Full wwPDB EM Validation Report

May 4, 2025 – 03:32 PM EDT

PDB ID	:	8F39 / pdb_00008f39
EMDB ID	:	EMD-28835
Title	:	Yeast ATP synthase in conformation-2, at pH 6
Authors	:	Sharma, S.; Patel, H.; Luo, M.; Mueller, D.M.; Liao, M.
Deposited on	:	2022-11-09
Resolution	:	3.50 Å(reported)

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:

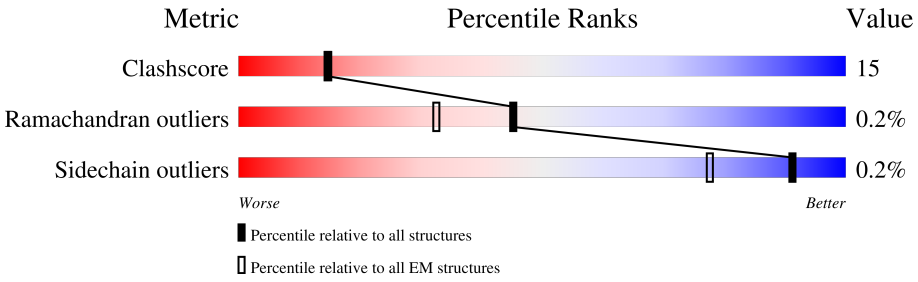
EMDB validation analysis	:	0.0.1.dev118
Mogul	:	2022.3.0, CSD as543be (2022)
MolProbity	:	4-5-2 with Phenix2.0rc1
buster-report	:	1.1.7 (2018)
Percentile statistics	:	20231227.v01 (using entries in the PDB archive December 27th 2023)
MapQ	:	1.9.13
Ideal geometry (proteins)	:	Engh & Huber (2001)
Ideal geometry (DNA, RNA)	:	Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP)	:	2.43.1

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 3.50 Å.

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



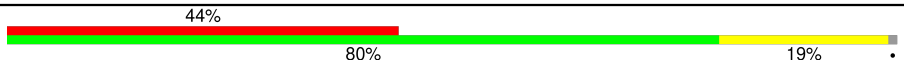
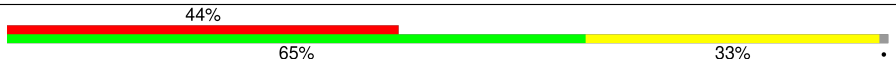
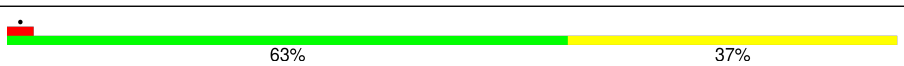
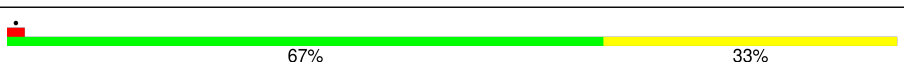
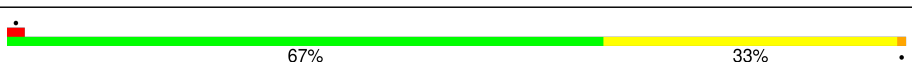
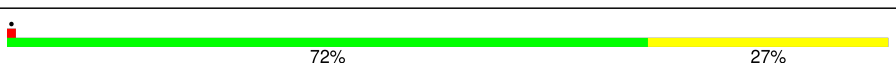
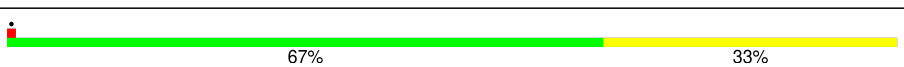
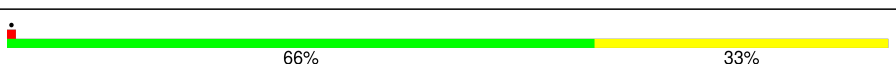
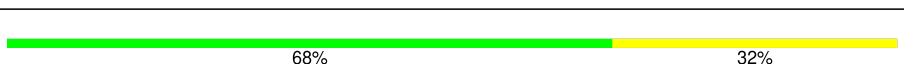
Metric	Whole archive (#Entries)	EM structures (#Entries)
Clashscore	210492	15764
Ramachandran outliers	207382	16835
Sidechain outliers	206894	16415

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 <=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	G	261	8% 66% 33%
2	Z	155	51% 69% 30%
3	7	171	82% 70% 30%
4	6	89	54% 63% 35%
5	U	85	79% 71% 29%
6	K	75	52% 77% 23%
6	L	75	41% 75% 24%
6	M	75	27% 75% 24%

Continued on next page...

Continued from previous page...

Mol	Chain	Length	Quality of chain
6	N	75	
6	O	75	
6	P	75	
6	Q	75	
6	R	75	
6	S	75	
6	T	75	
7	8	41	
8	X	224	
9	J	37	
10	Y	166	
11	A	507	
11	B	507	
11	C	507	
12	D	473	
12	E	473	
12	F	473	
13	H	132	
14	I	59	

2 Entry composition

There are 16 unique types of molecules in this entry. The entry contains 38767 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 ATP synthase subunit gamma, mitochondrial.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
1	G	261	2032	1276	353	393	10	0	0

There are 9 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
G	?	-	VAL	deletion	UNP P38077
G	?	-	GLU	deletion	UNP P38077
G	?	-	ALA	deletion	UNP P38077
G	?	-	THR	deletion	UNP P38077
G	?	-	GLU	deletion	UNP P38077
G	?	-	THR	deletion	UNP P38077
G	?	-	GLY	deletion	UNP P38077
G	?	-	ALA	deletion	UNP P38077
G	?	-	PRO	deletion	UNP P38077

- Molecule 2 is a protein called ATP synthase subunit 4, mitochondrial.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
2	Z	155	1232	778	211	242	1	0	0

- Molecule 3 is a protein called ATP synthase subunit d, mitochondrial.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
3	7	171	1363	856	236	268	3	0	0

- Molecule 4 is a protein called ATP synthase subunit H, mitochondrial.

Mol	Chain	Residues	Atoms				AltConf	Trace
			Total	C	N	O		
4	6	89	710	441	114	155	0	0

- Molecule 5 is a protein called ATP synthase subunit f, mitochondrial.

Mol	Chain	Residues	Atoms					AltConf	Trace
5	U	85	Total	C	N	O	S	0	0
			639	420	109	109	1		

- Molecule 6 is a protein called ATP synthase subunit 9, mitochondrial.

Mol	Chain	Residues	Atoms					AltConf	Trace
6	S	74	Total	C	N	O	S	0	0
			533	357	82	90	4		
6	T	74	Total	C	N	O	S	0	0
			533	357	82	90	4		
6	K	75	Total	C	N	O	S	0	0
			537	359	83	91	4		
6	L	74	Total	C	N	O	S	0	0
			533	357	82	90	4		
6	M	74	Total	C	N	O	S	0	0
			533	357	82	90	4		
6	N	74	Total	C	N	O	S	0	0
			533	357	82	90	4		
6	O	74	Total	C	N	O	S	0	0
			533	357	82	90	4		
6	P	75	Total	C	N	O	S	0	0
			537	359	83	91	4		
6	Q	74	Total	C	N	O	S	0	0
			533	357	82	90	4		
6	R	74	Total	C	N	O	S	0	0
			533	357	82	90	4		

- Molecule 7 is a protein called ATP synthase protein 8.

Mol	Chain	Residues	Atoms					AltConf	Trace
7	8	41	Total	C	N	O	S	0	0
			356	250	51	52	3		

- Molecule 8 is a protein called ATP synthase subunit a.

Mol	Chain	Residues	Atoms					AltConf	Trace
8	X	224	Total	C	N	O	S	0	0
			1772	1210	265	287	10		

- Molecule 9 is a protein called ATP synthase subunit J, mitochondrial.

Mol	Chain	Residues	Atoms					AltConf	Trace
9	J	37	Total	C	N	O	S	0	0
			292	197	45	48	2		

- Molecule 10 is a protein called ATP synthase subunit 5, mitochondrial.

Mol	Chain	Residues	Atoms					AltConf	Trace
10	Y	166	Total	C	N	O	S	0	0
			1254	799	217	237	1		

- Molecule 11 is a protein called ATP synthase subunit alpha, mitochondrial.

Mol	Chain	Residues	Atoms					AltConf	Trace
11	A	507	Total	C	N	O	S	0	0
			3858	2435	679	741	3		
11	B	506	Total	C	N	O	S	0	0
			3846	2426	678	739	3		
11	C	505	Total	C	N	O	S	0	0
			3844	2426	676	739	3		

- Molecule 12 is a protein called ATP synthase subunit beta, mitochondrial.

Mol	Chain	Residues	Atoms					AltConf	Trace
12	D	473	Total	C	N	O	S	0	0
			3572	2262	608	696	6		
12	E	473	Total	C	N	O	S	0	0
			3572	2262	608	696	6		
12	F	472	Total	C	N	O	S	0	0
			3566	2259	607	694	6		

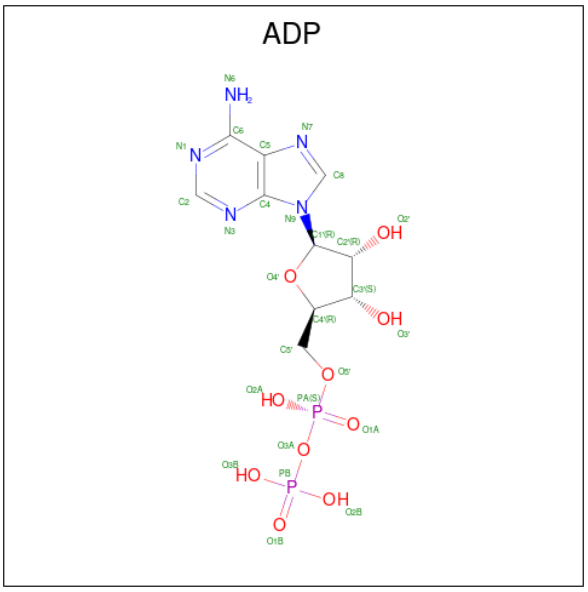
- Molecule 13 is a protein called ATP synthase subunit delta, mitochondrial.

Mol	Chain	Residues	Atoms					AltConf	Trace
13	H	132	Total	C	N	O	S	0	0
			990	624	165	199	2		

- Molecule 14 is a protein called ATP synthase subunit epsilon, mitochondrial.

Mol	Chain	Residues	Atoms				AltConf	Trace
14	I	59	Total	C	N	O	0	0
			392	243	71	78		

- Molecule 15 is ADENOSINE-5'-DIPHOSPHATE (CCD ID: ADP) (formula: $C_{10}H_{15}N_5O_{10}P_2$) (labeled as "Ligand of Interest" by depositor).



Mol	Chain	Residues	Atoms					AltConf
15	A	1	Total	C	N	O	P	0
			27	10	5	10	2	
15	B	1	Total	C	N	O	P	0
			27	10	5	10	2	
15	C	1	Total	C	N	O	P	0
			27	10	5	10	2	
15	E	1	Total	C	N	O	P	0
			27	10	5	10	2	
15	F	1	Total	C	N	O	P	0
			27	10	5	10	2	

- Molecule 16 is MAGNESIUM ION (CCD ID: MG) (formula: Mg) (labeled as "Ligand of Interest" by depositor).

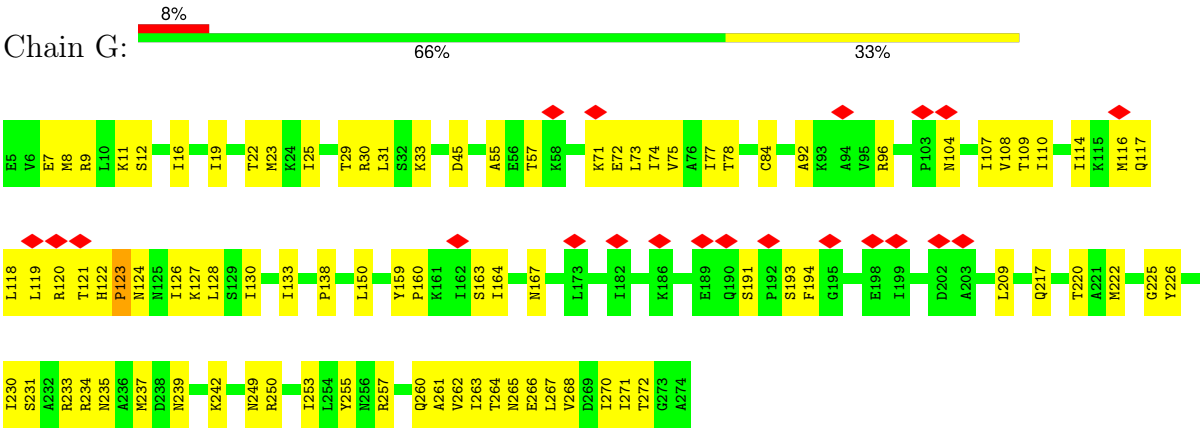
Mol	Chain	Residues	Atoms		AltConf
16	A	1	Total	Mg	0
			1	1	
16	B	1	Total	Mg	0
			1	1	
16	C	1	Total	Mg	0
			1	1	
16	E	1	Total	Mg	0
			1	1	

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.

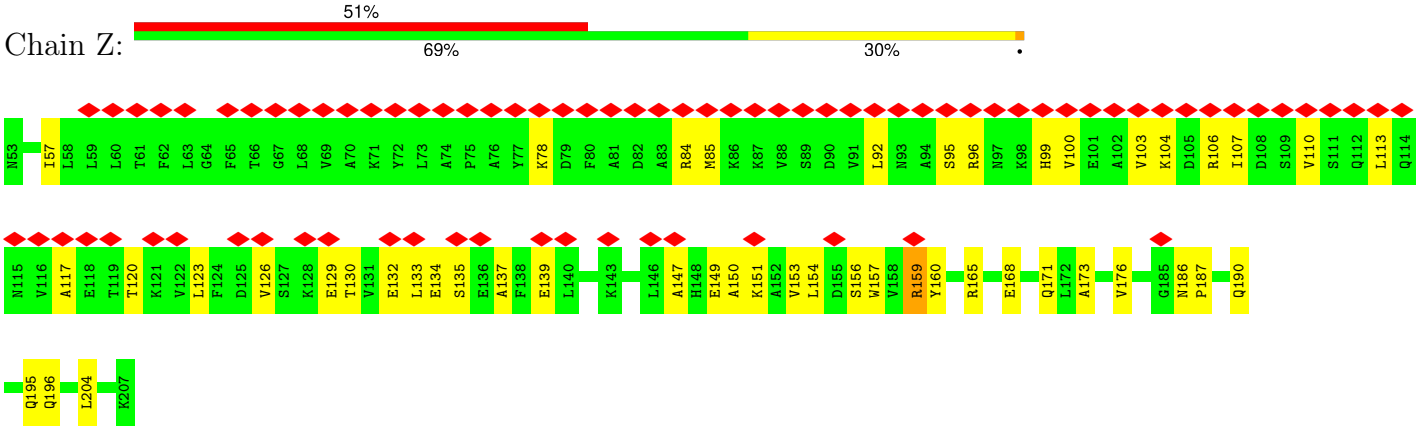
• Molecule 1: ATP synthase subunit gamma, mitochondrial

Chain G:



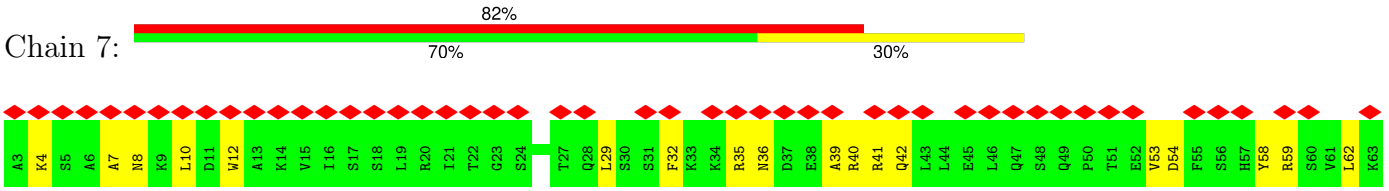
• Molecule 2: ATP synthase subunit 4, mitochondrial

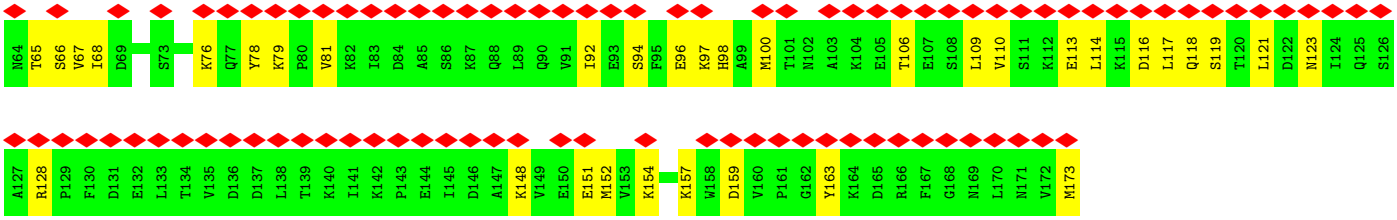
Chain Z:



• Molecule 3: ATP synthase subunit d, mitochondrial

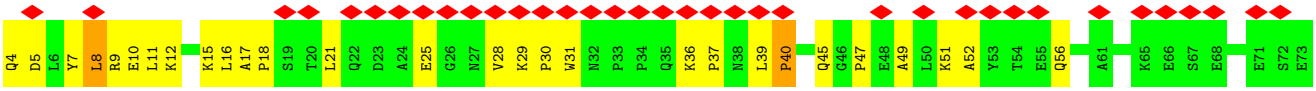
Chain 7:

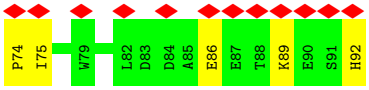




• Molecule 4: ATP synthase subunit H, mitochondrial

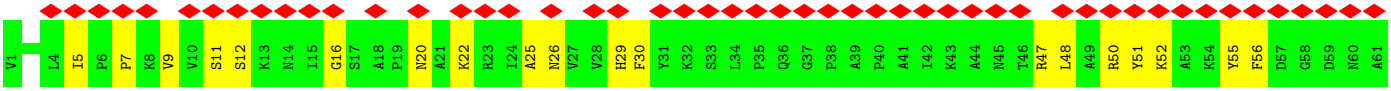
Chain 6:





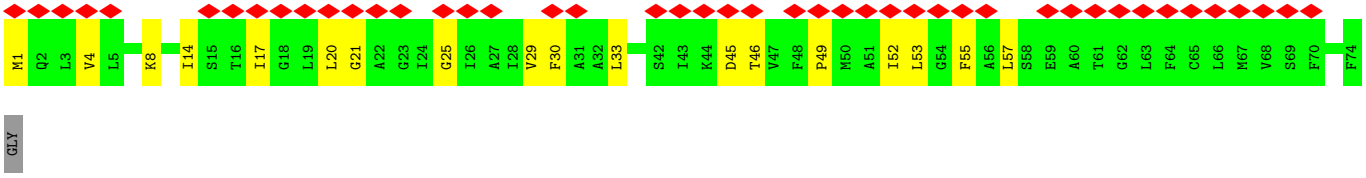
• Molecule 5: ATP synthase subunit f, mitochondrial

Chain U:



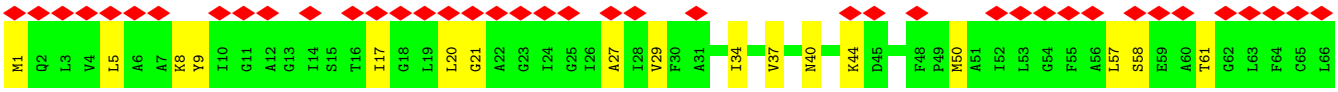
• Molecule 6: ATP synthase subunit 9, mitochondrial

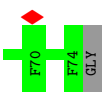
Chain S:



• Molecule 6: ATP synthase subunit 9, mitochondrial

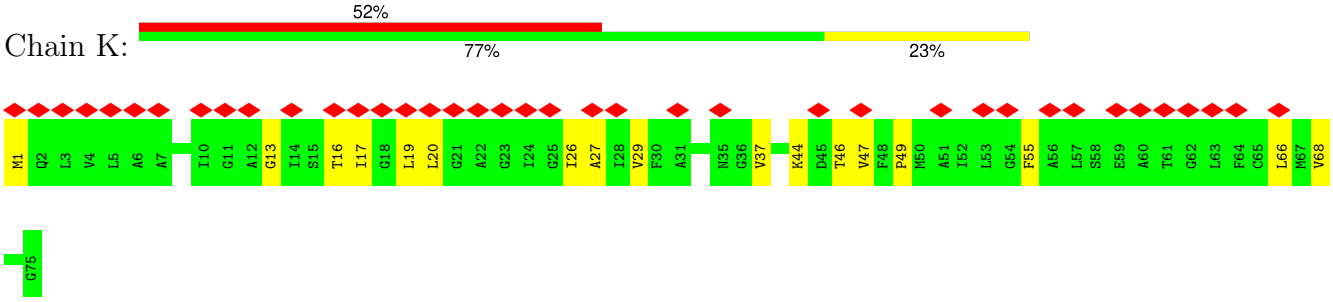
Chain T:





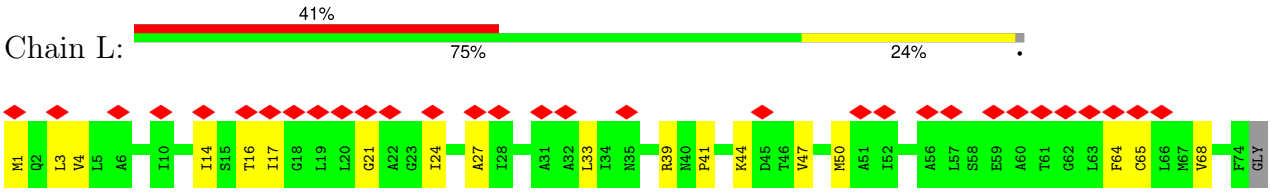
• Molecule 6: ATP synthase subunit 9, mitochondrial

Chain K:



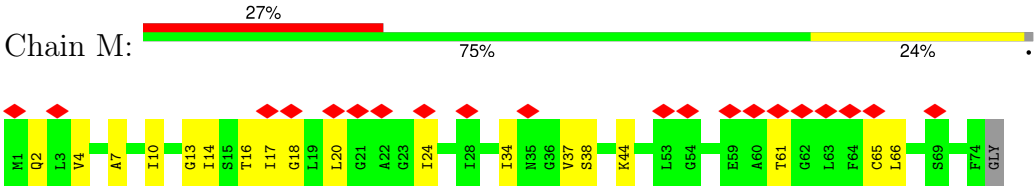
• Molecule 6: ATP synthase subunit 9, mitochondrial

Chain L:



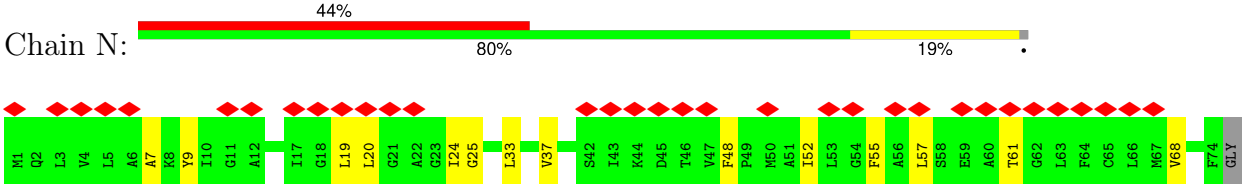
• Molecule 6: ATP synthase subunit 9, mitochondrial

Chain M:



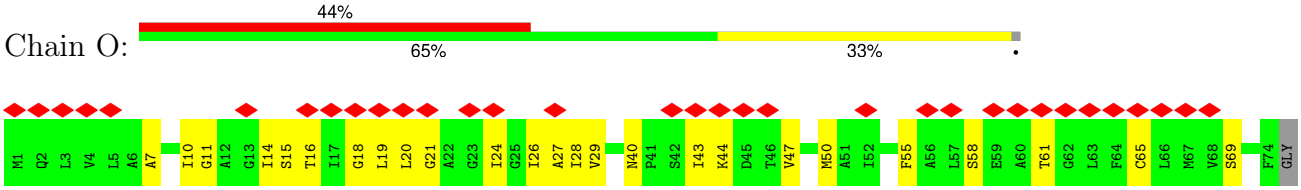
• Molecule 6: ATP synthase subunit 9, mitochondrial

Chain N:



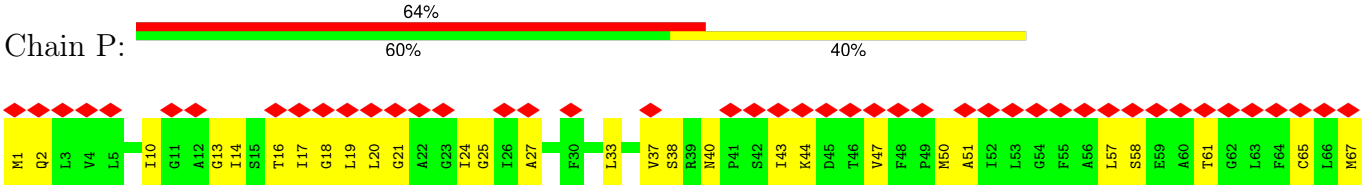
• Molecule 6: ATP synthase subunit 9, mitochondrial

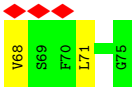
Chain O:



• Molecule 6: ATP synthase subunit 9, mitochondrial

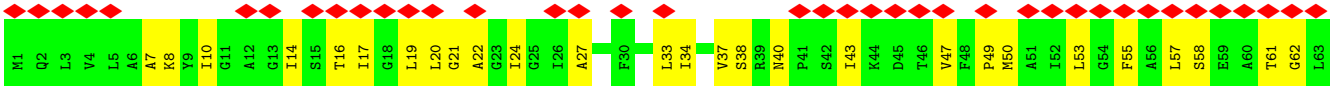
Chain P:

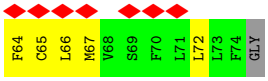




• Molecule 6: ATP synthase subunit 9, mitochondrial

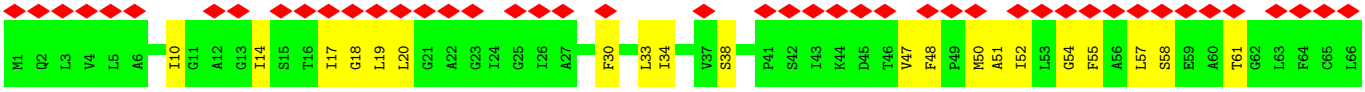
Chain Q:

