



Full wwPDB EM Validation Report ⓘ

Oct 14, 2025 – 05:21 PM JST

PDB ID : 8Z5X / pdb_00008z5x
EMDB ID : EMD-39787
Title : Cryo-EM structure of the MS ring with the proximal rod and the export apparatus (C1) within the polar flagellar motor
Authors : Zhang, L.; Tan, J.X.; Zhou, Y.; Zhu, Y.Q.
Deposited on : 2024-04-18
Resolution : 3.64 Å(reported)
Based on initial model : .

This is a Full wwPDB EM Validation 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.dev129
MolProbity : 4-5-2 with Phenix2.0
Percentile statistics : 20231227.v01 (using entries in the PDB archive December 27th 2023)
EM percentile statistics : 202505.v01 (Using data in the EMDB archive up until May 2025)
MapQ : 1.9.13
Ideal geometry (proteins) : Engh & Huber (2001)
Ideal geometry (DNA, RNA) : Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP) : 2.46

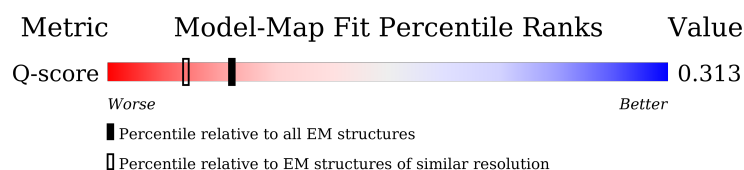
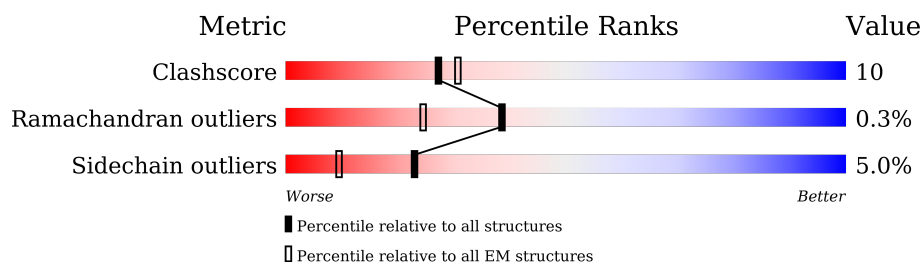
1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

ELECTRON MICROSCOPY

The reported resolution of this entry is 3.64 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.



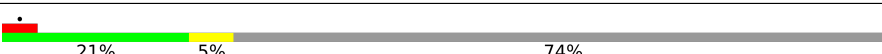
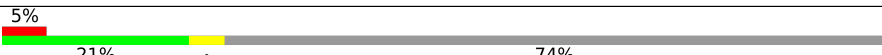
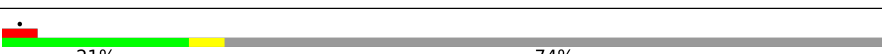
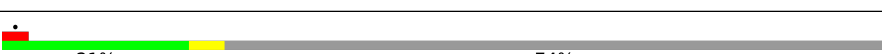
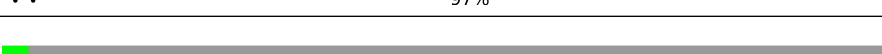
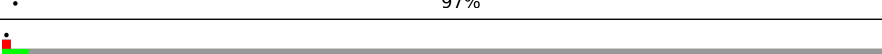
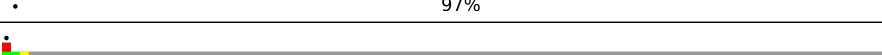
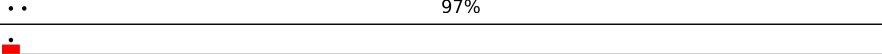
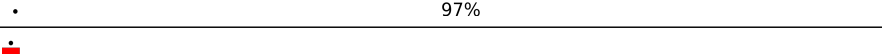
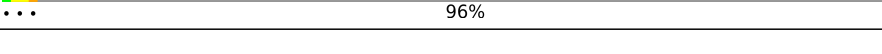
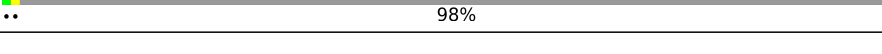
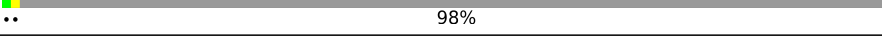
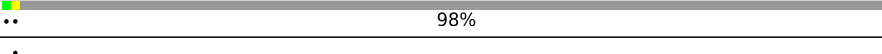
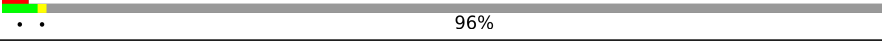
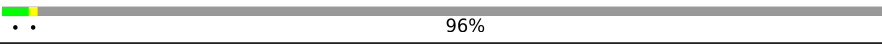
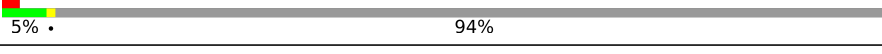
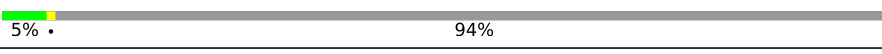
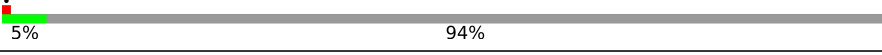
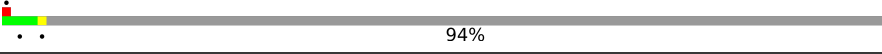
Metric	Whole archive (#Entries)	EM structures (#Entries)	Similar EM resolution (#Entries, resolution range(Å))
Clashscore	210492	15764	-
Ramachandran outliers	207382	16835	-
Sidechain outliers	206894	16415	-
Q-score	-	25397	11633 (3.14 - 4.14)

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 $\leq 5\%$. The upper red bar (where present) indicates the fraction of residues that have poor fit to the EM map (all-atom inclusion $< 40\%$). The numeric value is given above the bar.

Mol	Chain	Length	Quality of chain
1	0	289	
1	9	289	
1	AP	289	
1	Ak	289	

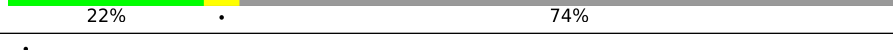
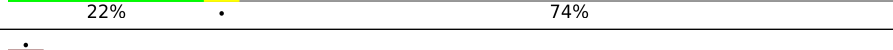
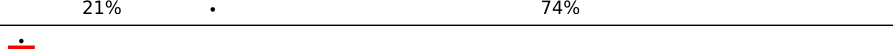
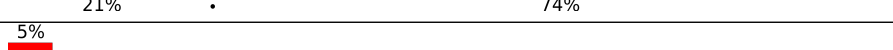
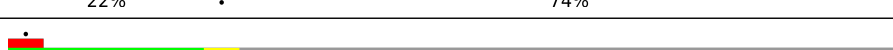
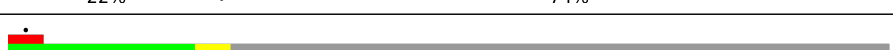
Continued on next page...

Continued from previous page...

Mol	Chain	Length	Quality of chain
1	Al	289	
2	1	580	
2	2	580	
2	3	580	
2	4	580	
2	5	580	
2	A	580	
2	AA	580	
2	AB	580	
2	AC	580	
2	AD	580	
2	AE	580	
2	AF	580	
2	AG	580	
2	AH	580	
2	AI	580	
2	AJ	580	
2	AK	580	
2	AL	580	
2	AM	580	
2	AN	580	
2	AO	580	
2	B	580	
2	C	580	
2	D	580	

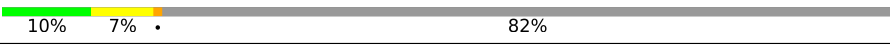
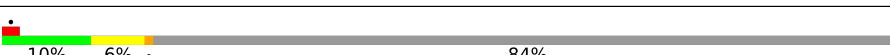
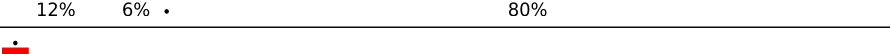
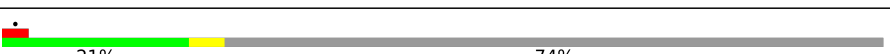
Continued on next page...

Continued from previous page...

Mol	Chain	Length	Quality of chain
2	E	580	 21% 74%
2	F	580	 21% 74%
2	G	580	 21% 74%
2	H	580	 21% 74%
2	I	580	 21% 74%
2	J	580	 21% 74%
2	K	580	 22% 74%
2	L	580	 22% 74%
2	M	580	 21% 74%
2	N	580	 21% 74%
2	O	580	 22% 74%
2	P	580	 22% 74%
2	Q	580	 21% 74%
2	R	580	 22% 74%
2	S	580	 11% 8% 80%
2	T	580	 10% 8% 80%
2	U	580	 12% 7% 80%
2	V	580	 12% 7% 80%
2	W	580	 11% 7% 80%
2	X	580	 12% 5% 81%
2	Y	580	 12% 6% 80%
2	Z	580	 12% 6% 80%
2	a	580	 13% 7% 80%
2	b	580	 11% 6% 84%
2	c	580	 10% 7% 82%

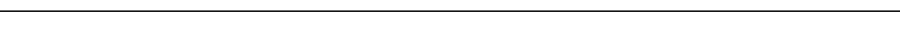
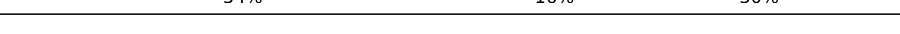
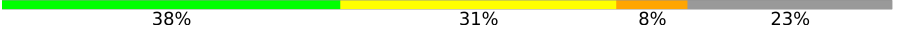
Continued on next page...

Continued from previous page...

Mol	Chain	Length	Quality of chain
2	d	580	 9% 7% 82%
2	e	580	 10% 7% 82%
2	f	580	 9% 6% 85%
2	g	580	 10% 5% 84%
2	h	580	 10% 6% 84%
2	i	580	 9% 6% 85%
2	j	580	 10% 6% 84%
2	k	580	 12% 7% 80%
2	l	580	 12% 7% 80%
2	m	580	 13% 6% 80%
2	n	580	 11% 7% 82%
2	o	580	 12% 6% 80%
2	p	580	 22% 74%
2	q	580	 21% 74%
2	r	580	 22% 74%
2	s	580	 21% 74%
2	t	580	 22% 74%
2	u	580	 22% 74%
2	v	580	 6% 22% 74%
2	w	580	 6% 21% 74%
2	x	580	 5% 21% 5% 74%
2	y	580	 5% 21% 74%
2	z	580	 6% 22% 74%
3	6	89	69% 29%
3	7	89	78% 22%

Continued on next page...

Continued from previous page...

Mol	Chain	Length	Quality of chain
3	AQ	89	
3	AR	89	
4	8	260	
5	AS	131	
5	AT	131	
5	AU	131	
5	AV	131	
5	AW	131	
6	AX	137	
6	AY	137	
6	AZ	137	
6	Aa	137	
6	Ab	137	
6	Ac	137	
7	Ad	103	
7	Ae	103	
7	Af	103	
7	Ag	103	
7	Ah	103	
7	Ai	103	
8	Aj	376	
9	Am	13	
9	An	13	
9	Ao	13	
9	Ap	13	

Continued on next page...

Continued from previous page...

Mol	Chain	Length	Quality of chain
9	Aq	13	
10	Ar	17	
10	As	17	
10	At	17	
10	Au	17	
10	Av	17	
10	Aw	17	

2 Entry composition

There are 10 unique types of molecules in this entry. The entry contains 88315 atoms, of which 0 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 Flagellar biosynthetic protein FliP.

Mol	Chain	Residues	Atoms					AltConf	Trace
1	0	208	Total	C	N	O	S	0	0
			1608	1060	244	285	19		
1	9	207	Total	C	N	O	S	0	0
			1599	1055	243	282	19		
1	AP	208	Total	C	N	O	S	0	0
			1608	1060	244	285	19		
1	Ak	208	Total	C	N	O	S	0	0
			1608	1060	244	285	19		
1	Al	208	Total	C	N	O	S	0	0
			1608	1060	244	285	19		

There are 10 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
0	26	SER	THR	conflict	UNP A0A1W6TTE6
0	204	ASP	GLU	conflict	UNP A0A1W6TTE6
9	26	SER	THR	conflict	UNP A0A1W6TTE6
9	204	ASP	GLU	conflict	UNP A0A1W6TTE6
AP	26	SER	THR	conflict	UNP A0A1W6TTE6
AP	204	ASP	GLU	conflict	UNP A0A1W6TTE6
Ak	26	SER	THR	conflict	UNP A0A1W6TTE6
Ak	204	ASP	GLU	conflict	UNP A0A1W6TTE6
Al	26	SER	THR	conflict	UNP A0A1W6TTE6
Al	204	ASP	GLU	conflict	UNP A0A1W6TTE6

- Molecule 2 is a protein called Flagellar M-ring protein.

Mol	Chain	Residues	Atoms					AltConf	Trace
2	1	148	Total	C	N	O	S	0	0
			1171	719	215	235	2		
2	2	148	Total	C	N	O	S	0	0
			1171	719	215	235	2		
2	3	148	Total	C	N	O	S	0	0
			1171	719	215	235	2		

Continued on next page...

Continued from previous page...

Mol	Chain	Residues	Atoms					AltConf	Trace
2	4	148	Total	C	N	O	S	0	0
			1171	719	215	235	2		
2	5	148	Total	C	N	O	S	0	0
			1171	719	215	235	2		
2	A	148	Total	C	N	O	S	0	0
			1171	719	215	235	2		
2	AA	19	Total	C	N	O	S	0	0
			135	82	23	29	1		
2	AB	19	Total	C	N	O	S	0	0
			135	82	23	29	1		
2	AC	20	Total	C	N	O	S	0	0
			139	84	24	30	1		
2	AD	19	Total	C	N	O	S	0	0
			135	82	23	29	1		
2	AE	19	Total	C	N	O	S	0	0
			135	82	23	29	1		
2	AF	23	Total	C	N	O	S	0	0
			158	97	27	33	1		
2	AG	11	Total	C	N	O		0	0
			73	46	13	14			
2	AH	11	Total	C	N	O		0	0
			73	46	13	14			
2	AI	11	Total	C	N	O		0	0
			73	46	13	14			
2	AJ	24	Total	C	N	O	S	0	0
			163	100	28	34	1		
2	AK	25	Total	C	N	O	S	0	0
			169	104	29	35	1		
2	AL	32	Total	C	N	O	S	0	0
			220	134	38	46	2		
2	AM	33	Total	C	N	O	S	0	0
			224	136	39	47	2		
2	AN	33	Total	C	N	O	S	0	0
			224	136	39	47	2		
2	AO	32	Total	C	N	O	S	0	0
			220	134	38	46	2		
2	B	148	Total	C	N	O	S	0	0
			1171	719	215	235	2		
2	C	148	Total	C	N	O	S	0	0
			1171	719	215	235	2		
2	D	148	Total	C	N	O	S	0	0
			1171	719	215	235	2		

Continued on next page...

Continued from previous page...

Mol	Chain	Residues	Atoms					AltConf	Trace
2	E	148	Total	C	N	O	S	0	0
			1171	719	215	235	2		
2	F	148	Total	C	N	O	S	0	0
			1171	719	215	235	2		
2	G	148	Total	C	N	O	S	0	0
			1171	719	215	235	2		
2	H	148	Total	C	N	O	S	0	0
			1171	719	215	235	2		
2	I	148	Total	C	N	O	S	0	0
			1171	719	215	235	2		
2	J	148	Total	C	N	O	S	0	0
			1171	719	215	235	2		
2	K	148	Total	C	N	O	S	0	0
			1171	719	215	235	2		
2	L	148	Total	C	N	O	S	0	0
			1171	719	215	235	2		
2	M	148	Total	C	N	O	S	0	0
			1171	719	215	235	2		
2	N	148	Total	C	N	O	S	0	0
			1171	719	215	235	2		
2	O	148	Total	C	N	O	S	0	0
			1171	719	215	235	2		
2	P	148	Total	C	N	O	S	0	0
			1171	719	215	235	2		
2	Q	148	Total	C	N	O	S	0	0
			1171	719	215	235	2		
2	R	148	Total	C	N	O	S	0	0
			1171	719	215	235	2		
2	S	114	Total	C	N	O	S	0	0
			881	543	165	169	4		
2	T	114	Total	C	N	O	S	0	0
			881	543	165	169	4		
2	U	114	Total	C	N	O	S	0	0
			881	543	165	169	4		
2	V	114	Total	C	N	O	S	0	0
			881	543	165	169	4		
2	W	114	Total	C	N	O	S	0	0
			881	543	165	169	4		
2	X	109	Total	C	N	O	S	0	0
			839	515	157	163	4		
2	Y	114	Total	C	N	O	S	0	0
			881	543	165	169	4		

Continued on next page...

Continued from previous page...

Mol	Chain	Residues	Atoms					AltConf	Trace
2	Z	114	Total	C	N	O	S	0	0
			881	543	165	169	4		
2	a	114	Total	C	N	O	S	0	0
			881	543	165	169	4		
2	b	94	Total	C	N	O	S	0	0
			724	446	135	140	3		
2	c	103	Total	C	N	O	S	0	0
			803	496	153	151	3		
2	d	103	Total	C	N	O	S	0	0
			803	496	153	151	3		
2	e	103	Total	C	N	O	S	0	0
			803	496	153	151	3		
2	f	85	Total	C	N	O	S	0	0
			660	405	125	127	3		
2	g	92	Total	C	N	O	S	0	0
			704	432	132	137	3		
2	h	91	Total	C	N	O	S	0	0
			695	427	131	134	3		
2	i	89	Total	C	N	O	S	0	0
			684	420	129	132	3		
2	j	92	Total	C	N	O	S	0	0
			704	432	132	137	3		
2	k	114	Total	C	N	O	S	0	0
			881	543	165	169	4		
2	l	114	Total	C	N	O	S	0	0
			881	543	165	169	4		
2	m	114	Total	C	N	O	S	0	0
			881	543	165	169	4		
2	n	105	Total	C	N	O	S	0	0
			802	494	147	157	4		
2	o	114	Total	C	N	O	S	0	0
			881	543	165	169	4		
2	p	148	Total	C	N	O	S	0	0
			1171	719	215	235	2		
2	q	148	Total	C	N	O	S	0	0
			1171	719	215	235	2		
2	r	148	Total	C	N	O	S	0	0
			1171	719	215	235	2		
2	s	148	Total	C	N	O	S	0	0
			1171	719	215	235	2		
2	t	148	Total	C	N	O	S	0	0
			1171	719	215	235	2		

Continued on next page...

Continued from previous page...

Mol	Chain	Residues	Atoms					AltConf	Trace
2	u	148	Total	C	N	O	S	0	0
			1171	719	215	235	2		
2	v	148	Total	C	N	O	S	0	0
			1171	719	215	235	2		
2	w	148	Total	C	N	O	S	0	0
			1171	719	215	235	2		
2	x	148	Total	C	N	O	S	0	0
			1171	719	215	235	2		
2	y	148	Total	C	N	O	S	0	0
			1171	719	215	235	2		
2	z	148	Total	C	N	O	S	0	0
			1171	719	215	235	2		

- Molecule 3 is a protein called Flagellar biosynthetic protein FliQ.

Mol	Chain	Residues	Atoms					AltConf	Trace
3	6	89	Total	C	N	O	S	0	0
			722	489	107	117	9		
3	7	89	Total	C	N	O	S	0	0
			722	489	107	117	9		
3	AQ	89	Total	C	N	O	S	0	0
			722	489	107	117	9		
3	AR	89	Total	C	N	O	S	0	0
			722	489	107	117	9		

- Molecule 4 is a protein called Flagellar biosynthetic protein FliR.

Mol	Chain	Residues	Atoms					AltConf	Trace
4	8	242	Total	C	N	O	S	0	0
			1896	1265	295	315	21		

- Molecule 5 is a protein called Flagellar basal body rod protein FlgB.

Mol	Chain	Residues	Atoms					AltConf	Trace
5	AS	109	Total	C	N	O	S	0	0
			845	523	155	166	1		
5	AT	107	Total	C	N	O	S	0	0
			835	518	153	163	1		
5	AU	109	Total	C	N	O	S	0	0
			845	523	155	166	1		
5	AV	108	Total	C	N	O	S	0	0
			837	519	154	163	1		

Continued on next page...

Continued from previous page...

Mol	Chain	Residues	Atoms					AltConf	Trace
5	AW	108	Total	C	N	O	S	0	0
			837	519	154	163	1		

- Molecule 6 is a protein called Flagellar basal-body rod protein FlgC.

Mol	Chain	Residues	Atoms					AltConf	Trace
6	AX	130	Total	C	N	O	S	0	0
			983	605	168	203	7		
6	AY	130	Total	C	N	O	S	0	0
			983	605	168	203	7		
6	AZ	130	Total	C	N	O	S	0	0
			983	605	168	203	7		
6	Aa	130	Total	C	N	O	S	0	0
			983	605	168	203	7		
6	Ab	130	Total	C	N	O	S	0	0
			983	605	168	203	7		
6	Ac	130	Total	C	N	O	S	0	0
			983	605	168	203	7		

- Molecule 7 is a protein called Flagellar hook-basal body complex protein FliE.

Mol	Chain	Residues	Atoms					AltConf	Trace
7	Ad	72	Total	C	N	O	S	0	0
			560	345	99	113	3		
7	Ae	80	Total	C	N	O	S	0	0
			605	372	108	122	3		
7	Af	80	Total	C	N	O	S	0	0
			605	372	108	122	3		
7	Ag	72	Total	C	N	O	S	0	0
			560	345	99	113	3		
7	Ah	72	Total	C	N	O	S	0	0
			560	345	99	113	3		
7	Ai	40	Total	C	N	O	S	0	0
			311	194	53	61	3		

- Molecule 8 is a protein called Flagellar biosynthetic protein FlhB.

Mol	Chain	Residues	Atoms					AltConf	Trace
8	Aj	71	Total	C	N	O	S	0	0
			552	370	83	95	4		

- Molecule 9 is a protein called Alanine-modelled FlgB-Dc loop.

Mol	Chain	Residues	Atoms				AltConf	Trace
9	Am	12	Total	C	N	O	0	0
			58	34	12	12		
9	An	9	Total	C	N	O	0	0
			44	26	9	9		
9	Ao	10	Total	C	N	O	0	0
			49	29	10	10		
9	Ap	10	Total	C	N	O	0	0
			49	29	10	10		
9	Aq	13	Total	C	N	O	0	0
			63	37	13	13		

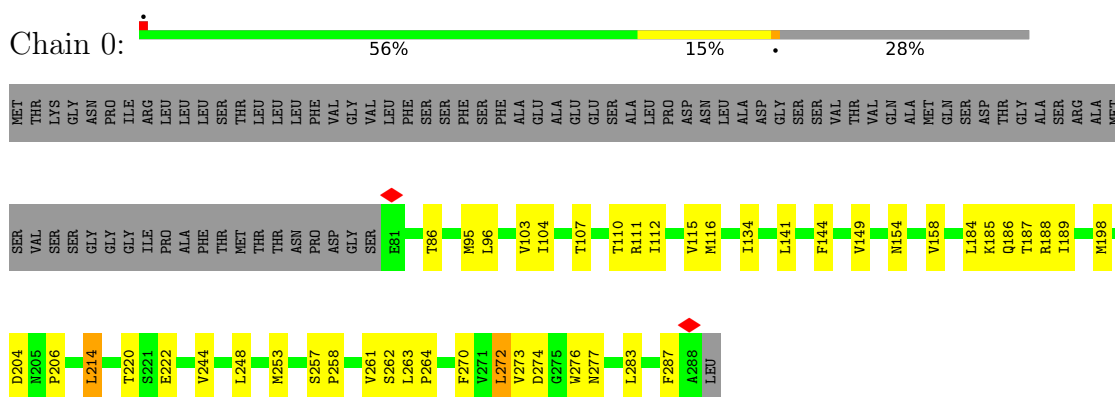
- Molecule 10 is a protein called FliE-helix 1.

Mol	Chain	Residues	Atoms				AltConf	Trace
10	Ar	17	Total	C	N	O	0	0
			84	50	17	17		
10	As	17	Total	C	N	O	0	0
			84	50	17	17		
10	At	17	Total	C	N	O	0	0
			84	50	17	17		
10	Au	17	Total	C	N	O	0	0
			84	50	17	17		
10	Av	17	Total	C	N	O	0	0
			84	50	17	17		
10	Aw	17	Total	C	N	O	0	0
			84	50	17	17		

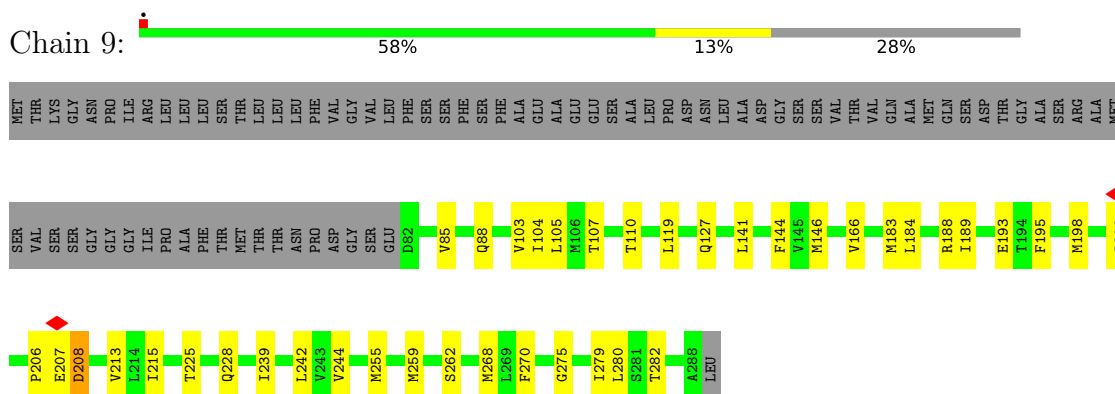
3 Residue-property plots

These plots are drawn for all protein, RNA, DNA and oligosaccharide chains in the entry. The first graphic for a chain summarises the proportions of the various outlier classes displayed in the second graphic. The second graphic shows the sequence view annotated by issues in geometry and atom inclusion in map density. 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. A red diamond above a residue indicates a poor fit to the EM map for this residue (all-atom inclusion < 40%). 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.

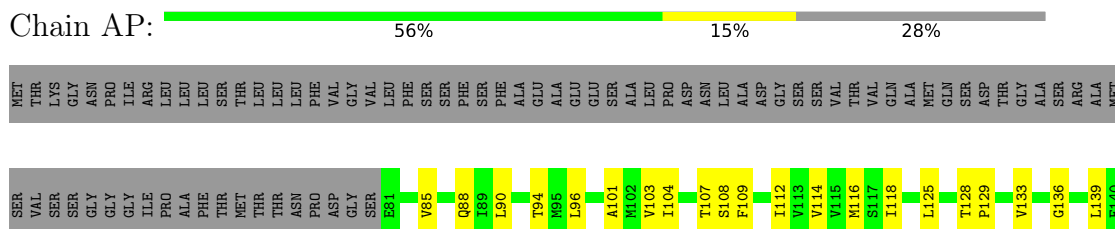
• Molecule 1: Flagellar biosynthetic protein FlIP



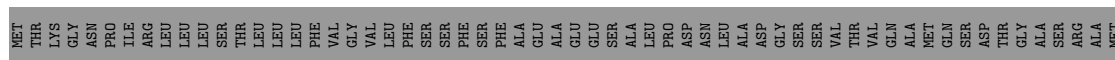
• Molecule 1: Flagellar biosynthetic protein FlIP



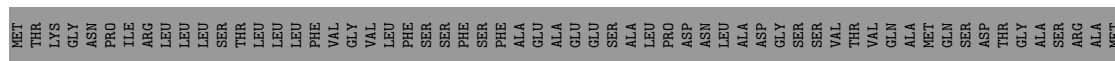
• Molecule 1: Flagellar biosynthetic protein FlIP



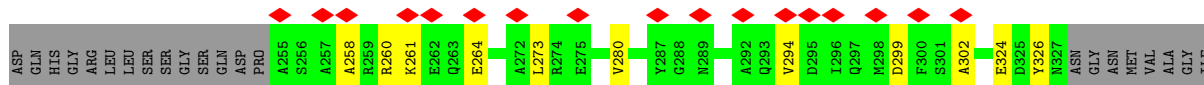
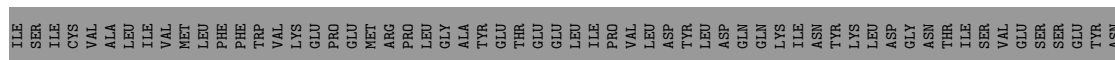
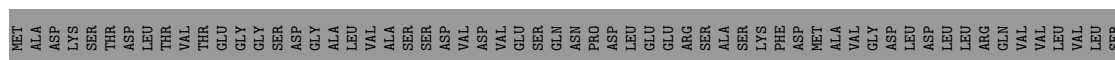
- Molecule 1: Flagellar biosynthetic protein FlpP

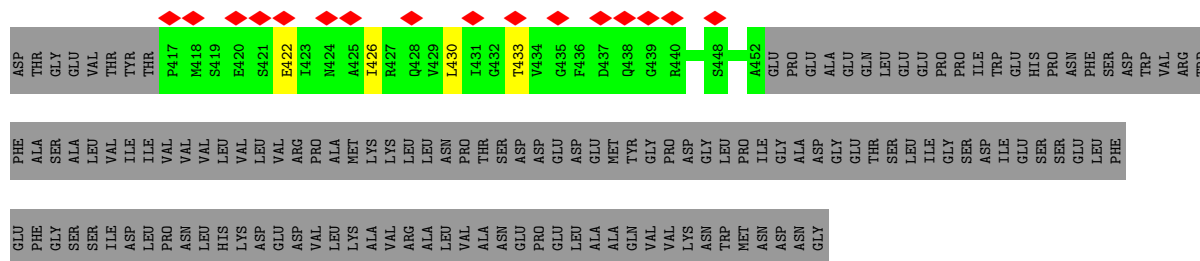


- Molecule 1: Flagellar biosynthetic protein FlpP

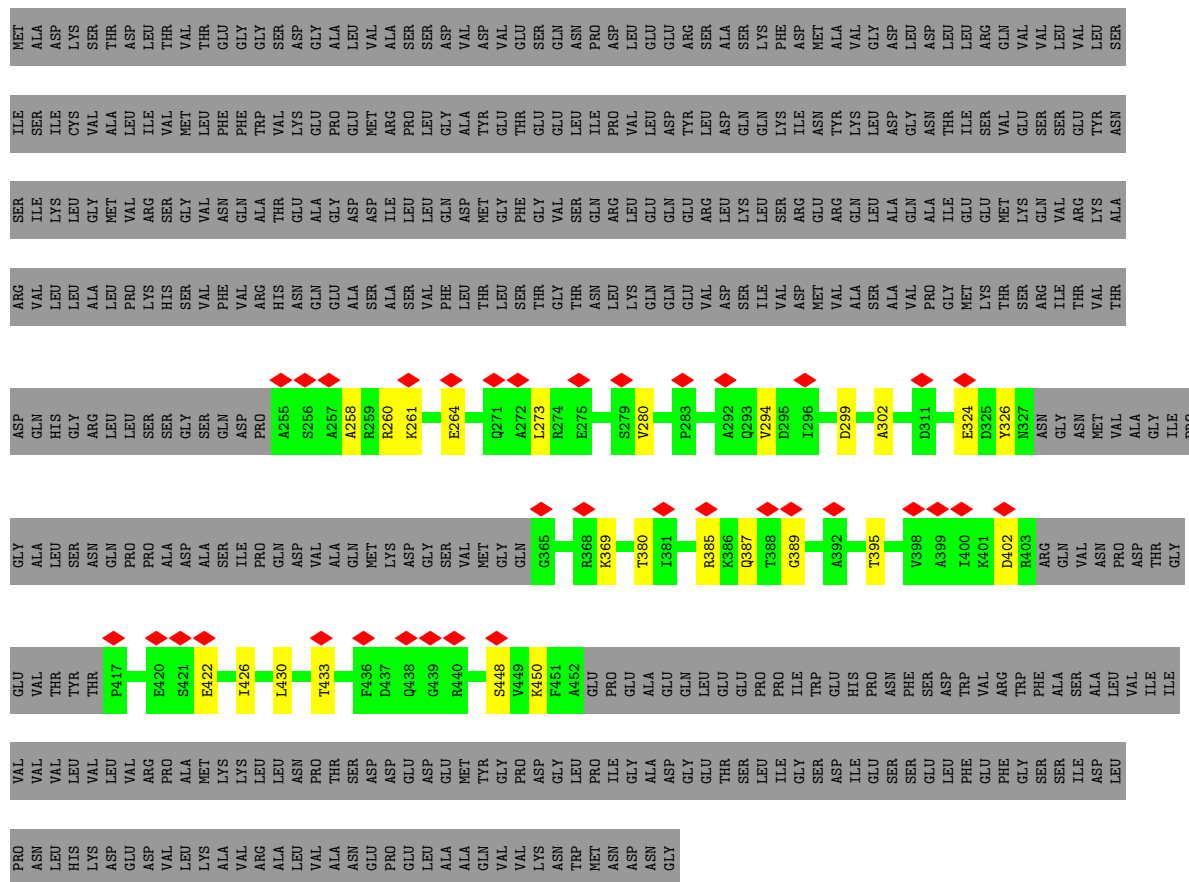


- Molecule 2: Flagellar M-ring protein

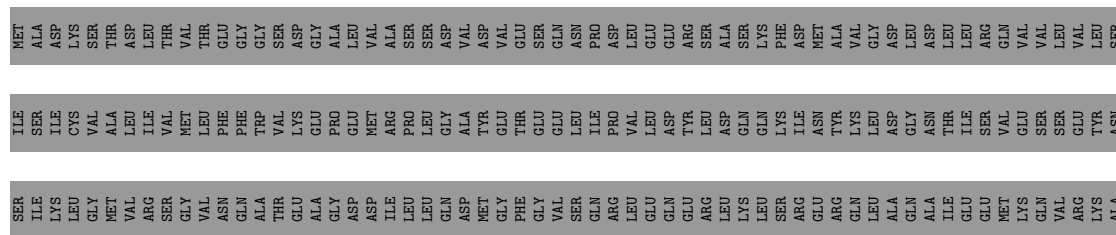




• Molecule 2: Flagellar M-ring protein

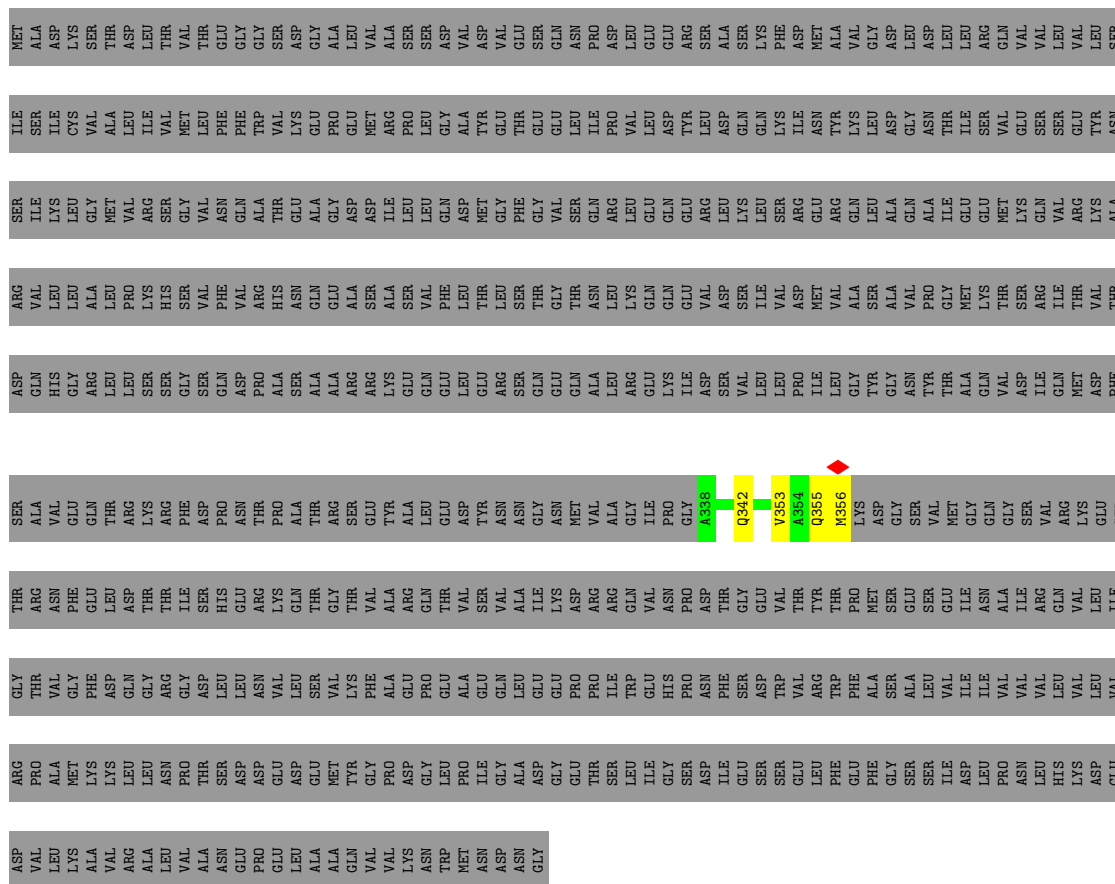


• Molecule 2: Flagellar M-ring protein



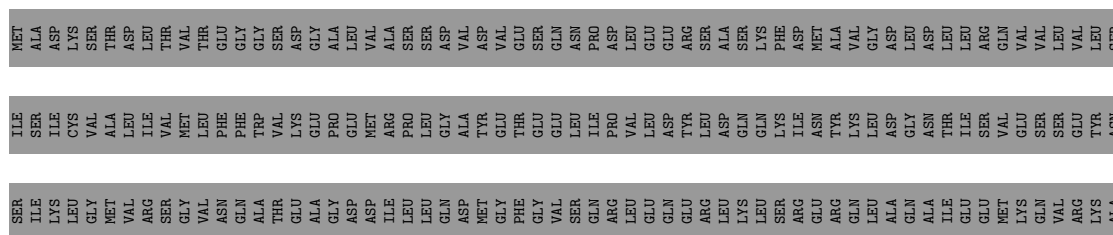
- Molecule 2: Flagellar M-ring protein

Chain AA: 97%



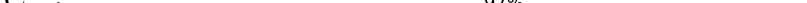
- Molecule 2: Flagellar M-ring protein

Chain AB: 97%



[illegible]

- Molecule 2: Flagellar M-ring protein

Chain AC:  97%

[illegible]

- Molecule 2: Flagellar M-ring protein

97%

[illegible]Chain AE:

97%

[illegible]

[illegible]

- Molecule 2: Flagellar M-ring protein

Chain AH: .. 98%

[illegible]

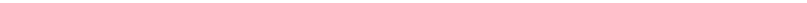
- Molecule 2: Flagellar M-ring protein

Chain AI: 98%

NET	ASP	ASP	LYS	SER	THR	ASP	LEU	THR	THR	THR	GLU	GLY	GLY	SER	SER	GLY	ALA	LEU	VAL	ALA	ALA	SER	SER	ASP	VAL	ASP	ASP	GLU	GLU	GLY	ARG	SER	ALA	ALA	VAL	VAL	LEU	LEU	ARG	GLN	VAL	VAL	LEU	VAL	LEU	SER
-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----

[illegible]

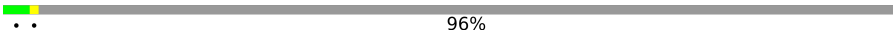
- Molecule 2: Flagellar M-ring protein

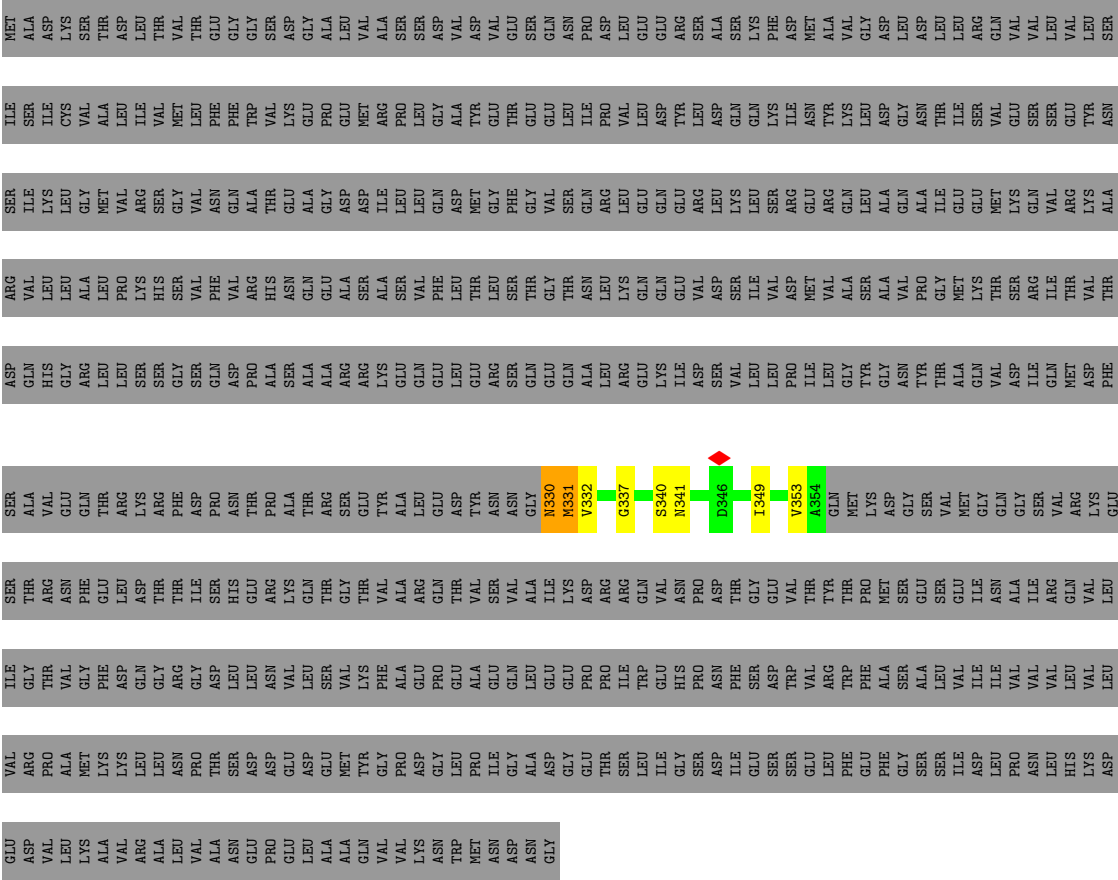
Chain AJ:  96%

[illegible]

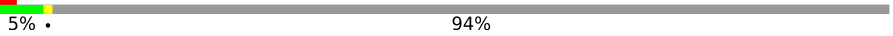
ILE ASP
LEU PRO
ASN
LEU
HIS
LYS
ASP
GLU
ASP
VAL
LEU
LYS
ALA
VAL
ARG
ALA
LEU
VAL
ASN
GLU
PRO
GLU
LEU
ALA

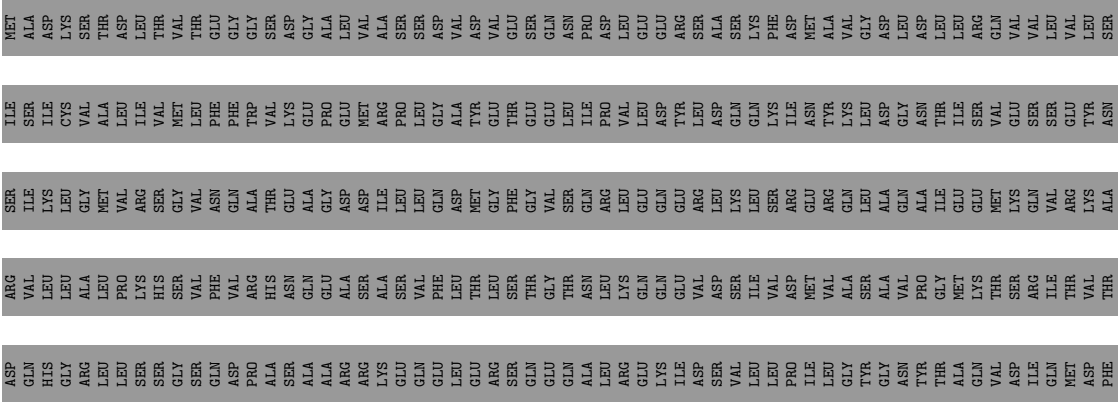
● Molecule 2: Flagellar M-ring protein

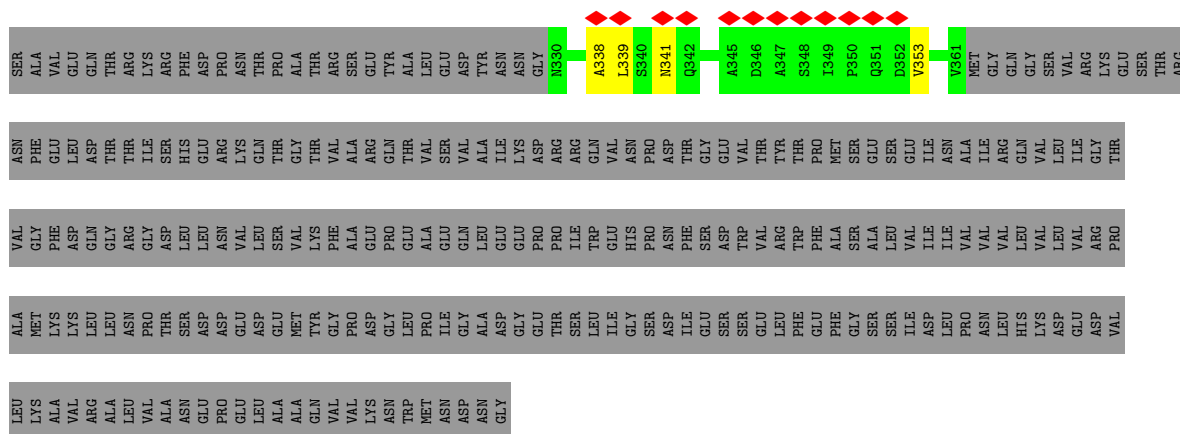
Chain AK:  96%



● Molecule 2: Flagellar M-ring protein

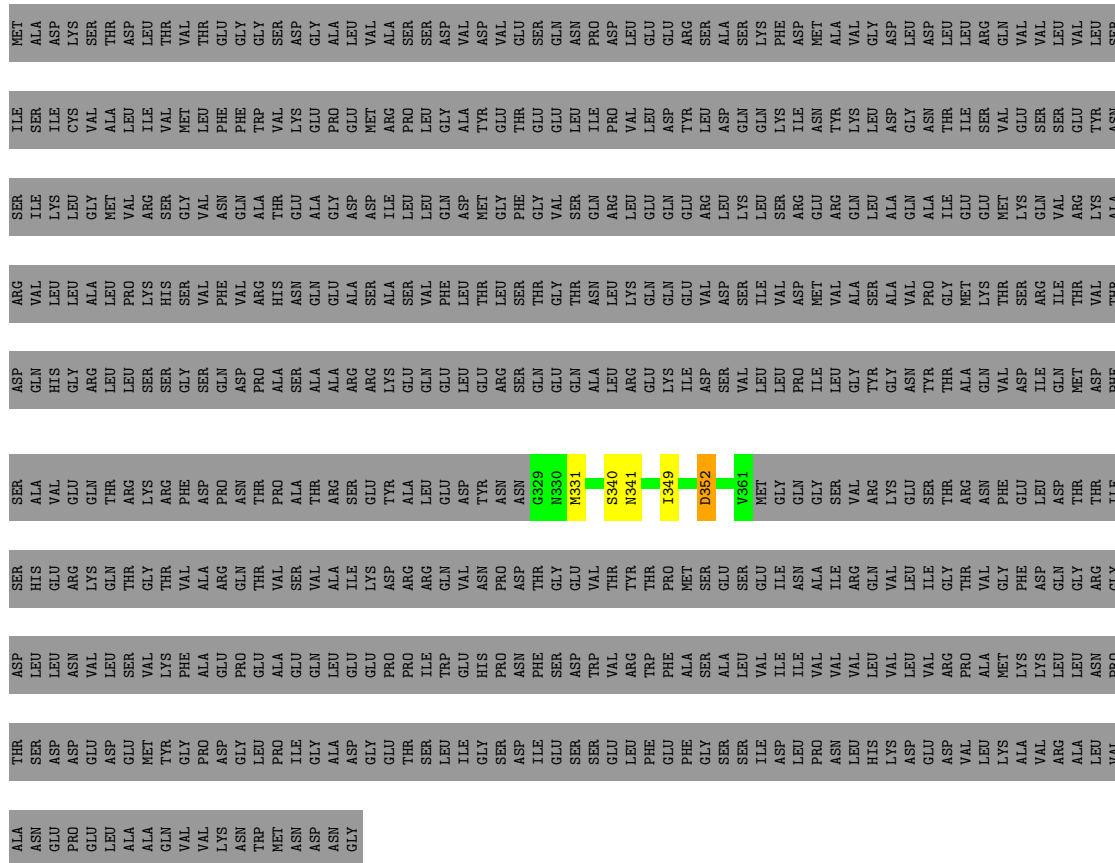
Chain AL:  5%



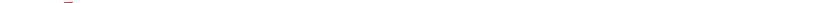


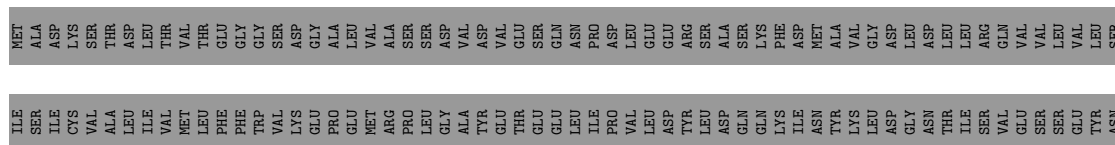
- Molecule 2: Flagellar M-ring protein

Chain AM: 5% . 94%



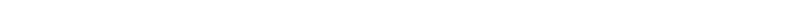
- Molecule 2: Flagellar M-ring protein

Chain AN:  5% 94%



[illegible]

