



Full wwPDB EM Validation Report ⓘ

Dec 10, 2022 – 12:29 pm GMT

PDB ID : 6QM7
EMDB ID : EMD-4590
Title : Leishmania tarentolae proteasome 20S subunit complexed with GSK3494245
Authors : Rowland, P.; Goswami, P.
Deposited on : 2019-02-01
Resolution : 2.80 Å (reported)
Based on initial model : 4R3O

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.dev43
Mogul : 1.8.4, CSD as541be (2020)
MolProbity : 4.02b-467
buster-report : 1.1.7 (2018)
Percentile statistics : 20191225.v01 (using entries in the PDB archive December 25th 2019)
MapQ : 1.9.9
Ideal geometry (proteins) : Engh & Huber (2001)
Ideal geometry (DNA, RNA) : Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP) : 2.31.3

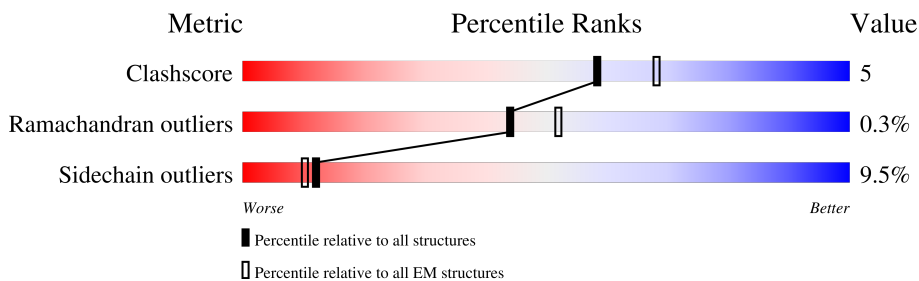
1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

ELECTRON MICROSCOPY

The reported resolution of this entry is 2.80 Å.

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




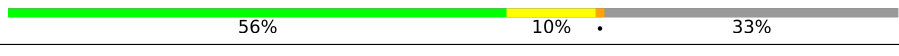
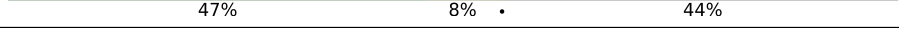
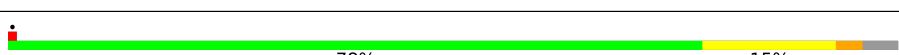

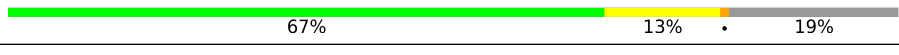
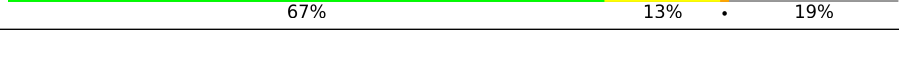
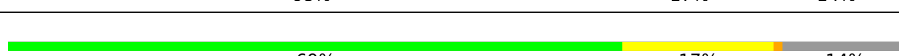

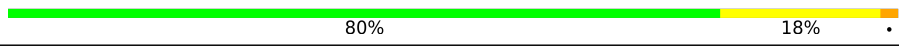
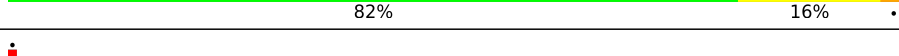
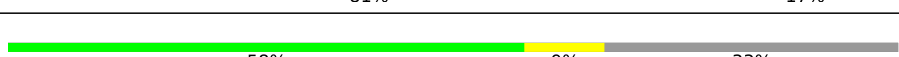

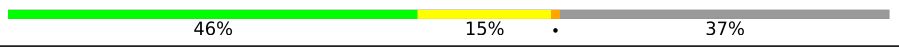
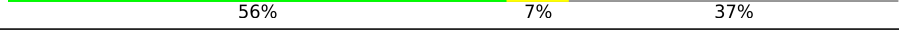
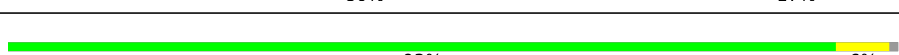




Metric	Whole archive (#Entries)	EM structures (#Entries)
Clashscore	158937	4297
Ramachandran outliers	154571	4023
Sidechain outliers	154315	3826

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	A	250	
1	O	250	
2	B	231	
2	P	231	
3	C	285	
3	Q	285	
4	D	248	
4	R	248	

Continued on next page...

Continued from previous page...

Mol	Chain	Length	Quality of chain
5	E	344	
5	S	344	
6	F	428	
6	T	428	
7	G	238	
7	U	238	
8	H	283	
8	V	283	
9	I	254	
9	W	254	
10	J	205	
10	X	205	
11	K	206	
11	Y	206	
12	L	302	
12	Z	302	
13	M	339	
13	a	339	
14	N	220	
14	b	220	

2 Entry composition [i](#)

There are 16 unique types of molecules in this entry. The entry contains 49518 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 Proteasome alpha1 chain.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
1	A	244	Total	C	N	O	S	0	0
			1857	1169	323	353	12		
1	O	244	Total	C	N	O	S	0	0
			1857	1169	323	353	12		

- Molecule 2 is a protein called Proteasome alpha2 chain.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
2	B	229	Total	C	N	O	S	0	0
			1754	1112	292	342	8		
2	P	229	Total	C	N	O	S	0	0
			1754	1112	292	342	8		

- Molecule 3 is a protein called Proteasome alpha3 chain.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
3	C	276	Total	C	N	O	S	0	0
			2195	1379	382	422	12		
3	Q	276	Total	C	N	O	S	0	0
			2195	1379	382	422	12		

- Molecule 4 is a protein called Proteasome alpha4 chain.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
4	D	239	Total	C	N	O	S	0	0
			1873	1180	322	363	8		
4	R	239	Total	C	N	O	S	0	0
			1873	1180	322	363	8		

- Molecule 5 is a protein called Proteasome alpha5 chain.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
5	E	229	1756	1094	302	347	13	0	0
5	S	229	1756	1094	302	347	13	0	0

- Molecule 6 is a protein called Proteasome alpha6 chain.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
6	F	238	1869	1173	325	359	12	0	0
6	T	238	1869	1173	325	359	12	0	0

- Molecule 7 is a protein called Proteasome alpha7 chain.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
7	G	228	1727	1077	306	334	10	0	0
7	U	228	1727	1077	306	334	10	0	0

- Molecule 8 is a protein called Proteasome beta1 chain.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
8	H	229	1710	1062	295	341	12	0	0
8	V	229	1710	1062	295	341	12	0	0

- Molecule 9 is a protein called Proteasome beta2 chain.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
9	I	219	1659	1037	292	318	12	0	0
9	W	219	1659	1037	292	318	12	0	0

- Molecule 10 is a protein called Proteasome beta3 chain.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
10	J	204	1557	980	259	302	16	0	0

Continued on next page...

Continued from previous page...

Mol	Chain	Residues	Atoms					AltConf	Trace
10	X	204	Total	C	N	O	S	0	0
			1557	980	259	302	16		

- Molecule 11 is a protein called Proteasome beta4 chain.

Mol	Chain	Residues	Atoms					AltConf	Trace
11	K	206	Total	C	N	O	S	0	0
			1612	1012	280	304	16		
11	Y	206	Total	C	N	O	S	0	0
			1612	1012	280	304	16		

- Molecule 12 is a protein called Proteasome beta5 chain.

Mol	Chain	Residues	Atoms					AltConf	Trace
12	L	202	Total	C	N	O	S	0	0
			1579	998	277	297	7		
12	Z	202	Total	C	N	O	S	0	0
			1579	998	277	297	7		

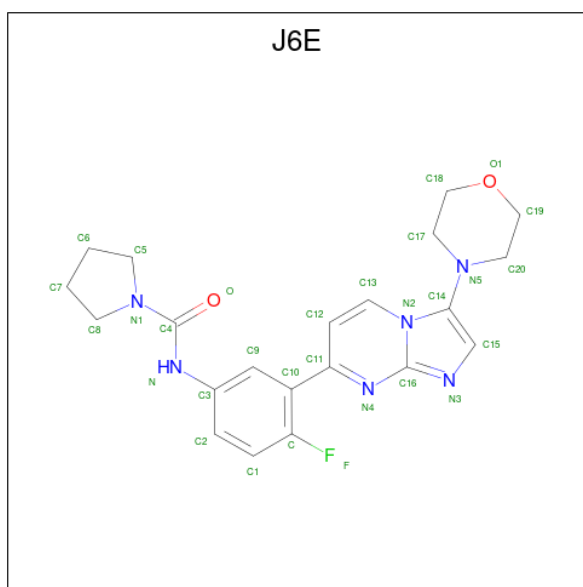
- Molecule 13 is a protein called Proteasome beta6 chain.

Mol	Chain	Residues	Atoms					AltConf	Trace
13	M	214	Total	C	N	O	S	0	0
			1702	1079	287	324	12		
13	a	214	Total	C	N	O	S	0	0
			1702	1079	287	324	12		

- Molecule 14 is a protein called Proteasome beta7 chain.

Mol	Chain	Residues	Atoms					AltConf	Trace
14	N	218	Total	C	N	O	S	0	0
			1712	1083	292	323	14		
14	b	218	Total	C	N	O	S	0	0
			1712	1083	292	323	14		

- Molecule 15 is {N}-[4-fluoranyl-3-(3-morpholin-4-ylimidazo[1,2-a]pyrimidin-7-yl)phenyl]pyrrolidine-1-carboxamide (three-letter code: J6E) (formula: C₂₁H₂₃FN₆O₂) (labeled as "Ligand of Interest" by depositor).



Mol	Chain	Residues	Atoms					AltConf
			Total	C	F	N	O	
15	L	1	30	21	1	6	2	0
15	Z	1	30	21	1	6	2	0

- Molecule 16 is water.

Mol	Chain	Residues	Atoms		AltConf
16	A	9	Total	O	0
			9	9	
16	B	9	Total	O	0
			9	9	
16	C	8	Total	O	0
			8	8	
16	D	6	Total	O	0
			6	6	
16	E	8	Total	O	0
			8	8	
16	F	8	Total	O	0
			8	8	
16	G	12	Total	O	0
			12	12	
16	H	21	Total	O	0
			21	21	
16	I	7	Total	O	0
			7	7	
16	J	15	Total	O	0
			15	15	

Continued on next page...

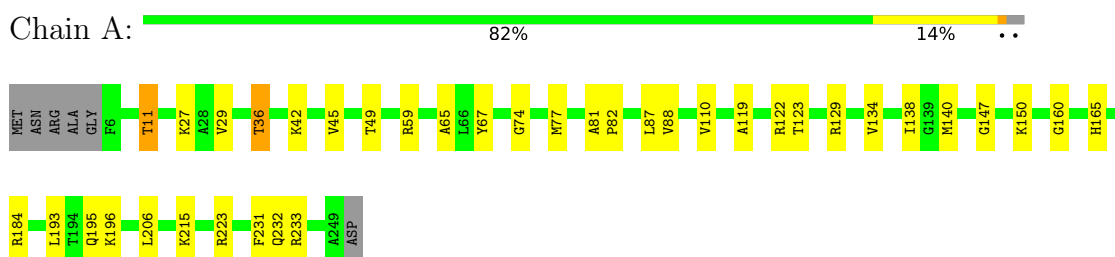
Continued from previous page...

Mol	Chain	Residues	Atoms		AltConf
16	K	9	Total 9	O 9	0
16	L	15	Total 15	O 15	0
16	M	13	Total 13	O 13	0
16	N	21	Total 21	O 21	0
16	O	11	Total 11	O 11	0
16	P	13	Total 13	O 13	0
16	Q	8	Total 8	O 8	0
16	R	9	Total 9	O 9	0
16	S	6	Total 6	O 6	0
16	T	8	Total 8	O 8	0
16	U	5	Total 5	O 5	0
16	V	19	Total 19	O 19	0
16	W	15	Total 15	O 15	0
16	X	23	Total 23	O 23	0
16	Y	8	Total 8	O 8	0
16	Z	17	Total 17	O 17	0
16	a	11	Total 11	O 11	0
16	b	20	Total 20	O 20	0

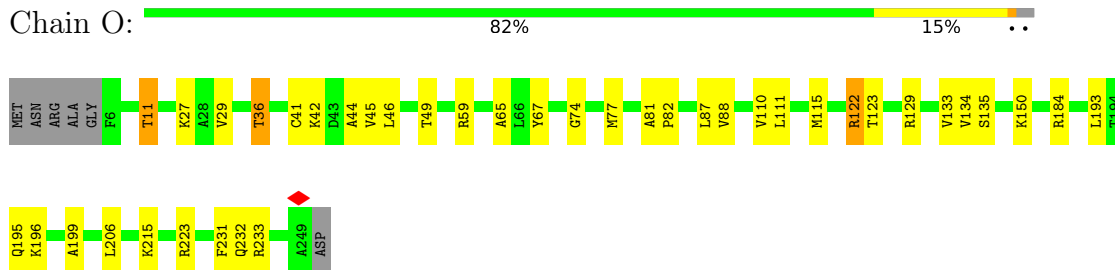
3 Residue-property plots [i](#)

These plots are drawn for all protein, RNA, DNA and oligosaccharide chains in the entry. The first graphic for a chain summarises the proportions of the various outlier classes displayed in the second graphic. The second graphic shows the sequence view annotated by issues in geometry 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.

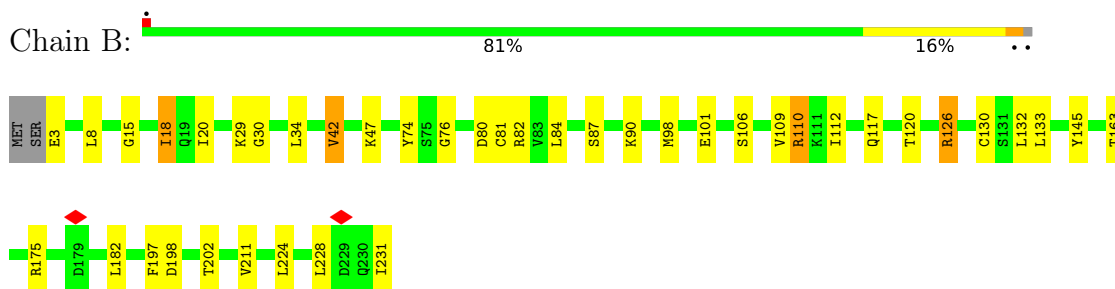
- Molecule 1: Proteasome alpha1 chain



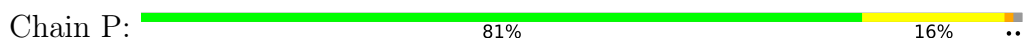
- Molecule 1: Proteasome alpha1 chain

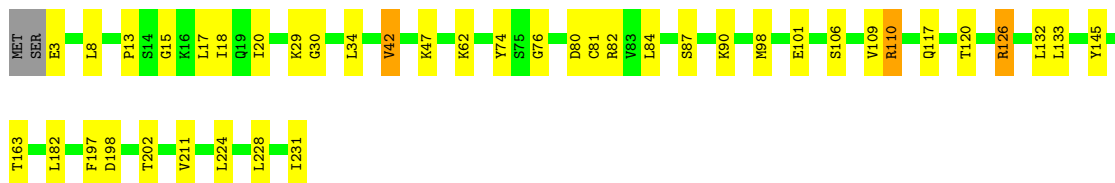


- Molecule 2: Proteasome alpha2 chain

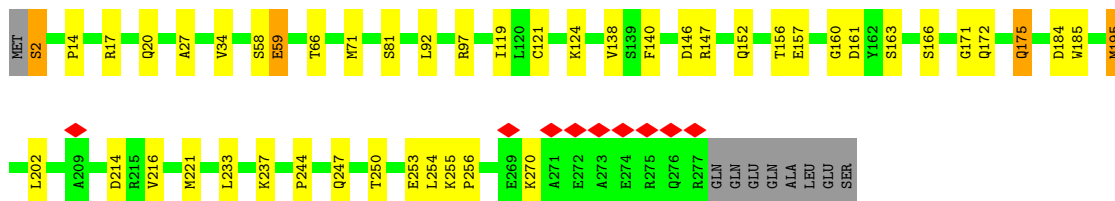
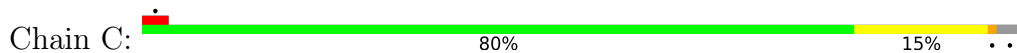