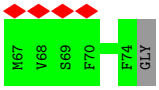




• Molecule 6: ATP synthase subunit 9, mitochondrial

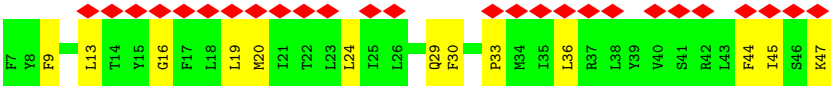
Chain R:





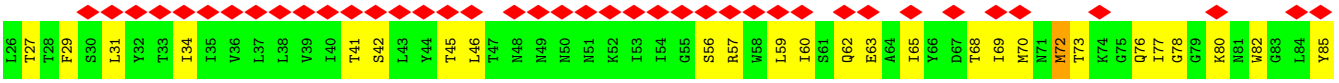
• Molecule 7: ATP synthase protein 8

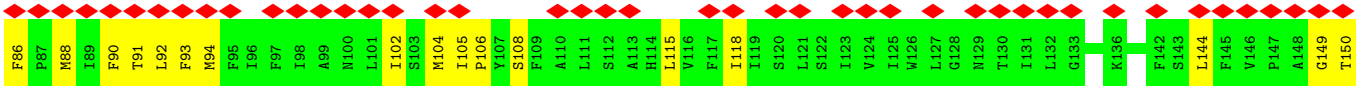
Chain 8:

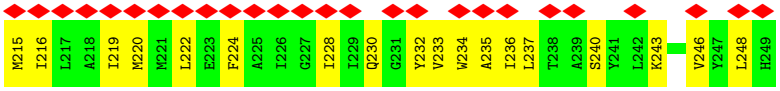


• Molecule 8: ATP synthase subunit a

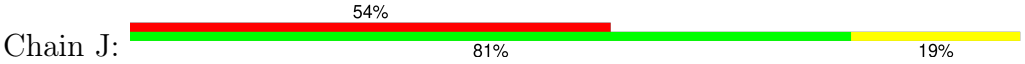
Chain X:

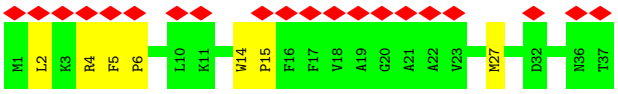




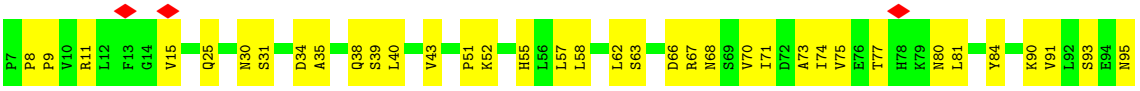


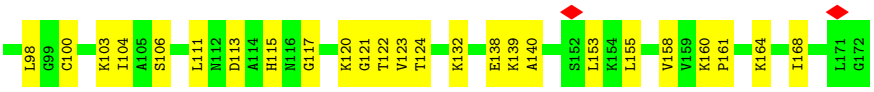
• Molecule 9: ATP synthase subunit J, mitochondrial



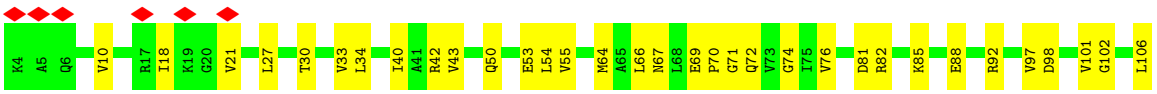


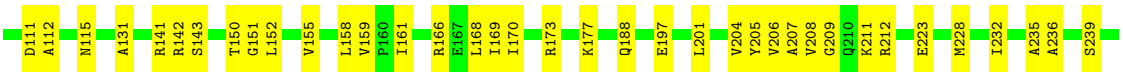
• Molecule 10: ATP synthase subunit 5, mitochondrial

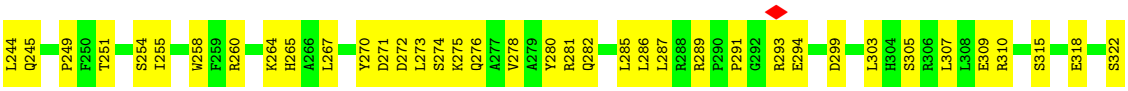


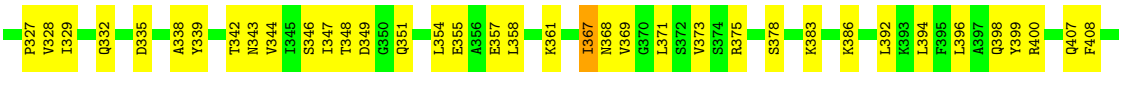


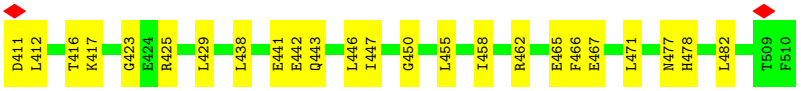
• Molecule 11: ATP synthase subunit alpha, mitochondrial



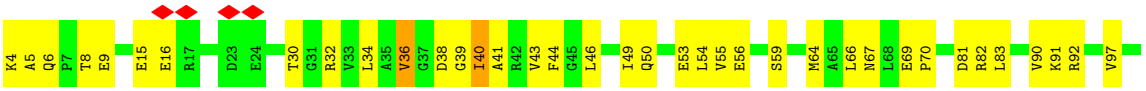


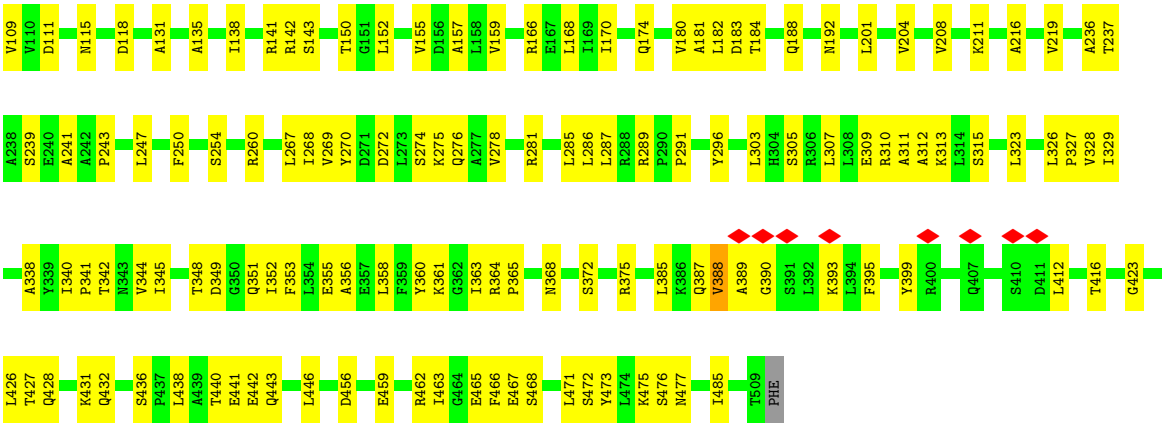






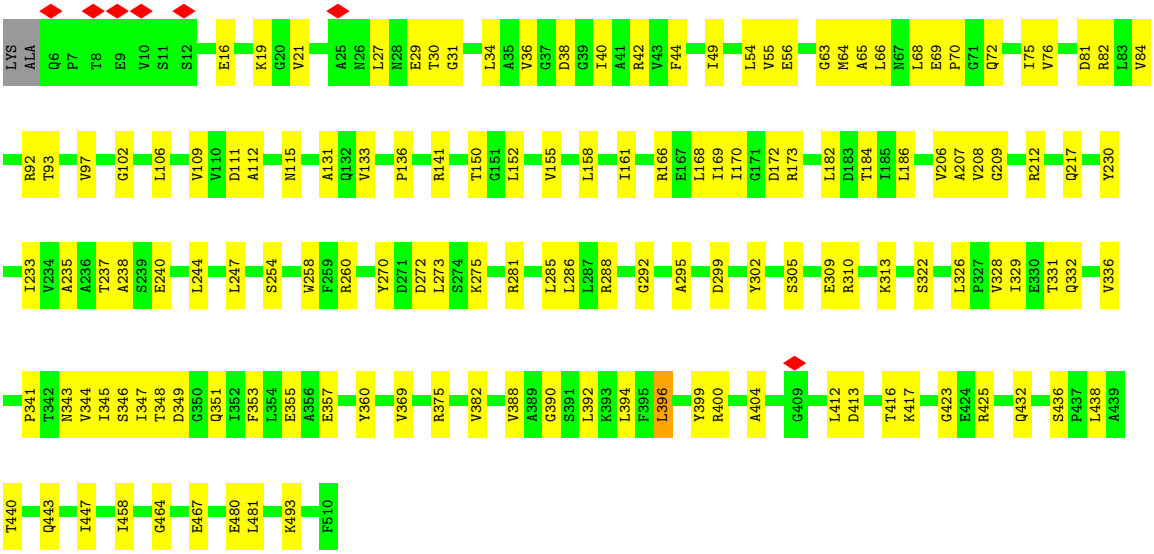
• Molecule 11: ATP synthase subunit alpha, mitochondrial





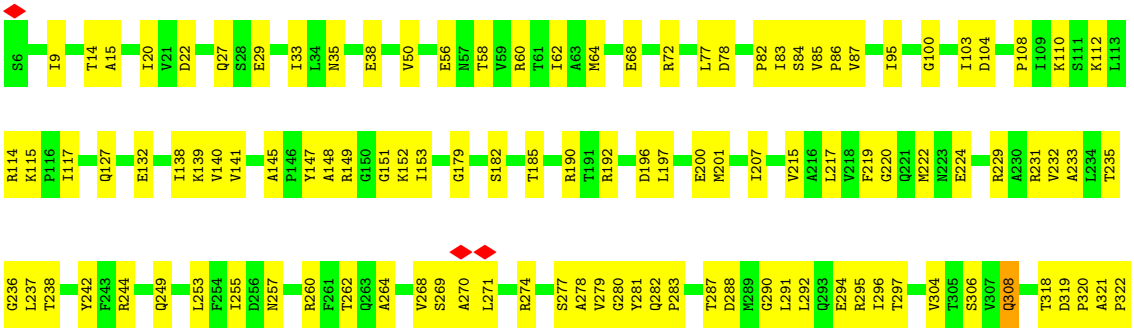
• Molecule 11: ATP synthase subunit alpha, mitochondrial

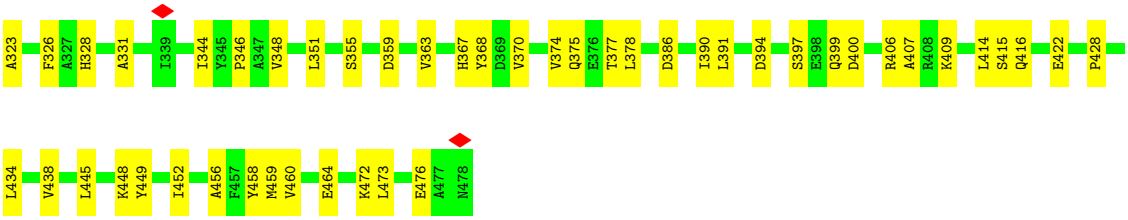
Chain C:



• Molecule 12: ATP synthase subunit beta, mitochondrial

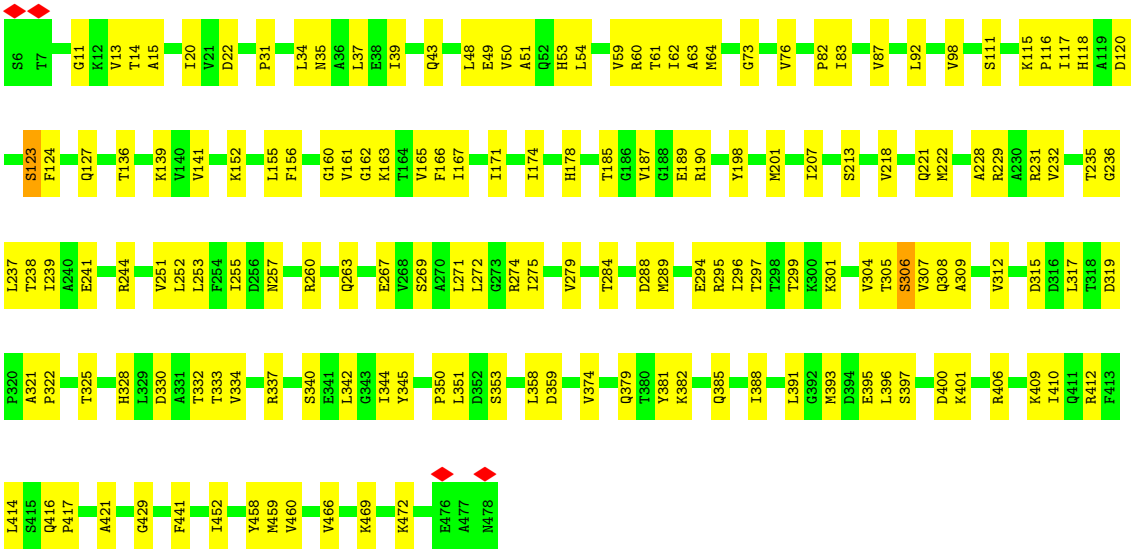
Chain D:





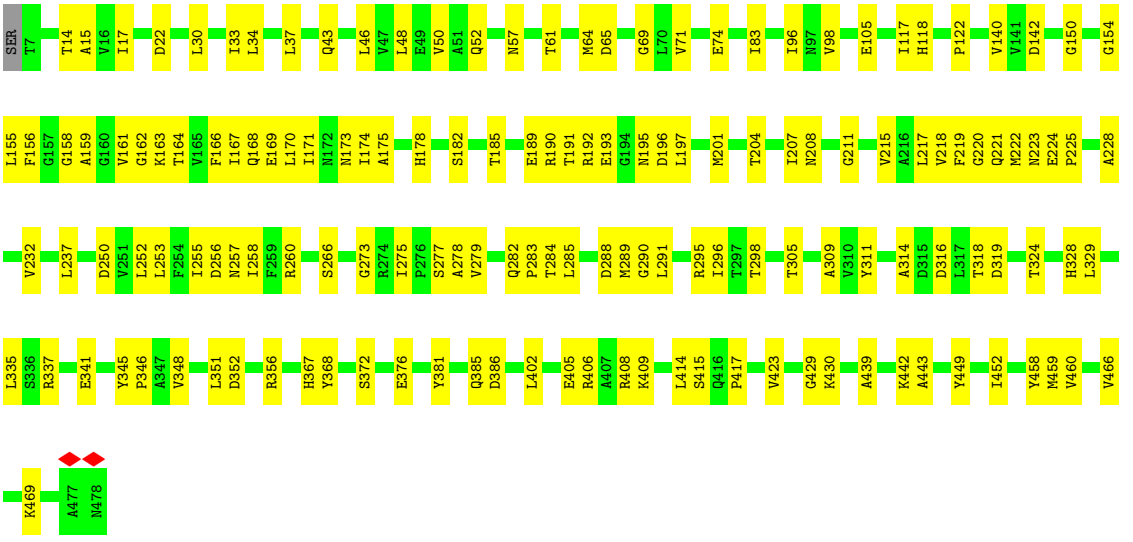
• Molecule 12: ATP synthase subunit beta, mitochondrial

Chain E:



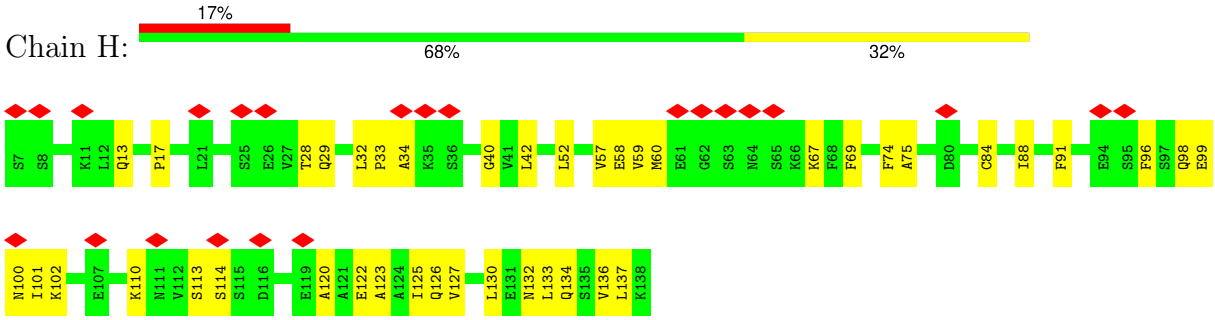
• Molecule 12: ATP synthase subunit beta, mitochondrial

Chain F:



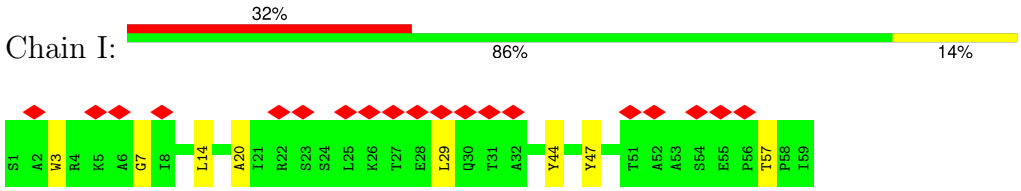
• Molecule 13: ATP synthase subunit delta, mitochondrial

Chain H:



• Molecule 14: ATP synthase subunit epsilon, mitochondrial

Chain I:



4 Experimental information (i)

Property	Value	Source
EM reconstruction method	SINGLE PARTICLE	Depositor
Imposed symmetry	POINT, Not provided	
Number of particles used	99780	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 ($e^-/Å^2$)	52	Depositor
Minimum defocus (nm)	700	Depositor
Maximum defocus (nm)	1500	Depositor
Magnification	Not provided	
Image detector	FEI FALCON IV (4k x 4k)	Depositor
Maximum map value	0.078	Depositor
Minimum map value	-0.029	Depositor
Average map value	-0.000	Depositor
Map value standard deviation	0.004	Depositor
Recommended contour level	0.009	Depositor
Map size (Å)	256.0, 256.0, 256.0	wwPDB
Map dimensions	256, 256, 256	wwPDB
Map angles (°)	90.0, 90.0, 90.0	wwPDB
Pixel spacing (Å)	1.0, 1.0, 1.0	Depositor

5 Model quality

5.1 Standard geometry

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

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	G	0.23	1/2057 (0.0%)	0.56	2/2767 (0.1%)
2	Z	0.13	0/1246	0.41	1/1678 (0.1%)
3	7	0.18	0/1382	0.50	0/1858
4	6	0.19	0/725	0.50	1/988 (0.1%)
5	U	0.12	0/659	0.36	0/895
6	K	0.14	0/545	0.33	0/737
6	L	0.14	0/541	0.30	0/732
6	M	0.13	0/541	0.30	0/732
6	N	0.15	0/541	0.33	0/732
6	O	0.13	0/541	0.32	0/732
6	P	0.16	0/545	0.34	0/737
6	Q	0.19	0/541	0.42	0/732
6	R	0.16	0/541	0.36	0/732
6	S	0.18	0/541	0.41	0/732
6	T	0.17	0/541	0.32	0/732
7	8	0.12	0/366	0.40	0/492
8	X	0.16	0/1820	0.46	2/2483 (0.1%)
9	J	0.13	0/302	0.36	0/410
10	Y	0.17	0/1272	0.48	0/1717
11	A	0.14	0/3916	0.36	0/5298
11	B	0.13	0/3903	0.38	0/5282
11	C	0.13	0/3902	0.32	0/5280
12	D	0.13	0/3628	0.36	0/4919
12	E	0.15	0/3628	0.39	1/4919 (0.0%)
12	F	0.14	0/3622	0.35	0/4911
13	H	0.13	0/1004	0.36	0/1359
14	I	0.09	0/398	0.32	0/547
All	All	0.15	1/39248 (0.0%)	0.39	7/53133 (0.0%)

All (1) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
1	G	123	PRO	CG-CD	-5.40	1.32	1.50

All (7) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
1	G	123	PRO	CA-N-CD	-13.69	92.84	112.00
8	X	72	MET	CA-CB-CG	9.00	132.11	114.10
1	G	123	PRO	N-CD-CG	-7.13	92.51	103.20
4	6	40	PRO	CA-N-CD	-6.67	102.67	112.00
12	E	123	SER	CB-CA-C	-5.31	110.47	116.63
8	X	72	MET	N-CA-CB	5.05	117.46	109.94
2	Z	159	ARG	CA-CB-CG	5.04	124.18	114.10

There are no chirality outliers.

There are no planarity outliers.

5.2 Too-close contacts (i)

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

Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
1	G	2032	0	2093	73	0
2	Z	1232	0	1256	49	0
3	7	1363	0	1389	55	0
4	6	710	0	668	33	0
5	U	639	0	615	17	0
6	K	537	0	582	15	0
6	L	533	0	579	21	0
6	M	533	0	579	23	0
6	N	533	0	579	14	0
6	O	533	0	579	24	0
6	P	537	0	582	33	0
6	Q	533	0	579	41	0
6	R	533	0	579	23	0
6	S	533	0	579	26	0
6	T	533	0	579	26	0
7	8	356	0	379	12	0
8	X	1772	0	1873	70	0
9	J	292	0	298	7	0

Continued on next page...

Continued from previous page...

Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
10	Y	1254	0	1318	47	0
11	A	3858	0	3941	138	0
11	B	3846	0	3932	136	0
11	C	3844	0	3923	106	0
12	D	3572	0	3638	122	0
12	E	3572	0	3638	130	0
12	F	3566	0	3633	117	0
13	H	990	0	999	35	0
14	I	392	0	306	8	0
15	A	27	0	12	0	0
15	B	27	0	12	2	0
15	C	27	0	12	0	0
15	E	27	0	12	7	0
15	F	27	0	12	3	0
16	A	1	0	0	0	0
16	B	1	0	0	0	0
16	C	1	0	0	0	0
16	E	1	0	0	0	0
All	All	38767	0	39755	1174	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 15.

All (1174) 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)
3:7:39:ALA:O	3:7:42:GLN:NE2	2.07	0.87
6:N:25:GLY:HA2	6:O:27:ALA:HB2	1.60	0.83
12:E:237:LEU:HD13	12:E:295:ARG:HB2	1.61	0.82
12:D:270:ALA:HB2	12:D:282:GLN:HA	1.61	0.81
1:G:242:LYS:HE3	11:A:407:GLN:HB3	1.61	0.81
11:A:204:VAL:HG23	11:A:232:ILE:HB	1.63	0.81
12:F:257:ASN:H	12:F:309:ALA:HB3	1.43	0.81
11:B:82:ARG:NH2	12:E:35:ASN:OD1	2.15	0.80
12:E:289:MET:HE3	12:E:325:THR:HB	1.62	0.80
2:Z:195:GLN:HG3	4:6:5:ASP:H	1.47	0.79
12:F:140:VAL:HG11	12:F:348:VAL:HG11	1.65	0.78
6:P:17:ILE:HG21	6:Q:17:ILE:HG13	1.66	0.78
1:G:116:MET:HA	1:G:119:LEU:HD23	1.65	0.77
11:A:293:ARG:HB2	11:A:339:TYR:HE2	1.48	0.77
1:G:262:VAL:HA	1:G:265:ASN:HD22	1.50	0.77

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
11:B:30:THR:OG1	11:B:90:VAL:O	2.03	0.76
6:S:21:GLY:H	6:T:20:LEU:HD12	1.51	0.76
6:O:50:MET:HE3	6:P:33:LEU:HD23	1.68	0.76
12:E:160:GLY:HA2	15:E:501:ADP:H5'1	1.68	0.75
12:D:296:ILE:HD13	12:D:306:SER:HB2	1.69	0.75
6:P:68:VAL:HG11	6:Q:16:THR:HG21	1.69	0.75
2:Z:96:ARG:HG2	3:7:128:ARG:HD2	1.67	0.75
11:A:375:ARG:NH2	15:E:501:ADP:O5'	2.19	0.74
12:E:160:GLY:O	12:E:162:GLY:N	2.19	0.74
12:E:345:TYR:HE2	15:E:501:ADP:H1'	1.52	0.74
4:6:86:GLU:HA	4:6:89:LYS:HD3	1.68	0.74
12:F:169:GLU:O	12:F:173:ASN:ND2	2.20	0.74
13:H:98:GLN:HE22	13:H:100:ASN:HB2	1.50	0.74
6:Q:50:MET:HE1	6:R:34:ILE:HG13	1.70	0.73
1:G:263:ILE:HG21	12:D:279:VAL:HG13	1.68	0.73
3:7:106:THR:O	3:7:110:VAL:HG23	1.89	0.73
11:B:342:THR:HG21	12:F:314:ALA:HA	1.69	0.73
1:G:121:THR:O	1:G:123:PRO:HD2	1.88	0.72
6:Q:53:LEU:HD21	8:X:236:ILE:HG21	1.70	0.72
6:R:47:VAL:HA	6:R:50:MET:HE1	1.69	0.72
1:G:266:GLU:O	1:G:270:ILE:HD12	1.89	0.72
11:C:169:ILE:HB	11:C:328:VAL:HG22	1.71	0.72
6:S:30:PHE:HE1	6:R:50:MET:HG2	1.54	0.72
1:G:261:ALA:O	1:G:265:ASN:ND2	2.22	0.72
11:B:59:SER:HB2	11:B:83:LEU:HB3	1.70	0.72
11:A:69:GLU:HG2	11:A:70:PRO:HD2	1.72	0.72
11:B:168:LEU:HB2	11:B:348:THR:HG21	1.71	0.71
11:C:168:LEU:HB2	11:C:348:THR:HG21	1.72	0.70
11:A:101:VAL:HG12	11:A:255:ILE:HD13	1.74	0.69
12:E:167:ILE:O	12:E:171:ILE:HD12	1.92	0.69
8:X:176:ARG:O	8:X:180:ASN:ND2	2.25	0.69
10:Y:132:LYS:HE2	10:Y:132:LYS:HA	1.73	0.69
12:E:388:ILE:HD11	12:E:396:LEU:HD11	1.73	0.69
2:Z:113:LEU:HB2	3:7:110:VAL:HG11	1.75	0.69
6:L:24:ILE:HG23	6:M:24:ILE:HD13	1.75	0.69
8:X:188:MET:HE1	8:X:220:MET:HE1	1.75	0.69
12:D:377:THR:HG22	12:D:407:ALA:HB2	1.75	0.69
11:B:208:VAL:HA	11:B:236:ALA:HB3	1.74	0.68
11:C:158:LEU:HD21	11:C:392:LEU:HG	1.73	0.68
12:E:315:ASP:OD2	12:E:337:ARG:NE	2.25	0.68
12:E:64:MET:HE3	12:E:64:MET:HA	1.76	0.68