- Molecule 2: Flagellar M-ring protein

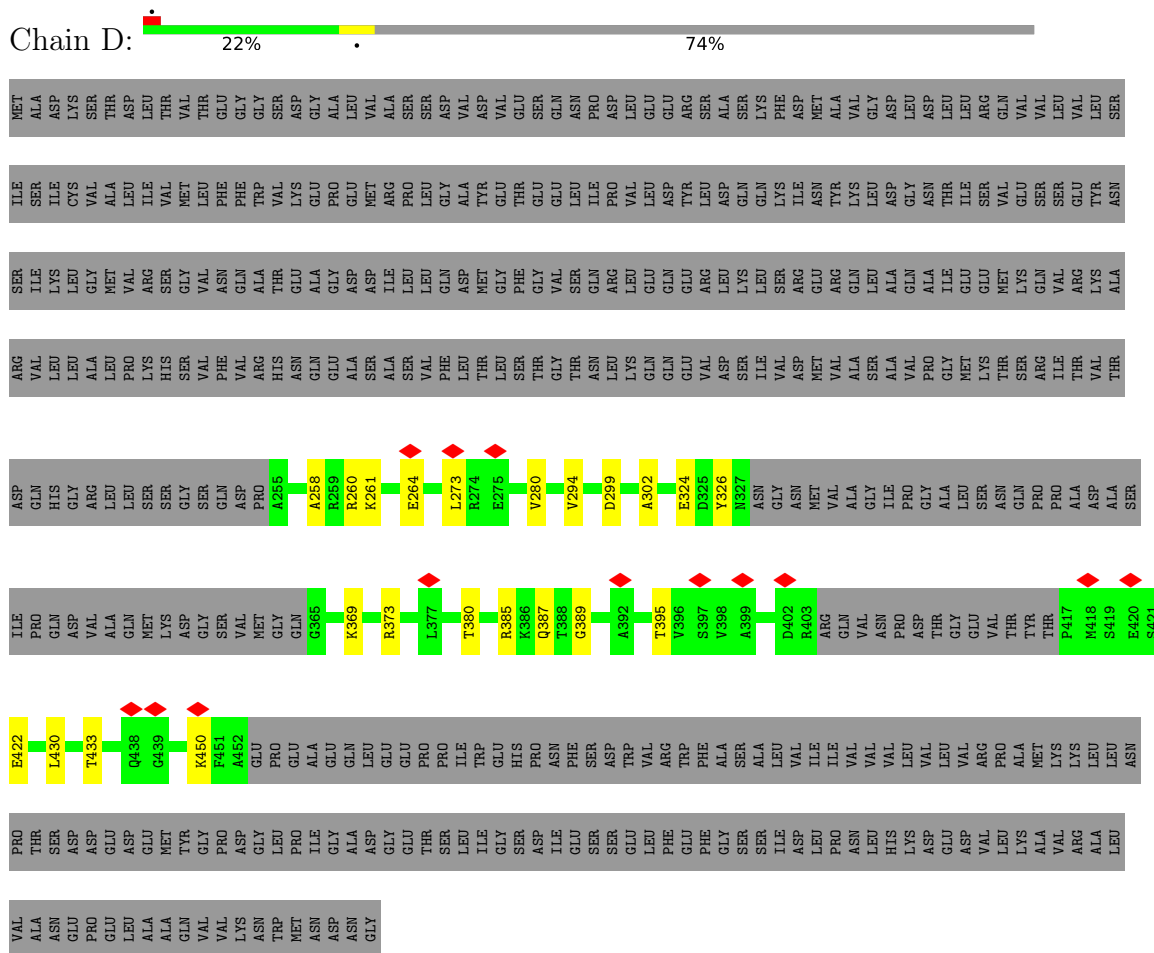
Chain AO:  94%

[illegible]

Chain B: 22% . 74%



- Molecule 2: Flagellar M-ring protein

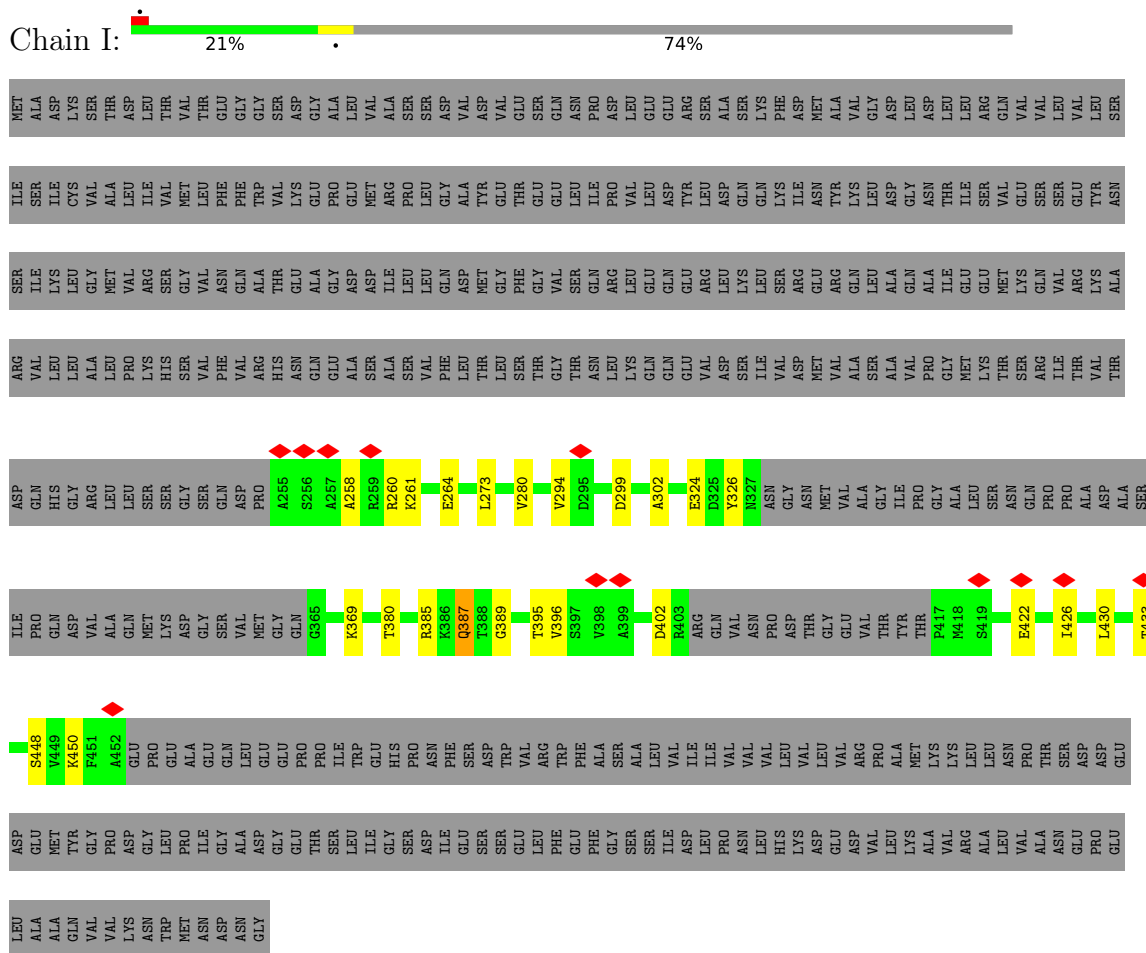


- Molecule 2: Flagellar M-ring protein



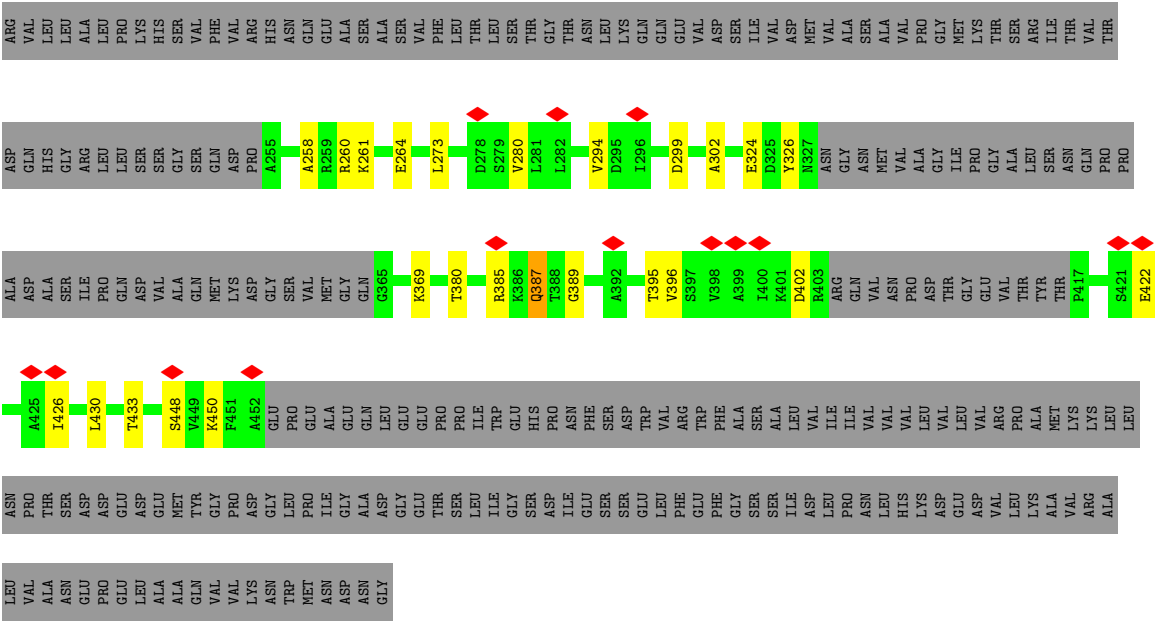


- Molecule 2: Flagellar M-ring protein

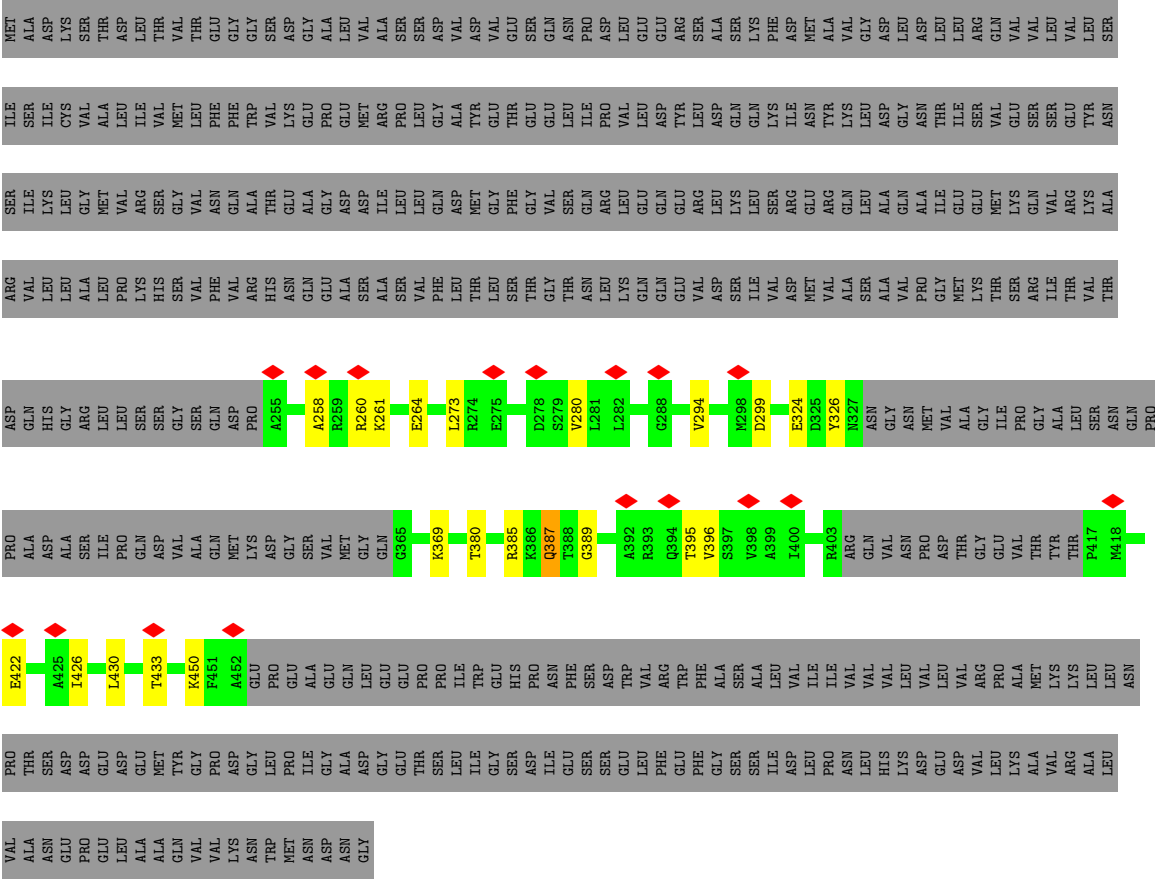


- Molecule 2: Flagellar M-ring protein

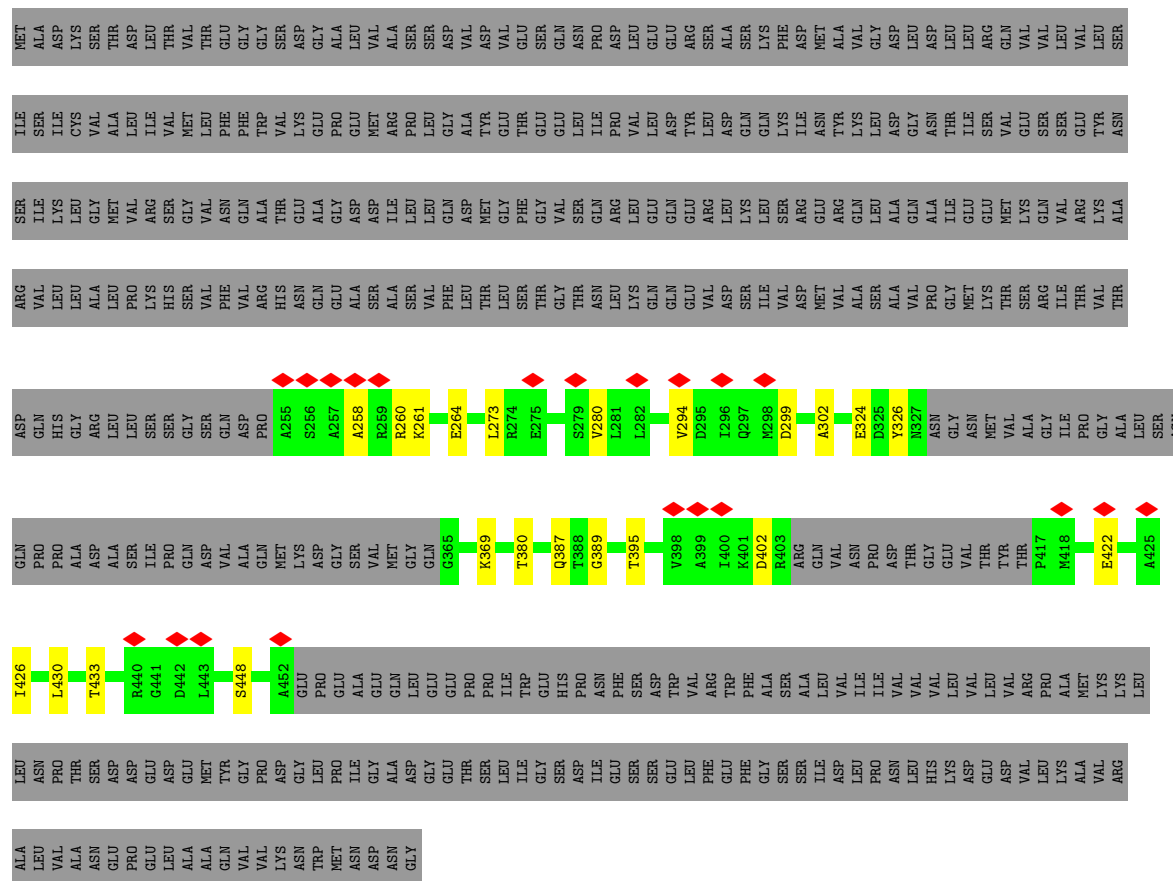




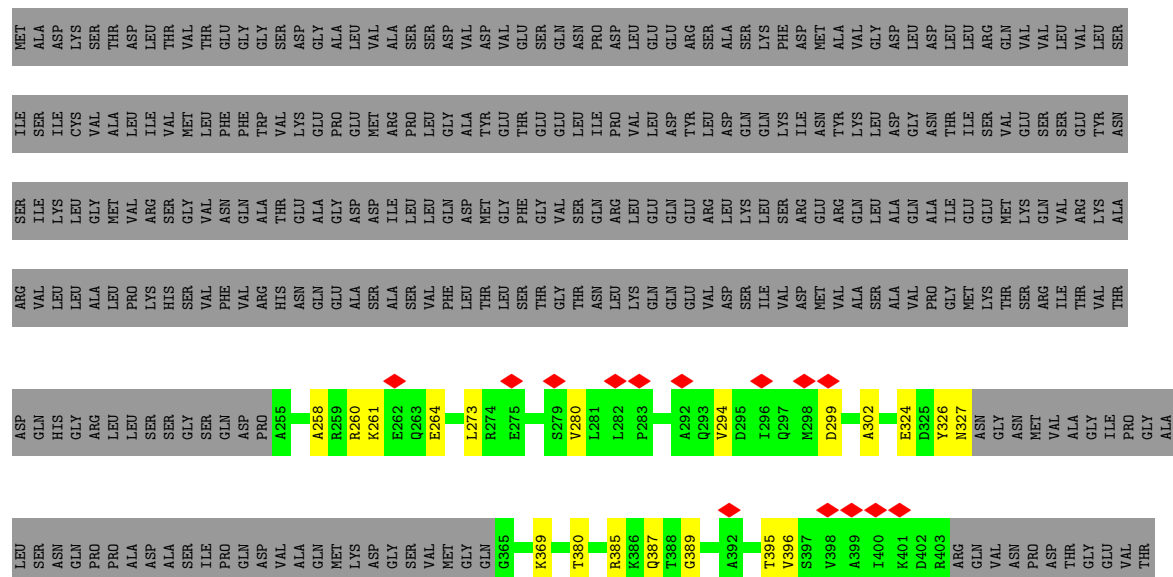
• Molecule 2: Flagellar M-ring protein



• Molecule 2: Flagellar M-ring protein



- Molecule 2: Flagellar M-ring protein



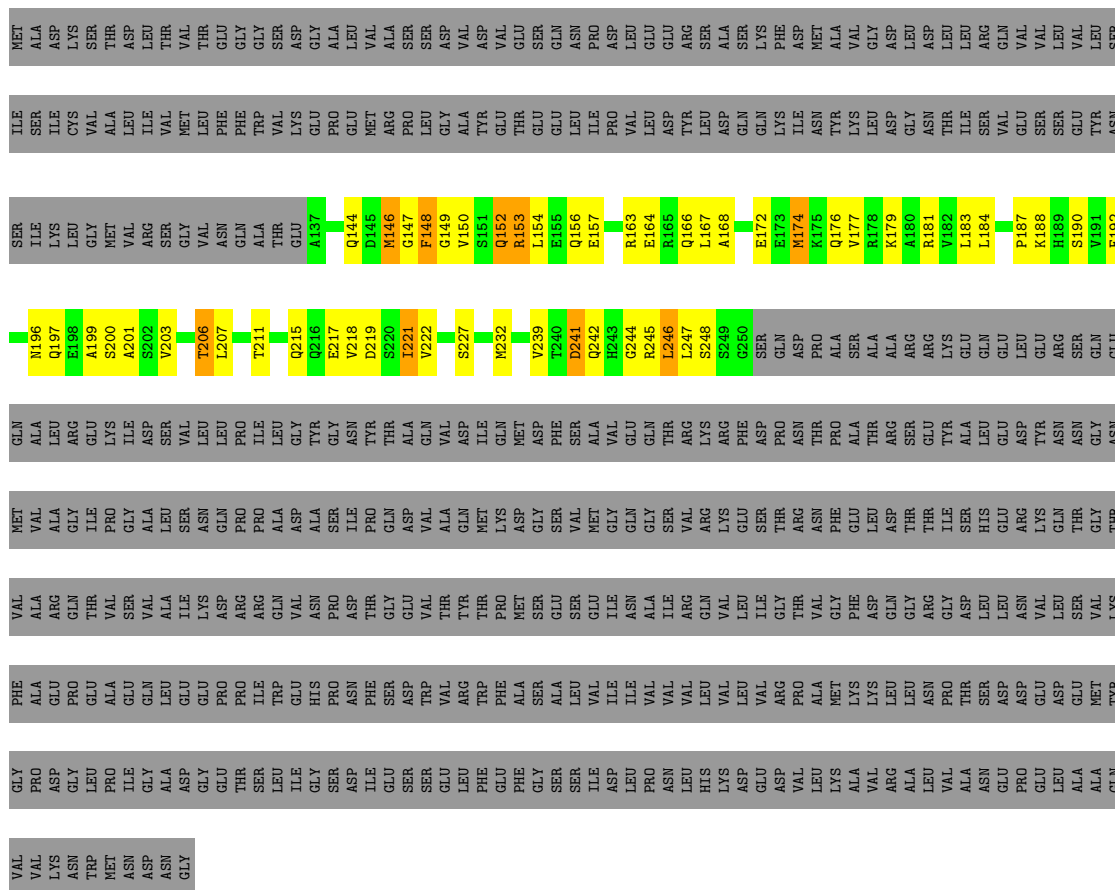


ARG	VAL	VAL	ARG	SER	ILE	ILE	MET
VAL	LEU	LEU	LEU	ILE	SER	ILE	ALA
LEU	LEU	LEU	VAL	LYS	CYS	ILE	LYS
ALA	ALA	GLY	GLY	VAL	VAL	VAL	SER
LEU	LEU	MET	MET	ALA	ALA	THR	THR
PRO	PRO	VAL	VAL	VAL	LEU	ASP	ASP
LYS	LYS	ARG	ARG	ILE	LEU	LEU	LEU
HIS	HIS	SER	SER	VAL	THR	THR	THR
SER	SER	GLY	GLY	MET	MET	VAL	VAL
VAL	VAL	ASN	ASN	LEU	THR	THR	THR
PHE	PHE	GLN	PHE	GLY	PHE	GLY	GLY
VAL	VAL	ALA	TRP	TRP	TRP	GLY	GLY
ARG	ARG	ALA	VAL	VAL	VAL	SER	SER
HIS	HIS	GLU	LYS	LYS	GLY	GLY	GLY
ASN	GLN	ALA	GLY	PRO	ALA	ALA	ALA
GLY	GLY	GLY	PRO	GLY	LEU	LEU	LEU
ALA	ALA	ASP	GLY	ASP	MET	VAL	VAL
SER	SER	ASP	ASP	ASP	GLY	VAL	VAL
ALA	ALA	ILE	ILE	ILE	ARG	ALA	ALA
SER	SER	LEU	LEU	PRO	PRO	ALA	ALA
VAL	VAL	LEU	LEU	LEU	LEU	SER	SER
PHE	PHE	GLN	GLN	GLY	GLY	ASP	ASP
LEU	LEU	ASP	ASP	ALA	ALA	VAL	VAL
THR	THR	MET	TRP	TYR	TYR	ASP	ASP
LEU	LEU	GLY	GLY	GLY	GLY	VAL	VAL
THR	THR	PHE	PHE	THR	THR	GLU	GLU
THR	THR	GLY	GLY	GLY	GLY	SER	SER
GLY	GLY	VAL	VAL	VAL	GLU	GLN	GLN
THR	THR	SER	SER	SER	LEU	ASN	ASN
ASN	ASN	GLN	GLN	ILE	ILE	PRO	PRO
LEU	LEU	ARG	ARG	PRO	PRO	ASP	ASP
LYS	LYS	LEU	LEU	VAL	VAL	LEU	LEU
GLN	GLN	GLY	GLY	LEU	LEU	GLY	GLY
GLN	GLN	GLN	ASP	ASP	GLY	GLY	GLY
GLY	GLY	GLY	TYR	TYR	ARG	ARG	ARG
VAL	VAL	ARG	LEU	LEU	LEU	SER	SER
ASP	ASP	LEU	LEU	GLN	GLN	ALA	ALA
SER	SER	LYS	LYS	ILE	ILE	LYS	LYS
ILE	ILE	LEU	SER	LYS	LYS	PHE	PHE
VAL	VAL	ARG	ARG	ILE	ILE	ASP	ASP
ASP	ASP	ARG	GLY	ASN	ASN	MET	MET
MET	MET	GLY	VAL	ALA	ALA	ALA	ALA
VAL	VAL	ARG	TYR	TYR	VAL	VAL	VAL
ALA	ALA	GLN	LEU	LEU	GLY	GLY	GLY
SER	SER	LEU	ASP	ASP	ASP	ASP	ASP
ALA	ALA	ALA	GLN	GLY	LEU	LEU	LEU
VAL	VAL	GLN	GLY	GLY	GLY	GLY	GLY
PRO	PRO	GLN	ASP	ASP	GLY	GLY	GLY
GLY	GLY	ALA	GLY	GLY	THR	THR	THR
THR	THR	VAL	VAL	VAL	VAL	VAL	VAL
SER	SER	GLN	GLN	GLN	GLN	GLN	GLN
ARG	ARG	GLY	GLY	GLY	GLY	GLY	GLY
ILE	ILE	VAL	VAL	VAL	VAL	VAL	VAL
THR	THR	ARG	ARG	ARG	ARG	ARG	ARG
THR	THR	VAL	VAL	VAL	VAL	VAL	VAL
ILE	ILE	THR	THR	THR	THR	THR	THR
VAL	VAL	GLY	GLY	GLY	GLY	GLY	GLY
VAL	VAL	ASP	ASP	ASP	ASP	ASP	ASP
THR	THR	ALA	ALA	ALA	ALA	ALA	ALA
THR	THR	ASN	ASN	ASN	ASN	ASN	ASN



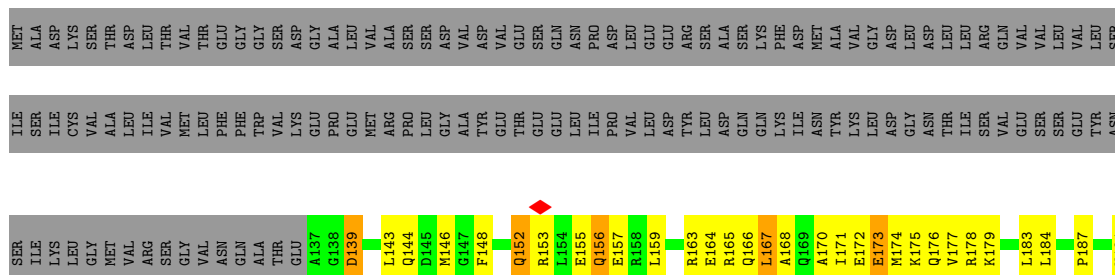
- Molecule 2: Flagellar M-ring protein

Chain S: 11% 8% 80%



- Molecule 2: Flagellar M-ring protein

Chain T: 10% 8% 80%



F192	V193	R194	H195	N196	A199	S200	A201	V203	T206	L207	S208	T209	G210	T211	Q216	E217	V218	D219	S220	S227	G231	M232	R236	V239	T240	D241	G244	R245	L246	L247	G250	SER	GLN	ASP	PRO	ALA	SER	ALA	ALA	ARG	ARG	GLY	LYS	GLU	GLN	GLU	LEU	GLN	ASP	GLY	TYR	ASN		
GLN	GLU	GLN	ALA	LEU	ARG	GLU	LYS	ILE	ASP	SER	VAL	LEU	LEU	PRO	ILE	ALA	GLY	THR	ALA	VAL	ASP	ILE	GLY	PHE	SER	ALA	VAL	GLU	GLN	ARG	LYS	ARG	PHE	ASP	PRO	ASN	THR	PRO	ALA	SER	THR	ALA	THR	ILE	LYS	ALA	GLU	GLN	LEU	GLU	ASP	TYR	ASN	
GLY	ASN	MET	VAL	ALA	GLY	ILE	PRO	GLY	ALA	LEU	ASN	GLN	ASP	PRO	SER	ILE	PRO	GLN	ASP	VAL	ALA	GLN	SER	VAL	MET	GLY	GLY	GLN	GLY	SER	VAL	LYS	SER	THR	ARG	ASN	THR	PHE	GLY	GLU	THR	ALA	THR	ILE	LYS	ALA	GLU	GLN	LEU	GLU	ASP	TYR	ASN	
GLY	THR	VAL	ALA	ARG	GLN	THR	VAL	SER	VAL	ILE	LYS	ASP	ARG	ARG	PRO	ASP	THR	GLY	GLU	VAL	THR	TYR	GLU	SER	GLU	GLY	ILE	ASN	ILE	ARG	VAL	GLN	VAL	GLY	THR	ARG	VAL	GLY	PHE	GLU	THR	ALA	THR	ILE	LYS	ALA	GLU	GLN	LEU	GLU	ASP	TYR	ASN	
VAL	LYS	PHE	ALA	GLU	PRO	GLU	ALA	GLN	LEU	GLU	PRO	PRO	TRP	GLY	HIS	ASN	ASN	PHE	ASP	TRP	VAL	ARG	ALA	LEU	VAL	ILE	VAL	VAL	VAL	VAL	LEU	VAL	ARG	PRO	ALA	LYS	MET	GLY	PHE	GLY	THR	ASN	THR	GLY	ASP	ASP	GLU	VAL	GLU	GLU	ASP	GLY	ALA	
MET	TYR	GLY	PRO	ASP	LEU	GLY	PRO	GLY	GLY	GLY	THR	SER	LEU	ILE	SER	ASP	ILE	GLY	SER	SER	GLU	LEU	SER	SER	ILE	ASP	PHE	GLY	ASN	PRO	LEU	LYS	ASP	VAL	LEU	LYS	ALA	ALA	VAL	GLY	THR	ASN	THR	VAL	GLY	ASP	GLY	GLU	GLU	GLU	GLU	GLU	GLU	GLU
ALA	GLN	VAL	VAL	LYS	ASN	TRP	MET	ASP	ASN	GLY																																												

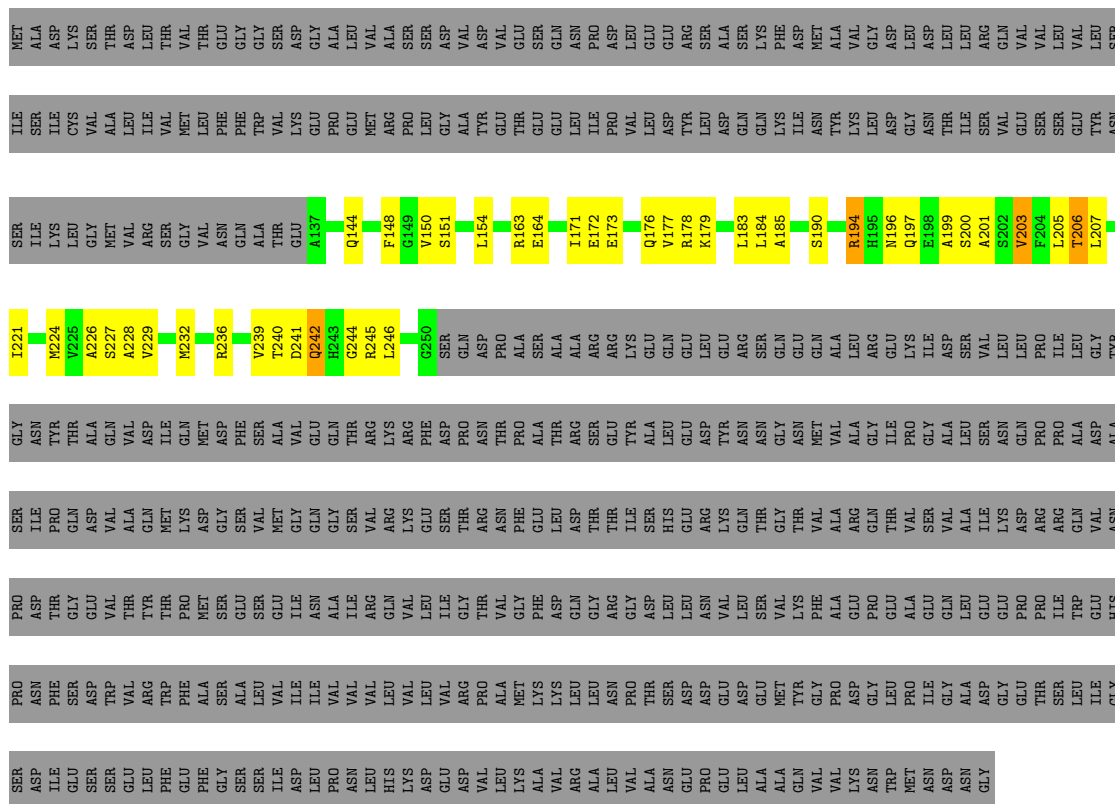
• Molecule 2: Flagellar M-ring protein

Chain U: 12% 7% . 80%

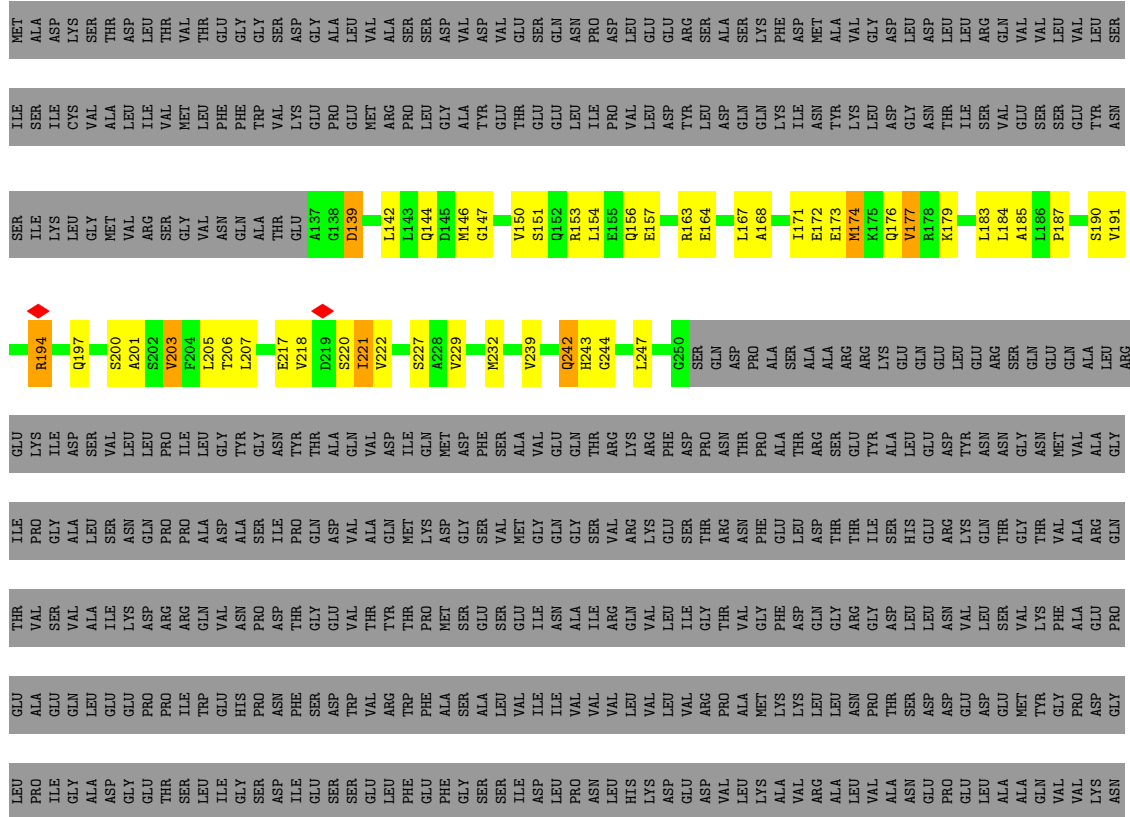
MET	ALA	ASP	LYS	THR	ASP	LEU	THR	VAL	THR	GLY	GLY	SER	GLY	ALA	LEU	VAL	ALA	SER	GLY	ASP	VAL	ASP	ASP	PRO	ASP	GLU	GLY	GLN	GLY	ASN	PRO	ILE	THR	LYS	LEU	ARG	GLN	VAL	VAL	VAL	VAL	LEU	VAL	VAL	SER				
ILE	SER	ILE	CYS	VAL	THR	ALA	ILE	VAL	VAL	MET	PHE	TRP	VAL	PRO	GLU	GLY	MET	ARG	PRO	LEU	GLY	ALA	TYR	ILE	PRO	LEU	VAL	GLY	GLU	LEU	ILE	THR	LYS	LEU	SER	VAL	GLY	THR	GLN	SER	SER	TYR	ASN						
SER	ILE	LEU	LEU	MET	VAL	ARG	SER	GLY	VAL	ASN	ALA	GLU	G137	G138	D139	Q144	F148	E155	L159	R163	E164	L167	A168	I171	E172	E173	M174	K175	Q176	V177	R178	K179	A180	L183	L184	A185	L186	P187	S190	V193	R194	H195	N196	Q197	E198	A199			
S200	A201	S202	V203	L207	I221	V222	D223	M224	S227	M232	T237	T238	V239	T240	Q242	R245	S248	S249	G250	SER	GLN	ASP	PRO	THR	PRO	ALA	SER	ALA	ARG	ARG	LYS	GLU	GLN	GLU	GLU	GLU	ASP	VAL	ALA	LEU	GLU	GLU	GLU	GLU	GLU	GLU	GLU		
PRO	ILE	GLY	TYR	ASN	TYR	THR	ALA	VAL	ILE	GLN	ASP	PHE	VAL	ALA	GLY	THR	ARG	LYS	ARG	PHE	ASP	PRO	ASN	THR	PRO	ALA	THR	ALA	ARG	SER	GLU	ALA	THR	ASN	ASN	GLY	GLY	THR	ILE	PRO	ILE	GLY	GLY	GLY	GLY	GLY	GLN		
PRO	PRO	ALA	ASP	ALA	PRO	ILE	PRO	GLN	ASP	GLY	THR	VAL	GLN	VAL	GLY	THR	ARG	ARG	LYS	GLY	GLY	THR	ASN	THR	PHE	GLY	LEU	THR	ALA	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	
ARG	ARG	GLN	VAL	ASN	PRO	ASP	THR	THR	THR	PRO	PHO	MET	GLY	SER	GLY	VAL	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	
PRO	ILE	TRP	GLU	HIS	PRO	ASN	PHE	GLY	VAL	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR
THR	SER	ILE	GLY	SER	ASP	ILE	GLY	SER	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR

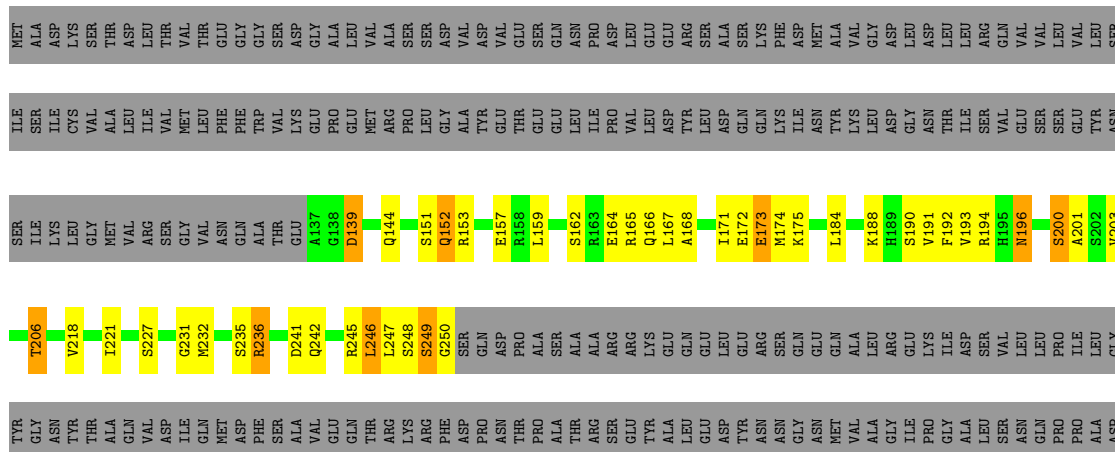
• Molecule 2: Flagellar M-ring protein

Chain V: 12% 7% . 80%



- Molecule 2: Flagellar M-ring protein









[illegible]

Chain d: 9% 7% 82%

[illegible]

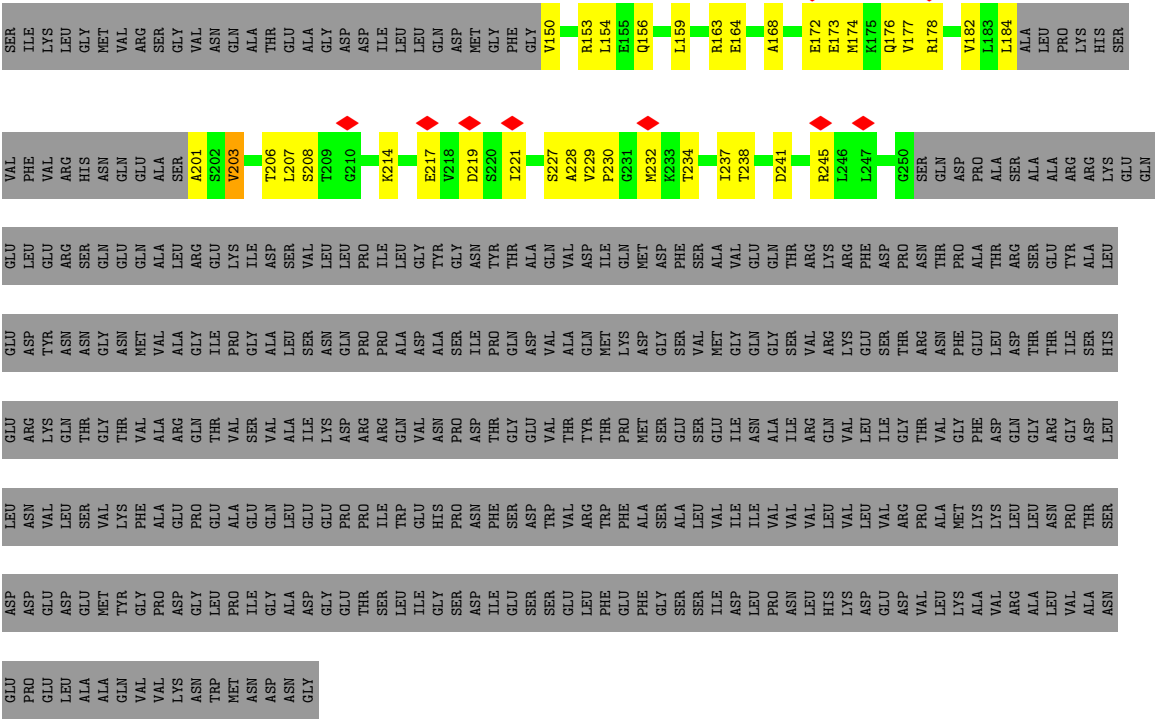
[illegible]

- Molecule 2: Flagellar M-ring protein

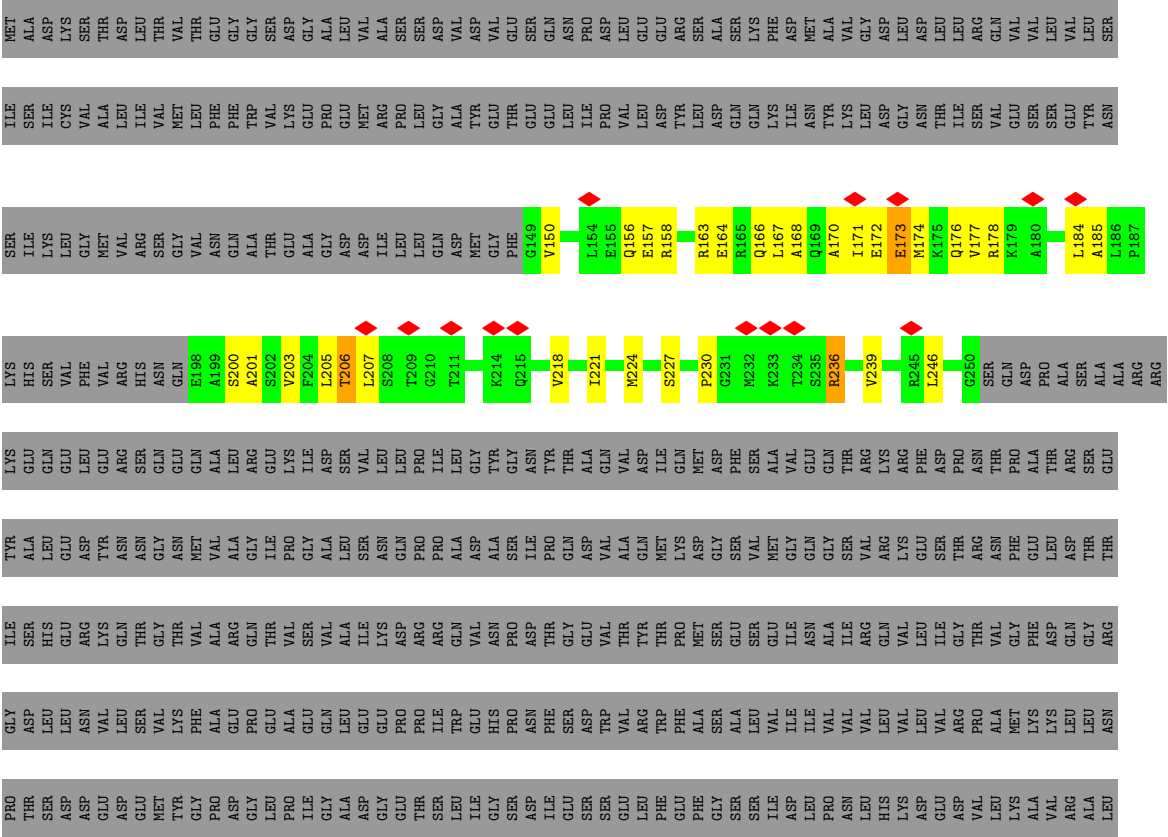
[illegible]

- Molecule 2: Flagellar M-ring protein

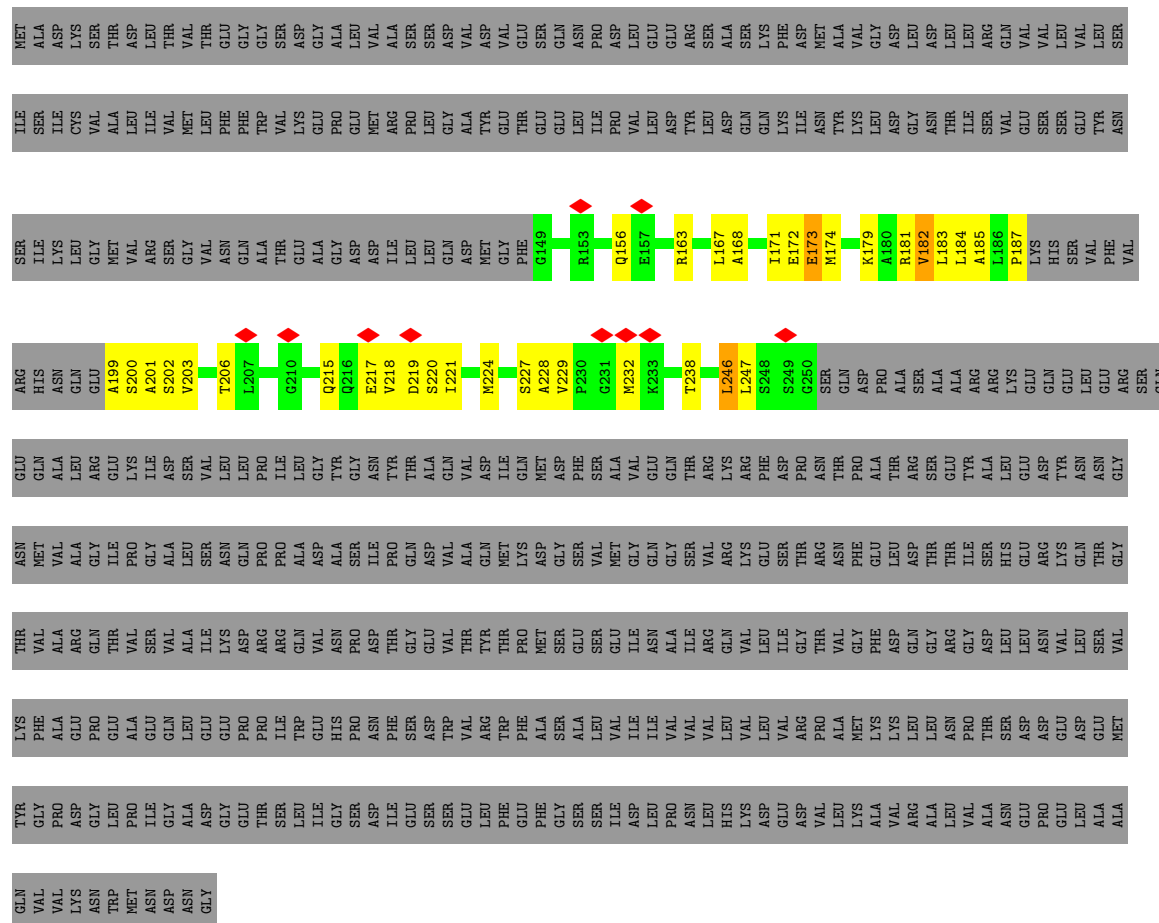
[illegible]