- Molecule 2: Proteasome alpha2 chain

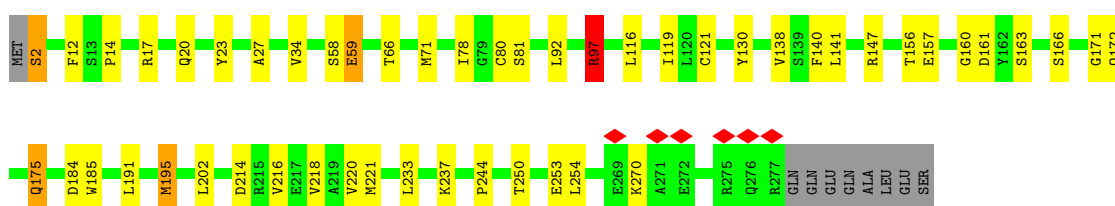
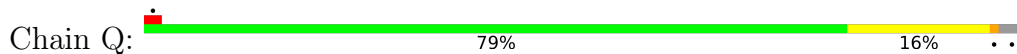




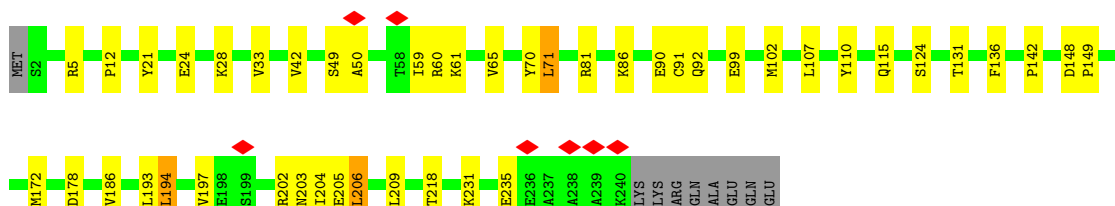
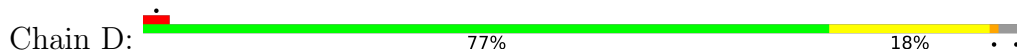
• Molecule 3: Proteasome alpha3 chain



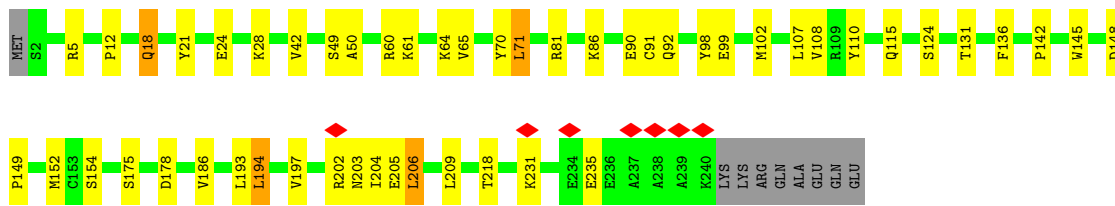
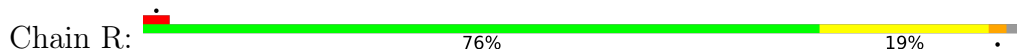
• Molecule 3: Proteasome alpha3 chain



• Molecule 4: Proteasome alpha4 chain

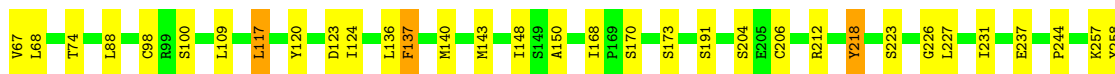
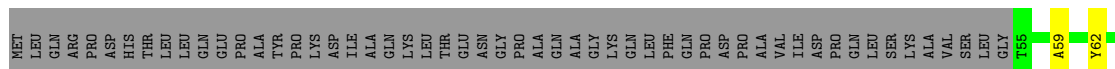


• Molecule 4: Proteasome alpha4 chain

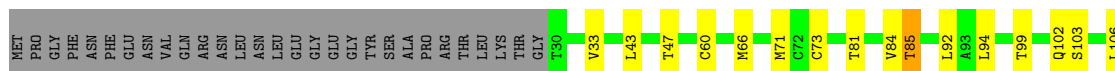




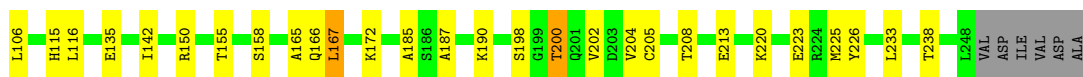
• Molecule 8: Proteasome beta1 chain



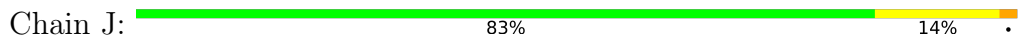
• Molecule 9: Proteasome beta2 chain



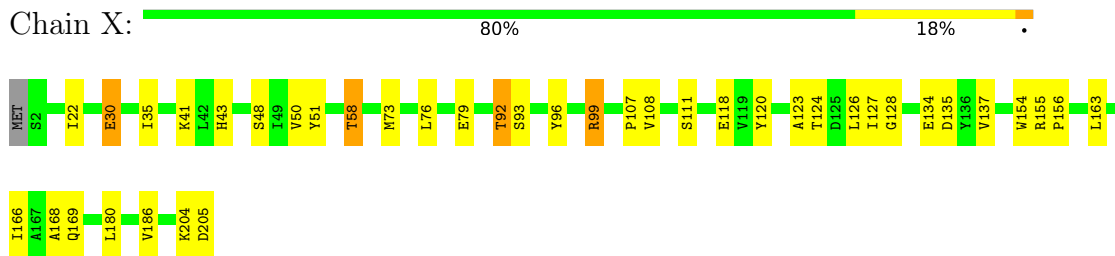
• Molecule 9: Proteasome beta2 chain



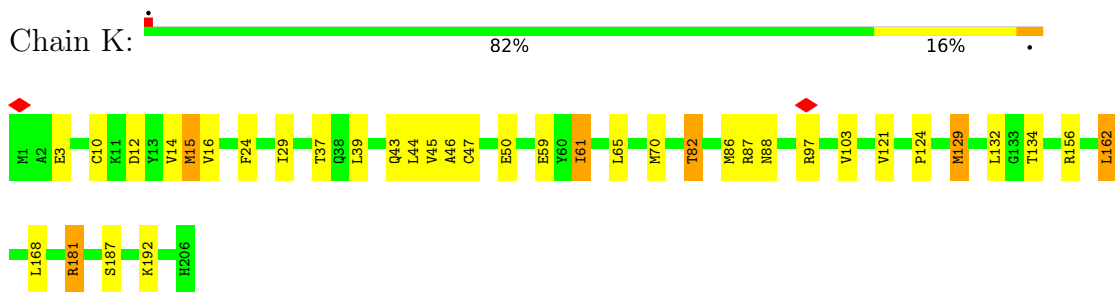
• Molecule 10: Proteasome beta3 chain



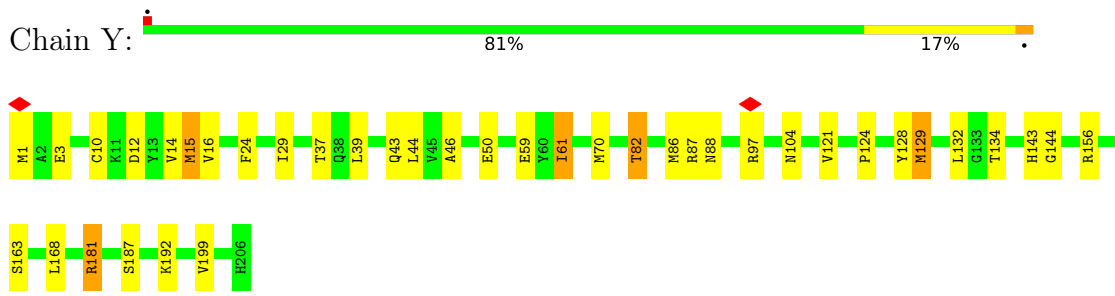
• Molecule 10: Proteasome beta3 chain



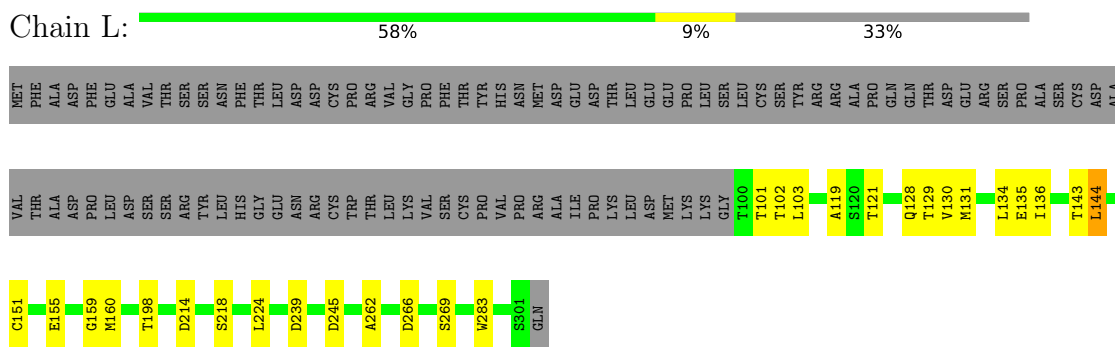
• Molecule 11: Proteasome beta4 chain



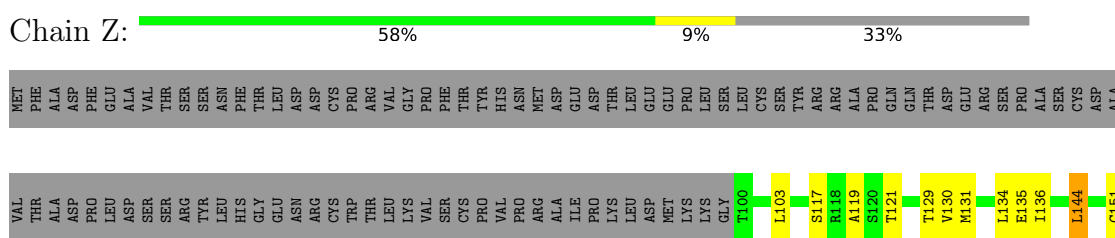
• Molecule 11: Proteasome beta4 chain



• Molecule 12: Proteasome beta5 chain

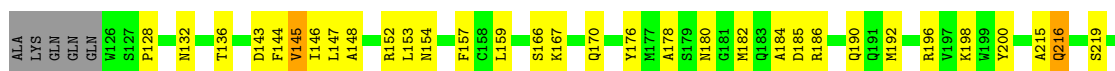
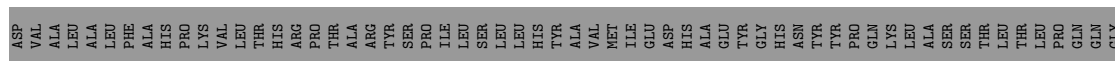
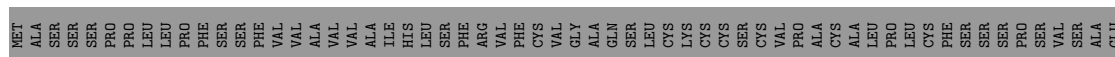


• Molecule 12: Proteasome beta5 chain

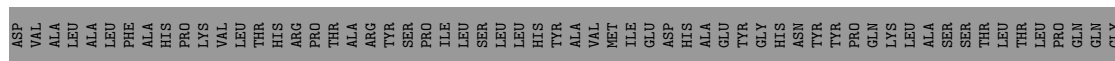
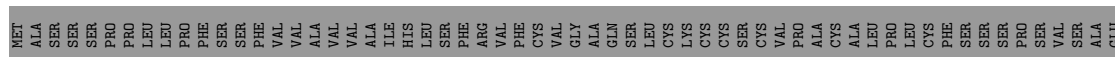




● Molecule 13: Proteasome beta6 chain



● Molecule 13: Proteasome beta6 chain



● Molecule 14: Proteasome beta7 chain



● Molecule 14: Proteasome beta7 chain



4 Experimental information

Property	Value	Source
EM reconstruction method	SINGLE PARTICLE	Depositor
Imposed symmetry	POINT, C1	Depositor
Number of particles used	182775	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 ($e^-/\text{\AA}^2$)	30	Depositor
Minimum defocus (nm)	Not provided	
Maximum defocus (nm)	Not provided	
Magnification	Not provided	
Image detector	FEI FALCON III (4k x 4k)	Depositor
Maximum map value	0.622	Depositor
Minimum map value	-0.361	Depositor
Average map value	0.001	Depositor
Map value standard deviation	0.022	Depositor
Recommended contour level	0.0667	Depositor
Map size (Å)	321.00003, 321.00003, 321.00003	wwPDB
Map dimensions	300, 300, 300	wwPDB
Map angles (°)	90.0, 90.0, 90.0	wwPDB
Pixel spacing (Å)	1.07, 1.07, 1.07	Depositor

5 Model quality i

5.1 Standard geometry i

Bond lengths and bond angles in the following residue types are not validated in this section: J6E

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

Mol	Chain	Bond lengths		Bond angles	
		RMSZ	# Z >5	RMSZ	# Z >5
1	A	0.61	0/1889	0.88	0/2562
1	O	0.60	0/1889	0.89	0/2562
2	B	0.61	0/1787	0.84	0/2421
2	P	0.61	0/1787	0.84	0/2421
3	C	0.61	0/2242	0.86	0/3034
3	Q	0.61	0/2242	0.86	1/3034 (0.0%)
4	D	0.63	0/1902	0.87	0/2562
4	R	0.62	0/1902	0.87	0/2562
5	E	0.63	0/1784	0.85	0/2414
5	S	0.63	0/1784	0.86	0/2414
6	F	0.62	0/1907	0.84	0/2575
6	T	0.61	0/1907	0.84	0/2575
7	G	0.62	0/1759	0.85	1/2379 (0.0%)
7	U	0.62	0/1759	0.85	0/2379
8	H	0.60	0/1742	0.89	2/2359 (0.1%)
8	V	0.61	0/1742	0.89	1/2359 (0.0%)
9	I	0.59	0/1685	0.87	0/2284
9	W	0.59	0/1685	0.87	0/2284
10	J	0.60	0/1583	0.89	0/2135
10	X	0.61	0/1583	0.89	0/2135
11	K	0.60	0/1643	0.89	0/2222
11	Y	0.60	0/1643	0.89	0/2222
12	L	0.60	0/1613	0.87	0/2183
12	Z	0.59	0/1613	0.87	0/2183
13	M	0.58	0/1743	0.89	0/2354
13	a	0.58	0/1743	0.90	0/2354
14	N	0.60	0/1748	0.88	1/2363 (0.0%)
14	b	0.60	0/1748	0.87	0/2363
All	All	0.61	0/50054	0.87	6/67694 (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
2	P	0	1
3	C	0	2
3	Q	0	3
10	J	0	1
10	X	0	1
All	All	0	8

There are no bond length outliers.