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:G:249:ASN:OD1	1:G:250:ARG:N	2.26	0.68
1:G:257:ARG:NH1	11:A:335:ASP:OD2	2.27	0.68
12:E:136:THR:HA	12:E:174:ILE:HD11	1.76	0.68
1:G:45:ASP:HB2	1:G:220:THR:HG21	1.76	0.68
8:X:105:ILE:HB	8:X:108:SER:HB3	1.76	0.68
11:C:260:ARG:NH1	11:C:310:ARG:O	2.26	0.68
8:X:78:GLY:HA2	8:X:82:TRP:HB3	1.75	0.68
11:B:69:GLU:N	11:B:69:GLU:OE1	2.26	0.68
1:G:191:SER:HB2	1:G:194:PHE:HB2	1.76	0.67
4:6:89:LYS:NZ	5:U:9:VAL:O	2.27	0.67
11:B:355:GLU:N	11:B:355:GLU:OE2	2.28	0.67
6:T:50:MET:HE1	6:K:37:VAL:HG21	1.75	0.67
2:Z:57:ILE:HD13	8:X:195:THR:HG23	1.74	0.67
12:D:196:ASP:O	12:D:200:GLU:HG2	1.95	0.67
11:A:142:ARG:NH1	11:A:143:SER:OG	2.28	0.67
12:E:156:PHE:HB2	12:E:334:VAL:HA	1.75	0.67
11:A:369:VAL:HG21	11:A:396:LEU:HD12	1.76	0.67
12:E:344:ILE:HD12	12:E:344:ILE:H	1.58	0.67
12:E:244:ARG:NH1	12:E:297:THR:O	2.28	0.66
12:E:332:THR:OG1	12:E:353:SER:O	2.12	0.66
11:B:38:ASP:OD1	12:E:274:ARG:NH1	2.28	0.66
11:C:209:GLY:HA3	11:C:275:LYS:HD2	1.78	0.66
12:F:155:LEU:HB2	12:F:309:ALA:HA	1.76	0.66
11:A:281:ARG:O	11:A:285:LEU:HD12	1.96	0.66
11:A:208:VAL:HA	11:A:236:ALA:HB3	1.76	0.66
11:C:27:LEU:HD13	11:C:31:GLY:HA2	1.77	0.66
12:E:82:PRO:HG2	12:E:116:PRO:HB3	1.77	0.66
12:E:275:ILE:HD12	12:E:275:ILE:H	1.60	0.66
12:F:158:GLY:O	12:F:163:LYS:NZ	2.29	0.65
8:X:73:THR:HG22	8:X:82:TRP:HB2	1.77	0.65
11:C:172:ASP:OD1	11:C:173:ARG:N	2.27	0.65
12:D:397:SER:OG	12:D:400:ASP:OD2	2.13	0.65
12:E:187:VAL:HG12	12:E:260:ARG:HB2	1.79	0.65
11:B:184:THR:O	11:B:188:GLN:NE2	2.27	0.65
12:D:185:THR:HG21	12:D:233:ALA:HA	1.79	0.65
11:A:260:ARG:NH1	11:A:310:ARG:O	2.29	0.65
11:B:351:GLN:N	11:B:351:GLN:OE1	2.30	0.65
12:D:370:VAL:HG11	12:D:438:VAL:HG23	1.79	0.64
11:A:168:LEU:HD22	11:A:344:VAL:HG12	1.79	0.64
11:B:272:ASP:HB3	11:B:275:LYS:HG2	1.79	0.64
6:T:17:ILE:HG23	6:K:17:ILE:HD13	1.78	0.64

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
10:Y:63:SER:HB3	12:D:27:GLN:HE21	1.63	0.64
11:A:106:LEU:HD23	11:A:232:ILE:HD11	1.79	0.64
11:A:293:ARG:HB2	11:A:339:TYR:CE2	2.33	0.64
11:A:369:VAL:HG23	11:A:400:ARG:HE	1.61	0.64
6:N:20:LEU:O	6:N:24:ILE:HG12	1.98	0.64
11:B:260:ARG:NH1	11:B:310:ARG:O	2.30	0.64
1:G:239:ASN:HA	1:G:242:LYS:HZ2	1.63	0.64
1:G:45:ASP:OD1	1:G:217:GLN:NE2	2.26	0.64
3:7:35:ARG:HH22	11:B:473:TYR:HA	1.63	0.64
11:B:141:ARG:NH2	11:B:309:GLU:O	2.31	0.64
12:E:20:ILE:HD12	12:E:271:LEU:HB2	1.79	0.64
11:A:168:LEU:HB3	11:A:351:GLN:HA	1.78	0.63
11:A:141:ARG:NH2	11:A:309:GLU:O	2.32	0.63
11:A:272:ASP:HB3	11:A:275:LYS:HG3	1.80	0.63
11:B:375:ARG:HG2	12:F:192:ARG:HH22	1.63	0.63
4:6:39:LEU:HB2	4:6:40:PRO:HD2	1.79	0.63
11:A:40:ILE:HD11	11:A:286:LEU:HB3	1.80	0.63
11:B:387:GLN:O	11:B:389:ALA:N	2.31	0.63
12:E:155:LEU:HA	12:E:333:THR:HB	1.81	0.63
6:L:14:ILE:HG21	6:M:14:ILE:HD13	1.79	0.63
2:Z:149:GLU:HB3	4:6:56:GLN:HE22	1.64	0.63
11:A:305:SER:HB2	12:E:222:MET:HG3	1.81	0.63
11:C:212:ARG:NH1	12:F:122:PRO:O	2.31	0.63
11:A:270:TYR:HB3	11:A:273:LEU:HG	1.81	0.62
6:S:21:GLY:N	6:T:20:LEU:HD12	2.14	0.62
11:A:332:GLN:HB3	12:D:318:THR:HB	1.80	0.62
11:C:493:LYS:HE3	11:C:493:LYS:HA	1.81	0.62
1:G:72:GLU:OE1	1:G:104:ASN:ND2	2.32	0.62
6:L:21:GLY:H	6:M:20:LEU:HD12	1.65	0.62
11:B:82:ARG:NH1	12:E:34:LEU:HB2	2.15	0.62
4:6:89:LYS:HD2	5:U:9:VAL:HG23	1.80	0.62
11:B:329:ILE:HD11	11:B:344:VAL:HG21	1.81	0.62
11:A:208:VAL:HG21	11:A:276:GLN:HB2	1.82	0.62
11:B:211:LYS:HD3	12:E:328:HIS:HA	1.81	0.62
6:O:14:ILE:HG12	6:P:14:ILE:HG22	1.82	0.62
11:A:412:LEU:O	11:A:416:THR:OG1	2.16	0.62
11:C:16:GLU:N	11:C:16:GLU:OE1	2.33	0.61
1:G:31:LEU:HD11	1:G:231:SER:HA	1.82	0.61
11:A:211:LYS:HE2	12:D:328:HIS:CG	2.35	0.61
5:U:77:GLY:HA2	5:U:80:MET:HE3	1.81	0.61
12:D:386:ASP:OD1	12:D:386:ASP:N	2.33	0.61

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
12:F:171:ILE:O	12:F:175:ALA:HB3	2.00	0.61
12:E:187:VAL:HG22	12:E:232:VAL:HG13	1.83	0.61
6:K:13:GLY:O	6:K:16:THR:OG1	2.18	0.61
11:A:344:VAL:HA	11:A:347:ILE:HD12	1.83	0.61
2:Z:120:THR:HA	2:Z:123:LEU:HB3	1.83	0.61
6:P:18:GLY:HA3	6:P:65:CYS:SG	2.41	0.61
6:Q:21:GLY:HA3	6:R:20:LEU:HB2	1.83	0.61
12:D:38:GLU:HB3	12:D:77:LEU:HB3	1.80	0.61
11:B:254:SER:OG	11:B:310:ARG:NH2	2.33	0.60
11:C:392:LEU:HD22	11:C:447:ILE:HG23	1.83	0.60
1:G:270:ILE:HG12	11:C:295:ALA:HB2	1.82	0.60
11:B:34:LEU:HD21	11:B:44:PHE:HB3	1.82	0.60
1:G:239:ASN:HA	1:G:242:LYS:NZ	2.16	0.60
6:S:25:GLY:HA2	6:T:27:ALA:HB2	1.84	0.60
8:X:118:ILE:HG22	8:X:174:GLY:HA2	1.82	0.60
11:B:432:GLN:NE2	11:B:436:SER:O	2.32	0.60
12:E:49:GLU:OE1	12:E:231:ARG:NE	2.34	0.60
11:A:375:ARG:HH21	15:E:501:ADP:PA	2.25	0.60
12:D:264:ALA:O	12:D:268:VAL:HG12	2.02	0.60
12:F:167:ILE:O	12:F:171:ILE:HD12	2.01	0.60
12:E:269:SER:HB2	12:E:274:ARG:HH21	1.67	0.60
6:Q:19:LEU:HD12	6:Q:22:ALA:HB3	1.83	0.60
11:A:170:ILE:HD13	11:A:329:ILE:HB	1.84	0.60
11:C:207:ALA:HB3	11:C:235:ALA:HA	1.84	0.60
11:A:158:LEU:HG	11:A:159:VAL:HG23	1.83	0.60
11:C:65:ALA:HB2	11:C:75:ILE:HG13	1.84	0.60
6:P:40:ASN:ND2	6:Q:38:SER:O	2.35	0.60
6:Q:43:ILE:HD12	6:Q:47:VAL:HG11	1.84	0.60
11:C:382:VAL:HG21	11:C:440:THR:HG21	1.84	0.60
12:F:98:VAL:HG21	12:F:228:ALA:HA	1.83	0.60
6:P:50:MET:HE1	6:Q:37:VAL:HG21	1.83	0.59
11:B:387:GLN:O	11:B:390:GLY:N	2.35	0.59
12:E:123:SER:OG	12:E:124:PHE:N	2.34	0.59
12:E:458:TYR:O	12:E:469:LYS:NZ	2.30	0.59
3:7:62:LEU:HB3	3:7:65:THR:HG22	1.84	0.59
3:7:65:THR:OG1	3:7:66:SER:N	2.36	0.59
10:Y:103:LYS:HD3	10:Y:104:ILE:HD13	1.83	0.59
10:Y:164:LYS:O	10:Y:168:ILE:HG12	2.03	0.59
11:C:343:ASN:O	11:C:347:ILE:HG13	2.02	0.59
12:D:132:GLU:OE1	12:D:149:ARG:NH1	2.34	0.59
12:F:161:VAL:HG22	12:F:337:ARG:HE	1.67	0.59

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
3:7:123:ASN:ND2	5:U:30:PHE:O	2.36	0.59
11:A:54:LEU:HD13	11:A:97:VAL:HG22	1.85	0.59
11:A:411:ASP:O	11:A:417:LYS:NZ	2.34	0.59
11:C:438:LEU:O	11:C:443:GLN:NE2	2.35	0.59
6:Q:10:ILE:O	6:Q:14:ILE:HG12	2.03	0.58
11:A:287:LEU:HB2	11:A:289:ARG:HG2	1.84	0.58
11:B:67:ASN:HB3	12:F:17:ILE:HD12	1.83	0.58
11:B:152:LEU:HB2	11:B:155:VAL:HG12	1.84	0.58
12:E:409:LYS:NZ	12:E:452:ILE:O	2.36	0.58
1:G:31:LEU:HG	1:G:230:ILE:HG22	1.85	0.58
3:7:114:LEU:HB3	3:7:118:GLN:NE2	2.18	0.58
5:U:74:ILE:HD11	8:X:106:PRO:HD2	1.84	0.58
11:A:166:ARG:NH2	11:A:349:ASP:OD1	2.35	0.58
6:M:20:LEU:O	6:M:24:ILE:HG22	2.04	0.58
12:D:363:VAL:HG23	12:D:367:HIS:HB3	1.85	0.58
11:B:64:MET:HE3	11:B:66:LEU:HD21	1.86	0.58
12:D:62:ILE:HG21	12:D:268:VAL:HG23	1.83	0.58
6:P:1:MET:SD	6:P:2:GLN:NE2	2.77	0.58
10:Y:62:LEU:O	10:Y:67:ARG:NH1	2.37	0.58
11:A:378:SER:O	11:A:386:LYS:NZ	2.29	0.58
1:G:263:ILE:HA	1:G:266:GLU:OE2	2.04	0.58
11:A:152:LEU:HB2	11:A:155:VAL:HB	1.85	0.58
11:B:141:ARG:HB2	12:F:195:ASN:HD22	1.69	0.58
11:C:36:VAL:HG21	11:C:84:VAL:HB	1.85	0.58
12:F:381:TYR:OH	12:F:408:ARG:NH1	2.36	0.58
4:6:28:VAL:HG22	4:6:30:PRO:HD2	1.85	0.58
10:Y:70:VAL:O	10:Y:74:ILE:HD12	2.04	0.58
11:A:343:ASN:OD1	11:A:344:VAL:N	2.37	0.58
11:B:463:ILE:HA	11:B:466:PHE:HB3	1.86	0.58
1:G:110:ILE:HG12	1:G:133:ILE:HG13	1.86	0.58
11:C:69:GLU:OE1	11:C:69:GLU:N	2.28	0.58
2:Z:204:LEU:HD11	10:Y:139:LYS:HE3	1.86	0.57
6:S:30:PHE:CZ	6:R:51:ALA:HA	2.39	0.57
11:C:38:ASP:OD2	12:F:52:GLN:NE2	2.37	0.57
1:G:110:ILE:HG13	1:G:130:ILE:HG23	1.86	0.57
6:P:10:ILE:O	6:P:14:ILE:HG23	2.04	0.57
12:E:396:LEU:HB3	12:E:400:ASP:HB2	1.85	0.57
12:F:43:GLN:OE1	12:F:43:GLN:N	2.31	0.57
2:Z:195:GLN:HG3	4:6:5:ASP:N	2.19	0.57
12:E:284:THR:OG1	12:E:288:ASP:OD2	2.19	0.57
13:H:134:GLN:HA	13:H:137:LEU:HD12	1.86	0.57

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
11:B:142:ARG:N	11:B:313:LYS:O	2.36	0.57
6:L:1:MET:HE3	6:L:4:VAL:HG21	1.85	0.57
11:B:270:TYR:CE1	11:B:307:LEU:HD11	2.40	0.57
11:C:281:ARG:O	11:C:285:LEU:HG	2.05	0.57
10:Y:9:PRO:HG3	10:Y:113:ASP:HB2	1.86	0.57
11:C:81:ASP:OD2	11:C:81:ASP:N	2.35	0.57
12:E:34:LEU:HA	12:E:49:GLU:HG3	1.87	0.57
6:O:7:ALA:HB1	6:P:10:ILE:HG13	1.86	0.57
6:S:21:GLY:H	6:T:20:LEU:CD1	2.17	0.57
7:8:29:GLN:HE22	9:J:6:PRO:HA	1.70	0.57
12:F:220:GLY:HA3	12:F:232:VAL:HG11	1.85	0.57
1:G:122:HIS:HE1	1:G:124:ASN:CG	2.12	0.56
1:G:264:THR:O	1:G:268:VAL:HG12	2.05	0.56
2:Z:130:THR:HG21	3:7:4:LYS:HE2	1.87	0.56
3:7:39:ALA:C	3:7:42:GLN:HE21	2.12	0.56
6:M:7:ALA:HA	6:M:10:ILE:HG22	1.87	0.56
10:Y:68:ASN:O	10:Y:71:ILE:HG13	2.03	0.56
12:F:409:LYS:NZ	12:F:452:ILE:O	2.38	0.56
1:G:92:ALA:O	1:G:96:ARG:HD3	2.05	0.56
3:7:59:ARG:HG3	3:7:68:ILE:HG21	1.87	0.56
6:L:39:ARG:NH2	6:M:38:SER:O	2.35	0.56
6:P:13:GLY:O	6:P:16:THR:OG1	2.23	0.56
6:P:67:MET:HE1	8:X:194:LEU:HD12	1.87	0.56
11:B:438:LEU:O	11:B:443:GLN:NE2	2.38	0.56
12:E:222:MET:HA	12:E:229:ARG:HD3	1.87	0.56
6:L:3:LEU:HB3	6:M:2:GLN:HE22	1.69	0.56
11:C:286:LEU:HD11	12:F:284:THR:HG22	1.86	0.56
5:U:16:GLY:O	5:U:20:ASN:ND2	2.38	0.56
12:D:68:GLU:OE2	12:D:68:GLU:N	2.29	0.56
12:E:37:LEU:HB2	12:E:48:LEU:HB2	1.87	0.56
12:E:98:VAL:HG11	12:E:228:ALA:HA	1.88	0.56
12:F:207:ILE:HD11	12:F:217:LEU:HD21	1.88	0.56
2:Z:154:LEU:HD23	3:7:58:TYR:CE2	2.40	0.56
11:A:70:PRO:HG3	12:E:14:THR:HB	1.87	0.56
11:C:54:LEU:HD12	11:C:64:MET:HB2	1.88	0.56
11:C:29:GLU:OE1	11:C:92:ARG:NH1	2.38	0.56
1:G:8:MET:HA	1:G:11:LYS:HD3	1.88	0.56
8:X:69:ILE:HA	8:X:72:MET:HG2	1.87	0.56
12:F:64:MET:HE3	12:F:64:MET:HA	1.88	0.56
14:I:44:TYR:N	14:I:57:THR:O	2.39	0.56
1:G:260:GLN:O	1:G:264:THR:OG1	2.22	0.56

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
6:S:33:LEU:HA	6:T:34:ILE:HG21	1.88	0.56
10:Y:67:ARG:NE	10:Y:93:SER:O	2.34	0.56
11:A:67:ASN:O	11:A:74:GLY:N	2.34	0.56
11:B:272:ASP:OD2	11:B:275:LYS:NZ	2.39	0.56
11:B:423:GLY:O	11:B:427:THR:HG23	2.05	0.56
11:C:34:LEU:HD11	11:C:44:PHE:HB2	1.88	0.56
2:Z:78:LYS:HA	8:X:57:ARG:HH12	1.70	0.56
12:F:352:ASP:OD1	12:F:352:ASP:N	2.36	0.56
12:F:208:ASN:OD1	12:F:211:GLY:N	2.39	0.56
2:Z:117:ALA:HA	2:Z:120:THR:HG22	1.88	0.55
10:Y:35:ALA:HA	10:Y:38:GLN:NE2	2.20	0.55
12:D:153:ILE:N	12:D:306:SER:O	2.38	0.55
12:D:220:GLY:HA3	12:D:232:VAL:HG11	1.88	0.55
12:E:381:TYR:O	12:E:385:GLN:HG2	2.06	0.55
12:E:406:ARG:O	12:E:410:ILE:HD12	2.05	0.55
6:Q:61:THR:HB	6:R:19:LEU:HD21	1.87	0.55
10:Y:40:LEU:HD21	10:Y:103:LYS:HG2	1.89	0.55
11:A:69:GLU:CD	11:A:71:GLY:H	2.14	0.55
11:B:166:ARG:O	11:B:349:ASP:N	2.40	0.55
4:6:74:PRO:HG2	4:6:75:ILE:HD12	1.88	0.55
10:Y:90:LYS:O	10:Y:93:SER:OG	2.24	0.55
13:H:110:LYS:HE3	13:H:127:VAL:HG11	1.88	0.55
11:A:305:SER:HA	11:A:347:ILE:HG21	1.88	0.55
11:A:441:GLU:HB2	11:A:482:LEU:HB2	1.88	0.55
12:E:269:SER:HA	12:E:272:LEU:HB2	1.89	0.55
1:G:30:ARG:HB3	1:G:230:ILE:HD13	1.88	0.55
2:Z:153:VAL:HG23	4:6:51:LYS:HE2	1.87	0.55
11:B:36:VAL:HA	11:B:41:ALA:HA	1.87	0.55
12:D:281:TYR:HE2	12:D:320:PRO:HG2	1.72	0.55
2:Z:130:THR:HA	2:Z:133:LEU:HD12	1.88	0.55
11:B:46:LEU:HB3	11:B:49:ILE:HB	1.88	0.55
11:B:375:ARG:HG2	12:F:192:ARG:HH12	1.70	0.55
12:D:394:ASP:OD1	12:D:394:ASP:N	2.35	0.55
2:Z:168:GLU:OE2	11:B:4:LYS:NZ	2.40	0.55
6:S:53:LEU:HD21	8:X:150:THR:HA	1.89	0.55
10:Y:153:LEU:HD12	10:Y:155:LEU:H	1.71	0.55
11:A:69:GLU:OE1	11:A:72:GLN:HG2	2.07	0.55
12:D:374:VAL:HG23	12:D:445:LEU:HD11	1.89	0.55
12:E:152:LYS:HA	12:E:306:SER:HB3	1.89	0.55
12:E:232:VAL:HA	12:E:235:THR:HG22	1.88	0.55
11:A:344:VAL:O	11:A:348:THR:HG23	2.07	0.54

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
11:A:407:GLN:HG2	11:A:408:PHE:HD1	1.72	0.54
12:D:152:LYS:HA	12:D:306:SER:HB3	1.89	0.54
11:C:341:PRO:O	11:C:345:ILE:HD12	2.07	0.54
12:F:201:MET:HA	12:F:204:THR:HG22	1.89	0.54
6:K:46:THR:O	6:K:49:PRO:HD2	2.07	0.54
12:D:108:PRO:O	12:D:110:LYS:NZ	2.40	0.54
12:F:150:GLY:O	12:F:298:THR:OG1	2.19	0.54
6:T:37:VAL:HB	6:T:44:LYS:HG2	1.88	0.54
11:B:150:THR:HB	11:B:184:THR:HG22	1.90	0.54
12:E:49:GLU:OE2	12:E:118:HIS:NE2	2.37	0.54
2:Z:154:LEU:HD23	3:7:58:TYR:CZ	2.42	0.54
1:G:249:ASN:O	1:G:253:ILE:HG12	2.08	0.54
3:7:35:ARG:NH2	11:B:476:SER:OG	2.40	0.54
11:B:309:GLU:HG2	12:F:223:ASN:HB3	1.89	0.54
11:A:205:TYR:OH	11:A:271:ASP:OD1	2.24	0.54
11:A:276:GLN:HE22	11:A:303:LEU:HD11	1.73	0.54
11:B:6:GLN:HA	11:B:9:GLU:OE1	2.08	0.54
13:H:126:GLN:HG2	14:I:20:ALA:HB2	1.90	0.54
12:E:51:ALA:HB2	12:E:62:ILE:HG13	1.90	0.54
12:F:285:LEU:O	12:F:289:MET:HB3	2.07	0.54
2:Z:104:LYS:HA	2:Z:107:ILE:HD12	1.90	0.54
3:7:114:LEU:O	3:7:118:GLN:NE2	2.41	0.54
6:S:20:LEU:HD12	6:R:18:GLY:HA2	1.89	0.54
8:X:56:SER:H	8:X:59:LEU:HD12	1.73	0.54
11:A:197:GLU:OE1	11:A:264:LYS:NZ	2.41	0.54
2:Z:92:LEU:HD11	7:8:45:ILE:HD11	1.89	0.53
2:Z:165:ARG:O	2:Z:168:GLU:HG3	2.08	0.53
11:C:136:PRO:HG2	11:C:141:ARG:HE	1.73	0.53
11:C:285:LEU:HD12	12:F:283:PRO:HB3	1.89	0.53
11:C:425:ARG:NE	11:C:458:ILE:O	2.40	0.53
12:D:244:ARG:HE	12:D:304:VAL:HG12	1.73	0.53
12:E:391:LEU:HB3	12:E:395:GLU:HG3	1.89	0.53
1:G:167:ASN:HB3	1:G:225:GLY:HA2	1.90	0.53
2:Z:196:GLN:OE1	10:Y:124:THR:HG22	2.07	0.53
6:K:68:VAL:HG11	6:L:16:THR:HG21	1.89	0.53
10:Y:58:LEU:HD12	10:Y:98:LEU:HA	1.90	0.53
12:E:15:ALA:HB3	12:E:22:ASP:HB2	1.89	0.53
11:A:425:ARG:NH1	11:A:458:ILE:O	2.41	0.53
2:Z:107:ILE:HG12	3:7:117:LEU:HD22	1.91	0.53
5:U:52:LYS:HA	5:U:56:PHE:HB2	1.90	0.53
11:A:209:GLY:HA3	11:A:275:LYS:HD2	1.90	0.53

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
11:A:249:PRO:HG2	11:A:276:GLN:HG3	1.89	0.53
11:C:345:ILE:HD12	11:C:345:ILE:H	1.73	0.53
12:E:50:VAL:HA	12:E:61:THR:HG22	1.90	0.53
12:E:83:ILE:HB	12:E:117:ILE:HD13	1.89	0.53
11:A:477:ASN:OD1	11:A:478:HIS:N	2.42	0.53
11:B:388:VAL:HG23	11:B:389:ALA:H	1.74	0.53
4:6:45:GLN:O	4:6:49:ALA:N	2.38	0.53
11:B:467:GLU:O	11:B:471:LEU:HD23	2.08	0.53
11:C:111:ASP:OD2	11:C:115:ASN:N	2.42	0.53
13:H:28:THR:OG1	13:H:60:MET:HB2	2.09	0.53
6:Q:43:ILE:HD13	6:R:38:SER:HA	1.89	0.53
10:Y:160:LYS:HG2	10:Y:161:PRO:HD3	1.89	0.53
1:G:127:LYS:NZ	1:G:159:TYR:OH	2.42	0.53
6:T:1:MET:SD	6:T:1:MET:N	2.81	0.53
10:Y:34:ASP:OD2	10:Y:34:ASP:N	2.38	0.53
11:A:64:MET:HE3	11:A:66:LEU:HG	1.90	0.53
11:B:393:LYS:NZ	12:F:423:VAL:O	2.41	0.53
12:F:159:ALA:HB2	12:F:311:TYR:HE2	1.74	0.53
11:A:357:GLU:H	11:A:357:GLU:CD	2.15	0.53
12:D:344:ILE:HG23	12:D:415:SER:HB3	1.91	0.53
12:F:189:GLU:C	12:F:222:MET:HE3	2.33	0.53
2:Z:187:PRO:HB2	2:Z:190:GLN:HE22	1.72	0.52
11:A:265:HIS:ND1	11:A:322:SER:OG	2.39	0.52
11:A:315:SER:OG	11:A:318:GLU:OE1	2.27	0.52
11:B:138:ILE:O	12:F:195:ASN:ND2	2.42	0.52
11:B:142:ARG:NH1	11:B:143:SER:OG	2.42	0.52
11:B:446:LEU:HD21	11:B:471:LEU:HD22	1.91	0.52
11:C:343:ASN:O	11:C:346:SER:OG	2.18	0.52
12:D:399:GLN:OE1	12:D:399:GLN:N	2.39	0.52
12:F:253:LEU:HD23	12:F:296:ILE:HG12	1.92	0.52
7:8:9:PHE:HB3	9:J:27:MET:HE3	1.92	0.52
11:A:211:LYS:HE2	12:D:328:HIS:CB	2.39	0.52
11:C:150:THR:HA	11:C:184:THR:HG23	1.91	0.52
12:F:154:GLY:HA3	12:F:329:LEU:HD13	1.90	0.52
12:F:266:SER:HA	12:F:282:GLN:HB3	1.90	0.52
3:7:35:ARG:HH12	11:B:472:SER:C	2.17	0.52
7:8:16:GLY:O	7:8:20:MET:HG3	2.10	0.52
8:X:191:LEU:O	8:X:195:THR:HG22	2.09	0.52
11:C:390:GLY:O	11:C:394:LEU:HG	2.09	0.52
11:A:81:ASP:OD1	11:A:81:ASP:N	2.39	0.52
11:A:280:TYR:OH	11:A:299:ASP:OD2	2.21	0.52