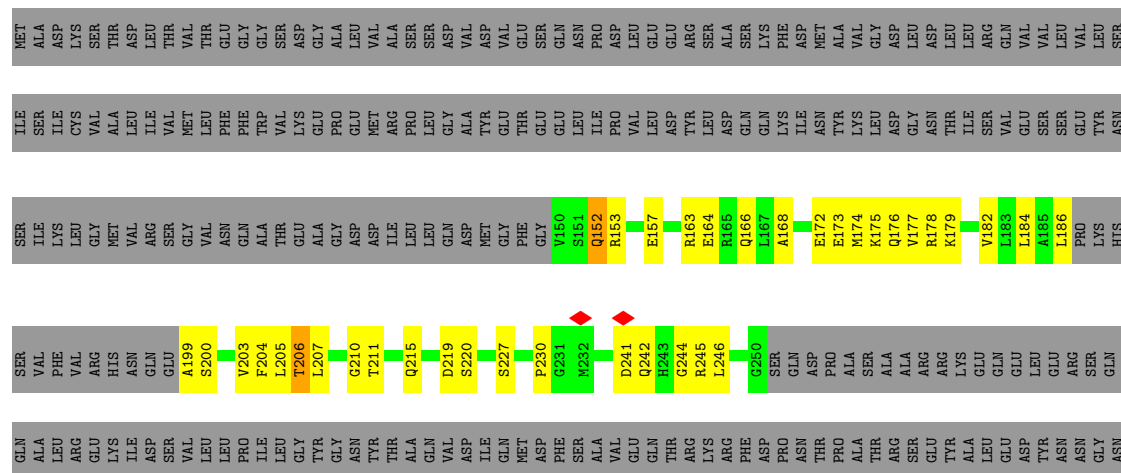
● Molecule 2: Flagellar M-ring protein



Chain h: 10% 6% 84%

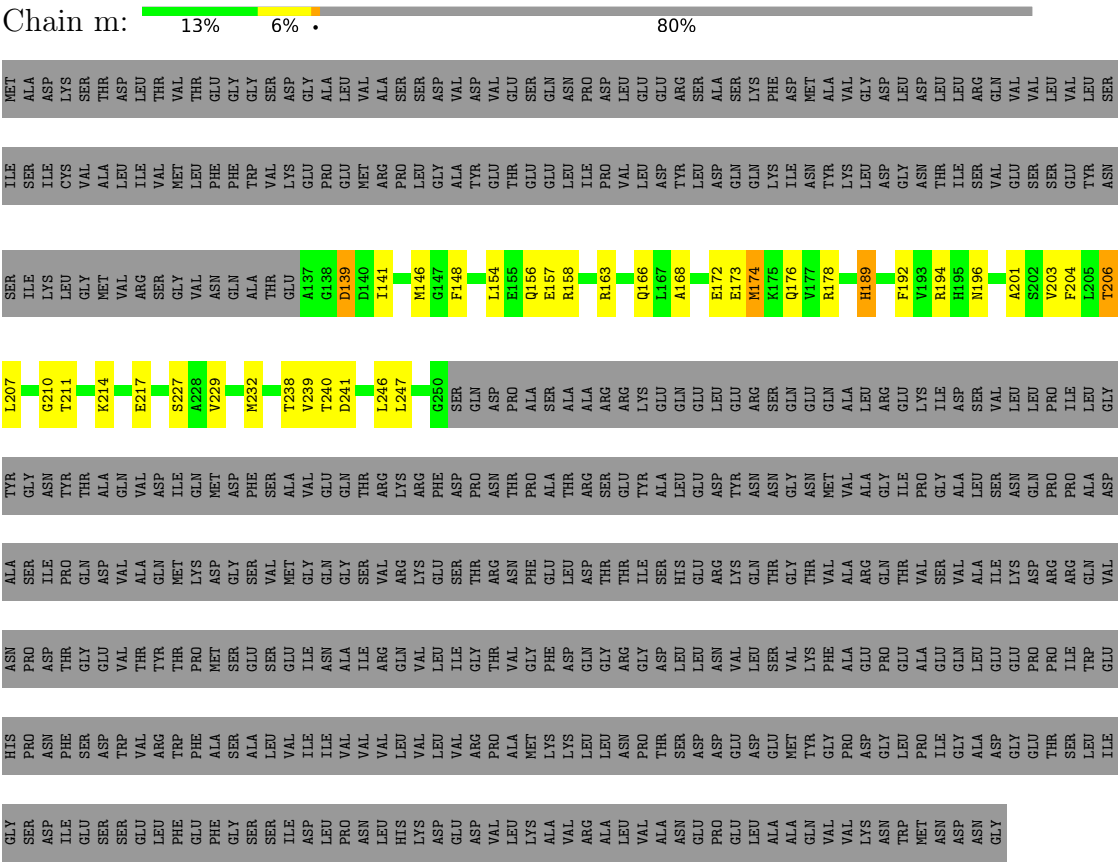


Chain i: 9% 6% 85%

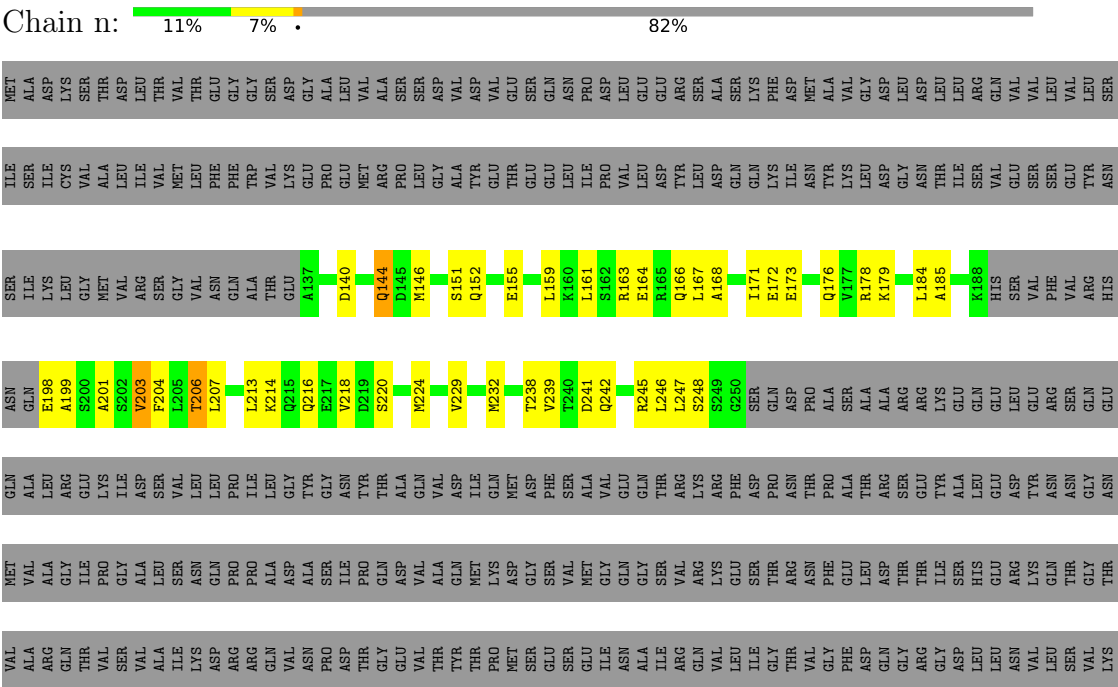


MET	ALA	ASP	LYS	THR	ASP	LEU	THR	VAL	THR	GLU	GLY	GLY	GLY	SER	SER	ASP	GLY	ALA	ALA	LEU	VAL	VAL	ASP	ASP	ASP	GLU	GLY	SER	GLN	ASN	PRO	PRO	ASP	ASP	LEU	LEU	GLU	GLU	ARG	ARG	SER	SER	ALA	ALA	LYS	PHE	ASP	MET	MET	VAL	VAL	ALA	ALA	VAL	GLY	ASP	LEU	LEU	LEU	LEU	ARG	GLN	VAL	VAL	VAL	LEU	LEU	VAL	VAL	LEU	LEU	SER
-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----

● Molecule 2: Flagellar M-ring protein

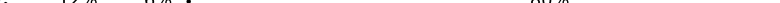


● Molecule 2: Flagellar M-ring protein



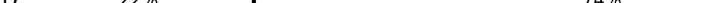
VAL	VAL	LYS	ASN	TRP	MET	ASN	ASP	ASN	GLY	GLY	GLU	GLU	GLU	GLU	GLU	PRO	PRO	ILE	GLU	HIS	PRO	ASN	PHE	SER	ASP	TRP	VAL	ARG	TRP	PHE	ALA	SER	ALA	LEU	ILE	VAL	VAL	VAL	LEU	VAL	LEU	LEU	VAL	VAL	ARG	PRO	ALA	MET	LYS	LYS	LEU	LEU	ASN	PRO	THR	ASP	ASP	GLY	ALA	GLY	GLU	LEU	GLU	GLY	PRO	GLN	PHE																		
GLY	PRO	ASP	GLY	LEU	PRO	ILE	ASP	ALA	GLY	GLY	GLU	GLU	GLU	GLU	GLU	THR	SER	ILE	GLY	SER	ASP	ILE	GLY	SER	SER	GLY	LEU	PHE	GLY	PHE	SER	SER	ILE	ASP	LEU	PRO	ASN	LEU	HIS	LYS	LEU	VAL	GLY	ASP	VAL	ARG	LEU	LYS	LEU	ASN	PRO	THR	ASP	ASP	GLY	ALA	GLY	GLU	LEU	GLU	GLY	PRO	GLN	MET	TRP	VAL	ARG	TRP	PHE	ALA	GLY	PRO	ASN	ILE	GLU	GLU	GLU	GLU	GLU	PRO	PRO	GLN	GLY	ALA	PHE

- Molecule 2: Flagellar M-ring protein

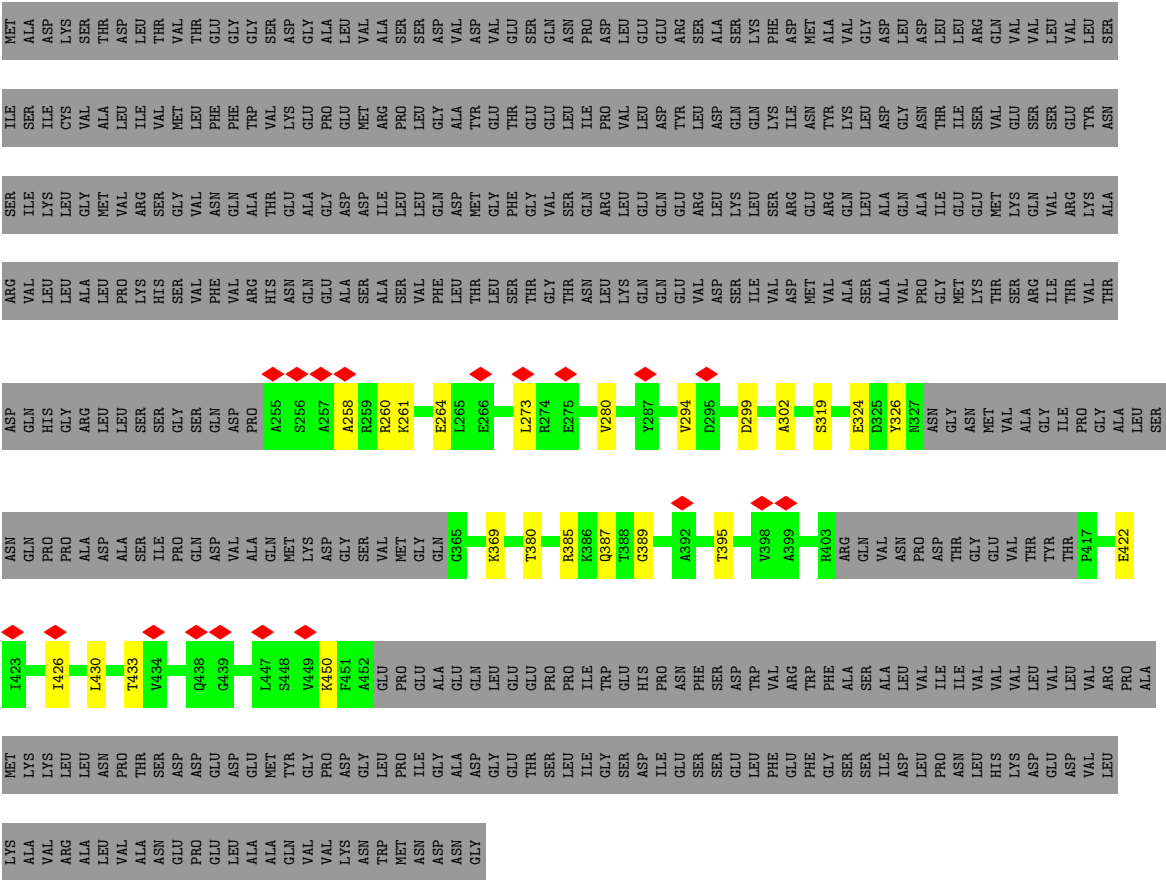
Chain o:  12% 6% 80%

GLY	GLU	LYS										ASN	LEU	L207	SER	ILE	MET
	PRO	PRO	ARG	ASN	GLN	ASP	ALA	THR	GLY	GLY	GLY	GLN	ASP	ILE			
THR	THR	ILE	ARG	PRO	GLN	ALA	ASP	ALA	THR	GLY	ASN	GLY	G210	ILE	SER	ILE	
SER	LEU	SER	TRP	GLN	ALA	ASP	ALA	THR	GLY	GLY	THR	GLY	T211	LEU	GLY	CYS	
ILE	GLU	ILE	GLU	VAL	ASN	ALA	THR	GLY	GLY	GLY	GLY	GLY	T212	VAL	MET	ALA	
GLY	PRO	GLY	HIS	ASN	ASN	ALA	THR	GLY	GLY	GLY	GLY	GLY	T213	VAL	VAL	LEU	
SER	SER	SER	PRO	PRO	PRO	ASN	SER	GLY	GLY	GLY	GLY	GLY	V218	ARG	ARG	ASP	
ASP	ASN	ASP	ASN	ASP	ASP	ILE	ASN	THR	THR	THR	THR	THR	M224	SER	SER	THR	
ILE	ILE	PHE	THR	THR	GLY	GLN	GLN	THR	THR	THR	THR	THR	V225	GLY	VAL	GLY	
SER	GLU	GLU	SER	GLY	ASP	GLU	VAL	ALA	ALA	ALA	ALA	ALA	A226	ASN	PHE	GLY	
SER	TRP	VAL	TRP	VAL	VAL	VAL	VAL	GLN	GLN	GLN	GLN	GLN	V229	ALA	PHE	GLY	
GLU	VAL	VAL	ARG	THR	THR	GLN	GLN	ASP	ASP	ASP	ASP	ASP	M232	ALA	TRP	GLY	
PHE	TRP	PHE	TRP	THR	THR	MET	THR	ILE	ILE	ILE	ILE	ILE	K233	GLU	LYS	ASP	
GLU	PHE	ALA	ALA	PRO	PRO	ASN	THR	LYS	GLN	GLN	GLN	GLN	M234	GLN	GLY	GLY	
PHE	SER	GLY	SER	MET	MET	ASP	ASP	ASP	MET	MET	MET	MET	T234	ASP	GLY	LEU	
GLY	SER	GLY	ALA	SER	GLY	GLY	ASP	GLY	ASP	PHE	PHE	PHE	T237	ASP	MET	LEU	
SER	LEU	SER	ALA	SER	GLU	SER	GLY	GLU	GLY	THR	THR	THR	T238	GLY	VAL	VAL	
SER	VAL	ILE	VAL	SER	GLU	MET	ALA	GLY	VAL	SER	SER	SER	V239	ALA	ARG	ALA	
ASP	ILE	ASP	ILE	ILE	ILE	GLY	GLY	GLY	GLY	VAL	VAL	VAL	T242	LEU	SER	SER	
LEU	LEU	LEU	ILE	ASN	ASN	GLN	GLN	GLN	GLY	GLY	GLY	GLY	Q243	GLY	ASP	ASP	
PRO	VAL	VAL	VAL	ALA	ALA	GLY	GLY	GLY	GLY	GLN	GLN	GLN	Q244	ALA	VAL	VAL	
VAL	VAL	VAL	VAL	ILE	ILE	ILE	ILE	ILE	ILE	THR	THR	THR	L246	TYR	ASP	ASP	
LEU	VAL	VAL	ARG	ASN	ASN	ASN	ASN	ASN	ASN	THR	THR	THR	L247	GLY	ASP	GLY	
HIS	LEU	HIS	LEU	GLN	GLN	VAL	VAL	ARG	VAL	VAL	VAL	VAL	S248	THR	LEU	GLY	
LYS	VAL	VAL	VAL	VAL	VAL	LYS	VAL	LYS	ARG	LYS	ARG	ARG	S249	THR	VAL	THR	
ASP	LEU	VAL	LEU	LEU	LEU	GLY	LEU	GLY	PHE	VAL	PHE	PRO	T250	ALA	GLY	GLY	
GLU	VAL	VAL	VAL	ILE	ILE	SER	GLY	ASN	ASP	THR	THR	THR	G251	SER	ASP	GLY	
GLU	VAL	VAL	VAL	ARG	GLY	THR	THR	THR	THR	THR	THR	THR	G252	ALA	THR	THR	
ARG	ARG	ARG	LEU	GLN	GLN	ASP	LEU	ASP	ARG	ARG	ARG	ARG	G253	ALA	GLY	GLY	
LEU	LEU	LEU	LEU	ALA	ALA	THR	THR	THR	SER	SER	SER	SER	G254	ALA	THR	THR	
LEU	VAL	VAL	ASN	ASN	GLY	THR	GLY	GLY	GLY	GLY	GLY	GLY	G255	LYS	LYS	LYS	
VAL	VAL	VAL	GLY	GLY	ASP	ILE	ILE	ILE	ILE	ILE	ILE	ILE	I171	GLN	GLN	LYS	
ALA	ASN	ASN	ASP	LEU	LEU	SER	ASP	ASP	THR	THR	THR	THR	E172	LYS	PHE	PHE	
ASN	SER	SER	LEU	LEU	LEU	HIS	GLY	GLY	GLY	GLY	GLY	GLY	E173	ILE	ASN	ASN	
PRO	PRO	PRO	ASP	ASN	ASN	ARG	ASN	ASN	ASP	GLY	GLY	GLY	M174	ASN	MET	MET	
GLU	GLU	GLU	GLU	VAL	VAL	LYS	LYS	LYS	ASP	ASP	ASP	ASP	LEU	TYR	ALA	ALA	
LEU	LEU	LEU	ASP	VAL	VAL	GLN	GLN	GLN	THR	THR	THR	THR	V177	LYS	LYS	GLY	
ALA	ALA	ALA	GLY	ASP	ASP	ASN	ASN	ASN	ARG	ARG	ARG	ARG	L184	LEU	LEU	GLY	
ALA	ALA	ALA	MET	VAL	VAL	GLY	GLY	GLY	SER	SER	SER	SER	A185	ASP	ASP	GLY	
GLN	GLN	VAL	TYR	LYS	PHE	THR	THR	THR	ASN	ASN	ASN	ASN	GLY	ASN	LEU	LEU	
VAL	VAL	VAL	GLY	ALA	ALA	VAL	VAL	MET	GLN	GLN	GLN	GLN	F192	THR	THR	LEU	
LYS	VAL	VAL	ASP	VAL	VAL	ARG	ARG	ALA	ALA	ALA	ALA	ALA	V193	ILE	ILE	LEU	
ASN	ASN	GLY	PRO	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	R194	SER	ARG	ARG	
TRP	TRP	GLY	GLY	VAL	VAL	GLN	GLN	THR	THR	THR	THR	THR	Q197	VAL	GLN	GLN	
MET	MET	PRO	PRO	LEU	LEU	VAL	VAL	THR	THR	THR	THR	THR	GLY	GLY	GLY	VAL	
ASP	ASP	ILE	GLY	GLY	GLY	VAL	VAL	ALA	ALA	ALA	ALA	ALA	S200	SER	SER	VAL	
ASN	ASN	GLY	GLN	GLN	GLN	VAL	VAL	VAL	VAL	VAL	VAL	VAL	A201	GLY	GLY	VAL	
THR	THR	ALA	ALA	ALA	ALA	THR	THR	THR	THR	THR	THR	THR	T205	TYR	TYR	SER	

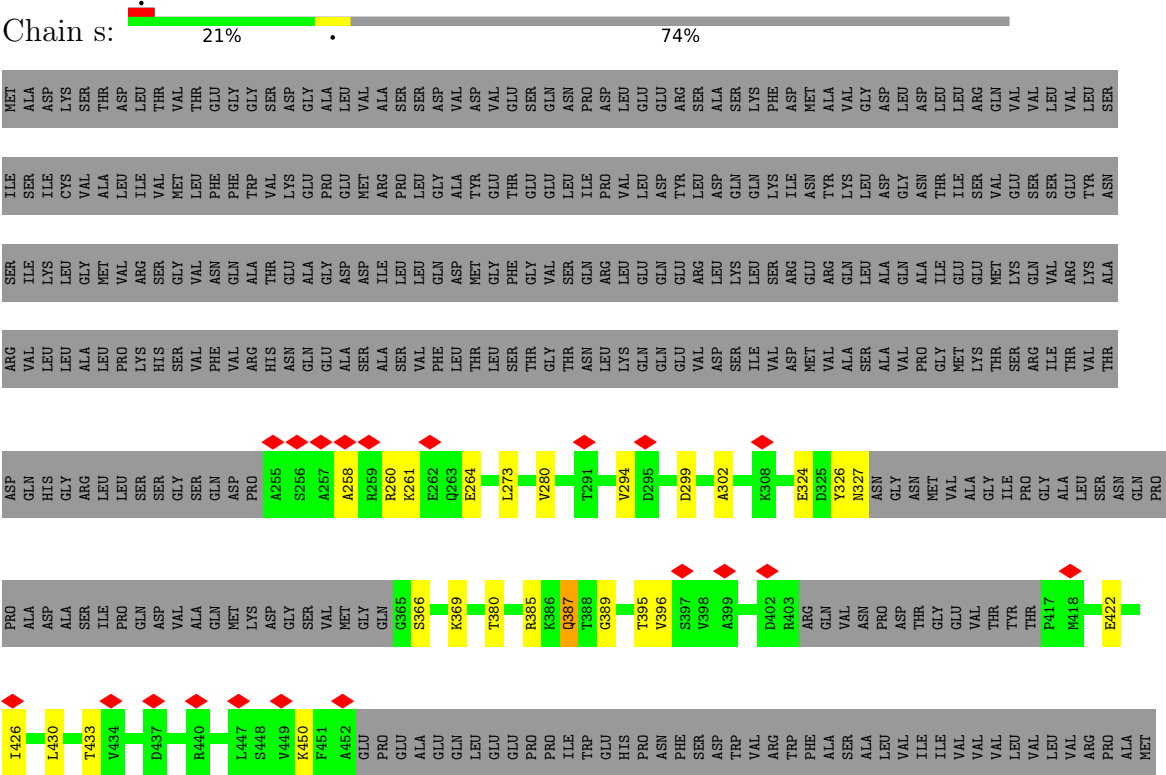
- Molecule 2: Flagellar M-ring protein

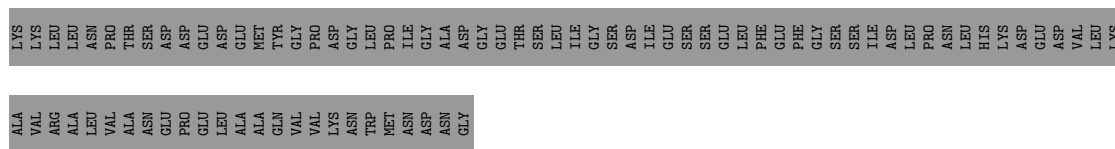
Chain p:  22% . 74%

ARG	VAL	ARG	SER	ILE	ILE	MET
VAL	LEU	LEU	ILE	SER	SER	ALA
LEU	LEU	LEU	LYS	ILE	ILE	LYS
ALA	LEU	GLY	GLY	VAL	VAL	THR
LEU	LEU	MET	VAL	ALA	LEU	ASP
PRO	PRO	VAL	VAL	VAL	LEU	LEU
LYS	LYS	ARG	ARG	ILE	ILE	THR
HIS	HIS	SER	SER	GLY	MET	VAL
SER	SER	GLY	VAL	VAL	VAL	THR
VAL	VAL	VAL	ASN	PHE	PHE	GLY
PHE	PHE	GLN	GLN	PHE	PHE	GLY
VAL	VAL	ALA	ALA	THR	THR	GLY
ARG	ARG	ALA	THR	VAL	VAL	SER
HIS	HIS	GLU	GLU	LYS	ASP	ASP
ASN	ASN	ALA	ALA	GLY	GLY	GLY
GLU	GLU	GLY	GLY	PRO	ALA	ALA
ALA	ALA	ASP	ASP	GLU	LEU	LEU
ALA	ALA	ASP	ASP	GLU	VAL	VAL
SER	SER	ASP	ASP	MET	VAL	VAL
ALA	ALA	ILE	ILE	ARG	ALA	ALA
SER	SER	LEU	LEU	PRO	SER	SER
VAL	VAL	LEU	LEU	LEU	SER	SER
PHE	PHE	GLN	GLN	GLY	ASP	ASP
LEU	LEU	ASP	ASP	ALA	VAL	VAL
THR	THR	MET	MET	THR	VAL	VAL
LEU	LEU	GLY	GLY	GLY	GLY	GLY
THR	THR	PHE	PHE	THR	THR	THR
THR	THR	GLY	GLY	GLN	GLN	GLN
GLY	GLY	VAL	VAL	GLU	GLU	GLU
THR	THR	SER	SER	LEU	LEU	ASN
ASN	ASN	GLN	GLN	ILE	PRO	PRO
LEU	LEU	ARG	ARG	PRO	ASP	ASP
LYS	LYS	LEU	LEU	VAL	LEU	LEU
GLN	GLN	GLU	GLU	LEU	GLY	GLY
GLN	GLN	GLN	GLN	ASP	GLU	GLU
GLU	GLU	GLU	GLU	THR	ARG	ARG
VAL	VAL	ARG	LEU	LEU	SER	SER
ASP	ASP	LEU	LYS	ASP	ALA	ALA
ILE	ILE	LEU	LEU	GLN	SER	SER
SER	SER	SER	SER	GLN	LYS	LYS
VAL	VAL	SER	SER	LYS	PHE	PHE
ASP	ASP	ARG	ARG	ILE	ASP	ASP
MET	MET	GLU	GLU	ASN	ILE	ILE
VAL	VAL	ARG	ARG	THR	ALA	ALA
ALA	ALA	GLN	GLN	LYS	VAL	VAL
SER	SER	LEU	LEU	VAL	GLY	GLY
ALA	ALA	ALA	ASP	ASP	ASP	ASP
VAL	VAL	GLN	GLN	GLY	LEU	LEU
PRO	PRO	ALA	ALA	ASN	LEU	LEU
GLY	GLY	ILE	ILE	THR	THR	THR
PRO	PRO	GLU	GLU	THR	VAL	VAL
THR	THR	MET	MET	ILE	SER	SER
LYS	LYS	GLU	GLU	GLY	VAL	VAL
THR	THR	MET	MET	SER	GLN	GLN
SER	SER	VAL	VAL	VAL	VAL	VAL
ARG	ARG	GLN	GLN	SER	SER	SER
ILE	ILE	VAL	VAL	GLU	VAL	VAL
THR	THR	ARG	ARG	GLU	VAL	VAL
VAL	VAL	LYS	LYS	THR	LEU	LEU
THR	THR	ALA	ALA	ASN	SER	SER

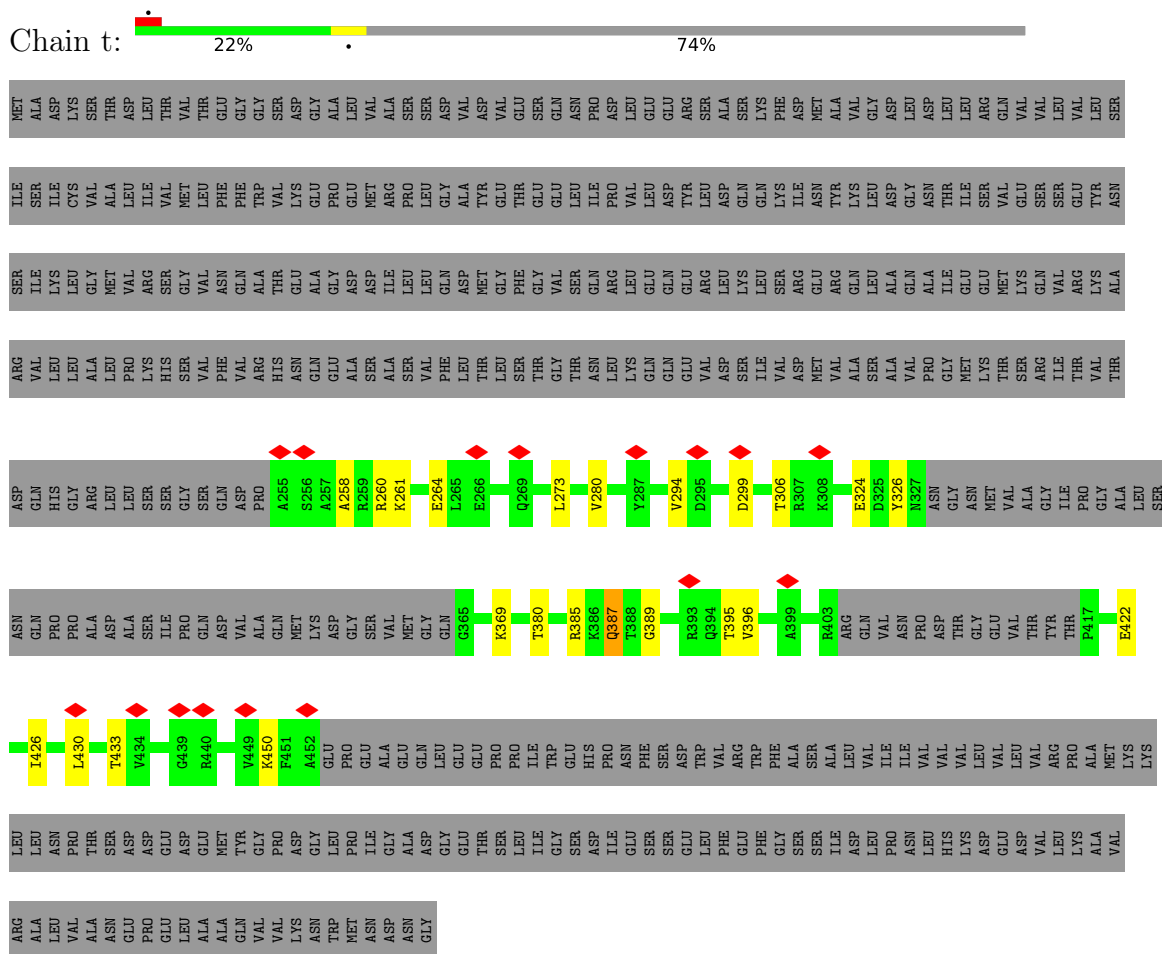


• Molecule 2: Flagellar M-ring protein

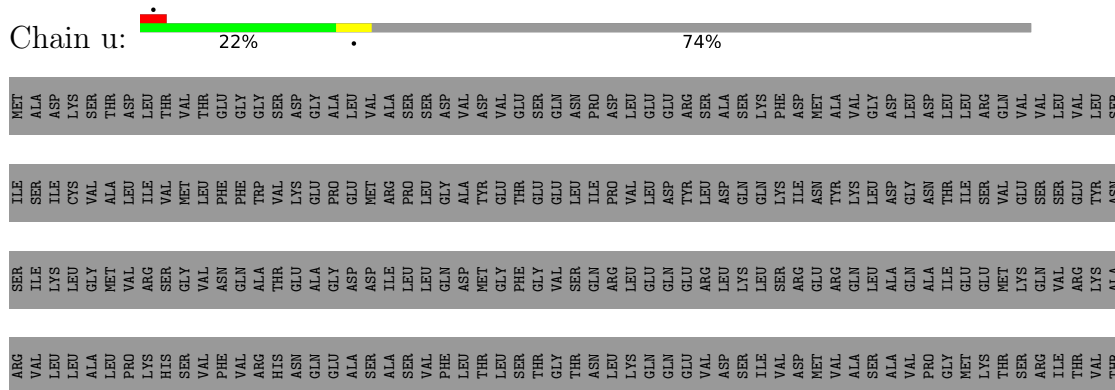


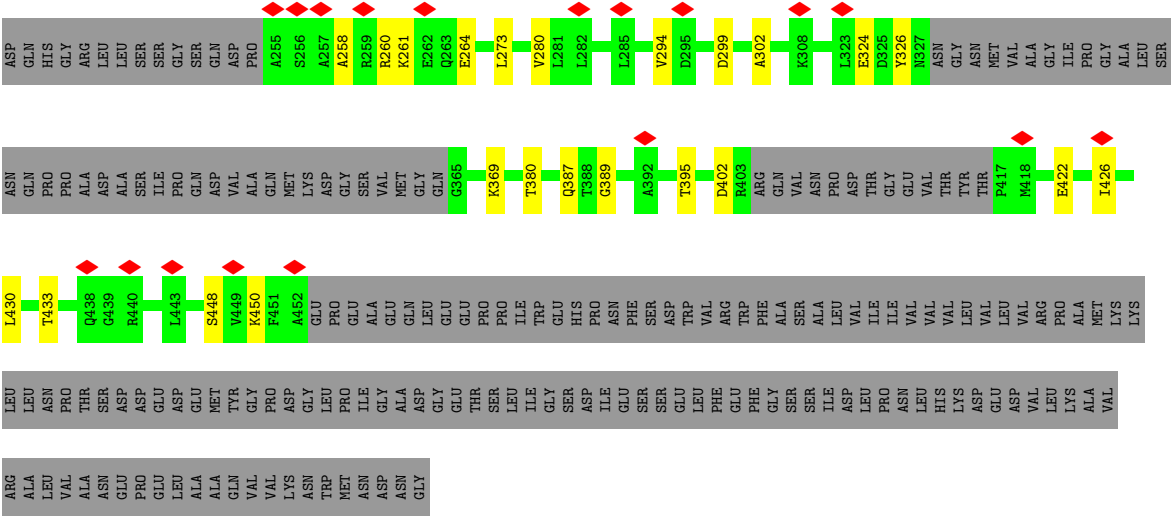


- Molecule 2: Flagellar M-ring protein

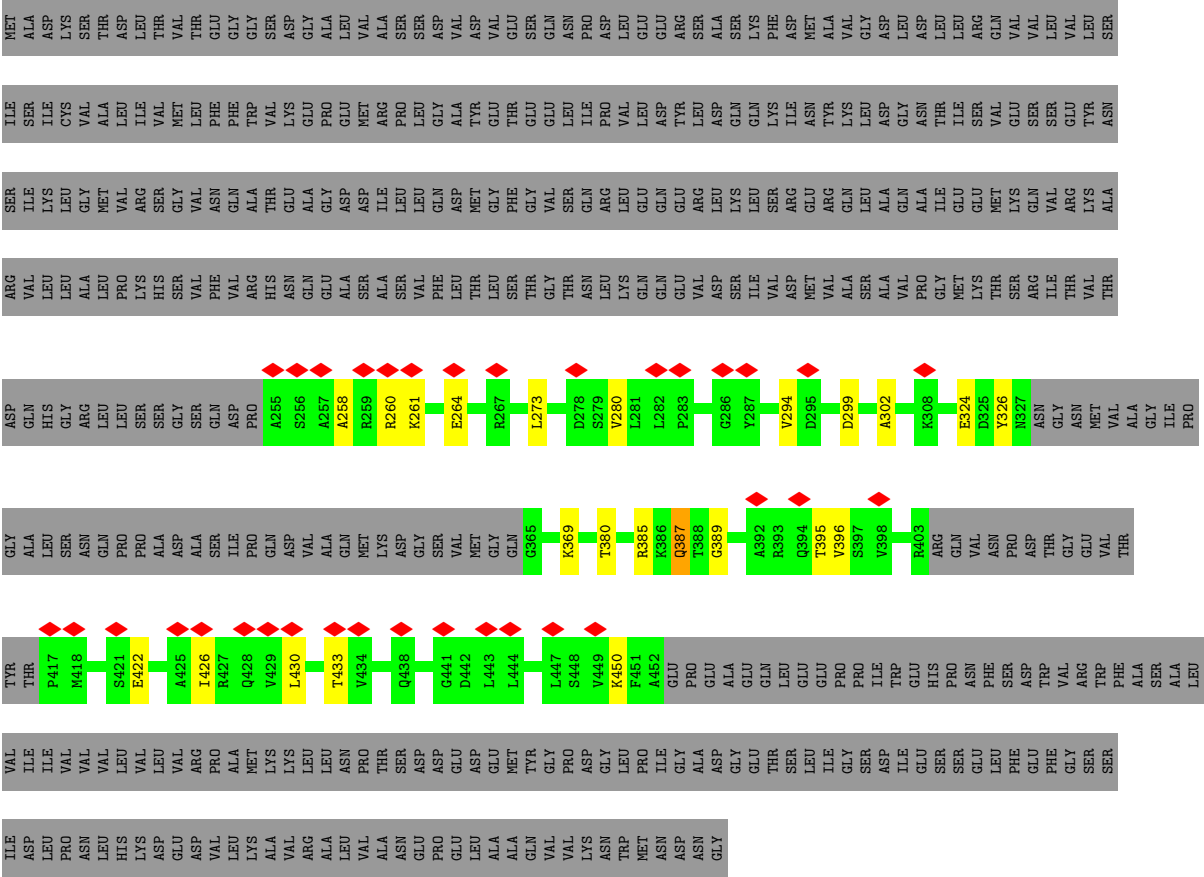


- Molecule 2: Flagellar M-ring protein



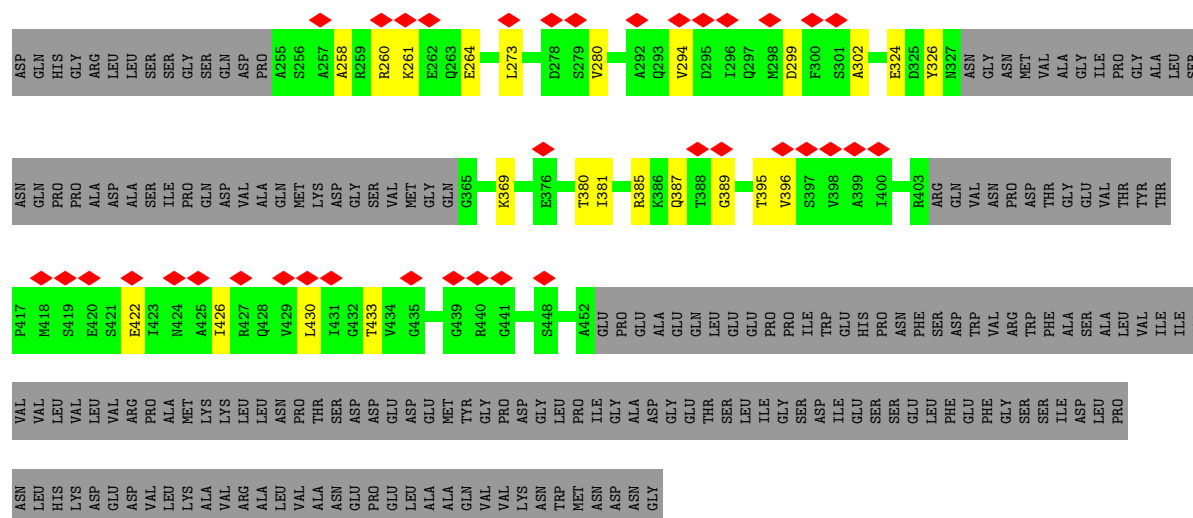


• Molecule 2: Flagellar M-ring protein



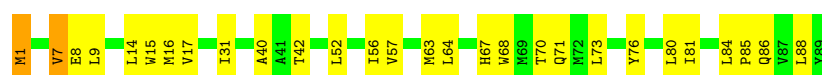
• Molecule 2: Flagellar M-ring protein





- Molecule 3: Flagellar biosynthetic protein FliQ

Chain 6: 69% 29%



- Molecule 3: Flagellar biosynthetic protein FliQ

Chain 7: 78% 22%



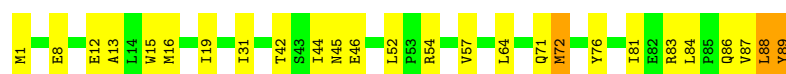
- Molecule 3: Flagellar biosynthetic protein FliQ

Chain AQ: 71% 28%



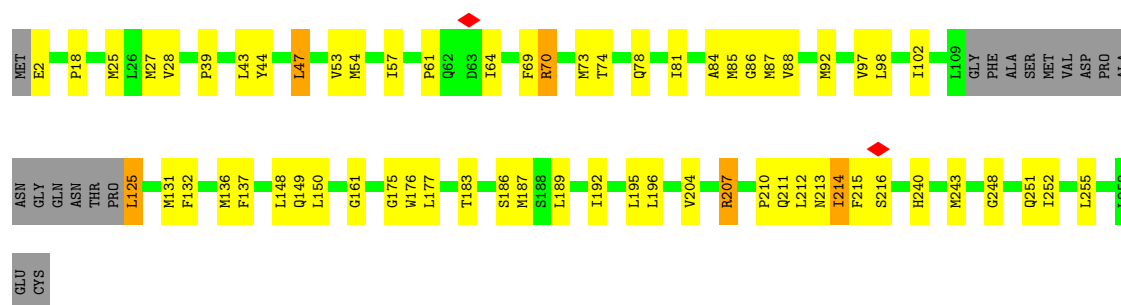
- Molecule 3: Flagellar biosynthetic protein FliQ

Chain AR: 71% 26%

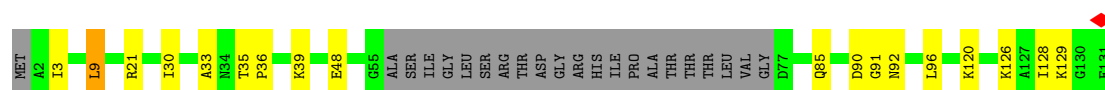


- Molecule 4: Flagellar biosynthetic protein FliR

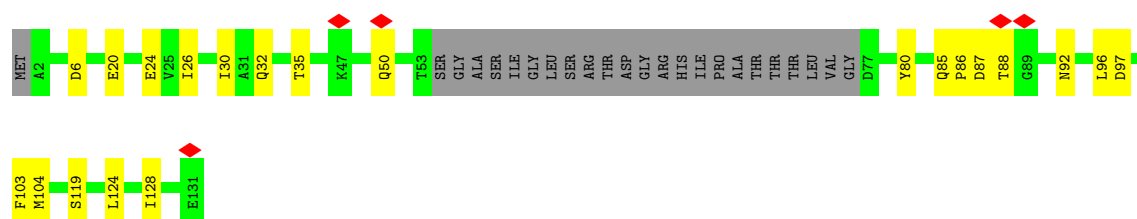
Chain 8: 69% 22% 7%



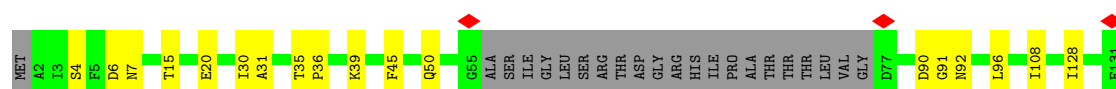
- Molecule 5: Flagellar basal body rod protein FlgB



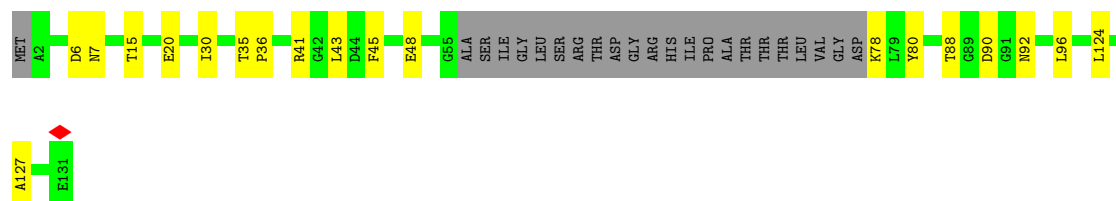
- Molecule 5: Flagellar basal body rod protein FlgB



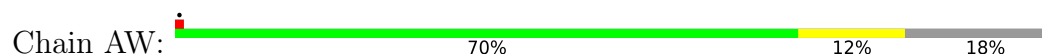
- Molecule 5: Flagellar basal body rod protein FlgB

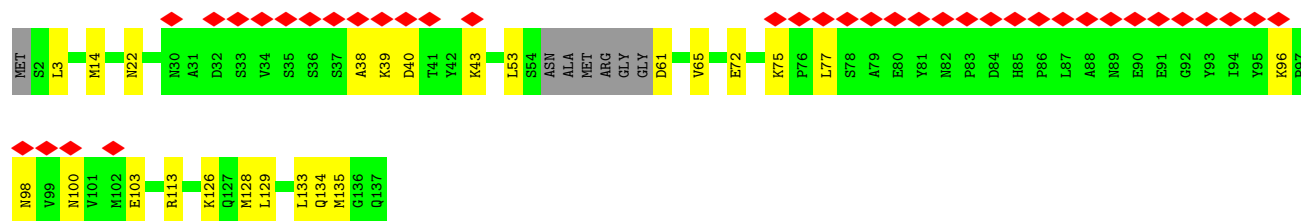
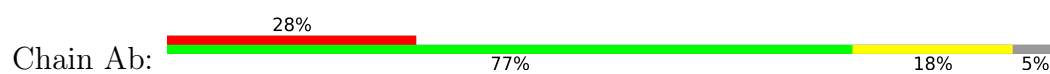


- Molecule 5: Flagellar basal body rod protein FlgB

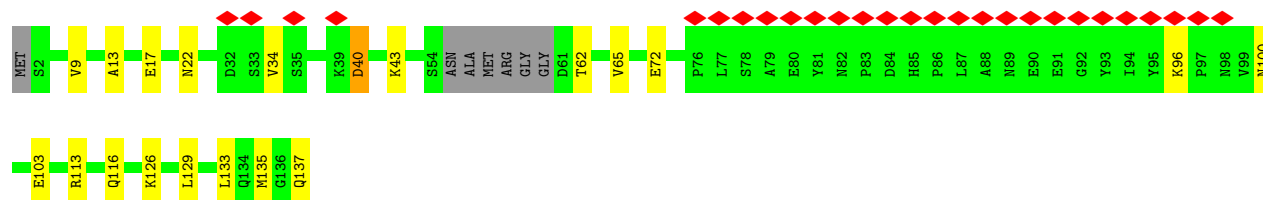
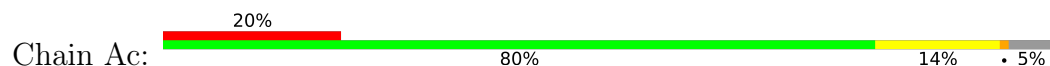


- Molecule 5: Flagellar basal body rod protein FlgB

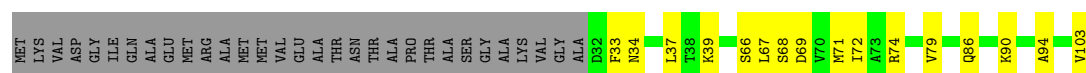




- Molecule 6: Flagellar basal-body rod protein FlgC



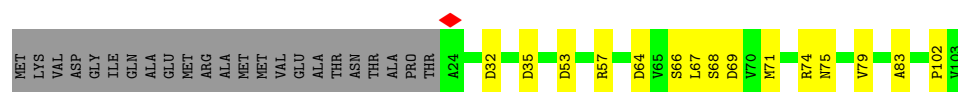
- Molecule 7: Flagellar hook-basal body complex protein FliE