All (6) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
8	H	218	TYR	CB-CG-CD1	6.96	125.17	121.00
8	V	218	TYR	CB-CG-CD1	6.79	125.08	121.00
8	H	218	TYR	CB-CG-CD2	-5.65	117.61	121.00
3	Q	97	ARG	NE-CZ-NH1	5.28	122.94	120.30
14	N	147	ARG	NE-CZ-NH2	-5.22	117.69	120.30
7	G	100	ARG	NE-CZ-NH2	5.01	122.81	120.30

There are no chirality outliers.

All (8) planarity outliers are listed below:

Mol	Chain	Res	Type	Group
3	C	140	PHE	Peptide
3	C	171	GLY	Peptide
10	J	204	LYS	Peptide
2	P	132	LEU	Peptide
3	Q	130	TYR	Peptide
3	Q	140	PHE	Peptide
3	Q	171	GLY	Peptide
10	X	204	LYS	Peptide

5.2 Too-close contacts

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

Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
1	A	1857	0	1871	17	0
1	O	1857	0	1871	17	0
2	B	1754	0	1741	15	0
2	P	1754	0	1741	14	0
3	C	2195	0	2142	21	0
3	Q	2195	0	2142	26	0
4	D	1873	0	1868	16	0
4	R	1873	0	1868	21	0
5	E	1756	0	1736	16	0
5	S	1756	0	1736	15	0
6	F	1869	0	1823	18	0
6	T	1869	0	1823	17	0
7	G	1727	0	1691	23	0
7	U	1727	0	1691	17	0
8	H	1710	0	1665	19	0
8	V	1710	0	1665	16	0
9	I	1659	0	1684	21	0
9	W	1659	0	1684	22	0
10	J	1557	0	1552	18	0
10	X	1557	0	1552	21	0
11	K	1612	0	1571	21	0
11	Y	1612	0	1571	22	0
12	L	1579	0	1538	13	0
12	Z	1579	0	1538	12	0
13	M	1702	0	1638	26	0
13	a	1702	0	1638	0	0
14	N	1712	0	1668	25	0
14	b	1712	0	1668	0	0
15	L	30	0	0	0	0
15	Z	30	0	0	0	0
16	A	9	0	0	1	0
16	B	9	0	0	0	0
16	C	8	0	0	0	0
16	D	6	0	0	0	0
16	E	8	0	0	0	0
16	F	8	0	0	0	0
16	G	12	0	0	0	0
16	H	21	0	0	0	0
16	I	7	0	0	0	0
16	J	15	0	0	0	0
16	K	9	0	0	0	0
16	L	15	0	0	0	0
16	M	13	0	0	0	0

Continued on next page...

Continued from previous page...

Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
16	N	21	0	0	0	0
16	O	11	0	0	0	0
16	P	13	0	0	0	0
16	Q	8	0	0	0	0
16	R	9	0	0	0	0
16	S	6	0	0	0	0
16	T	8	0	0	0	0
16	U	5	0	0	0	0
16	V	19	0	0	0	0
16	W	15	0	0	1	0
16	X	23	0	0	0	0
16	Y	8	0	0	0	0
16	Z	17	0	0	0	0
16	a	11	0	0	0	0
16	b	20	0	0	0	0
All	All	49518	0	48376	436	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 5.

All (436) 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)
4:D:91:CYS:SG	4:D:107:LEU:HD13	2.20	0.82
1:O:36:THR:HG22	1:O:49:THR:HG23	1.62	0.82
5:E:185:ALA:HB2	5:E:239:VAL:HG21	1.66	0.78
1:A:36:THR:HG22	1:A:49:THR:HG23	1.67	0.77
8:V:68:LEU:HD23	8:V:98:CYS:SG	2.24	0.77
9:W:33:VAL:HG22	9:W:155:THR:HG22	1.69	0.74
1:A:195:GLN:OE1	1:A:223:ARG:NH1	2.20	0.74
9:W:238:THR:HG21	10:X:168:ALA:HB1	1.69	0.73
8:H:269:SER:O	7:U:100:ARG:NH1	2.21	0.73
1:O:195:GLN:OE1	1:O:223:ARG:NH1	2.21	0.73
13:M:145:VAL:HG11	13:M:237:VAL:HG13	1.70	0.72
13:M:232:THR:HG23	13:M:234:ASN:HD21	1.54	0.71
5:S:185:ALA:HB2	5:S:239:VAL:HG21	1.71	0.71
8:H:117:LEU:HD13	8:H:136:LEU:HD12	1.73	0.70
7:U:66:ARG:NH1	7:U:80:GLY:O	2.23	0.70
5:E:204:ASN:HB2	13:M:216:GLN:HG3	1.72	0.70
4:R:91:CYS:SG	4:R:107:LEU:HD13	2.32	0.69
8:V:117:LEU:HD13	8:V:136:LEU:HD12	1.73	0.69

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
9:I:238:THR:HG21	10:J:168:ALA:HB1	1.74	0.69
6:F:235:VAL:HG21	6:F:273:MET:HE1	1.74	0.69
7:G:100:ARG:NH1	8:V:269:SER:O	2.25	0.69
11:K:10:CYS:SG	11:K:162:LEU:HD12	2.33	0.69
2:P:74:TYR:HB2	2:P:81:CYS:SG	2.33	0.68
8:H:68:LEU:HD23	8:H:98:CYS:SG	2.33	0.68
10:J:126:LEU:HD12	10:J:127:ILE:HG23	1.76	0.67
8:H:263:THR:HG21	8:H:274:ILE:HG23	1.76	0.67
2:B:20:ILE:HD11	2:B:120:THR:HB	1.77	0.66
12:L:239:ASP:OD2	11:Y:181:ARG:HD3	1.96	0.65
3:Q:175:GLN:HE21	3:Q:175:GLN:HA	1.61	0.65
1:A:122:ARG:NH1	1:A:129:ARG:O	2.27	0.65
5:E:268:GLN:HE21	5:E:268:GLN:HA	1.62	0.65
1:O:122:ARG:NH1	1:O:129:ARG:O	2.29	0.65
6:T:235:VAL:HG21	6:T:273:MET:HE1	1.79	0.64
2:P:20:ILE:HD11	2:P:120:THR:HB	1.78	0.64
5:S:268:GLN:HE21	5:S:268:GLN:HA	1.62	0.64
10:X:126:LEU:HD12	10:X:127:ILE:HG23	1.80	0.63
11:K:24:PHE:HB2	11:K:29:ILE:HD11	1.79	0.63
2:B:74:TYR:HB2	2:B:81:CYS:SG	2.37	0.63
7:G:150:VAL:HG21	7:G:163:VAL:HG21	1.80	0.63
11:K:15:MET:CE	11:K:168:LEU:HD23	2.29	0.63
7:G:66:ARG:NH1	7:G:80:GLY:O	2.32	0.62
12:L:119:ALA:HB2	12:L:130:VAL:HG21	1.79	0.62
3:C:175:GLN:HA	3:C:175:GLN:HE21	1.64	0.62
11:K:181:ARG:HD3	12:Z:239:ASP:OD2	2.00	0.62
4:R:71:LEU:HD13	4:R:131:THR:HG23	1.82	0.62
1:A:74:GLY:HA3	1:A:231:PHE:CD1	2.35	0.62
3:Q:121:CYS:HB3	3:Q:160:GLY:O	2.00	0.61
9:I:33:VAL:HG22	9:I:155:THR:HG22	1.80	0.61
9:I:166:GLN:HE21	9:I:190:LYS:HE2	1.66	0.61
7:U:150:VAL:HG21	7:U:163:VAL:HG21	1.82	0.61
12:Z:119:ALA:HB2	12:Z:130:VAL:HG21	1.83	0.61
4:D:206:LEU:C	4:D:206:LEU:HD12	2.21	0.61
3:C:121:CYS:HB3	3:C:160:GLY:O	2.01	0.60
9:W:200:THR:OG1	16:W:301:HOH:O	2.16	0.60
3:C:34:VAL:HG11	3:C:81:SER:HB2	1.83	0.60
14:N:38:ILE:HG21	14:N:187:ALA:HB2	1.82	0.60
10:J:96:TYR:CE1	10:J:99:ARG:HG3	2.37	0.60
3:C:166:SER:HB3	3:C:185:TRP:CZ2	2.37	0.60
3:Q:166:SER:HB3	3:Q:185:TRP:CZ2	2.37	0.60

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
8:V:263:THR:HG21	8:V:274:ILE:HG23	1.83	0.59
3:Q:71:MET:SD	3:Q:81:SER:OG	2.60	0.59
4:D:71:LEU:HD13	4:D:131:THR:HG23	1.84	0.59
11:Y:15:MET:CE	11:Y:168:LEU:HD23	2.33	0.59
8:H:88:LEU:HD13	8:H:231:ILE:HG22	1.83	0.59
11:Y:10:CYS:SG	11:Y:162:LEU:HD12	2.42	0.59
13:M:147:LEU:HD11	13:M:178:ALA:HB2	1.85	0.58
10:J:123:ALA:HB2	10:J:137:VAL:HB	1.84	0.58
5:S:175:ALA:HB2	5:S:327:LEU:HD13	1.86	0.58
4:R:206:LEU:C	4:R:206:LEU:HD12	2.24	0.57
11:Y:24:PHE:HB2	11:Y:29:ILE:HD11	1.86	0.57
5:E:175:ALA:HB2	5:E:327:LEU:HD13	1.86	0.57
7:U:37:ALA:HB2	7:U:50:VAL:HG23	1.87	0.56
1:O:110:VAL:HG21	9:W:99:THR:HG22	1.88	0.56
9:W:142:ILE:N	9:W:142:ILE:HD12	2.21	0.56
4:D:70:TYR:CD2	4:D:209:LEU:HD21	2.40	0.56
1:O:74:GLY:HA3	1:O:231:PHE:CD1	2.40	0.56
9:W:185:ALA:HA	9:W:202:VAL:HG11	1.88	0.56
7:G:37:ALA:HB2	7:G:50:VAL:HG23	1.87	0.55
8:V:88:LEU:HD13	8:V:231:ILE:HG22	1.88	0.55
10:X:123:ALA:HB2	10:X:137:VAL:HB	1.89	0.55
3:Q:34:VAL:HG11	3:Q:81:SER:CB	2.37	0.55
14:N:148:GLN:HE22	9:W:166:GLN:HE22	1.54	0.55
11:K:16:VAL:CG1	11:K:46:ALA:HB2	2.36	0.55
1:A:49:THR:HG21	1:A:65:ALA:CB	2.37	0.54
11:K:15:MET:HE3	11:K:168:LEU:HD23	1.89	0.54
6:T:200:VAL:HG22	6:T:325:ALA:HB2	1.88	0.54
11:Y:15:MET:HE3	11:Y:168:LEU:HD23	1.88	0.54
10:J:30:GLU:HG2	10:J:35:ILE:HD11	1.88	0.54
4:R:42:VAL:HG13	4:R:206:LEU:HD13	1.90	0.54
7:G:11:SER:OG	7:G:13:ASP:OD2	2.23	0.54
7:U:88:ILE:HD12	7:U:134:CYS:SG	2.48	0.54
11:K:43:GLN:OE1	11:K:82:THR:HG21	2.08	0.54
9:I:142:ILE:N	9:I:142:ILE:HD12	2.22	0.54
10:X:96:TYR:CE1	10:X:99:ARG:HG3	2.42	0.54
1:A:67:TYR:CD2	1:A:88:VAL:HG21	2.43	0.53
14:N:16:VAL:HG22	14:N:116:THR:HG23	1.89	0.53
8:H:109:LEU:HD11	8:H:148:ILE:HD13	1.89	0.53
10:J:30:GLU:CG	10:J:35:ILE:HD11	2.38	0.53
2:P:74:TYR:CB	2:P:81:CYS:SG	2.96	0.53
11:Y:129:MET:HA	11:Y:134:THR:O	2.08	0.53

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
13:M:232:THR:HG23	13:M:234:ASN:ND2	2.23	0.53
9:W:166:GLN:HE21	9:W:190:LYS:HE2	1.73	0.53
9:W:167:LEU:HD13	9:W:187:ALA:HB2	1.89	0.53
13:M:182:MET:HE3	13:M:184:ALA:HB3	1.90	0.53
3:Q:2:SER:HB2	7:U:127:PHE:CD1	2.44	0.53
11:Y:16:VAL:HG21	11:Y:44:LEU:HD11	1.90	0.53
11:K:16:VAL:HG21	11:K:44:LEU:HD11	1.91	0.53
9:W:81:THR:O	9:W:85:THR:HB	2.07	0.53
9:I:81:THR:O	9:I:85:THR:HB	2.09	0.53
14:N:24:LEU:HD21	14:N:53:TYR:CG	2.43	0.53
10:X:108:VAL:HG13	10:X:137:VAL:HG23	1.91	0.53
13:M:132:ASN:HB3	13:M:153:LEU:HD12	1.90	0.53
2:P:110:ARG:NH2	3:Q:59:GLU:OE2	2.42	0.53
3:Q:34:VAL:HG11	3:Q:81:SER:HB2	1.91	0.53
1:A:110:VAL:HG21	9:I:99:THR:HG22	1.92	0.52
6:F:231:ILE:HD11	6:F:237:MET:SD	2.50	0.52
8:H:175:VAL:HG21	14:N:32:TRP:CZ3	2.44	0.52
9:I:185:ALA:HA	9:I:202:VAL:HG11	1.90	0.52
4:R:194:LEU:HA	4:R:197:VAL:HG12	1.92	0.52
13:M:263:THR:HG21	13:M:271:VAL:HB	1.92	0.52
3:Q:92:LEU:HD12	3:Q:138:VAL:HG11	1.92	0.52
11:Y:16:VAL:CG1	11:Y:46:ALA:HB2	2.40	0.52
7:G:148:LEU:HD21	7:G:163:VAL:HG12	1.92	0.52
10:J:108:VAL:HG13	10:J:137:VAL:HG23	1.92	0.52
13:M:319:VAL:HG22	13:M:336:LEU:HD11	1.92	0.52
1:O:49:THR:HG21	1:O:65:ALA:CB	2.40	0.52
6:T:379:ILE:HD12	6:T:389:PHE:CE2	2.45	0.52
6:F:274:ALA:HB1	6:F:318:VAL:HG11	1.91	0.51
7:G:88:ILE:HD12	7:G:134:CYS:SG	2.50	0.51
13:M:136:THR:HG21	13:M:178:ALA:HB1	1.92	0.51
13:M:215:ALA:HA	13:M:250:TYR:OH	2.11	0.51
6:F:186:ILE:HD11	6:F:285:ILE:HB	1.92	0.51
9:W:71:MET:HG3	9:W:205:CYS:SG	2.50	0.51
7:G:48:VAL:HG11	7:G:77:CYS:CB	2.40	0.51
6:T:372:VAL:HG11	6:T:395:ARG:HG3	1.92	0.51
2:B:228:LEU:HD23	2:B:231:ILE:HD11	1.92	0.51
3:Q:216:VAL:HG23	3:Q:254:LEU:HD21	1.93	0.51
1:A:123:THR:O	2:B:126:ARG:NH1	2.44	0.51
2:P:42:VAL:HG13	2:P:211:VAL:HB	1.93	0.51
10:J:58:THR:HG21	11:K:132:LEU:O	2.11	0.51
5:S:188:LEU:HD23	5:S:219:LEU:HD23	1.94	0.51