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
11:B:141:ARG:NH2	11:B:309:GLU:HG3	2.25	0.52
12:E:87:VAL:O	12:E:111:SER:OG	2.21	0.52
12:F:83:ILE:HB	12:F:117:ILE:HD13	1.91	0.52
6:L:50:MET:SD	6:L:50:MET:N	2.82	0.52
6:P:20:LEU:HD22	6:Q:20:LEU:HD11	1.91	0.52
8:X:211:VAL:HG12	8:X:215:MET:HE2	1.91	0.52
6:S:45:ASP:OD1	6:S:46:THR:N	2.42	0.52
11:A:429:LEU:HD11	11:A:446:LEU:HG	1.91	0.52
11:A:455:LEU:HD11	11:A:466:PHE:CE2	2.44	0.52
11:C:55:VAL:N	11:C:63:GLY:O	2.38	0.52
12:D:458:TYR:CE1	12:D:459:MET:HG2	2.45	0.52
12:E:13:VAL:O	12:E:73:GLY:N	2.37	0.52
12:E:139:LYS:HE3	12:E:416:GLN:HB2	1.92	0.52
12:F:15:ALA:HB3	12:F:22:ASP:HB2	1.91	0.52
6:P:50:MET:HE3	6:Q:34:ILE:HG12	1.90	0.52
8:X:76:GLN:O	8:X:243:LYS:HD2	2.09	0.52
12:E:120:ASP:OD1	12:E:120:ASP:N	2.37	0.52
12:E:152:LYS:N	12:E:330:ASP:OD1	2.43	0.52
1:G:122:HIS:HE1	1:G:124:ASN:OD1	1.93	0.52
3:7:173:MET:HA	6:Q:49:PRO:CG	2.40	0.52
11:B:141:ARG:HG2	11:B:312:ALA:HB1	1.92	0.52
13:H:58:GLU:HG3	13:H:60:MET:HE1	1.92	0.52
11:A:274:SER:O	11:A:278:VAL:HG13	2.09	0.52
11:A:293:ARG:HG2	12:E:279:VAL:O	2.10	0.52
12:E:141:VAL:HG11	12:E:166:PHE:HZ	1.74	0.52
3:7:151:GLU:OE1	3:7:154:LYS:NZ	2.43	0.51
6:M:17:ILE:O	6:M:20:LEU:HD23	2.09	0.51
8:X:92:LEU:HB3	8:X:234:TRP:HE1	1.74	0.51
11:A:168:LEU:HG	11:A:170:ILE:HG12	1.91	0.51
11:C:355:GLU:HB3	11:C:357:GLU:OE1	2.09	0.51
1:G:22:THR:O	1:G:25:ILE:HG12	2.10	0.51
6:N:25:GLY:HA2	6:O:27:ALA:CB	2.37	0.51
8:X:85:TYR:HE2	8:X:246:VAL:HG11	1.75	0.51
11:A:70:PRO:HD3	12:E:15:ALA:HB2	1.92	0.51
11:A:355:GLU:HB2	11:A:358:LEU:HB2	1.92	0.51
12:F:289:MET:HE3	12:F:328:HIS:HD1	1.76	0.51
1:G:268:VAL:O	1:G:272:THR:HG23	2.11	0.51
11:B:155:VAL:HG23	11:B:159:VAL:HG23	1.93	0.51
11:C:332:GLN:HB3	12:F:318:THR:HB	1.91	0.51
12:F:30:LEU:HD21	12:F:57:ASN:HA	1.93	0.51
2:Z:103:VAL:O	2:Z:107:ILE:HG13	2.10	0.51

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
11:A:211:LYS:HD2	12:D:294:GLU:OE2	2.11	0.51
12:F:257:ASN:OD1	12:F:260:ARG:HG2	2.10	0.51
11:B:67:ASN:ND2	11:B:287:LEU:HD12	2.24	0.51
11:B:168:LEU:O	11:B:352:ILE:N	2.36	0.51
12:E:87:VAL:HG21	12:E:115:LYS:HG2	1.93	0.51
12:F:458:TYR:CE1	12:F:459:MET:HG2	2.46	0.51
3:7:157:LYS:NZ	8:X:80:LYS:O	2.43	0.51
6:Q:50:MET:HE3	6:R:33:LEU:HG	1.92	0.51
11:B:276:GLN:OE1	11:B:303:LEU:HD21	2.11	0.51
12:D:449:TYR:HB3	12:D:452:ILE:HD13	1.93	0.51
13:H:60:MET:HE2	13:H:60:MET:N	2.26	0.51
6:M:18:GLY:HA3	6:M:65:CYS:SG	2.51	0.51
12:F:252:LEU:HD22	12:F:305:THR:HB	1.93	0.51
12:D:64:MET:HA	12:D:64:MET:HE3	1.91	0.51
8:X:176:ARG:HG2	8:X:177:LEU:HD12	1.93	0.51
11:A:294:GLU:OE1	11:A:294:GLU:O	2.29	0.51
11:B:270:TYR:HB2	11:B:327:PRO:HA	1.90	0.51
2:Z:85:MET:HA	2:Z:85:MET:HE3	1.91	0.51
2:Z:134:GLU:HB3	3:7:40:ARG:HH12	1.76	0.51
4:6:56:GLN:O	4:6:56:GLN:NE2	2.44	0.51
11:C:16:GLU:H	11:C:16:GLU:CD	2.19	0.51
12:D:409:LYS:NZ	12:D:452:ILE:O	2.42	0.51
1:G:267:LEU:O	1:G:271:ILE:HG12	2.10	0.50
2:Z:134:GLU:HA	3:7:41:ARG:HH21	1.76	0.50
6:P:67:MET:HE2	8:X:191:LEU:HD22	1.92	0.50
11:B:428:GLN:HG3	11:B:463:ILE:HB	1.93	0.50
12:D:179:GLY:HA3	12:D:249:GLN:HG2	1.93	0.50
12:F:372:SER:O	12:F:376:GLU:HG2	2.11	0.50
12:F:460:VAL:HG21	12:F:466:VAL:HG22	1.93	0.50
5:U:5:ILE:HG13	5:U:7:PRO:HD2	1.93	0.50
8:X:219:ILE:HA	8:X:222:LEU:HD12	1.93	0.50
11:A:399:TYR:HD2	11:A:423:GLY:HA3	1.74	0.50
6:S:30:PHE:CE1	6:R:50:MET:HG2	2.42	0.50
11:A:168:LEU:HD12	11:A:169:ILE:N	2.25	0.50
11:C:166:ARG:NH1	11:C:309:GLU:OE2	2.43	0.50
12:D:20:ILE:HG21	12:D:60:ARG:HH11	1.76	0.50
12:D:153:ILE:HD12	12:D:331:ALA:HB3	1.93	0.50
4:6:7:TYR:OH	11:B:16:GLU:HG2	2.12	0.50
11:A:82:ARG:HH21	12:D:82:PRO:HD3	1.76	0.50
11:A:373:VAL:HG11	15:E:501:ADP:O3'	2.11	0.50
11:B:82:ARG:HH12	12:E:34:LEU:HB2	1.75	0.50

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
11:C:68:LEU:O	12:D:15:ALA:HA	2.11	0.50
2:Z:132:GLU:N	2:Z:132:GLU:OE1	2.44	0.50
3:7:173:MET:HE3	8:X:72:MET:SD	2.52	0.50
6:T:17:ILE:HG13	6:T:20:LEU:HD23	1.92	0.50
6:Q:58:SER:O	6:Q:61:THR:OG1	2.26	0.50
11:C:40:ILE:HG13	11:C:286:LEU:HB3	1.93	0.50
11:C:313:LYS:HD2	11:C:322:SER:HB3	1.93	0.50
11:C:396:LEU:C	11:C:400:ARG:HE	2.18	0.50
12:F:193:GLU:HA	12:F:196:ASP:OD2	2.12	0.50
12:F:417:PRO:HG2	12:F:430:LYS:HB2	1.94	0.50
13:H:52:LEU:HD21	13:H:75:ALA:HB2	1.93	0.50
3:7:109:LEU:HD22	5:U:11:SER:HA	1.94	0.50
11:A:131:ALA:O	11:A:310:ARG:NH1	2.44	0.50
12:E:171:ILE:HD12	12:E:171:ILE:H	1.77	0.50
13:H:59:VAL:C	13:H:60:MET:HE2	2.37	0.50
6:K:1:MET:HA	6:K:1:MET:HE2	1.93	0.50
8:X:104:MET:HE3	8:X:224:PHE:HB2	1.92	0.50
8:X:230:GLN:HA	8:X:233:VAL:HB	1.94	0.50
11:C:348:THR:O	12:D:190:ARG:NH1	2.43	0.50
3:7:173:MET:HE1	8:X:68:THR:HB	1.94	0.50
6:O:43:ILE:HG12	6:P:38:SER:HA	1.94	0.50
11:A:375:ARG:NH1	15:E:501:ADP:H2'	2.26	0.50
11:C:131:ALA:O	11:C:310:ARG:NH1	2.44	0.50
11:C:285:LEU:HB3	12:F:275:ILE:HB	1.94	0.50
11:C:288:ARG:NH1	12:F:273:GLY:O	2.45	0.50
12:D:472:LYS:NZ	12:D:476:GLU:HG2	2.27	0.50
12:E:189:GLU:O	12:E:221:GLN:HB3	2.12	0.50
13:H:33:PRO:HD2	13:H:57:VAL:HG22	1.94	0.50
6:L:64:PHE:CE1	6:M:66:LEU:HD13	2.47	0.50
2:Z:137:ALA:HB2	3:7:41:ARG:NE	2.26	0.49
2:Z:160:TYR:CD1	4:6:47:PRO:HD3	2.47	0.49
3:7:97:LYS:HD2	3:7:98:HIS:N	2.27	0.49
6:L:21:GLY:H	6:M:20:LEU:CD1	2.26	0.49
12:F:288:ASP:OD1	12:F:288:ASP:N	2.43	0.49
2:Z:106:ARG:O	2:Z:110:VAL:HG23	2.12	0.49
3:7:163:TYR:CE2	8:X:70:MET:HE1	2.47	0.49
6:O:20:LEU:O	6:O:24:ILE:HG22	2.12	0.49
6:P:20:LEU:HB3	6:Q:20:LEU:HD12	1.94	0.49
12:D:85:VAL:HG23	12:D:100:GLY:HA2	1.95	0.49
1:G:29:THR:HG21	12:D:390:ILE:HG21	1.93	0.49
1:G:92:ALA:HB2	1:G:117:GLN:NE2	2.28	0.49

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:Z:84:ARG:NH1	8:X:63:GLU:OE2	2.45	0.49
6:S:20:LEU:HB2	6:R:18:GLY:HA2	1.94	0.49
8:X:94:MET:HE3	8:X:94:MET:HA	1.94	0.49
10:Y:11:ARG:HA	10:Y:11:ARG:CZ	2.43	0.49
11:C:82:ARG:HA	12:F:33:ILE:HB	1.93	0.49
12:E:187:VAL:HG22	12:E:232:VAL:CG1	2.41	0.49
3:7:94:SER:HA	3:7:97:LYS:HG3	1.94	0.49
6:L:44:LYS:HA	6:L:47:VAL:HG12	1.95	0.49
6:N:7:ALA:HB1	6:O:10:ILE:HG13	1.94	0.49
6:P:17:ILE:HD13	6:Q:17:ILE:HG13	1.95	0.49
11:A:212:ARG:HB3	12:D:127:GLN:HG3	1.94	0.49
12:D:351:LEU:HD21	12:D:378:LEU:HB3	1.93	0.49
12:E:345:TYR:CE2	15:E:501:ADP:H1'	2.42	0.49
12:F:443:ALA:HB1	12:F:449:TYR:HE2	1.77	0.49
8:X:212:PRO:HA	8:X:215:MET:HE3	1.95	0.49
10:Y:160:LYS:N	10:Y:161:PRO:HD2	2.28	0.49
11:C:49:ILE:HD13	11:C:92:ARG:HG2	1.93	0.49
11:A:168:LEU:HD12	11:A:169:ILE:H	1.78	0.49
12:D:370:VAL:HG23	12:D:445:LEU:HD12	1.94	0.49
12:F:156:PHE:O	12:F:335:LEU:N	2.34	0.49
12:F:168:GLN:HA	12:F:171:ILE:HD12	1.94	0.49
6:P:24:ILE:HD13	6:Q:24:ILE:HD12	1.94	0.49
10:Y:75:VAL:HA	10:Y:81:LEU:HD23	1.94	0.49
11:A:206:VAL:HG12	11:A:208:VAL:HG13	1.95	0.49
11:B:441:GLU:O	11:B:485:ILE:HD11	2.12	0.49
1:G:12:SER:O	1:G:16:ILE:HG12	2.13	0.49
3:7:110:VAL:HG12	3:7:114:LEU:CD2	2.42	0.49
6:S:46:THR:HG23	6:T:44:LYS:HZ3	1.78	0.49
11:A:168:LEU:HD11	11:A:329:ILE:HG12	1.95	0.49
11:C:369:VAL:HG23	11:C:400:ARG:NH1	2.28	0.49
12:E:165:VAL:HG11	12:E:421:ALA:HB2	1.95	0.49
6:Q:67:MET:HE1	8:X:182:LEU:HD22	1.95	0.48
11:A:141:ARG:NH2	11:A:309:GLU:OE1	2.46	0.48
11:C:64:MET:HE3	11:C:66:LEU:HD21	1.93	0.48
11:C:168:LEU:HD22	11:C:344:VAL:HG12	1.94	0.48
12:D:217:LEU:HB3	12:D:219:PHE:CE2	2.48	0.48
12:E:50:VAL:HG13	12:E:59:VAL:HB	1.95	0.48
1:G:19:ILE:HD11	11:C:404:ALA:HB1	1.95	0.48
1:G:74:ILE:HG12	1:G:163:SER:HB2	1.96	0.48
6:S:17:ILE:HG23	6:T:20:LEU:HD21	1.94	0.48
6:Q:61:THR:HA	6:Q:64:PHE:CD2	2.47	0.48

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
8:X:115:LEU:HD12	8:X:178:GLY:HA2	1.95	0.48
11:B:40:ILE:HD13	11:B:287:LEU:HD22	1.95	0.48
11:B:438:LEU:HD22	11:B:443:GLN:HG3	1.94	0.48
12:E:92:LEU:HB3	12:E:213:SER:O	2.13	0.48
12:F:219:PHE:C	12:F:232:VAL:HG21	2.39	0.48
1:G:119:LEU:HD13	14:I:47:TYR:OH	2.13	0.48
11:A:111:ASP:OD1	11:A:115:ASN:N	2.44	0.48
11:A:443:GLN:O	11:A:447:ILE:HG12	2.13	0.48
11:C:273:LEU:HB2	11:C:329:ILE:HD11	1.95	0.48
11:C:292:GLY:HA2	12:D:271:LEU:HD22	1.95	0.48
12:E:156:PHE:N	12:E:333:THR:O	2.45	0.48
13:H:122:GLU:HA	13:H:125:ILE:HD12	1.95	0.48
6:M:13:GLY:O	6:M:16:THR:OG1	2.29	0.48
6:Q:33:LEU:HA	6:R:34:ILE:HG21	1.95	0.48
10:Y:51:PRO:O	10:Y:55:HIS:ND1	2.46	0.48
12:E:185:THR:HA	12:E:218:VAL:HB	1.94	0.48
12:F:71:VAL:HG22	12:F:74:GLU:HG2	1.95	0.48
12:F:224:GLU:HB3	12:F:228:ALA:HB3	1.96	0.48
12:F:341:GLU:HA	12:F:341:GLU:OE1	2.13	0.48
3:7:114:LEU:HA	3:7:117:LEU:HG	1.95	0.48
11:B:237:THR:HG22	11:B:239:SER:H	1.78	0.48
12:D:9:ILE:HB	12:D:78:ASP:HB3	1.95	0.48
2:Z:107:ILE:HG12	3:7:117:LEU:HD13	1.96	0.48
2:Z:147:ALA:O	2:Z:151:LYS:HG2	2.14	0.48
6:T:29:VAL:HG23	6:K:27:ALA:HB1	1.96	0.48
11:C:56:GLU:HG2	11:C:93:THR:HG22	1.94	0.48
4:6:9:ARG:HA	4:6:12:LYS:NZ	2.29	0.48
6:S:1:MET:HA	6:S:1:MET:HE2	1.96	0.48
10:Y:30:ASN:OD1	10:Y:31:SER:N	2.43	0.48
12:E:163:LYS:O	12:E:167:ILE:HG22	2.13	0.48
12:F:381:TYR:CE2	12:F:408:ARG:HG2	2.49	0.48
3:7:7:ALA:O	3:7:10:LEU:HG	2.14	0.48
6:S:25:GLY:HA2	6:T:27:ALA:CB	2.44	0.48
1:G:8:MET:SD	1:G:9:ARG:N	2.86	0.48
1:G:55:ALA:HA	1:G:193:SER:HB2	1.94	0.48
8:X:173:LEU:HB3	8:X:234:TRP:CZ3	2.48	0.48
11:A:166:ARG:NH1	11:A:347:ILE:O	2.47	0.48
12:D:84:SER:HB2	12:D:114:ARG:HG2	1.95	0.48
12:D:87:VAL:HB	12:D:242:TYR:HD2	1.77	0.48
12:E:237:LEU:HD21	12:E:296:ILE:HG12	1.96	0.48
11:A:21:VAL:HA	11:A:27:LEU:HD21	1.96	0.48

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
11:A:254:SER:OG	11:A:310:ARG:NH2	2.46	0.48
11:C:166:ARG:NE	11:C:349:ASP:OD2	2.40	0.48
12:E:48:LEU:HD13	12:E:63:ALA:HA	1.95	0.48
12:F:140:VAL:HB	12:F:414:LEU:HD12	1.96	0.48
4:6:30:PRO:HG2	4:6:31:TRP:CD1	2.49	0.47
11:A:442:GLU:HA	11:A:471:LEU:HD11	1.95	0.47
12:E:257:ASN:HA	12:E:309:ALA:O	2.14	0.47
12:F:237:LEU:HD21	12:F:295:ARG:CB	2.44	0.47
3:7:173:MET:HA	6:Q:49:PRO:HG3	1.96	0.47
6:O:11:GLY:HA2	6:O:14:ILE:HG22	1.96	0.47
11:A:55:VAL:HG23	11:A:92:ARG:HA	1.95	0.47
11:B:375:ARG:HG2	12:F:192:ARG:NH2	2.28	0.47
12:D:83:ILE:O	12:D:117:ILE:HG23	2.14	0.47
12:D:346:PRO:HG2	12:D:416:GLN:H	1.79	0.47
12:F:417:PRO:HB2	12:F:429:GLY:HA2	1.96	0.47
6:P:43:ILE:O	6:P:47:VAL:HG22	2.15	0.47
8:X:90:PHE:O	8:X:94:MET:HG2	2.13	0.47
11:B:438:LEU:HD23	11:B:442:GLU:HB2	1.95	0.47
11:C:68:LEU:HD12	12:D:72:ARG:HE	1.79	0.47
11:C:375:ARG:HH12	12:D:190:ARG:HH22	1.62	0.47
12:D:331:ALA:HA	12:D:355:SER:HA	1.97	0.47
1:G:123:PRO:O	1:G:126:ILE:HG22	2.15	0.47
3:7:116:ASP:O	3:7:119:SER:OG	2.28	0.47
6:T:5:LEU:HD13	6:T:8:LYS:HD2	1.95	0.47
11:A:272:ASP:H	11:A:328:VAL:HB	1.79	0.47
11:B:70:PRO:HG3	12:F:14:THR:HG22	1.96	0.47
11:B:365:PRO:HD3	11:B:432:GLN:H	1.79	0.47
12:D:262:THR:HG21	12:D:321:ALA:HB1	1.96	0.47
13:H:110:LYS:HE3	13:H:127:VAL:HG21	1.97	0.47
6:P:65:CYS:SG	6:Q:19:LEU:HD23	2.54	0.47
11:B:356:ALA:HB1	11:B:360:TYR:CE2	2.49	0.47
12:D:95:ILE:HG22	12:D:103:ILE:HG12	1.95	0.47
1:G:262:VAL:HA	1:G:265:ASN:ND2	2.26	0.47
6:T:21:GLY:CA	6:K:20:LEU:HG	2.44	0.47
6:T:21:GLY:HA3	6:K:20:LEU:HG	1.97	0.47
6:P:71:LEU:HD22	8:X:190:ILE:HG21	1.96	0.47
8:X:27:THR:HG23	8:X:29:PHE:H	1.79	0.47
11:A:173:ARG:NH1	12:D:326:PHE:HD1	2.13	0.47
11:B:131:ALA:HB1	11:B:247:LEU:HD11	1.97	0.47
12:E:54:LEU:HD21	12:E:60:ARG:HE	1.80	0.47
12:F:197:LEU:HD21	12:F:201:MET:HE3	1.97	0.47

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:G:73:LEU:HD21	1:G:150:LEU:HD22	1.96	0.47
1:G:75:VAL:HB	1:G:164:ILE:HG22	1.97	0.47
3:7:12:TRP:CD1	3:7:12:TRP:N	2.82	0.47
3:7:54:ASP:HB3	3:7:58:TYR:HB3	1.95	0.47
6:R:52:ILE:HD13	8:X:240:SER:HB3	1.97	0.47
11:A:392:LEU:HD12	11:A:447:ILE:HG23	1.96	0.47
1:G:29:THR:HG22	12:D:391:LEU:HD11	1.96	0.47
1:G:262:VAL:HG22	1:G:266:GLU:OE1	2.15	0.47
11:A:27:LEU:HA	11:A:30:THR:HG23	1.97	0.47
11:B:442:GLU:HB3	11:B:471:LEU:HD11	1.97	0.47
12:D:140:VAL:HG23	12:D:414:LEU:HD22	1.96	0.47
12:D:321:ALA:HB3	12:D:322:PRO:HD3	1.97	0.47
12:D:87:VAL:HG21	12:D:115:LYS:HG2	1.97	0.47
1:G:7:GLU:HB3	1:G:255:TYR:HE2	1.80	0.47
1:G:108:VAL:HG13	1:G:128:LEU:HB3	1.97	0.47
11:A:450:GLY:HA2	11:A:455:LEU:HD23	1.96	0.47
12:F:96:ILE:N	12:F:217:LEU:O	2.44	0.47
1:G:29:THR:OG1	1:G:30:ARG:NH1	2.49	0.46
11:B:438:LEU:CD2	11:B:442:GLU:HB2	2.45	0.46
12:E:253:LEU:HB3	12:E:306:SER:O	2.15	0.46
12:E:351:LEU:HD11	12:E:382:LYS:HE2	1.97	0.46
8:X:69:ILE:HD13	8:X:90:PHE:HA	1.98	0.46
8:X:224:PHE:O	8:X:228:ILE:HG12	2.16	0.46
11:B:142:ARG:HB2	11:B:315:SER:HA	1.97	0.46
11:B:456:ASP:OD1	11:B:456:ASP:N	2.44	0.46
11:C:70:PRO:HG3	12:D:14:THR:HB	1.96	0.46
11:C:161:ILE:HD13	11:C:326:LEU:HD21	1.97	0.46
12:D:237:LEU:HD21	12:D:295:ARG:HD3	1.97	0.46
13:H:13:GLN:HB2	13:H:84:CYS:HA	1.97	0.46
1:G:116:MET:SD	1:G:116:MET:N	2.87	0.46
3:7:53:VAL:HG13	3:7:58:TYR:HD2	1.79	0.46
10:Y:74:ILE:HD12	10:Y:74:ILE:H	1.80	0.46
11:A:357:GLU:OE1	11:A:357:GLU:N	2.28	0.46
11:C:336:VAL:HG11	11:C:353:PHE:HE2	1.80	0.46
12:E:185:THR:HG22	12:E:236:GLY:HA3	1.96	0.46
12:E:252:LEU:HD13	12:E:305:THR:HB	1.97	0.46
3:7:159:ASP:HB3	8:X:82:TRP:CZ2	2.50	0.46
8:X:41:THR:O	8:X:45:THR:HG22	2.14	0.46
11:A:85:LYS:HB2	11:A:88:GLU:HG3	1.98	0.46
11:A:98:ASP:OD1	11:A:98:ASP:N	2.49	0.46
11:A:355:GLU:OE1	11:A:368:ASN:ND2	2.33	0.46

