



Full wwPDB EM Validation Report ⓘ

Dec 13, 2025 – 02:22 PM EST

PDB ID : 9PDI / pdb_00009pdi
EMDB ID : EMD-71534
Title : Nub1/Fat10-processing human 26S proteasome with Rpt2 at top of spiral staircase and partially unfolded Eos (AAA+ motor locally refined)
Authors : Arkinson, C.; Gee, C.L.; Martin, A.
Deposited on : 2025-06-30
Resolution : 2.98 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:

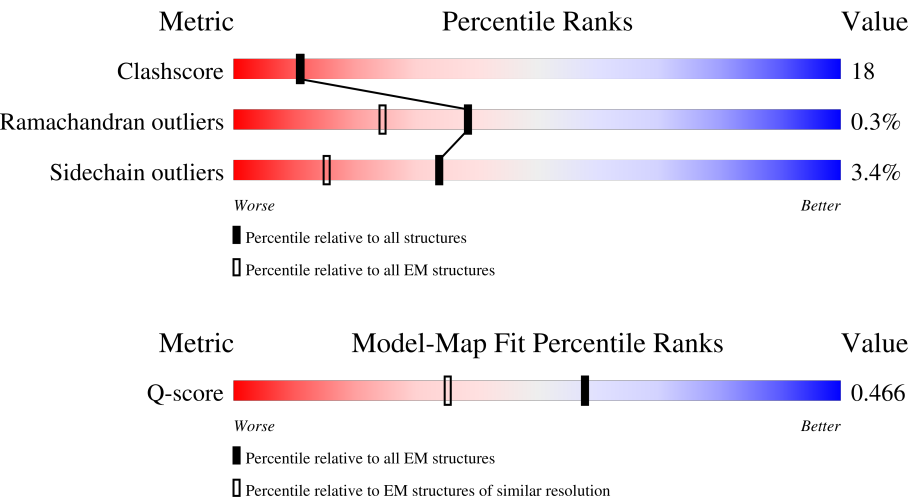
EMDB validation analysis : 0.0.1.dev129
Mogul : 2022.3.0, CSD as543be (2022)
MolProbity : 4-5-2 with Phenix2.0
buster-report : 1.1.7 (2018)
Percentile statistics : 20231227.v01 (using entries in the PDB archive December 27th 2023)
EM percentile statistics : 202505.v01 (Using data in the EMDB archive up until May 2025)
MapQ : 1.9.13
Ideal geometry (proteins) : Engh & Huber (2001)
Ideal geometry (DNA, RNA) : Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP) : 2.47

1 Overall quality at a glance i

The following experimental techniques were used to determine the structure:
ELECTRON MICROSCOPY

The reported resolution of this entry is 2.98 Å.

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



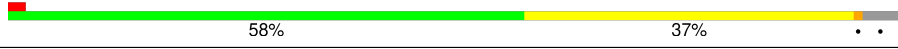
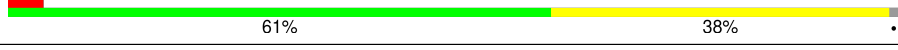
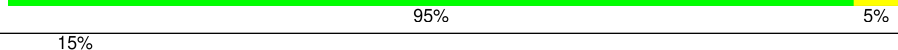
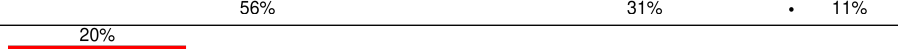
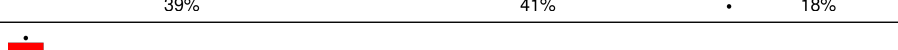
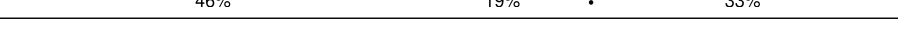
Metric	Whole archive (#Entries)	EM structures (#Entries)	Similar EM resolution (#Entries, resolution range(Å))
Clashscore	210492	15764	-
Ramachandran outliers	207382	16835	-
Sidechain outliers	206894	16415	-
Q-score	-	25397	13236 (2.48 - 3.48)

The table below summarises the geometric issues observed across the polymeric chains and their fit to the map. The red, orange, yellow and green segments of the bar indicate the fraction of residues that contain outliers for ≥ 3 , 2, 1 and 0 types of geometric quality criteria respectively. A grey segment represents the fraction of residues that are not modelled. The numeric value for each fraction is indicated below the corresponding segment, with a dot representing fractions $\leq 5\%$. The upper red bar (where present) indicates the fraction of residues that have poor fit to the EM map (all-atom inclusion $< 40\%$). The numeric value is given above the bar.