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
9:W:238:THR:HG21	10:X:168:ALA:CB	2.40	0.51
10:X:107:PRO:HG2	10:X:124:THR:HB	1.94	0.50
4:D:71:LEU:C	4:D:71:LEU:HD12	2.32	0.50
13:M:170:GLN:NE2	13:M:176:TYR:OH	2.44	0.50
1:O:67:TYR:CD2	1:O:88:VAL:HG21	2.45	0.50
10:X:58:THR:HG21	11:Y:132:LEU:O	2.11	0.50
12:Z:103:LEU:C	12:Z:103:LEU:HD12	2.32	0.50
2:B:110:ARG:NH2	3:C:59:GLU:OE2	2.44	0.50
8:H:120:TYR:CE2	8:H:124:ILE:HD13	2.47	0.50
10:J:135:ASP:HA	10:J:154:TRP:CZ2	2.47	0.50
11:K:129:MET:HA	11:K:134:THR:O	2.12	0.50
6:T:186:ILE:HD11	6:T:285:ILE:HB	1.92	0.50
10:X:30:GLU:CG	10:X:35:ILE:HD11	2.42	0.50
11:K:61:ILE:HG13	11:K:86:MET:HG2	1.94	0.50
4:R:115:GLN:HE21	4:R:149:PRO:HA	1.75	0.50
12:Z:144:LEU:C	12:Z:144:LEU:HD12	2.32	0.50
3:C:2:SER:HB2	7:G:127:PHE:CD1	2.47	0.50
6:F:200:VAL:HG22	6:F:325:ALA:HB2	1.93	0.50
4:D:115:GLN:HE21	4:D:149:PRO:HA	1.76	0.50
9:I:112:LEU:HD22	9:I:127:LEU:CD1	2.42	0.50
11:Y:43:GLN:OE1	11:Y:82:THR:HG21	2.11	0.50
4:D:42:VAL:HG13	4:D:206:LEU:HD13	1.94	0.49
7:G:88:ILE:CD1	7:G:134:CYS:SG	3.00	0.49
14:N:11:LYS:CE	14:N:116:THR:HG22	2.42	0.49
2:B:74:TYR:CB	2:B:81:CYS:SG	3.00	0.49
13:M:233:PHE:HB3	13:M:264:ARG:HD2	1.93	0.49
3:Q:233:LEU:HD23	10:X:186:VAL:HG11	1.94	0.49
10:X:30:GLU:HG2	10:X:35:ILE:HD11	1.94	0.49
9:I:43:LEU:HB3	9:I:73:CYS:SG	2.53	0.49
14:N:46:ALA:HB2	14:N:194:VAL:HG11	1.94	0.49
7:U:78:ILE:HG21	7:U:85:GLY:HA3	1.93	0.49
5:S:255:GLN:HE21	5:S:270:ILE:HG22	1.77	0.49
5:S:197:GLN:HB3	12:Z:160:MET:HG3	1.93	0.49
6:F:372:VAL:HG11	6:F:395:ARG:HG3	1.95	0.49
3:C:160:GLY:O	4:D:81:ARG:NH2	2.45	0.49
9:I:71:MET:HG3	9:I:205:CYS:SG	2.53	0.49
4:R:65:VAL:HG11	4:R:107:LEU:HD21	1.94	0.49
11:K:15:MET:HE1	11:K:168:LEU:HD23	1.94	0.48
13:M:146:ILE:CG2	13:M:301:LEU:HD12	2.43	0.48
1:O:123:THR:O	2:P:126:ARG:NH1	2.45	0.48
4:R:70:TYR:CD2	4:R:209:LEU:HD21	2.48	0.48

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:119:ALA:HB3	1:A:160:GLY:HA2	1.96	0.48
7:U:52:LYS:HD2	7:U:212:GLU:HB2	1.95	0.48
7:G:52:LYS:HD2	7:G:212:GLU:HB2	1.96	0.48
3:C:124:LYS:HZ1	3:C:156:THR:HG23	1.77	0.48
7:G:48:VAL:HG11	7:G:77:CYS:HB3	1.95	0.48
11:K:39:LEU:HD22	11:K:61:ILE:HG22	1.96	0.48
6:T:379:ILE:HD12	6:T:389:PHE:HE2	1.77	0.48
9:W:84:VAL:HG22	9:W:115:HIS:CD2	2.49	0.48
9:I:167:LEU:HD13	9:I:187:ALA:HB2	1.96	0.48
14:N:137:TYR:HB3	14:N:141:ILE:HD12	1.96	0.48
5:E:255:GLN:HE21	5:E:270:ILE:HG22	1.79	0.48
6:F:282:GLN:HA	6:F:285:ILE:HG12	1.94	0.48
6:F:379:ILE:HD12	6:F:389:PHE:HE2	1.77	0.48
6:F:379:ILE:HD12	6:F:389:PHE:CE2	2.49	0.48
11:K:14:VAL:HG22	11:K:124:PRO:HB2	1.96	0.48
7:U:48:VAL:HG11	7:U:77:CYS:CB	2.43	0.48
2:B:34:LEU:C	2:B:34:LEU:HD12	2.35	0.48
4:D:194:LEU:HA	4:D:197:VAL:HG12	1.96	0.48
8:H:148:ILE:HD12	8:H:150:ALA:HB3	1.94	0.48
13:M:146:ILE:HG22	13:M:301:LEU:HD12	1.95	0.48
7:U:50:VAL:HG11	7:U:66:ARG:HB2	1.95	0.48
7:G:72:ARG:NH2	7:G:221:ASP:O	2.47	0.47
12:L:101:THR:HG21	12:L:262:ALA:CB	2.44	0.47
14:N:24:LEU:HD21	14:N:53:TYR:CD2	2.48	0.47
3:C:216:VAL:HG23	3:C:254:LEU:HD21	1.95	0.47
3:C:71:MET:SD	3:C:81:SER:OG	2.72	0.47
6:F:235:VAL:HG11	6:F:273:MET:SD	2.54	0.47
12:L:144:LEU:C	12:L:144:LEU:HD12	2.34	0.47
2:B:80:ASP:OD2	2:B:126:ARG:NH2	2.47	0.47
4:R:136:PHE:CE1	4:R:142:PRO:HB3	2.48	0.47
11:Y:61:ILE:HG12	11:Y:86:MET:HG2	1.96	0.47
2:P:34:LEU:C	2:P:34:LEU:HD12	2.34	0.47
4:R:186:VAL:HG13	4:R:206:LEU:HD21	1.96	0.47
1:A:81:ALA:N	1:A:82:PRO:HD2	2.29	0.47
5:E:188:LEU:HD23	5:E:219:LEU:HD23	1.96	0.47
1:O:77:MET:HE3	1:O:87:LEU:HB2	1.95	0.47
11:Y:15:MET:HE1	11:Y:168:LEU:HA	1.96	0.47
12:L:266:ASP:HB3	12:L:269:SER:HB3	1.97	0.47
1:O:29:VAL:HG21	1:O:134:VAL:HG23	1.96	0.47
2:P:80:ASP:OD2	2:P:126:ARG:NH2	2.48	0.47
3:Q:78:ILE:HG21	3:Q:116:LEU:HD22	1.96	0.47

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
6:T:274:ALA:HB1	6:T:318:VAL:HG11	1.96	0.47
6:T:239:ILE:HG22	6:T:297:LEU:CD2	2.44	0.47
9:I:47:THR:OG1	9:I:200:THR:HB	2.16	0.46
9:W:233:LEU:HD13	10:X:169:GLN:HG3	1.97	0.46
2:B:81:CYS:SG	2:B:130:CYS:HB2	2.56	0.46
3:C:221:MET:HE2	3:C:244:PRO:HB2	1.96	0.46
9:W:47:THR:OG1	9:W:200:THR:HB	2.15	0.46
1:A:49:THR:HG21	1:A:65:ALA:HB3	1.96	0.46
6:F:331:GLN:HA	6:F:331:GLN:HE21	1.80	0.46
1:O:41:CYS:SG	1:O:44:ALA:HB3	2.56	0.46
3:Q:221:MET:HE2	3:Q:244:PRO:HB2	1.97	0.46
9:W:43:LEU:HB3	9:W:73:CYS:SG	2.56	0.46
3:C:233:LEU:HD23	10:J:186:VAL:HG11	1.98	0.46
8:H:68:LEU:N	8:H:68:LEU:HD12	2.31	0.46
11:Y:104:ASN:HB3	11:Y:143:HIS:CE1	2.51	0.46
9:I:233:LEU:HD13	10:J:169:GLN:HG3	1.98	0.46
10:X:135:ASP:HA	10:X:154:TRP:CZ2	2.50	0.46
5:E:255:GLN:HE21	5:E:270:ILE:CG2	2.28	0.46
11:K:15:MET:HE1	11:K:168:LEU:HA	1.96	0.46
14:N:172:VAL:HG11	9:W:165:ALA:HA	1.97	0.46
3:C:34:VAL:HG11	3:C:81:SER:CB	2.45	0.46
14:N:11:LYS:HE2	14:N:116:THR:HG22	1.97	0.46
12:Z:135:GLU:HB3	12:Z:283:TRP:CZ2	2.51	0.46
11:K:44:LEU:HD12	11:K:44:LEU:C	2.36	0.46
2:P:228:LEU:HD23	2:P:231:ILE:HD11	1.97	0.46
11:Y:1:MET:HA	11:Y:144:GLY:HA2	1.97	0.46
4:D:90:GLU:HG2	4:D:110:TYR:CG	2.51	0.46
4:R:71:LEU:HD12	4:R:71:LEU:C	2.35	0.46
5:S:255:GLN:HE21	5:S:270:ILE:CG2	2.28	0.46
8:H:117:LEU:CD1	8:H:136:LEU:HD12	2.45	0.45
9:I:241:LEU:HD21	10:J:201:LYS:HB2	1.98	0.45
12:L:103:LEU:HD12	12:L:103:LEU:C	2.37	0.45
7:U:113:ALA:HA	7:U:138:ILE:HD13	1.97	0.45
3:Q:14:PRO:HA	4:R:21:TYR:CE1	2.51	0.45
4:D:186:VAL:HG13	4:D:206:LEU:HD21	1.98	0.45
7:G:67:ILE:HD12	7:G:212:GLU:HG2	1.99	0.45
3:Q:160:GLY:O	4:R:81:ARG:NH2	2.49	0.45
6:T:277:ILE:HD11	6:T:299:LEU:CD1	2.46	0.45
13:M:319:VAL:CG2	13:M:336:LEU:HD11	2.46	0.45
6:T:331:GLN:HE21	6:T:331:GLN:HA	1.80	0.45
10:J:21:VAL:HG23	10:J:163:LEU:HD13	1.99	0.45

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
7:G:50:VAL:HG11	7:G:66:ARG:HB2	1.99	0.45
4:R:194:LEU:HD13	4:R:204:ILE:HD11	1.99	0.45
10:J:107:PRO:HG2	10:J:124:THR:HB	1.98	0.45
13:M:176:TYR:OH	13:M:329:VAL:HG11	2.16	0.45
5:E:204:ASN:HB2	13:M:216:GLN:CG	2.43	0.45
8:H:181:LEU:HB3	8:H:186:SER:HB2	1.99	0.45
13:M:128:PRO:O	14:N:96:ARG:NH2	2.46	0.44
12:Z:136:ILE:HG23	12:Z:159:GLY:HA2	1.99	0.44
3:C:146:ASP:OD1	3:C:152:GLN:NE2	2.50	0.44
4:D:136:PHE:CE1	4:D:142:PRO:HB3	2.51	0.44
7:U:48:VAL:HG11	7:U:77:CYS:HB3	1.98	0.44
5:E:268:GLN:NE2	5:E:278:GLN:OE1	2.50	0.44
8:V:62:TYR:HB3	8:V:206:CYS:SG	2.57	0.44
8:V:109:LEU:HD11	8:V:148:ILE:HD13	1.99	0.44
7:G:137:ILE:HD11	7:G:165:LEU:HD12	1.99	0.44
8:H:190:TYR:CE2	14:N:29:LEU:HD21	2.53	0.44
1:A:165:HIS:ND1	16:A:301:HOH:O	2.28	0.44
2:B:42:VAL:HG13	2:B:211:VAL:HB	1.99	0.44
5:E:150:ALA:HB2	5:E:177:VAL:HG21	1.99	0.44
7:G:78:ILE:HG21	7:G:85:GLY:HA3	1.98	0.44
7:U:88:ILE:CD1	7:U:134:CYS:SG	3.06	0.44
3:Q:191:LEU:HD11	3:Q:220:VAL:HG13	1.99	0.44
3:C:14:PRO:HA	4:D:21:TYR:CE1	2.53	0.44
9:I:84:VAL:HG22	9:I:115:HIS:CD2	2.53	0.44
13:M:148:ALA:HB2	13:M:321:PHE:CD1	2.53	0.44
14:N:16:VAL:CG2	14:N:116:THR:HG23	2.48	0.44
8:V:148:ILE:HD12	8:V:150:ALA:HB3	1.99	0.44
1:A:29:VAL:HG21	1:A:134:VAL:HG23	1.99	0.44
2:B:18:ILE:HD13	2:B:18:ILE:HA	1.92	0.44
8:V:137:PHE:HB3	8:V:168:ILE:HD13	1.99	0.44
11:Y:128:TYR:CE1	11:Y:143:HIS:CE1	3.05	0.44
7:G:152:ASP:OD2	7:G:156:THR:HB	2.18	0.43
2:P:15:GLY:O	3:Q:27:ALA:HB2	2.18	0.43
12:L:144:LEU:HB2	12:L:151:CYS:HB3	1.99	0.43
2:B:30:GLY:HA3	2:B:76:GLY:H	1.83	0.43
5:E:205:GLU:OE2	13:M:200:TYR:OH	2.19	0.43
1:O:46:LEU:HD21	1:O:199:ALA:HB2	2.01	0.43
6:F:239:ILE:HG22	6:F:297:LEU:CD2	2.48	0.43
7:G:73:GLN:HB3	8:V:270:SER:HB3	2.01	0.43
14:N:23:LEU:HD11	14:N:30:ALA:HB1	2.00	0.43
14:N:69:ARG:HG3	14:N:73:TYR:CZ	2.53	0.43

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
14:N:186:VAL:HG23	14:N:200:PHE:CE2	2.54	0.43
4:R:98:TYR:O	4:R:99:GLU:C	2.55	0.43
5:S:213:THR:HG21	5:S:254:TRP:HB3	2.01	0.43
8:H:113:VAL:HG12	8:H:117:LEU:HD22	2.00	0.43
12:L:136:ILE:HG23	12:L:159:GLY:HA2	1.99	0.43
10:X:43:HIS:HB2	10:X:51:TYR:CE2	2.54	0.43
1:A:74:GLY:HA3	1:A:231:PHE:CG	2.54	0.43
14:N:168:ASP:O	14:N:172:VAL:HG23	2.19	0.43
2:P:13:PRO:HA	3:Q:23:TYR:CD1	2.53	0.43
5:S:283:GLU:HG3	5:S:284:ARG:HG2	2.00	0.43
9:I:116:LEU:HD12	9:I:142:ILE:CG2	2.49	0.43
12:L:135:GLU:HB3	12:L:283:TRP:CZ2	2.53	0.43
11:K:61:ILE:CG1	11:K:86:MET:HG2	2.48	0.43
1:O:11:THR:HG23	1:O:11:THR:O	2.19	0.43
4:D:194:LEU:HD13	4:D:204:ILE:HD11	2.01	0.43
11:K:39:LEU:HB3	11:K:65:LEU:HD12	2.00	0.43
1:O:111:LEU:O	1:O:115:MET:HG2	2.19	0.43
5:S:131:ILE:HD13	5:S:240:SER:HB2	2.00	0.43
11:Y:14:VAL:HG22	11:Y:124:PRO:HB2	2.01	0.43
11:Y:104:ASN:HB3	11:Y:143:HIS:ND1	2.33	0.43
3:Q:221:MET:CE	3:Q:244:PRO:HB2	2.49	0.42
8:H:59:ALA:HA	8:H:67:VAL:O	2.20	0.42
3:Q:166:SER:HB3	3:Q:185:TRP:CH2	2.54	0.42
8:V:227:LEU:HD23	8:V:244:PRO:HA	2.01	0.42
10:X:111:SER:OG	10:X:120:TYR:HB3	2.19	0.42
9:I:238:THR:HG21	10:J:168:ALA:CB	2.44	0.42
14:N:184:PHE:O	14:N:199:PRO:HA	2.19	0.42
1:O:81:ALA:N	1:O:82:PRO:HD2	2.35	0.42
12:Z:187:TYR:O	12:Z:190:ARG:HB3	2.20	0.42
2:B:112:ILE:HG21	2:B:132:LEU:HD12	2.00	0.42
5:E:197:GLN:HB3	12:L:160:MET:HG3	2.01	0.42
13:M:146:ILE:HG22	13:M:301:LEU:CD1	2.50	0.42
1:A:77:MET:HE3	1:A:87:LEU:HB2	2.01	0.42
3:C:92:LEU:HD12	3:C:138:VAL:HG11	2.02	0.42
3:Q:195:MET:HE2	3:Q:195:MET:HB3	1.97	0.42
8:V:59:ALA:HA	8:V:67:VAL:O	2.19	0.42
8:V:120:TYR:CE2	8:V:124:ILE:HD13	2.55	0.42
6:F:239:ILE:HG22	6:F:297:LEU:HD22	2.01	0.42
7:G:216:VAL:O	7:G:216:VAL:HG13	2.20	0.42
9:I:92:LEU:HD11	9:I:108:ALA:HB2	2.01	0.42
10:J:96:TYR:CZ	10:J:99:ARG:HG3	2.55	0.42