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
11:B:56:GLU:N	11:B:91:LYS:O	2.37	0.46
11:B:174:GLN:HA	15:B:601:ADP:O3A	2.16	0.46
12:E:472:LYS:HE3	12:E:472:LYS:HA	1.97	0.46
12:F:162:GLY:HA2	15:F:600:ADP:H5'2	1.96	0.46
1:G:84:CYS:HB2	1:G:237:MET:HE2	1.96	0.46
4:6:51:LYS:HG2	4:6:52:ALA:H	1.79	0.46
6:P:58:SER:O	6:P:61:THR:OG1	2.32	0.46
6:Q:43:ILE:O	6:Q:47:VAL:HG22	2.15	0.46
11:A:399:TYR:HD1	11:A:399:TYR:O	1.98	0.46
6:O:14:ILE:HG21	6:P:14:ILE:HG22	1.98	0.46
6:Q:65:CYS:SG	6:R:19:LEU:HD22	2.55	0.46
11:B:32:ARG:C	11:B:43:VAL:HG23	2.41	0.46
11:B:364:ARG:HG3	15:B:601:ADP:N6	2.31	0.46
12:D:190:ARG:C	12:D:192:ARG:H	2.23	0.46
12:F:105:GLU:OE2	12:F:105:GLU:N	2.46	0.46
3:7:100:MET:HE2	3:7:100:MET:N	2.30	0.46
11:A:50:GLN:HG2	11:A:53:GLU:OE1	2.16	0.46
11:A:251:THR:O	11:A:255:ILE:HG12	2.16	0.46
12:E:410:ILE:HG23	12:E:441:PHE:HE2	1.80	0.46
6:P:37:VAL:HG11	6:P:44:LYS:HD3	1.98	0.46
6:R:58:SER:O	6:R:61:THR:OG1	2.29	0.46
12:E:127:GLN:NE2	12:E:299:THR:O	2.37	0.46
12:E:255:ILE:HD12	12:E:308:GLN:HE22	1.80	0.46
12:F:182:SER:O	12:F:215:VAL:HA	2.15	0.46
6:T:40:ASN:OD1	6:T:40:ASN:N	2.48	0.46
6:M:20:LEU:HB2	6:N:20:LEU:HD12	1.96	0.46
11:A:201:LEU:HD21	11:A:267:LEU:HB2	1.97	0.46
11:C:464:GLY:HA2	11:C:467:GLU:HG3	1.97	0.46
12:E:296:ILE:HG21	12:E:306:SER:HB2	1.97	0.46
12:F:279:VAL:HG12	12:F:279:VAL:O	2.16	0.46
1:G:120:ARG:NE	11:B:412:LEU:O	2.49	0.46
6:S:14:ILE:HG12	6:R:14:ILE:HG21	1.98	0.46
6:K:44:LYS:HA	6:K:47:VAL:HG22	1.97	0.46
6:O:18:GLY:HA3	6:O:65:CYS:SG	2.56	0.46
10:Y:115:HIS:CE1	10:Y:117:GLY:HA3	2.51	0.46
10:Y:121:GLY:O	10:Y:124:THR:HG23	2.16	0.46
11:B:55:VAL:HG12	11:B:92:ARG:HA	1.98	0.46
11:B:135:ALA:HB3	12:F:223:ASN:HD22	1.81	0.46
11:B:201:LEU:HD11	11:B:267:LEU:HB2	1.98	0.46
11:C:106:LEU:HD22	11:C:230:TYR:HA	1.98	0.46
12:E:117:ILE:HA	12:E:238:THR:OG1	2.15	0.46

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
12:F:190:ARG:HB2	12:F:193:GLU:HB3	1.97	0.46
1:G:107:ILE:O	1:G:109:THR:HG23	2.15	0.45
6:Q:53:LEU:O	6:Q:57:LEU:HG	2.16	0.45
7:8:30:PHE:C	7:8:33:PRO:HD2	2.41	0.45
8:X:85:TYR:HB3	8:X:88:MET:HE1	1.96	0.45
11:B:442:GLU:HB3	11:B:471:LEU:CD1	2.46	0.45
12:E:458:TYR:HD1	12:E:459:MET:HG2	1.82	0.45
13:H:99:GLU:CD	13:H:137:LEU:HD13	2.41	0.45
6:M:61:THR:HB	6:N:19:LEU:HB3	1.97	0.45
10:Y:8:PRO:HB2	10:Y:11:ARG:HH22	1.82	0.45
11:A:347:ILE:HG23	12:E:222:MET:HE3	1.98	0.45
11:B:281:ARG:HD3	11:B:296:TYR:CD2	2.50	0.45
11:C:152:LEU:HB2	11:C:155:VAL:HB	1.97	0.45
11:C:345:ILE:HG23	11:C:351:GLN:CD	2.41	0.45
12:E:198:TYR:HA	12:E:201:MET:HE3	1.97	0.45
1:G:114:ILE:HG13	1:G:118:LEU:HD12	1.98	0.45
3:7:8:ASN:CG	11:B:477:ASN:HD22	2.24	0.45
6:S:52:ILE:HA	6:S:55:PHE:CE2	2.51	0.45
11:B:267:LEU:HD11	11:B:326:LEU:HG	1.98	0.45
11:B:358:LEU:HB3	11:B:363:ILE:HD13	1.98	0.45
12:E:178:HIS:CD2	12:E:252:LEU:HD23	2.51	0.45
13:H:69:PHE:HB2	13:H:136:VAL:HG11	1.97	0.45
8:X:42:SER:HB2	8:X:46:LEU:HD12	1.99	0.45
10:Y:122:THR:OG1	10:Y:123:VAL:N	2.38	0.45
11:B:5:ALA:O	11:B:8:THR:OG1	2.26	0.45
11:B:260:ARG:HB2	11:B:323:LEU:HB2	1.99	0.45
11:C:341:PRO:O	11:C:344:VAL:N	2.50	0.45
12:F:277:SER:OG	12:F:278:ALA:N	2.49	0.45
12:F:345:TYR:HB3	15:F:600:ADP:C6	2.52	0.45
6:S:25:GLY:CA	6:T:27:ALA:HB2	2.45	0.45
6:N:52:ILE:HA	6:N:55:PHE:CE2	2.51	0.45
10:Y:71:ILE:O	10:Y:75:VAL:HG23	2.17	0.45
11:B:340:ILE:O	11:B:344:VAL:HG23	2.15	0.45
12:E:397:SER:OG	12:E:400:ASP:OD2	2.28	0.45
12:F:189:GLU:H	12:F:221:GLN:HA	1.81	0.45
6:O:26:ILE:HD12	6:O:55:PHE:CE1	2.52	0.45
6:R:48:PHE:CE2	6:R:52:ILE:HD11	2.51	0.45
10:Y:73:ALA:HB1	11:A:10:VAL:HG13	1.98	0.45
10:Y:77:THR:OG1	10:Y:80:ASN:OD1	2.28	0.45
11:A:69:GLU:HG2	11:A:70:PRO:CD	2.42	0.45
11:A:357:GLU:O	11:A:361:LYS:N	2.43	0.45

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
12:D:56:GLU:OE1	12:D:58:THR:OG1	2.29	0.45
12:D:138:ILE:HB	12:D:141:VAL:HB	1.99	0.45
12:D:287:THR:O	12:D:291:LEU:HD23	2.16	0.45
12:F:170:LEU:O	12:F:174:ILE:HG12	2.17	0.45
4:6:5:ASP:O	4:6:9:ARG:HG2	2.16	0.45
8:X:62:GLN:O	8:X:62:GLN:NE2	2.43	0.45
11:B:471:LEU:O	11:B:475:LYS:HG2	2.17	0.45
11:C:19:LYS:HG3	11:C:21:VAL:HG22	1.99	0.45
11:C:27:LEU:HD22	11:C:30:THR:HG23	1.97	0.45
6:L:41:PRO:HD2	13:H:40:GLY:H	1.82	0.45
10:Y:57:LEU:HD11	11:A:18:ILE:HD13	1.99	0.45
11:B:311:ALA:HA	11:B:323:LEU:HG	1.98	0.45
11:C:40:ILE:HD12	11:C:76:VAL:HG12	1.99	0.45
11:C:270:TYR:HB3	11:C:273:LEU:HD21	1.98	0.45
12:D:255:ILE:HB	12:D:308:GLN:HB3	1.98	0.45
6:O:24:ILE:O	6:O:27:ALA:HB3	2.17	0.45
6:P:33:LEU:HA	6:Q:34:ILE:HG21	1.99	0.45
11:A:112:ALA:HB3	11:A:244:LEU:HD12	1.98	0.45
11:B:361:LYS:HE3	12:E:379:GLN:HG3	1.99	0.45
11:C:64:MET:O	11:C:76:VAL:HG22	2.16	0.45
12:E:207:ILE:HG13	12:E:213:SER:OG	2.17	0.45
12:E:340:SER:HB2	12:E:345:TYR:OH	2.17	0.45
12:F:258:ILE:HG22	12:F:309:ALA:O	2.17	0.45
12:F:316:ASP:OD1	12:F:319:ASP:N	2.50	0.45
3:7:76:LYS:HA	3:7:79:LYS:HG2	1.99	0.45
6:O:21:GLY:HA3	6:P:20:LEU:HA	1.99	0.45
11:A:338:ALA:O	11:A:342:THR:OG1	2.34	0.45
12:D:145:ALA:HA	12:D:355:SER:HB2	1.99	0.45
12:E:294:GLU:OE2	12:E:294:GLU:HA	2.17	0.45
13:H:67:LYS:HD3	13:H:136:VAL:HG13	1.98	0.45
1:G:77:ILE:HG21	1:G:222:MET:HA	1.98	0.44
2:Z:156:SER:O	2:Z:159:ARG:HD2	2.17	0.44
6:Q:66:LEU:HD21	8:X:187:LEU:HD11	1.99	0.44
11:C:254:SER:OG	11:C:310:ARG:NH2	2.49	0.44
12:F:237:LEU:HD21	12:F:295:ARG:HB3	1.99	0.44
11:A:275:LYS:O	11:A:278:VAL:HG22	2.17	0.44
12:D:35:ASN:HA	12:D:82:PRO:HA	1.99	0.44
12:D:87:VAL:HB	12:D:242:TYR:CD2	2.51	0.44
12:F:289:MET:HE1	12:F:324:THR:C	2.42	0.44
1:G:268:VAL:HG23	11:A:291:PRO:HG2	1.99	0.44
3:7:92:ILE:O	3:7:96:GLU:HG3	2.16	0.44

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
3:7:118:GLN:HA	3:7:121:LEU:HG	1.97	0.44
4:6:7:TYR:O	4:6:10:GLU:HG3	2.17	0.44
6:S:8:LYS:HG3	6:T:9:TYR:CD2	2.52	0.44
6:N:48:PHE:O	6:N:52:ILE:HG12	2.17	0.44
11:A:188:GLN:HG3	11:A:201:LEU:HD23	1.98	0.44
11:B:67:ASN:OD1	11:B:289:ARG:NH2	2.50	0.44
11:C:413:ASP:O	11:C:417:LYS:NZ	2.42	0.44
12:D:86:PRO:HD3	12:D:114:ARG:NH1	2.32	0.44
12:D:231:ARG:O	12:D:235:THR:HG23	2.17	0.44
12:D:319:ASP:HB3	12:D:322:PRO:HD2	1.99	0.44
12:E:459:MET:HA	12:E:459:MET:HE3	1.98	0.44
13:H:132:ASN:O	13:H:136:VAL:HG23	2.18	0.44
7:8:24:LEU:HD12	8:X:91:THR:HG21	1.99	0.44
11:A:462:ARG:O	11:A:465:GLU:HG3	2.17	0.44
11:C:432:GLN:NE2	11:C:436:SER:O	2.37	0.44
12:D:288:ASP:OD2	12:D:288:ASP:N	2.47	0.44
12:E:374:VAL:HG13	12:E:410:ILE:HG21	1.98	0.44
12:F:50:VAL:HA	12:F:61:THR:HG22	1.98	0.44
6:M:4:VAL:HG13	6:N:9:TYR:HE2	1.82	0.44
6:M:37:VAL:HB	6:M:44:LYS:HD3	1.98	0.44
11:A:223:GLU:HA	11:A:228:MET:HB2	1.99	0.44
12:D:367:HIS:HE1	12:D:434:LEU:HD11	1.82	0.44
12:D:456:ALA:O	12:D:460:VAL:HG21	2.18	0.44
12:E:322:PRO:HA	12:E:325:THR:HG22	2.00	0.44
12:F:185:THR:HB	12:F:255:ILE:HG12	2.00	0.44
12:F:386:ASP:OD1	12:F:386:ASP:N	2.47	0.44
4:6:89:LYS:HZ1	5:U:12:SER:HB3	1.83	0.44
6:O:58:SER:O	6:O:61:THR:OG1	2.29	0.44
10:Y:39:SER:O	10:Y:43:VAL:HG23	2.17	0.44
10:Y:63:SER:OG	10:Y:66:ASP:OD1	2.29	0.44
12:D:112:LYS:HE3	12:D:112:LYS:HB3	1.87	0.44
12:E:388:ILE:HD12	12:E:393:MET:HG2	2.00	0.44
12:F:34:LEU:HD13	12:F:118:HIS:CG	2.52	0.44
2:Z:135:SER:O	2:Z:139:GLU:HG2	2.18	0.44
6:O:44:LYS:HA	6:O:47:VAL:HG12	1.99	0.44
11:A:239:SER:HB3	12:D:294:GLU:HG3	2.00	0.44
11:C:109:VAL:HG13	11:C:233:ILE:HB	1.99	0.44
6:P:57:LEU:HD13	6:Q:55:PHE:CE1	2.53	0.44
8:X:115:LEU:HD23	8:X:182:LEU:HD12	1.99	0.44
12:D:290:GLY:O	12:D:294:GLU:HB2	2.16	0.44
12:E:190:ARG:HA	12:E:222:MET:HE2	1.99	0.44

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
12:E:257:ASN:HB3	12:E:260:ARG:HG2	2.00	0.44
4:6:16:LEU:O	4:6:29:LYS:NZ	2.43	0.44
6:Q:53:LEU:HD21	8:X:236:ILE:HD13	2.00	0.44
12:F:346:PRO:HG2	12:F:415:SER:HA	2.00	0.44
12:F:458:TYR:O	12:F:469:LYS:NZ	2.47	0.44
4:6:11:LEU:O	4:6:15:LYS:HG2	2.18	0.43
7:8:16:GLY:HA2	7:8:19:LEU:HD12	1.99	0.43
11:B:5:ALA:O	11:B:9:GLU:HG3	2.17	0.43
11:B:54:LEU:HD13	11:B:97:VAL:HG23	1.99	0.43
12:D:320:PRO:HA	12:D:323:ALA:HB3	2.00	0.43
2:Z:156:SER:HA	2:Z:159:ARG:NE	2.33	0.43
6:K:19:LEU:HD21	6:K:66:LEU:HB2	1.99	0.43
6:P:25:GLY:HA2	6:Q:27:ALA:CB	2.48	0.43
6:R:55:PHE:HE2	8:X:237:LEU:HD21	1.83	0.43
10:Y:138:GLU:OE2	10:Y:138:GLU:N	2.51	0.43
12:D:185:THR:OG1	12:D:236:GLY:HA3	2.17	0.43
12:E:237:LEU:CD2	12:E:253:LEU:HD21	2.48	0.43
12:F:257:ASN:HD21	12:F:260:ARG:CZ	2.30	0.43
2:Z:95:SER:O	2:Z:99:HIS:ND1	2.51	0.43
6:S:49:PRO:HB3	8:X:149:GLY:HA3	2.01	0.43
11:A:270:TYR:HB2	11:A:327:PRO:HA	1.99	0.43
12:E:312:VAL:HG11	12:E:317:LEU:HD22	2.00	0.43
12:F:37:LEU:N	12:F:48:LEU:O	2.37	0.43
12:F:105:GLU:H	12:F:105:GLU:CD	2.27	0.43
2:Z:156:SER:HA	2:Z:159:ARG:CZ	2.47	0.43
4:6:17:ALA:HB3	4:6:18:PRO:HD3	2.00	0.43
5:U:26:ASN:HA	5:U:29:HIS:CE1	2.53	0.43
6:M:20:LEU:HD22	6:M:20:LEU:H	1.83	0.43
11:A:82:ARG:HA	12:D:33:ILE:HG13	2.01	0.43
11:A:383:LYS:O	11:A:383:LYS:HD3	2.17	0.43
11:B:274:SER:O	11:B:278:VAL:HG12	2.19	0.43
11:B:286:LEU:HD11	12:E:284:THR:HG22	2.00	0.43
11:C:170:ILE:HD13	11:C:329:ILE:HB	1.99	0.43
11:C:355:GLU:N	11:C:355:GLU:OE1	2.50	0.43
12:D:117:ILE:HG21	12:D:235:THR:HG22	2.00	0.43
12:F:178:HIS:HE1	12:F:250:ASP:HB3	1.84	0.43
14:I:3:TRP:HA	14:I:7:GLY:HA3	1.99	0.43
6:K:17:ILE:HD12	6:K:17:ILE:HA	1.88	0.43
6:Q:57:LEU:HD12	6:R:30:PHE:CE2	2.53	0.43
12:D:182:SER:O	12:D:215:VAL:HA	2.18	0.43
12:D:281:TYR:CE2	12:D:320:PRO:HG2	2.53	0.43

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
12:E:237:LEU:HD21	12:E:253:LEU:HD21	2.00	0.43
13:H:96:PHE:HD1	14:I:29:LEU:HD13	1.84	0.43
3:7:36:ASN:C	3:7:36:ASN:OD1	2.61	0.43
8:X:102:ILE:HG23	8:X:105:ILE:HD12	2.00	0.43
10:Y:30:ASN:ND2	10:Y:84:TYR:OH	2.41	0.43
10:Y:63:SER:O	10:Y:67:ARG:HG3	2.18	0.43
11:A:293:ARG:NH2	12:E:263:GLN:HE21	2.15	0.43
11:B:111:ASP:OD1	11:B:115:ASN:N	2.52	0.43
11:B:188:GLN:HB3	11:B:192:ASN:ND2	2.34	0.43
12:E:34:LEU:HD13	12:E:118:HIS:CE1	2.54	0.43
12:E:53:HIS:CD2	12:E:59:VAL:HG12	2.53	0.43
12:F:368:TYR:HD2	12:F:368:TYR:O	2.01	0.43
3:7:114:LEU:HB3	3:7:118:GLN:HE21	1.84	0.43
6:L:33:LEU:HA	6:M:34:ILE:HG21	2.00	0.43
6:O:29:VAL:HG23	6:P:27:ALA:HB1	2.00	0.43
9:J:4:ARG:HD2	9:J:5:PHE:N	2.33	0.43
11:A:33:VAL:HG22	11:A:43:VAL:HG22	2.01	0.43
11:A:368:ASN:ND2	11:A:371:LEU:HG	2.34	0.43
11:B:109:VAL:HB	11:B:118:ASP:HB3	2.00	0.43
11:B:152:LEU:HD11	11:B:183:ASP:HB2	2.01	0.43
11:B:241:ALA:HB1	11:B:243:PRO:HD2	2.00	0.43
1:G:209:LEU:HA	13:H:74:PHE:HE2	1.84	0.43
2:Z:195:GLN:CD	4:6:4:GLN:HG3	2.43	0.43
11:A:42:ARG:HD2	11:A:72:GLN:NE2	2.33	0.43
11:B:412:LEU:HB3	11:B:416:THR:OG1	2.19	0.43
12:D:269:SER:O	12:D:274:ARG:HD2	2.19	0.43
12:E:358:LEU:HD23	12:E:358:LEU:HA	1.79	0.43
13:H:17:PRO:HD2	13:H:88:ILE:O	2.19	0.43
6:O:65:CYS:SG	6:P:19:LEU:HB2	2.59	0.43
11:B:141:ARG:CZ	12:F:191:THR:HB	2.49	0.43
12:D:147:TYR:CZ	12:D:153:ILE:HG21	2.53	0.43
12:D:201:MET:HB2	12:D:207:ILE:HD12	2.00	0.43
12:D:473:LEU:O	12:D:476:GLU:HG3	2.19	0.43
12:E:241:GLU:HG2	12:E:244:ARG:NH2	2.34	0.43
1:G:119:LEU:HA	14:I:47:TYR:OH	2.19	0.43
2:Z:157:TRP:CE2	3:7:67:VAL:HG11	2.53	0.43
2:Z:204:LEU:HB3	10:Y:140:ALA:HB2	2.01	0.43
6:L:4:VAL:HG13	6:M:2:GLN:NE2	2.34	0.43
7:8:13:LEU:HD12	7:8:13:LEU:HA	1.82	0.43
11:A:354:LEU:HD23	11:A:367:ILE:HA	2.00	0.43
12:D:257:ASN:OD1	12:D:260:ARG:N	2.48	0.43

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
12:E:251:VAL:HG23	12:E:304:VAL:HG23	2.01	0.43
12:F:65:ASP:C	12:F:225:PRO:HG3	2.43	0.43
12:F:449:TYR:HB3	12:F:452:ILE:HD12	2.01	0.43
13:H:69:PHE:HE2	13:H:133:LEU:HG	1.82	0.43
1:G:209:LEU:HA	13:H:74:PHE:CE2	2.54	0.42
3:7:78:TYR:CE2	3:7:81:VAL:HG23	2.53	0.42
6:L:4:VAL:HG13	6:M:2:GLN:HE21	1.83	0.42
6:N:52:ILE:HA	6:N:55:PHE:CD2	2.53	0.42
11:C:399:TYR:HB2	11:C:423:GLY:HA3	2.00	0.42
12:D:253:LEU:HD13	12:D:296:ILE:HD11	2.00	0.42
12:F:142:ASP:O	12:F:367:HIS:NE2	2.49	0.42
12:F:217:LEU:HD12	12:F:219:PHE:CE2	2.54	0.42
6:Q:57:LEU:HD23	8:X:176:ARG:NH1	2.34	0.42
7:8:30:PHE:CG	9:J:2:LEU:HD11	2.53	0.42
8:X:93:PHE:HE1	8:X:232:TYR:HA	1.84	0.42
8:X:156:PRO:HA	8:X:159:VAL:HG22	2.01	0.42
11:A:236:ALA:HB1	11:A:245:GLN:HA	2.00	0.42
11:B:204:VAL:O	11:B:268:ILE:HA	2.19	0.42
11:B:285:LEU:HD21	11:B:291:PRO:HB3	2.01	0.42
11:B:440:THR:HA	11:B:443:GLN:HB2	2.00	0.42
12:E:350:PRO:HG3	12:E:414:LEU:HD12	2.01	0.42
12:F:46:LEU:HD13	12:F:65:ASP:HB2	2.00	0.42
1:G:234:ARG:NH2	1:G:235:ASN:OD1	2.53	0.42
2:Z:186:ASN:HD22	4:6:9:ARG:HH21	1.67	0.42
4:6:36:LYS:HB2	4:6:37:PRO:HD3	2.01	0.42
5:U:70:ALA:O	5:U:73:ILE:HG22	2.19	0.42
8:X:93:PHE:HD1	8:X:235:ALA:HB2	1.84	0.42
11:B:46:LEU:O	11:B:49:ILE:HG22	2.18	0.42
11:B:50:GLN:HB3	12:F:69:GLY:HA2	2.01	0.42
11:B:157:ALA:HA	11:B:385:LEU:HD21	2.00	0.42
11:B:363:ILE:HA	11:B:431:LYS:HZ3	1.83	0.42
12:E:31:PRO:O	12:E:53:HIS:NE2	2.35	0.42
13:H:98:GLN:OE1	13:H:101:ILE:N	2.36	0.42
10:Y:103:LYS:O	10:Y:106:SER:OG	2.30	0.42
11:A:102:GLY:HA2	11:A:258:TRP:CE2	2.54	0.42
11:B:49:ILE:HD11	11:B:53:GLU:HB3	2.02	0.42
11:C:112:ALA:HB3	11:C:244:LEU:HD22	2.00	0.42
12:D:197:LEU:O	12:D:201:MET:HG3	2.20	0.42
12:D:277:SER:OG	12:D:283:PRO:HA	2.19	0.42
12:E:139:LYS:NZ	12:E:460:VAL:O	2.41	0.42
12:E:235:THR:O	12:E:239:ILE:HG12	2.20	0.42

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
12:F:217:LEU:HD12	12:F:219:PHE:HE2	1.84	0.42
1:G:25:ILE:O	1:G:29:THR:HG23	2.20	0.42
5:U:50:ARG:HD2	5:U:51:TYR:N	2.35	0.42
6:L:17:ILE:O	6:M:20:LEU:HD11	2.20	0.42
9:J:14:TRP:CG	9:J:15:PRO:HD3	2.54	0.42
10:Y:8:PRO:HG3	10:Y:25:GLN:CD	2.45	0.42
11:C:299:ASP:HB2	11:C:302:TYR:HB3	2.01	0.42
12:D:422:GLU:HG2	12:D:428:PRO:HA	2.01	0.42
5:U:22:LYS:HD3	5:U:25:ALA:HB3	2.01	0.42
6:K:26:ILE:HG12	6:K:55:PHE:HD1	1.85	0.42
6:L:21:GLY:HA2	6:L:24:ILE:HG22	2.02	0.42
6:O:24:ILE:O	6:O:28:ILE:HG12	2.20	0.42
11:C:102:GLY:HA2	11:C:258:TRP:CE2	2.55	0.42
12:D:95:ILE:HB	12:D:104:ASP:HB3	2.02	0.42
12:D:472:LYS:HD2	12:D:472:LYS:O	2.20	0.42
12:E:351:LEU:HD23	12:E:351:LEU:H	1.85	0.42
13:H:29:GLN:HG2	13:H:42:LEU:HG	2.02	0.42
13:H:32:LEU:HD13	13:H:75:ALA:HB1	2.01	0.42
11:B:181:ALA:HB1	11:B:269:VAL:HG21	2.01	0.42
11:B:375:ARG:HG2	12:F:192:ARG:NH1	2.34	0.42
11:C:55:VAL:HG23	11:C:92:ARG:HA	2.01	0.42
11:C:388:VAL:HG12	11:C:447:ILE:HG22	2.01	0.42
2:Z:126:VAL:HA	2:Z:129:GLU:HB2	2.00	0.42
2:Z:150:ALA:O	2:Z:153:VAL:HG12	2.20	0.42
4:6:8:LEU:HD12	4:6:9:ARG:N	2.35	0.42
7:8:44:PHE:O	7:8:47:LYS:HG2	2.20	0.42
11:C:360:TYR:CE2	12:F:351:LEU:HB3	2.55	0.42
12:F:439:ALA:HA	12:F:442:LYS:HG2	2.01	0.42
6:S:4:VAL:HG13	6:T:9:TYR:HE2	1.84	0.42
8:X:144:LEU:HD13	8:X:248:LEU:HG	2.01	0.42
11:A:64:MET:HE2	11:A:76:VAL:HG11	2.02	0.42
11:A:205:TYR:N	11:A:232:ILE:O	2.48	0.42
11:A:270:TYR:CE1	11:A:307:LEU:HD11	2.54	0.42
11:B:250:PHE:CE1	11:B:307:LEU:HB2	2.54	0.42
11:C:217:GLN:HG3	12:F:356:ARG:HH12	1.85	0.42
12:D:117:ILE:HA	12:D:238:THR:OG1	2.19	0.42
12:D:281:TYR:HH	12:D:319:ASP:CG	2.27	0.42
12:E:460:VAL:HG21	12:E:466:VAL:HG22	2.02	0.42
4:6:18:PRO:HA	4:6:21:LEU:HB3	2.01	0.42
4:6:25:GLU:OE1	4:6:36:LYS:NZ	2.40	0.42
6:L:64:PHE:HE1	6:M:66:LEU:HD13	1.82	0.42