Mol	Chain	Length	Quality of chain
1	C	406	
2	D	418	
3	E	389	
4	G	246	

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Mol	Chain	Length	Quality of chain
5	H	234	
6	I	261	
7	J	248	
8	K	241	
9	L	263	
10	M	255	
11	v	22	
12	A	433	
13	B	440	
14	F	439	
15	c	424	

2 Entry composition

There are 19 unique types of molecules in this entry. The entry contains 33548 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 26S protease regulatory subunit 8.

Mol	Chain	Residues	Atoms					AltConf	Trace
1	C	386	Total	C	N	O	S	0	0
			3053	1921	547	567	18		

- Molecule 2 is a protein called 26S proteasome regulatory subunit 6B.

Mol	Chain	Residues	Atoms					AltConf	Trace
2	D	380	Total	C	N	O	S	0	0
			3040	1923	524	580	13		

- Molecule 3 is a protein called 26S protease regulatory subunit 10B.

Mol	Chain	Residues	Atoms					AltConf	Trace
3	E	364	Total	C	N	O	S	0	0
			2887	1814	515	542	16		

- Molecule 4 is a protein called Proteasome subunit alpha type-6.

Mol	Chain	Residues	Atoms					AltConf	Trace
4	G	240	Total	C	N	O	S	0	0
			1867	1187	312	355	13		

- Molecule 5 is a protein called Proteasome subunit alpha type-2.

Mol	Chain	Residues	Atoms					AltConf	Trace
5	H	232	Total	C	N	O	S	0	0
			1801	1149	304	342	6		

- Molecule 6 is a protein called Proteasome subunit alpha type-4.

Mol	Chain	Residues	Atoms					AltConf	Trace
6	I	248	Total	C	N	O	S	0	0
			1933	1222	330	371	10		

- Molecule 7 is a protein called Proteasome subunit alpha type-7.

Mol	Chain	Residues	Atoms					AltConf	Trace
7	J	239	Total	C	N	O	S	0	0
			1860	1166	327	362	5		

- Molecule 8 is a protein called Proteasome subunit alpha type-5.

Mol	Chain	Residues	Atoms					AltConf	Trace
8	K	238	Total	C	N	O	S	0	0
			1813	1139	302	361	11		

- Molecule 9 is a protein called Proteasome subunit alpha type-1.

Mol	Chain	Residues	Atoms					AltConf	Trace
9	L	240	Total	C	N	O	S	0	0
			1876	1175	338	352	11		

- Molecule 10 is a protein called Proteasome subunit alpha type-3.

Mol	Chain	Residues	Atoms					AltConf	Trace
10	M	242	Total	C	N	O	S	0	0
			1890	1200	323	356	11		

- Molecule 11 is a protein called Substrate polypeptide.

Mol	Chain	Residues	Atoms				AltConf	Trace
11	v	22	Total	C	N	O	0	0
			110	66	22	22		

- Molecule 12 is a protein called 26S proteasome regulatory subunit 7.

Mol	Chain	Residues	Atoms					AltConf	Trace
12	A	399	Total	C	N	O	S	0	0
			3146	1982	553	593	18		

- Molecule 13 is a protein called 26S proteasome regulatory subunit 4.

Mol	Chain	Residues	Atoms					AltConf	Trace
13	B	392	Total	C	N	O	S	0	0
			3075	1938	523	599	15		

- Molecule 14 is a protein called 26S proteasome regulatory subunit 6A.

Mol	Chain	Residues	Atoms					AltConf	Trace
14	F	359	Total	C	N	O	S	0	0
			2803	1774	483	529	17		

- Molecule 15 is a protein called 26S proteasome non-ATPase regulatory subunit 14.