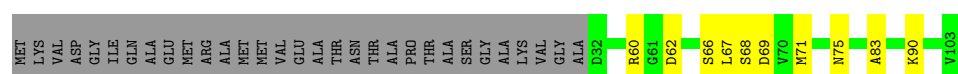
- Molecule 7: Flagellar hook-basal body complex protein FliE



- Molecule 7: Flagellar hook-basal body complex protein FliE

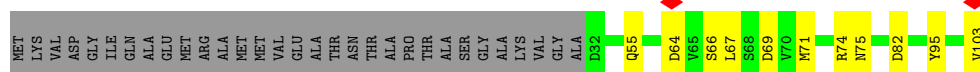


- Molecule 7: Flagellar hook-basal body complex protein FliE



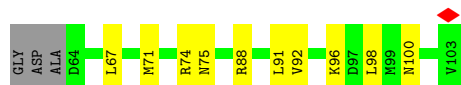
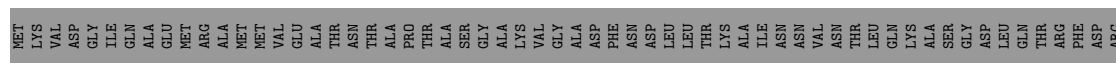
- Molecule 7: Flagellar hook-basal body complex protein FliE

Chain Ah:

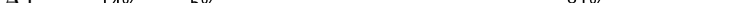


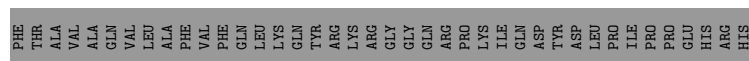
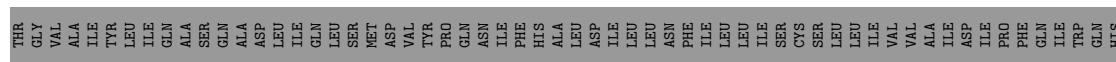
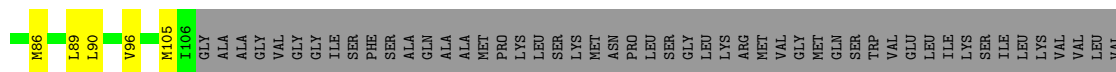
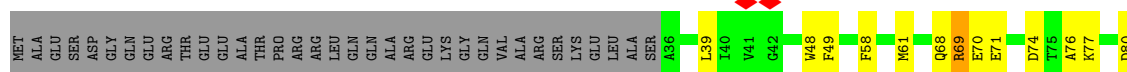
- Molecule 7: Flagellar hook-basal body complex protein FliE

Chain Ai:  29% 10% 61%

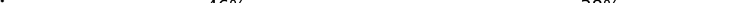


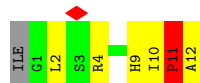
- Molecule 8: Flagellar biosynthetic protein FlhB

Chain A_j: 

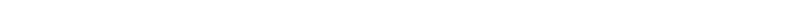


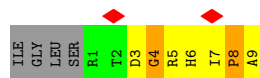
- Molecule 9: Alanine-modelled FlgB-Dc loop

Chain Am: 

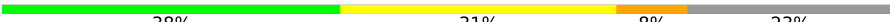


- Molecule 9: Alanine-modelled FlgB-Dc loop

Chain An: 



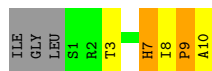
- Molecule 9: Alanine-modelled FlgB-Dc loop

Chain Ao:  38% 31% 8% 23%



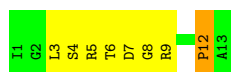
- Molecule 9: Alanine-modelled FlgB-Dc loop

Chain Ap:  38% 23% 15% 23%



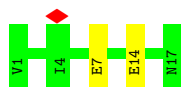
- Molecule 9: Alanine-modelled FlgB-Dc loop

Chain Aq:  38% 54% 8%



- Molecule 10: FliE-helix 1

Chain Ar:  6% 88% 12%



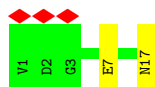
- Molecule 10: FliE-helix 1

Chain As:  6% 82% 18%



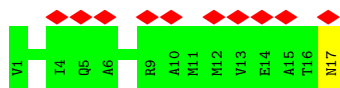
- Molecule 10: FliE-helix 1

Chain At:  18% 88% 12%

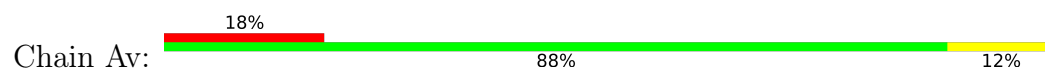


- Molecule 10: FliE-helix 1

Chain Au:  59% 94% 6%



• Molecule 10: FliE-helix 1



• Molecule 10: FliE-helix 1



4 Experimental information

Property	Value	Source
EM reconstruction method	SINGLE PARTICLE	Depositor
Imposed symmetry	POINT, C1	Depositor
Number of particles used	58418	Depositor
Resolution determination method	FSC 0.143 CUT-OFF	Depositor
CTF correction method	PHASE FLIPPING AND AMPLITUDE CORRECTION	Depositor
Microscope	FEI TITAN KRIOS	Depositor
Voltage (kV)	300	Depositor
Electron dose ($e^-/\text{\AA}^2$)	50	Depositor
Minimum defocus (nm)	1200	Depositor
Maximum defocus (nm)	1800	Depositor
Magnification	105000	Depositor
Image detector	FEI FALCON IV (4k x 4k)	Depositor
Maximum map value	1.065	Depositor
Minimum map value	-0.657	Depositor
Average map value	-0.001	Depositor
Map value standard deviation	0.037	Depositor
Recommended contour level	0.15	Depositor
Map size (Å)	744.0, 744.0, 744.0	wwPDB
Map dimensions	620, 620, 620	wwPDB
Map angles (°)	90.0, 90.0, 90.0	wwPDB
Pixel spacing (Å)	1.2, 1.2, 1.2	Depositor

5 Model quality ⓘ

5.1 Standard geometry ⓘ

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

Mol	Chain	Bond lengths		Bond angles	
		RMSZ	# Z >5	RMSZ	# Z >5
1	0	0.16	0/1637	0.33	0/2221
1	9	0.14	0/1628	0.30	0/2209
1	AP	0.10	0/1637	0.26	0/2221
1	Ak	0.11	0/1637	0.27	0/2221
1	Al	0.12	0/1637	0.28	0/2221
2	1	0.16	0/1182	0.27	0/1588
2	2	0.16	0/1182	0.27	0/1588
2	3	0.16	0/1182	0.27	0/1588
2	4	0.16	0/1182	0.27	0/1588
2	5	0.16	0/1182	0.27	0/1588
2	A	0.16	0/1182	0.27	0/1588
2	AA	0.35	0/137	0.45	0/188
2	AB	0.29	0/137	0.43	0/188
2	AC	0.14	0/141	0.31	0/193
2	AD	0.31	0/137	0.46	0/188
2	AE	0.13	0/137	0.28	0/188
2	AF	0.92	0/161	1.23	0/221
2	AG	0.16	0/75	0.32	0/103
2	AH	0.20	0/75	0.41	0/103
2	AI	0.95	0/75	1.34	0/103
2	AJ	0.37	0/166	0.57	0/228
2	AK	0.32	0/172	0.70	0/237
2	AL	0.39	0/223	0.61	0/304
2	AM	0.20	0/227	0.44	0/309
2	AN	0.24	0/227	0.49	0/309
2	AO	0.17	0/223	0.40	0/304
2	B	0.16	0/1182	0.27	0/1588
2	C	0.16	0/1182	0.27	0/1588
2	D	0.16	0/1182	0.27	0/1588
2	E	0.16	0/1182	0.27	0/1588
2	F	0.16	0/1182	0.27	0/1588
2	G	0.16	0/1182	0.27	0/1588
2	H	0.16	0/1182	0.27	0/1588
2	I	0.16	0/1182	0.27	0/1588

Mol	Chain	Bond lengths		Bond angles	
		RMSZ	# Z >5	RMSZ	# Z >5
2	J	0.16	0/1182	0.27	0/1588
2	K	0.16	0/1182	0.27	0/1588
2	L	0.16	0/1182	0.27	0/1588
2	M	0.16	0/1182	0.27	0/1588
2	N	0.16	0/1182	0.27	0/1588
2	O	0.16	0/1182	0.27	0/1588
2	P	0.16	0/1182	0.27	0/1588
2	Q	0.16	0/1182	0.27	0/1588
2	R	0.16	0/1182	0.27	0/1588
2	S	0.33	0/888	0.56	0/1192
2	T	0.30	0/888	0.44	0/1192
2	U	0.21	0/888	0.37	0/1192
2	V	0.22	0/888	0.40	0/1192
2	W	0.21	0/888	0.41	0/1192
2	X	0.23	0/844	0.41	0/1131
2	Y	0.29	0/888	0.48	0/1192
2	Z	0.29	0/888	0.44	0/1192
2	a	0.21	0/888	0.40	0/1192
2	b	0.22	0/727	0.40	0/974
2	c	0.26	0/810	0.44	0/1087
2	d	0.27	0/810	0.44	0/1087
2	e	0.16	0/810	0.38	0/1087
2	f	0.13	0/661	0.31	0/884
2	g	0.14	0/706	0.35	0/946
2	h	0.14	0/697	0.34	0/934
2	i	0.14	0/685	0.33	0/917
2	j	0.16	0/706	0.35	0/946
2	k	0.22	0/888	0.38	0/1192
2	l	0.24	0/888	0.45	0/1192
2	m	0.20	0/888	0.35	0/1192
2	n	0.19	0/805	0.37	0/1078
2	o	0.20	0/888	0.40	0/1192
2	p	0.16	0/1182	0.27	0/1588
2	q	0.16	0/1182	0.27	0/1588
2	r	0.16	0/1182	0.27	0/1588
2	s	0.16	0/1182	0.27	0/1588
2	t	0.16	0/1182	0.27	0/1588
2	u	0.16	0/1182	0.27	0/1588
2	v	0.16	0/1182	0.27	0/1588
2	w	0.16	0/1182	0.27	0/1588
2	x	0.16	0/1182	0.27	0/1588
2	y	0.16	0/1182	0.27	0/1588
2	z	0.16	0/1182	0.27	0/1588

Mol	Chain	Bond lengths		Bond angles	
		RMSZ	# Z >5	RMSZ	# Z >5
3	6	0.28	0/739	0.49	0/1005
3	7	0.16	0/739	0.33	0/1005
3	AQ	0.12	0/739	0.31	0/1005
3	AR	0.17	0/739	0.34	0/1005
4	8	0.09	0/1941	0.25	0/2631
5	AS	0.23	0/856	0.36	0/1151
5	AT	0.22	0/846	0.30	0/1138
5	AU	0.24	0/856	0.31	0/1151
5	AV	0.19	0/848	0.31	0/1140
5	AW	0.22	0/848	0.35	0/1140
6	AX	0.11	0/996	0.27	0/1348
6	AY	0.11	0/996	0.26	0/1348
6	AZ	0.30	0/996	0.46	0/1348
6	Aa	0.10	0/996	0.24	0/1348
6	Ab	0.11	0/996	0.28	0/1348
6	Ac	0.14	0/996	0.30	0/1348
7	Ad	0.32	0/564	0.43	0/759
7	Ae	0.08	0/609	0.20	0/819
7	Af	0.08	0/609	0.17	0/819
7	Ag	0.08	0/564	0.16	0/759
7	Ah	0.08	0/564	0.18	0/759
7	Ai	0.10	0/313	0.19	0/420
8	Aj	0.08	0/562	0.19	0/760
9	Am	1.13	0/57	1.46	1/77 (1.3%)
9	An	1.26	0/43	1.85	1/58 (1.7%)
9	Ao	1.22	0/48	1.61	1/65 (1.5%)
9	Ap	1.09	0/48	1.55	1/65 (1.5%)
9	Aq	1.19	0/62	1.42	1/84 (1.2%)
10	Ar	1.12	0/83	1.44	0/114
10	As	1.11	0/83	1.44	0/114
10	At	1.12	0/83	1.45	0/114
10	Au	1.11	0/83	1.45	0/114
10	Av	1.11	0/83	1.45	0/114
10	Aw	1.11	0/83	1.44	0/114
All	All	0.21	0/89262	0.35	5/120213 (0.0%)

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

Mol	Chain	#Chirality outliers	#Planarity outliers
1	0	0	1

Continued on next page...

Continued from previous page...

Mol	Chain	#Chirality outliers	#Planarity outliers
2	T	0	1
2	c	0	1
2	d	0	1
2	l	0	1
All	All	0	5

There are no bond length outliers.

All (5) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
9	An	8	PRO	N-CA-CB	10.53	109.83	102.35
9	Ap	9	PRO	N-CA-CB	6.81	109.66	103.33
9	Am	11	PRO	N-CA-CB	6.73	110.31	103.25
9	Ao	9	PRO	N-CA-CB	6.10	109.75	103.23
9	Aq	12	PRO	N-CA-CB	5.81	109.35	103.25

There are no chirality outliers.

All (5) planarity outliers are listed below:

Mol	Chain	Res	Type	Group
1	0	188	ARG	Sidechain
2	T	194	ARG	Sidechain
2	c	194	ARG	Sidechain
2	d	236	ARG	Sidechain
2	l	194	ARG	Sidechain

5.2 Too-close contacts [i](#)

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

Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
1	0	1608	0	1691	45	0
1	9	1599	0	1685	42	0
1	AP	1608	0	1691	37	0
1	Ak	1608	0	1691	66	0
1	Al	1608	0	1691	55	0
2	1	1171	0	1164	13	0

Continued on next page...

Continued from previous page...

Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
2	2	1171	0	1164	13	0
2	3	1171	0	1164	15	0
2	4	1171	0	1164	16	0
2	5	1171	0	1164	14	0
2	A	1171	0	1164	20	0
2	AA	135	0	128	2	0
2	AB	135	0	128	3	0
2	AC	139	0	131	4	0
2	AD	135	0	128	7	0
2	AE	135	0	128	1	0
2	AF	158	0	152	13	0
2	AG	73	0	72	4	0
2	AH	73	0	72	3	0
2	AI	73	0	72	8	0
2	AJ	163	0	157	3	0
2	AK	169	0	164	6	0
2	AL	220	0	215	3	0
2	AM	224	0	218	4	0
2	AN	224	0	218	2	0
2	AO	220	0	215	3	0
2	B	1171	0	1164	15	0
2	C	1171	0	1164	13	0
2	D	1171	0	1164	12	0
2	E	1171	0	1164	15	0
2	F	1171	0	1164	23	0
2	G	1171	0	1164	20	0
2	H	1171	0	1164	23	0
2	I	1171	0	1164	15	0
2	J	1171	0	1164	16	0
2	K	1171	0	1164	13	0
2	L	1171	0	1164	11	0
2	M	1171	0	1164	18	0
2	N	1171	0	1164	22	0
2	O	1171	0	1164	14	0
2	P	1171	0	1164	14	0
2	Q	1171	0	1164	14	0
2	R	1171	0	1164	11	0
2	S	881	0	910	59	0
2	T	881	0	910	62	0
2	U	881	0	910	35	0
2	V	881	0	910	35	0
2	W	881	0	910	50	0

Continued on next page...

Continued from previous page...

Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
2	X	839	0	864	30	0
2	Y	881	0	910	56	0
2	Z	881	0	910	38	0
2	a	881	0	910	40	0
2	b	724	0	758	33	0
2	c	803	0	837	45	0
2	d	803	0	837	40	0
2	e	803	0	837	35	0
2	f	660	0	699	22	0
2	g	704	0	741	27	0
2	h	695	0	735	29	0
2	i	684	0	725	31	0
2	j	704	0	741	28	0
2	k	881	0	910	60	0
2	l	881	0	910	39	0
2	m	881	0	910	39	0
2	n	802	0	836	36	0
2	o	881	0	910	37	0
2	p	1171	0	1164	13	0
2	q	1171	0	1164	16	0
2	r	1171	0	1164	14	0
2	s	1171	0	1164	16	0
2	t	1171	0	1164	15	0
2	u	1171	0	1164	13	0
2	v	1171	0	1164	15	0
2	w	1171	0	1164	14	0
2	x	1171	0	1164	22	0
2	y	1171	0	1164	13	0
2	z	1171	0	1164	14	0
3	6	722	0	768	36	0
3	7	722	0	768	40	0
3	AQ	722	0	768	29	0
3	AR	722	0	768	31	0
4	8	1896	0	1968	49	0
5	AS	845	0	833	11	0
5	AT	835	0	825	18	0
5	AU	845	0	833	11	0
5	AV	837	0	829	10	0
5	AW	837	0	829	10	0
6	AX	983	0	958	12	0
6	AY	983	0	958	18	0
6	AZ	983	0	958	23	0

Continued on next page...

Continued from previous page...

Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
6	Aa	983	0	958	8	0
6	Ab	983	0	958	15	0
6	Ac	983	0	958	11	0
7	Ad	560	0	561	11	0
7	Ae	605	0	609	10	0
7	Af	605	0	609	10	0
7	Ag	560	0	561	7	0
7	Ah	560	0	561	10	0
7	Ai	311	0	320	8	0
8	Aj	552	0	577	22	0
9	Am	58	0	30	7	0
9	An	44	0	23	12	0
9	Ao	49	0	25	14	0
9	Ap	49	0	25	7	0
9	Aq	63	0	32	5	0
10	Ar	84	0	46	6	0
10	As	84	0	46	3	0
10	At	84	0	46	4	0
10	Au	84	0	46	1	0
10	Av	84	0	46	2	0
10	Aw	84	0	46	4	0
All	All	88315	0	88899	1692	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 10.

All (1692) 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)
3:7:64:LEU:HD11	2:T:148:PHE:CE1	1.54	1.42
3:AQ:15:TRP:CD1	2:m:148:PHE:HE2	1.51	1.27
1:Ak:288:ALA:CB	2:m:192:PHE:HA	1.63	1.26
2:x:306:THR:HG21	10:At:17:ASN:CB	1.66	1.25
1:9:189:ILE:HD11	2:c:192:PHE:C	1.59	1.25
1:9:189:ILE:CD1	2:c:192:PHE:C	2.09	1.25
1:Ak:206:PRO:HA	2:k:192:PHE:HE2	1.10	1.13
1:9:189:ILE:HD11	2:c:192:PHE:O	1.51	1.11
1:Ak:206:PRO:CA	2:k:192:PHE:CE2	2.35	1.10
1:0:185:LYS:CD	2:Y:194:ARG:NH1	2.14	1.10
3:AQ:15:TRP:CD1	2:m:148:PHE:CE2	2.41	1.09
1:0:189:ILE:HD13	2:Y:193:VAL:HG22	1.36	1.08

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:G:306:THR:HG21	10:Ar:7:GLU:CB	1.82	1.08
1:Ak:206:PRO:HA	2:k:192:PHE:CE2	1.89	1.07
8:Aj:74:ASP:OD2	2:j:152:GLN:HG2	1.55	1.07
1:Ak:206:PRO:HB3	2:k:192:PHE:CE2	1.89	1.06
6:AZ:52:GLU:HG3	6:AZ:52:GLU:O	1.47	1.06
3:7:64:LEU:HD11	2:T:148:PHE:CD1	1.89	1.06
1:Ak:206:PRO:HB3	2:k:192:PHE:CD2	1.91	1.06
1:0:185:LYS:CD	2:Y:194:ARG:HH12	1.69	1.05
3:6:15:TRP:CZ2	2:b:148:PHE:HE2	1.74	1.04
2:N:381:ILE:HG21	10:Aw:3:GLY:HA2	1.36	1.03
3:7:64:LEU:HD11	2:T:148:PHE:CZ	1.96	1.01
8:Aj:76:ALA:HB3	2:j:152:GLN:HE21	1.26	1.01
1:0:189:ILE:CD1	2:Y:193:VAL:HG22	1.89	1.00
1:9:206:PRO:HG3	2:d:192:PHE:CD2	1.95	1.00
1:Ak:197:THR:HG21	2:V:194:ARG:HG2	1.39	1.00
3:6:15:TRP:CZ2	2:b:148:PHE:CE2	2.51	0.99
1:Ak:206:PRO:CB	2:k:192:PHE:CE2	2.46	0.98
3:AR:71:GLN:NE2	2:V:151:SER:HB2	1.76	0.98
1:0:185:LYS:HD2	2:Y:194:ARG:NH1	1.78	0.97
3:6:68:TRP:CZ2	2:a:148:PHE:HZ	1.81	0.97
1:Al:206:PRO:HG3	2:S:192:PHE:CG	2.00	0.96
1:Ak:288:ALA:HB3	2:m:192:PHE:CD1	2.00	0.96
3:AQ:89:TYR:HE2	2:l:188:LYS:HB2	1.28	0.95
1:Ak:288:ALA:HB3	2:m:192:PHE:HA	1.44	0.94
6:AZ:52:GLU:O	6:AZ:52:GLU:CG	2.15	0.94
3:7:64:LEU:CD1	2:T:148:PHE:CD1	2.50	0.94
2:N:381:ILE:HG21	10:Aw:3:GLY:CA	1.96	0.94
1:AP:205:ASN:HD22	2:o:194:ARG:HH12	1.12	0.94
3:AQ:15:TRP:CG	2:m:148:PHE:CE2	2.56	0.94
2:F:306:THR:HG21	10:Ar:14:GLU:CB	1.97	0.94
1:Ak:288:ALA:HB3	2:m:192:PHE:HD1	1.29	0.94
1:Ak:288:ALA:HB1	2:m:192:PHE:HA	1.46	0.94
2:G:374:ASN:OD1	9:Ao:3:THR:N	2.01	0.94
3:7:64:LEU:CD1	2:T:148:PHE:CE1	2.49	0.93
1:9:189:ILE:HD11	2:c:193:VAL:N	1.85	0.92
1:0:185:LYS:HD3	2:Y:194:ARG:NH1	1.80	0.92
2:H:374:ASN:OD1	9:Ao:8:ILE:CB	2.17	0.91
1:Ak:206:PRO:CB	2:k:192:PHE:CD2	2.52	0.91
3:AQ:15:TRP:CG	2:m:148:PHE:HE2	1.88	0.90
1:AP:205:ASN:HD22	2:o:194:ARG:NH1	1.69	0.90
1:Ak:189:ILE:HD11	2:k:192:PHE:CD1	2.06	0.90

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:AD:341:ASN:ND2	2:F:366:SER:H	1.69	0.88
2:x:372:THR:CG2	9:Am:10:ILE:CB	2.50	0.88
3:7:89:TYR:CD2	2:Y:190:SER:HB2	2.09	0.88
1:9:189:ILE:HD11	2:c:193:VAL:CA	2.03	0.87
1:9:189:ILE:CD1	2:c:192:PHE:O	2.18	0.87
2:A:374:ASN:ND2	9:An:7:ILE:CB	2.38	0.87
1:9:189:ILE:CD1	2:c:193:VAL:N	2.38	0.86
3:7:71:GLN:NE2	2:W:151:SER:HB2	1.89	0.86
3:7:71:GLN:HG2	2:S:152:GLN:OE1	1.74	0.85
3:AQ:71:GLN:OE1	2:n:151:SER:CB	2.25	0.84
3:AQ:89:TYR:CE2	2:l:188:LYS:HB2	2.12	0.84
2:H:319:SER:HB3	9:Ao:3:THR:CB	2.08	0.84
1:9:206:PRO:HG3	2:d:192:PHE:CE2	2.11	0.83
2:H:374:ASN:OD1	9:Ao:8:ILE:HA	1.77	0.83
3:6:85:PRO:HD3	2:a:192:PHE:CZ	2.14	0.82
8:Aj:68:GLN:OE1	2:i:152:GLN:HG2	1.79	0.82
1:9:189:ILE:HD11	2:c:193:VAL:HA	1.59	0.82
1:Al:197:THR:CB	2:W:194:ARG:HG2	2.11	0.81
3:6:68:TRP:CZ2	2:a:148:PHE:CZ	2.67	0.81
2:AC:342:GLN:NE2	2:M:327:ASN:ND2	2.29	0.81
2:x:372:THR:HG21	9:Am:10:ILE:CB	2.09	0.81
3:6:88:LEU:O	2:c:192:PHE:CE1	2.34	0.80
1:Ak:82:ASP:HB3	1:Ak:167:THR:HG23	1.62	0.80
8:Aj:76:ALA:CB	2:j:152:GLN:HE21	1.95	0.80
3:6:85:PRO:HD3	2:a:192:PHE:CE2	2.18	0.79
2:AC:342:GLN:NE2	2:M:327:ASN:HD22	1.80	0.79
1:Ak:207:GLU:OE2	2:k:194:ARG:NH1	2.15	0.79
2:H:374:ASN:OD1	9:Ao:8:ILE:CA	2.30	0.78
2:S:146:MET:HB2	2:S:150:VAL:HG21	1.66	0.78
2:i:163:ARG:NH2	2:j:184:LEU:O	2.17	0.78
1:Ak:206:PRO:CA	2:k:192:PHE:HE2	1.80	0.77
2:AC:342:GLN:HE22	2:M:327:ASN:ND2	1.83	0.77
1:9:189:ILE:HD12	2:c:192:PHE:C	2.06	0.77
1:Al:189:ILE:HD11	2:S:190:SER:HB2	1.65	0.77
2:G:374:ASN:OD1	9:Ao:2:ARG:C	2.28	0.77
2:Z:206:THR:HA	2:Z:242:GLN:HG2	1.66	0.77
1:Al:206:PRO:HD3	2:S:192:PHE:HB3	1.67	0.76
2:A:372:THR:HG21	9:An:7:ILE:H	1.50	0.75
2:S:163:ARG:NH2	2:W:184:LEU:O	2.19	0.75
3:6:64:LEU:HD21	2:Z:148:PHE:HE2	1.51	0.75
3:AR:71:GLN:HE22	2:V:151:SER:HB2	1.51	0.75

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:Ak:206:PRO:N	2:k:192:PHE:CD2	2.55	0.74
3:7:71:GLN:HE22	2:W:151:SER:HB2	1.52	0.74
2:T:201:ALA:HB2	2:T:232:MET:HE1	1.70	0.74
1:Ak:197:THR:CG2	2:V:194:ARG:HG2	2.17	0.74
2:f:163:ARG:NH2	2:f:228:ALA:O	2.20	0.74
1:0:206:PRO:HG2	2:Z:194:ARG:HH11	1.51	0.74
2:A:374:ASN:OD1	9:An:5:ARG:CB	2.36	0.73
2:P:258:ALA:HA	2:P:261:LYS:HD2	1.70	0.73
2:w:258:ALA:HA	2:w:261:LYS:HD2	1.70	0.73
2:z:258:ALA:HA	2:z:261:LYS:HD2	1.70	0.73
2:p:258:ALA:HA	2:p:261:LYS:HD2	1.70	0.73
2:t:258:ALA:HA	2:t:261:LYS:HD2	1.70	0.73
2:F:258:ALA:HA	2:F:261:LYS:HD2	1.70	0.73
2:Q:258:ALA:HA	2:Q:261:LYS:HD2	1.70	0.73
2:s:258:ALA:HA	2:s:261:LYS:HD2	1.70	0.73
2:i:220:SER:HA	2:j:246:LEU:HD12	1.71	0.73
2:q:258:ALA:HA	2:q:261:LYS:HD2	1.70	0.73
2:v:258:ALA:HA	2:v:261:LYS:HD2	1.70	0.73
2:3:258:ALA:HA	2:3:261:LYS:HD2	1.70	0.73
2:y:258:ALA:HA	2:y:261:LYS:HD2	1.70	0.73
2:a:163:ARG:HA	2:a:166:GLN:HE21	1.53	0.73
2:d:171:ILE:HG22	2:d:177:VAL:HG11	1.68	0.73
2:H:258:ALA:HA	2:H:261:LYS:HD2	1.70	0.72
2:M:258:ALA:HA	2:M:261:LYS:HD2	1.70	0.72
2:C:258:ALA:HA	2:C:261:LYS:HD2	1.70	0.72
2:D:258:ALA:HA	2:D:261:LYS:HD2	1.70	0.72
2:E:258:ALA:HA	2:E:261:LYS:HD2	1.70	0.72
2:N:258:ALA:HA	2:N:261:LYS:HD2	1.70	0.72
2:x:258:ALA:HA	2:x:261:LYS:HD2	1.70	0.72
2:j:218:VAL:HG21	2:j:247:LEU:HB3	1.71	0.72
2:2:258:ALA:HA	2:2:261:LYS:HD2	1.70	0.72
2:G:258:ALA:HA	2:G:261:LYS:HD2	1.71	0.72
2:I:258:ALA:HA	2:I:261:LYS:HD2	1.70	0.72
2:R:258:ALA:HA	2:R:261:LYS:HD2	1.70	0.72
2:1:258:ALA:HA	2:1:261:LYS:HD2	1.71	0.72
1:Ak:206:PRO:CD	2:k:192:PHE:HD2	2.03	0.72
2:O:258:ALA:HA	2:O:261:LYS:HD2	1.70	0.72
2:m:139:ASP:OD1	2:m:139:ASP:N	2.20	0.72
2:B:258:ALA:HA	2:B:261:LYS:HD2	1.70	0.72
2:u:258:ALA:HA	2:u:261:LYS:HD2	1.70	0.72
2:A:258:ALA:HA	2:A:261:LYS:HD2	1.70	0.72

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
3:7:89:TYR:O	2:Y:192:PHE:CE2	2.43	0.71
2:AK:330:ASN:N	2:x:368:ARG:HD2	2.05	0.71
2:z:381:ILE:HG21	10:At:7:GLU:CB	2.19	0.71
2:r:258:ALA:HA	2:r:261:LYS:HD2	1.70	0.71
2:5:258:ALA:HA	2:5:261:LYS:HD2	1.70	0.71
2:K:258:ALA:HA	2:K:261:LYS:HD2	1.70	0.71
2:J:258:ALA:HA	2:J:261:LYS:HD2	1.70	0.71
2:n:201:ALA:HB2	2:n:232:MET:HE1	1.72	0.71
3:AQ:25:ILE:HG13	3:AR:52:LEU:HD12	1.73	0.71
2:p:306:THR:HG21	10:Av:14:GLU:CB	2.21	0.71
3:6:15:TRP:HZ2	2:b:148:PHE:HE2	1.35	0.70
2:L:258:ALA:HA	2:L:261:LYS:HD2	1.70	0.70
2:a:163:ARG:HH22	2:b:183:LEU:HB3	1.56	0.70
2:4:258:ALA:HA	2:4:261:LYS:HD2	1.70	0.70
3:AR:19:ILE:HD13	2:V:148:PHE:CZ	2.25	0.70
2:A:374:ASN:HD21	9:An:7:ILE:CB	2.05	0.70
1:Ak:206:PRO:CA	2:k:192:PHE:CD2	2.73	0.70
3:7:64:LEU:HD12	2:T:148:PHE:CG	2.26	0.70
1:Al:197:THR:HB	2:W:194:ARG:HG2	1.72	0.70
2:l:201:ALA:HB2	2:l:232:MET:HE1	1.74	0.70
1:Ak:187:THR:O	2:l:192:PHE:HA	1.92	0.70
1:Ak:288:ALA:CB	2:m:192:PHE:CA	2.58	0.70
4:8:243:MET:CE	2:e:151:SER:HB2	2.21	0.70
1:Ak:206:PRO:N	2:k:192:PHE:HD2	1.89	0.70
3:6:68:TRP:CE2	2:a:148:PHE:HZ	2.09	0.69
1:Al:189:ILE:HD11	2:S:190:SER:CB	2.22	0.69
2:W:146:MET:N	2:W:146:MET:SD	2.64	0.69
2:j:163:ARG:HA	2:j:166:GLN:HE21	1.57	0.69
1:0:185:LYS:CD	2:Y:194:ARG:HH11	2.05	0.69
4:8:47:LEU:HD21	7:Ae:98:LEU:HD21	1.72	0.69
7:Ah:103:VAL:O	1:Ak:120:ARG:NH2	2.25	0.69
2:m:163:ARG:HA	2:m:166:GLN:HE21	1.57	0.68
6:Ac:40:ASP:OD1	6:Ac:40:ASP:N	2.26	0.68
2:W:220:SER:HA	2:X:246:LEU:HD12	1.76	0.68
2:AL:341:ASN:ND2	5:AT:88:THR:OG1	2.27	0.68
2:V:199:ALA:O	2:V:236:ARG:NE	2.25	0.68
1:Ak:197:THR:HG21	2:V:194:ARG:CG	2.22	0.68
2:o:146:MET:N	2:o:146:MET:SD	2.67	0.68
7:Ad:103:VAL:HG23	1:Al:113:VAL:HG13	1.76	0.68
2:U:187:PRO:HB3	2:U:197:GLN:HB2	1.76	0.68
3:6:71:GLN:HE22	2:a:151:SER:CB	2.07	0.68

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:AD:341:ASN:HD21	2:F:366:SER:H	1.39	0.68
2:AF:335:ILE:HG13	2:AF:338:ALA:HB2	1.74	0.68
1:Ak:185:LYS:O	2:l:194:ARG:NH1	2.27	0.68
2:e:213:LEU:HD22	2:e:217:GLU:HG3	1.76	0.68
4:8:92:MET:HE2	4:8:248:GLY:HA3	1.76	0.67
1:9:189:ILE:CD1	2:c:193:VAL:CA	2.72	0.67
2:T:152:GLN:NE2	2:T:156:GLN:OE1	2.27	0.67
2:Z:201:ALA:HB2	2:Z:232:MET:HE1	1.74	0.67
3:7:64:LEU:CD1	2:T:148:PHE:CG	2.77	0.67
3:7:64:LEU:CD1	2:T:148:PHE:CZ	2.74	0.67
2:C:324:GLU:HG3	2:C:369:LYS:HD2	1.77	0.67
2:U:178:ARG:NH1	2:U:207:LEU:O	2.27	0.67
2:c:178:ARG:NH1	2:c:207:LEU:O	2.28	0.67
2:F:324:GLU:HG3	2:F:369:LYS:HD2	1.77	0.67
2:P:324:GLU:HG3	2:P:369:LYS:HD2	1.77	0.67
2:W:163:ARG:NH2	2:X:184:LEU:O	2.28	0.67
2:M:324:GLU:HG3	2:M:369:LYS:HD2	1.77	0.67
2:N:324:GLU:HG3	2:N:369:LYS:HD2	1.77	0.67
1:0:189:ILE:HD13	2:Y:193:VAL:CG2	2.20	0.67
2:B:324:GLU:HG3	2:B:369:LYS:HD2	1.77	0.67
2:D:324:GLU:HG3	2:D:369:LYS:HD2	1.77	0.67
2:E:324:GLU:HG3	2:E:369:LYS:HD2	1.77	0.67
2:Q:324:GLU:HG3	2:Q:369:LYS:HD2	1.77	0.67
2:n:218:VAL:HG21	2:n:247:LEU:HB3	1.77	0.67
1:9:189:ILE:CD1	2:c:193:VAL:HA	2.25	0.67
1:Ak:206:PRO:CD	2:k:192:PHE:CD2	2.78	0.67
1:Al:197:THR:HG21	2:W:194:ARG:HG2	1.77	0.67
2:I:324:GLU:HG3	2:I:369:LYS:HD2	1.77	0.67
1:0:244:VAL:HG11	1:0:262:SER:HB2	1.77	0.66
3:7:48:THR:OG1	3:AR:54:ARG:NH1	2.28	0.66
1:Al:197:THR:CG2	2:W:194:ARG:HG2	2.25	0.66
2:G:324:GLU:HG3	2:G:369:LYS:HD2	1.77	0.66
2:J:324:GLU:HG3	2:J:369:LYS:HD2	1.77	0.66
2:K:324:GLU:HG3	2:K:369:LYS:HD2	1.77	0.66
2:L:324:GLU:HG3	2:L:369:LYS:HD2	1.77	0.66
2:O:324:GLU:HG3	2:O:369:LYS:HD2	1.77	0.66
2:R:324:GLU:HG3	2:R:369:LYS:HD2	1.77	0.66
2:X:139:ASP:OD2	2:Y:165:ARG:NH2	2.28	0.66
2:i:220:SER:HB3	2:j:246:LEU:HB2	1.76	0.66
2:5:324:GLU:HG3	2:5:369:LYS:HD2	1.77	0.66
2:T:241:ASP:OD1	2:T:244:GLY:N	2.25	0.66

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:x:324:GLU:HG3	2:x:369:LYS:HD2	1.77	0.66
2:AA:355:GLN:O	2:AA:356:MET:HB3	1.94	0.66
2:q:306:THR:HG21	10:Av:7:GLU:CB	2.25	0.66
1:0:141:LEU:HG	1:Al:198:MET:HE1	1.78	0.66
2:A:324:GLU:HG3	2:A:369:LYS:HD2	1.77	0.66
2:H:324:GLU:HG3	2:H:369:LYS:HD2	1.77	0.66
2:m:201:ALA:HB2	2:m:232:MET:HE1	1.78	0.66
2:w:324:GLU:HG3	2:w:369:LYS:HD2	1.77	0.66
2:4:324:GLU:HG3	2:4:369:LYS:HD2	1.77	0.66
2:p:324:GLU:HG3	2:p:369:LYS:HD2	1.77	0.66
2:x:306:THR:CG2	10:At:17:ASN:CB	2.61	0.66
2:q:324:GLU:HG3	2:q:369:LYS:HD2	1.77	0.66
2:X:176:GLN:OE1	2:X:176:GLN:N	2.27	0.66
2:c:184:LEU:HD21	2:c:229:VAL:HG21	1.76	0.66
2:u:324:GLU:HG3	2:u:369:LYS:HD2	1.77	0.66
2:S:163:ARG:HD3	2:S:166:GLN:HE21	1.61	0.66
2:y:324:GLU:HG3	2:y:369:LYS:HD2	1.77	0.66
1:Al:197:THR:HG21	2:W:194:ARG:CG	2.26	0.66
2:k:165:ARG:NH2	2:l:139:ASP:OD2	2.28	0.66
2:t:324:GLU:HG3	2:t:369:LYS:HD2	1.77	0.66
2:z:324:GLU:HG3	2:z:369:LYS:HD2	1.77	0.66
2:1:324:GLU:HG3	2:1:369:LYS:HD2	1.77	0.65
1:AP:205:ASN:ND2	2:o:194:ARG:NH1	2.43	0.65
1:Ak:285:GLY:O	2:m:192:PHE:HB3	1.95	0.65
2:v:324:GLU:HG3	2:v:369:LYS:HD2	1.77	0.65
6:AZ:53:LEU:O	6:AZ:54:SER:C	2.38	0.65
6:Aa:75:LYS:O	6:Aa:98:ASN:ND2	2.29	0.65
2:d:241:ASP:OD2	2:d:245:ARG:NH1	2.29	0.65
3:7:89:TYR:O	2:Y:192:PHE:CD2	2.49	0.65
2:o:157:GLU:HA	2:o:160:LYS:HE2	1.78	0.65
2:3:324:GLU:HG3	2:3:369:LYS:HD2	1.77	0.65
2:e:176:GLN:OE1	2:e:176:GLN:N	2.29	0.65
2:r:324:GLU:HG3	2:r:369:LYS:HD2	1.77	0.65
2:s:324:GLU:HG3	2:s:369:LYS:HD2	1.77	0.65
2:2:324:GLU:HG3	2:2:369:LYS:HD2	1.77	0.65
1:Ak:103:VAL:O	1:Ak:107:THR:OG1	2.15	0.65
2:Y:241:ASP:OD1	2:Y:245:ARG:N	2.30	0.65
1:Ak:88:GLN:OE1	1:Ak:161:TYR:OH	2.14	0.65
1:0:185:LYS:CG	2:Y:194:ARG:HH12	2.10	0.65
2:T:239:VAL:HB	2:T:247:LEU:HB2	1.78	0.65
2:j:184:LEU:HD21	2:j:229:VAL:HG21	1.79	0.65

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:n:185:ALA:O	2:n:199:ALA:HA	1.97	0.65
2:a:146:MET:N	2:a:146:MET:SD	2.70	0.64
3:AQ:89:TYR:CE2	2:l:190:SER:HB2	2.33	0.64
3:6:17:VAL:HG12	1:9:239:ILE:HG23	1.79	0.64
1:AP:198:MET:HE2	1:Ak:144:PHE:HB2	1.80	0.64
3:6:9:LEU:HD21	3:6:80:LEU:HD21	1.80	0.64
1:Al:244:VAL:HG11	1:Al:262:SER:HB3	1.79	0.64
2:V:178:ARG:NH1	2:V:207:LEU:O	2.31	0.64
2:W:194:ARG:H	2:W:194:ARG:HE	1.43	0.64
2:H:319:SER:HB3	9:Ao:3:THR:H	1.62	0.64
9:Ao:9:PRO:O	9:Ao:10:ALA:C	2.41	0.64
4:8:186:SER:HA	4:8:189:LEU:HD23	1.80	0.63
2:Al:335:ILE:HG13	2:Al:338:ALA:HB2	1.78	0.63
1:Ak:204:ASP:O	2:k:192:PHE:HA	1.97	0.63
1:Al:187:THR:O	2:T:192:PHE:HB3	1.98	0.63
3:7:50:SER:O	3:7:54:ARG:NH1	2.31	0.63
1:0:184:LEU:HG	1:0:214:LEU:HD11	1.81	0.63
3:6:71:GLN:HE22	2:a:151:SER:HB3	1.62	0.63
2:d:178:ARG:NH1	2:d:207:LEU:O	2.30	0.63
2:t:306:THR:HG21	10:Au:17:ASN:CB	2.28	0.63
1:9:85:VAL:HA	1:9:88:GLN:HE21	1.63	0.63
1:9:183:MET:HE1	1:9:215:ILE:HG12	1.80	0.63
2:F:306:THR:CG2	10:Ar:14:GLU:CB	2.74	0.63
2:b:164:GLU:HG2	2:b:184:LEU:HD13	1.80	0.63
2:m:246:LEU:HD12	2:n:220:SER:HA	1.80	0.63
2:o:153:ARG:HA	2:o:153:ARG:HE	1.64	0.63
6:AZ:43:LYS:HG2	6:AZ:77:LEU:HD21	1.80	0.62
1:Ak:288:ALA:HB3	2:m:192:PHE:CA	2.24	0.62
2:X:201:ALA:HB2	2:X:232:MET:HE1	1.80	0.62
2:Y:139:ASP:N	2:Y:139:ASP:OD1	2.31	0.62
2:a:217:GLU:O	2:a:220:SER:OG	2.15	0.62
8:Aj:76:ALA:HB3	2:j:152:GLN:NE2	2.06	0.62
2:U:241:ASP:OD1	2:U:245:ARG:N	2.32	0.62
2:l:176:GLN:OE1	2:l:176:GLN:N	2.33	0.62
5:AW:30:ILE:HG23	5:AW:96:LEU:HD11	1.80	0.62
2:k:200:SER:OG	2:l:227:SER:OG	2.18	0.62
2:W:164:GLU:OE2	2:W:184:LEU:N	2.33	0.62
2:h:218:VAL:HG21	2:h:247:LEU:HB3	1.81	0.62
1:0:103:VAL:O	1:0:107:THR:OG1	2.18	0.62
2:Al:334:GLY:O	2:Al:335:ILE:C	2.40	0.62
6:AZ:61:ASP:OD1	6:AZ:61:ASP:N	2.33	0.62

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:Al:103:VAL:O	1:Al:107:THR:OG1	2.17	0.61
2:m:176:GLN:N	2:m:176:GLN:OE1	2.32	0.61
2:G:306:THR:CG2	10:Ar:7:GLU:CB	2.71	0.61
5:AU:35:THR:O	5:AU:92:ASN:ND2	2.33	0.61
2:c:241:ASP:OD1	2:c:244:GLY:N	2.33	0.61
2:f:241:ASP:OD2	2:f:245:ARG:NH1	2.33	0.61
2:S:181:ARG:NH1	2:T:173:GLU:OE2	2.32	0.61
1:O:189:ILE:HD11	2:Y:193:VAL:HA	1.82	0.61
3:AR:15:TRP:NE1	2:U:148:PHE:HB3	2.15	0.61
2:T:218:VAL:HG21	2:T:247:LEU:HB3	1.81	0.61
2:j:178:ARG:NH1	2:j:207:LEU:O	2.33	0.61
3:AQ:59:LEU:HD13	8:Aj:90:LEU:HD22	1.82	0.61
7:Ai:71:MET:O	7:Ai:75:ASN:ND2	2.30	0.61
1:Al:206:PRO:HG3	2:S:192:PHE:CD2	2.35	0.61
2:d:163:ARG:HH12	2:e:183:LEU:HB3	1.65	0.61
2:AH:335:ILE:HB	2:AH:338:ALA:HB2	1.82	0.61
1:9:141:LEU:HD11	1:9:280:LEU:HD22	1.82	0.61
2:e:207:LEU:N	2:e:242:GLN:OE1	2.34	0.61
1:9:104:ILE:O	1:9:110:THR:OG1	2.19	0.61
6:AY:17:GLU:OE1	6:AY:20:ARG:NH2	2.32	0.61
2:e:201:ALA:HB2	2:e:232:MET:HE1	1.83	0.61
2:h:215:GLN:NE2	2:h:219:ASP:OD2	2.34	0.61
1:9:244:VAL:HG11	1:9:262:SER:HB3	1.81	0.61
2:T:176:GLN:OE1	2:T:176:GLN:N	2.31	0.61
2:AD:341:ASN:HD22	2:F:366:SER:HB2	1.65	0.60
3:AQ:1:MET:N	3:AQ:1:MET:SD	2.73	0.60
3:AQ:71:GLN:OE1	2:n:151:SER:HB3	1.99	0.60
2:H:318:ARG:HG3	9:Ao:3:THR:CB	2.31	0.60
2:AD:341:ASN:ND2	2:F:366:SER:N	2.44	0.60
2:B:319:SER:HB3	9:An:5:ARG:CB	2.30	0.60
2:i:168:ALA:O	2:i:172:GLU:HG2	2.01	0.60
2:n:176:GLN:OE1	2:n:176:GLN:N	2.33	0.60
9:Am:2:LEU:C	9:Am:4:ARG:H	2.09	0.60
3:AQ:71:GLN:OE1	2:n:151:SER:OG	2.17	0.60
2:V:206:THR:OG1	2:V:242:GLN:NE2	2.34	0.60
3:7:31:ILE:HG13	3:7:57:VAL:HG11	1.82	0.60
3:7:89:TYR:CD2	2:Y:190:SER:CB	2.83	0.60
2:AI:335:ILE:HD12	6:AY:71:VAL:HG23	1.82	0.60
5:AV:15:THR:HG23	5:AV:45:PHE:HZ	1.67	0.60
6:Ab:75:LYS:O	6:Ab:98:ASN:ND2	2.34	0.60
2:n:163:ARG:HA	2:n:166:GLN:HE21	1.66	0.60

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
6:AY:135:MET:HE2	7:Af:75:ASN:HD22	1.66	0.60
6:AZ:100:ASN:HD22	6:AZ:103:GLU:H	1.49	0.60
2:n:204:PHE:HE1	2:n:206:THR:HG22	1.66	0.60
4:8:243:MET:HE1	2:e:151:SER:HB2	1.82	0.60
1:Ak:112:ILE:HG23	1:Ak:283:LEU:HD23	1.84	0.60
1:Ak:206:PRO:HD2	2:k:194:ARG:HH12	1.66	0.60
2:d:206:THR:HA	2:d:242:GLN:HG2	1.84	0.60
2:S:163:ARG:HA	2:S:166:GLN:HE21	1.64	0.60
2:Y:241:ASP:OD2	2:Y:245:ARG:NH1	2.34	0.60
3:7:64:LEU:HD12	2:T:148:PHE:CD2	2.37	0.59
2:k:184:LEU:HD21	2:k:229:VAL:HG21	1.84	0.59
2:Y:164:GLU:HG2	2:Y:184:LEU:HD13	1.84	0.59
6:Aa:133:LEU:HD23	7:Ag:71:MET:HE3	1.83	0.59
2:S:146:MET:HB2	2:S:150:VAL:CG2	2.32	0.59
2:U:201:ALA:O	2:V:227:SER:OG	2.20	0.59
2:a:156:GLN:HE22	2:b:153:ARG:HG3	1.67	0.59
2:a:220:SER:HA	2:b:246:LEU:HD12	1.85	0.59
2:i:176:GLN:OE1	2:i:176:GLN:N	2.33	0.59
3:6:71:GLN:NE2	2:a:151:SER:CB	2.65	0.59
6:Ac:113:ARG:NH2	6:Ac:116:GLN:OE1	2.36	0.59
2:f:177:VAL:HA	2:f:207:LEU:HA	1.85	0.59
2:i:230:PRO:HD3	2:j:185:ALA:HB1	1.83	0.59
2:N:381:ILE:CG2	10:Aw:3:GLY:CA	2.78	0.59
9:An:8:PRO:O	9:An:9:ALA:C	2.45	0.59
1:9:189:ILE:HD12	2:c:193:VAL:N	2.12	0.59
3:AR:86:GLN:HE21	2:T:153:ARG:CZ	2.16	0.59
2:o:218:VAL:HG21	2:o:247:LEU:HB3	1.84	0.59
2:AC:342:GLN:HE22	2:M:327:ASN:HD22	1.41	0.59
2:AF:350:PRO:HA	2:AF:353:VAL:HG22	1.83	0.59
2:b:239:VAL:N	2:b:248:SER:OG	2.34	0.59
2:k:201:ALA:O	2:l:227:SER:OG	2.19	0.59
5:AU:108:ILE:HD11	6:AY:126:LYS:HG3	1.85	0.58
5:AW:35:THR:O	5:AW:92:ASN:ND2	2.37	0.58
2:W:220:SER:HB3	2:X:246:LEU:HB2	1.85	0.58
3:AQ:31:ILE:HG13	3:AQ:57:VAL:HG21	1.86	0.58
6:Aa:61:ASP:N	6:Aa:61:ASP:OD1	2.35	0.58
2:f:150:VAL:HG12	2:f:154:LEU:HD23	1.86	0.58
2:f:164:GLU:HG2	2:f:184:LEU:HD13	1.84	0.58
2:j:200:SER:HB2	2:j:236:ARG:HH21	1.68	0.58
3:7:68:TRP:HB2	2:S:148:PHE:HB3	1.84	0.58
2:S:246:LEU:H	2:T:216:GLN:HE21	1.49	0.58