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
8:X:171:ILE:HG13	8:X:175:LEU:HD13	2.02	0.42
11:B:53:GLU:OE1	11:B:92:ARG:NH2	2.53	0.42
11:B:170:ILE:HD11	11:B:341:PRO:HB3	2.02	0.42
11:B:170:ILE:HD13	11:B:345:ILE:HD11	2.01	0.42
11:B:180:VAL:HA	11:B:183:ASP:OD2	2.20	0.42
11:B:182:LEU:HD12	11:B:182:LEU:HA	1.73	0.42
11:C:170:ILE:HG23	11:C:353:PHE:HA	2.02	0.42
11:C:480:GLU:HG2	11:C:481:LEU:HD12	2.02	0.42
12:D:359:ASP:OD1	12:D:359:ASP:C	2.62	0.42
12:E:279:VAL:O	12:E:279:VAL:HG12	2.19	0.42
12:E:319:ASP:HB3	12:E:322:PRO:HD2	2.00	0.42
12:E:321:ALA:HB3	12:E:322:PRO:HD3	2.00	0.42
13:H:69:PHE:H	13:H:91:PHE:HB3	1.85	0.42
13:H:98:GLN:OE1	13:H:101:ILE:HG22	2.20	0.42
1:G:71:LYS:O	1:G:160:PRO:HD2	2.20	0.41
3:7:54:ASP:O	3:7:58:TYR:N	2.53	0.41
5:U:47:ARG:HG2	5:U:48:LEU:HD12	2.02	0.41
6:O:15:SER:HB3	6:O:69:SER:HB2	2.02	0.41
6:Q:19:LEU:HD13	6:Q:62:GLY:HA3	2.02	0.41
8:X:31:LEU:HA	8:X:34:ILE:HG22	2.01	0.41
8:X:73:THR:HG21	8:X:86:PHE:HB2	2.01	0.41
11:A:467:GLU:O	11:A:471:LEU:HD23	2.19	0.41
11:B:462:ARG:O	11:B:465:GLU:HG3	2.20	0.41
11:C:412:LEU:O	11:C:416:THR:HB	2.20	0.41
12:D:33:ILE:HA	12:D:50:VAL:HB	2.02	0.41
12:D:139:LYS:NZ	12:D:460:VAL:O	2.37	0.41
12:E:388:ILE:HD13	12:E:388:ILE:HA	1.96	0.41
12:F:405:GLU:OE1	12:F:409:LYS:HE2	2.19	0.41
1:G:138:PRO:HB3	1:G:222:MET:HE1	2.02	0.41
6:S:46:THR:OG1	6:T:44:LYS:HE2	2.19	0.41
6:T:58:SER:O	6:T:61:THR:OG1	2.31	0.41
6:Q:33:LEU:O	6:Q:37:VAL:HG22	2.20	0.41
8:X:65:ILE:HG21	8:X:94:MET:HE1	2.01	0.41
11:B:356:ALA:HB1	11:B:360:TYR:HE2	1.85	0.41
11:B:399:TYR:OH	11:B:426:LEU:HB3	2.18	0.41
11:C:182:LEU:O	11:C:186:LEU:HG	2.20	0.41
11:A:394:LEU:O	11:A:398:GLN:HG2	2.20	0.41
11:B:364:ARG:HB3	11:B:365:PRO:HD3	2.02	0.41
12:D:9:ILE:HG23	12:D:29:GLU:HB3	2.02	0.41
12:E:342:LEU:HB2	12:E:344:ILE:CD1	2.49	0.41
13:H:58:GLU:CG	13:H:60:MET:HE1	2.50	0.41

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:G:233:ARG:O	1:G:237:MET:HG2	2.20	0.41
6:S:17:ILE:O	6:T:20:LEU:HD11	2.20	0.41
6:S:29:VAL:HG23	6:T:27:ALA:HA	2.03	0.41
11:B:328:VAL:O	11:B:329:ILE:HD13	2.21	0.41
11:B:353:PHE:N	11:B:372:SER:OG	2.44	0.41
11:C:42:ARG:HD2	11:C:72:GLN:HE21	1.86	0.41
11:C:396:LEU:O	11:C:400:ARG:NE	2.44	0.41
12:E:43:GLN:H	12:E:43:GLN:CD	2.26	0.41
12:F:164:THR:HB	15:F:600:ADP:O2A	2.20	0.41
12:F:208:ASN:OD1	12:F:208:ASN:C	2.63	0.41
2:Z:113:LEU:HB2	3:7:110:VAL:CG1	2.49	0.41
6:L:21:GLY:N	6:M:20:LEU:HD12	2.33	0.41
6:P:33:LEU:HD22	6:P:51:ALA:HB3	2.03	0.41
8:X:77:ILE:CD1	8:X:85:TYR:HB2	2.51	0.41
8:X:198:PHE:H	8:X:198:PHE:HD1	1.66	0.41
10:Y:91:VAL:O	10:Y:95:ASN:ND2	2.53	0.41
10:Y:160:LYS:HG2	10:Y:161:PRO:CD	2.50	0.41
11:A:343:ASN:O	11:A:346:SER:OG	2.30	0.41
11:B:467:GLU:OE1	11:B:468:SER:N	2.53	0.41
11:C:97:VAL:HG21	11:C:247:LEU:HD13	2.01	0.41
12:F:166:PHE:O	12:F:170:LEU:HD22	2.19	0.41
6:Q:57:LEU:HD13	6:R:55:PHE:CE1	2.55	0.41
11:A:150:THR:HG21	11:A:161:ILE:HD12	2.03	0.41
11:B:395:PHE:HZ	11:B:426:LEU:HD22	1.85	0.41
11:C:64:MET:SD	11:C:247:LEU:HD11	2.61	0.41
11:C:206:VAL:HG12	11:C:208:VAL:HG23	2.03	0.41
12:D:148:ALA:HB3	12:D:151:GLY:HA3	2.02	0.41
12:D:237:LEU:HD13	12:D:292:LEU:HD12	2.01	0.41
12:E:11:GLY:O	12:E:76:VAL:N	2.54	0.41
12:E:49:GLU:CD	12:E:231:ARG:HE	2.29	0.41
13:H:102:LYS:HZ1	13:H:133:LEU:HD22	1.85	0.41
5:U:55:TYR:HB3	5:U:65:PRO:HG3	2.02	0.41
6:L:65:CYS:HA	6:L:68:VAL:HG22	2.03	0.41
12:D:127:GLN:HE22	12:D:297:THR:HG21	1.85	0.41
12:E:396:LEU:O	12:E:401:LYS:NZ	2.50	0.41
13:H:88:ILE:HD11	14:I:14:LEU:HD21	2.03	0.41
1:G:231:SER:O	1:G:235:ASN:ND2	2.53	0.41
6:K:29:VAL:HG23	6:L:27:ALA:HB1	2.02	0.41
8:X:216:ILE:O	8:X:220:MET:HG2	2.20	0.41
10:Y:100:CYS:O	10:Y:104:ILE:HG12	2.20	0.41
11:A:293:ARG:HH21	12:E:263:GLN:HE21	1.67	0.41

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
11:A:299:ASP:HB3	12:E:267:GLU:HG2	2.03	0.41
11:A:339:TYR:C	11:A:339:TYR:CD1	2.99	0.41
11:C:133:VAL:H	11:C:310:ARG:NH1	2.18	0.41
11:C:328:VAL:O	11:C:329:ILE:HD13	2.20	0.41
12:D:359:ASP:HA	12:D:368:TYR:CD1	2.56	0.41
12:F:402:LEU:HG	12:F:406:ARG:HH12	1.86	0.41
1:G:126:ILE:HG21	14:I:47:TYR:CE2	2.55	0.41
1:G:226:TYR:CZ	1:G:230:ILE:HD11	2.55	0.41
2:Z:100:VAL:O	2:Z:103:VAL:HG12	2.21	0.41
2:Z:173:ALA:O	2:Z:176:VAL:HB	2.21	0.41
3:7:113:GLU:O	3:7:117:LEU:HG	2.21	0.41
6:S:53:LEU:O	6:S:57:LEU:HG	2.21	0.41
6:N:33:LEU:O	6:N:37:VAL:HG13	2.21	0.41
6:N:57:LEU:HB3	6:O:55:PHE:CZ	2.56	0.41
6:N:68:VAL:HG11	6:O:16:THR:HG21	2.02	0.41
11:A:207:ALA:HB3	11:A:235:ALA:HA	2.01	0.41
11:B:39:GLY:N	11:B:81:ASP:OD2	2.49	0.41
11:B:70:PRO:HD3	12:F:15:ALA:HB2	2.03	0.41
11:C:65:ALA:HA	11:C:75:ILE:HA	2.03	0.41
11:C:238:ALA:HB1	12:F:290:GLY:HA3	2.03	0.41
11:C:345:ILE:HG23	11:C:351:GLN:NE2	2.36	0.41
12:E:39:ILE:HD11	12:E:76:VAL:HG22	2.02	0.41
12:F:96:ILE:HB	12:F:218:VAL:HG22	2.02	0.41
13:H:34:ALA:HA	13:H:52:LEU:HA	2.03	0.41
1:G:30:ARG:HA	1:G:33:LYS:HG2	2.03	0.41
1:G:78:THR:HG21	1:G:114:ILE:HD13	2.02	0.41
2:Z:168:GLU:O	2:Z:171:GLN:HG2	2.21	0.41
3:7:152:MET:SD	7:8:36:LEU:HD21	2.61	0.41
6:Q:8:LYS:HG2	6:Q:72:LEU:O	2.20	0.41
6:Q:17:ILE:HG21	6:R:17:ILE:HG12	2.03	0.41
11:A:282:GLN:HB2	12:D:283:PRO:O	2.21	0.41
12:D:15:ALA:HB3	12:D:22:ASP:HB2	2.03	0.41
12:D:148:ALA:H	12:D:153:ILE:HD11	1.86	0.41
12:E:417:PRO:HB2	12:E:429:GLY:HA2	2.02	0.41
12:F:83:ILE:O	12:F:117:ILE:HG23	2.21	0.41
4:6:89:LYS:HA	4:6:92:HIS:CD2	2.55	0.40
6:R:54:GLY:HA2	6:R:57:LEU:HD12	2.03	0.40
9:J:4:ARG:HD2	9:J:4:ARG:C	2.46	0.40
10:Y:111:LEU:HD22	10:Y:115:HIS:CG	2.55	0.40
11:C:133:VAL:H	11:C:310:ARG:HH12	1.69	0.40
11:C:305:SER:HB2	12:D:222:MET:HB3	2.03	0.40

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
12:D:279:VAL:HB	12:D:281:TYR:CE2	2.56	0.40
12:D:406:ARG:HD3	12:D:445:LEU:HA	2.02	0.40
12:E:237:LEU:HD23	12:E:237:LEU:HA	1.61	0.40
12:F:256:ASP:C	12:F:256:ASP:OD1	2.64	0.40
12:F:376:GLU:HG2	12:F:376:GLU:H	1.77	0.40
1:G:249:ASN:OD1	1:G:249:ASN:C	2.64	0.40
3:7:29:LEU:HA	3:7:32:PHE:CD2	2.56	0.40
6:N:61:THR:HB	6:O:19:LEU:HD21	2.02	0.40
8:X:56:SER:O	8:X:60:ILE:N	2.39	0.40
8:X:69:ILE:HA	8:X:72:MET:HE2	2.03	0.40
11:A:142:ARG:HD3	11:A:143:SER:O	2.22	0.40
11:C:237:THR:N	11:C:240:GLU:OE1	2.54	0.40
12:D:308:GLN:H	12:D:308:GLN:HG2	1.74	0.40
12:D:448:LYS:HD3	12:D:448:LYS:HA	1.65	0.40
12:E:244:ARG:HD2	12:E:301:LYS:O	2.21	0.40
13:H:113:SER:HA	13:H:123:ALA:HB3	2.02	0.40
2:Z:100:VAL:HA	2:Z:103:VAL:HG12	2.02	0.40
3:7:148:LYS:O	3:7:152:MET:HG3	2.21	0.40
4:6:89:LYS:NZ	5:U:12:SER:HB3	2.36	0.40
6:O:40:ASN:OD1	6:O:40:ASN:N	2.55	0.40
8:X:68:THR:C	8:X:72:MET:HE2	2.46	0.40
8:X:216:ILE:HA	8:X:219:ILE:HG12	2.03	0.40
10:Y:51:PRO:HD2	10:Y:52:LYS:H	1.84	0.40
10:Y:120:LYS:HG3	10:Y:121:GLY:H	1.86	0.40
11:C:170:ILE:HD11	11:C:331:THR:HG23	2.03	0.40
12:D:56:GLU:O	12:D:56:GLU:CD	2.64	0.40
12:D:278:ALA:C	12:D:280:GLY:N	2.80	0.40
12:D:464:GLU:H	12:D:464:GLU:CD	2.29	0.40
13:H:114:SER:HA	13:H:120:ALA:HB1	2.04	0.40
4:6:7:TYR:CE2	11:B:15:GLU:HB3	2.57	0.40
4:6:8:LEU:HD12	4:6:9:ARG:H	1.86	0.40
6:T:57:LEU:HD13	6:K:55:PHE:CZ	2.56	0.40
6:P:21:GLY:O	6:P:24:ILE:HG22	2.20	0.40
6:Q:7:ALA:HB1	6:R:10:ILE:HG13	2.04	0.40
8:X:207:VAL:HA	8:X:210:PHE:HB2	2.02	0.40
11:A:34:LEU:HD12	11:A:34:LEU:HA	1.85	0.40
11:A:177:LYS:H	11:A:354:LEU:HD13	1.86	0.40
11:B:305:SER:HB2	12:F:222:MET:HB2	2.04	0.40
11:C:399:TYR:CG	11:C:423:GLY:HA3	2.56	0.40
12:D:224:GLU:O	12:D:229:ARG:NH1	2.54	0.40
12:E:412:ARG:HH11	12:E:412:ARG:HG2	1.85	0.40

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:G:23:MET:SD	1:G:237:MET:HE3	2.62	0.40
7:8:13:LEU:HD23	9:J:27:MET:SD	2.62	0.40
8:X:69:ILE:HG21	8:X:90:PHE:HA	2.04	0.40
10:Y:70:VAL:O	10:Y:73:ALA:N	2.55	0.40
11:A:151:GLY:HA2	11:A:438:LEU:O	2.22	0.40
11:B:216:ALA:HA	11:B:219:VAL:HG12	2.03	0.40
11:B:338:ALA:O	11:B:342:THR:HG23	2.22	0.40
11:B:355:GLU:OE1	11:B:368:ASN:ND2	2.55	0.40
12:D:296:ILE:HG21	12:D:306:SER:HB2	2.03	0.40
12:E:359:ASP:OD1	12:E:359:ASP:N	2.55	0.40
13:H:130:LEU:HA	13:H:133:LEU:HD12	2.03	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	G	257/261 (98%)	239 (93%)	17 (7%)	1 (0%)	30	64
2	Z	153/155 (99%)	148 (97%)	5 (3%)	0	100	100
3	7	169/171 (99%)	161 (95%)	8 (5%)	0	100	100
4	6	87/89 (98%)	78 (90%)	9 (10%)	0	100	100
5	U	83/85 (98%)	78 (94%)	5 (6%)	0	100	100
6	K	73/75 (97%)	73 (100%)	0	0	100	100
6	L	72/75 (96%)	70 (97%)	2 (3%)	0	100	100
6	M	72/75 (96%)	69 (96%)	3 (4%)	0	100	100
6	N	72/75 (96%)	71 (99%)	1 (1%)	0	100	100
6	O	72/75 (96%)	71 (99%)	1 (1%)	0	100	100
6	P	73/75 (97%)	71 (97%)	2 (3%)	0	100	100

Continued on next page...

Continued from previous page...

Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
6	Q	72/75 (96%)	70 (97%)	2 (3%)	0	100	100
6	R	72/75 (96%)	72 (100%)	0	0	100	100
6	S	72/75 (96%)	72 (100%)	0	0	100	100
6	T	72/75 (96%)	70 (97%)	2 (3%)	0	100	100
7	8	39/41 (95%)	37 (95%)	2 (5%)	0	100	100
8	X	222/224 (99%)	201 (90%)	20 (9%)	1 (0%)	25	59
9	J	35/37 (95%)	35 (100%)	0	0	100	100
10	Y	164/166 (99%)	145 (88%)	17 (10%)	2 (1%)	11	43
11	A	505/507 (100%)	477 (94%)	27 (5%)	1 (0%)	44	75
11	B	504/507 (99%)	477 (95%)	25 (5%)	2 (0%)	30	64
11	C	503/507 (99%)	487 (97%)	16 (3%)	0	100	100
12	D	471/473 (100%)	448 (95%)	22 (5%)	1 (0%)	44	75
12	E	471/473 (100%)	437 (93%)	31 (7%)	3 (1%)	22	56
12	F	470/473 (99%)	451 (96%)	19 (4%)	0	100	100
13	H	130/132 (98%)	112 (86%)	18 (14%)	0	100	100
14	I	57/59 (97%)	51 (90%)	6 (10%)	0	100	100
All	All	5042/5110 (99%)	4771 (95%)	260 (5%)	11 (0%)	45	75

All (11) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
11	A	367	ILE
11	B	388	VAL
8	X	176	ARG
12	E	161	VAL
1	G	57	THR
10	Y	158	VAL
12	E	306	SER
11	B	459	GLU
12	E	307	VAL
12	D	348	VAL
10	Y	15	VAL

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	G	224/224 (100%)	224 (100%)	0	100 100
2	Z	137/138 (99%)	137 (100%)	0	100 100
3	7	154/156 (99%)	154 (100%)	0	100 100
4	6	79/79 (100%)	78 (99%)	1 (1%)	65 81
5	U	60/68 (88%)	60 (100%)	0	100 100
6	K	55/55 (100%)	55 (100%)	0	100 100
6	L	55/55 (100%)	55 (100%)	0	100 100
6	M	55/55 (100%)	55 (100%)	0	100 100
6	N	55/55 (100%)	55 (100%)	0	100 100
6	O	55/55 (100%)	55 (100%)	0	100 100
6	P	55/55 (100%)	55 (100%)	0	100 100
6	Q	55/55 (100%)	54 (98%)	1 (2%)	54 74
6	R	55/55 (100%)	55 (100%)	0	100 100
6	S	55/55 (100%)	55 (100%)	0	100 100
6	T	55/55 (100%)	55 (100%)	0	100 100
7	8	40/40 (100%)	40 (100%)	0	100 100
8	X	193/193 (100%)	193 (100%)	0	100 100
9	J	30/30 (100%)	30 (100%)	0	100 100
10	Y	139/139 (100%)	139 (100%)	0	100 100
11	A	410/410 (100%)	410 (100%)	0	100 100
11	B	409/410 (100%)	407 (100%)	2 (0%)	86 93
11	C	409/410 (100%)	407 (100%)	2 (0%)	86 93
12	D	382/382 (100%)	380 (100%)	2 (0%)	86 93
12	E	382/382 (100%)	382 (100%)	0	100 100
12	F	381/382 (100%)	379 (100%)	2 (0%)	86 93
13	H	111/111 (100%)	111 (100%)	0	100 100

Continued on next page...

Continued from previous page...

Mol	Chain	Analysed	Rotameric	Outliers	Percentiles
14	I	25/46 (54%)	25 (100%)	0	100 100
All	All	4115/4150 (99%)	4105 (100%)	10 (0%)	91 97

All (10) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
4	6	8	LEU
6	Q	40	ASN
11	B	36	VAL
11	B	40	ILE
11	C	272	ASP
11	C	396	LEU
12	D	308	GLN
12	D	375	GLN
12	F	291	LEU
12	F	385	GLN

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (44) such sidechains are listed below:

Mol	Chain	Res	Type
1	G	122	HIS
1	G	125	ASN
1	G	243	ASN
1	G	265	ASN
2	Z	190	GLN
2	Z	195	GLN
3	7	42	GLN
3	7	118	GLN
4	6	27	ASN
4	6	56	GLN
6	L	2	GLN
6	M	2	GLN
6	O	35	ASN
6	P	2	GLN
6	P	40	ASN
6	Q	40	ASN
7	8	11	ASN
10	Y	115	HIS
11	A	188	GLN
11	A	225	HIS
11	A	418	GLN

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type
11	A	452	ASN
11	B	149	GLN
11	B	193	ASN
11	B	262	ASN
11	B	368	ASN
11	B	381	GLN
11	C	6	GLN
11	C	28	ASN
11	C	304	HIS
11	C	418	GLN
12	D	127	GLN
12	D	328	HIS
12	D	365	GLN
12	E	195	ASN
12	E	365	GLN
12	E	411	GLN
12	F	168	GLN
12	F	173	ASN
12	F	195	ASN
12	F	365	GLN
12	F	379	GLN
12	F	478	ASN
13	H	103	ASN

5.3.3 RNA

There are no RNA molecules in this entry.

5.4 Non-standard residues in protein, DNA, RNA chains

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

5.5 Carbohydrates

There are no oligosaccharides in this entry.

5.6 Ligand geometry

Of 9 ligands modelled in this entry, 4 are monoatomic - leaving 5 for Mogul analysis.

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	ADP	B	601	16	24,29,29	0.91	0	29,45,45	1.26	2 (6%)
15	ADP	E	501	16	24,29,29	0.90	0	29,45,45	1.44	3 (10%)
15	ADP	A	601	16	24,29,29	0.95	1 (4%)	29,45,45	1.17	2 (6%)
15	ADP	C	601	16	24,29,29	0.89	0	29,45,45	1.19	2 (6%)
15	ADP	F	600	-	24,29,29	0.87	0	29,45,45	1.24	2 (6%)

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	ADP	B	601	16	-	5/12/32/32	0/3/3/3
15	ADP	E	501	16	-	5/12/32/32	0/3/3/3
15	ADP	A	601	16	-	0/12/32/32	0/3/3/3
15	ADP	C	601	16	-	3/12/32/32	0/3/3/3
15	ADP	F	600	-	-	5/12/32/32	0/3/3/3

All (1) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
15	A	601	ADP	PA-O3A	2.38	1.62	1.59

All (11) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
15	E	501	ADP	C4'-O4'-C1'	-4.20	106.08	109.92
15	B	601	ADP	N3-C2-N1	-3.76	123.57	128.67
15	E	501	ADP	N3-C2-N1	-3.75	123.58	128.67
15	A	601	ADP	N3-C2-N1	-3.70	123.66	128.67
15	F	600	ADP	N3-C2-N1	-3.54	123.87	128.67
15	C	601	ADP	N3-C2-N1	-3.35	124.13	128.67

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
15	B	601	ADP	C4-C5-N7	-2.63	106.56	109.34
15	A	601	ADP	C4-C5-N7	-2.60	106.58	109.34
15	C	601	ADP	C4-C5-N7	-2.59	106.60	109.34
15	F	600	ADP	C4-C5-N7	-2.47	106.72	109.34
15	E	501	ADP	C4-C5-N7	-2.19	107.02	109.34

There are no chirality outliers.

All (18) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
15	B	601	ADP	C5'-O5'-PA-O2A
15	B	601	ADP	C5'-O5'-PA-O3A
15	C	601	ADP	C5'-O5'-PA-O1A
15	E	501	ADP	C5'-O5'-PA-O1A
15	E	501	ADP	C5'-O5'-PA-O2A
15	E	501	ADP	O4'-C4'-C5'-O5'
15	F	600	ADP	C5'-O5'-PA-O2A
15	F	600	ADP	C5'-O5'-PA-O3A
15	E	501	ADP	C3'-C4'-C5'-O5'
15	B	601	ADP	O4'-C4'-C5'-O5'
15	B	601	ADP	C3'-C4'-C5'-O5'
15	F	600	ADP	O4'-C4'-C5'-O5'
15	F	600	ADP	C3'-C4'-C5'-O5'
15	C	601	ADP	C5'-O5'-PA-O3A
15	E	501	ADP	C5'-O5'-PA-O3A
15	C	601	ADP	C3'-C4'-C5'-O5'
15	B	601	ADP	PB-O3A-PA-O2A
15	F	600	ADP	PB-O3A-PA-O2A

There are no ring outliers.

