1577	1604	1603	55	0
1	v	1577	1604	1603	56	0
1	w	1577	1604	1603	52	0
1	x	1577	1604	1603	52	0
1	y	1577	1604	1603	52	0
1	z	1577	1604	1603	55	0
All	All	94620	96240	96180	2981	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 16.

The worst 5 of 2981 close contacts within the same asymmetric unit are listed below, sorted by their clash magnitude.

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:c:39:GLU:N	1:c:39:GLU:OE1	2.12	0.83
1:2:39:GLU:OE1	1:2:39:GLU:N	2.12	0.83
1:C:39:GLU:N	1:C:39:GLU:OE1	2.12	0.83
1:D:39:GLU:OE1	1:D:39:GLU:N	2.12	0.83
1:0:39:GLU:N	1:0:39:GLU:OE1	2.12	0.83

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	0	194/246 (79%)	187 (96%)	7 (4%)	0	100	100
1	1	194/246 (79%)	187 (96%)	7 (4%)	0	100	100
1	2	194/246 (79%)	187 (96%)	7 (4%)	0	100	100
1	3	194/246 (79%)	187 (96%)	7 (4%)	0	100	100
1	4	194/246 (79%)	187 (96%)	7 (4%)	0	100	100
1	5	194/246 (79%)	187 (96%)	7 (4%)	0	100	100
1	6	194/246 (79%)	187 (96%)	7 (4%)	0	100	100
1	7	194/246 (79%)	187 (96%)	7 (4%)	0	100	100
1	A	194/246 (79%)	187 (96%)	7 (4%)	0	100	100
1	B	194/246 (79%)	187 (96%)	7 (4%)	0	100	100
1	C	194/246 (79%)	187 (96%)	7 (4%)	0	100	100
1	D	194/246 (79%)	187 (96%)	7 (4%)	0	100	100
1	E	194/246 (79%)	187 (96%)	7 (4%)	0	100	100
1	F	194/246 (79%)	187 (96%)	7 (4%)	0	100	100
1	G	194/246 (79%)	187 (96%)	7 (4%)	0	100	100
1	H	194/246 (79%)	187 (96%)	7 (4%)	0	100	100
1	I	194/246 (79%)	187 (96%)	7 (4%)	0	100	100
1	J	194/246 (79%)	187 (96%)	7 (4%)	0	100	100
1	K	194/246 (79%)	187 (96%)	7 (4%)	0	100	100
1	L	194/246 (79%)	187 (96%)	7 (4%)	0	100	100
1	M	194/246 (79%)	187 (96%)	7 (4%)	0	100	100
1	N	194/246 (79%)	187 (96%)	7 (4%)	0	100	100
1	O	194/246 (79%)	187 (96%)	7 (4%)	0	100	100
1	P	194/246 (79%)	187 (96%)	7 (4%)	0	100	100
1	Q	194/246 (79%)	187 (96%)	7 (4%)	0	100	100
1	R	194/246 (79%)	187 (96%)	7 (4%)	0	100	100
1	S	194/246 (79%)	187 (96%)	7 (4%)	0	100	100
1	T	194/246 (79%)	187 (96%)	7 (4%)	0	100	100
1	U	194/246 (79%)	187 (96%)	7 (4%)	0	100	100
1	V	194/246 (79%)	187 (96%)	7 (4%)	0	100	100