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:c:151:SER:O	2:c:153:ARG:N	2.36	0.58
2:o:207:LEU:N	2:o:242:GLN:OE1	2.36	0.58
2:n:164:GLU:HG2	2:n:184:LEU:HD13	1.85	0.58
5:AW:41:ARG:HG2	5:AW:78:LYS:HE2	1.85	0.58
7:Ae:90:LYS:HE3	7:Ai:74:ARG:HH21	1.69	0.58
1:Al:183:MET:HE1	1:Al:215:ILE:HG12	1.86	0.58
2:V:184:LEU:HD21	2:V:229:VAL:HG21	1.86	0.58
2:b:176:GLN:N	2:b:176:GLN:OE1	2.35	0.58
1:Ak:189:ILE:HD11	2:k:192:PHE:HD1	1.67	0.57
2:B:381:ILE:HD12	10:As:3:GLY:HA3	1.86	0.57
2:AG:335:ILE:HB	2:AG:338:ALA:HB2	1.86	0.57
3:AQ:54:ARG:NH1	3:AR:46:GLU:OE2	2.38	0.57
1:Ak:206:PRO:HD3	2:k:192:PHE:HD2	1.69	0.57
1:Ak:248:LEU:HD11	1:Ak:261:VAL:HG11	1.86	0.57
2:f:227:SER:OG	2:g:201:ALA:O	2.22	0.57
4:8:70:ARG:HA	4:8:73:MET:HE2	1.85	0.57
2:m:238:THR:HG21	2:n:224:MET:HA	1.85	0.57
2:n:168:ALA:O	2:n:172:GLU:HG2	2.03	0.57
2:A:381:ILE:HD12	10:As:10:ALA:CB	2.35	0.57
3:AR:86:GLN:NE2	2:T:153:ARG:CZ	2.67	0.57
2:g:163:ARG:HH22	2:h:183:LEU:HB3	1.69	0.57
3:7:65:PHE:HE1	2:S:148:PHE:CD2	2.23	0.57
2:AO:335:ILE:O	2:AO:340:SER:OG	2.14	0.57
2:U:176:GLN:OE1	2:U:176:GLN:N	2.30	0.57
3:7:71:GLN:CG	2:S:152:GLN:OE1	2.51	0.57
7:Ah:66:SER:OG	7:Ah:69:ASP:OD1	2.23	0.57
2:Y:171:ILE:HD12	2:Y:221:ILE:HD12	1.87	0.57
3:7:85:PRO:HG2	2:W:191:VAL:HG21	1.86	0.57
4:8:187:MET:HE2	4:8:240:HIS:HB3	1.85	0.57
5:AU:20:GLU:OE2	7:Ag:68:SER:OG	2.20	0.57
2:T:146:MET:N	2:T:146:MET:SD	2.78	0.57
6:Ab:61:ASP:OD1	6:Ab:61:ASP:N	2.38	0.57
2:AK:331:MET:HE3	6:AX:52:GLU:HB2	1.87	0.57
2:AN:352:ASP:OD1	2:AN:352:ASP:N	2.38	0.57
6:AX:75:LYS:O	6:AX:98:ASN:ND2	2.33	0.57
6:Ac:34:VAL:HG12	6:Ac:96:LYS:HG2	1.87	0.57
1:AP:239:ILE:HG23	8:Aj:89:LEU:HD22	1.87	0.56
6:AY:61:ASP:N	6:AY:61:ASP:OD1	2.36	0.56
1:Ak:207:GLU:OE2	2:k:194:ARG:CZ	2.54	0.56
3:6:15:TRP:CE2	2:b:148:PHE:CZ	2.93	0.56
4:8:87:MET:HE2	1:AP:136:GLY:HA3	1.87	0.56

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
4:8:136:MET:HE1	1:9:228:GLN:HA	1.85	0.56
2:AI:335:ILE:HD11	6:AY:69:GLY:HA3	1.86	0.56
2:S:168:ALA:O	2:S:172:GLU:HG2	2.06	0.56
2:S:176:GLN:OE1	2:S:176:GLN:N	2.39	0.56
2:U:201:ALA:HB2	2:U:232:MET:HE1	1.86	0.56
2:k:215:GLN:NE2	2:k:219:ASP:OD1	2.38	0.56
3:AR:31:ILE:HG13	3:AR:57:VAL:HG21	1.88	0.56
6:AZ:17:GLU:OE1	6:AZ:20:ARG:NH2	2.34	0.56
2:b:227:SER:OG	2:c:200:SER:OG	2.15	0.56
2:g:177:VAL:HG13	2:g:207:LEU:HD23	1.86	0.56
2:V:203:VAL:HG13	2:V:239:VAL:HG22	1.87	0.56
2:B:319:SER:CB	9:An:5:ARG:HA	2.36	0.56
2:V:201:ALA:O	2:k:227:SER:OG	2.24	0.56
1:O:144:PHE:HB2	1:Al:198:MET:HE2	1.86	0.56
2:X:207:LEU:N	2:X:242:GLN:OE1	2.39	0.56
2:Y:227:SER:OG	2:Z:201:ALA:O	2.24	0.56
2:b:178:ARG:NH1	2:b:207:LEU:O	2.37	0.56
1:O:206:PRO:CG	2:Z:194:ARG:HH11	2.16	0.56
2:AB:342:GLN:OE1	2:p:327:ASN:ND2	2.39	0.56
2:V:241:ASP:OD1	2:V:244:GLY:N	2.39	0.56
2:4:368:ARG:HH22	5:AT:50:GLN:HE22	1.52	0.56
2:S:227:SER:OG	2:W:201:ALA:O	2.23	0.56
2:f:168:ALA:O	2:f:172:GLU:HG2	2.06	0.56
3:AQ:89:TYR:HE2	2:l:188:LYS:CB	2.08	0.56
2:j:153:ARG:HA	2:j:153:ARG:HE	1.69	0.56
2:n:184:LEU:HD21	2:n:229:VAL:HG21	1.88	0.56
2:A:372:THR:CG2	9:An:7:ILE:H	2.20	0.55
5:AT:20:GLU:OE2	7:Af:68:SER:OG	2.24	0.55
1:Ak:220:THR:HG23	1:Al:276:TRP:HB3	1.88	0.55
2:Y:218:VAL:HG21	2:Y:247:LEU:HB3	1.87	0.55
2:Z:241:ASP:OD1	2:Z:245:ARG:N	2.39	0.55
2:j:227:SER:OG	2:o:201:ALA:O	2.18	0.55
3:6:15:TRP:CE2	2:b:148:PHE:HZ	2.25	0.55
2:AH:335:ILE:HD12	2:AN:356:MET:HE1	1.88	0.55
3:AR:15:TRP:CE2	2:U:148:PHE:CB	2.90	0.55
2:N:374:ASN:OD1	9:Ap:7:HIS:CB	2.54	0.55
2:i:163:ARG:O	2:i:166:GLN:HG2	2.06	0.55
2:i:206:THR:HA	2:i:242:GLN:HB3	1.89	0.55
2:l:201:ALA:O	2:m:227:SER:OG	2.25	0.55
2:AF:350:PRO:O	2:AF:351:GLN:C	2.50	0.55
1:Al:197:THR:HG21	2:W:194:ARG:CD	2.36	0.55

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:S:201:ALA:O	2:T:227:SER:OG	2.24	0.55
2:Y:168:ALA:O	2:Y:172:GLU:HG2	2.07	0.55
2:Y:246:LEU:HD22	2:Y:248:SER:O	2.06	0.55
2:Z:153:ARG:HA	2:Z:153:ARG:HE	1.70	0.55
2:W:207:LEU:N	2:W:242:GLN:OE1	2.38	0.55
6:AX:20:ARG:HH21	6:AX:111:ALA:HA	1.71	0.55
2:f:214:LYS:NZ	2:f:217:GLU:OE2	2.37	0.55
2:g:177:VAL:HA	2:g:207:LEU:HA	1.87	0.55
2:o:159:LEU:O	2:o:162:SER:OG	2.19	0.55
3:6:64:LEU:HD21	2:Z:148:PHE:CE2	2.38	0.55
1:9:103:VAL:O	1:9:107:THR:HG22	2.06	0.55
3:AR:13:ALA:HB1	1:Al:239:ILE:HD11	1.89	0.55
1:Ak:187:THR:O	2:l:192:PHE:CD1	2.59	0.55
2:U:187:PRO:HD3	2:U:199:ALA:HA	1.88	0.55
3:6:40:ALA:HA	4:8:211:GLN:HG3	1.87	0.55
3:AR:86:GLN:HE21	2:T:153:ARG:NH1	2.05	0.55
6:Ab:135:MET:HE1	7:Ad:72:ILE:HG12	1.89	0.55
2:U:168:ALA:O	2:U:172:GLU:HG2	2.07	0.55
2:Z:207:LEU:N	2:Z:242:GLN:OE1	2.40	0.55
2:o:163:ARG:HA	2:o:166:GLN:HE21	1.72	0.55
3:7:1:MET:HG3	1:9:268:MET:HE1	1.88	0.55
6:AX:129:LEU:HD22	7:Ai:67:LEU:HD12	1.88	0.55
6:Ab:3:LEU:HD21	6:Ab:128:MET:HE3	1.89	0.55
2:V:241:ASP:OD1	2:V:245:ARG:N	2.38	0.55
1:0:115:VAL:HG11	1:0:283:LEU:HD11	1.87	0.55
3:7:4:GLU:HB2	2:Y:152:GLN:NE2	2.20	0.55
1:Al:104:ILE:O	1:Al:110:THR:OG1	2.24	0.55
2:e:164:GLU:HG2	2:e:184:LEU:HD13	1.88	0.55
2:l:191:VAL:HG22	2:l:192:PHE:H	1.72	0.55
3:6:8:GLU:OE2	2:c:152:GLN:HB2	2.06	0.54
3:6:84:LEU:N	3:6:85:PRO:HD2	2.21	0.54
2:T:187:PRO:HD2	2:T:199:ALA:HB2	1.90	0.54
2:a:146:MET:HG3	2:a:158:ARG:HH11	1.71	0.54
1:AP:103:VAL:O	1:AP:107:THR:OG1	2.23	0.54
1:AP:112:ILE:HD13	1:AP:141:LEU:HB3	1.89	0.54
2:h:163:ARG:NH2	2:h:228:ALA:O	2.39	0.54
2:h:220:SER:HA	2:i:246:LEU:HD12	1.89	0.54
2:o:201:ALA:HB2	2:o:232:MET:HE1	1.89	0.54
2:AD:348:SER:HB2	2:AD:356:MET:HE3	1.89	0.54
2:Y:201:ALA:HB2	2:Y:232:MET:HE1	1.88	0.54
2:h:227:SER:OG	2:i:200:SER:OG	2.25	0.54

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
7:Ag:66:SER:OG	7:Ag:69:ASP:OD1	2.25	0.54
2:B:319:SER:OG	9:An:5:ARG:HA	2.07	0.54
2:T:165:ARG:NH2	2:U:139:ASP:OD2	2.40	0.54
2:4:368:ARG:HH22	5:AT:50:GLN:NE2	2.04	0.54
2:AF:352:ASP:O	2:AF:353:VAL:C	2.51	0.54
6:AX:108:MET:HE2	6:AZ:121:VAL:HG22	1.89	0.54
6:Ab:3:LEU:HB3	6:Ab:129:LEU:HD21	1.89	0.54
6:Ab:43:LYS:HG2	6:Ab:77:LEU:HD21	1.90	0.54
2:F:324:GLU:OE2	2:F:326:TYR:OH	2.26	0.54
2:G:324:GLU:OE2	2:G:326:TYR:OH	2.26	0.54
2:S:245:ARG:HG3	2:S:247:LEU:HD21	1.90	0.54
2:g:227:SER:O	2:h:200:SER:OG	2.23	0.54
2:i:241:ASP:OD1	2:i:244:GLY:N	2.41	0.54
2:l:164:GLU:HG2	2:l:184:LEU:HD13	1.89	0.54
2:n:146:MET:N	2:n:146:MET:SD	2.81	0.54
3:AQ:6:PHE:HB2	1:Al:268:MET:HE2	1.89	0.54
5:AT:30:ILE:HG23	5:AT:96:LEU:HD11	1.89	0.54
1:Al:206:PRO:CD	2:S:192:PHE:HB3	2.38	0.54
2:E:324:GLU:OE2	2:E:326:TYR:OH	2.26	0.54
2:u:324:GLU:OE2	2:u:326:TYR:OH	2.26	0.54
1:O:185:LYS:HD2	2:Y:194:ARG:HH11	1.65	0.54
2:H:324:GLU:OE2	2:H:326:TYR:OH	2.26	0.54
2:b:227:SER:OG	2:c:201:ALA:O	2.25	0.54
2:h:238:THR:HG23	2:h:246:LEU:HD21	1.89	0.54
2:m:168:ALA:O	2:m:172:GLU:HG2	2.08	0.54
1:AP:198:MET:HE1	1:Ak:141:LEU:HD22	1.90	0.54
1:AP:239:ILE:HD12	8:Aj:89:LEU:HD22	1.90	0.54
2:Z:176:GLN:N	2:Z:176:GLN:OE1	2.41	0.54
2:g:227:SER:OG	2:h:201:ALA:O	2.26	0.54
2:x:324:GLU:OE2	2:x:326:TYR:OH	2.26	0.54
3:7:89:TYR:CE2	2:Y:190:SER:HB2	2.43	0.54
2:I:324:GLU:OE2	2:I:326:TYR:OH	2.26	0.54
2:y:324:GLU:OE2	2:y:326:TYR:OH	2.26	0.54
6:AX:9:VAL:HG21	6:AX:62:THR:HB	1.90	0.53
2:S:239:VAL:N	2:S:248:SER:OG	2.41	0.53
2:c:172:GLU:OE2	2:c:180:ALA:N	2.42	0.53
9:Ap:9:PRO:O	9:Ap:10:ALA:C	2.51	0.53
7:Af:66:SER:OG	7:Af:69:ASP:OD1	2.26	0.53
2:J:324:GLU:OE2	2:J:326:TYR:OH	2.26	0.53
2:X:151:SER:O	2:X:153:ARG:N	2.42	0.53
2:z:324:GLU:OE2	2:z:326:TYR:OH	2.26	0.53

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:AI:339:LEU:HD11	6:AY:72:GLU:HG3	1.91	0.53
6:AY:133:LEU:HA	7:Af:71:MET:HE3	1.89	0.53
2:R:324:GLU:OE2	2:R:326:TYR:OH	2.26	0.53
2:5:273:LEU:HD23	2:5:294:VAL:HG11	1.91	0.53
2:A:273:LEU:HD23	2:A:294:VAL:HG11	1.91	0.53
7:Ad:94:ALA:HA	1:Al:100:PRO:HG3	1.90	0.53
2:N:273:LEU:HD23	2:N:294:VAL:HG11	1.91	0.53
2:O:273:LEU:HD23	2:O:294:VAL:HG11	1.91	0.53
2:b:159:LEU:HD13	2:c:157:GLU:HG3	1.91	0.53
2:c:178:ARG:NH2	2:c:206:THR:OG1	2.42	0.53
2:k:207:LEU:N	2:k:242:GLN:OE1	2.42	0.53
2:1:324:GLU:OE2	2:1:326:TYR:OH	2.26	0.53
3:7:4:GLU:CB	2:Y:152:GLN:NE2	2.71	0.53
4:8:54:MET:HE2	7:Ae:26:GLY:HA3	1.90	0.53
2:AJ:335:ILE:HG22	6:AX:87:LEU:HD11	1.89	0.53
1:Al:197:THR:HG21	2:W:194:ARG:HD2	1.90	0.53
2:D:273:LEU:HD23	2:D:294:VAL:HG11	1.91	0.53
2:L:273:LEU:HD23	2:L:294:VAL:HG11	1.91	0.53
2:P:273:LEU:HD23	2:P:294:VAL:HG11	1.91	0.53
2:V:150:VAL:HG12	2:V:154:LEU:HD23	1.90	0.53
2:V:171:ILE:HD12	2:V:221:ILE:HD12	1.91	0.53
2:m:204:PHE:HE1	2:m:206:THR:HG22	1.73	0.53
2:B:273:LEU:HD23	2:B:294:VAL:HG11	1.91	0.53
2:K:324:GLU:OE2	2:K:326:TYR:OH	2.26	0.53
2:S:147:GLY:O	2:S:148:PHE:C	2.51	0.53
2:h:199:ALA:HB3	2:h:232:MET:HB3	1.91	0.53
2:i:178:ARG:NH1	2:i:207:LEU:O	2.41	0.53
2:C:273:LEU:HD23	2:C:294:VAL:HG11	1.91	0.53
2:H:273:LEU:HD23	2:H:294:VAL:HG11	1.91	0.53
2:K:273:LEU:HD23	2:K:294:VAL:HG11	1.91	0.53
2:M:273:LEU:HD23	2:M:294:VAL:HG11	1.91	0.53
2:S:174:MET:SD	2:S:221:ILE:HD11	2.49	0.53
2:V:176:GLN:OE1	2:V:176:GLN:N	2.40	0.53
2:q:324:GLU:OE2	2:q:326:TYR:OH	2.26	0.53
9:Aq:8:GLY:O	9:Aq:9:ARG:C	2.52	0.53
2:3:273:LEU:HD23	2:3:294:VAL:HG11	1.91	0.53
5:AT:85:GLN:HE21	6:AZ:19:VAL:HG22	1.73	0.53
5:AU:31:ALA:HA	6:Aa:118:ASN:HD21	1.73	0.53
2:F:273:LEU:HD23	2:F:294:VAL:HG11	1.91	0.53
2:J:273:LEU:HD23	2:J:294:VAL:HG11	1.91	0.53
2:Y:196:ASN:OD1	2:Y:196:ASN:N	2.41	0.53

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:n:178:ARG:NH1	2:n:207:LEU:O	2.41	0.53
2:4:273:LEU:HD23	2:4:294:VAL:HG11	1.91	0.53
4:8:64:ILE:HG22	4:8:70:ARG:HG2	1.91	0.53
3:AR:81:ILE:HG13	1:Al:278:LEU:HD21	1.91	0.53
5:AV:36:PRO:HB3	5:AV:90:ASP:HB2	1.91	0.53
5:AW:37:GLY:N	5:AW:90:ASP:O	2.42	0.53
2:E:273:LEU:HD23	2:E:294:VAL:HG11	1.91	0.53
2:L:324:GLU:OE2	2:L:326:TYR:OH	2.26	0.53
2:U:207:LEU:N	2:U:242:GLN:OE1	2.40	0.53
2:Z:168:ALA:O	2:Z:172:GLU:HG2	2.09	0.53
2:p:324:GLU:OE2	2:p:326:TYR:OH	2.26	0.53
2:q:374:ASN:HD21	9:Aq:3:LEU:HA	1.74	0.53
2:2:324:GLU:OE2	2:2:326:TYR:OH	2.26	0.52
1:AP:85:VAL:HG13	5:AS:3:ILE:HA	1.90	0.52
6:Ac:133:LEU:HD23	7:Ah:71:MET:HE3	1.91	0.52
2:S:241:ASP:OD1	2:S:244:GLY:N	2.42	0.52
2:Z:139:ASP:HB3	2:a:161:LEU:HD21	1.90	0.52
2:h:173:GLU:HB2	2:i:204:PHE:CZ	2.43	0.52
2:h:184:LEU:HD21	2:h:229:VAL:HG21	1.91	0.52
2:l:207:LEU:N	2:l:242:GLN:OE1	2.43	0.52
3:6:15:TRP:CZ2	2:b:148:PHE:CZ	2.96	0.52
4:8:97:VAL:HG22	4:8:131:MET:HB2	1.90	0.52
5:AS:128:ILE:HG13	5:AS:129:LYS:HG3	1.91	0.52
2:R:273:LEU:HD23	2:R:294:VAL:HG11	1.91	0.52
2:X:179:LYS:HB3	2:X:206:THR:OG1	2.09	0.52
2:c:174:MET:HB2	2:c:177:VAL:HB	1.91	0.52
2:k:241:ASP:OD1	2:k:245:ARG:N	2.43	0.52
2:3:324:GLU:OE2	2:3:326:TYR:OH	2.26	0.52
2:AM:340:SER:HA	2:AM:349:ILE:HD11	1.90	0.52
5:AV:41:ARG:NH2	5:AV:80:TYR:OH	2.38	0.52
2:Q:273:LEU:HD23	2:Q:294:VAL:HG11	1.91	0.52
1:AP:125:LEU:HB3	1:AP:128:THR:HB	1.91	0.52
2:I:273:LEU:HD23	2:I:294:VAL:HG11	1.91	0.52
2:M:324:GLU:OE2	2:M:326:TYR:OH	2.26	0.52
2:v:273:LEU:HD23	2:v:294:VAL:HG11	1.91	0.52
2:w:273:LEU:HD23	2:w:294:VAL:HG11	1.91	0.52
2:1:273:LEU:HD23	2:1:294:VAL:HG11	1.91	0.52
2:2:273:LEU:HD23	2:2:294:VAL:HG11	1.91	0.52
4:8:150:LEU:HD13	4:8:252:ILE:HG21	1.92	0.52
2:j:227:SER:O	2:o:200:SER:OG	2.20	0.52
2:G:273:LEU:HD23	2:G:294:VAL:HG11	1.91	0.52

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:k:176:GLN:OE1	2:k:176:GLN:N	2.42	0.52
2:l:184:LEU:HD21	2:l:229:VAL:HG21	1.91	0.52
2:4:324:GLU:OE2	2:4:326:TYR:OH	2.26	0.52
3:AR:81:ILE:HG21	1:Al:278:LEU:HD11	1.91	0.52
1:Ak:189:ILE:CD1	2:k:192:PHE:CD1	2.87	0.52
2:T:196:ASN:OD1	2:T:196:ASN:N	2.43	0.52
9:Am:11:PRO:O	9:Am:12:ALA:C	2.53	0.52
1:Al:187:THR:O	2:T:192:PHE:CB	2.57	0.52
2:V:229:VAL:HB	2:V:232:MET:SD	2.50	0.52
2:Y:248:SER:O	2:Y:249:SER:HB2	2.10	0.52
2:d:241:ASP:OD1	2:d:245:ARG:N	2.43	0.52
2:k:229:VAL:HB	2:k:232:MET:SD	2.49	0.52
2:q:273:LEU:HD23	2:q:294:VAL:HG11	1.91	0.52
2:r:273:LEU:HD23	2:r:294:VAL:HG11	1.91	0.52
2:r:324:GLU:OE2	2:r:326:TYR:OH	2.26	0.52
1:0:248:LEU:HD11	1:0:261:VAL:HG11	1.92	0.52
4:8:28:VAL:HB	4:8:86:GLY:HA3	1.91	0.52
2:H:319:SER:CB	9:Ao:3:THR:H	2.22	0.52
2:s:273:LEU:HD23	2:s:294:VAL:HG11	1.91	0.52
2:N:324:GLU:OE2	2:N:326:TYR:OH	2.26	0.51
2:W:139:ASP:OD1	2:W:139:ASP:N	2.43	0.51
2:d:227:SER:OG	2:e:201:ALA:O	2.21	0.51
2:g:174:MET:SD	2:g:221:ILE:HD11	2.49	0.51
2:j:230:PRO:HB2	2:o:197:GLN:HE21	1.74	0.51
2:o:184:LEU:HD21	2:o:229:VAL:HG21	1.93	0.51
2:p:273:LEU:HD23	2:p:294:VAL:HG11	1.91	0.51
1:0:112:ILE:HD13	1:0:141:LEU:HB3	1.92	0.51
6:AX:84:ASP:OD1	6:AZ:73:SER:OG	2.23	0.51
2:a:184:LEU:HD21	2:a:229:VAL:HG21	1.91	0.51
2:x:273:LEU:HD23	2:x:294:VAL:HG11	1.91	0.51
2:B:324:GLU:OE2	2:B:326:TYR:OH	2.26	0.51
2:Q:324:GLU:OE2	2:Q:326:TYR:OH	2.26	0.51
2:S:246:LEU:H	2:T:216:GLN:NE2	2.08	0.51
2:d:176:GLN:OE1	2:d:176:GLN:N	2.40	0.51
2:u:273:LEU:HD23	2:u:294:VAL:HG11	1.91	0.51
2:5:324:GLU:OE2	2:5:326:TYR:OH	2.26	0.51
2:AF:347:ALA:O	2:AF:353:VAL:HG13	2.10	0.51
1:AP:139:LEU:HD21	7:Ai:98:LEU:HD13	1.92	0.51
6:Ac:9:VAL:HG21	6:Ac:62:THR:HB	1.92	0.51
2:a:168:ALA:O	2:a:172:GLU:HG2	2.10	0.51
4:8:53:VAL:HG11	1:9:198:MET:HE2	1.92	0.51

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
5:AT:119:SER:OG	7:Ae:74:ARG:NH2	2.44	0.51
2:l:187:PRO:HD2	2:l:199:ALA:HB2	1.93	0.51
4:8:214:ILE:HG12	1:AP:255:MET:HB2	1.93	0.51
1:A1:192:LEU:HB3	2:S:192:PHE:CZ	2.46	0.51
2:O:324:GLU:OE2	2:O:326:TYR:OH	2.26	0.51
2:d:168:ALA:O	2:d:172:GLU:HG2	2.10	0.51
2:g:224:MET:HG3	2:h:202:SER:HB3	1.91	0.51
2:h:174:MET:HE3	2:i:204:PHE:HE1	1.75	0.51
2:y:273:LEU:HD23	2:y:294:VAL:HG11	1.91	0.51
2:AI:339:LEU:HD11	6:AY:72:GLU:CG	2.41	0.51
2:d:207:LEU:N	2:d:242:GLN:OE1	2.43	0.51
2:f:178:ARG:N	2:f:206:THR:O	2.39	0.51
2:m:154:LEU:O	2:m:158:ARG:HG3	2.11	0.51
2:m:246:LEU:H	2:n:216:GLN:HE21	1.58	0.51
2:s:324:GLU:OE2	2:s:326:TYR:OH	2.26	0.51
2:z:273:LEU:HD23	2:z:294:VAL:HG11	1.91	0.51
1:9:206:PRO:CG	2:d:192:PHE:CE2	2.89	0.51
2:C:324:GLU:OE2	2:C:326:TYR:OH	2.26	0.51
2:e:185:ALA:O	2:e:199:ALA:HA	2.11	0.51
2:g:163:ARG:HA	2:g:166:GLN:HE21	1.76	0.51
2:j:167:LEU:O	2:j:171:ILE:HG12	2.10	0.51
2:t:273:LEU:HD23	2:t:294:VAL:HG11	1.91	0.51
1:0:112:ILE:HG22	1:0:116:MET:HE2	1.93	0.51
3:6:81:ILE:HG23	1:9:282:THR:HG21	1.93	0.51
2:P:324:GLU:OE2	2:P:326:TYR:OH	2.26	0.51
2:n:207:LEU:HD21	2:n:213:LEU:HD11	1.91	0.51
2:A:324:GLU:OE2	2:A:326:TYR:OH	2.26	0.51
2:X:227:SER:OG	2:Y:201:ALA:O	2.21	0.51
2:Z:174:MET:HB2	2:Z:177:VAL:HB	1.93	0.51
1:0:189:ILE:HG12	2:Y:191:VAL:O	2.10	0.50
2:S:227:SER:O	2:W:200:SER:OG	2.21	0.50
2:W:168:ALA:O	2:W:172:GLU:HG2	2.11	0.50
2:e:229:VAL:HB	2:e:232:MET:SD	2.51	0.50
2:k:160:LYS:HD3	2:k:186:LEU:HG	1.93	0.50
3:6:52:LEU:HB2	3:7:25:ILE:HG21	1.94	0.50
4:8:81:ILE:HG22	4:8:85:MET:HE1	1.94	0.50
5:AS:35:THR:O	5:AS:92:ASN:ND2	2.44	0.50
2:U:241:ASP:CG	2:U:245:ARG:HG2	2.37	0.50
2:Z:199:ALA:HB3	2:Z:232:MET:HB3	1.94	0.50
2:c:179:LYS:HB3	2:c:206:THR:HG23	1.93	0.50
2:c:241:ASP:OD2	2:c:245:ARG:NH1	2.45	0.50

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:f:174:MET:SD	2:f:221:ILE:HD11	2.51	0.50
2:m:239:VAL:HG12	2:m:247:LEU:HD12	1.93	0.50
4:8:204:VAL:HG23	8:Aj:39:LEU:HD22	1.93	0.50
2:A:374:ASN:HD22	9:An:7:ILE:CB	2.21	0.50
2:AD:341:ASN:HD22	2:F:366:SER:CB	2.24	0.50
2:AG:336:PRO:HG2	2:AO:352:ASP:HB3	1.92	0.50
2:F:306:THR:OG1	10:Ar:14:GLU:CB	2.59	0.50
2:G:374:ASN:OD1	9:Ao:3:THR:CA	2.59	0.50
2:d:239:VAL:HG12	2:d:247:LEU:HD12	1.92	0.50
2:t:324:GLU:OE2	2:t:326:TYR:OH	2.26	0.50
9:Am:2:LEU:C	9:Am:4:ARG:N	2.70	0.50
9:Am:9:HIS:O	9:Am:10:ILE:C	2.53	0.50
2:AH:342:GLN:HG3	2:AH:343:PRO:HD2	1.93	0.50
2:V:179:LYS:HB3	2:V:206:THR:HG23	1.92	0.50
2:V:200:SER:HB2	2:V:236:ARG:HH21	1.76	0.50
4:8:149:GLN:HE22	2:e:192:PHE:HB3	1.77	0.50
2:AK:330:ASN:N	2:AK:330:ASN:HD22	2.10	0.50
2:Z:193:VAL:O	2:Z:195:HIS:N	2.44	0.50
2:f:229:VAL:HB	2:f:232:MET:HE2	1.93	0.50
5:AT:104:MET:SD	6:AZ:126:LYS:NZ	2.80	0.50
6:AZ:37:SER:O	6:AZ:38:ALA:HB3	2.11	0.50
2:X:153:ARG:HH22	2:X:188:LYS:HD3	1.76	0.50
2:a:218:VAL:HG21	2:a:247:LEU:HB3	1.93	0.50
2:a:227:SER:OG	2:b:200:SER:OG	2.28	0.50
2:g:178:ARG:NH1	2:g:207:LEU:O	2.45	0.50
2:j:216:GLN:HE21	2:o:246:LEU:H	1.60	0.50
2:q:430:LEU:HA	2:q:433:THR:HB	1.94	0.50
2:AF:347:ALA:HA	2:AF:353:VAL:CG1	2.42	0.50
2:E:430:LEU:HA	2:E:433:THR:HB	1.94	0.50
2:G:430:LEU:HA	2:G:433:THR:HB	1.94	0.50
2:R:430:LEU:HA	2:R:433:THR:HB	1.94	0.50
2:U:203:VAL:HG13	2:U:239:VAL:HG22	1.93	0.50
2:AK:353:VAL:HG21	6:AX:71:VAL:HG11	1.94	0.50
1:AP:183:MET:HE1	1:AP:211:MET:HG3	1.92	0.50
5:AU:128:ILE:HD13	7:Ag:83:ALA:HB2	1.94	0.50
2:D:324:GLU:OE2	2:D:326:TYR:OH	2.26	0.50
2:H:430:LEU:HA	2:H:433:THR:HB	1.94	0.50
2:J:430:LEU:HA	2:J:433:THR:HB	1.94	0.50
2:O:430:LEU:HA	2:O:433:THR:HB	1.94	0.50
2:Q:430:LEU:HA	2:Q:433:THR:HB	1.94	0.50
2:c:171:ILE:HD12	2:c:221:ILE:HD12	1.94	0.50

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:g:173:GLU:OE2	2:h:181:ARG:NH1	2.38	0.50
2:h:182:VAL:HG13	2:h:203:VAL:HB	1.92	0.50
2:i:241:ASP:OD2	2:i:245:ARG:NH1	2.45	0.50
2:k:178:ARG:NH1	2:k:207:LEU:O	2.45	0.50
2:k:204:PHE:HE1	2:k:206:THR:HG22	1.76	0.50
1:0:276:TRP:HB3	1:Al:220:THR:HG23	1.93	0.50
2:L:430:LEU:HA	2:L:433:THR:HB	1.94	0.50
2:S:164:GLU:HG2	2:S:184:LEU:HD13	1.93	0.50
2:Z:139:ASP:OD1	2:Z:139:ASP:N	2.45	0.50
2:Z:222:VAL:HG23	2:Z:237:ILE:HB	1.93	0.50
2:m:246:LEU:H	2:n:216:GLN:NE2	2.09	0.50
2:n:238:THR:HG21	2:o:224:MET:HA	1.94	0.50
2:p:430:LEU:HA	2:p:433:THR:HB	1.94	0.50
2:s:430:LEU:HA	2:s:433:THR:HB	1.94	0.50
4:8:43:LEU:HD21	7:Ae:99:MET:HA	1.94	0.49
4:8:44:TYR:HE2	1:9:104:ILE:HD12	1.77	0.49
7:Ag:60:ARG:NH1	7:Ag:62:ASP:OD1	2.45	0.49
1:Al:142:THR:HA	1:Al:145:VAL:HG22	1.93	0.49
2:F:430:LEU:HA	2:F:433:THR:HB	1.94	0.49
2:K:430:LEU:HA	2:K:433:THR:HB	1.94	0.49
2:P:430:LEU:HA	2:P:433:THR:HB	1.94	0.49
2:S:150:VAL:HG12	2:S:154:LEU:HD23	1.94	0.49
2:W:187:PRO:HB3	2:W:197:GLN:HB2	1.93	0.49
2:d:245:ARG:HG3	2:d:247:LEU:HD21	1.94	0.49
2:j:168:ALA:O	2:j:172:GLU:HG2	2.12	0.49
2:l:161:LEU:HD21	2:l:165:ARG:HH21	1.77	0.49
3:AQ:5:MET:SD	3:AQ:83:ARG:NH2	2.85	0.49
3:AR:15:TRP:CE2	2:U:148:PHE:HB3	2.47	0.49
2:I:430:LEU:HA	2:I:433:THR:HB	1.94	0.49
2:M:430:LEU:HA	2:M:433:THR:HB	1.94	0.49
2:e:201:ALA:HB3	2:e:237:ILE:HG13	1.93	0.49
2:e:231:GLY:O	2:e:232:MET:HG3	2.12	0.49
2:j:176:GLN:N	2:j:176:GLN:OE1	2.45	0.49
2:S:217:GLU:OE1	2:W:244:GLY:HA3	2.12	0.49
2:Y:235:SER:O	2:Y:250:GLY:HA2	2.13	0.49
2:r:430:LEU:HA	2:r:433:THR:HB	1.94	0.49
1:0:112:ILE:HG23	1:0:283:LEU:HD23	1.94	0.49
2:C:430:LEU:HA	2:C:433:THR:HB	1.94	0.49
2:D:430:LEU:HA	2:D:433:THR:HB	1.94	0.49
2:a:222:VAL:HG23	2:a:237:ILE:HB	1.95	0.49
2:b:171:ILE:HD12	2:b:221:ILE:HD12	1.94	0.49

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:c:220:SER:HB2	2:d:240:THR:HG21	1.93	0.49
1:Ak:144:PHE:O	1:Ak:147:SER:OG	2.27	0.49
2:N:430:LEU:HA	2:N:433:THR:HB	1.94	0.49
2:U:172:GLU:OE2	2:U:179:LYS:HA	2.12	0.49
2:W:203:VAL:HG13	2:W:239:VAL:HG22	1.93	0.49
2:b:172:GLU:OE2	2:b:180:ALA:N	2.42	0.49
1:0:116:MET:HE3	1:0:134:ILE:HG23	1.93	0.49
2:2:430:LEU:HA	2:2:433:THR:HB	1.94	0.49
1:9:195:PHE:HB3	1:9:213:VAL:HG22	1.95	0.49
2:g:168:ALA:O	2:g:172:GLU:HG2	2.12	0.49
2:l:196:ASN:OD1	2:l:196:ASN:N	2.44	0.49
2:3:430:LEU:HA	2:3:433:THR:HB	1.94	0.49
2:U:222:VAL:HG23	2:U:237:ILE:HB	1.95	0.49
2:W:218:VAL:HG21	2:W:247:LEU:HB3	1.94	0.49
2:X:239:VAL:N	2:X:248:SER:OG	2.44	0.49
2:a:210:GLY:O	2:a:211:THR:OG1	2.30	0.49
2:w:324:GLU:OE2	2:w:326:TYR:OH	2.26	0.49
2:y:430:LEU:HA	2:y:433:THR:HB	1.94	0.49
2:z:430:LEU:HA	2:z:433:THR:HB	1.94	0.49
6:Ab:133:LEU:HD23	7:Ad:71:MET:HE3	1.95	0.49
2:C:299:ASP:O	2:C:389:GLY:HA2	2.13	0.49
2:P:299:ASP:O	2:P:389:GLY:HA2	2.13	0.49
2:W:146:MET:HB3	2:W:150:VAL:HG21	1.94	0.49
2:X:187:PRO:HB3	2:X:197:GLN:HB2	1.94	0.49
2:c:176:GLN:O	2:c:208:SER:N	2.45	0.49
2:t:430:LEU:HA	2:t:433:THR:HB	1.94	0.49
2:v:324:GLU:OE2	2:v:326:TYR:OH	2.26	0.49
2:z:299:ASP:O	2:z:389:GLY:HA2	2.13	0.49
5:AW:33:ALA:O	5:AW:92:ASN:ND2	2.45	0.49
6:AY:75:LYS:O	6:AY:98:ASN:ND2	2.43	0.49
2:n:207:LEU:N	2:n:242:GLN:OE1	2.46	0.49
2:n:241:ASP:OD2	2:n:245:ARG:NH1	2.45	0.49
2:v:299:ASP:O	2:v:389:GLY:HA2	2.13	0.49
2:x:299:ASP:O	2:x:389:GLY:HA2	2.13	0.49
1:0:253:MET:HA	1:Al:249:MET:HE3	1.95	0.49
2:J:299:ASP:O	2:J:389:GLY:HA2	2.13	0.49
2:S:246:LEU:HG	2:T:220:SER:HA	1.95	0.49
2:h:173:GLU:HB2	2:i:204:PHE:HZ	1.76	0.49
2:t:299:ASP:O	2:t:389:GLY:HA2	2.13	0.49
2:2:299:ASP:O	2:2:389:GLY:HA2	2.13	0.48
2:5:299:ASP:O	2:5:389:GLY:HA2	2.13	0.48

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
3:6:1:MET:SD	3:6:1:MET:N	2.70	0.48
1:Ak:206:PRO:HD2	2:k:194:ARG:NH1	2.27	0.48
2:M:299:ASP:O	2:M:389:GLY:HA2	2.13	0.48
2:T:201:ALA:O	2:U:227:SER:OG	2.21	0.48
2:s:299:ASP:O	2:s:389:GLY:HA2	2.13	0.48
2:u:430:LEU:HA	2:u:433:THR:HB	1.94	0.48
1:0:185:LYS:HG3	2:Y:194:ARG:HH12	1.78	0.48
1:9:184:LEU:HD11	1:9:207:GLU:HA	1.95	0.48
2:H:299:ASP:O	2:H:389:GLY:HA2	2.13	0.48
2:T:200:SER:OG	2:T:201:ALA:N	2.45	0.48
2:g:218:VAL:HG23	2:g:239:VAL:HG11	1.95	0.48
2:A:430:LEU:HA	2:A:433:THR:HB	1.94	0.48
5:AT:97:ASP:OD1	6:AZ:115:TYR:OH	2.32	0.48
8:Aj:49:PHE:HB3	8:Aj:96:VAL:HG22	1.95	0.48
2:B:299:ASP:O	2:B:389:GLY:HA2	2.13	0.48
2:B:430:LEU:HA	2:B:433:THR:HB	1.94	0.48
2:E:299:ASP:O	2:E:389:GLY:HA2	2.13	0.48
2:S:218:VAL:HG21	2:S:247:LEU:HB3	1.96	0.48
2:q:299:ASP:O	2:q:389:GLY:HA2	2.13	0.48
2:3:299:ASP:O	2:3:389:GLY:HA2	2.13	0.48
2:F:299:ASP:O	2:F:389:GLY:HA2	2.13	0.48
2:K:299:ASP:O	2:K:389:GLY:HA2	2.13	0.48
2:N:299:ASP:O	2:N:389:GLY:HA2	2.13	0.48
2:R:299:ASP:O	2:R:389:GLY:HA2	2.13	0.48
2:T:177:VAL:HA	2:T:207:LEU:HA	1.95	0.48
2:a:163:ARG:NH2	2:b:183:LEU:HB3	2.27	0.48
2:b:159:LEU:O	2:b:162:SER:OG	2.27	0.48
2:f:176:GLN:O	2:f:208:SER:N	2.47	0.48
2:k:171:ILE:HG22	2:k:177:VAL:HG11	1.95	0.48
2:l:163:ARG:HA	2:l:166:GLN:HE21	1.78	0.48
2:p:299:ASP:O	2:p:389:GLY:HA2	2.13	0.48
2:v:430:LEU:HA	2:v:433:THR:HB	1.94	0.48
2:1:299:ASP:O	2:1:389:GLY:HA2	2.13	0.48
2:AL:353:VAL:HG21	6:AY:71:VAL:HG11	1.94	0.48
2:Q:299:ASP:O	2:Q:389:GLY:HA2	2.13	0.48
2:T:172:GLU:OE2	2:T:179:LYS:HA	2.14	0.48
2:l:203:VAL:HG13	2:l:239:VAL:HG22	1.95	0.48
2:o:173:GLU:OE1	2:o:173:GLU:N	2.46	0.48
2:y:299:ASP:O	2:y:389:GLY:HA2	2.13	0.48
2:5:430:LEU:HA	2:5:433:THR:HB	1.94	0.48
4:8:183:THR:HG22	4:8:187:MET:HE3	1.95	0.48

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:A:299:ASP:O	2:A:389:GLY:HA2	2.13	0.48
1:AP:206:PRO:HG3	2:o:192:PHE:CD1	2.48	0.48
1:AP:236:PRO:HB2	8:Aj:61:MET:HG2	1.95	0.48
6:AX:61:ASP:OD1	6:AX:61:ASP:N	2.45	0.48
1:Ak:183:MET:HE1	1:Ak:215:ILE:HG12	1.95	0.48
2:H:372:THR:HG21	9:Ao:10:ALA:HA	1.96	0.48
2:L:299:ASP:O	2:L:389:GLY:HA2	2.13	0.48
2:S:196:ASN:OD1	2:S:197:GLN:N	2.46	0.48
2:e:163:ARG:NH2	2:f:184:LEU:O	2.45	0.48
2:j:174:MET:HE2	2:j:174:MET:HB3	1.80	0.48
2:n:161:LEU:HD21	2:o:139:ASP:HB3	1.96	0.48
2:u:299:ASP:O	2:u:389:GLY:HA2	2.13	0.48
2:w:430:LEU:HA	2:w:433:THR:HB	1.94	0.48
2:4:299:ASP:O	2:4:389:GLY:HA2	2.13	0.48
1:Ak:82:ASP:OD1	1:Ak:82:ASP:N	2.45	0.48
2:N:381:ILE:CG2	10:Aw:3:GLY:HA3	2.44	0.48
2:O:299:ASP:O	2:O:389:GLY:HA2	2.13	0.48
2:Y:159:LEU:O	2:Y:162:SER:OG	2.28	0.48
2:d:153:ARG:O	2:d:157:GLU:HG2	2.13	0.48
2:g:178:ARG:NH2	2:g:206:THR:OG1	2.47	0.48
2:r:299:ASP:O	2:r:389:GLY:HA2	2.13	0.48
2:h:167:LEU:O	2:h:171:ILE:HG12	2.13	0.48
2:o:207:LEU:HD21	2:o:213:LEU:HD11	1.96	0.48
4:8:243:MET:HE2	2:e:152:GLN:HB2	1.96	0.48
1:Al:111:ARG:NE	1:Al:222:GLU:OE1	2.44	0.48
2:G:299:ASP:O	2:G:389:GLY:HA2	2.13	0.48
2:k:201:ALA:HB2	2:k:232:MET:HE1	1.96	0.48
3:AR:8:GLU:HG2	3:AR:83:ARG:NH2	2.29	0.48
5:AU:39:LYS:NZ	5:AU:91:GLY:O	2.40	0.48
2:U:174:MET:SD	2:U:221:ILE:HD11	2.54	0.48
2:h:187:PRO:HD3	2:h:199:ALA:HB2	1.96	0.48
1:9:119:LEU:HD21	1:9:270:PHE:CE1	2.49	0.47
2:S:200:SER:OG	2:T:227:SER:O	2.24	0.47
2:w:299:ASP:O	2:w:389:GLY:HA2	2.13	0.47
2:x:430:LEU:HA	2:x:433:THR:HB	1.94	0.47
2:4:430:LEU:HA	2:4:433:THR:HB	1.94	0.47
1:Ak:149:VAL:HG23	1:Ak:178:PRO:HB2	1.96	0.47
2:Z:193:VAL:C	2:Z:195:HIS:N	2.70	0.47
2:b:168:ALA:O	2:b:172:GLU:HG2	2.14	0.47
2:m:157:GLU:HG3	2:n:159:LEU:HD22	1.97	0.47
2:1:430:LEU:HA	2:1:433:THR:HB	1.94	0.47

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
3:6:68:TRP:CE2	2:a:148:PHE:CZ	2.98	0.47
1:9:189:ILE:CG1	2:c:193:VAL:HA	2.44	0.47
3:AR:42:THR:HG23	3:AR:44:ILE:HG12	1.96	0.47
6:AY:13:ALA:O	6:AY:17:GLU:HG2	2.14	0.47
2:D:299:ASP:O	2:D:389:GLY:HA2	2.13	0.47
2:I:299:ASP:O	2:I:389:GLY:HA2	2.13	0.47
2:Q:260:ARG:O	2:Q:264:GLU:HG2	2.15	0.47
2:T:178:ARG:NH1	2:T:207:LEU:O	2.47	0.47
2:V:241:ASP:CG	2:V:245:ARG:HG2	2.39	0.47
2:X:174:MET:SD	2:X:221:ILE:HD11	2.54	0.47
2:Y:227:SER:O	2:Z:200:SER:OG	2.29	0.47
2:i:227:SER:OG	2:j:201:ALA:O	2.33	0.47
7:Ag:71:MET:O	7:Ag:75:ASN:ND2	2.29	0.47
2:T:236:ARG:HD3	2:T:236:ARG:HA	1.65	0.47
2:a:220:SER:HB3	2:b:246:LEU:HB2	1.96	0.47
2:e:160:LYS:HD3	2:e:184:LEU:HB2	1.97	0.47
2:m:214:LYS:NZ	2:m:217:GLU:OE2	2.47	0.47
2:u:260:ARG:O	2:u:264:GLU:HG2	2.15	0.47
2:x:372:THR:HG22	9:Am:10:ILE:CB	2.40	0.47
3:6:71:GLN:NE2	2:a:151:SER:HB3	2.27	0.47
4:8:27:MET:HE1	7:Ai:92:VAL:HG13	1.96	0.47
5:AW:85:GLN:OE1	6:Ab:22:ASN:ND2	2.47	0.47
7:Ae:71:MET:SD	7:Ae:74:ARG:NH1	2.85	0.47
2:B:260:ARG:O	2:B:264:GLU:HG2	2.15	0.47
2:H:260:ARG:O	2:H:264:GLU:HG2	2.15	0.47
2:K:260:ARG:O	2:K:264:GLU:HG2	2.15	0.47
2:f:227:SER:O	2:g:200:SER:OG	2.31	0.47
2:z:260:ARG:O	2:z:264:GLU:HG2	2.15	0.47
1:0:154:ASN:HA	1:0:158:VAL:HB	1.95	0.47
2:2:260:ARG:O	2:2:264:GLU:HG2	2.15	0.47
5:AS:9:LEU:HD12	5:AS:120:LYS:HB3	1.97	0.47
5:AS:30:ILE:HG23	5:AS:96:LEU:HD11	1.96	0.47
5:AU:30:ILE:HG23	5:AU:96:LEU:HD11	1.97	0.47
7:Ai:88:ARG:HH11	7:Ai:92:VAL:HG21	1.80	0.47
2:O:260:ARG:O	2:O:264:GLU:HG2	2.15	0.47
2:d:201:ALA:HB3	2:d:237:ILE:HG23	1.95	0.47
2:p:260:ARG:O	2:p:264:GLU:HG2	2.15	0.47
2:3:260:ARG:O	2:3:264:GLU:HG2	2.15	0.47
2:5:260:ARG:O	2:5:264:GLU:HG2	2.15	0.47
5:AT:24:GLU:OE2	6:AY:2:SER:N	2.47	0.47
1:Ak:207:GLU:OE2	2:k:194:ARG:NH2	2.48	0.47