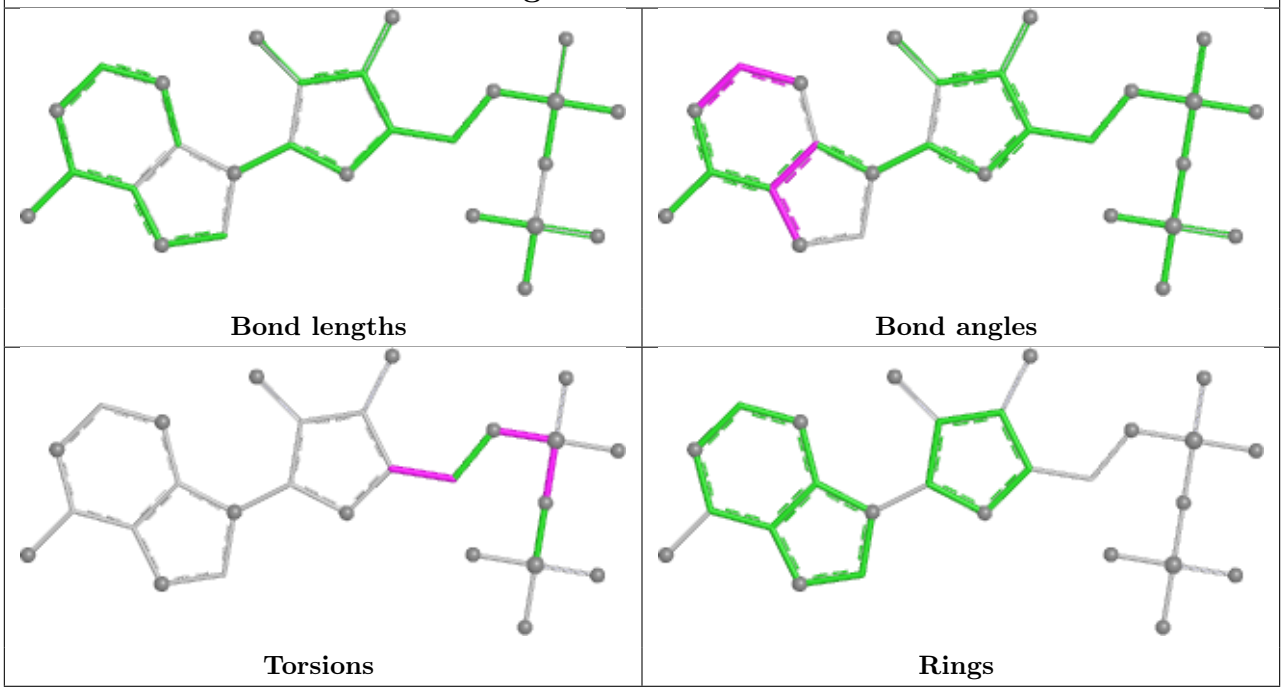
3 monomers are involved in 12 short contacts:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
15	B	601	ADP	2	0
15	E	501	ADP	7	0
15	F	600	ADP	3	0

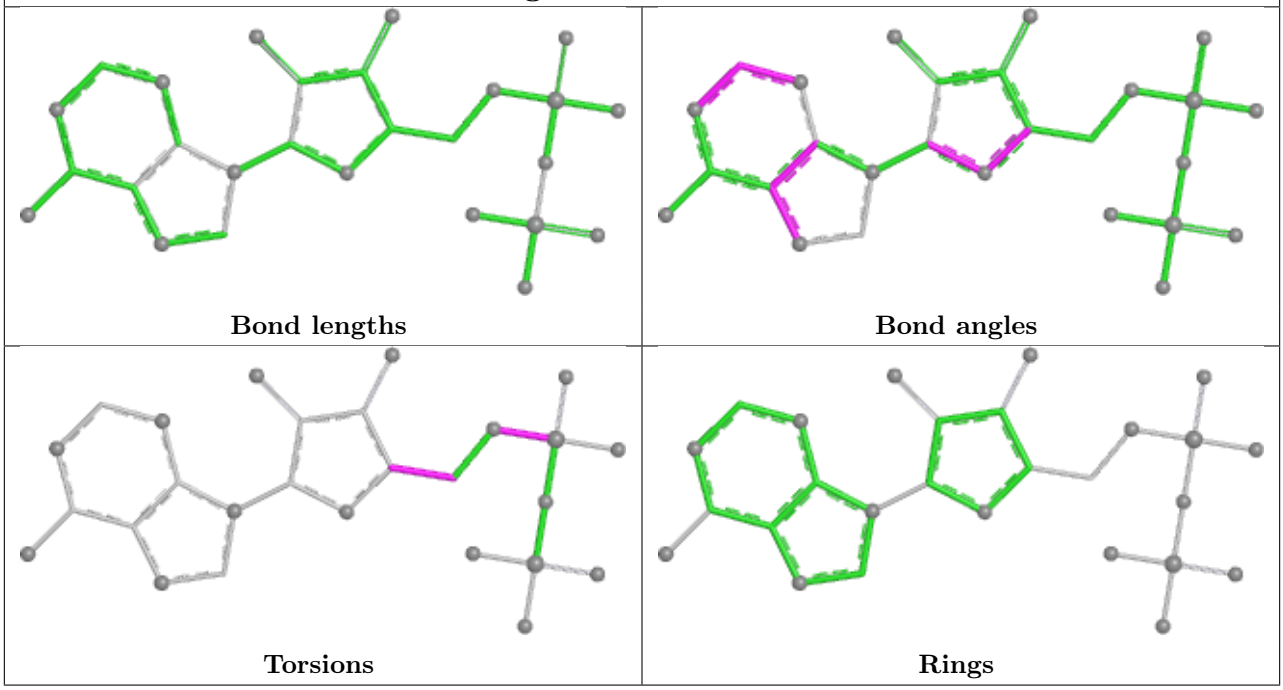
The following is a two-dimensional graphical depiction of Mogul quality analysis of bond lengths, bond angles, torsion angles, and ring geometry for all instances of the Ligand of Interest. In addition, ligands with molecular weight > 250 and outliers as shown on the validation Tables will also be included. For torsion angles, if less then 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.

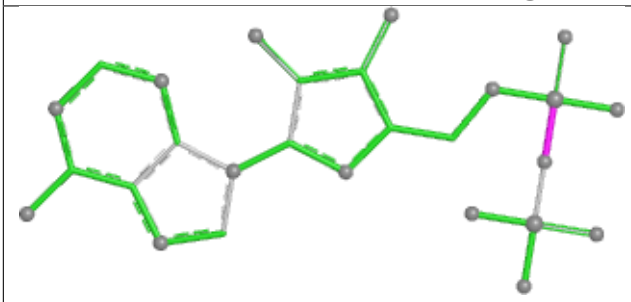
Ligand ADP B 601



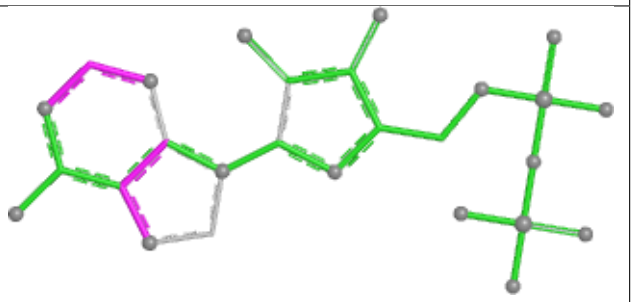
Ligand ADP E 501



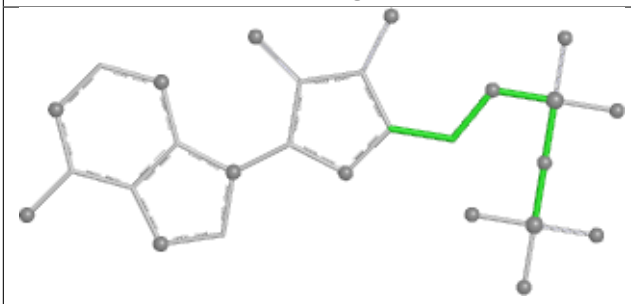
Ligand ADP A 601



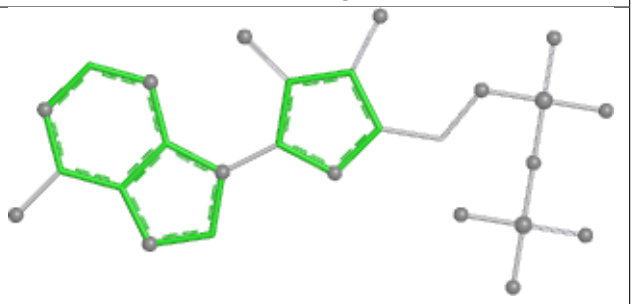
Bond lengths



Bond angles

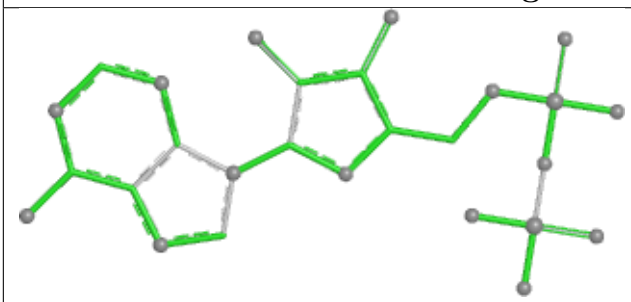


Torsions

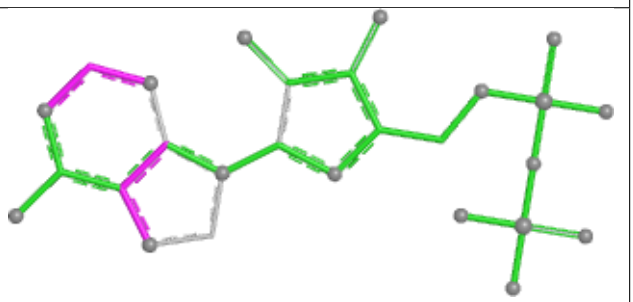


Rings

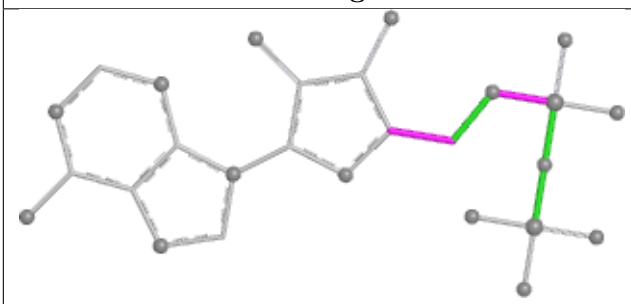
Ligand ADP C 601



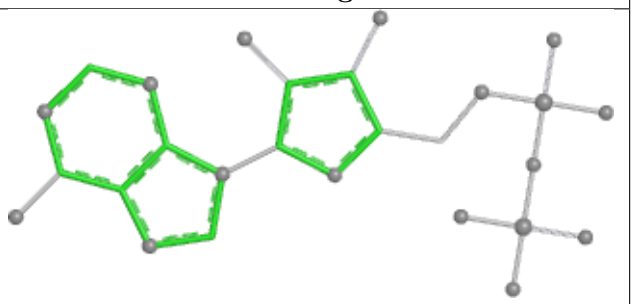
Bond lengths



Bond angles

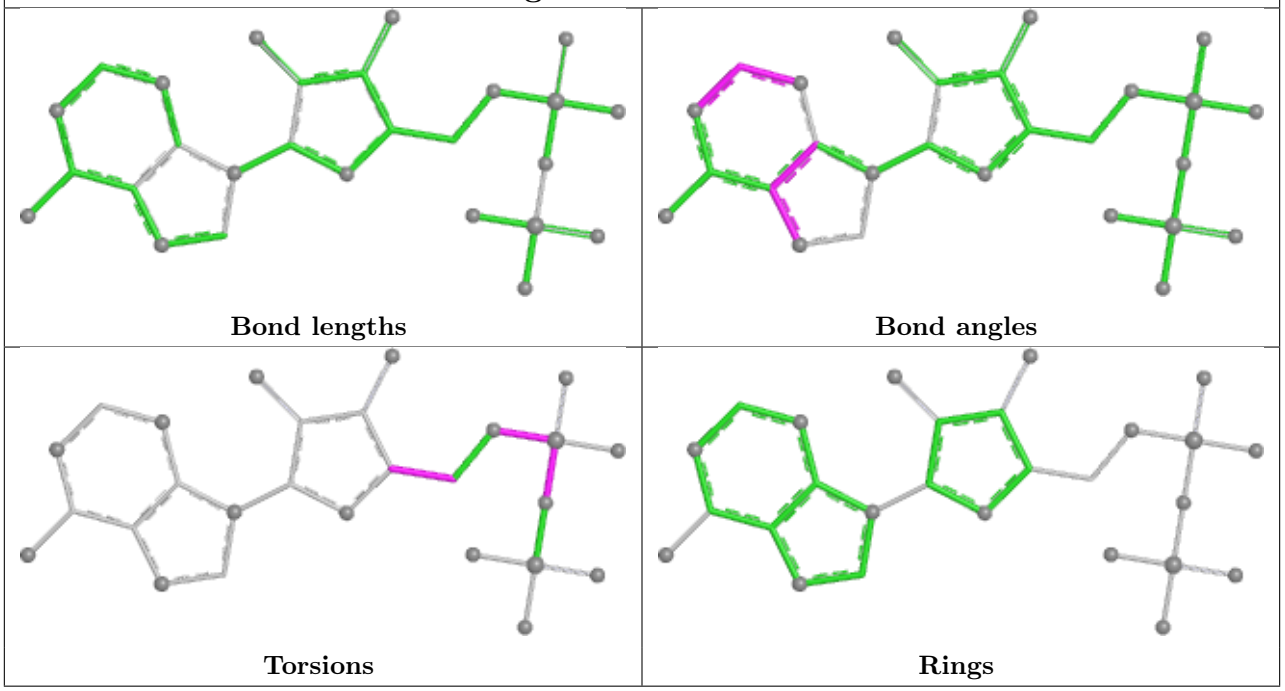


Torsions



Rings

Ligand ADP F 600



5.7 Other polymers (i)

There are no such residues in this entry.

5.8 Polymer linkage issues (i)

The following chains have linkage breaks:

Mol	Chain	Number of breaks
1	G	1

All chain breaks are listed below:

Model	Chain	Residue-1	Atom-1	Residue-2	Atom-2	Distance (Å)
1	G	61:ASP	C	71:LYS	N	12.83

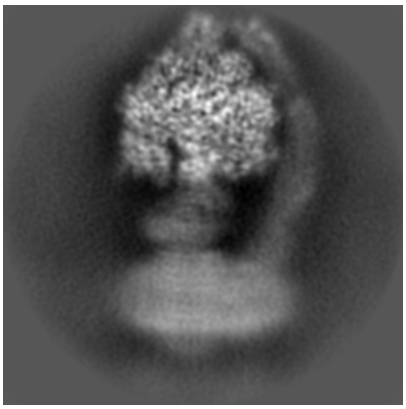
6 Map visualisation

This section contains visualisations of the EMDB entry EMD-28835. These allow visual inspection of the internal detail of the map and identification of artifacts.

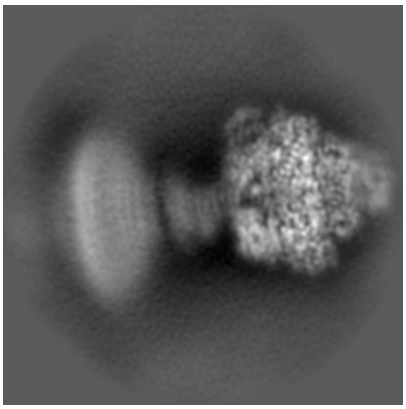
Images derived from a raw map, generated by summing the deposited half-maps, are presented below the corresponding image components of the primary map to allow further visual inspection and comparison with those of the primary map.

6.1 Orthogonal projections

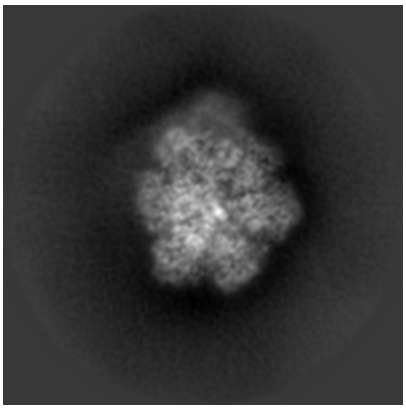
6.1.1 Primary map



X

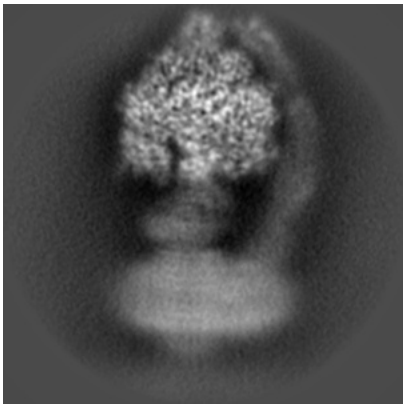


Y

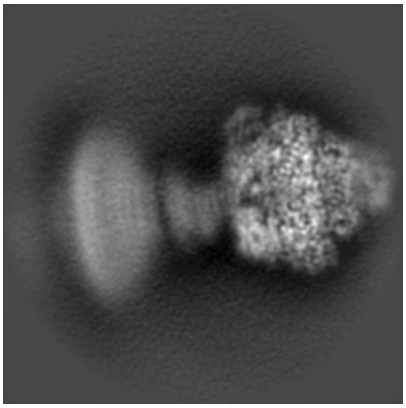


Z

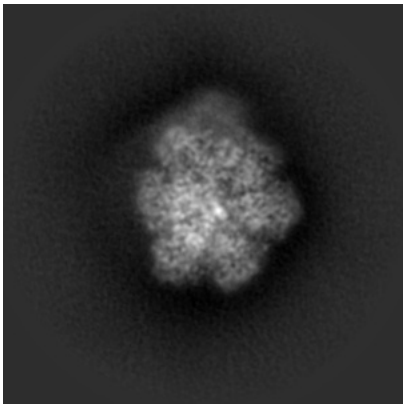
6.1.2 Raw map



X



Y

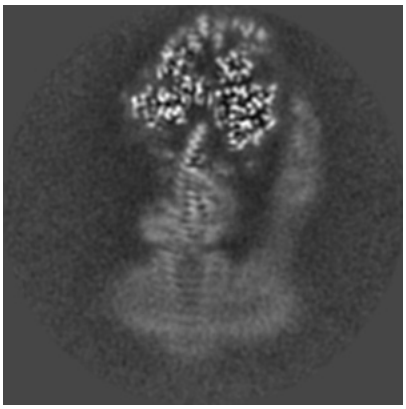


Z

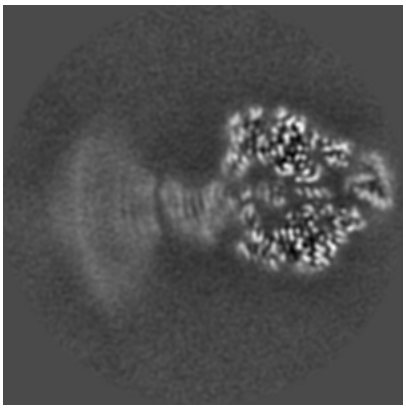
The images above show the map projected in three orthogonal directions.

6.2 Central slices (i)

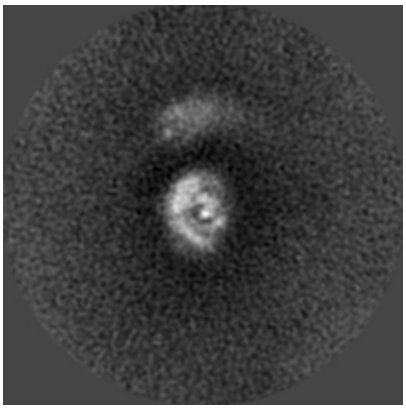
6.2.1 Primary map



X Index: 128

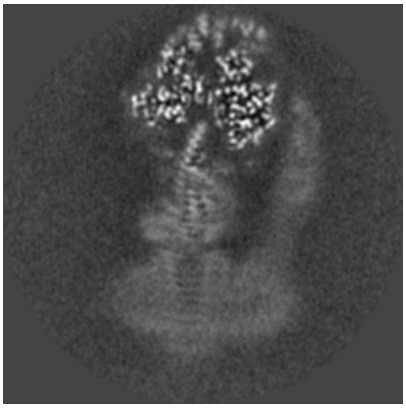


Y Index: 128

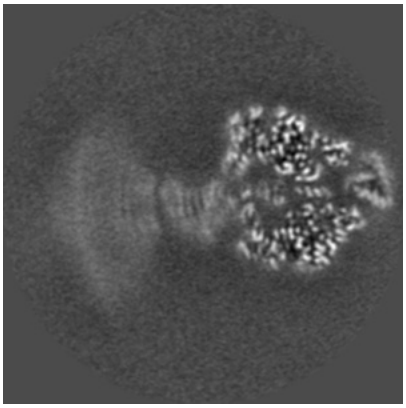


Z Index: 128

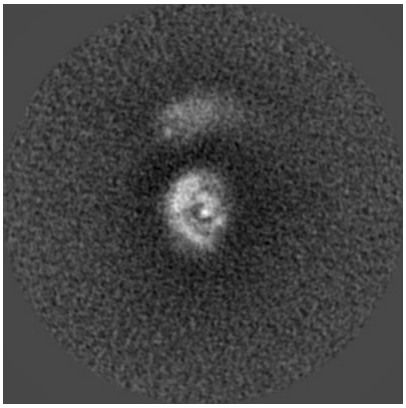
6.2.2 Raw map



X Index: 128



Y Index: 128

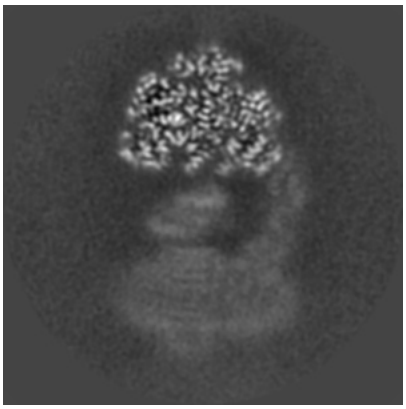


Z Index: 128

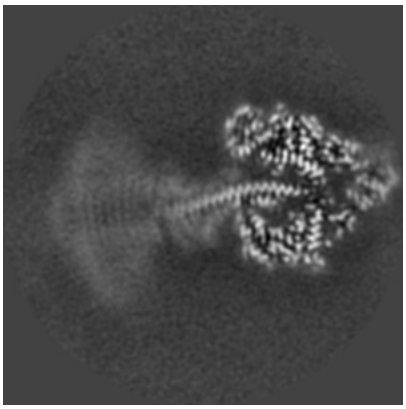
The images above show central slices of the map in three orthogonal directions.

6.3 Largest variance slices (i)

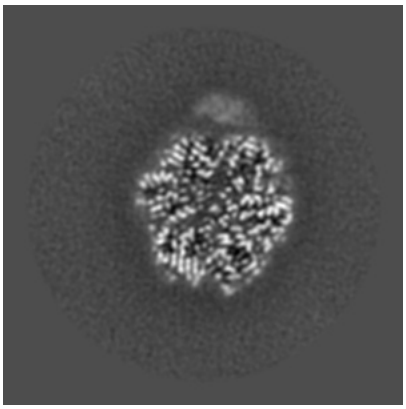
6.3.1 Primary map



X Index: 111

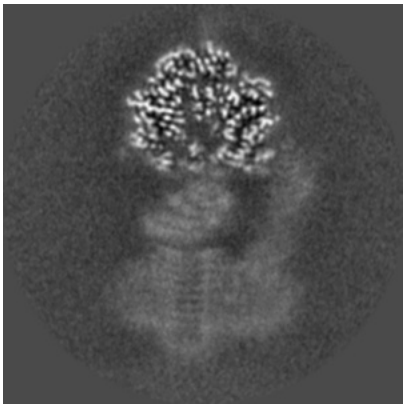


Y Index: 122

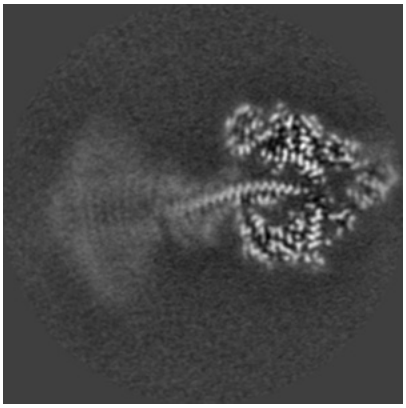


Z Index: 191

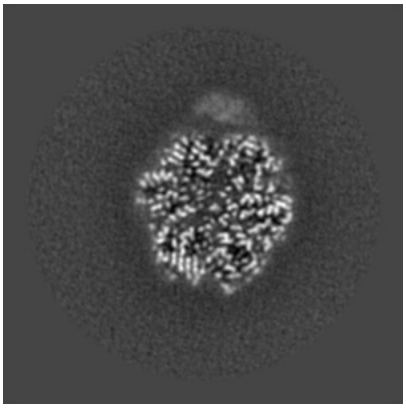
6.3.2 Raw map



X Index: 118



Y Index: 122

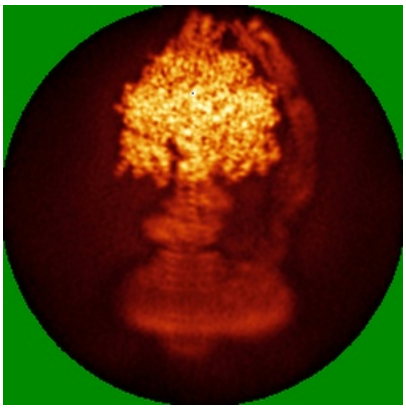


Z Index: 191

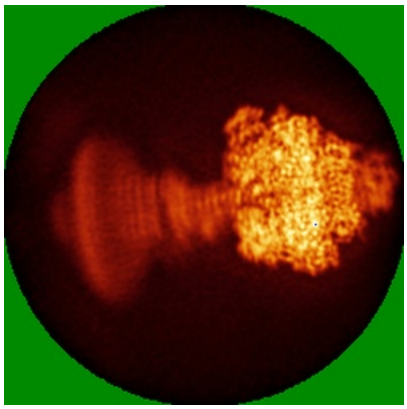
The images above show the largest variance slices of the map in three orthogonal directions.

6.4 Orthogonal standard-deviation projections (False-color) (i)

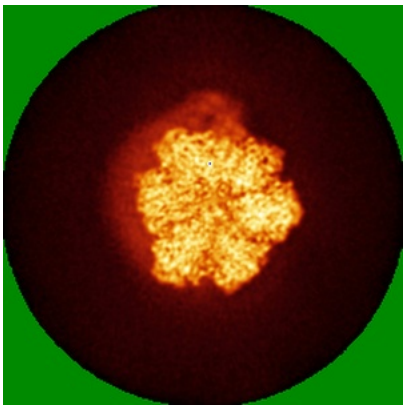
6.4.1 Primary map



X

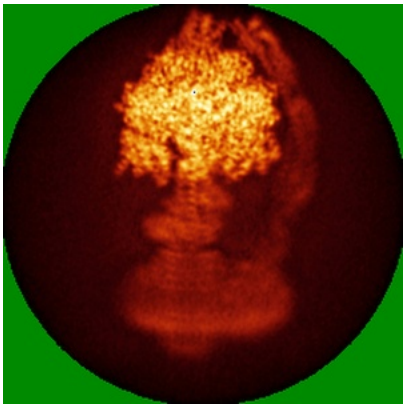


Y

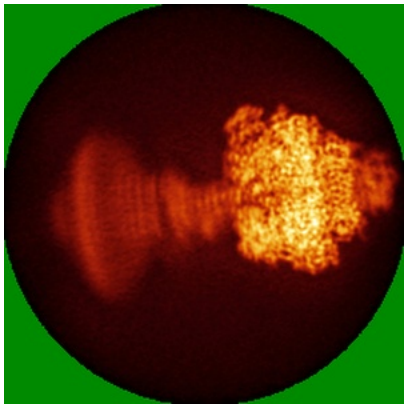


Z

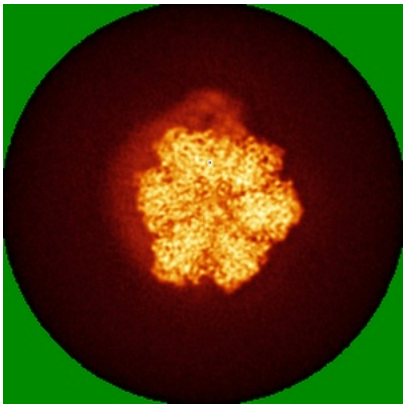
6.4.2 Raw map



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.