Mol	Chain	Residues	Atoms					AltConf	Trace
15	c	282	Total	C	N	O	S	0	0
			2220	1407	380	414	19		

There are 114 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
c	311	LEU	-	expression tag	UNP O00487
c	312	ILE	-	expression tag	UNP O00487
c	313	ASN	-	expression tag	UNP O00487
c	314	HIS	-	expression tag	UNP O00487
c	315	HIS	-	expression tag	UNP O00487
c	316	HIS	-	expression tag	UNP O00487
c	317	HIS	-	expression tag	UNP O00487
c	318	HIS	-	expression tag	UNP O00487
c	319	HIS	-	expression tag	UNP O00487
c	320	ASP	-	expression tag	UNP O00487
c	321	TYR	-	expression tag	UNP O00487
c	322	ASP	-	expression tag	UNP O00487
c	323	ILE	-	expression tag	UNP O00487
c	324	PRO	-	expression tag	UNP O00487
c	325	THR	-	expression tag	UNP O00487
c	326	THR	-	expression tag	UNP O00487
c	327	ALA	-	expression tag	UNP O00487
c	328	SER	-	expression tag	UNP O00487
c	329	GLU	-	expression tag	UNP O00487
c	330	ASN	-	expression tag	UNP O00487
c	331	LEU	-	expression tag	UNP O00487
c	332	TYR	-	expression tag	UNP O00487
c	333	PHE	-	expression tag	UNP O00487
c	334	GLN	-	expression tag	UNP O00487
c	335	GLY	-	expression tag	UNP O00487
c	336	GLU	-	expression tag	UNP O00487
c	337	LEU	-	expression tag	UNP O00487
c	338	GLY	-	expression tag	UNP O00487
c	339	MET	-	expression tag	UNP O00487
c	340	ARG	-	expression tag	UNP O00487
c	341	GLY	-	expression tag	UNP O00487

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Chain	Residue	Modelled	Actual	Comment	Reference
c	342	SER	-	expression tag	UNP O00487
c	343	ALA	-	expression tag	UNP O00487
c	344	GLY	-	expression tag	UNP O00487
c	345	LYS	-	expression tag	UNP O00487
c	346	ALA	-	expression tag	UNP O00487
c	347	GLY	-	expression tag	UNP O00487
c	348	GLU	-	expression tag	UNP O00487
c	349	GLY	-	expression tag	UNP O00487
c	350	GLU	-	expression tag	UNP O00487
c	351	ILE	-	expression tag	UNP O00487
c	352	PRO	-	expression tag	UNP O00487
c	353	ALA	-	expression tag	UNP O00487
c	354	PRO	-	expression tag	UNP O00487
c	355	LEU	-	expression tag	UNP O00487
c	356	ALA	-	expression tag	UNP O00487
c	357	GLY	-	expression tag	UNP O00487
c	358	THR	-	expression tag	UNP O00487
c	359	VAL	-	expression tag	UNP O00487
c	360	SER	-	expression tag	UNP O00487
c	361	LYS	-	expression tag	UNP O00487
c	362	ILE	-	expression tag	UNP O00487
c	363	LEU	-	expression tag	UNP O00487
c	364	VAL	-	expression tag	UNP O00487
c	365	LYS	-	expression tag	UNP O00487
c	366	GLU	-	expression tag	UNP O00487
c	367	GLY	-	expression tag	UNP O00487
c	368	ASP	-	expression tag	UNP O00487
c	369	THR	-	expression tag	UNP O00487
c	370	VAL	-	expression tag	UNP O00487
c	371	LYS	-	expression tag	UNP O00487
c	372	ALA	-	expression tag	UNP O00487
c	373	GLY	-	expression tag	UNP O00487
c	374	GLN	-	expression tag	UNP O00487
c	375	THR	-	expression tag	UNP O00487
c	376	VAL	-	expression tag	UNP O00487
c	377	LEU	-	expression tag	UNP O00487
c	378	VAL	-	expression tag	UNP O00487
c	379	LEU	-	expression tag	UNP O00487
c	380	GLU	-	expression tag	UNP O00487
c	381	ALA	-	expression tag	UNP O00487
c	382	MET	-	expression tag	UNP O00487
c	383	LYS	-	expression tag	UNP O00487