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
13:M:136:THR:OG1	13:M:180:ASN:ND2	2.52	0.42
5:S:150:ALA:HB2	5:S:177:VAL:HG21	2.01	0.42
6:T:231:ILE:HD11	6:T:237:MET:SD	2.60	0.42
5:E:138:LEU:HD11	5:E:149:ALA:HB3	2.02	0.42
9:I:112:LEU:HD22	9:I:127:LEU:HD13	2.00	0.42
5:S:268:GLN:NE2	5:S:278:GLN:OE1	2.53	0.42
3:C:221:MET:CE	3:C:244:PRO:HB2	2.50	0.42
4:D:33:VAL:HG13	4:D:172:MET:HE1	2.01	0.42
8:H:227:LEU:HD23	8:H:244:PRO:HA	2.01	0.42
11:K:45:VAL:O	11:K:45:VAL:HG13	2.20	0.42
1:A:11:THR:HG23	1:A:11:THR:O	2.19	0.42
2:B:109:VAL:HG21	2:B:145:TYR:CG	2.54	0.42
3:Q:14:PRO:HA	4:R:21:TYR:CD1	2.55	0.42
4:R:65:VAL:HG11	4:R:107:LEU:CD2	2.49	0.42
8:V:117:LEU:CD1	8:V:136:LEU:HD12	2.46	0.42
9:W:31:THR:HG22	9:W:198:SER:HB3	2.02	0.42
11:Y:39:LEU:HD22	11:Y:61:ILE:HG22	2.00	0.42
2:B:15:GLY:O	3:C:27:ALA:HB2	2.20	0.42
7:G:95:GLU:CG	7:G:115:ARG:HG2	2.49	0.42
8:H:109:LEU:HD11	8:H:148:ILE:CD1	2.50	0.42
4:R:90:GLU:HG2	4:R:110:TYR:CG	2.54	0.42
6:T:299:LEU:HD23	6:T:299:LEU:HA	1.87	0.42
12:Z:164:LEU:O	12:Z:168:ARG:HG3	2.20	0.42
6:T:235:VAL:HG11	6:T:273:MET:SD	2.60	0.41
4:D:65:VAL:HG11	4:D:107:LEU:HD21	2.02	0.41
14:N:143:LEU:HD13	14:N:147:ARG:NH2	2.34	0.41
6:T:239:ILE:HG22	6:T:297:LEU:HD22	2.02	0.41
7:U:152:ASP:OD2	7:U:156:THR:HB	2.20	0.41
2:P:109:VAL:HG21	2:P:145:TYR:CG	2.55	0.41
4:R:108:VAL:HG21	4:R:145:TRP:CG	2.55	0.41
6:T:282:GLN:HA	6:T:285:ILE:HG12	2.02	0.41
10:X:92:THR:HB	10:X:128:GLY:O	2.20	0.41
14:N:206:TRP:CH2	8:V:226:GLY:HA2	2.55	0.41
7:U:216:VAL:O	7:U:216:VAL:HG13	2.20	0.41
10:X:22:ILE:HG21	10:X:50:VAL:CG1	2.50	0.41
10:J:26:ASN:HD21	10:J:186:VAL:HG23	1.86	0.41
3:C:166:SER:HB3	3:C:185:TRP:CH2	2.56	0.41
3:C:255:LYS:N	3:C:256:PRO:HD2	2.35	0.41
7:G:82:LEU:HB3	7:G:83:PRO:HD3	2.01	0.41
10:J:88:ALA:O	10:J:92:THR:HG23	2.20	0.41
3:Q:195:MET:HE1	3:Q:218:VAL:HG11	2.03	0.41

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
11:Y:44:LEU:HD23	11:Y:199:VAL:HG22	2.02	0.41
1:A:147:GLY:HA2	9:I:134:VAL:HG21	2.03	0.41
14:N:148:GLN:HE22	9:W:166:GLN:NE2	2.17	0.41
3:Q:80:CYS:HA	3:Q:141:LEU:O	2.19	0.41
4:R:64:LYS:HB2	4:R:70:TYR:CE1	2.55	0.41
6:T:326:MET:O	6:T:330:SER:OG	2.39	0.41
6:F:398:LEU:HD12	6:F:398:LEU:HA	1.93	0.41
8:H:179:TYR:OH	8:V:258:TYR:OH	2.33	0.41
5:S:278:GLN:HE21	5:S:278:GLN:HB2	1.64	0.41
5:S:280:VAL:HG11	5:S:301:ILE:HG12	2.02	0.41
9:W:47:THR:HG1	9:W:200:THR:HB	1.85	0.41
10:X:58:THR:CG2	11:Y:132:LEU:O	2.69	0.41
11:Y:12:ASP:OD1	11:Y:12:ASP:N	2.53	0.41
5:E:113:ASN:HB3	6:F:291:ARG:HB3	2.02	0.41
11:K:47:CYS:SG	11:K:103:VAL:HB	2.61	0.41
12:L:143:THR:O	12:L:198:THR:HG23	2.20	0.41
13:M:185:ASP:OD1	14:N:96:ARG:NH1	2.53	0.41
14:N:8:ILE:HG21	14:N:142:ALA:CB	2.50	0.41
1:O:74:GLY:HA3	1:O:231:PHE:CG	2.56	0.41
2:P:30:GLY:HA3	2:P:76:GLY:H	1.85	0.41
10:X:111:SER:HG	10:X:120:TYR:HB3	1.86	0.41
12:Z:144:LEU:HB2	12:Z:151:CYS:HB3	2.03	0.41
12:Z:224:LEU:C	12:Z:224:LEU:HD23	2.41	0.41
5:E:121:ILE:HD11	6:F:291:ARG:CZ	2.51	0.41
7:U:72:ARG:NH2	7:U:221:ASP:O	2.54	0.41
7:U:91:ARG:HA	7:U:91:ARG:HD3	1.93	0.41
9:W:116:LEU:HD12	9:W:142:ILE:CG2	2.51	0.41
7:G:82:LEU:N	7:G:83:PRO:CD	2.84	0.40
13:M:166:SER:O	13:M:190:GLN:NE2	2.46	0.40
2:P:17:LEU:HD13	2:P:20:ILE:HD12	2.01	0.40
6:F:193:VAL:HG22	6:F:296:GLY:N	2.35	0.40
9:I:167:LEU:HD12	9:I:167:LEU:HA	1.92	0.40
11:K:12:ASP:OD1	11:K:12:ASP:N	2.54	0.40
6:F:277:ILE:HD11	6:F:299:LEU:CD1	2.51	0.40
8:H:62:TYR:HB3	8:H:206:CYS:SG	2.61	0.40
13:M:144:PHE:CD1	13:M:146:ILE:HD12	2.57	0.40
1:O:87:LEU:HD12	1:O:133:VAL:CG1	2.51	0.40
6:T:193:VAL:HG22	6:T:296:GLY:N	2.36	0.40
3:C:195:MET:HE2	3:C:195:MET:HB3	1.95	0.40
5:E:280:VAL:HG11	5:E:301:ILE:HG12	2.03	0.40
3:Q:12:PHE:N	4:R:18:GLN:OE1	2.54	0.40

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
10:X:96:TYR:CZ	10:X:99:ARG:HG3	2.56	0.40
12:Z:199:MET:SD	12:Z:225:PHE:HB2	2.61	0.40
12:L:224:LEU:HD23	12:L:224:LEU:C	2.42	0.40
12:L:239:ASP:OD1	11:Y:181:ARG:NH2	2.55	0.40
14:N:186:VAL:HG23	14:N:200:PHE:HE2	1.85	0.40
3:Q:97:ARG:HD2	10:X:76:LEU:HD13	2.03	0.40
5:S:148:LEU:HD21	5:S:244:ALA:HB2	2.04	0.40
9:W:67:ALA:HB1	9:W:68:PRO:HD2	2.04	0.40

There are no symmetry-related clashes.

5.3 Torsion angles [i](#)

5.3.1 Protein backbone [i](#)

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

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

Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
1	A	242/250 (97%)	233 (96%)	9 (4%)	0	100	100
1	O	242/250 (97%)	233 (96%)	9 (4%)	0	100	100
2	B	227/231 (98%)	216 (95%)	11 (5%)	0	100	100
2	P	227/231 (98%)	218 (96%)	9 (4%)	0	100	100
3	C	274/285 (96%)	266 (97%)	8 (3%)	0	100	100
3	Q	274/285 (96%)	265 (97%)	9 (3%)	0	100	100
4	D	237/248 (96%)	228 (96%)	7 (3%)	2 (1%)	19	49
4	R	237/248 (96%)	226 (95%)	9 (4%)	2 (1%)	19	49
5	E	225/344 (65%)	222 (99%)	3 (1%)	0	100	100
5	S	225/344 (65%)	221 (98%)	4 (2%)	0	100	100
6	F	236/428 (55%)	230 (98%)	5 (2%)	1 (0%)	34	66
6	T	236/428 (55%)	229 (97%)	6 (2%)	1 (0%)	34	66
7	G	226/238 (95%)	218 (96%)	8 (4%)	0	100	100

Continued on next page...

Continued from previous page...

Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
7	U	226/238 (95%)	219 (97%)	7 (3%)	0	100	100
8	H	227/283 (80%)	212 (93%)	14 (6%)	1 (0%)	34	66
8	V	227/283 (80%)	213 (94%)	13 (6%)	1 (0%)	34	66
9	I	217/254 (85%)	204 (94%)	10 (5%)	3 (1%)	11	34
9	W	217/254 (85%)	205 (94%)	9 (4%)	3 (1%)	11	34
10	J	202/205 (98%)	192 (95%)	9 (4%)	1 (0%)	29	61
10	X	202/205 (98%)	191 (95%)	10 (5%)	1 (0%)	29	61
11	K	204/206 (99%)	194 (95%)	10 (5%)	0	100	100
11	Y	204/206 (99%)	195 (96%)	9 (4%)	0	100	100
12	L	200/302 (66%)	188 (94%)	12 (6%)	0	100	100
12	Z	200/302 (66%)	188 (94%)	12 (6%)	0	100	100
13	M	212/339 (62%)	204 (96%)	5 (2%)	3 (1%)	11	34
13	a	212/339 (62%)	204 (96%)	5 (2%)	3 (1%)	11	34
14	N	216/220 (98%)	202 (94%)	14 (6%)	0	100	100
14	b	216/220 (98%)	204 (94%)	12 (6%)	0	100	100
All	All	6290/7666 (82%)	6020 (96%)	248 (4%)	22 (0%)	44	72

All (22) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
4	D	49	SER
4	R	49	SER
9	W	200	THR
9	I	200	THR
9	I	223	GLU
13	M	317	ASP
9	W	223	GLU
13	a	317	ASP
6	F	366	GLU
10	J	156	PRO
13	M	291	GLU
6	T	366	GLU
10	X	156	PRO
13	a	291	GLU
4	D	50	ALA
8	H	266	GLN
9	I	226	TYR

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type
13	M	292	MET
4	R	50	ALA
8	V	266	GLN
9	W	226	TYR
13	a	292	MET

5.3.2 Protein sidechains [i](#)

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

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

Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
1	A	193/197 (98%)	177 (92%)	16 (8%)	11	32
1	O	193/197 (98%)	177 (92%)	16 (8%)	11	32
2	B	188/190 (99%)	164 (87%)	24 (13%)	4	13
2	P	188/190 (99%)	164 (87%)	24 (13%)	4	13
3	C	233/241 (97%)	210 (90%)	23 (10%)	8	23
3	Q	233/241 (97%)	210 (90%)	23 (10%)	8	23
4	D	200/208 (96%)	175 (88%)	25 (12%)	4	14
4	R	200/208 (96%)	174 (87%)	26 (13%)	4	13
5	E	193/301 (64%)	178 (92%)	15 (8%)	12	35
5	S	193/301 (64%)	178 (92%)	15 (8%)	12	35
6	F	200/363 (55%)	184 (92%)	16 (8%)	12	34
6	T	200/363 (55%)	185 (92%)	15 (8%)	13	37
7	G	184/190 (97%)	169 (92%)	15 (8%)	11	33
7	U	184/190 (97%)	167 (91%)	17 (9%)	9	27
8	H	184/229 (80%)	170 (92%)	14 (8%)	13	36
8	V	184/229 (80%)	168 (91%)	16 (9%)	10	30
9	I	180/209 (86%)	163 (91%)	17 (9%)	8	26
9	W	180/209 (86%)	163 (91%)	17 (9%)	8	26
10	J	167/168 (99%)	153 (92%)	14 (8%)	11	31
10	X	167/168 (99%)	151 (90%)	16 (10%)	8	24

Continued on next page...

Continued from previous page...

Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
11	K	172/172 (100%)	153 (89%)	19 (11%)	6	19
11	Y	172/172 (100%)	154 (90%)	18 (10%)	7	20
12	L	163/253 (64%)	152 (93%)	11 (7%)	16	43
12	Z	163/253 (64%)	152 (93%)	11 (7%)	16	43
13	M	181/288 (63%)	156 (86%)	25 (14%)	3	11
13	a	181/288 (63%)	159 (88%)	22 (12%)	5	15
14	N	181/183 (99%)	166 (92%)	15 (8%)	11	32
14	b	181/183 (99%)	168 (93%)	13 (7%)	14	38
All	All	5238/6384 (82%)	4740 (90%)	498 (10%)	12	25

All (498) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	11	THR
1	A	27	LYS
1	A	36	THR
1	A	42	LYS
1	A	45	VAL
1	A	59	ARG
1	A	138	ILE
1	A	140	MET
1	A	150	LYS
1	A	184	ARG
1	A	193	LEU
1	A	196	LYS
1	A	206	LEU
1	A	215	LYS
1	A	232	GLN
1	A	233	ARG
2	B	3	GLU
2	B	8	LEU
2	B	18	ILE
2	B	29	LYS
2	B	42	VAL
2	B	47	LYS
2	B	82	ARG
2	B	84	LEU
2	B	87	SER
2	B	90	LYS

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type
2	B	98	MET
2	B	101	GLU
2	B	106	SER
2	B	110	ARG
2	B	117	GLN
2	B	126	ARG
2	B	133	LEU
2	B	163	THR
2	B	175	ARG
2	B	182	LEU
2	B	197	PHE
2	B	198	ASP
2	B	202	THR
2	B	224	LEU
3	C	2	SER
3	C	17	ARG
3	C	20	GLN
3	C	58	SER
3	C	59	GLU
3	C	66	THR
3	C	97	ARG
3	C	119	ILE
3	C	147	ARG
3	C	157	GLU
3	C	161	ASP
3	C	163	SER
3	C	172	GLN
3	C	175	GLN
3	C	184	ASP
3	C	195	MET
3	C	202	LEU
3	C	214	ASP
3	C	237	LYS
3	C	247	GLN
3	C	250	THR
3	C	253	GLU
3	C	270	LYS
4	D	5	ARG
4	D	12	PRO
4	D	24	GLU
4	D	28	LYS
4	D	59	ILE

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type
4	D	60	ARG
4	D	61	LYS
4	D	71	LEU
4	D	86	LYS
4	D	92	GLN
4	D	99	GLU
4	D	102	MET
4	D	124	SER
4	D	148	ASP
4	D	152	MET
4	D	178	ASP
4	D	193	LEU
4	D	194	LEU
4	D	202	ARG
4	D	203	ASN
4	D	205	GLU
4	D	206	LEU
4	D	218	THR
4	D	231	LYS
4	D	235	GLU
5	E	107	GLU
5	E	109	ASP
5	E	118	GLU
5	E	140	ILE
5	E	156	SER
5	E	220	SER
5	E	259	SER
5	E	263	THR
5	E	268	GLN
5	E	278	GLN
5	E	287	ARG
5	E	307	GLU
5	E	311	SER
5	E	321	ARG
5	E	326	LYS
6	F	172	SER
6	F	199	THR
6	F	203	LYS
6	F	220	GLU
6	F	230	GLU
6	F	235	VAL
6	F	277	ILE

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type
6	F	280	LYS
6	F	313	VAL
6	F	331	GLN
6	F	358	LYS
6	F	362	SER
6	F	368	ILE
6	F	398	LEU
6	F	403	MET
6	F	404	ARG
7	G	13	ASP
7	G	29	LYS
7	G	44	ASP
7	G	46	VAL
7	G	65	ASN
7	G	72	ARG
7	G	73	GLN
7	G	115	ARG
7	G	141	TYR
7	G	152	ASP
7	G	184	LEU
7	G	192	LYS
7	G	215	TRP
7	G	223	LYS
7	G	231	MET
8	H	74	THR
8	H	100	SER
8	H	117	LEU
8	H	123	ASP
8	H	137	PHE
8	H	143	MET
8	H	170	SER
8	H	173	SER
8	H	191	SER
8	H	204	SER
8	H	212	ARG
8	H	218	TYR
8	H	223	SER
8	H	237	GLU
9	I	60	CYS
9	I	66	MET
9	I	85	THR
9	I	94	LEU

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type
9	I	102	GLN
9	I	103	SER
9	I	106	LEU
9	I	135	GLU
9	I	150	ARG
9	I	158	SER
9	I	167	LEU
9	I	172	LYS
9	I	204	VAL
9	I	208	THR
9	I	213	GLU
9	I	220	LYS
9	I	225	MET
10	J	30	GLU
10	J	41	LYS
10	J	48	SER
10	J	58	THR
10	J	73	MET
10	J	79	GLU
10	J	92	THR
10	J	93	SER
10	J	99	ARG
10	J	118	GLU
10	J	134	GLU
10	J	155	ARG
10	J	163	LEU
10	J	180	LEU
11	K	3	GLU
11	K	15	MET
11	K	37	THR
11	K	50	GLU
11	K	59	GLU
11	K	61	ILE
11	K	70	MET
11	K	82	THR
11	K	87	ARG
11	K	88	ASN
11	K	97	ARG
11	K	121	VAL
11	K	129	MET
11	K	156	ARG
11	K	162	LEU

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type
11	K	163	SER
11	K	181	ARG
11	K	187	SER
11	K	192	LYS
12	L	102	THR
12	L	121	THR
12	L	128	GLN
12	L	129	THR
12	L	131	MET
12	L	134	LEU
12	L	144	LEU
12	L	155	GLU
12	L	214	ASP
12	L	218	SER
12	L	245	ASP
13	M	143	ASP
13	M	145	VAL
13	M	152	ARG
13	M	154	ASN
13	M	157	PHE
13	M	159	LEU
13	M	167	LYS
13	M	186	ARG
13	M	192	MET
13	M	196	ARG
13	M	198	LYS
13	M	216	GLN
13	M	219	SER
13	M	222	LEU
13	M	226	ARG
13	M	232	THR
13	M	239	LEU
13	M	241	GLU
13	M	259	PHE
13	M	263	THR
13	M	292	MET
13	M	310	GLU
13	M	337	ARG
13	M	338	LYS
13	M	339	ASP
14	N	3	SER
14	N	24	LEU

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type
14	N	45	SER
14	N	68	GLU
14	N	69	ARG
14	N	77	ASP
14	N	82	SER
14	N	96	ARG
14	N	106	MET
14	N	123	ASP
14	N	155	ASP
14	N	159	ARG
14	N	179	ARG
14	N	183	LYS
14	N	192	ASP
1	O	11	THR
1	O	27	LYS
1	O	36	THR
1	O	42	LYS
1	O	45	VAL
1	O	59	ARG
1	O	122	ARG
1	O	135	SER
1	O	150	LYS
1	O	184	ARG
1	O	193	LEU
1	O	196	LYS
1	O	206	LEU
1	O	215	LYS
1	O	232	GLN
1	O	233	ARG
2	P	3	GLU
2	P	8	LEU
2	P	18	ILE
2	P	29	LYS
2	P	42	VAL
2	P	47	LYS
2	P	62	LYS
2	P	82	ARG
2	P	84	LEU
2	P	87	SER
2	P	90	LYS
2	P	98	MET
2	P	101	GLU

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type
2	P	106	SER
2	P	110	ARG
2	P	117	GLN
2	P	126	ARG
2	P	133	LEU
2	P	163	THR
2	P	182	LEU
2	P	197	PHE
2	P	198	ASP
2	P	202	THR
2	P	224	LEU
3	Q	2	SER
3	Q	17	ARG
3	Q	20	GLN
3	Q	58	SER
3	Q	59	GLU
3	Q	66	THR
3	Q	97	ARG
3	Q	119	ILE
3	Q	147	ARG
3	Q	156	THR
3	Q	157	GLU
3	Q	161	ASP
3	Q	163	SER
3	Q	172	GLN
3	Q	175	GLN
3	Q	184	ASP
3	Q	195	MET
3	Q	202	LEU
3	Q	214	ASP
3	Q	237	LYS
3	Q	250	THR
3	Q	253	GLU
3	Q	270	LYS
4	R	5	ARG
4	R	12	PRO
4	R	18	GLN
4	R	24	GLU
4	R	28	LYS
4	R	60	ARG
4	R	61	LYS
4	R	71	LEU

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type
4	R	86	LYS
4	R	92	GLN
4	R	102	MET
4	R	124	SER
4	R	148	ASP
4	R	152	MET
4	R	154	SER
4	R	175	SER
4	R	178	ASP
4	R	193	LEU
4	R	194	LEU
4	R	202	ARG
4	R	203	ASN
4	R	205	GLU
4	R	206	LEU
4	R	218	THR
4	R	231	LYS
4	R	235	GLU
5	S	107	GLU
5	S	109	ASP
5	S	118	GLU
5	S	140	ILE
5	S	156	SER
5	S	220	SER
5	S	259	SER
5	S	268	GLN
5	S	278	GLN
5	S	287	ARG
5	S	300	ASP
5	S	307	GLU
5	S	311	SER
5	S	326	LYS
5	S	334	GLU
6	T	172	SER
6	T	199	THR
6	T	203	LYS
6	T	220	GLU
6	T	230	GLU
6	T	235	VAL
6	T	277	ILE
6	T	280	LYS
6	T	313	VAL

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type
6	T	331	GLN
6	T	362	SER
6	T	368	ILE
6	T	398	LEU
6	T	403	MET
6	T	404	ARG
7	U	13	ASP
7	U	29	LYS
7	U	38	VAL
7	U	42	CYS
7	U	44	ASP
7	U	46	VAL
7	U	65	ASN
7	U	72	ARG
7	U	73	GLN
7	U	115	ARG
7	U	141	TYR
7	U	152	ASP
7	U	184	LEU
7	U	192	LYS
7	U	215	TRP
7	U	223	LYS
7	U	231	MET
8	V	74	THR
8	V	100	SER
8	V	117	LEU
8	V	123	ASP
8	V	137	PHE
8	V	140	MET
8	V	143	MET
8	V	170	SER
8	V	173	SER
8	V	191	SER
8	V	204	SER
8	V	212	ARG
8	V	218	TYR
8	V	223	SER
8	V	237	GLU
8	V	257	LYS
9	W	60	CYS
9	W	66	MET
9	W	85	THR

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type
9	W	94	LEU
9	W	102	GLN
9	W	103	SER
9	W	106	LEU
9	W	135	GLU
9	W	150	ARG
9	W	158	SER
9	W	167	LEU
9	W	172	LYS
9	W	204	VAL
9	W	208	THR
9	W	213	GLU
9	W	220	LYS
9	W	225	MET
10	X	30	GLU
10	X	41	LYS
10	X	48	SER
10	X	58	THR
10	X	73	MET
10	X	79	GLU
10	X	92	THR
10	X	93	SER
10	X	99	ARG
10	X	118	GLU
10	X	134	GLU
10	X	155	ARG
10	X	163	LEU
10	X	166	ILE
10	X	180	LEU
10	X	205	ASP
11	Y	3	GLU
11	Y	15	MET
11	Y	37	THR
11	Y	50	GLU
11	Y	59	GLU
11	Y	61	ILE
11	Y	70	MET
11	Y	82	THR
11	Y	87	ARG
11	Y	88	ASN
11	Y	97	ARG
11	Y	121	VAL

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type
11	Y	129	MET
11	Y	156	ARG
11	Y	163	SER
11	Y	181	ARG
11	Y	187	SER
11	Y	192	LYS
12	Z	117	SER
12	Z	121	THR
12	Z	129	THR
12	Z	131	MET
12	Z	134	LEU
12	Z	144	LEU
12	Z	155	GLU
12	Z	194	LEU
12	Z	218	SER
12	Z	245	ASP
12	Z	284	THR
13	a	143	ASP
13	a	145	VAL
13	a	152	ARG
13	a	154	ASN
13	a	157	PHE
13	a	159	LEU
13	a	167	LYS
13	a	186	ARG
13	a	192	MET
13	a	196	ARG
13	a	198	LYS
13	a	216	GLN
13	a	222	LEU
13	a	226	ARG
13	a	232	THR
13	a	239	LEU
13	a	241	GLU
13	a	263	THR
13	a	292	MET
13	a	310	GLU
13	a	338	LYS
13	a	339	ASP
14	b	3	SER
14	b	24	LEU
14	b	45	SER

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type
14	b	68	GLU
14	b	69	ARG
14	b	77	ASP
14	b	82	SER
14	b	96	ARG
14	b	106	MET
14	b	123	ASP
14	b	155	ASP
14	b	179	ARG
14	b	192	ASP

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (74) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	72	ASN
1	A	207	GLN
1	A	236	ASN
2	B	94	GLN
2	B	100	ASN
2	B	117	GLN
2	B	121	GLN
2	B	223	GLN
2	B	230	GLN
3	C	172	GLN
3	C	175	GLN
3	C	263	GLN
4	D	115	GLN
5	E	255	GLN
5	E	268	GLN
5	E	278	GLN
5	E	314	ASN
6	F	272	GLN
6	F	331	GLN
7	G	54	HIS
7	G	65	ASN
8	H	246	ASN
9	I	115	HIS
9	I	166	GLN
9	I	247	GLN
10	J	26	ASN
10	J	65	ASN
11	K	73	HIS

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type
11	K	186	ASN
12	L	291	GLN
13	M	170	GLN
13	M	180	ASN
13	M	188	GLN
14	N	70	GLN
14	N	75	ASN
1	O	72	ASN
1	O	207	GLN
1	O	236	ASN
2	P	19	GLN
2	P	93	GLN
2	P	94	GLN
2	P	100	ASN
2	P	117	GLN
2	P	121	GLN
2	P	223	GLN
2	P	230	GLN
3	Q	172	GLN
3	Q	175	GLN
3	Q	263	GLN
4	R	115	GLN
5	S	255	GLN
5	S	268	GLN
5	S	278	GLN
5	S	314	ASN
6	T	190	ASN
6	T	331	GLN
7	U	54	HIS
7	U	65	ASN
8	V	246	ASN
9	W	102	GLN
9	W	166	GLN
9	W	201	GLN
9	W	247	GLN
10	X	26	ASN
10	X	65	ASN
11	Y	143	HIS
11	Y	186	ASN
12	Z	291	GLN
13	a	154	ASN
13	a	170	GLN

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type
13	a	180	ASN
13	a	188	GLN
13	a	216	GLN
14	b	75	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 monosaccharides in this entry.

5.6 Ligand geometry [i](#)

2 ligands are modelled in this entry.

In the following table, the Counts columns list the number of bonds (or angles) for which Mogul statistics could be retrieved, the number of bonds (or angles) that are observed in the model and the number of bonds (or angles) that are defined in the Chemical Component Dictionary. The Link column lists molecule types, if any, to which the group is linked. 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 $|Z| > 2$ is considered an outlier worth inspection. RMSZ is the root-mean-square of all Z scores of the bond lengths (or angles).

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	$\# Z > 2$	Counts	RMSZ	$\# Z > 2$
15	J6E	Z	4000	-	29,34,34	0.64	0	34,48,48	0.74	2 (5%)
15	J6E	L	4000	-	29,34,34	0.66	0	34,48,48	0.86	1 (2%)

In the following table, the Chirals column lists the number of chiral outliers, the number of chiral centers analysed, the number of these observed in the model and the number defined in the Chemical Component Dictionary. Similar counts are reported in the Torsion and Rings columns. '-' means no outliers of that kind were identified.

Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
15	J6E	Z	4000	-	-	0/12/31/31	0/5/5/5
15	J6E	L	4000	-	-	0/12/31/31	0/5/5/5

There are no bond length outliers.