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:J:260:ARG:O	2:J:264:GLU:HG2	2.15	0.47
2:Y:206:THR:HA	2:Y:242:GLN:HB3	1.97	0.47
2:g:164:GLU:OE2	2:g:184:LEU:N	2.47	0.47
2:l:152:GLN:HG3	2:l:153:ARG:HE	1.80	0.47
2:r:260:ARG:O	2:r:264:GLU:HG2	2.15	0.47
2:s:260:ARG:O	2:s:264:GLU:HG2	2.15	0.47
2:w:260:ARG:O	2:w:264:GLU:HG2	2.15	0.47
1:0:264:PRO:HG3	1:A:234:PHE:CG	2.50	0.47
2:E:260:ARG:O	2:E:264:GLU:HG2	2.15	0.47
2:M:260:ARG:O	2:M:264:GLU:HG2	2.15	0.47
2:h:163:ARG:HE	2:h:229:VAL:HG22	1.79	0.47
2:l:161:LEU:HD21	2:l:165:ARG:NH2	2.30	0.47
2:m:141:ILE:HG22	2:m:146:MET:HE1	1.97	0.47
2:m:210:GLY:O	2:m:211:THR:OG1	2.31	0.47
2:y:260:ARG:O	2:y:264:GLU:HG2	2.15	0.47
4:8:44:TYR:HB3	1:9:105:LEU:HD23	1.97	0.47
6:AZ:84:ASP:OD1	6:AZ:84:ASP:N	2.32	0.47
1:Ak:206:PRO:HG2	2:k:194:ARG:HH22	1.80	0.47
2:G:260:ARG:O	2:G:264:GLU:HG2	2.15	0.47
2:U:171:ILE:HG22	2:U:177:VAL:HG11	1.95	0.47
2:q:260:ARG:O	2:q:264:GLU:HG2	2.15	0.47
3:7:64:LEU:CD1	2:T:148:PHE:CD2	2.98	0.47
1:9:206:PRO:CG	2:d:192:PHE:CD2	2.82	0.47
5:AW:21:ARG:NH1	5:AW:48:GLU:OE1	2.48	0.47
2:T:139:ASP:OD1	2:T:139:ASP:N	2.48	0.47
2:W:194:ARG:HE	2:W:194:ARG:N	2.13	0.47
2:n:172:GLU:OE2	2:n:179:LYS:HA	2.15	0.47
2:o:171:ILE:HG22	2:o:177:VAL:HG11	1.97	0.47
1:0:258:PRO:HA	1:0:261:VAL:HG12	1.98	0.46
2:C:260:ARG:O	2:C:264:GLU:HG2	2.15	0.46
2:S:179:LYS:HB3	2:S:206:THR:HG23	1.96	0.46
2:d:182:VAL:O	2:d:183:LEU:HD13	2.15	0.46
2:t:260:ARG:O	2:t:264:GLU:HG2	2.15	0.46
9:Aq:5:ARG:O	9:Aq:6:THR:C	2.58	0.46
2:AF:349:ILE:O	2:AF:350:PRO:C	2.58	0.46
2:AM:341:ASN:ND2	5:AW:88:THR:OG1	2.48	0.46
3:AR:87:VAL:C	3:AR:89:TYR:H	2.23	0.46
2:D:260:ARG:O	2:D:264:GLU:HG2	2.15	0.46
2:N:260:ARG:O	2:N:264:GLU:HG2	2.15	0.46
2:Z:193:VAL:C	2:Z:195:HIS:H	2.22	0.46
2:b:163:ARG:HH12	2:c:183:LEU:HD12	1.80	0.46

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:n:179:LYS:HB3	2:n:206:THR:OG1	2.15	0.46
2:AK:340:SER:HA	2:AK:349:ILE:HD11	1.97	0.46
5:AV:43:LEU:HG	5:AV:48:GLU:HG3	1.96	0.46
2:F:260:ARG:O	2:F:264:GLU:HG2	2.15	0.46
2:P:260:ARG:O	2:P:264:GLU:HG2	2.15	0.46
2:U:202:SER:HB3	2:V:224:MET:HG3	1.96	0.46
2:d:188:LYS:HA	2:d:188:LYS:HD3	1.75	0.46
2:e:150:VAL:HG12	2:e:154:LEU:HD23	1.98	0.46
2:n:140:ASP:O	2:n:144:GLN:HB2	2.16	0.46
2:z:381:ILE:CG2	10:At:7:GLU:CB	2.91	0.46
2:4:260:ARG:O	2:4:264:GLU:HG2	2.15	0.46
4:8:196:LEU:HD11	1:AP:264:PRO:HG2	1.98	0.46
6:AY:66:LYS:HE3	6:AY:68:MET:SD	2.56	0.46
6:Aa:20:ARG:HH21	6:Aa:111:ALA:HA	1.79	0.46
6:Aa:100:ASN:O	6:Aa:104:GLU:HG2	2.16	0.46
1:Al:81:GLU:O	1:Al:169:ARG:NH2	2.49	0.46
2:I:260:ARG:O	2:I:264:GLU:HG2	2.15	0.46
2:v:260:ARG:O	2:v:264:GLU:HG2	2.15	0.46
1:0:206:PRO:CD	2:Z:194:ARG:HH11	2.28	0.46
3:7:64:LEU:CD1	2:T:148:PHE:CE2	2.98	0.46
4:8:43:LEU:HB2	7:Ae:103:VAL:HG11	1.98	0.46
5:AT:35:THR:O	5:AT:92:ASN:ND2	2.48	0.46
6:Aa:100:ASN:HB3	6:Aa:103:GLU:HG2	1.97	0.46
7:Ae:90:LYS:HG3	7:Ai:74:ARG:HE	1.80	0.46
2:U:224:MET:HE3	2:U:224:MET:HB3	1.77	0.46
2:a:201:ALA:HB2	2:a:232:MET:HE1	1.98	0.46
4:8:85:MET:HG3	4:8:252:ILE:HG23	1.98	0.46
2:A:260:ARG:O	2:A:264:GLU:HG2	2.15	0.46
2:S:146:MET:CB	2:S:150:VAL:HG21	2.40	0.46
2:S:167:LEU:HA	2:S:167:LEU:HD23	1.66	0.46
2:Z:190:SER:O	2:Z:191:VAL:C	2.57	0.46
2:1:260:ARG:O	2:1:264:GLU:HG2	2.15	0.46
1:9:208:ASP:OD1	1:9:208:ASP:N	2.49	0.46
5:AU:15:THR:HG23	5:AU:45:PHE:HZ	1.81	0.46
6:AY:36:SER:OG	6:AY:38:ALA:O	2.27	0.46
1:Ak:141:LEU:HD11	1:Ak:280:LEU:HD22	1.98	0.46
2:L:260:ARG:O	2:L:264:GLU:HG2	2.15	0.46
2:R:260:ARG:O	2:R:264:GLU:HG2	2.15	0.46
2:W:167:LEU:O	2:W:171:ILE:HG12	2.15	0.46
2:c:163:ARG:NH2	2:d:184:LEU:O	2.49	0.46
2:f:182:VAL:HG13	2:f:203:VAL:HB	1.97	0.46

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:f:234:THR:HA	2:f:237:ILE:HD13	1.98	0.46
2:i:164:GLU:HG2	2:i:184:LEU:HD13	1.96	0.46
1:0:186:GLN:NE2	1:0:287:PHE:O	2.49	0.46
3:6:16:MET:HE1	3:6:76:TYR:HB2	1.97	0.46
2:X:227:SER:O	2:Y:200:SER:OG	2.33	0.46
2:b:167:LEU:O	2:b:171:ILE:HG12	2.16	0.46
2:d:184:LEU:HD21	2:d:229:VAL:HG21	1.98	0.46
2:AI:342:GLN:O	2:AI:343:PRO:C	2.59	0.46
1:Ak:208:ASP:OD1	1:Ak:208:ASP:N	2.42	0.46
2:T:153:ARG:O	2:T:157:GLU:HG2	2.15	0.46
2:j:163:ARG:HA	2:j:166:GLN:NE2	2.29	0.46
2:n:239:VAL:N	2:n:248:SER:OG	2.48	0.46
4:8:98:LEU:HG	1:AP:128:THR:HG22	1.98	0.45
1:Al:192:LEU:HB3	2:S:192:PHE:CE2	2.51	0.45
2:T:174:MET:HB3	2:T:174:MET:HE2	1.67	0.45
2:e:210:GLY:O	2:e:211:THR:OG1	2.31	0.45
2:h:182:VAL:O	2:h:183:LEU:HD13	2.16	0.45
2:x:260:ARG:O	2:x:264:GLU:HG2	2.15	0.45
4:8:25:MET:HE1	4:8:148:LEU:HD23	1.98	0.45
2:S:199:ALA:HB3	2:S:232:MET:H	1.81	0.45
2:c:167:LEU:O	2:c:171:ILE:HG12	2.16	0.45
2:AF:344:PRO:O	2:AF:345:ALA:C	2.57	0.45
5:AV:30:ILE:HG23	5:AV:96:LEU:HD11	1.98	0.45
7:Af:53:ASP:OD2	7:Af:57:ARG:NH1	2.50	0.45
8:Aj:76:ALA:CB	2:j:152:GLN:NE2	2.71	0.45
2:a:150:VAL:HG12	2:a:154:LEU:HD23	1.98	0.45
2:i:153:ARG:O	2:i:157:GLU:HG2	2.17	0.45
1:0:263:LEU:HD23	1:Al:234:PHE:HE2	1.80	0.45
5:AS:39:LYS:NZ	5:AS:91:GLY:O	2.42	0.45
1:Ak:183:MET:HE2	1:Ak:214:LEU:HG	1.98	0.45
2:U:185:ALA:HB2	2:V:228:ALA:O	2.16	0.45
2:X:242:GLN:H	2:X:242:GLN:HG2	1.53	0.45
2:c:245:ARG:HG3	2:c:247:LEU:HD21	1.98	0.45
2:n:204:PHE:CE1	2:n:206:THR:HG22	2.50	0.45
2:o:229:VAL:HB	2:o:232:MET:SD	2.57	0.45
5:AS:126:LYS:HE2	7:Ah:82:ASP:OD1	2.16	0.45
2:V:172:GLU:OE2	2:V:179:LYS:HA	2.17	0.45
2:X:171:ILE:HD12	2:X:221:ILE:HD12	1.97	0.45
2:a:194:ARG:HA	2:a:194:ARG:CZ	2.46	0.45
2:c:241:ASP:CG	2:c:245:ARG:HG2	2.41	0.45
2:d:189:HIS:NE2	2:e:197:GLN:OE1	2.50	0.45

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:e:178:ARG:NH1	2:e:207:LEU:O	2.49	0.45
9:An:3:ASP:O	9:An:4:GLY:C	2.59	0.45
1:9:193:GLU:HG3	2:d:191:VAL:HB	1.99	0.45
3:AR:19:ILE:HG21	3:AR:72:MET:HE1	1.98	0.45
6:AZ:52:GLU:O	6:AZ:53:LEU:C	2.59	0.45
2:W:167:LEU:HD23	2:W:167:LEU:HA	1.74	0.45
2:i:163:ARG:HG3	2:i:166:GLN:HE21	1.82	0.45
4:8:74:THR:O	4:8:78:GLN:HG2	2.17	0.45
2:S:197:GLN:HE21	2:T:231:GLY:N	2.15	0.45
2:b:167:LEU:HD23	2:b:167:LEU:HA	1.77	0.45
2:e:239:VAL:HB	2:e:247:LEU:HB2	1.97	0.45
2:k:206:THR:HA	2:k:242:GLN:HG2	1.99	0.45
2:n:167:LEU:O	2:n:171:ILE:HG12	2.17	0.45
1:0:204:ASP:OD1	1:0:204:ASP:N	2.49	0.45
2:AF:336:PRO:HG2	2:AM:352:ASP:HB3	1.98	0.45
1:AP:90:LEU:O	1:AP:94:THR:OG1	2.34	0.45
1:Ak:206:PRO:CG	2:k:192:PHE:CD2	3.00	0.45
2:a:191:VAL:HA	2:a:195:HIS:HE1	1.81	0.45
9:Ap:7:HIS:O	9:Ap:9:PRO:N	2.50	0.45
4:8:177:LEU:HD22	1:AP:116:MET:HE3	1.98	0.45
1:9:184:LEU:O	2:c:193:VAL:HG11	2.17	0.45
5:AV:20:GLU:OE2	7:Ad:68:SER:OG	2.34	0.45
8:Aj:70:GLU:OE1	2:i:152:GLN:OE1	2.34	0.45
2:T:200:SER:OG	2:U:227:SER:OG	2.35	0.45
2:X:172:GLU:OE2	2:X:179:LYS:HA	2.17	0.45
2:X:227:SER:OG	2:Y:200:SER:OG	2.26	0.45
2:Y:151:SER:O	2:Y:153:ARG:N	2.50	0.45
2:Z:239:VAL:HG12	2:Z:247:LEU:HD12	1.99	0.45
2:g:167:LEU:HD23	2:g:167:LEU:HA	1.80	0.45
3:6:31:ILE:HG13	3:6:57:VAL:HG11	1.99	0.45
2:AJ:341:ASN:HD21	5:AT:86:PRO:HG3	1.82	0.45
5:AT:26:ILE:HG21	5:AT:103:PHE:HB2	1.99	0.45
7:Ad:86:GLN:O	7:Ad:90:LYS:HG2	2.17	0.45
2:T:167:LEU:HD23	2:T:167:LEU:HA	1.73	0.45
2:U:174:MET:HE2	2:U:174:MET:HB3	1.76	0.45
2:W:174:MET:HE2	2:W:174:MET:HB3	1.89	0.45
1:0:198:MET:HE3	1:9:144:PHE:HD2	1.82	0.44
2:5:383:HIS:HB2	10:As:14:GLU:CB	2.47	0.44
1:AP:108:SER:HB2	1:AP:287:PHE:CZ	2.51	0.44
6:AY:27:ASN:OD1	6:AY:42:TYR:OH	2.27	0.44
2:S:176:GLN:NE2	2:W:243:HIS:O	2.24	0.44

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:f:176:GLN:OE1	2:f:176:GLN:N	2.47	0.44
2:4:450:LYS:HE2	2:4:450:LYS:HB2	1.85	0.44
2:AM:331:MET:HE2	2:AM:331:MET:HB3	1.87	0.44
1:AP:251:MET:HE2	8:Aj:39:LEU:HD23	1.99	0.44
3:AR:1:MET:HE2	3:AR:87:VAL:HG11	1.98	0.44
1:Al:116:MET:SD	1:Al:134:ILE:HG23	2.57	0.44
2:P:258:ALA:O	2:P:261:LYS:HG2	2.18	0.44
2:W:185:ALA:HB3	2:W:200:SER:HB3	1.99	0.44
2:d:167:LEU:O	2:d:171:ILE:HG12	2.17	0.44
2:l:140:ASP:N	2:l:140:ASP:OD1	2.50	0.44
4:8:18:PRO:HB3	4:8:57:ILE:HD13	2.00	0.44
4:8:215:PHE:HD2	4:8:216:SER:H	1.66	0.44
3:AR:87:VAL:C	3:AR:89:TYR:N	2.74	0.44
2:H:258:ALA:O	2:H:261:LYS:HG2	2.18	0.44
2:Q:258:ALA:O	2:Q:261:LYS:HG2	2.18	0.44
2:W:150:VAL:HG12	2:W:154:LEU:HD23	1.99	0.44
2:f:153:ARG:NE	2:f:153:ARG:HA	2.32	0.44
2:A:258:ALA:O	2:A:261:LYS:HG2	2.18	0.44
2:AF:339:LEU:HD11	6:Ac:72:GLU:HG3	1.99	0.44
3:AQ:89:TYR:CE2	2:l:188:LYS:CB	2.90	0.44
1:Al:125:LEU:HD22	1:Al:263:LEU:HD11	1.98	0.44
1:Al:187:THR:CG2	2:T:193:VAL:HG23	2.47	0.44
1:Al:206:PRO:HG3	2:S:192:PHE:CB	2.46	0.44
2:E:258:ALA:O	2:E:261:LYS:HG2	2.18	0.44
2:K:258:ALA:O	2:K:261:LYS:HG2	2.18	0.44
2:Y:241:ASP:CG	2:Y:245:ARG:HG2	2.41	0.44
2:d:242:GLN:H	2:d:242:GLN:HG3	1.53	0.44
2:h:220:SER:HB3	2:i:246:LEU:HB2	1.99	0.44
2:l:232:MET:HE2	2:l:232:MET:HB2	1.73	0.44
2:o:141:ILE:HG23	2:o:158:ARG:HH21	1.83	0.44
2:z:258:ALA:O	2:z:261:LYS:HG2	2.18	0.44
3:7:89:TYR:CE2	2:Y:188:LYS:HB2	2.53	0.44
5:AS:85:GLN:OE1	6:Ac:22:ASN:ND2	2.51	0.44
7:Ai:96:LYS:O	7:Ai:100:ASN:ND2	2.45	0.44
2:D:258:ALA:O	2:D:261:LYS:HG2	2.18	0.44
2:J:258:ALA:O	2:J:261:LYS:HG2	2.18	0.44
2:S:153:ARG:NE	2:S:153:ARG:HA	2.31	0.44
2:S:183:LEU:HB3	2:T:163:ARG:HH22	1.82	0.44
2:S:241:ASP:OD2	2:S:245:ARG:NH1	2.50	0.44
2:i:215:GLN:O	2:i:219:ASP:HB2	2.17	0.44
2:l:241:ASP:OD1	2:l:245:ARG:N	2.51	0.44

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:r:258:ALA:O	2:r:261:LYS:HG2	2.18	0.44
2:u:258:ALA:O	2:u:261:LYS:HG2	2.18	0.44
2:v:258:ALA:O	2:v:261:LYS:HG2	2.17	0.44
2:y:258:ALA:O	2:y:261:LYS:HG2	2.18	0.44
2:l:258:ALA:O	2:l:261:LYS:HG2	2.18	0.44
6:Ac:129:LEU:HD22	7:Ah:67:LEU:HD12	1.99	0.44
2:G:258:ALA:O	2:G:261:LYS:HG2	2.18	0.44
2:I:402:ASP:OD1	2:I:448:SER:OG	2.33	0.44
2:Z:153:ARG:O	2:Z:157:GLU:HG2	2.17	0.44
2:n:203:VAL:HG13	2:n:239:VAL:HG22	1.99	0.44
2:o:234:THR:HA	2:o:237:ILE:HD13	1.99	0.44
2:x:258:ALA:O	2:x:261:LYS:HG2	2.18	0.44
3:6:63:MET:HG2	3:7:11:ARG:HA	1.99	0.44
7:Ae:48:GLN:HE21	7:Ae:81:PHE:HB2	1.81	0.44
8:Aj:71:GLU:HA	8:Aj:77:LYS:HD2	1.99	0.44
2:C:387:GLN:HE21	2:C:387:GLN:HB2	1.63	0.44
2:J:402:ASP:OD1	2:J:448:SER:OG	2.33	0.44
2:J:450:LYS:HE2	2:J:450:LYS:HB2	1.85	0.44
2:M:369:LYS:HE3	2:M:369:LYS:HB3	1.85	0.44
2:a:241:ASP:OD2	2:a:245:ARG:NH1	2.51	0.44
2:d:216:GLN:HE21	2:e:246:LEU:H	1.65	0.44
2:d:229:VAL:HB	2:d:232:MET:SD	2.57	0.44
2:e:166:GLN:O	2:e:169:GLN:HB3	2.18	0.44
2:F:258:ALA:O	2:F:261:LYS:HG2	2.18	0.44
2:U:164:GLU:HG2	2:U:184:LEU:HD13	2.00	0.44
2:V:171:ILE:HG22	2:V:177:VAL:HG11	1.99	0.44
2:Z:198:GLU:HG2	2:Z:233:LYS:HE2	2.00	0.44
2:m:204:PHE:CE1	2:m:206:THR:HG22	2.51	0.44
2:o:226:ALA:HA	2:o:232:MET:SD	2.58	0.44
2:AF:348:SER:O	2:AF:349:ILE:HB	2.17	0.44
6:AZ:66:LYS:HE3	6:AZ:68:MET:HG2	1.99	0.44
2:B:258:ALA:O	2:B:261:LYS:HG2	2.18	0.44
2:M:450:LYS:HE2	2:M:450:LYS:HB2	1.85	0.44
2:N:258:ALA:O	2:N:261:LYS:HG2	2.18	0.44
2:R:258:ALA:O	2:R:261:LYS:HG2	2.18	0.44
2:S:181:ARG:HD2	2:T:170:ALA:HB2	2.00	0.44
2:W:142:LEU:O	2:X:158:ARG:NH1	2.50	0.44
2:W:229:VAL:HG11	2:W:232:MET:HE3	2.00	0.44
2:Z:153:ARG:HH21	2:Z:156:GLN:CD	2.24	0.44
2:Z:163:ARG:HA	2:Z:166:GLN:HE21	1.83	0.44
2:k:146:MET:HB3	2:k:150:VAL:HG21	1.98	0.44

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:s:258:ALA:O	2:s:261:LYS:HG2	2.18	0.44
2:v:387:GLN:HE21	2:v:387:GLN:HB2	1.63	0.44
1:0:187:THR:O	2:Y:192:PHE:CD1	2.71	0.43
2:AA:353:VAL:O	2:AA:356:MET:HG2	2.18	0.43
3:AQ:20:MET:HE1	3:AQ:69:MET:HB3	2.00	0.43
7:Ah:64:ASP:OD1	7:Ah:64:ASP:N	2.48	0.43
8:Aj:68:GLN:CD	2:i:152:GLN:HG2	2.39	0.43
2:N:374:ASN:OD1	9:Ap:7:HIS:HA	2.17	0.43
2:S:153:ARG:HG3	2:T:156:GLN:HE22	1.82	0.43
2:S:187:PRO:HB3	2:S:199:ALA:N	2.32	0.43
2:c:215:GLN:HA	2:c:218:VAL:HG12	2.00	0.43
2:e:206:THR:HA	2:e:242:GLN:HG2	2.00	0.43
2:k:174:MET:HE2	2:k:174:MET:HA	2.00	0.43
2:o:206:THR:O	2:o:206:THR:OG1	2.36	0.43
2:t:258:ALA:O	2:t:261:LYS:HG2	2.18	0.43
2:4:258:ALA:O	2:4:261:LYS:HG2	2.18	0.43
2:5:258:ALA:O	2:5:261:LYS:HG2	2.18	0.43
3:6:67:HIS:HD2	3:7:11:ARG:HH22	1.65	0.43
3:AR:8:GLU:HG2	3:AR:83:ARG:HH22	1.82	0.43
3:AR:12:GLU:OE1	3:AR:83:ARG:NH1	2.50	0.43
5:AS:21:ARG:NH1	5:AS:48:GLU:OE1	2.51	0.43
6:Ab:39:LYS:HD2	6:Ab:39:LYS:HA	1.85	0.43
2:H:374:ASN:HD21	9:Ao:10:ALA:HB2	1.83	0.43
2:O:258:ALA:O	2:O:261:LYS:HG2	2.18	0.43
2:W:177:VAL:HG11	2:W:205:LEU:HD23	2.00	0.43
2:Z:206:THR:O	2:Z:206:THR:OG1	2.32	0.43
2:h:174:MET:HE2	2:h:174:MET:HA	2.00	0.43
2:5:450:LYS:HB2	2:5:450:LYS:HE2	1.85	0.43
6:AX:100:ASN:O	6:AX:104:GLU:HG2	2.18	0.43
1:Ak:238:LEU:HD11	1:Al:261:VAL:HG13	2.00	0.43
2:I:258:ALA:O	2:I:261:LYS:HG2	2.18	0.43
2:I:387:GLN:HE21	2:I:387:GLN:HB2	1.63	0.43
2:O:369:LYS:HE3	2:O:369:LYS:HB3	1.85	0.43
2:l:167:LEU:O	2:l:171:ILE:HG12	2.18	0.43
2:l:183:LEU:HD12	2:m:163:ARG:HH21	1.83	0.43
2:3:258:ALA:O	2:3:261:LYS:HG2	2.18	0.43
1:Ak:108:SER:HB2	1:Ak:287:PHE:CZ	2.53	0.43
1:Ak:204:ASP:OD1	1:Ak:204:ASP:N	2.46	0.43
1:Ak:206:PRO:HD3	2:k:192:PHE:CD2	2.49	0.43
2:H:319:SER:HB3	9:Ao:3:THR:N	2.32	0.43
2:L:258:ALA:O	2:L:261:LYS:HG2	2.18	0.43

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:W:227:SER:O	2:X:200:SER:OG	2.24	0.43
2:Y:173:GLU:HB3	2:Z:204:PHE:CE1	2.53	0.43
2:c:184:LEU:HG	2:c:232:MET:HE1	1.99	0.43
2:k:200:SER:OG	2:k:201:ALA:N	2.51	0.43
2:o:239:VAL:N	2:o:248:SER:OG	2.51	0.43
2:q:258:ALA:O	2:q:261:LYS:HG2	2.18	0.43
2:2:258:ALA:O	2:2:261:LYS:HG2	2.18	0.43
3:AR:15:TRP:CZ2	2:U:148:PHE:HB2	2.53	0.43
5:AV:35:THR:O	5:AV:92:ASN:ND2	2.52	0.43
5:AV:41:ARG:HD3	5:AV:78:LYS:HD2	2.00	0.43
7:Ah:55:GLN:NE2	7:Ah:74:ARG:HE	2.16	0.43
2:C:258:ALA:O	2:C:261:LYS:HG2	2.18	0.43
2:J:369:LYS:HE3	2:J:369:LYS:HB3	1.85	0.43
2:M:258:ALA:O	2:M:261:LYS:HG2	2.18	0.43
2:X:156:GLN:HE22	2:Y:153:ARG:HD2	1.83	0.43
2:X:168:ALA:O	2:X:172:GLU:HG2	2.18	0.43
2:Y:175:LYS:HB2	2:Y:175:LYS:HE2	1.79	0.43
2:Y:231:GLY:N	2:Z:197:GLN:HE21	2.16	0.43
2:Z:163:ARG:HA	2:Z:166:GLN:NE2	2.33	0.43
2:Z:191:VAL:O	2:Z:192:PHE:C	2.60	0.43
2:g:176:GLN:OE1	2:g:176:GLN:N	2.39	0.43
2:k:146:MET:HG2	2:k:155:GLU:OE1	2.18	0.43
2:k:153:ARG:O	2:k:157:GLU:HG2	2.18	0.43
2:o:185:ALA:HB3	2:o:200:SER:HB3	2.00	0.43
2:r:450:LYS:HE2	2:r:450:LYS:HB2	1.85	0.43
5:AS:36:PRO:HB3	5:AS:90:ASP:HB2	2.01	0.43
2:T:176:GLN:O	2:T:208:SER:N	2.50	0.43
2:a:174:MET:HE2	2:a:174:MET:HB3	1.78	0.43
2:p:258:ALA:O	2:p:261:LYS:HG2	2.18	0.43
2:v:450:LYS:HE2	2:v:450:LYS:HB2	1.85	0.43
5:AS:33:ALA:O	5:AS:92:ASN:ND2	2.51	0.43
5:AW:15:THR:HG23	5:AW:45:PHE:HZ	1.84	0.43
6:Ab:100:ASN:HB3	6:Ab:103:GLU:HG2	1.99	0.43
1:Al:187:THR:CG2	2:T:193:VAL:CG2	2.96	0.43
1:Al:203:VAL:HG11	1:Al:209:VAL:HG12	1.99	0.43
2:H:387:GLN:HE21	2:H:387:GLN:HB2	1.63	0.43
2:I:450:LYS:HE2	2:I:450:LYS:HB2	1.85	0.43
2:L:402:ASP:OD1	2:L:448:SER:OG	2.33	0.43
2:n:146:MET:HG2	2:n:155:GLU:OE1	2.19	0.43
2:o:174:MET:HE2	2:o:174:MET:HA	1.99	0.43
2:q:374:ASN:OD1	9:Aq:4:SER:N	2.51	0.43

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:0:257:SER:HA	1:9:255:MET:HG2	2.01	0.43
2:AE:343:PRO:HG3	5:AT:80:TYR:CZ	2.54	0.43
1:AP:114:VAL:O	1:AP:118:ILE:HG12	2.17	0.43
2:J:387:GLN:HE21	2:J:387:GLN:HB2	1.63	0.43
2:N:374:ASN:OD1	9:Ap:7:HIS:CA	2.67	0.43
2:d:243:HIS:HB2	2:d:245:ARG:NH1	2.34	0.43
2:g:150:VAL:HG11	2:g:158:ARG:NH1	2.33	0.43
2:k:163:ARG:HA	2:k:166:GLN:HE21	1.83	0.43
2:k:176:GLN:NE2	2:k:217:GLU:OE1	2.51	0.43
2:m:178:ARG:NH1	2:m:207:LEU:O	2.52	0.43
2:o:210:GLY:O	2:o:211:THR:OG1	2.28	0.43
4:8:132:PHE:O	4:8:136:MET:HG2	2.19	0.43
3:AQ:81:ILE:HG13	1:Ak:278:LEU:HD21	2.01	0.43
3:AR:84:LEU:HD11	1:Al:229:ILE:HG12	2.01	0.43
6:AZ:75:LYS:HB2	6:AZ:98:ASN:HD22	1.84	0.43
7:Af:64:ASP:OD1	7:Af:64:ASP:N	2.46	0.43
1:Ak:195:PHE:HB3	1:Ak:213:VAL:HG13	2.01	0.43
2:d:233:LYS:O	2:d:234:THR:C	2.61	0.43
2:g:163:ARG:HA	2:g:166:GLN:NE2	2.34	0.43
2:w:258:ALA:O	2:w:261:LYS:HG2	2.18	0.43
5:AU:36:PRO:HB3	5:AU:90:ASP:HB2	2.01	0.43
6:Ac:13:ALA:O	6:Ac:17:GLU:HG2	2.19	0.43
2:N:318:ARG:HG2	9:Ap:3:THR:CB	2.49	0.43
2:W:217:GLU:O	2:W:220:SER:OG	2.31	0.43
2:W:242:GLN:H	2:W:242:GLN:HG2	1.64	0.43
2:1:387:GLN:HE21	2:1:387:GLN:HB2	1.63	0.42
3:7:16:MET:HE1	3:7:76:TYR:HB2	2.01	0.42
1:9:275:GLY:O	1:9:279:ILE:HG12	2.19	0.42
1:AP:204:ASP:OD1	1:AP:204:ASP:N	2.52	0.42
2:U:221:ILE:HA	2:U:221:ILE:HD13	1.67	0.42
2:Z:159:LEU:O	2:Z:162:SER:OG	2.29	0.42
2:c:174:MET:SD	2:c:221:ILE:HD11	2.59	0.42
2:g:167:LEU:O	2:g:171:ILE:HG12	2.19	0.42
2:g:170:ALA:HA	2:h:181:ARG:NH1	2.34	0.42
2:i:172:GLU:OE2	2:i:179:LYS:HA	2.18	0.42
4:8:207:ARG:HH12	4:8:210:PRO:HA	1.84	0.42
2:A:450:LYS:HE2	2:A:450:LYS:HB2	1.85	0.42
1:AP:243:VAL:HG21	8:Aj:89:LEU:HD11	2.01	0.42
3:AQ:49:LEU:HD23	3:AQ:49:LEU:H	1.84	0.42
6:AZ:100:ASN:O	6:AZ:104:GLU:HG2	2.19	0.42
6:Ab:126:LYS:HE2	6:Ab:126:LYS:HB3	1.86	0.42

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:T:164:GLU:HG2	2:T:184:LEU:HD13	2.00	0.42
2:T:175:LYS:HB2	2:T:175:LYS:HE2	1.78	0.42
2:U:179:LYS:HD3	2:U:180:ALA:H	1.84	0.42
2:e:193:VAL:HG12	2:e:195:HIS:H	1.83	0.42
4:8:176:TRP:HE1	4:8:251:GLN:HG2	1.83	0.42
1:AP:228:GLN:O	1:AP:232:MET:HG2	2.18	0.42
6:AZ:44:ALA:O	6:AZ:73:SER:N	2.46	0.42
1:Ak:204:ASP:O	2:k:192:PHE:CD2	2.72	0.42
2:H:450:LYS:HE2	2:H:450:LYS:HB2	1.85	0.42
2:N:450:LYS:HE2	2:N:450:LYS:HB2	1.85	0.42
2:V:246:LEU:HD12	2:k:220:SER:HA	2.00	0.42
2:Y:246:LEU:O	2:Y:247:LEU:HD23	2.18	0.42
2:b:174:MET:SD	2:b:221:ILE:HD11	2.59	0.42
2:h:168:ALA:O	2:h:172:GLU:HG2	2.19	0.42
2:h:179:LYS:HB3	2:h:206:THR:OG1	2.19	0.42
2:o:153:ARG:HA	2:o:153:ARG:NE	2.33	0.42
2:AL:338:ALA:HB1	6:AY:103:GLU:HB2	2.02	0.42
2:F:306:THR:CB	10:Ar:14:GLU:CB	2.97	0.42
2:S:153:ARG:O	2:S:157:GLU:HG2	2.20	0.42
2:V:226:ALA:HA	2:V:232:MET:SD	2.59	0.42
2:W:172:GLU:OE2	2:W:179:LYS:HA	2.19	0.42
2:X:222:VAL:HG23	2:X:237:ILE:HB	2.01	0.42
2:c:150:VAL:HG12	2:c:154:LEU:HD23	2.01	0.42
2:e:224:MET:HA	2:f:238:THR:HG21	2.01	0.42
2:k:157:GLU:HG3	2:l:159:LEU:HD22	2.02	0.42
2:k:222:VAL:HG23	2:k:237:ILE:HB	2.01	0.42
2:l:246:LEU:HD23	2:l:248:SER:H	1.84	0.42
2:m:229:VAL:HB	2:m:232:MET:SD	2.59	0.42
2:4:387:GLN:HE21	2:4:387:GLN:HB2	1.63	0.42
3:6:70:THR:O	3:6:71:GLN:C	2.63	0.42
4:8:84:ALA:HB1	4:8:255:LEU:HD13	2.01	0.42
1:Al:110:THR:HG21	1:Al:219:ILE:HD11	2.01	0.42
2:T:210:GLY:O	2:T:211:THR:OG1	2.34	0.42
2:W:147:GLY:O	2:W:150:VAL:HG22	2.20	0.42
2:Y:236:ARG:HD3	2:Y:250:GLY:HA3	2.01	0.42
2:d:174:MET:HB2	2:d:177:VAL:HB	2.01	0.42
2:i:186:LEU:HD23	2:i:199:ALA:HA	2.01	0.42
2:m:174:MET:HB3	2:m:174:MET:HE2	1.78	0.42
2:m:206:THR:O	2:m:206:THR:OG1	2.35	0.42
2:2:402:ASP:OD1	2:2:448:SER:OG	2.33	0.42
1:AP:101:ALA:HB2	7:Ah:95:TYR:OH	2.19	0.42

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
5:AU:50:GLN:OE1	2:E:368:ARG:NH2	2.52	0.42
6:Ab:133:LEU:HA	7:Ad:71:MET:HE3	2.01	0.42
2:F:369:LYS:HE3	2:F:369:LYS:HB3	1.85	0.42
2:P:369:LYS:HE3	2:P:369:LYS:HB3	1.85	0.42
2:P:387:GLN:HE21	2:P:387:GLN:HB2	1.63	0.42
2:d:152:GLN:HE21	2:d:152:GLN:HB2	1.69	0.42
2:g:170:ALA:HA	2:h:181:ARG:HH11	1.83	0.42
2:l:146:MET:HG2	2:l:155:GLU:OE1	2.20	0.42
2:l:165:ARG:NH2	2:m:139:ASP:OD2	2.52	0.42
2:m:241:ASP:OD1	2:m:241:ASP:N	2.51	0.42
3:7:63:MET:HE1	3:AR:15:TRP:HE3	1.85	0.42
2:AO:333:ALA:HB3	2:AO:356:MET:HB3	2.02	0.42
6:AX:127:GLN:O	6:AX:131:ARG:HG2	2.20	0.42
6:AZ:41:THR:O	6:AZ:42:TYR:C	2.62	0.42
7:Ad:33:PHE:HE1	1:Al:154:ASN:HB2	1.84	0.42
7:Ad:71:MET:HA	7:Ad:74:ARG:HG2	2.02	0.42
1:Ak:167:THR:HG22	1:Ak:169:ARG:H	1.84	0.42
1:Al:166:VAL:HB	1:Al:170:GLU:HB2	2.00	0.42
2:N:302:ALA:HB3	2:O:385:ARG:HB3	2.02	0.42
2:T:163:ARG:HA	2:T:166:GLN:NE2	2.34	0.42
2:V:201:ALA:HB2	2:V:232:MET:HE1	2.02	0.42
2:a:141:ILE:O	2:a:146:MET:HE1	2.20	0.42
2:a:207:LEU:HD21	2:a:213:LEU:HD11	2.02	0.42
2:i:175:LYS:HE2	2:i:175:LYS:HB2	1.90	0.42
2:j:172:GLU:OE2	2:j:179:LYS:HA	2.20	0.42
2:k:243:HIS:O	2:l:176:GLN:NE2	2.41	0.42
2:x:387:GLN:HE21	2:x:387:GLN:HB2	1.63	0.42
2:AF:342:GLN:O	2:AF:343:PRO:C	2.61	0.42
2:AK:337:GLY:O	2:AK:341:ASN:ND2	2.53	0.42
3:AQ:17:VAL:HG23	1:Ak:243:VAL:HG23	2.01	0.42
8:Aj:105:MET:HE2	8:Aj:105:MET:HB3	1.98	0.42
2:U:190:SER:HB2	2:U:196:ASN:ND2	2.35	0.42
2:W:218:VAL:HG21	2:W:247:LEU:CB	2.49	0.42
2:b:201:ALA:HB2	2:b:232:MET:HE1	2.01	0.42
2:c:241:ASP:OD1	2:c:245:ARG:HG2	2.20	0.42
2:i:177:VAL:HG11	2:i:205:LEU:HD23	2.01	0.42
2:m:189:HIS:O	2:m:196:ASN:ND2	2.52	0.42
2:u:369:LYS:HE3	2:u:369:LYS:HB3	1.85	0.42
2:x:302:ALA:HB3	2:y:385:ARG:HB3	2.02	0.42
1:0:272:LEU:HD12	1:0:273:VAL:HG23	2.02	0.42
4:8:175:GLY:HA2	1:AP:280:LEU:HD11	2.02	0.42

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
3:AQ:21:VAL:O	3:AQ:25:ILE:HG12	2.20	0.42
3:AR:16:MET:HE2	3:AR:76:TYR:HB2	2.02	0.42
7:Ad:66:SER:OG	7:Ad:69:ASP:OD1	2.38	0.42
2:O:302:ALA:HB3	2:P:385:ARG:HB3	2.02	0.42
2:X:203:VAL:HG13	2:X:239:VAL:HG13	2.02	0.42
2:c:153:ARG:O	2:c:157:GLU:HG2	2.20	0.42
2:e:167:LEU:HA	2:e:167:LEU:HD23	1.84	0.42
2:l:172:GLU:OE2	2:l:179:LYS:HA	2.20	0.42
2:m:240:THR:HG21	2:n:224:MET:HE2	2.02	0.42
2:o:206:THR:HA	2:o:242:GLN:CG	2.50	0.42
2:2:302:ALA:HB3	2:3:385:ARG:HB3	2.02	0.42
4:8:69:PHE:HB3	1:AP:162:LEU:HD21	2.02	0.42
3:AQ:80:LEU:HA	3:AQ:83:ARG:HG2	2.01	0.42
6:AZ:39:LYS:HA	6:AZ:39:LYS:HD3	1.74	0.42
2:M:302:ALA:HB3	2:N:385:ARG:HB3	2.02	0.42
2:N:369:LYS:HE3	2:N:369:LYS:HB3	1.85	0.42
2:W:221:ILE:HD13	2:W:221:ILE:HA	1.76	0.42
2:X:215:GLN:HA	2:X:218:VAL:HG12	2.02	0.42
2:a:146:MET:HB3	2:a:150:VAL:HG21	2.02	0.42
2:b:150:VAL:HG12	2:b:154:LEU:HD23	2.02	0.42
2:d:210:GLY:O	2:d:211:THR:OG1	2.30	0.42
2:d:243:HIS:HB2	2:d:245:ARG:HH12	1.84	0.42
2:e:188:LYS:H	2:e:188:LYS:HD2	1.85	0.42
2:k:226:ALA:HA	2:k:232:MET:SD	2.60	0.42
2:r:319:SER:HB3	9:Aq:4:SER:O	2.20	0.42
2:t:369:LYS:HE3	2:t:369:LYS:HB3	1.85	0.42
2:u:450:LYS:HE2	2:u:450:LYS:HB2	1.85	0.42
2:v:369:LYS:HE3	2:v:369:LYS:HB3	1.85	0.42
2:x:426:ILE:O	2:x:430:LEU:HG	2.20	0.42
2:3:302:ALA:HB3	2:4:385:ARG:HB3	2.02	0.41
4:8:214:ILE:HG12	1:AP:255:MET:HE3	2.01	0.41
3:AQ:4:GLU:OE2	2:k:152:GLN:HB3	2.20	0.41
5:AT:128:ILE:HD13	7:Af:83:ALA:HB2	2.02	0.41
6:Ac:100:ASN:HB3	6:Ac:103:GLU:HG2	2.01	0.41
1:Ak:197:THR:CB	2:V:194:ARG:HG2	2.49	0.41
1:Al:183:MET:HB2	1:Al:214:LEU:HD21	2.02	0.41
2:B:450:LYS:HE2	2:B:450:LYS:HB2	1.85	0.41
2:G:387:GLN:HE21	2:G:387:GLN:HB2	1.63	0.41
2:S:188:LYS:HD3	2:S:188:LYS:HA	1.85	0.41
2:S:219:ASP:HA	2:S:222:VAL:HG12	2.01	0.41
2:T:168:ALA:O	2:T:172:GLU:HG2	2.20	0.41

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:W:139:ASP:OD2	2:X:165:ARG:NH2	2.52	0.41
2:b:172:GLU:OE1	2:b:179:LYS:HA	2.20	0.41
2:n:198:GLU:OE2	2:n:199:ALA:N	2.53	0.41
2:q:450:LYS:HE2	2:q:450:LYS:HB2	1.85	0.41
2:w:302:ALA:HB3	2:x:385:ARG:HB3	2.02	0.41
4:8:207:ARG:O	4:8:207:ARG:HD3	2.20	0.41
2:A:426:ILE:O	2:A:430:LEU:HG	2.20	0.41
2:AB:343:PRO:HG3	5:AW:80:TYR:CZ	2.55	0.41
2:AD:346:ASP:OD1	5:AU:39:LYS:NZ	2.44	0.41
3:AQ:8:GLU:OE1	3:AQ:83:ARG:NH2	2.53	0.41
8:Aj:77:LYS:HE3	8:Aj:77:LYS:HB2	1.89	0.41
2:C:450:LYS:HE2	2:C:450:LYS:HB2	1.85	0.41
2:G:450:LYS:HE2	2:G:450:LYS:HB2	1.85	0.41
2:J:426:ILE:O	2:J:430:LEU:HG	2.21	0.41
2:K:387:GLN:HE21	2:K:387:GLN:HB2	1.63	0.41
2:M:426:ILE:O	2:M:430:LEU:HG	2.20	0.41
2:S:163:ARG:HH12	2:W:183:LEU:HB3	1.85	0.41
2:W:229:VAL:HB	2:W:232:MET:SD	2.59	0.41
2:o:162:SER:O	2:o:166:GLN:HG2	2.20	0.41
2:p:302:ALA:HB3	2:q:385:ARG:HB3	2.02	0.41
2:y:302:ALA:HB3	2:z:385:ARG:HB3	2.02	0.41
1:0:206:PRO:HG2	2:Z:194:ARG:NH1	2.26	0.41
1:0:274:ASP:OD2	1:0:277:ASN:ND2	2.52	0.41
2:5:426:ILE:O	2:5:430:LEU:HG	2.20	0.41
2:AB:353:VAL:HG21	6:Ab:38:ALA:HB2	2.01	0.41
2:R:302:ALA:HB3	2:p:385:ARG:HB3	2.02	0.41
2:c:222:VAL:HG23	2:c:237:ILE:HB	2.02	0.41
2:q:302:ALA:HB3	2:r:385:ARG:HB3	2.02	0.41
2:q:426:ILE:O	2:q:430:LEU:HG	2.20	0.41
2:s:369:LYS:HE3	2:s:369:LYS:HB3	1.85	0.41
2:s:450:LYS:HE2	2:s:450:LYS:HB2	1.85	0.41
2:w:402:ASP:OD1	2:w:448:SER:OG	2.33	0.41
2:2:426:ILE:O	2:2:430:LEU:HG	2.20	0.41
2:4:302:ALA:HB3	2:5:385:ARG:HB3	2.02	0.41
3:7:4:GLU:HB3	2:Y:152:GLN:HE21	1.85	0.41
4:8:88:VAL:HG12	4:8:92:MET:HE3	2.02	0.41
1:AP:88:GLN:OE1	1:AP:161:TYR:OH	2.29	0.41
1:AP:253:MET:H	1:AP:253:MET:HG2	1.69	0.41
2:F:450:LYS:HE2	2:F:450:LYS:HB2	1.85	0.41
2:I:426:ILE:O	2:I:430:LEU:HG	2.20	0.41
2:J:294:VAL:HG22	2:J:396:VAL:HG22	2.03	0.41

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:W:153:ARG:O	2:W:157:GLU:HG2	2.20	0.41
2:b:227:SER:HG	2:c:200:SER:HG	1.58	0.41
2:e:150:VAL:HG11	2:e:158:ARG:HH11	1.84	0.41
2:l:160:LYS:O	2:l:164:GLU:HG3	2.20	0.41
2:o:174:MET:HB2	2:o:177:VAL:HB	2.02	0.41
2:p:426:ILE:O	2:p:430:LEU:HG	2.21	0.41
2:w:426:ILE:O	2:w:430:LEU:HG	2.20	0.41
2:1:302:ALA:HB3	2:2:385:ARG:HB3	2.02	0.41
4:8:61:PRO:HG3	4:8:161:GLY:HA3	2.03	0.41
2:AF:346:ASP:HB3	2:AF:347:ALA:H	1.61	0.41
6:Aa:43:LYS:HG2	6:Aa:77:LEU:HD21	2.02	0.41
6:Ab:96:LYS:HE3	6:Ab:96:LYS:HB3	1.89	0.41
2:L:426:ILE:O	2:L:430:LEU:HG	2.21	0.41
2:O:450:LYS:HE2	2:O:450:LYS:HB2	1.85	0.41
2:V:185:ALA:HB3	2:V:200:SER:HB3	2.02	0.41
2:Y:166:GLN:H	2:Y:166:GLN:HG2	1.71	0.41
2:l:191:VAL:O	2:l:192:PHE:HB2	2.21	0.41
2:r:426:ILE:O	2:r:430:LEU:HG	2.20	0.41
2:t:387:GLN:HE21	2:t:387:GLN:HB2	1.63	0.41
2:v:302:ALA:HB3	2:w:385:ARG:HB3	2.02	0.41
2:w:369:LYS:HE3	2:w:369:LYS:HB3	1.85	0.41
2:y:426:ILE:O	2:y:430:LEU:HG	2.21	0.41
2:1:294:VAL:HG22	2:1:396:VAL:HG22	2.03	0.41
2:1:426:ILE:O	2:1:430:LEU:HG	2.20	0.41
1:AP:104:ILE:HG22	1:AP:109:PHE:CD2	2.56	0.41
1:AP:273:VAL:HG22	8:Aj:58:PHE:CE2	2.56	0.41
5:AT:32:GLN:NE2	6:AY:51:ALA:HB2	2.35	0.41
8:Aj:80:ASP:OD2	2:j:151:SER:HA	2.20	0.41
2:B:426:ILE:O	2:B:430:LEU:HG	2.21	0.41
2:D:450:LYS:HE2	2:D:450:LYS:HB2	1.85	0.41
2:G:402:ASP:OD1	2:G:448:SER:OG	2.33	0.41
2:G:426:ILE:O	2:G:430:LEU:HG	2.20	0.41
2:N:426:ILE:O	2:N:430:LEU:HG	2.21	0.41
2:R:426:ILE:O	2:R:430:LEU:HG	2.21	0.41
2:S:177:VAL:HG13	2:S:207:LEU:HD23	2.02	0.41
2:U:155:GLU:O	2:U:159:LEU:HG	2.21	0.41
2:U:183:LEU:HB3	2:V:163:ARG:NH2	2.36	0.41
2:X:159:LEU:HD13	2:Y:157:GLU:OE2	2.21	0.41
2:a:150:VAL:HG11	2:a:158:ARG:NH1	2.36	0.41
2:a:163:ARG:HA	2:a:166:GLN:NE2	2.30	0.41
2:d:185:ALA:O	2:d:199:ALA:HA	2.20	0.41