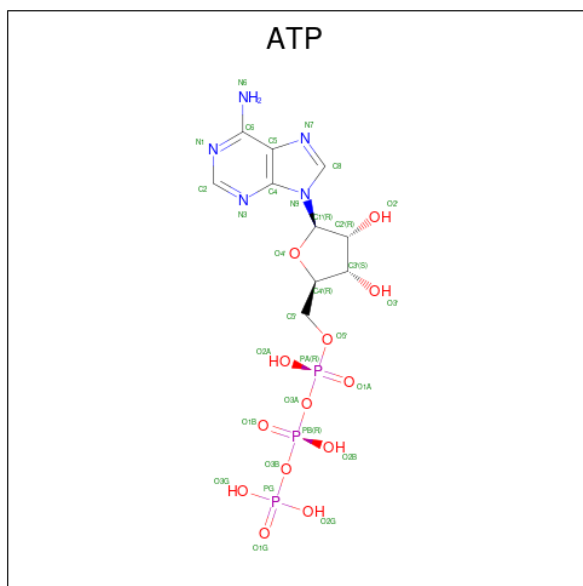
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Chain	Residue	Modelled	Actual	Comment	Reference
c	384	MET	-	expression tag	UNP O00487
c	385	GLU	-	expression tag	UNP O00487
c	386	THR	-	expression tag	UNP O00487
c	387	GLU	-	expression tag	UNP O00487
c	388	ILE	-	expression tag	UNP O00487
c	389	ASN	-	expression tag	UNP O00487
c	390	ALA	-	expression tag	UNP O00487
c	391	PRO	-	expression tag	UNP O00487
c	392	THR	-	expression tag	UNP O00487
c	393	ASP	-	expression tag	UNP O00487
c	394	GLY	-	expression tag	UNP O00487
c	395	LYS	-	expression tag	UNP O00487
c	396	VAL	-	expression tag	UNP O00487
c	397	GLU	-	expression tag	UNP O00487
c	398	LYS	-	expression tag	UNP O00487
c	399	VAL	-	expression tag	UNP O00487
c	400	LEU	-	expression tag	UNP O00487
c	401	VAL	-	expression tag	UNP O00487
c	402	LYS	-	expression tag	UNP O00487
c	403	GLU	-	expression tag	UNP O00487
c	404	ARG	-	expression tag	UNP O00487
c	405	ASP	-	expression tag	UNP O00487
c	406	ALA	-	expression tag	UNP O00487
c	407	VAL	-	expression tag	UNP O00487
c	408	GLN	-	expression tag	UNP O00487
c	409	GLY	-	expression tag	UNP O00487
c	410	GLY	-	expression tag	UNP O00487
c	411	GLN	-	expression tag	UNP O00487
c	412	GLY	-	expression tag	UNP O00487
c	413	LEU	-	expression tag	UNP O00487
c	414	ILE	-	expression tag	UNP O00487
c	415	LYS	-	expression tag	UNP O00487
c	416	ILE	-	expression tag	UNP O00487
c	417	GLY	-	expression tag	UNP O00487
c	418	VAL	-	expression tag	UNP O00487
c	419	HIS	-	expression tag	UNP O00487
c	420	HIS	-	expression tag	UNP O00487
c	421	HIS	-	expression tag	UNP O00487
c	422	HIS	-	expression tag	UNP O00487
c	423	HIS	-	expression tag	UNP O00487
c	424	HIS	-	expression tag	UNP O00487

- Molecule 16 is ADENOSINE-5'-TRIPHOSPHATE (CCD ID: ATP) (formula: C₁₀H₁₆N₅O₁₃P₃)

(labeled as "Ligand of Interest" by depositor).

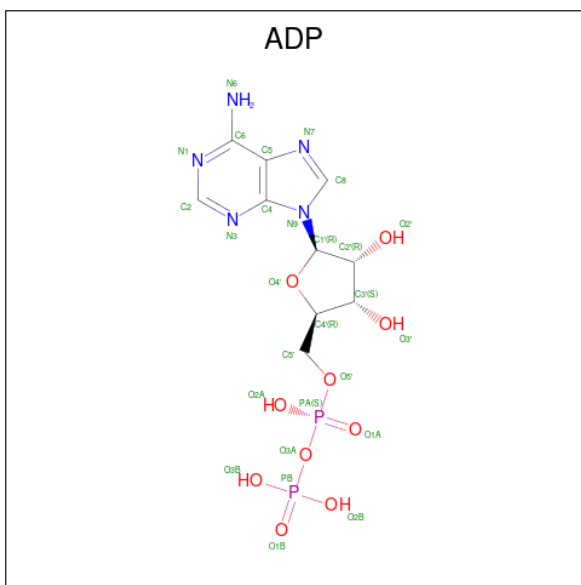


Mol	Chain	Residues	Atoms					AltConf
16	C	1	Total	C	N	O	P	0
			31	10	5	13	3	
16	B	1	Total	C	N	O	P	0
			31	10	5	13	3	

- Molecule 17 is MAGNESIUM ION (CCD ID: MG) (formula: Mg) (labeled as "Ligand of Interest" by depositor).