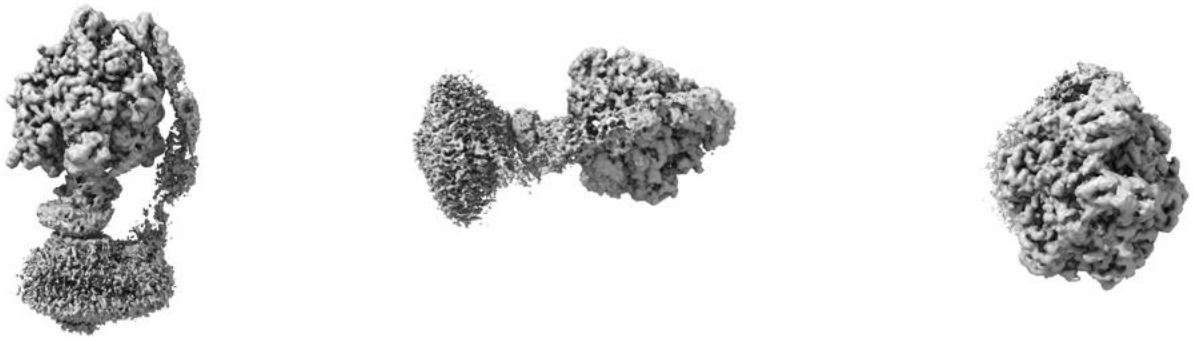
6.5 Orthogonal surface views (i)

6.5.1 Primary map

X Y Z

The images above show the 3D surface view of the map at the recommended contour level 0.009. 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



X Y Z

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.

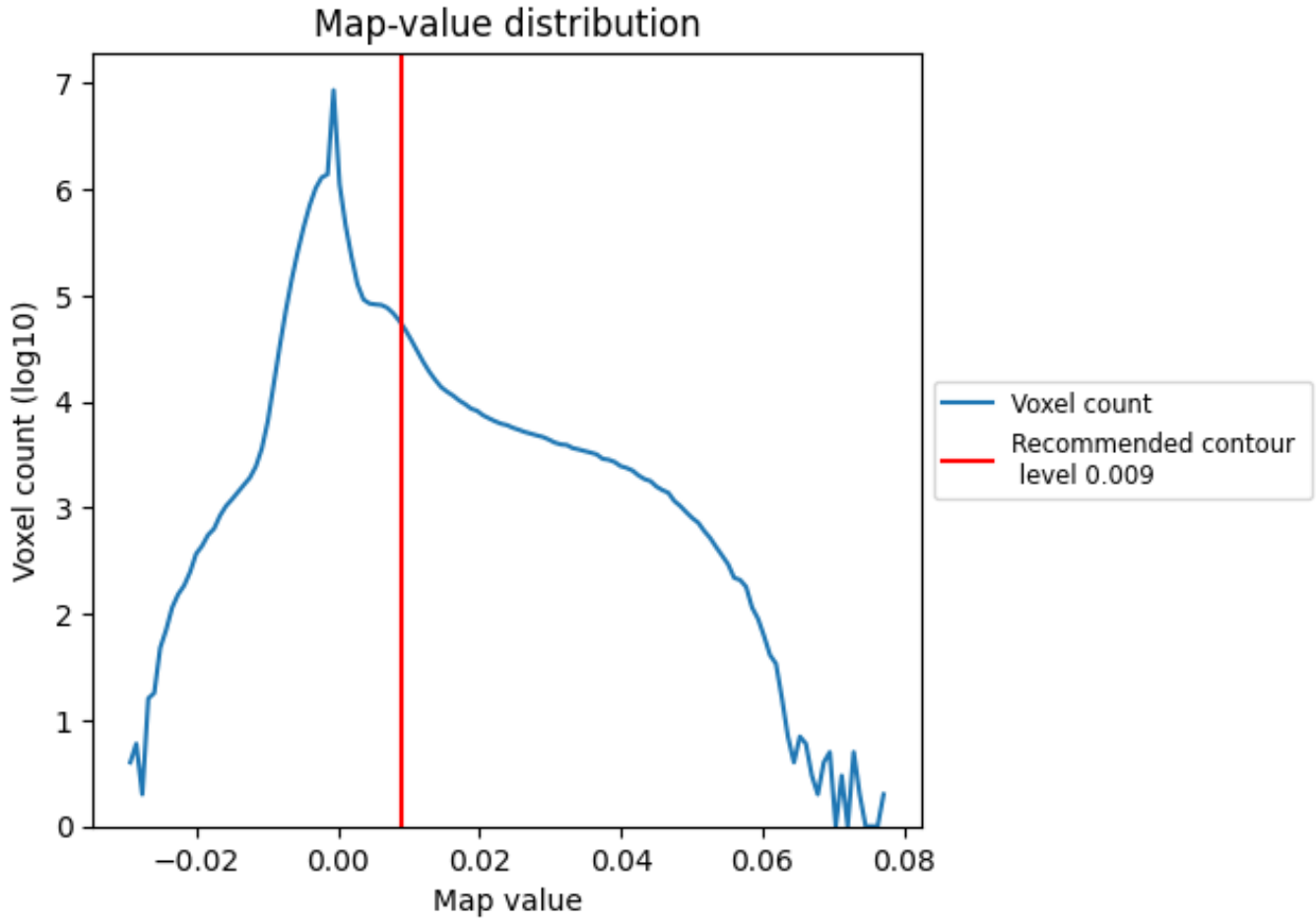
6.6 Mask visualisation (i)

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

7 Map analysis

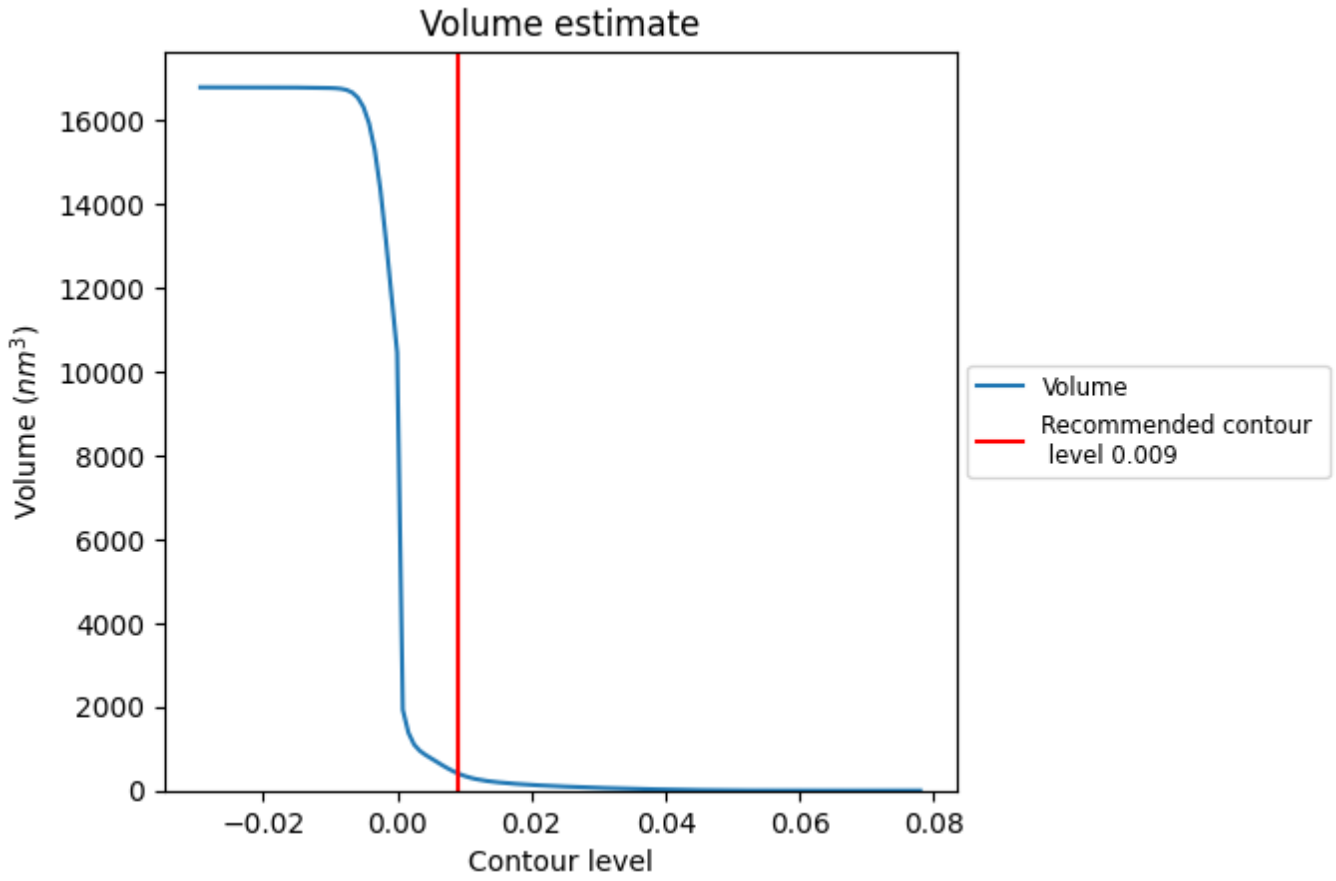
This section contains the results of statistical analysis of the map.

7.1 Map-value distribution



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.

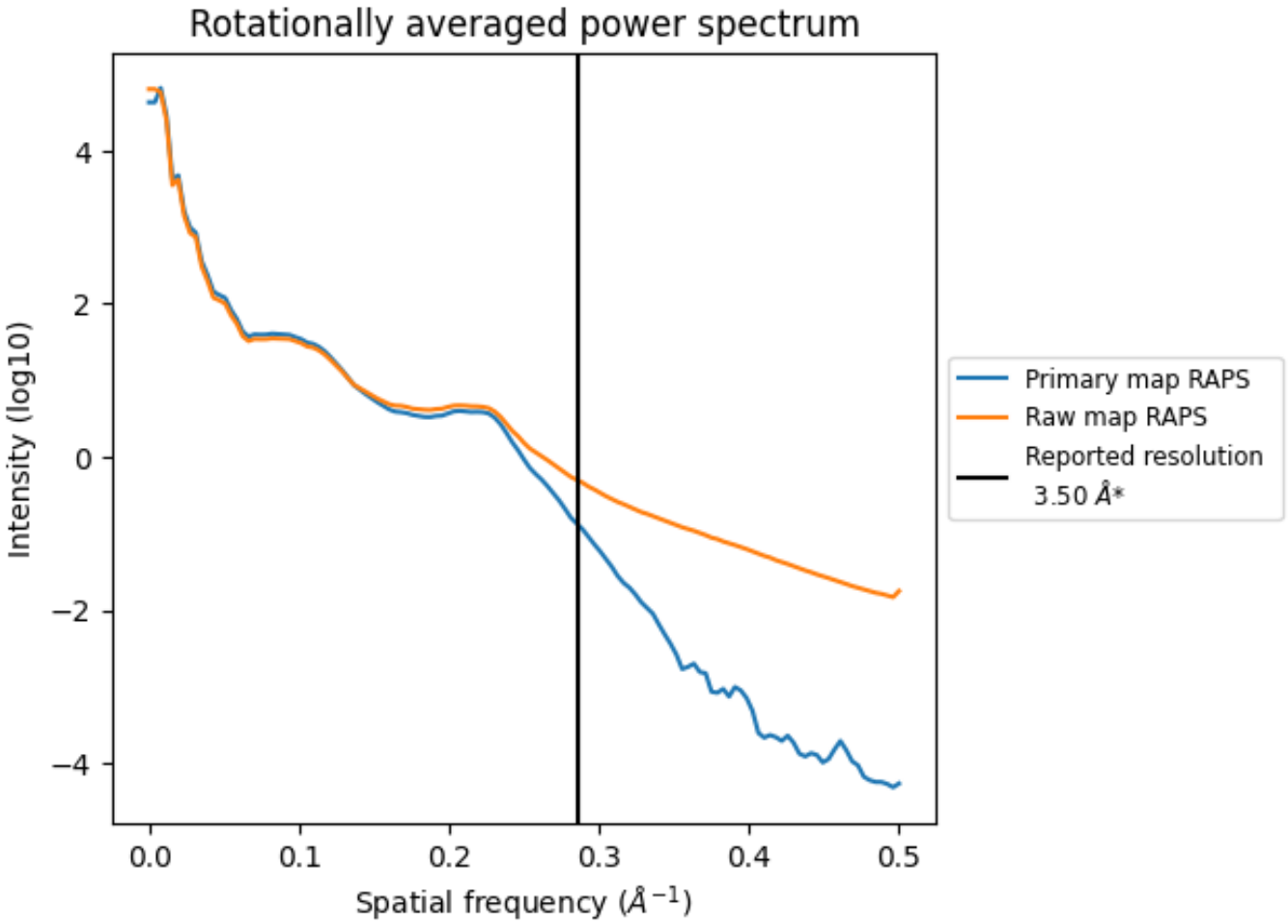
7.2 Volume estimate



The volume at the recommended contour level is 414 nm^3; this corresponds to an approximate mass of 374 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)

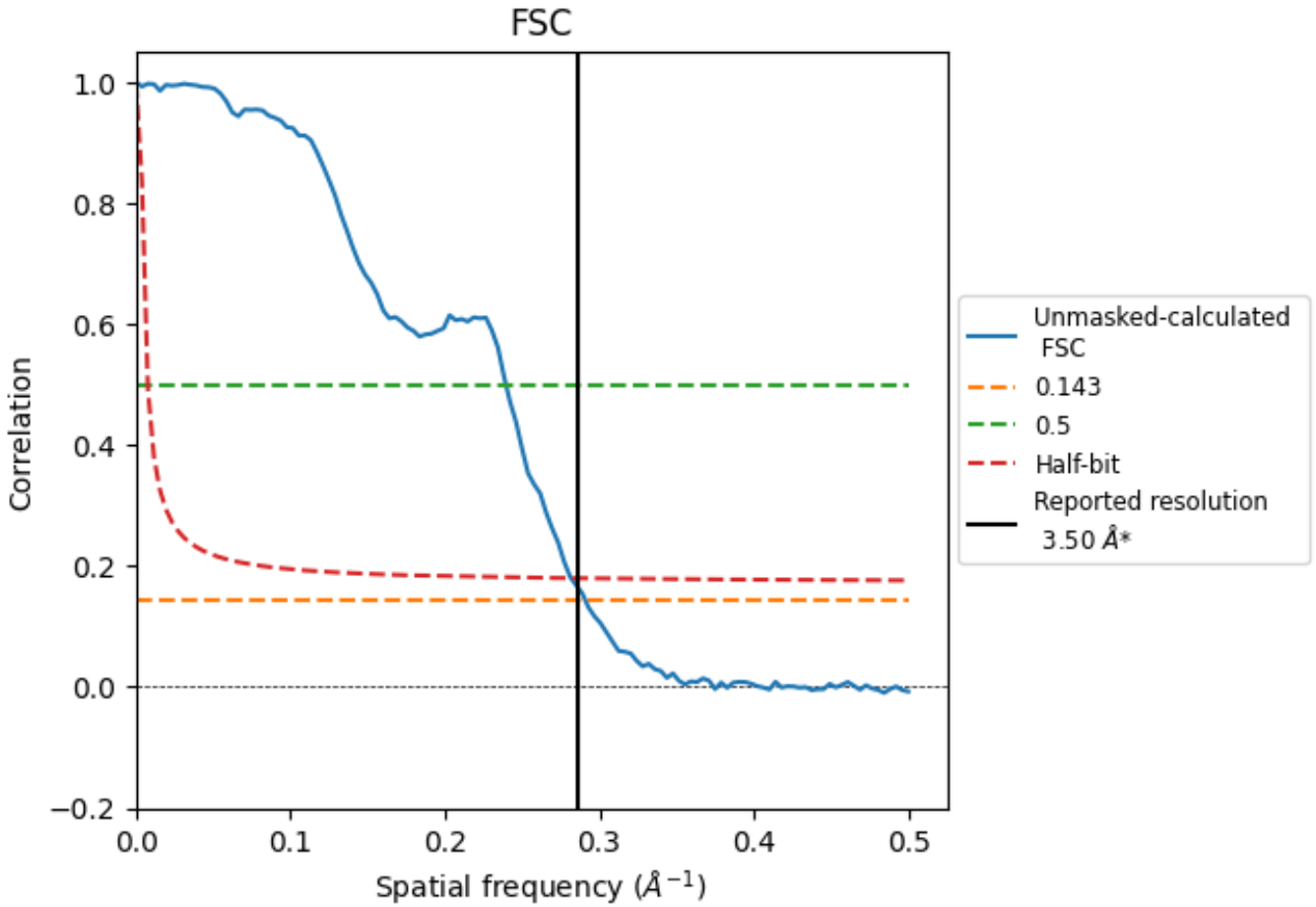


*Reported resolution corresponds to spatial frequency of 0.286 Å^{-1}

8 Fourier-Shell correlation

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



*Reported resolution corresponds to spatial frequency of 0.286 Å^{-1}

8.2 Resolution estimates (i)

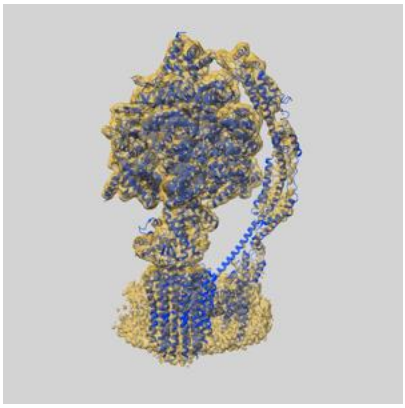
Resolution estimate (Å)	Estimation criterion (FSC cut-off)		
	0.143	0.5	Half-bit
Reported by author	3.50	-	-
Author-provided FSC curve	-	-	-
Unmasked-calculated*	3.44	4.18	3.55

*Resolution estimate based on FSC curve calculated by comparison of deposited half-maps.

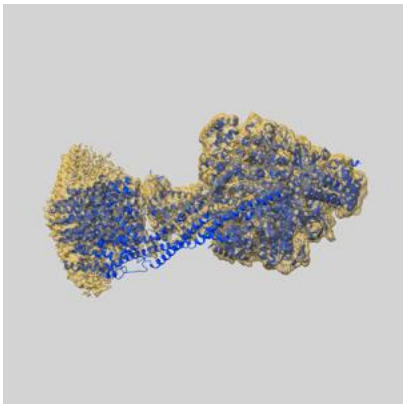
9 Map-model fit

This section contains information regarding the fit between EMDB map EMD-28835 and PDB model 8F39. Per-residue inclusion information can be found in section 3 on page 8.

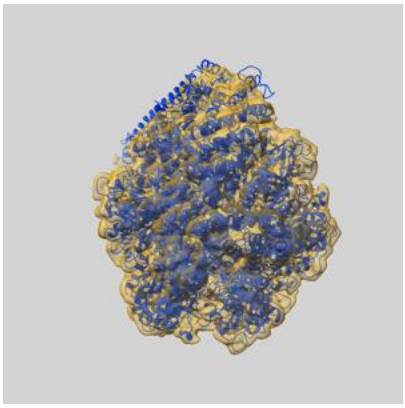
9.1 Map-model overlay



X



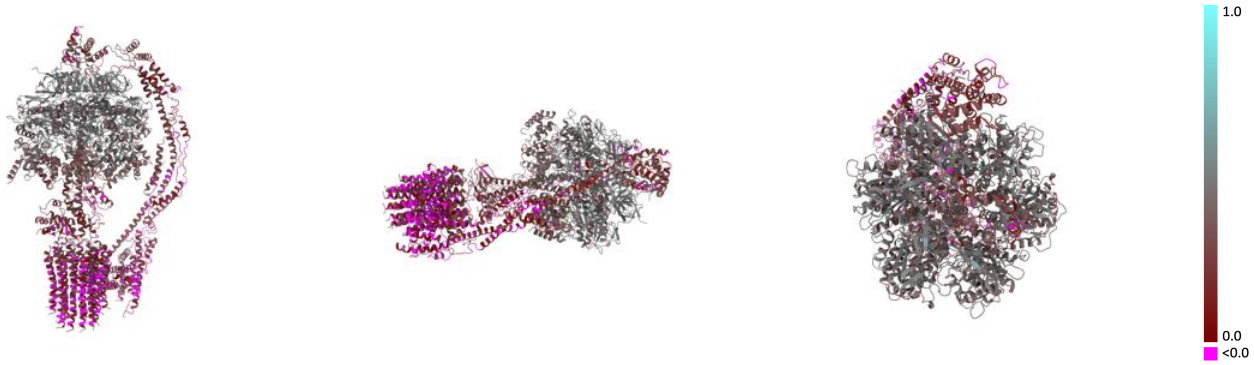
Y



Z

The images above show the 3D surface view of the map at the recommended contour level 0.009 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.

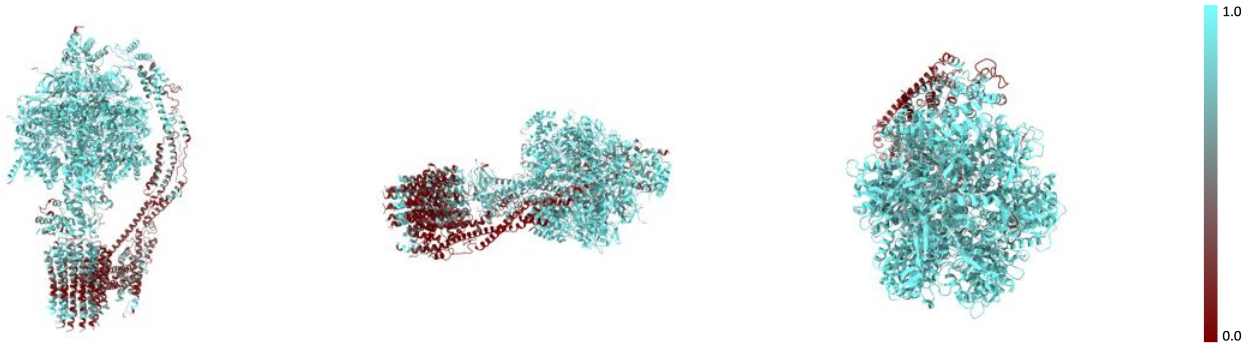
9.2 Q-score mapped to coordinate model



X Y Z

The images above show the model with each residue coloured according 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.

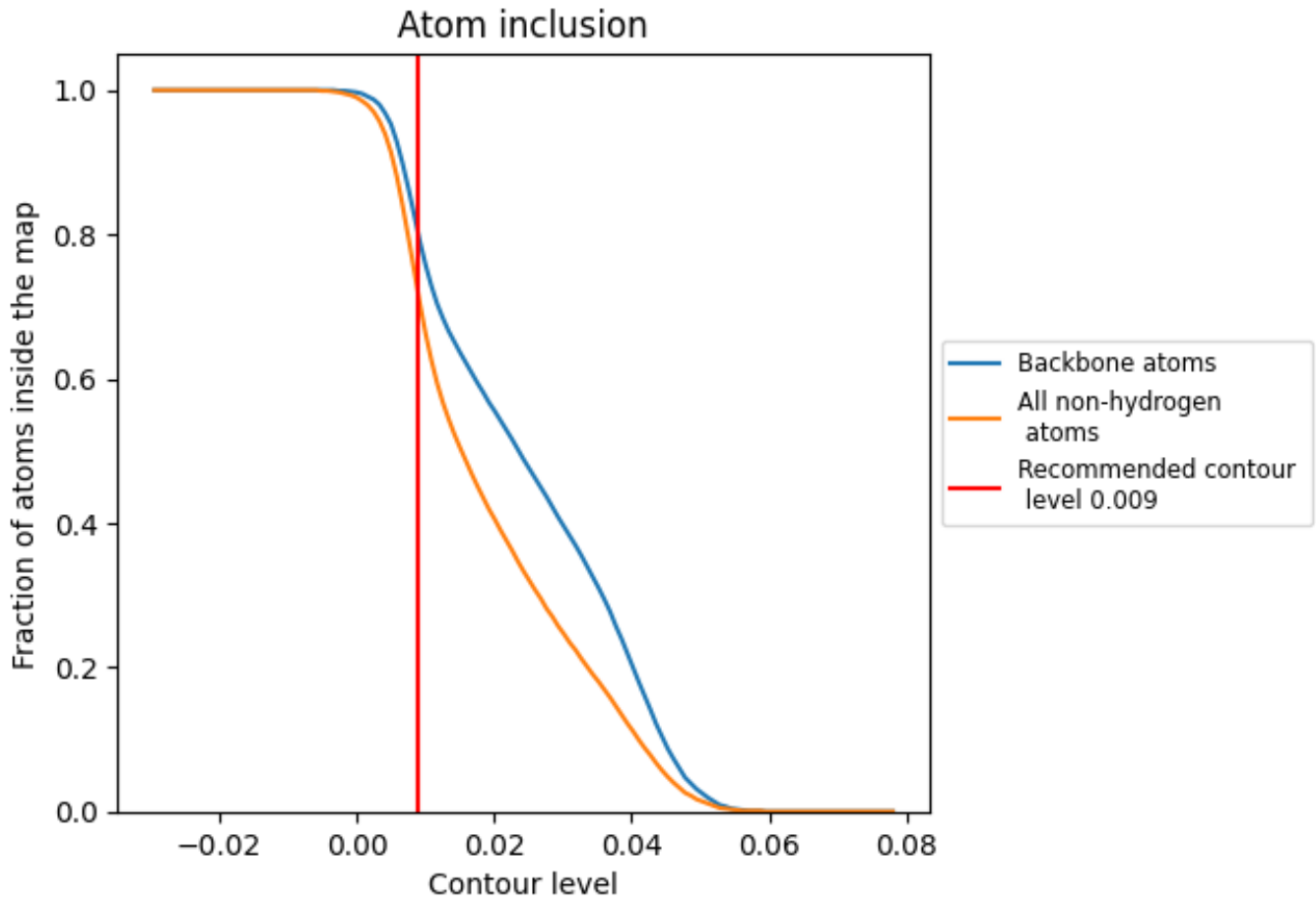
9.3 Atom inclusion mapped to coordinate model



X Y Z

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 (0.009).

9.4 Atom inclusion (i)



At the recommended contour level, 80% 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 (0.009) and Q-score for the entire model and for each chain.

Chain	Atom inclusion	Q-score
All	0.7170	0.3010
6	0.3860	0.1050
7	0.2030	0.1580
8	0.3610	0.0320
A	0.8930	0.4080
B	0.8630	0.4050
C	0.8950	0.4300
D	0.8860	0.4220
E	0.8810	0.4370
F	0.8850	0.4350
G	0.8070	0.2230
H	0.7490	0.1720
I	0.6530	0.1540
J	0.3780	0.0110
K	0.4940	0.1190
L	0.5450	0.0780
M	0.6430	0.1090
N	0.4830	0.0850
O	0.4490	0.1050
P	0.3390	0.0490
Q	0.3380	0.0550
R	0.3170	0.0700
S	0.3530	0.0830
T	0.4170	0.0840
U	0.2370	0.0860
X	0.2750	0.0710
Y	0.8410	0.2840
Z	0.4450	0.1840