All (3) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed($^{\circ}$)	Ideal($^{\circ}$)
15	L	4000	J6E	C13-C12-C11	2.89	120.13	118.03
15	Z	4000	J6E	C13-C12-C11	2.71	120.00	118.03
15	Z	4000	J6E	C12-C13-N2	-2.07	118.09	120.66

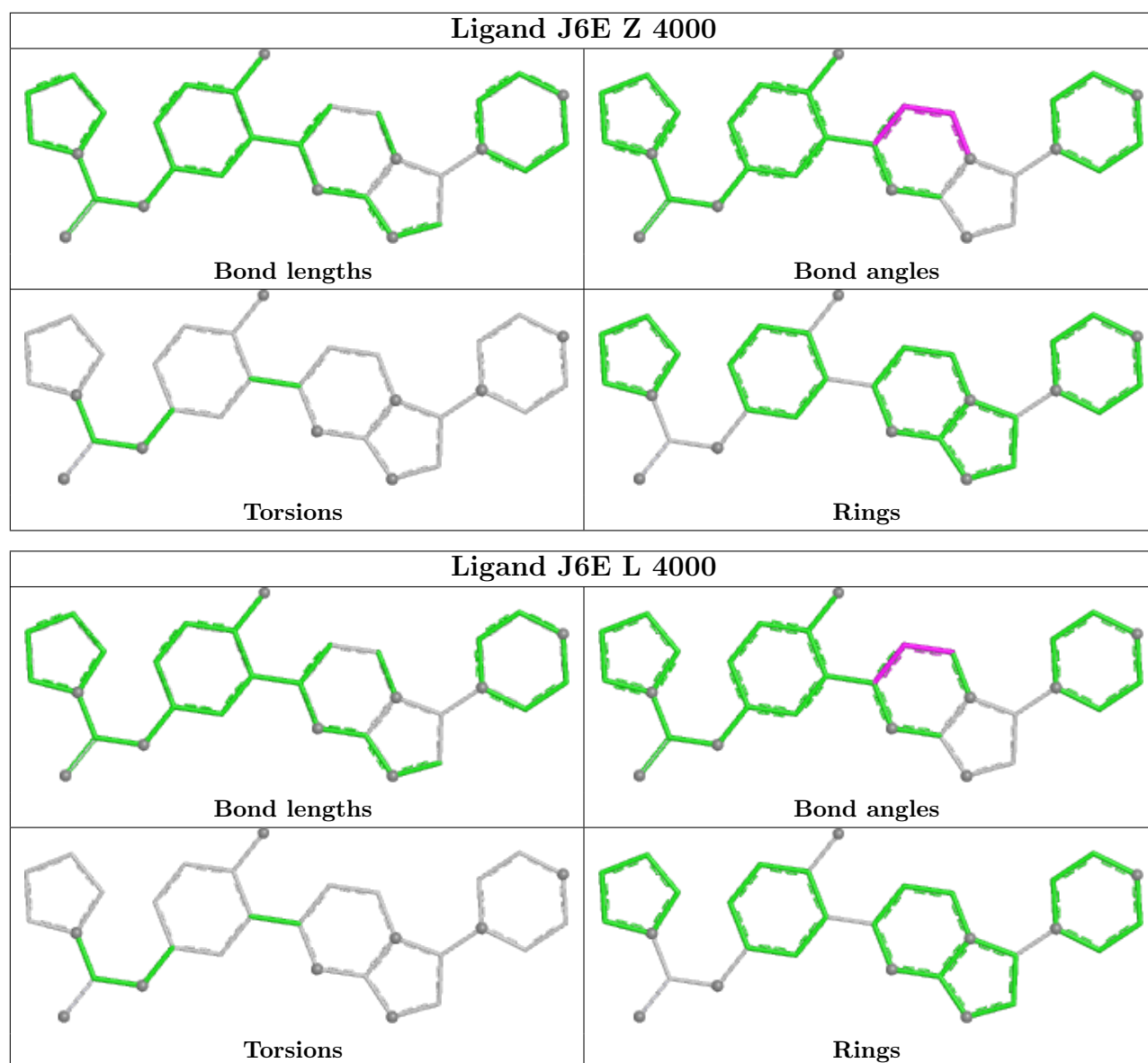
There are no chirality outliers.

There are no torsion outliers.

There are no ring outliers.

No monomer is involved in short contacts.

The following is a two-dimensional graphical depiction of Mogul quality analysis of bond lengths, bond angles, torsion angles, and ring geometry for all instances of the Ligand of Interest. In addition, ligands with molecular weight > 250 and outliers as shown on the validation Tables will also be included. For torsion angles, if less than 5% of the Mogul distribution of torsion angles is within 10 degrees of the torsion angle in question, then that torsion angle is considered an outlier. Any bond that is central to one or more torsion angles identified as an outlier by Mogul will be highlighted in the graph. For rings, the root-mean-square deviation (RMSD) between the ring in question and similar rings identified by Mogul is calculated over all ring torsion angles. If the average RMSD is greater than 60 degrees and the minimal RMSD between the ring in question and any Mogul-identified rings is also greater than 60 degrees, then that ring is considered an outlier. The outliers are highlighted in purple. The color gray indicates Mogul did not find sufficient equivalents in the CSD to analyse the geometry.



5.7 Other polymers [i](#)

There are no such residues in this entry.

5.8 Polymer linkage issues [i](#)

There are no chain breaks in this entry.

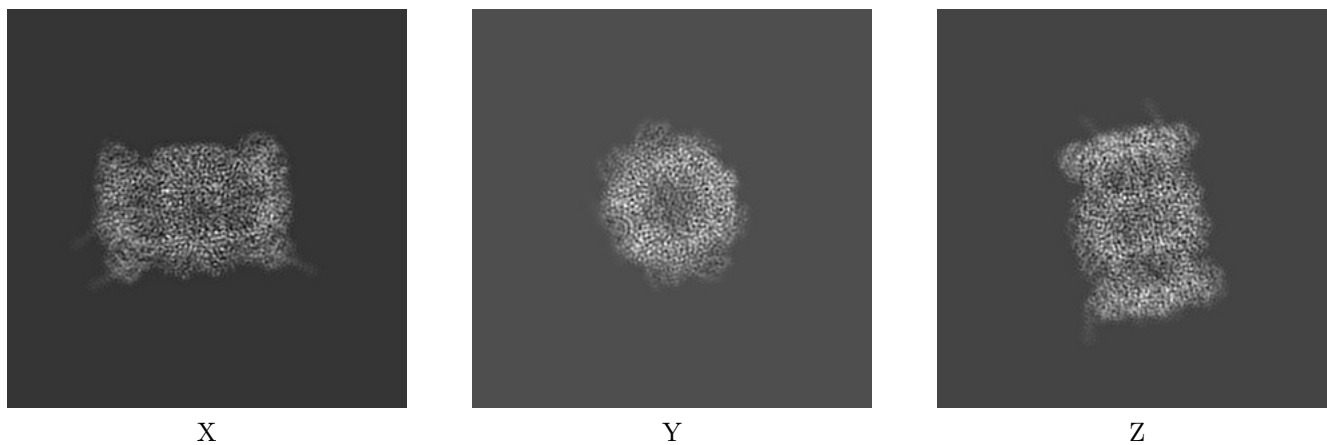
6 Map visualisation [i](#)

This section contains visualisations of the EMDB entry EMD-4590. These allow visual inspection of the internal detail of the map and identification of artifacts.

No raw map or half-maps were deposited for this entry and therefore no images, graphs, etc. pertaining to the raw map can be shown.

6.1 Orthogonal projections [i](#)

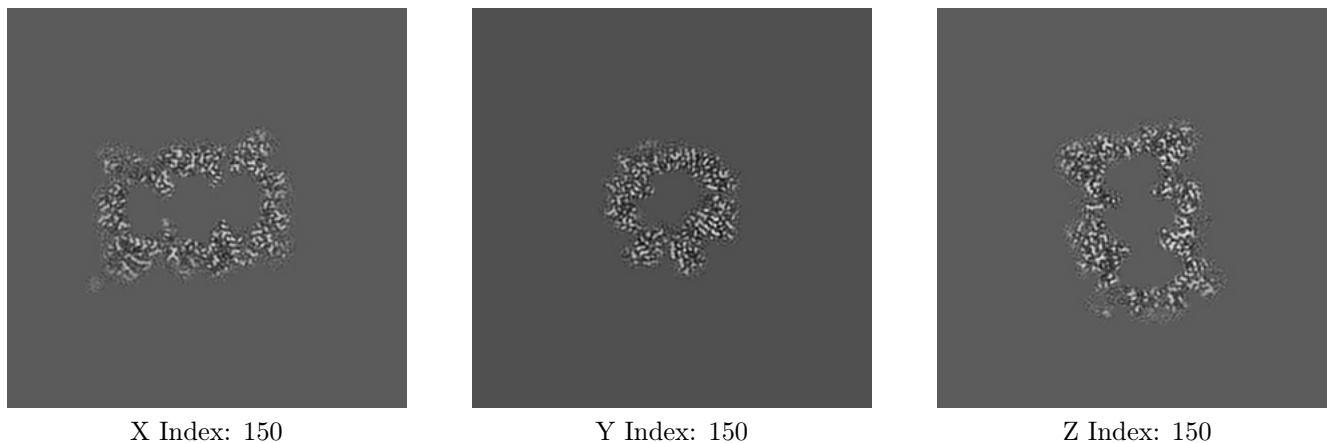
6.1.1 Primary map



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

6.2 Central slices [i](#)

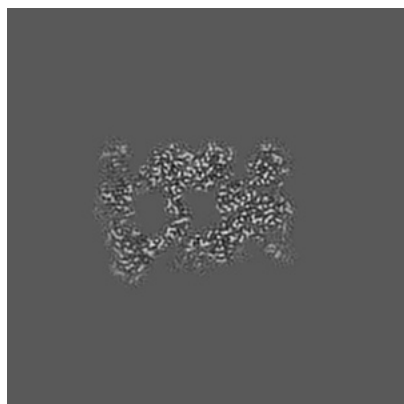
6.2.1 Primary map



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: 174



Y Index: 121

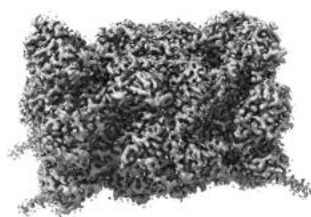


Z Index: 127

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

6.4 Orthogonal surface views [i](#)

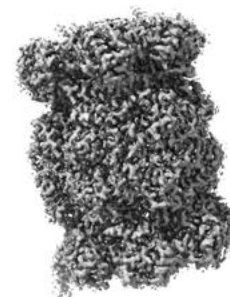
6.4.1 Primary map



X



Y



Z

The images above show the 3D surface view of the map at the recommended contour level 0.0667. These images, in conjunction with the slice images, may facilitate assessment of whether an appropriate contour level has been provided.

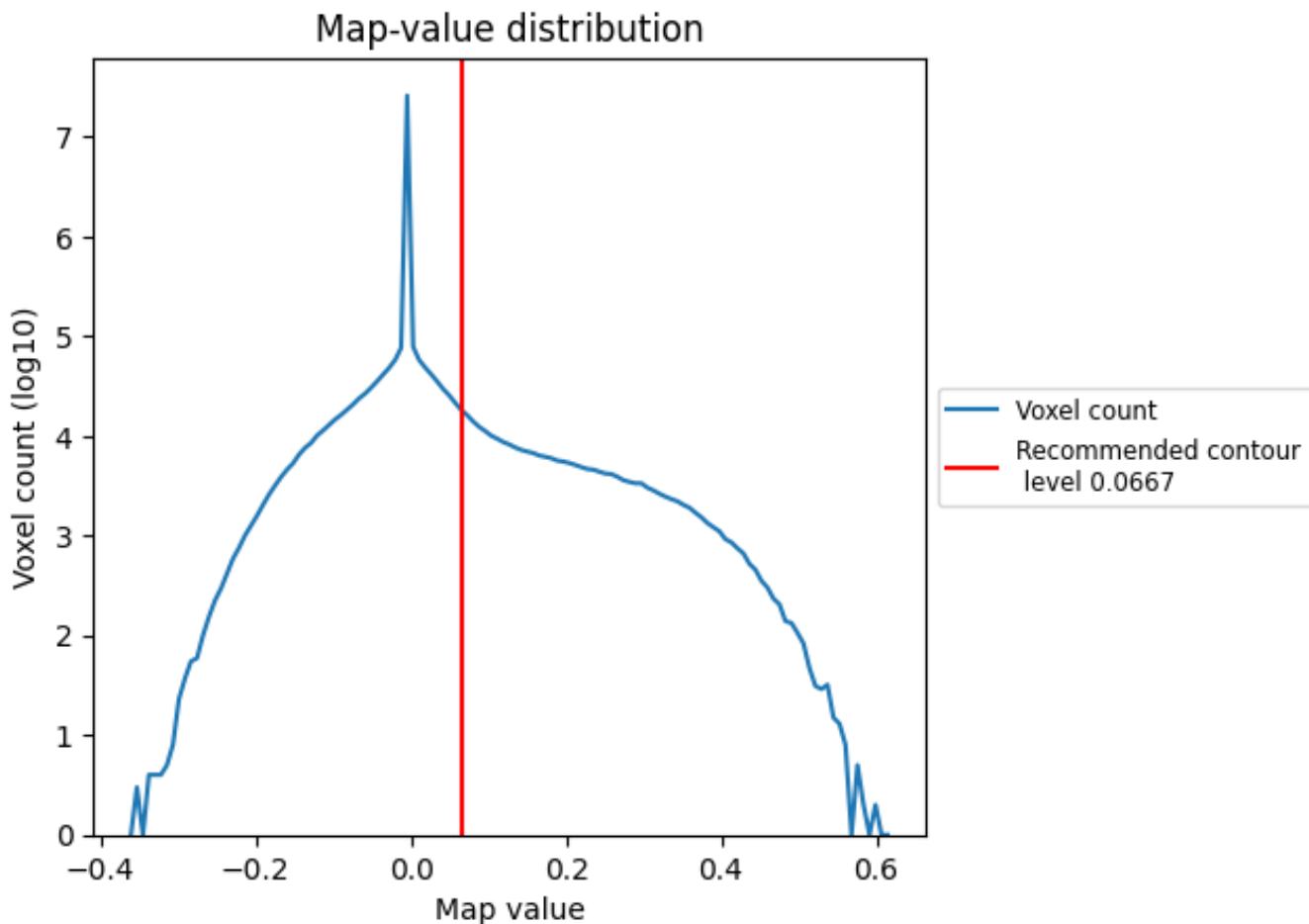
6.5 Mask visualisation

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

7 Map analysis [i](#)

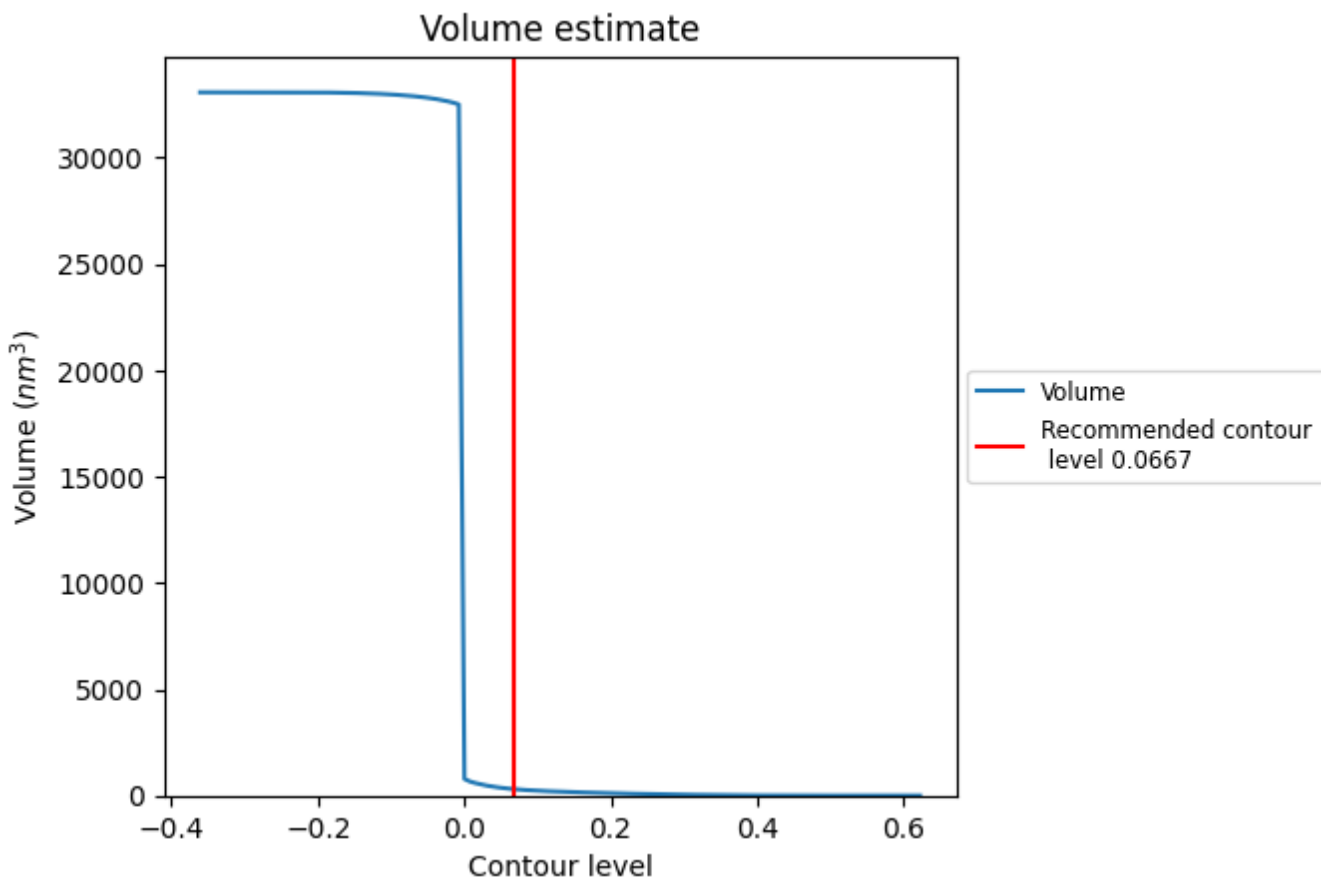
This section contains the results of statistical analysis of the map.