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:i:174:MET:HE2	2:i:174:MET:HB3	2.00	0.41
2:j:201:ALA:HB3	2:j:237:ILE:HG23	2.02	0.41
2:k:162:SER:O	2:k:166:GLN:HG2	2.21	0.41
2:v:426:ILE:O	2:v:430:LEU:HG	2.20	0.41
2:w:294:VAL:HG22	2:w:396:VAL:HG22	2.03	0.41
4:8:39:PRO:HD2	7:Af:102:PRO:HG2	2.02	0.41
4:8:213:ASN:HB2	4:8:215:PHE:CE1	2.56	0.41
1:9:188:ARG:NH1	1:9:225:THR:OG1	2.46	0.41
1:Al:184:LEU:O	1:Al:187:THR:HG22	2.21	0.41
2:E:450:LYS:HE2	2:E:450:LYS:HB2	1.85	0.41
2:F:426:ILE:O	2:F:430:LEU:HG	2.21	0.41
2:K:426:ILE:O	2:K:430:LEU:HG	2.21	0.41
2:L:302:ALA:HB3	2:M:385:ARG:HB3	2.02	0.41
2:S:163:ARG:HD3	2:S:163:ARG:HA	1.74	0.41
2:S:215:GLN:NE2	2:S:219:ASP:OD2	2.54	0.41
2:T:143:LEU:HA	2:T:143:LEU:HD23	1.74	0.41
2:T:167:LEU:O	2:T:171:ILE:HG12	2.21	0.41
2:V:244:GLY:HA2	2:k:174:MET:HE1	2.03	0.41
2:X:186:LEU:HD21	2:X:229:VAL:HG11	2.02	0.41
2:Y:174:MET:SD	2:Y:221:ILE:HD11	2.60	0.41
2:f:230:PRO:HD3	2:g:185:ALA:HB1	2.03	0.41
2:l:200:SER:OG	2:l:201:ALA:N	2.53	0.41
2:r:302:ALA:HB3	2:s:385:ARG:HB3	2.02	0.41
2:r:369:LYS:HE3	2:r:369:LYS:HB3	1.85	0.41
2:4:426:ILE:O	2:4:430:LEU:HG	2.20	0.41
3:6:73:LEU:HD13	3:6:73:LEU:HA	1.97	0.41
3:AQ:44:ILE:HG22	3:AQ:46:GLU:H	1.86	0.41
2:I:294:VAL:HG22	2:I:396:VAL:HG22	2.03	0.41
2:M:294:VAL:HG22	2:M:396:VAL:HG22	2.03	0.41
2:N:294:VAL:HG22	2:N:396:VAL:HG22	2.03	0.41
2:P:302:ALA:HB3	2:Q:385:ARG:HB3	2.02	0.41
2:Q:369:LYS:HE3	2:Q:369:LYS:HB3	1.85	0.41
2:X:174:MET:HE2	2:X:174:MET:HB3	1.79	0.41
2:Z:174:MET:HE1	2:a:244:GLY:CA	2.50	0.41
2:d:216:GLN:NE2	2:e:246:LEU:H	2.19	0.41
2:d:219:ASP:HA	2:d:222:VAL:HG12	2.03	0.41
2:e:213:LEU:HD13	2:e:217:GLU:HB2	2.02	0.41
2:f:201:ALA:HB2	2:f:232:MET:SD	2.60	0.41
2:o:166:GLN:HG2	2:o:166:GLN:H	1.70	0.41
2:s:294:VAL:HG22	2:s:396:VAL:HG22	2.03	0.41
2:u:426:ILE:O	2:u:430:LEU:HG	2.21	0.41

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:v:294:VAL:HG22	2:v:396:VAL:HG22	2.03	0.41
2:z:294:VAL:HG22	2:z:396:VAL:HG22	2.03	0.41
2:3:426:ILE:O	2:3:430:LEU:HG	2.20	0.41
2:3:450:LYS:HB2	2:3:450:LYS:HE2	1.85	0.41
2:4:294:VAL:HG22	2:4:396:VAL:HG22	2.03	0.41
3:7:64:LEU:CG	2:T:148:PHE:CD1	3.04	0.41
2:AI:335:ILE:O	2:AI:336:PRO:C	2.61	0.41
2:AJ:341:ASN:ND2	5:AT:86:PRO:HG3	2.36	0.41
1:AP:128:THR:HB	1:AP:129:PRO:HD3	2.03	0.41
3:AR:15:TRP:CE2	2:U:148:PHE:HB2	2.56	0.41
5:AT:124:LEU:HD23	7:Af:79:VAL:HG11	2.03	0.41
5:AV:124:LEU:HD23	7:Ad:79:VAL:HG11	2.03	0.41
6:AZ:89:ASN:OD1	6:AZ:93:TYR:N	2.51	0.41
6:Ac:135:MET:HE2	7:Ah:75:ASN:HD22	1.85	0.41
7:Ah:71:MET:SD	7:Ah:74:ARG:HD3	2.61	0.41
1:Al:187:THR:O	2:T:192:PHE:HA	2.20	0.41
2:D:302:ALA:HB3	2:E:385:ARG:HB3	2.02	0.41
2:E:302:ALA:HB3	2:F:385:ARG:HB3	2.02	0.41
2:E:426:ILE:O	2:E:430:LEU:HG	2.21	0.41
2:G:373:ARG:HE	2:G:373:ARG:HB2	1.77	0.41
2:K:450:LYS:HB2	2:K:450:LYS:HE2	1.85	0.41
2:Q:302:ALA:HB3	2:R:385:ARG:HB3	2.02	0.41
2:Q:426:ILE:O	2:Q:430:LEU:HG	2.20	0.41
2:T:183:LEU:HB3	2:U:163:ARG:HH22	1.86	0.41
2:U:239:VAL:N	2:U:248:SER:OG	2.52	0.41
2:V:197:GLN:OE1	2:k:189:HIS:NE2	2.53	0.41
2:b:242:GLN:H	2:b:242:GLN:HG2	1.72	0.41
2:d:221:ILE:HD13	2:d:221:ILE:HA	1.91	0.41
2:e:152:GLN:HG3	2:e:153:ARG:HE	1.86	0.41
2:k:153:ARG:NE	2:k:153:ARG:HA	2.36	0.41
2:n:241:ASP:CG	2:n:245:ARG:HG2	2.46	0.41
2:o:167:LEU:HD23	2:o:167:LEU:HA	1.78	0.41
2:s:387:GLN:HE21	2:s:387:GLN:HB2	1.63	0.41
2:s:426:ILE:O	2:s:430:LEU:HG	2.21	0.41
2:t:450:LYS:HE2	2:t:450:LYS:HB2	1.85	0.41
2:u:402:ASP:OD1	2:u:448:SER:OG	2.33	0.41
2:1:385:ARG:HB3	2:z:302:ALA:HB3	2.02	0.41
3:6:81:ILE:HA	3:6:84:LEU:HD13	2.02	0.41
1:9:189:ILE:HD12	1:9:189:ILE:H	1.85	0.41
2:A:372:THR:CG2	9:An:6:HIS:CB	2.99	0.41
2:AG:339:LEU:HD11	6:Ab:72:GLU:HG3	2.03	0.41

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:C:426:ILE:O	2:C:430:LEU:HG	2.20	0.41
2:D:373:ARG:HE	2:D:373:ARG:HB2	1.77	0.41
2:E:294:VAL:HG22	2:E:396:VAL:HG22	2.03	0.41
2:F:294:VAL:HG22	2:F:396:VAL:HG22	2.03	0.41
2:G:302:ALA:HB3	2:H:385:ARG:HB3	2.02	0.41
2:I:302:ALA:HB3	2:J:385:ARG:HB3	2.02	0.41
2:O:426:ILE:O	2:O:430:LEU:HG	2.20	0.41
2:W:171:ILE:HD12	2:W:221:ILE:HD12	2.03	0.41
2:g:236:ARG:HD3	2:g:236:ARG:HA	1.84	0.41
2:t:294:VAL:HG22	2:t:396:VAL:HG22	2.03	0.41
2:u:302:ALA:HB3	2:v:385:ARG:HB3	2.02	0.41
2:x:294:VAL:HG22	2:x:396:VAL:HG22	2.03	0.41
1:0:104:ILE:O	1:0:110:THR:OG1	2.38	0.40
1:0:270:PHE:HE2	1:0:276:TRP:CD1	2.38	0.40
2:3:402:ASP:OD1	2:3:448:SER:OG	2.33	0.40
1:AP:186:GLN:HE22	1:AP:287:PHE:HA	1.86	0.40
3:AR:88:LEU:O	2:T:192:PHE:CE2	2.74	0.40
2:O:319:SER:HB3	9:Ap:7:HIS:HA	2.03	0.40
2:S:147:GLY:O	2:S:149:GLY:N	2.54	0.40
2:Y:167:LEU:HA	2:Y:167:LEU:HD23	1.75	0.40
2:Z:188:LYS:HD3	2:Z:188:LYS:HA	1.82	0.40
2:a:163:ARG:HA	2:a:166:GLN:HG2	2.02	0.40
2:a:179:LYS:HB3	2:a:206:THR:OG1	2.21	0.40
2:n:167:LEU:HA	2:n:167:LEU:HD23	1.87	0.40
2:s:302:ALA:HB3	2:t:385:ARG:HB3	2.02	0.40
2:t:426:ILE:O	2:t:430:LEU:HG	2.21	0.40
1:0:96:LEU:HB3	7:Ag:90:LYS:HB3	2.03	0.40
1:0:111:ARG:NE	1:0:222:GLU:OE1	2.50	0.40
2:2:450:LYS:HB2	2:2:450:LYS:HE2	1.85	0.40
2:3:294:VAL:HG22	2:3:396:VAL:HG22	2.03	0.40
2:3:327:ASN:HB2	2:3:366:SER:HB3	2.04	0.40
3:7:68:TRP:CD1	2:S:148:PHE:CD1	3.09	0.40
4:8:125:LEU:HD12	1:9:242:LEU:HD13	2.01	0.40
2:AG:343:PRO:HA	2:AG:344:PRO:HD3	1.92	0.40
3:AR:84:LEU:HD13	1:Al:232:MET:HG3	2.04	0.40
6:AZ:53:LEU:N	6:AZ:53:LEU:HD23	2.36	0.40
1:Ak:254:MET:HB2	1:Al:254:MET:SD	2.61	0.40
2:F:302:ALA:HB3	2:G:385:ARG:HB3	2.02	0.40
2:H:302:ALA:HB3	2:I:385:ARG:HB3	2.02	0.40
2:K:294:VAL:HG22	2:K:396:VAL:HG22	2.03	0.40
2:Q:450:LYS:HB2	2:Q:450:LYS:HE2	1.85	0.40

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:V:164:GLU:HG2	2:V:184:LEU:HD13	2.02	0.40
2:b:182:VAL:O	2:b:183:LEU:HD13	2.21	0.40
2:q:369:LYS:HE3	2:q:369:LYS:HB3	1.85	0.40
2:5:302:ALA:HB3	2:A:385:ARG:HB3	2.02	0.40
2:A:369:LYS:HE3	2:A:369:LYS:HB3	1.85	0.40
3:AQ:14:LEU:HA	3:AQ:17:VAL:HG12	2.03	0.40
7:Af:71:MET:SD	7:Af:74:ARG:HD3	2.61	0.40
8:Aj:69:ARG:H	8:Aj:69:ARG:CZ	2.34	0.40
1:Al:152:GLU:CD	1:Al:178:PRO:HB3	2.46	0.40
2:C:302:ALA:HB3	2:D:385:ARG:HB3	2.02	0.40
2:J:302:ALA:HB3	2:K:385:ARG:HB3	2.02	0.40
2:P:426:ILE:O	2:P:430:LEU:HG	2.20	0.40
2:T:155:GLU:O	2:T:159:LEU:HG	2.21	0.40
2:Z:187:PRO:HB2	2:Z:189:HIS:CD2	2.57	0.40
2:e:197:GLN:CD	2:e:197:GLN:H	2.29	0.40
2:i:210:GLY:O	2:i:211:THR:OG1	2.34	0.40
2:x:402:ASP:OD1	2:x:448:SER:OG	2.33	0.40
2:z:426:ILE:O	2:z:430:LEU:HG	2.20	0.40
2:5:294:VAL:HG22	2:5:396:VAL:HG22	2.03	0.40
3:6:56:ILE:HG12	3:7:18:LEU:HD11	2.04	0.40
3:7:4:GLU:HB2	2:Y:152:GLN:HE22	1.83	0.40
2:B:302:ALA:HB3	2:C:385:ARG:HB3	2.02	0.40
2:E:373:ARG:HE	2:E:373:ARG:HB2	1.77	0.40
2:P:450:LYS:HE2	2:P:450:LYS:HB2	1.85	0.40
2:Q:327:ASN:HB2	2:Q:366:SER:HB3	2.04	0.40
2:g:230:PRO:HD3	2:h:185:ALA:HB1	2.03	0.40
2:x:327:ASN:HB2	2:x:366:SER:HB3	2.04	0.40
2:y:294:VAL:HG22	2:y:396:VAL:HG22	2.03	0.40
3:6:7:VAL:HG23	4:8:137:PHE:HZ	1.87	0.40
5:AV:127:ALA:HB2	1:Al:86:THR:HG22	2.02	0.40
7:Ae:57:ARG:HB3	7:Ae:65:VAL:HG21	2.02	0.40
2:H:426:ILE:O	2:H:430:LEU:HG	2.21	0.40
2:W:176:GLN:N	2:W:176:GLN:OE1	2.54	0.40
2:c:175:LYS:HE2	2:c:175:LYS:HB2	1.84	0.40
2:d:174:MET:HE1	2:e:244:GLY:CA	2.51	0.40
2:f:159:LEU:HD22	2:g:157:GLU:HG3	2.02	0.40
2:h:217:GLU:O	2:h:221:ILE:HG12	2.22	0.40
2:s:327:ASN:HB2	2:s:366:SER:HB3	2.04	0.40
2:x:369:LYS:HE3	2:x:369:LYS:HB3	1.85	0.40
2:y:402:ASP:OD1	2:y:448:SER:OG	2.33	0.40

There are no symmetry-related clashes.

5.3 Torsion angles

5.3.1 Protein backbone

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	206/289 (71%)	203 (98%)	3 (2%)	0	100	100
1	9	205/289 (71%)	202 (98%)	3 (2%)	0	100	100
1	AP	206/289 (71%)	204 (99%)	2 (1%)	0	100	100
1	Ak	206/289 (71%)	202 (98%)	4 (2%)	0	100	100
1	Al	206/289 (71%)	202 (98%)	4 (2%)	0	100	100
2	1	142/580 (24%)	138 (97%)	4 (3%)	0	100	100
2	2	142/580 (24%)	138 (97%)	4 (3%)	0	100	100
2	3	142/580 (24%)	138 (97%)	4 (3%)	0	100	100
2	4	142/580 (24%)	138 (97%)	4 (3%)	0	100	100
2	5	142/580 (24%)	138 (97%)	4 (3%)	0	100	100
2	A	142/580 (24%)	138 (97%)	4 (3%)	0	100	100
2	AA	17/580 (3%)	17 (100%)	0	0	100	100
2	AB	17/580 (3%)	15 (88%)	2 (12%)	0	100	100
2	AC	18/580 (3%)	18 (100%)	0	0	100	100
2	AD	17/580 (3%)	17 (100%)	0	0	100	100
2	AE	17/580 (3%)	17 (100%)	0	0	100	100
2	AF	21/580 (4%)	14 (67%)	6 (29%)	1 (5%)	2	15
2	AG	9/580 (2%)	7 (78%)	2 (22%)	0	100	100
2	AH	9/580 (2%)	9 (100%)	0	0	100	100
2	AI	9/580 (2%)	8 (89%)	1 (11%)	0	100	100
2	AJ	22/580 (4%)	18 (82%)	4 (18%)	0	100	100
2	AK	23/580 (4%)	23 (100%)	0	0	100	100
2	AL	30/580 (5%)	26 (87%)	4 (13%)	0	100	100
2	AM	31/580 (5%)	31 (100%)	0	0	100	100
2	AN	31/580 (5%)	31 (100%)	0	0	100	100

Continued on next page...

Continued from previous page...

Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
2	AO	30/580 (5%)	30 (100%)	0	0	100	100
2	B	142/580 (24%)	138 (97%)	4 (3%)	0	100	100
2	C	142/580 (24%)	139 (98%)	3 (2%)	0	100	100
2	D	142/580 (24%)	138 (97%)	4 (3%)	0	100	100
2	E	142/580 (24%)	138 (97%)	4 (3%)	0	100	100
2	F	142/580 (24%)	138 (97%)	4 (3%)	0	100	100
2	G	142/580 (24%)	138 (97%)	4 (3%)	0	100	100
2	H	142/580 (24%)	138 (97%)	4 (3%)	0	100	100
2	I	142/580 (24%)	138 (97%)	4 (3%)	0	100	100
2	J	142/580 (24%)	138 (97%)	4 (3%)	0	100	100
2	K	142/580 (24%)	138 (97%)	4 (3%)	0	100	100
2	L	142/580 (24%)	138 (97%)	4 (3%)	0	100	100
2	M	142/580 (24%)	138 (97%)	4 (3%)	0	100	100
2	N	142/580 (24%)	138 (97%)	4 (3%)	0	100	100
2	O	142/580 (24%)	138 (97%)	4 (3%)	0	100	100
2	P	142/580 (24%)	138 (97%)	4 (3%)	0	100	100
2	Q	142/580 (24%)	138 (97%)	4 (3%)	0	100	100
2	R	142/580 (24%)	138 (97%)	4 (3%)	0	100	100
2	S	112/580 (19%)	100 (89%)	10 (9%)	2 (2%)	7	32
2	T	112/580 (19%)	99 (88%)	12 (11%)	1 (1%)	14	45
2	U	112/580 (19%)	102 (91%)	10 (9%)	0	100	100
2	V	112/580 (19%)	102 (91%)	9 (8%)	1 (1%)	14	45
2	W	112/580 (19%)	104 (93%)	7 (6%)	1 (1%)	14	45
2	X	105/580 (18%)	97 (92%)	7 (7%)	1 (1%)	13	43
2	Y	112/580 (19%)	99 (88%)	11 (10%)	2 (2%)	7	32
2	Z	112/580 (19%)	99 (88%)	12 (11%)	1 (1%)	14	45
2	a	112/580 (19%)	102 (91%)	9 (8%)	1 (1%)	14	45
2	b	90/580 (16%)	83 (92%)	6 (7%)	1 (1%)	12	42
2	c	101/580 (17%)	93 (92%)	7 (7%)	1 (1%)	13	43
2	d	101/580 (17%)	93 (92%)	8 (8%)	0	100	100
2	e	101/580 (17%)	90 (89%)	10 (10%)	1 (1%)	13	43

Continued on next page...

Continued from previous page...

Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
2	f	81/580 (14%)	74 (91%)	7 (9%)	0	100	100
2	g	88/580 (15%)	83 (94%)	5 (6%)	0	100	100
2	h	87/580 (15%)	82 (94%)	5 (6%)	0	100	100
2	i	85/580 (15%)	81 (95%)	4 (5%)	0	100	100
2	j	88/580 (15%)	80 (91%)	8 (9%)	0	100	100
2	k	112/580 (19%)	106 (95%)	5 (4%)	1 (1%)	14	45
2	l	112/580 (19%)	98 (88%)	13 (12%)	1 (1%)	14	45
2	m	112/580 (19%)	103 (92%)	8 (7%)	1 (1%)	14	45
2	n	101/580 (17%)	95 (94%)	5 (5%)	1 (1%)	13	43
2	o	112/580 (19%)	104 (93%)	6 (5%)	2 (2%)	7	32
2	p	142/580 (24%)	138 (97%)	4 (3%)	0	100	100
2	q	142/580 (24%)	138 (97%)	4 (3%)	0	100	100
2	r	142/580 (24%)	138 (97%)	4 (3%)	0	100	100
2	s	142/580 (24%)	138 (97%)	4 (3%)	0	100	100
2	t	142/580 (24%)	138 (97%)	4 (3%)	0	100	100
2	u	142/580 (24%)	139 (98%)	3 (2%)	0	100	100
2	v	142/580 (24%)	138 (97%)	4 (3%)	0	100	100
2	w	142/580 (24%)	138 (97%)	4 (3%)	0	100	100
2	x	142/580 (24%)	138 (97%)	4 (3%)	0	100	100
2	y	142/580 (24%)	138 (97%)	4 (3%)	0	100	100
2	z	142/580 (24%)	138 (97%)	4 (3%)	0	100	100
3	6	87/89 (98%)	84 (97%)	3 (3%)	0	100	100
3	7	87/89 (98%)	86 (99%)	1 (1%)	0	100	100
3	AQ	87/89 (98%)	87 (100%)	0	0	100	100
3	AR	87/89 (98%)	86 (99%)	0	1 (1%)	12	42
4	8	238/260 (92%)	232 (98%)	6 (2%)	0	100	100
5	AS	105/131 (80%)	104 (99%)	1 (1%)	0	100	100
5	AT	103/131 (79%)	102 (99%)	1 (1%)	0	100	100
5	AU	105/131 (80%)	103 (98%)	2 (2%)	0	100	100
5	AV	104/131 (79%)	104 (100%)	0	0	100	100
5	AW	104/131 (79%)	103 (99%)	1 (1%)	0	100	100

Continued on next page...

Continued from previous page...

Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
6	AX	126/137 (92%)	122 (97%)	4 (3%)	0	100	100
6	AY	126/137 (92%)	123 (98%)	3 (2%)	0	100	100
6	AZ	126/137 (92%)	122 (97%)	3 (2%)	1 (1%)	16	47
6	Aa	126/137 (92%)	125 (99%)	1 (1%)	0	100	100
6	Ab	126/137 (92%)	120 (95%)	6 (5%)	0	100	100
6	Ac	126/137 (92%)	121 (96%)	5 (4%)	0	100	100
7	Ad	70/103 (68%)	70 (100%)	0	0	100	100
7	Ae	78/103 (76%)	78 (100%)	0	0	100	100
7	Af	78/103 (76%)	77 (99%)	1 (1%)	0	100	100
7	Ag	70/103 (68%)	69 (99%)	1 (1%)	0	100	100
7	Ah	70/103 (68%)	69 (99%)	1 (1%)	0	100	100
7	Ai	38/103 (37%)	38 (100%)	0	0	100	100
8	Aj	69/376 (18%)	69 (100%)	0	0	100	100
9	Am	10/13 (77%)	5 (50%)	4 (40%)	1 (10%)	0	5
9	An	7/13 (54%)	2 (29%)	4 (57%)	1 (14%)	0	2
9	Ao	8/13 (62%)	8 (100%)	0	0	100	100
9	Ap	8/13 (62%)	2 (25%)	4 (50%)	2 (25%)	0	0
9	Aq	11/13 (85%)	6 (54%)	3 (27%)	2 (18%)	0	1
10	Ar	15/17 (88%)	15 (100%)	0	0	100	100
10	As	15/17 (88%)	15 (100%)	0	0	100	100
10	At	15/17 (88%)	15 (100%)	0	0	100	100
10	Au	15/17 (88%)	15 (100%)	0	0	100	100
10	Av	15/17 (88%)	15 (100%)	0	0	100	100
10	Aw	15/17 (88%)	15 (100%)	0	0	100	100
All	All	11000/46459 (24%)	10564 (96%)	408 (4%)	28 (0%)	38	66

All (28) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
2	c	152	GLN
9	Am	11	PRO
9	Ap	7	HIS
9	Aq	7	ASP
2	T	193	VAL

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type
2	X	152	GLN
2	Y	152	GLN
2	n	152	GLN
9	Ap	8	ILE
3	AR	88	LEU
2	W	190	SER
2	l	152	GLN
2	o	152	GLN
9	Aq	12	PRO
6	AZ	42	TYR
2	S	148	PHE
2	V	190	SER
2	Y	249	SER
2	e	152	GLN
2	S	211	THR
2	b	152	GLN
2	a	211	THR
2	k	198	GLU
2	m	189	HIS
2	o	211	THR
2	Z	191	VAL
9	An	4	GLY
2	AF	349	ILE

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	182/247 (74%)	176 (97%)	6 (3%)	33	57
1	9	181/247 (73%)	175 (97%)	6 (3%)	33	57
1	AP	182/247 (74%)	177 (97%)	5 (3%)	40	60
1	Ak	182/247 (74%)	175 (96%)	7 (4%)	28	53
1	Al	182/247 (74%)	175 (96%)	7 (4%)	28	53
2	1	128/500 (26%)	123 (96%)	5 (4%)	27	53

Continued on next page...

Continued from previous page...

Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
2	2	128/500 (26%)	123 (96%)	5 (4%)	27	53
2	3	128/500 (26%)	123 (96%)	5 (4%)	27	53
2	4	128/500 (26%)	123 (96%)	5 (4%)	27	53
2	5	128/500 (26%)	123 (96%)	5 (4%)	27	53
2	A	128/500 (26%)	123 (96%)	5 (4%)	27	53
2	AA	15/500 (3%)	14 (93%)	1 (7%)	13	38
2	AB	15/500 (3%)	14 (93%)	1 (7%)	13	38
2	AC	15/500 (3%)	15 (100%)	0	100	100
2	AD	15/500 (3%)	14 (93%)	1 (7%)	13	38
2	AE	15/500 (3%)	15 (100%)	0	100	100
2	AF	17/500 (3%)	13 (76%)	4 (24%)	0	4
2	AG	8/500 (2%)	8 (100%)	0	100	100
2	AH	8/500 (2%)	7 (88%)	1 (12%)	3	17
2	AI	8/500 (2%)	8 (100%)	0	100	100
2	AJ	17/500 (3%)	16 (94%)	1 (6%)	16	42
2	AK	18/500 (4%)	15 (83%)	3 (17%)	2	11
2	AL	24/500 (5%)	23 (96%)	1 (4%)	25	51
2	AM	24/500 (5%)	23 (96%)	1 (4%)	25	51
2	AN	24/500 (5%)	22 (92%)	2 (8%)	9	32
2	AO	24/500 (5%)	23 (96%)	1 (4%)	25	51
2	B	128/500 (26%)	123 (96%)	5 (4%)	27	53
2	C	128/500 (26%)	123 (96%)	5 (4%)	27	53
2	D	128/500 (26%)	123 (96%)	5 (4%)	27	53
2	E	128/500 (26%)	123 (96%)	5 (4%)	27	53
2	F	128/500 (26%)	123 (96%)	5 (4%)	27	53
2	G	128/500 (26%)	123 (96%)	5 (4%)	27	53
2	H	128/500 (26%)	123 (96%)	5 (4%)	27	53
2	I	128/500 (26%)	123 (96%)	5 (4%)	27	53
2	J	128/500 (26%)	123 (96%)	5 (4%)	27	53
2	K	128/500 (26%)	123 (96%)	5 (4%)	27	53
2	L	128/500 (26%)	123 (96%)	5 (4%)	27	53

Continued on next page...

Continued from previous page...

Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
2	M	128/500 (26%)	123 (96%)	5 (4%)	27	53
2	N	128/500 (26%)	123 (96%)	5 (4%)	27	53
2	O	128/500 (26%)	123 (96%)	5 (4%)	27	53
2	P	128/500 (26%)	123 (96%)	5 (4%)	27	53
2	Q	128/500 (26%)	123 (96%)	5 (4%)	27	53
2	R	128/500 (26%)	123 (96%)	5 (4%)	27	53
2	S	98/500 (20%)	86 (88%)	12 (12%)	4	18
2	T	98/500 (20%)	84 (86%)	14 (14%)	2	14
2	U	98/500 (20%)	89 (91%)	9 (9%)	7	28
2	V	98/500 (20%)	88 (90%)	10 (10%)	6	24
2	W	98/500 (20%)	86 (88%)	12 (12%)	4	18
2	X	93/500 (19%)	85 (91%)	8 (9%)	8	31
2	Y	98/500 (20%)	89 (91%)	9 (9%)	7	28
2	Z	98/500 (20%)	89 (91%)	9 (9%)	7	28
2	a	98/500 (20%)	93 (95%)	5 (5%)	20	46
2	b	81/500 (16%)	78 (96%)	3 (4%)	29	54
2	c	90/500 (18%)	84 (93%)	6 (7%)	13	38
2	d	90/500 (18%)	81 (90%)	9 (10%)	6	25
2	e	90/500 (18%)	78 (87%)	12 (13%)	3	16
2	f	75/500 (15%)	71 (95%)	4 (5%)	19	45
2	g	79/500 (16%)	72 (91%)	7 (9%)	8	29
2	h	78/500 (16%)	73 (94%)	5 (6%)	14	40
2	i	77/500 (15%)	72 (94%)	5 (6%)	14	39
2	j	79/500 (16%)	73 (92%)	6 (8%)	11	34
2	k	98/500 (20%)	88 (90%)	10 (10%)	6	24
2	l	98/500 (20%)	88 (90%)	10 (10%)	6	24
2	m	98/500 (20%)	91 (93%)	7 (7%)	12	36
2	n	89/500 (18%)	83 (93%)	6 (7%)	13	38
2	o	98/500 (20%)	93 (95%)	5 (5%)	20	46
2	p	128/500 (26%)	123 (96%)	5 (4%)	27	53
2	q	128/500 (26%)	123 (96%)	5 (4%)	27	53

Continued on next page...

Continued from previous page...

Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
2	r	128/500 (26%)	123 (96%)	5 (4%)	27	53
2	s	128/500 (26%)	123 (96%)	5 (4%)	27	53
2	t	128/500 (26%)	123 (96%)	5 (4%)	27	53
2	u	128/500 (26%)	123 (96%)	5 (4%)	27	53
2	v	128/500 (26%)	123 (96%)	5 (4%)	27	53
2	w	128/500 (26%)	123 (96%)	5 (4%)	27	53
2	x	128/500 (26%)	123 (96%)	5 (4%)	27	53
2	y	128/500 (26%)	123 (96%)	5 (4%)	27	53
2	z	128/500 (26%)	123 (96%)	5 (4%)	27	53
3	6	80/80 (100%)	75 (94%)	5 (6%)	15	40
3	7	80/80 (100%)	79 (99%)	1 (1%)	65	79
3	AQ	80/80 (100%)	77 (96%)	3 (4%)	28	53
3	AR	80/80 (100%)	76 (95%)	4 (5%)	20	46
4	8	204/218 (94%)	194 (95%)	10 (5%)	21	46
5	AS	89/106 (84%)	88 (99%)	1 (1%)	70	81
5	AT	88/106 (83%)	86 (98%)	2 (2%)	45	64
5	AU	89/106 (84%)	86 (97%)	3 (3%)	32	56
5	AV	88/106 (83%)	85 (97%)	3 (3%)	32	56
5	AW	88/106 (83%)	88 (100%)	0	100	100
6	AX	111/115 (96%)	106 (96%)	5 (4%)	23	49
6	AY	111/115 (96%)	107 (96%)	4 (4%)	30	55
6	AZ	111/115 (96%)	103 (93%)	8 (7%)	12	35
6	Aa	111/115 (96%)	106 (96%)	5 (4%)	23	49
6	Ab	111/115 (96%)	105 (95%)	6 (5%)	18	45
6	Ac	111/115 (96%)	106 (96%)	5 (4%)	23	49
7	Ad	63/84 (75%)	59 (94%)	4 (6%)	15	40
7	Ae	66/84 (79%)	64 (97%)	2 (3%)	36	58
7	Af	66/84 (79%)	63 (96%)	3 (4%)	23	49
7	Ag	63/84 (75%)	62 (98%)	1 (2%)	58	74
7	Ah	63/84 (75%)	63 (100%)	0	100	100
7	Ai	36/84 (43%)	35 (97%)	1 (3%)	38	60

Continued on next page...

Continued from previous page...

Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
8	Aj	58/317 (18%)	55 (95%)	3 (5%)	19	45
All	All	9652/39814 (24%)	9172 (95%)	480 (5%)	23	46

All (480) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	0	86	THR
1	0	95	MET
1	0	149	VAL
1	0	214	LEU
1	0	220	THR
1	0	272	LEU
2	1	280	VAL
2	1	380	THR
2	1	387	GLN
2	1	395	THR
2	1	422	GLU
2	2	280	VAL
2	2	380	THR
2	2	387	GLN
2	2	395	THR
2	2	422	GLU
2	3	280	VAL
2	3	380	THR
2	3	387	GLN
2	3	395	THR
2	3	422	GLU
2	4	280	VAL
2	4	380	THR
2	4	387	GLN
2	4	395	THR
2	4	422	GLU
2	5	280	VAL
2	5	380	THR
2	5	387	GLN
2	5	395	THR
2	5	422	GLU
3	6	1	MET
3	6	7	VAL
3	6	14	LEU
3	6	42	THR
3	6	86	GLN

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type
3	7	88	LEU
4	8	2	GLU
4	8	47	LEU
4	8	70	ARG
4	8	102	ILE
4	8	125	LEU
4	8	192	ILE
4	8	195	LEU
4	8	207	ARG
4	8	212	LEU
4	8	214	ILE
1	9	127	GLN
1	9	146	MET
1	9	166	VAL
1	9	202	GLN
1	9	208	ASP
1	9	259	MET
2	A	280	VAL
2	A	380	THR
2	A	387	GLN
2	A	395	THR
2	A	422	GLU
2	AA	342	GLN
2	AB	342	GLN
2	AD	349	ILE
2	AF	346	ASP
2	AF	351	GLN
2	AF	352	ASP
2	AF	355	GLN
2	AH	342	GLN
2	AJ	349	ILE
2	AK	330	ASN
2	AK	331	MET
2	AK	332	VAL
2	AL	339	LEU
2	AM	352	ASP
2	AN	339	LEU
2	AN	352	ASP
2	AO	330	ASN
1	AP	96	LEU
1	AP	133	VAL
1	AP	141	LEU

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type
1	AP	149	VAL
1	AP	214	LEU
3	AQ	1	MET
3	AQ	16	MET
3	AQ	55	LEU
3	AR	45	ASN
3	AR	64	LEU
3	AR	72	MET
3	AR	89	TYR
5	AS	9	LEU
5	AT	6	ASP
5	AT	87	ASP
5	AU	4	SER
5	AU	6	ASP
5	AU	7	ASN
5	AV	6	ASP
5	AV	7	ASN
5	AV	88	THR
6	AX	23	THR
6	AX	39	LYS
6	AX	53	LEU
6	AX	65	VAL
6	AX	134	GLN
6	AY	3	LEU
6	AY	34	VAL
6	AY	65	VAL
6	AY	67	VAL
6	AZ	36	SER
6	AZ	39	LYS
6	AZ	61	ASP
6	AZ	62	THR
6	AZ	67	VAL
6	AZ	84	ASP
6	AZ	113	ARG
6	AZ	131	ARG
6	Aa	53	LEU
6	Aa	61	ASP
6	Aa	65	VAL
6	Aa	67	VAL
6	Aa	126	LYS
6	Ab	14	MET
6	Ab	40	ASP

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type
6	Ab	53	LEU
6	Ab	65	VAL
6	Ab	113	ARG
6	Ab	134	GLN
6	Ac	40	ASP
6	Ac	43	LYS
6	Ac	65	VAL
6	Ac	126	LYS
6	Ac	137	GLN
7	Ad	34	ASN
7	Ad	37	LEU
7	Ad	39	LYS
7	Ad	67	LEU
7	Ae	67	LEU
7	Ae	98	LEU
7	Af	32	ASP
7	Af	35	ASP
7	Af	67	LEU
7	Ag	67	LEU
7	Ai	91	LEU
8	Aj	48	TRP
8	Aj	69	ARG
8	Aj	86	MET
1	Ak	86	THR
1	Ak	99	LEU
1	Ak	113	VAL
1	Ak	141	LEU
1	Ak	254	MET
1	Ak	261	VAL
1	Ak	283	LEU
1	Al	86	THR
1	Al	87	LEU
1	Al	113	VAL
1	Al	128	THR
1	Al	184	LEU
1	Al	192	LEU
1	Al	272	LEU
2	B	280	VAL
2	B	380	THR
2	B	387	GLN
2	B	395	THR
2	B	422	GLU

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type
2	C	280	VAL
2	C	380	THR
2	C	387	GLN
2	C	395	THR
2	C	422	GLU
2	D	280	VAL
2	D	380	THR
2	D	387	GLN
2	D	395	THR
2	D	422	GLU
2	E	280	VAL
2	E	380	THR
2	E	387	GLN
2	E	395	THR
2	E	422	GLU
2	F	280	VAL
2	F	380	THR
2	F	387	GLN
2	F	395	THR
2	F	422	GLU
2	G	280	VAL
2	G	380	THR
2	G	387	GLN
2	G	395	THR
2	G	422	GLU
2	H	280	VAL
2	H	380	THR
2	H	387	GLN
2	H	395	THR
2	H	422	GLU
2	I	280	VAL
2	I	380	THR
2	I	387	GLN
2	I	395	THR
2	I	422	GLU
2	J	280	VAL
2	J	380	THR
2	J	387	GLN
2	J	395	THR
2	J	422	GLU
2	K	280	VAL
2	K	380	THR

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type
2	K	387	GLN
2	K	395	THR
2	K	422	GLU
2	L	280	VAL
2	L	380	THR
2	L	387	GLN
2	L	395	THR
2	L	422	GLU
2	M	280	VAL
2	M	380	THR
2	M	387	GLN
2	M	395	THR
2	M	422	GLU
2	N	280	VAL
2	N	380	THR
2	N	387	GLN
2	N	395	THR
2	N	422	GLU
2	O	280	VAL
2	O	380	THR
2	O	387	GLN
2	O	395	THR
2	O	422	GLU
2	P	280	VAL
2	P	380	THR
2	P	387	GLN
2	P	395	THR
2	P	422	GLU
2	Q	280	VAL
2	Q	380	THR
2	Q	387	GLN
2	Q	395	THR
2	Q	422	GLU
2	R	280	VAL
2	R	380	THR
2	R	387	GLN
2	R	395	THR
2	R	422	GLU
2	S	144	GLN
2	S	146	MET
2	S	152	GLN
2	S	153	ARG

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type
2	S	156	GLN
2	S	174	MET
2	S	203	VAL
2	S	206	THR
2	S	221	ILE
2	S	241	ASP
2	S	242	GLN
2	S	246	LEU
2	T	139	ASP
2	T	144	GLN
2	T	152	GLN
2	T	156	GLN
2	T	167	LEU
2	T	173	GLU
2	T	191	VAL
2	T	193	VAL
2	T	194	ARG
2	T	196	ASN
2	T	203	VAL
2	T	206	THR
2	T	240	THR
2	T	246	LEU
2	U	144	GLN
2	U	167	LEU
2	U	173	GLU
2	U	193	VAL
2	U	194	ARG
2	U	196	ASN
2	U	203	VAL
2	U	221	ILE
2	U	240	THR
2	V	144	GLN
2	V	173	GLU
2	V	183	LEU
2	V	194	ARG
2	V	196	ASN
2	V	203	VAL
2	V	205	LEU
2	V	206	THR
2	V	240	THR
2	V	242	GLN
2	W	139	ASP

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type
2	W	144	GLN
2	W	156	GLN
2	W	173	GLU
2	W	174	MET
2	W	177	VAL
2	W	194	ARG
2	W	203	VAL
2	W	206	THR
2	W	221	ILE
2	W	222	VAL
2	W	242	GLN
2	X	139	ASP
2	X	156	GLN
2	X	173	GLU
2	X	174	MET
2	X	184	LEU
2	X	188	LYS
2	X	203	VAL
2	X	242	GLN
2	Y	139	ASP
2	Y	144	GLN
2	Y	173	GLU
2	Y	196	ASN
2	Y	200	SER
2	Y	203	VAL
2	Y	206	THR
2	Y	236	ARG
2	Y	246	LEU
2	Z	139	ASP
2	Z	144	GLN
2	Z	163	ARG
2	Z	174	MET
2	Z	206	THR
2	Z	232	MET
2	Z	234	THR
2	Z	242	GLN
2	Z	246	LEU
2	a	146	MET
2	a	156	GLN
2	a	173	GLU
2	a	193	VAL
2	a	203	VAL

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type
2	b	173	GLU
2	b	174	MET
2	b	206	THR
2	c	148	PHE
2	c	173	GLU
2	c	203	VAL
2	c	206	THR
2	c	241	ASP
2	c	246	LEU
2	d	156	GLN
2	d	169	GLN
2	d	173	GLU
2	d	174	MET
2	d	206	THR
2	d	236	ARG
2	d	237	ILE
2	d	242	GLN
2	d	246	LEU
2	e	148	PHE
2	e	156	GLN
2	e	173	GLU
2	e	182	VAL
2	e	188	LYS
2	e	191	VAL
2	e	197	GLN
2	e	202	SER
2	e	203	VAL
2	e	206	THR
2	e	224	MET
2	e	232	MET
2	f	156	GLN
2	f	173	GLU
2	f	203	VAL
2	f	219	ASP
2	g	156	GLN
2	g	173	GLU
2	g	203	VAL
2	g	205	LEU
2	g	206	THR
2	g	236	ARG
2	g	246	LEU
2	h	156	GLN

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type
2	h	173	GLU
2	h	182	VAL
2	h	224	MET
2	h	246	LEU
2	i	152	GLN
2	i	173	GLU
2	i	182	VAL
2	i	203	VAL
2	i	206	THR
2	j	156	GLN
2	j	173	GLU
2	j	203	VAL
2	j	206	THR
2	j	234	THR
2	j	242	GLN
2	k	144	GLN
2	k	167	LEU
2	k	173	GLU
2	k	174	MET
2	k	203	VAL
2	k	206	THR
2	k	232	MET
2	k	234	THR
2	k	242	GLN
2	k	246	LEU
2	l	140	ASP
2	l	144	GLN
2	l	150	VAL
2	l	156	GLN
2	l	173	GLU
2	l	193	VAL
2	l	196	ASN
2	l	203	VAL
2	l	232	MET
2	l	242	GLN
2	m	139	ASP
2	m	156	GLN
2	m	173	GLU
2	m	174	MET
2	m	194	ARG
2	m	203	VAL
2	m	206	THR

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type
2	n	144	GLN
2	n	173	GLU
2	n	203	VAL
2	n	206	THR
2	n	214	LYS
2	n	246	LEU
2	o	144	GLN
2	o	146	MET
2	o	184	LEU
2	o	234	THR
2	o	246	LEU
2	p	280	VAL
2	p	380	THR
2	p	387	GLN
2	p	395	THR
2	p	422	GLU
2	q	280	VAL
2	q	380	THR
2	q	387	GLN
2	q	395	THR
2	q	422	GLU
2	r	280	VAL
2	r	380	THR
2	r	387	GLN
2	r	395	THR
2	r	422	GLU
2	s	280	VAL
2	s	380	THR
2	s	387	GLN
2	s	395	THR
2	s	422	GLU
2	t	280	VAL
2	t	380	THR
2	t	387	GLN
2	t	395	THR
2	t	422	GLU
2	u	280	VAL
2	u	380	THR
2	u	387	GLN
2	u	395	THR
2	u	422	GLU
2	v	280	VAL

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type
2	v	380	THR
2	v	387	GLN
2	v	395	THR
2	v	422	GLU
2	w	280	VAL
2	w	380	THR
2	w	387	GLN
2	w	395	THR
2	w	422	GLU
2	x	280	VAL
2	x	380	THR
2	x	387	GLN
2	x	395	THR
2	x	422	GLU
2	y	280	VAL
2	y	380	THR
2	y	387	GLN
2	y	395	THR
2	y	422	GLU
2	z	280	VAL
2	z	380	THR
2	z	387	GLN
2	z	395	THR
2	z	422	GLU

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (242) such sidechains are listed below:

Mol	Chain	Res	Type
1	0	127	GLN
2	1	305	GLN
2	1	387	GLN
2	1	445	ASN
2	2	305	GLN
2	2	387	GLN
2	2	445	ASN
2	3	305	GLN
2	3	387	GLN
2	3	445	ASN
2	4	305	GLN
2	4	387	GLN
2	4	445	ASN
2	5	305	GLN

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type
2	5	387	GLN
2	5	445	ASN
3	6	47	GLN
3	6	67	HIS
3	6	71	GLN
3	7	39	GLN
3	7	67	HIS
4	8	90	GLN
4	8	106	GLN
4	8	149	GLN
4	8	182	GLN
4	8	199	ASN
4	8	211	GLN
1	9	88	GLN
1	9	127	GLN
1	9	228	GLN
2	A	305	GLN
2	A	387	GLN
2	A	445	ASN
2	AD	341	ASN
2	AH	342	GLN
2	AK	330	ASN
2	AL	341	ASN
2	AL	351	GLN
2	AM	341	ASN
2	AN	341	ASN
2	AN	342	GLN
2	AO	330	ASN
2	AO	355	GLN
1	AP	186	GLN
1	AP	205	ASN
3	AQ	47	GLN
3	AR	86	GLN
5	AS	50	GLN
5	AT	32	GLN
5	AT	50	GLN
5	AT	85	GLN
5	AT	106	ASN
5	AT	110	HIS
5	AU	14	HIS
5	AU	105	GLN
5	AU	106	ASN

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type
5	AU	107	GLN
5	AU	110	HIS
5	AV	85	GLN
5	AV	101	ASN
5	AV	107	GLN
5	AV	110	HIS
5	AW	14	HIS
5	AW	34	ASN
5	AW	50	GLN
5	AW	110	HIS
6	AX	100	ASN
6	AX	118	ASN
6	AX	134	GLN
6	AZ	22	ASN
6	AZ	30	ASN
6	AZ	46	HIS
6	AZ	100	ASN
6	AZ	118	ASN
6	Aa	118	ASN
6	Ab	100	ASN
6	Ac	100	ASN
7	Ad	42	ASN
7	Ad	86	GLN
7	Ae	45	ASN
7	Ae	86	GLN
7	Ae	89	ASN
7	Af	45	ASN
7	Af	75	ASN
7	Af	86	GLN
7	Ag	86	GLN
7	Ah	55	GLN
7	Ah	75	ASN
1	Ak	186	GLN
1	Al	126	GLN
1	Al	127	GLN
1	Al	165	GLN
2	B	305	GLN
2	B	387	GLN
2	B	445	ASN
2	C	305	GLN
2	C	387	GLN
2	C	445	ASN

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type
2	D	305	GLN
2	D	387	GLN
2	D	445	ASN
2	E	305	GLN
2	E	387	GLN
2	E	445	ASN
2	F	305	GLN
2	F	387	GLN
2	F	445	ASN
2	G	305	GLN
2	G	387	GLN
2	G	445	ASN
2	H	305	GLN
2	H	387	GLN
2	H	445	ASN
2	I	305	GLN
2	I	387	GLN
2	I	445	ASN
2	J	305	GLN
2	J	387	GLN
2	J	445	ASN
2	K	305	GLN
2	K	387	GLN
2	K	445	ASN
2	L	305	GLN
2	L	327	ASN
2	L	387	GLN
2	L	445	ASN
2	M	305	GLN
2	M	327	ASN
2	M	387	GLN
2	M	445	ASN
2	N	305	GLN
2	N	387	GLN
2	N	445	ASN
2	O	305	GLN
2	O	387	GLN
2	O	445	ASN
2	P	305	GLN
2	P	387	GLN
2	P	445	ASN
2	Q	305	GLN

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type
2	Q	387	GLN
2	Q	445	ASN
2	R	305	GLN
2	R	327	ASN
2	R	387	GLN
2	R	445	ASN
2	S	166	GLN
2	S	197	GLN
2	T	152	GLN
2	T	156	GLN
2	T	212	ASN
2	T	216	GLN
2	T	243	HIS
2	U	144	GLN
2	U	152	GLN
2	U	196	ASN
2	U	197	GLN
2	U	215	GLN
2	V	242	GLN
2	W	144	GLN
2	W	212	ASN
2	X	152	GLN
2	X	156	GLN
2	X	166	GLN
2	X	212	ASN
2	Y	152	GLN
2	Y	212	ASN
2	Z	197	GLN
2	a	152	GLN
2	a	156	GLN
2	a	166	GLN
2	a	195	HIS
2	b	152	GLN
2	b	212	ASN
2	c	152	GLN
2	c	156	GLN
2	c	189	HIS
2	c	196	ASN
2	d	152	GLN
2	d	216	GLN
2	d	243	HIS
2	e	166	GLN

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type
2	e	212	ASN
2	f	152	GLN
2	f	212	ASN
2	f	216	GLN
2	f	242	GLN
2	g	152	GLN
2	g	166	GLN
2	g	242	GLN
2	h	152	GLN
2	h	242	GLN
2	j	152	GLN
2	j	166	GLN
2	j	212	ASN
2	j	216	GLN
2	k	144	GLN
2	k	152	GLN
2	l	144	GLN
2	l	166	GLN
2	l	197	GLN
2	m	166	GLN
2	m	189	HIS
2	m	196	ASN
2	m	197	GLN
2	m	242	GLN
2	n	166	GLN
2	n	216	GLN
2	o	144	GLN
2	p	305	GLN
2	p	387	GLN
2	p	445	ASN
2	q	305	GLN
2	q	387	GLN
2	q	445	ASN
2	r	305	GLN
2	r	387	GLN
2	r	445	ASN
2	s	305	GLN
2	s	387	GLN
2	s	445	ASN
2	t	305	GLN
2	t	387	GLN
2	t	445	ASN

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type
2	u	305	GLN
2	u	387	GLN
2	u	445	ASN
2	v	305	GLN
2	v	387	GLN
2	v	445	ASN
2	w	305	GLN
2	w	387	GLN
2	w	445	ASN
2	x	305	GLN
2	x	387	GLN
2	x	445	ASN
2	y	305	GLN
2	y	387	GLN
2	y	445	ASN
2	z	305	GLN
2	z	387	GLN
2	z	445	ASN

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.