Mol	Chain	Residues	Atoms		AltConf
17	C	1	Total	Mg	0
			1	1	
17	D	1	Total	Mg	0
			1	1	
17	B	1	Total	Mg	0
			1	1	

- Molecule 18 is ADENOSINE-5'-DIPHOSPHATE (CCD ID: ADP) (formula: C₁₀H₁₅N₅O₁₀P₂) (labeled as "Ligand of Interest" by depositor).



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

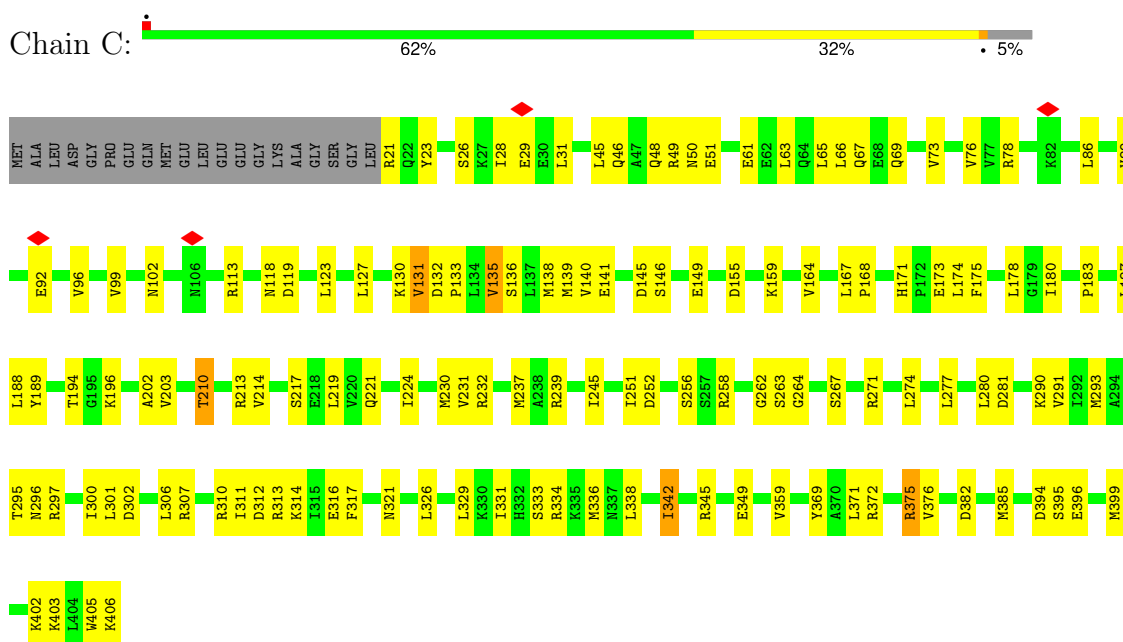
- Molecule 19 is ZINC ION (CCD ID: ZN) (formula: Zn) (labeled as "Ligand of Interest" by depositor).