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.

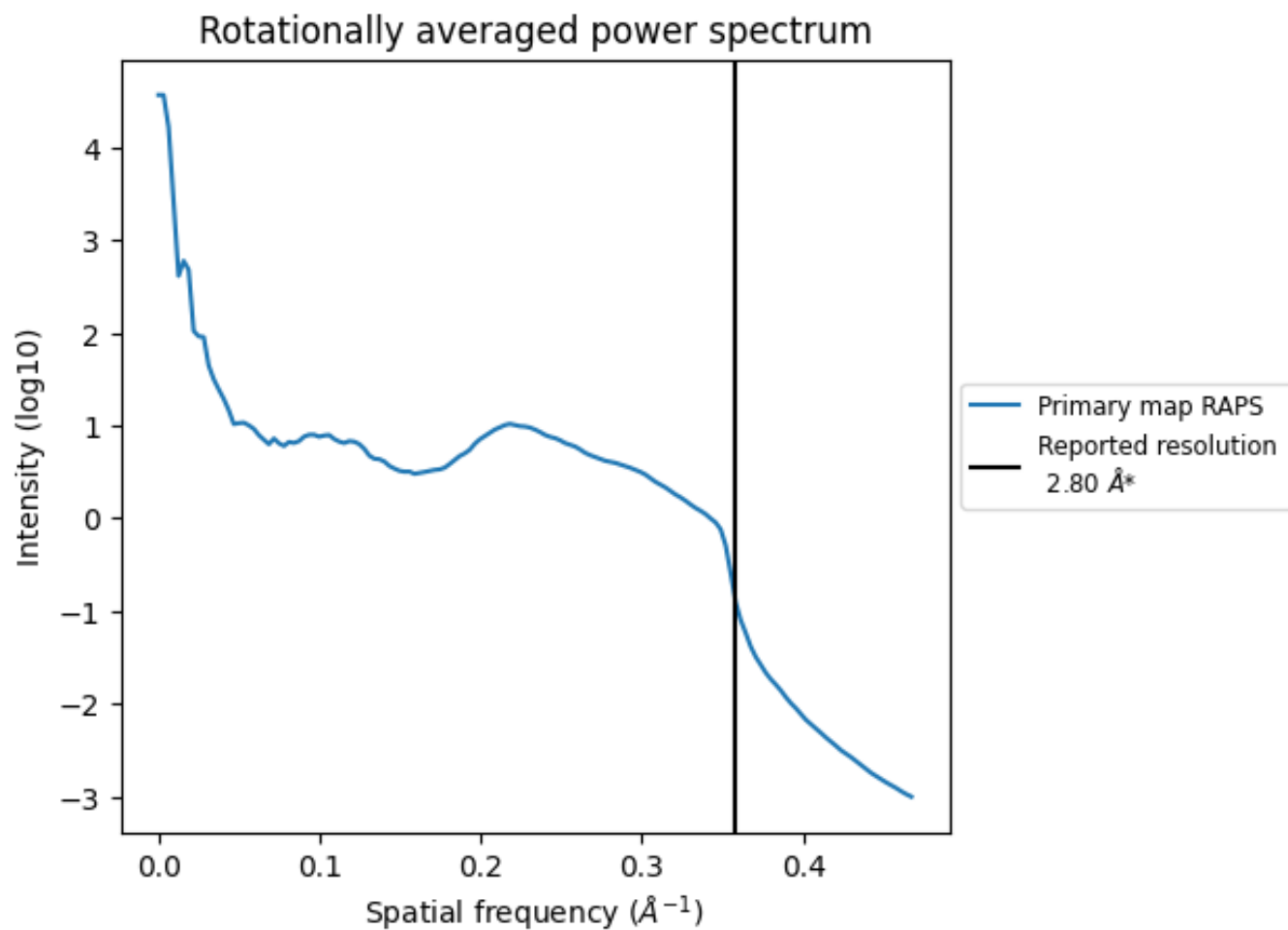
7.2 Volume estimate [i](#)



The volume at the recommended contour level is 306 nm^3 ; this corresponds to an approximate mass of 276 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 [i](#)



*Reported resolution corresponds to spatial frequency of 0.357 Å⁻¹

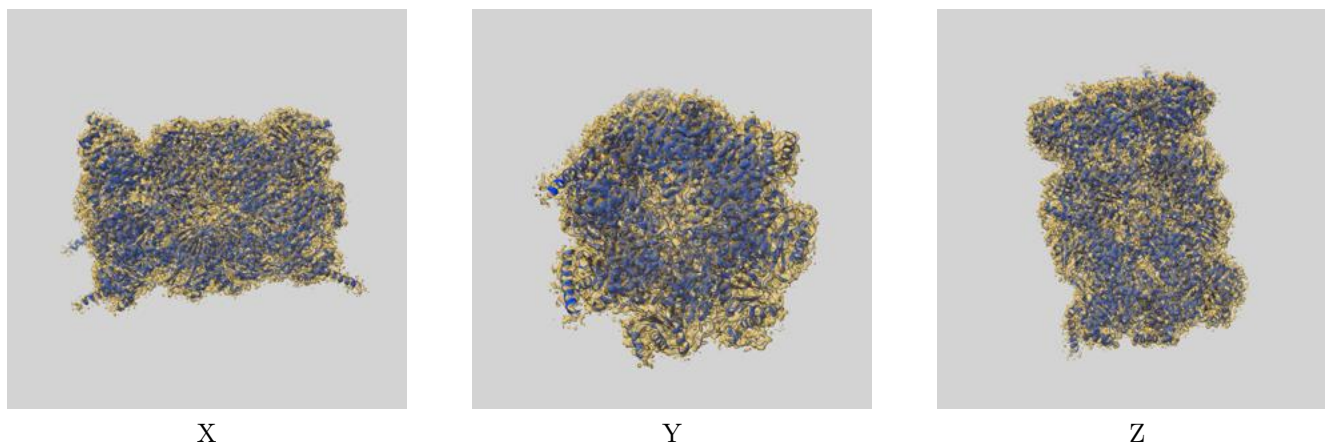
8 Fourier-Shell correlation

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

9 Map-model fit [i](#)

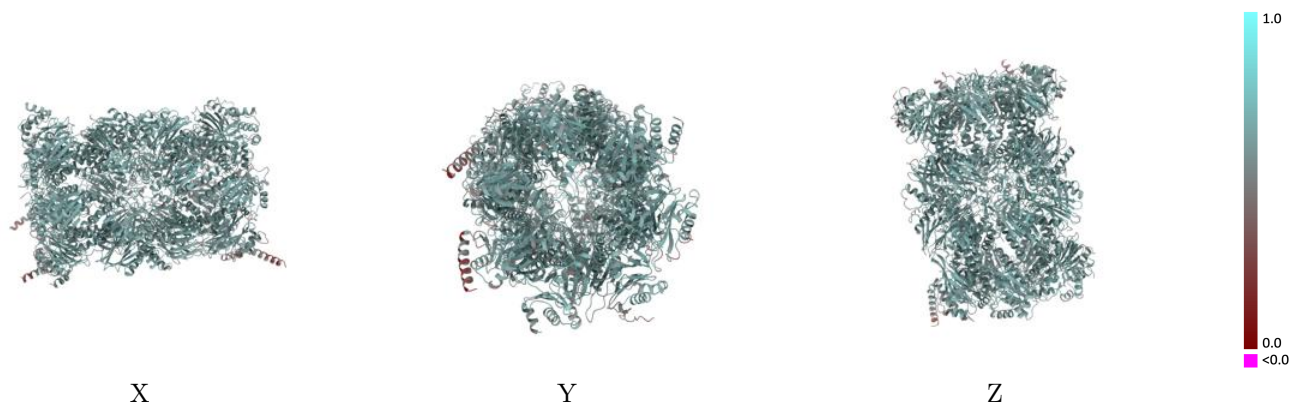
This section contains information regarding the fit between EMDB map EMD-4590 and PDB model 6QM7. Per-residue inclusion information can be found in section 3 on page 9.

9.1 Map-model overlay [i](#)



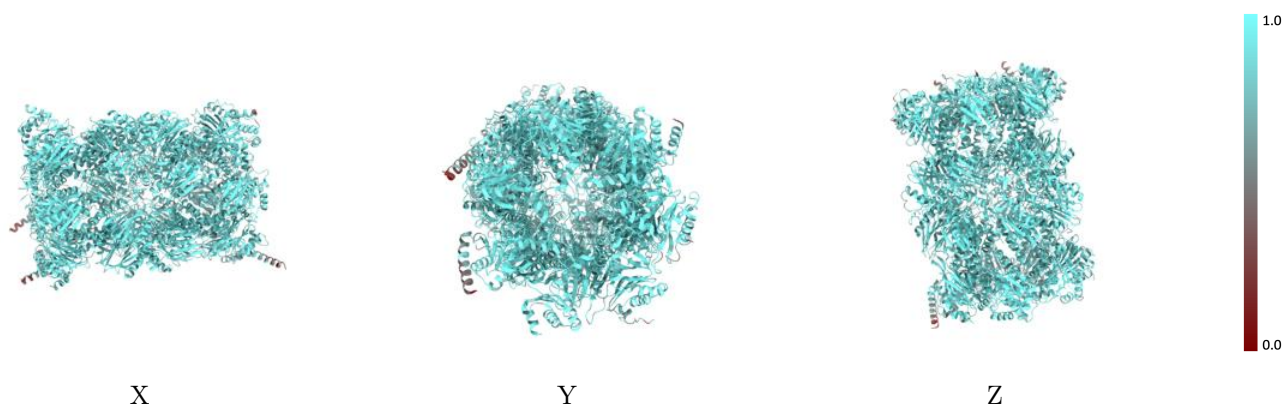
The images above show the 3D surface view of the map at the recommended contour level 0.0667 at 50% transparency in yellow overlaid with a ribbon representation of the model coloured in blue. These images allow for the visual assessment of the quality of fit between the atomic model and the map.

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



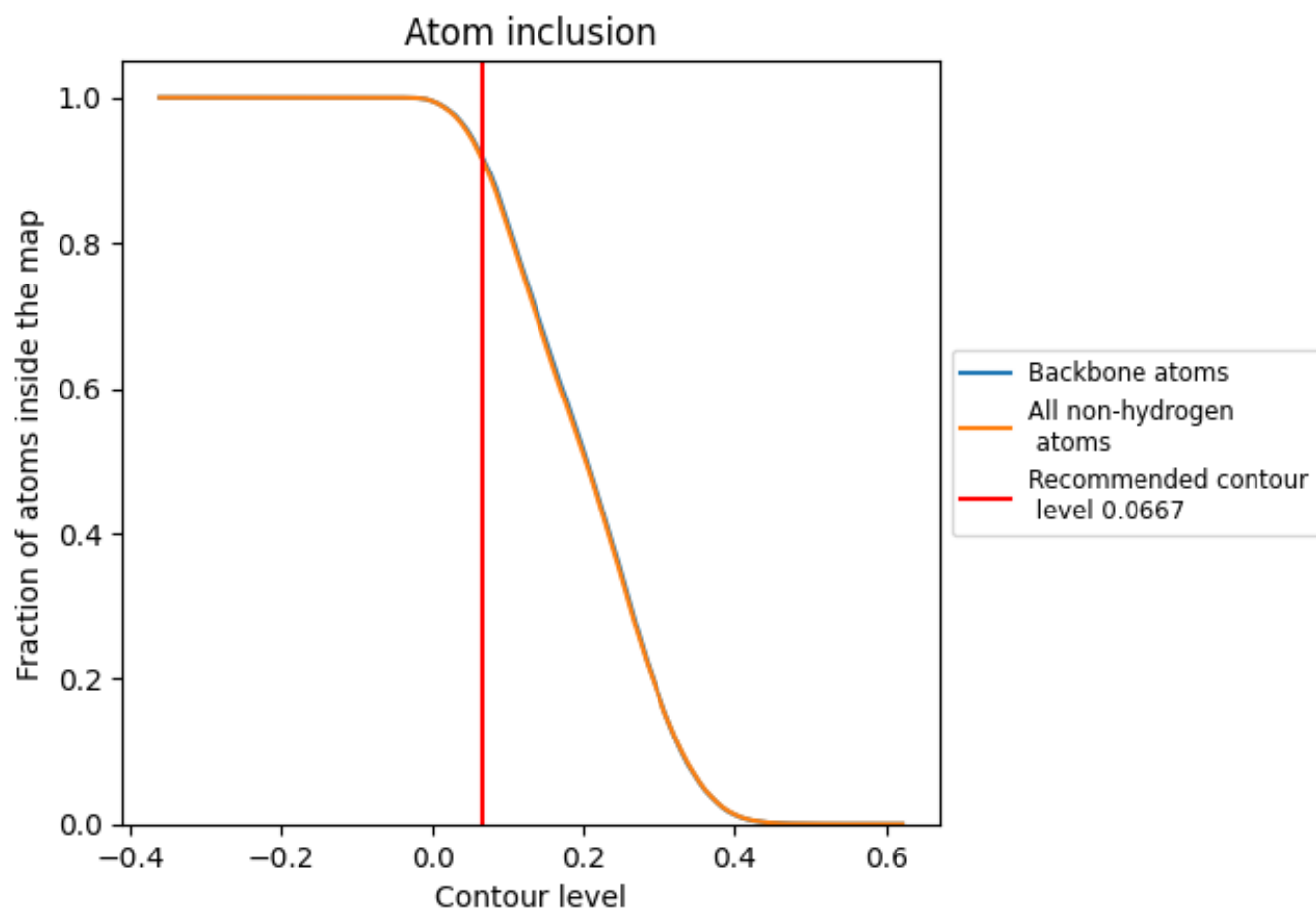
The images above show the model with each residue coloured according to its Q-score. This shows their resolvability in the map with higher Q-score values reflecting better resolvability. Please note: Q-score is calculating the resolvability of atoms, and thus high values are only expected at resolutions 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 (0.0667).



























































9.4 Atom inclusion [i](#)



At the recommended contour level, 92% of all backbone atoms, 91% 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 (0.0667) and Q-score for the entire model and for each chain.

Chain	Atom inclusion	Q-score
All	 0.9140	 0.6070
A	 0.9098	 0.6080
B	 0.9067	 0.6070
C	 0.8768	 0.5890
D	 0.8670	 0.5780
E	 0.8926	 0.5980
F	 0.9042	 0.6040
G	 0.9150	 0.6100
H	 0.9606	 0.6310
I	 0.9274	 0.6180
J	 0.9431	 0.6280
K	 0.9353	 0.6140
L	 0.9495	 0.6310
M	 0.9442	 0.6180
N	 0.9401	 0.6280
O	 0.9147	 0.6040
P	 0.9125	 0.6030
Q	 0.8856	 0.5750
R	 0.8670	 0.5680
S	 0.9060	 0.5930
T	 0.9037	 0.5980
U	 0.9145	 0.6050
V	 0.9504	 0.6270
W	 0.9268	 0.6080
X	 0.9287	 0.6200
Y	 0.9378	 0.6110
Z	 0.9411	 0.6250
a	 0.9316	 0.6110
b	 0.9305	 0.6220