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
1	W	194/246 (79%)	187 (96%)	7 (4%)	0	100	100
1	X	194/246 (79%)	187 (96%)	7 (4%)	0	100	100
1	Y	194/246 (79%)	187 (96%)	7 (4%)	0	100	100
1	Z	194/246 (79%)	187 (96%)	7 (4%)	0	100	100
1	a	194/246 (79%)	187 (96%)	7 (4%)	0	100	100
1	b	194/246 (79%)	187 (96%)	7 (4%)	0	100	100
1	c	194/246 (79%)	187 (96%)	7 (4%)	0	100	100
1	d	194/246 (79%)	187 (96%)	7 (4%)	0	100	100
1	e	194/246 (79%)	187 (96%)	7 (4%)	0	100	100
1	f	194/246 (79%)	187 (96%)	7 (4%)	0	100	100
1	g	194/246 (79%)	187 (96%)	7 (4%)	0	100	100
1	h	194/246 (79%)	187 (96%)	7 (4%)	0	100	100
1	i	194/246 (79%)	187 (96%)	7 (4%)	0	100	100
1	j	194/246 (79%)	187 (96%)	7 (4%)	0	100	100
1	k	194/246 (79%)	187 (96%)	7 (4%)	0	100	100
1	l	194/246 (79%)	187 (96%)	7 (4%)	0	100	100
1	m	194/246 (79%)	187 (96%)	7 (4%)	0	100	100
1	n	194/246 (79%)	187 (96%)	7 (4%)	0	100	100
1	o	194/246 (79%)	187 (96%)	7 (4%)	0	100	100
1	p	194/246 (79%)	187 (96%)	7 (4%)	0	100	100
1	q	194/246 (79%)	187 (96%)	7 (4%)	0	100	100
1	r	194/246 (79%)	187 (96%)	7 (4%)	0	100	100
1	s	194/246 (79%)	187 (96%)	7 (4%)	0	100	100
1	t	194/246 (79%)	187 (96%)	7 (4%)	0	100	100
1	u	194/246 (79%)	187 (96%)	7 (4%)	0	100	100
1	v	194/246 (79%)	187 (96%)	7 (4%)	0	100	100
1	w	194/246 (79%)	187 (96%)	7 (4%)	0	100	100
1	x	194/246 (79%)	187 (96%)	7 (4%)	0	100	100
1	y	194/246 (79%)	187 (96%)	7 (4%)	0	100	100
1	z	194/246 (79%)	187 (96%)	7 (4%)	0	100	100
All	All	11640/14760 (79%)	11220 (96%)	420 (4%)	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	0	163/208 (78%)	163 (100%)	0	100	100
1	1	163/208 (78%)	163 (100%)	0	100	100
1	2	163/208 (78%)	163 (100%)	0	100	100
1	3	163/208 (78%)	163 (100%)	0	100	100
1	4	163/208 (78%)	163 (100%)	0	100	100
1	5	163/208 (78%)	163 (100%)	0	100	100
1	6	163/208 (78%)	163 (100%)	0	100	100
1	7	163/208 (78%)	163 (100%)	0	100	100
1	A	163/208 (78%)	163 (100%)	0	100	100
1	B	163/208 (78%)	163 (100%)	0	100	100
1	C	163/208 (78%)	163 (100%)	0	100	100
1	D	163/208 (78%)	163 (100%)	0	100	100
1	E	163/208 (78%)	163 (100%)	0	100	100
1	F	163/208 (78%)	163 (100%)	0	100	100
1	G	163/208 (78%)	163 (100%)	0	100	100
1	H	163/208 (78%)	163 (100%)	0	100	100
1	I	163/208 (78%)	163 (100%)	0	100	100
1	J	163/208 (78%)	163 (100%)	0	100	100
1	K	163/208 (78%)	163 (100%)	0	100	100
1	L	163/208 (78%)	163 (100%)	0	100	100
1	M	163/208 (78%)	163 (100%)	0	100	100
1	N	163/208 (78%)	163 (100%)	0	100	100
1	O	163/208 (78%)	163 (100%)	0	100	100
1	P	163/208 (78%)	163 (100%)	0	100	100

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Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
1	Q	163/208 (78%)	163 (100%)	0	100	100
1	R	163/208 (78%)	163 (100%)	0	100	100
1	S	163/208 (78%)	163 (100%)	0	100	100
1	T	163/208 (78%)	163 (100%)	0	100	100
1	U	163/208 (78%)	163 (100%)	0	100	100
1	V	163/208 (78%)	163 (100%)	0	100	100
1	W	163/208 (78%)	163 (100%)	0	100	100
1	X	163/208 (78%)	163 (100%)	0	100	100
1	Y	163/208 (78%)	163 (100%)	0	100	100
1	Z	163/208 (78%)	163 (100%)	0	100	100
1	a	163/208 (78%)	163 (100%)	0	100	100
1	b	163/208 (78%)	163 (100%)	0	100	100
1	c	163/208 (78%)	163 (100%)	0	100	100
1	d	163/208 (78%)	163 (100%)	0	100	100
1	e	163/208 (78%)	163 (100%)	0	100	100
1	f	163/208 (78%)	163 (100%)	0	100	100
1	g	163/208 (78%)	163 (100%)	0	100	100
1	h	163/208 (78%)	163 (100%)	0	100	100
1	i	163/208 (78%)	163 (100%)	0	100	100
1	j	163/208 (78%)	163 (100%)	0	100	100
1	k	163/208 (78%)	163 (100%)	0	100	100
1	l	163/208 (78%)	163 (100%)	0	100	100
1	m	163/208 (78%)	163 (100%)	0	100	100
1	n	163/208 (78%)	163 (100%)	0	100	100
1	o	163/208 (78%)	163 (100%)	0	100	100
1	p	163/208 (78%)	163 (100%)	0	100	100
1	q	163/208 (78%)	163 (100%)	0	100	100
1	r	163/208 (78%)	163 (100%)	0	100	100
1	s	163/208 (78%)	163 (100%)	0	100	100
1	t	163/208 (78%)	163 (100%)	0	100	100
1	u	163/208 (78%)	163 (100%)	0	100	100

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Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
1	v	163/208 (78%)	163 (100%)	0	100	100
1	w	163/208 (78%)	163 (100%)	0	100	100
1	x	163/208 (78%)	163 (100%)	0	100	100
1	y	163/208 (78%)	163 (100%)	0	100	100
1	z	163/208 (78%)	163 (100%)	0	100	100
All	All	9780/12480 (78%)	9780 (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 169 such sidechains are listed below:

Mol	Chain	Res	Type
1	g	202	GLN
1	q	95	GLN
1	i	95	GLN
1	l	202	GLN
1	s	100	HIS

5.3.3 RNA [i](#)

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 ⓘ

There are no chain breaks in this entry.

6 Map visualisation

This section contains visualisations of the EMDB entry EMD-15493. 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.