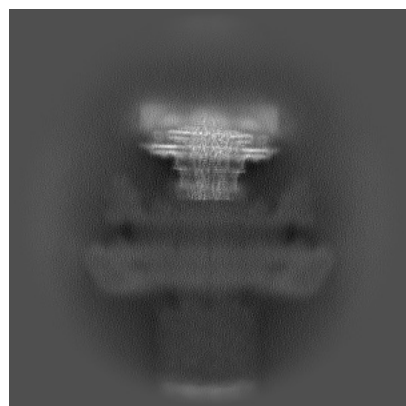
6 Map visualisation [i](#)

This section contains visualisations of the EMDB entry EMD-39787. These allow visual inspection of the internal detail of the map and identification of artifacts.

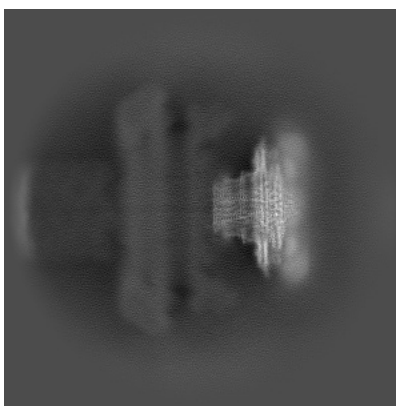
Images derived from a raw map, generated by summing the deposited half-maps, are presented below the corresponding image components of the primary map to allow further visual inspection and comparison with those of the primary map.

6.1 Orthogonal projections [i](#)

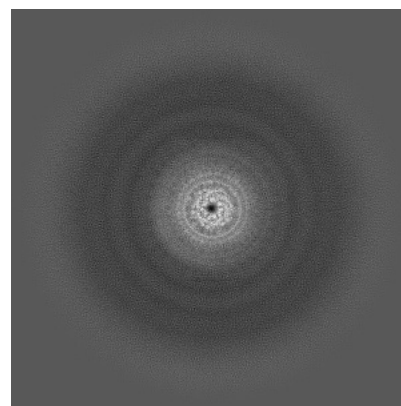
6.1.1 Primary map



X

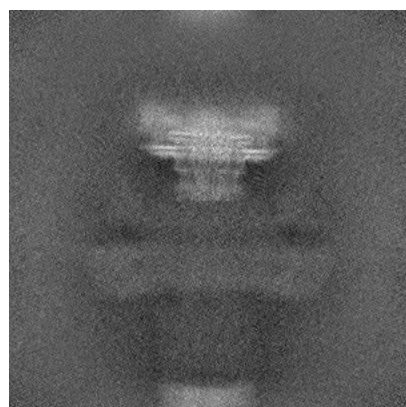


Y

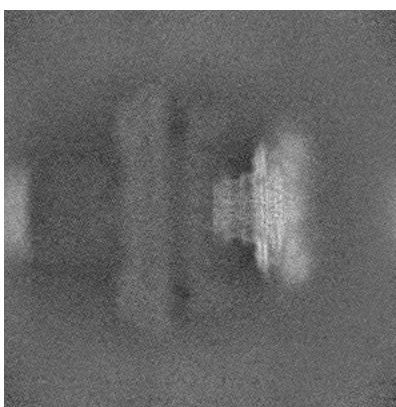


Z

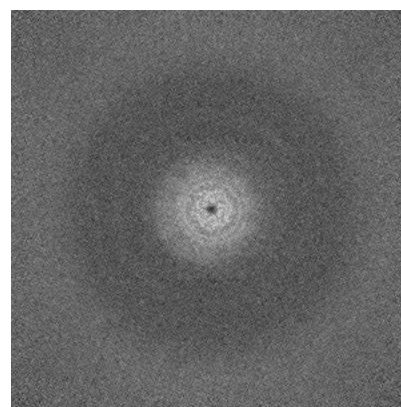
6.1.2 Raw map



X



Y

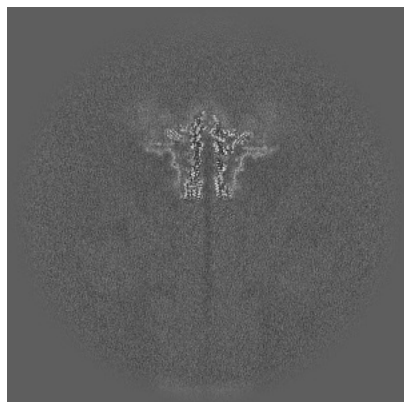


Z

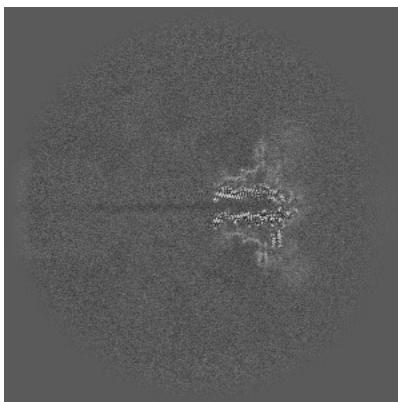
The images above show the map projected in three orthogonal directions.

6.2 Central slices [i](#)

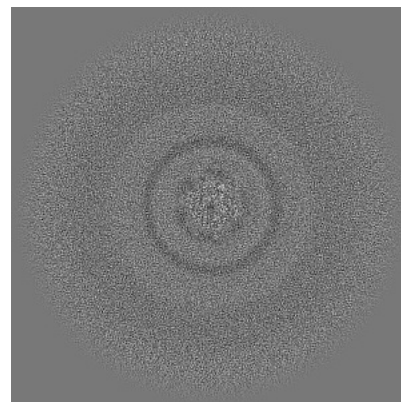
6.2.1 Primary map



X Index: 310



Y Index: 310

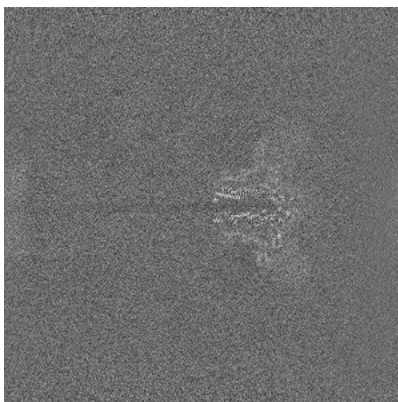


Z Index: 310

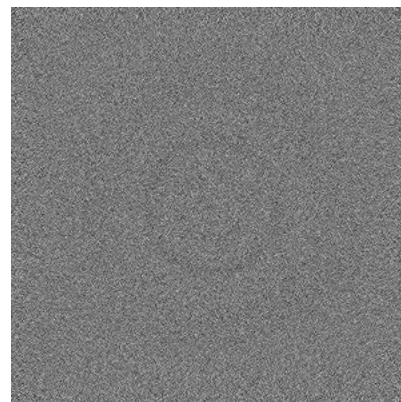
6.2.2 Raw map



X Index: 310



Y Index: 310



Z Index: 310

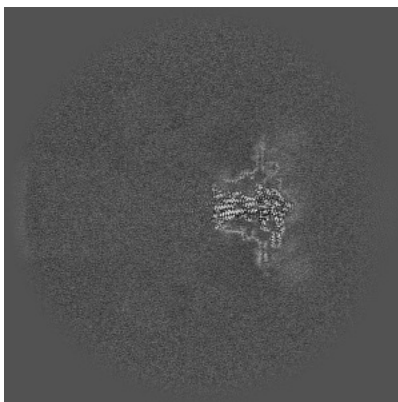
The images above show central slices of the map in three orthogonal directions.

6.3 Largest variance slices [i](#)

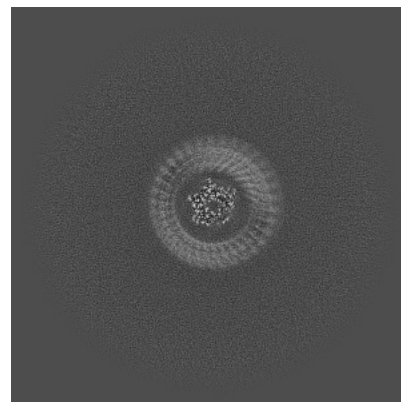
6.3.1 Primary map



X Index: 301

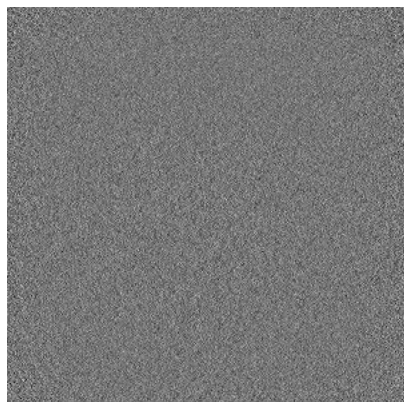


Y Index: 325

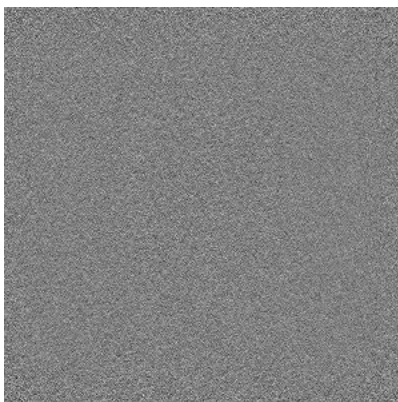


Z Index: 399

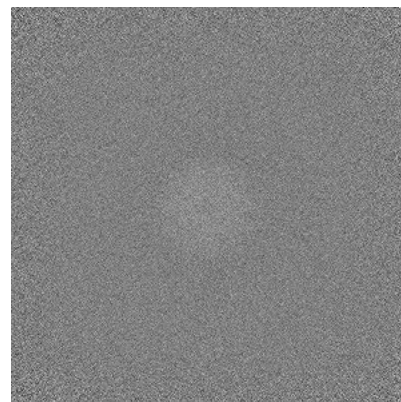
6.3.2 Raw map



X Index: 0



Y Index: 0

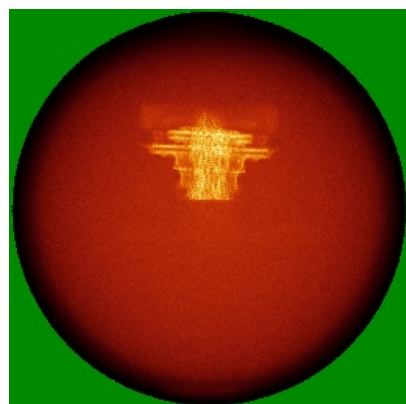


Z Index: 0

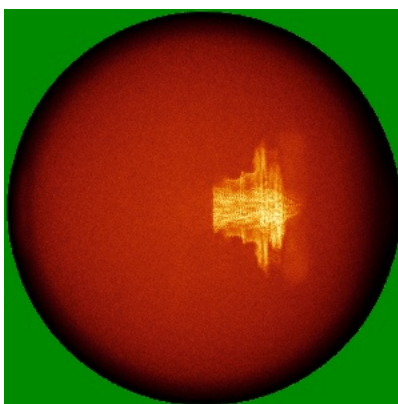
The images above show the largest variance slices of the map in three orthogonal directions.

6.4 Orthogonal standard-deviation projections (False-color) [i](#)

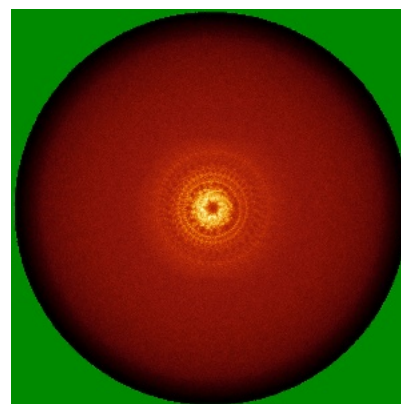
6.4.1 Primary map



X

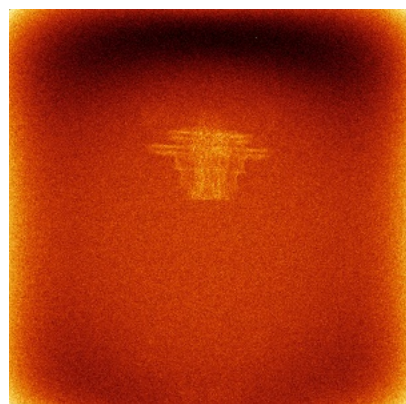


Y

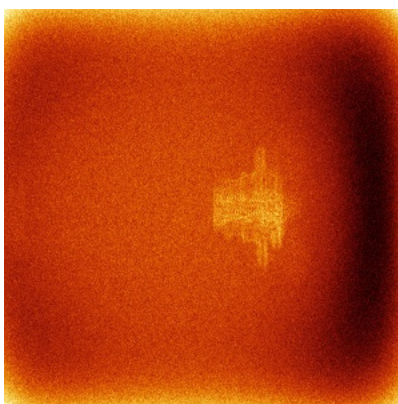


Z

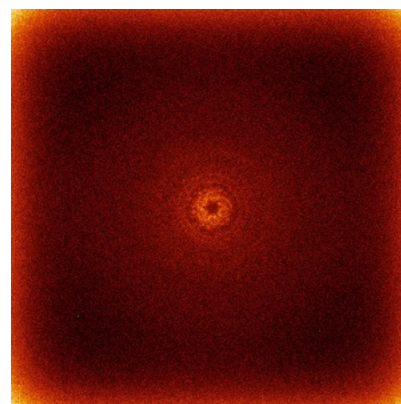
6.4.2 Raw map



X



Y

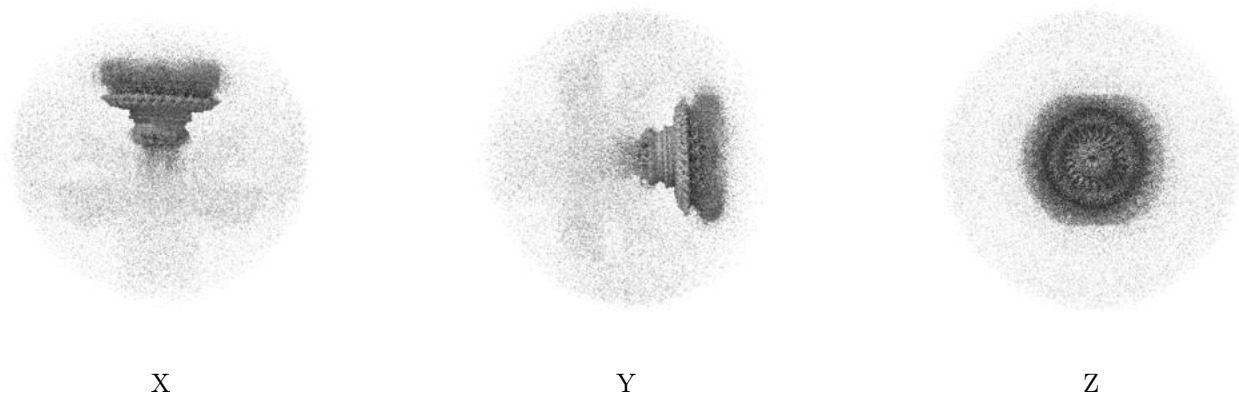


Z

The images above show the map standard deviation projections with false color in three orthogonal directions. Minimum values are shown in green, max in blue, and dark to light orange shades represent small to large values respectively.

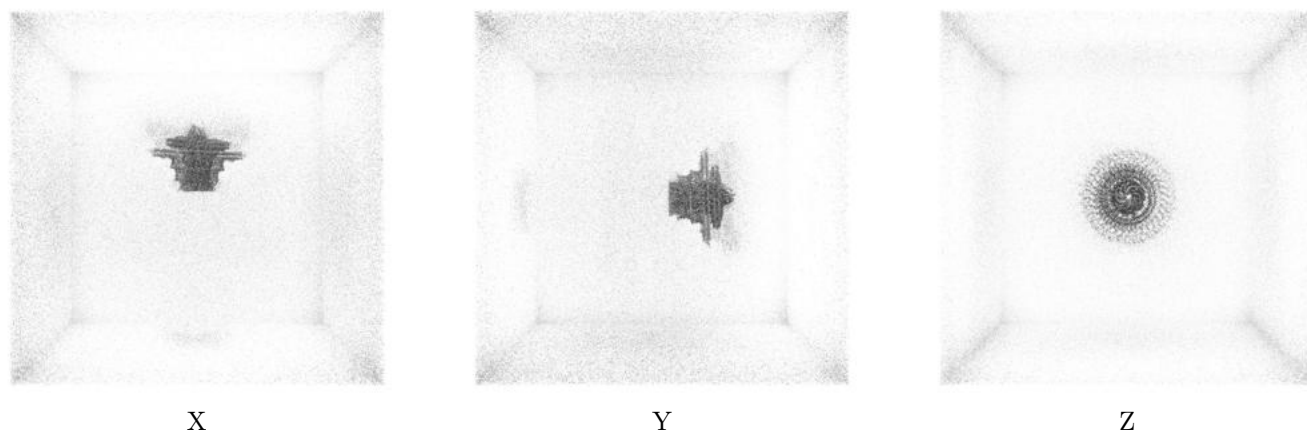
6.5 Orthogonal surface views [i](#)

6.5.1 Primary map



The images above show the 3D surface view of the map at the recommended contour level 0.15. These images, in conjunction with the slice images, may facilitate assessment of whether an appropriate contour level has been provided.

6.5.2 Raw map



These images show the 3D surface of the raw map. The raw map's contour level was selected so that its surface encloses the same volume as the primary map does at its recommended contour level.

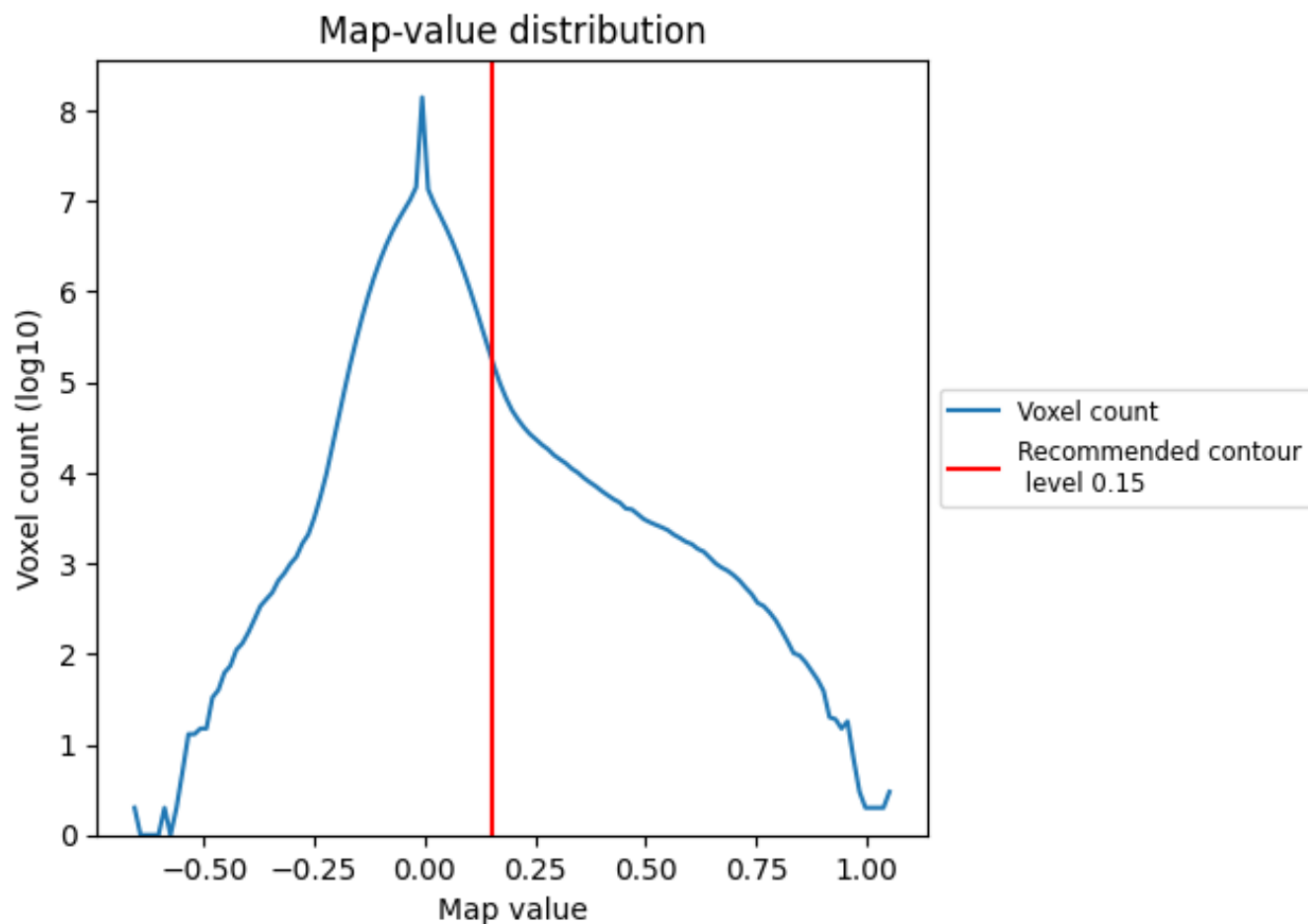
6.6 Mask visualisation [i](#)

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

7 Map analysis [i](#)

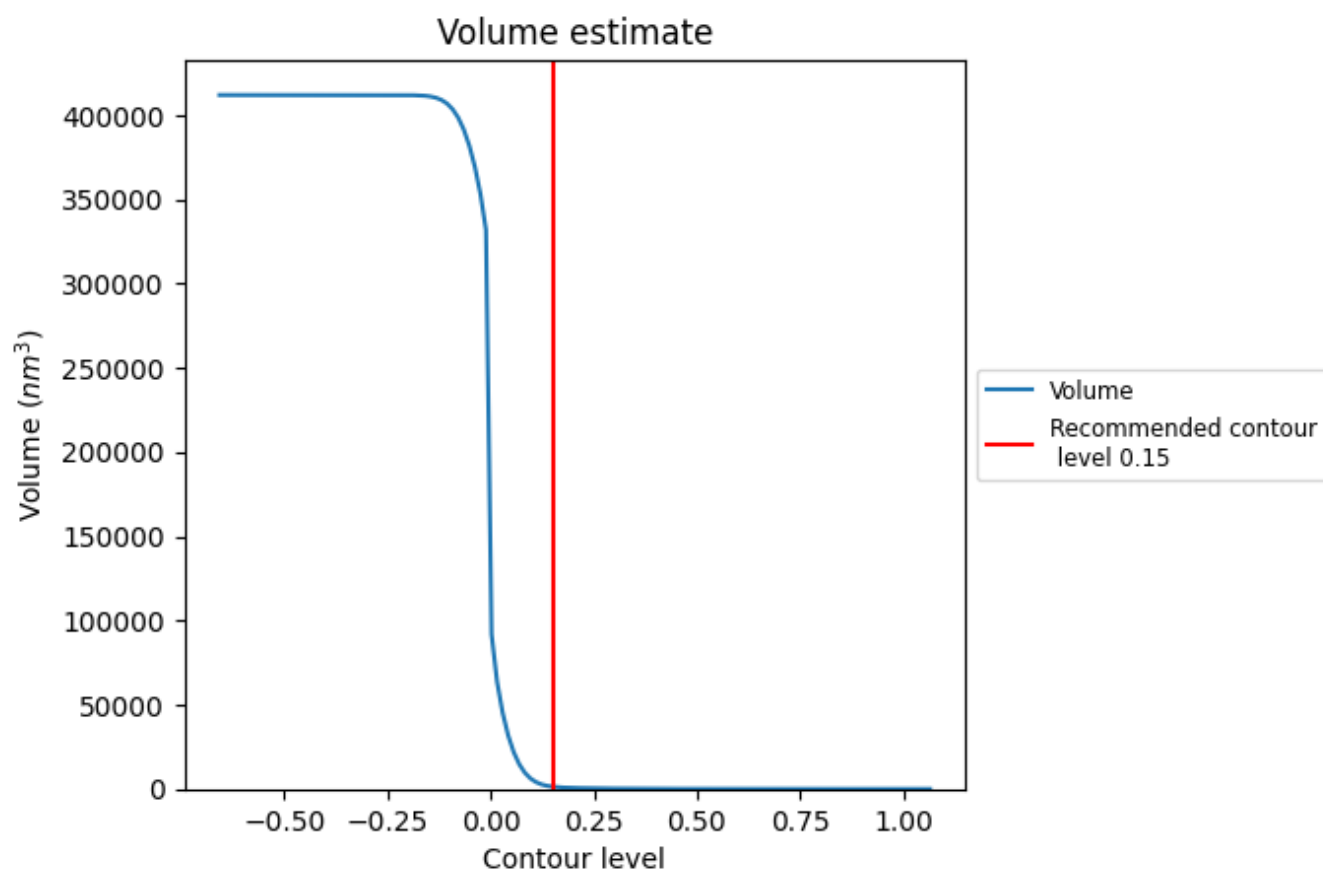
This section contains the results of statistical analysis of the map.

7.1 Map-value distribution [i](#)



The map-value distribution is plotted in 128 intervals along the x-axis. The y-axis is logarithmic. A spike in this graph at zero usually indicates that the volume has been masked.

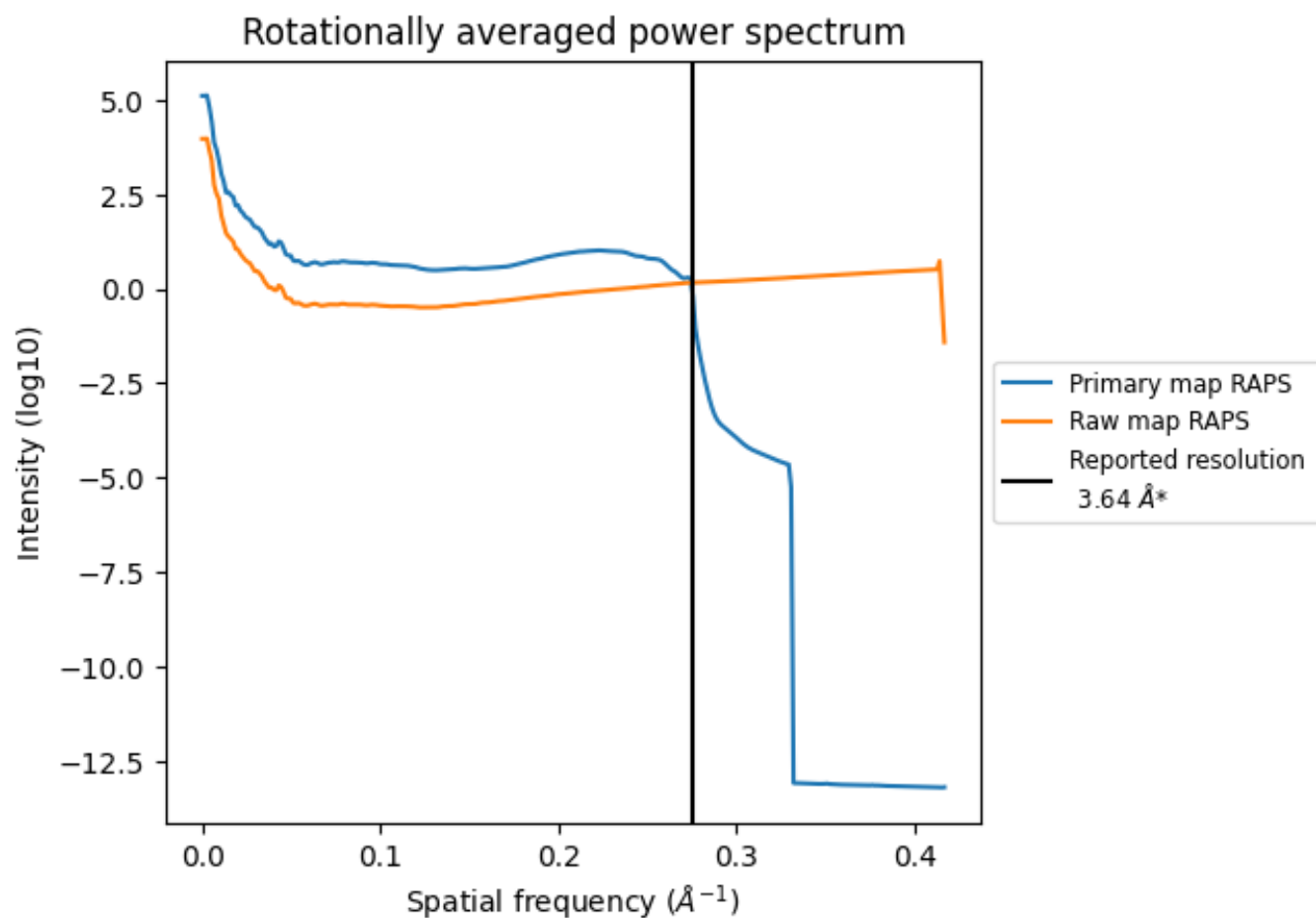
7.2 Volume estimate [i](#)



The volume at the recommended contour level is 1347 nm³; this corresponds to an approximate mass of 1217 kDa.

The volume estimate graph shows how the enclosed volume varies with the contour level. The recommended contour level is shown as a vertical line and the intersection between the line and the curve gives the volume of the enclosed surface at the given level.

7.3 Rotationally averaged power spectrum ⓘ

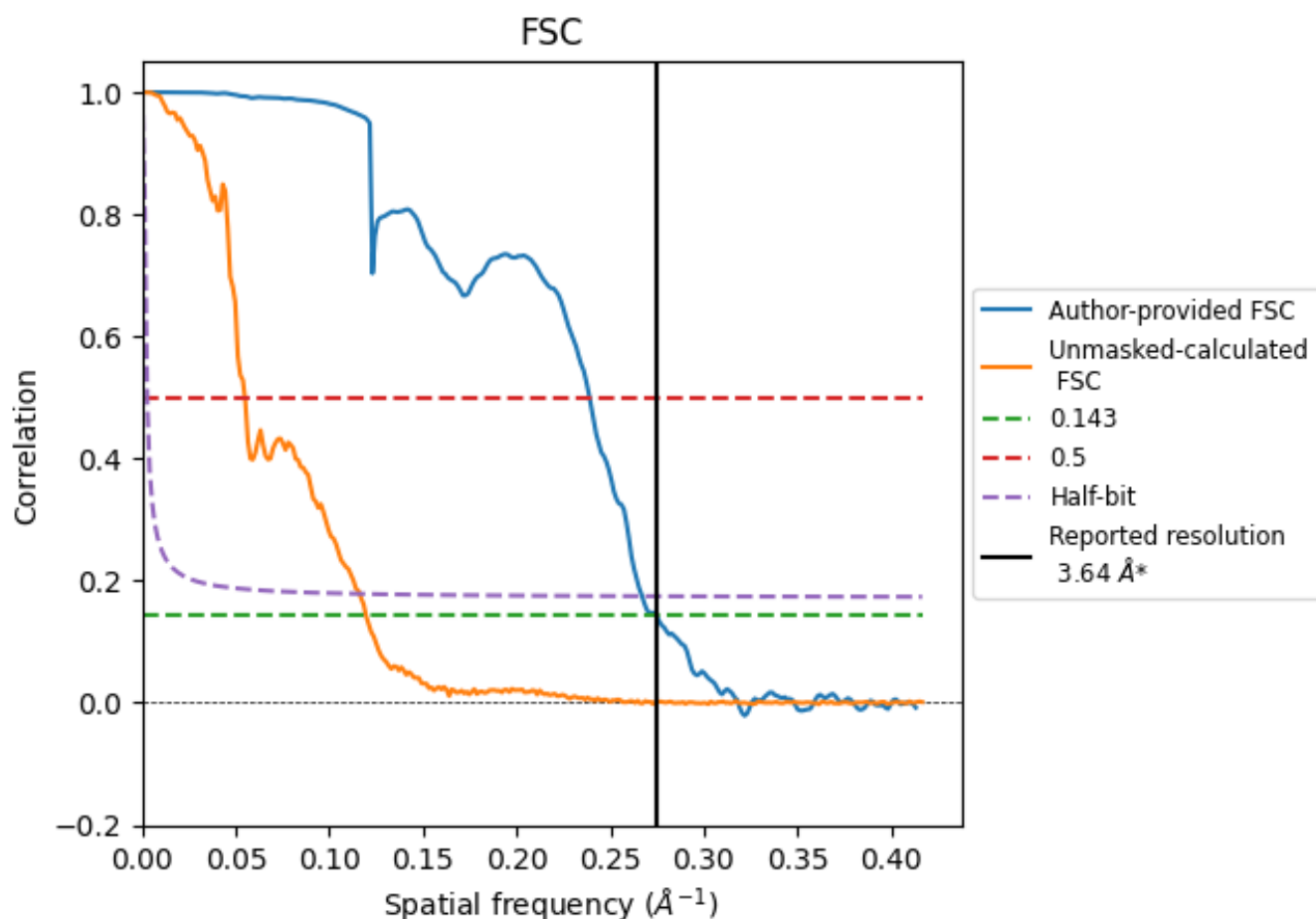


*Reported resolution corresponds to spatial frequency of 0.275 Å⁻¹

8 Fourier-Shell correlation [i](#)

Fourier-Shell Correlation (FSC) is the most commonly used method to estimate the resolution of single-particle and subtomogram-averaged maps. The shape of the curve depends on the imposed symmetry, mask and whether or not the two 3D reconstructions used were processed from a common reference. The reported resolution is shown as a black line. A curve is displayed for the half-bit criterion in addition to lines showing the 0.143 gold standard cut-off and 0.5 cut-off.

8.1 FSC [i](#)



*Reported resolution corresponds to spatial frequency of 0.275 $\text{\AA}^{-1}$

8.2 Resolution estimates [i](#)

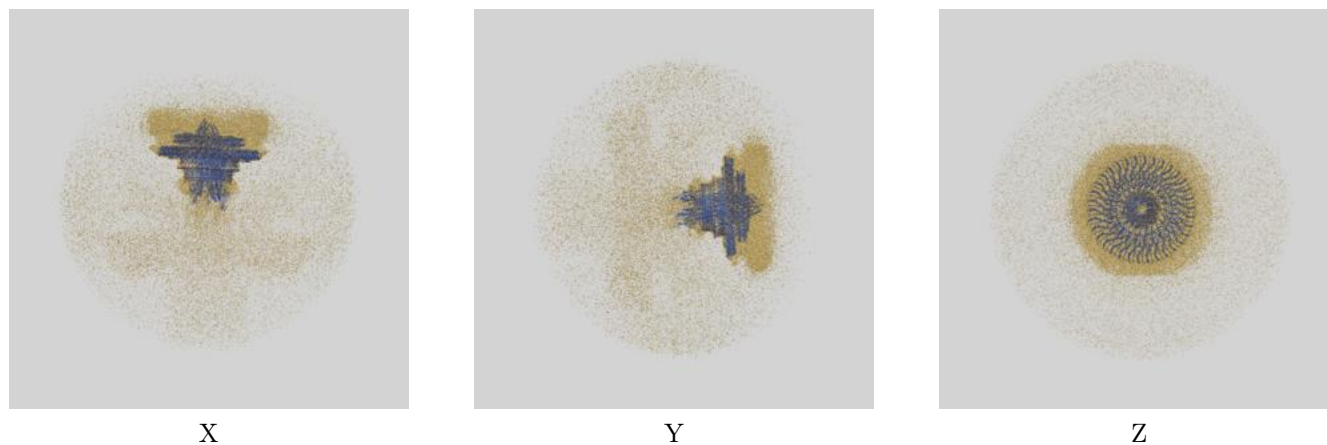
Resolution estimate (Å)	Estimation criterion (FSC cut-off)		
	0.143	0.5	Half-bit
Reported by author	3.64	-	-
Author-provided FSC curve	3.64	4.18	3.74
Unmasked-calculated*	8.36	18.25	8.61

*Resolution estimate based on FSC curve calculated by comparison of deposited half-maps. The value from deposited half-maps intersecting FSC 0.143 CUT-OFF 8.36 differs from the reported value 3.64 by more than 10 %

9 Map-model fit [i](#)

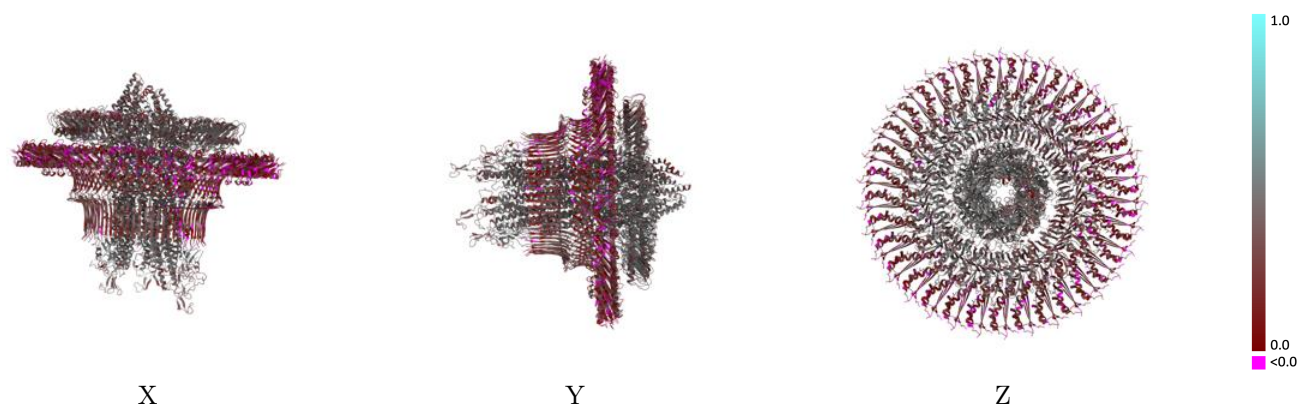
This section contains information regarding the fit between EMDB map EMD-39787 and PDB model 8Z5X. Per-residue inclusion information can be found in section [3](#) on page [15](#).

9.1 Map-model overlay [i](#)



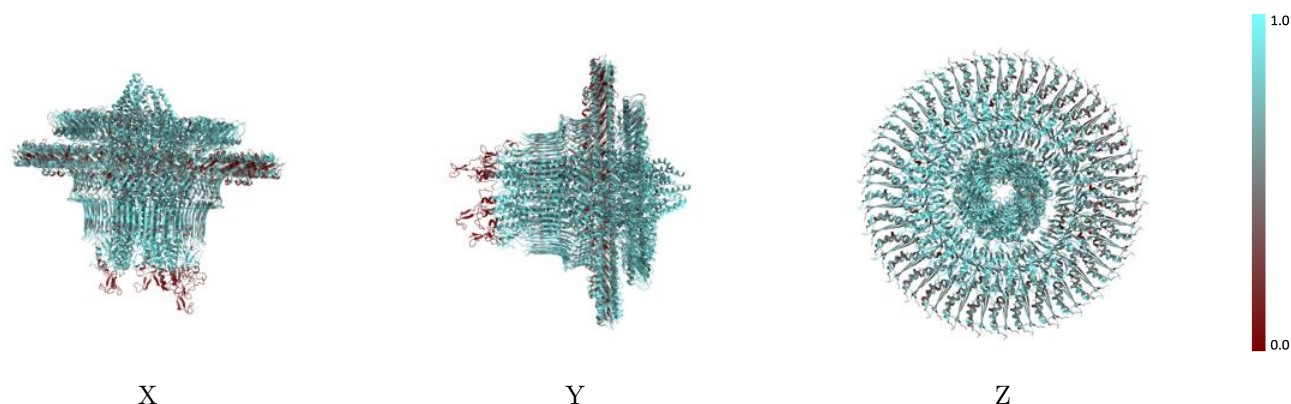
The images above show the 3D surface view of the map at the recommended contour level 0.15 at 50% transparency in yellow overlaid with a ribbon representation of the model coloured in blue. These images allow for the visual assessment of the quality of fit between the atomic model and the map.

9.2 Q-score mapped to coordinate model [i](#)



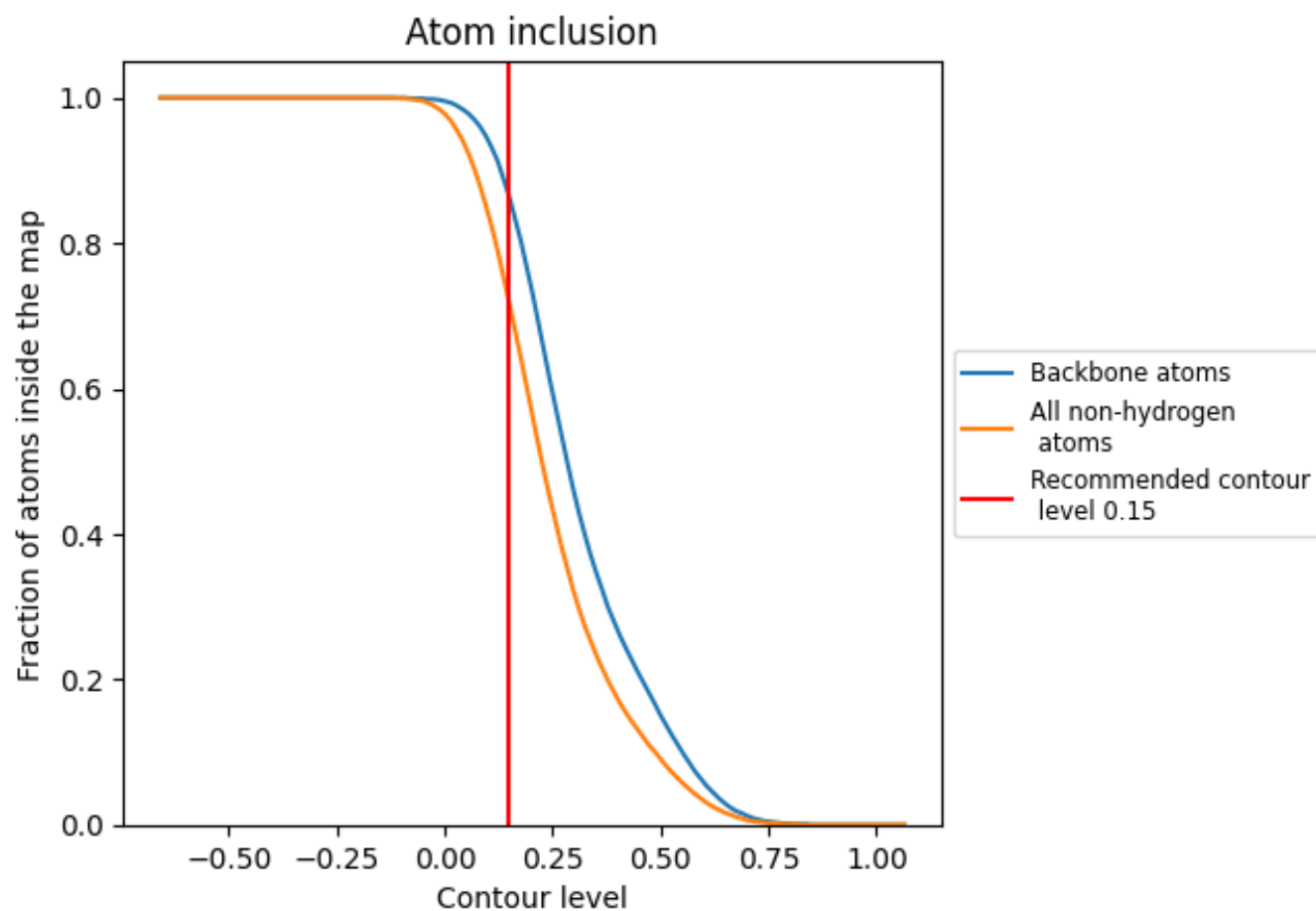
The images above show the model with each residue coloured according to its Q-score. This shows their resolvability in the map with higher Q-score values reflecting better resolvability. Please note: Q-score is calculating the resolvability of atoms, and thus high values are only expected at resolutions at which atoms can be resolved. Low Q-score values may therefore be expected for many entries.

9.3 Atom inclusion mapped to coordinate model [i](#)



The images above show the model with each residue coloured according to its atom inclusion. This shows to what extent they are inside the map at the recommended contour level (0.15).

9.4 Atom inclusion [i](#)



At the recommended contour level, 86% of all backbone atoms, 72% of all non-hydrogen atoms, are inside the map.

9.5 Map-model fit summary ⓘ

The table lists the average atom inclusion at the recommended contour level (0.15) and Q-score for the entire model and for each chain.

Chain	Atom inclusion	Q-score
All	 0.7190	 0.3130
0	 0.8340	 0.4560
1	 0.5490	 0.1320
2	 0.5810	 0.1440
3	 0.5950	 0.1420
4	 0.6080	 0.1490
5	 0.6270	 0.1720
6	 0.8260	 0.4330
7	 0.8380	 0.4440
8	 0.8250	 0.4280
9	 0.8130	 0.4360
A	 0.6660	 0.1800
AA	 0.7330	 0.4000
AB	 0.8220	 0.4370
AC	 0.5830	 0.3990
AD	 0.4960	 0.4030
AE	 0.4370	 0.3600
AF	 0.4870	 0.3450
AG	 0.9040	 0.4450
AH	 0.8630	 0.4310
AI	 0.7120	 0.4150
AJ	 0.2090	 0.2870
AK	 0.7570	 0.3960
AL	 0.4860	 0.3860
AM	 0.8210	 0.4250
AN	 0.6470	 0.4030
AO	 0.7540	 0.4190
AP	 0.8290	 0.4360
AQ	 0.8230	 0.4190
AR	 0.8550	 0.4520
AS	 0.8350	 0.4550
AT	 0.8230	 0.4250
AU	 0.8510	 0.4530
AV	 0.8590	 0.4660
AW	 0.8690	 0.4640



Continued on next page...

Continued from previous page...

Chain	Atom inclusion	Q-score
AX	 0.7080	 0.4220
AY	 0.4880	 0.4020
AZ	 0.4640	 0.4000
Aa	 0.5470	 0.4250
Ab	 0.6300	 0.4300
Ac	 0.6800	 0.4300
Ad	 0.8440	 0.4550
Ae	 0.8220	 0.4310
Af	 0.8310	 0.4280
Ag	 0.8440	 0.4410
Ah	 0.8480	 0.4420
Ai	 0.8430	 0.4390
Aj	 0.7250	 0.3240
Ak	 0.8450	 0.4520
Al	 0.8550	 0.4620
Am	 0.7930	 0.3750
An	 0.6820	 0.3520
Ao	 0.8980	 0.4520
Ap	 0.9800	 0.4690
Aq	 0.9210	 0.4960
Ar	 0.8090	 0.2940
As	 0.8210	 0.2520
At	 0.7620	 0.3190
Au	 0.4640	 0.2320
Av	 0.7140	 0.2490
Aw	 0.8570	 0.2880
B	 0.6490	 0.1720
C	 0.7020	 0.2210
D	 0.6900	 0.2250
E	 0.6970	 0.2200
F	 0.6960	 0.2260
G	 0.7180	 0.2320
H	 0.6960	 0.2070
I	 0.7080	 0.2190
J	 0.7050	 0.2240
K	 0.6590	 0.1990
L	 0.6510	 0.1890
M	 0.6670	 0.1870
N	 0.6510	 0.1690
O	 0.6400	 0.1550
P	 0.6490	 0.1560
Q	 0.6450	 0.1840

Continued on next page...

Continued from previous page...

Chain	Atom inclusion	Q-score
R	 0.6620	 0.1890
S	 0.8370	 0.4330
T	 0.8490	 0.4330
U	 0.8130	 0.4140
V	 0.8380	 0.4280
W	 0.8120	 0.4110
X	 0.8210	 0.4340
Y	 0.8340	 0.4440
Z	 0.8360	 0.4340
a	 0.7880	 0.4320
b	 0.7910	 0.4060
c	 0.7830	 0.4040
d	 0.7440	 0.3840
e	 0.7070	 0.3480
f	 0.6490	 0.3160
g	 0.6160	 0.3140
h	 0.6700	 0.3140
i	 0.7190	 0.3300
j	 0.7540	 0.3610
k	 0.8530	 0.4330
l	 0.8390	 0.4400
m	 0.8080	 0.4170
n	 0.8130	 0.4120
o	 0.7880	 0.3920
p	 0.6650	 0.2010
q	 0.6670	 0.2000
r	 0.6460	 0.1900
s	 0.6630	 0.2040
t	 0.6420	 0.1830
u	 0.6540	 0.1960
v	 0.5910	 0.1520
w	 0.5960	 0.1680
x	 0.6250	 0.1830
y	 0.6050	 0.1790
z	 0.6000	 0.1520