Mol	Chain	Residues	Atoms	AltConf
19	c	1	Total Zn 1 1	0

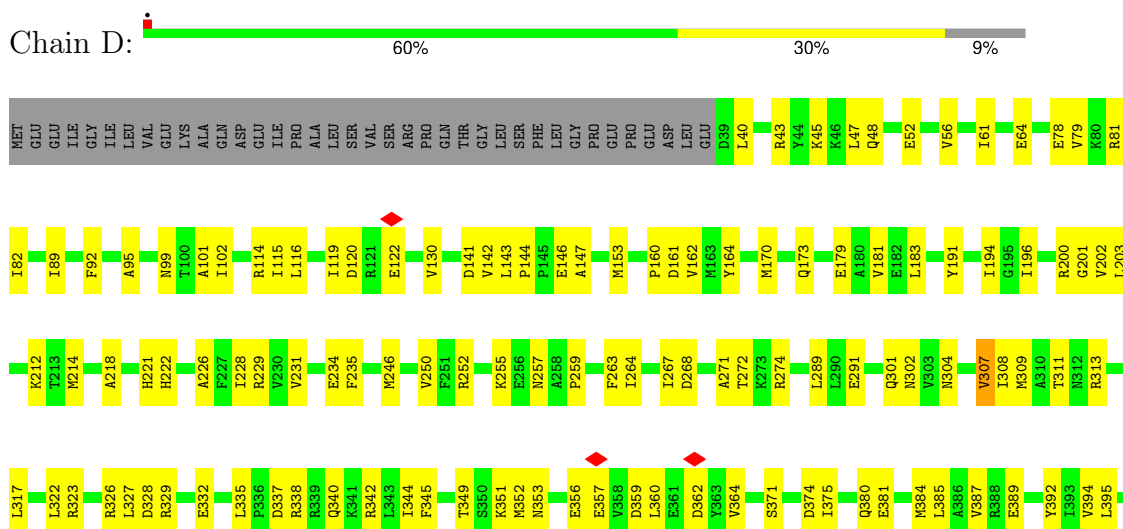
3 Residue-property plots

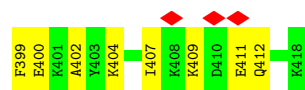
These plots are drawn for all protein, RNA, DNA and oligosaccharide chains in the entry. The first graphic for a chain summarises the proportions of the various outlier classes displayed in the second graphic. The second graphic shows the sequence view annotated by issues in geometry and atom inclusion in map density. Residues are color-coded according to the number of geometric quality criteria for which they contain at least one outlier: green = 0, yellow = 1, orange = 2 and red = 3 or more. A red diamond above a residue indicates a poor fit to the EM map for this residue (all-atom inclusion < 40%). Stretches of 2 or more consecutive residues without any outlier are shown as a green connector. Residues present in the sample, but not in the model, are shown in grey.

• Molecule 1: 26S protease regulatory subunit 8

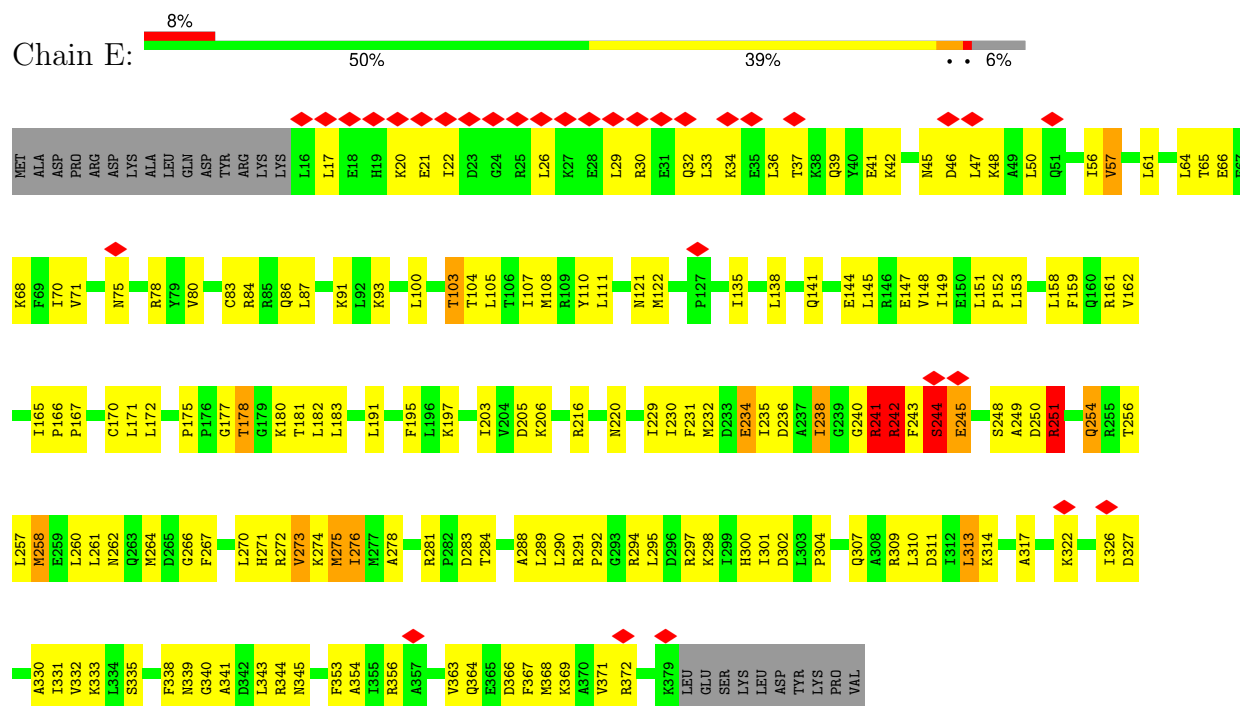


• Molecule 2: 26S proteasome regulatory subunit 6B

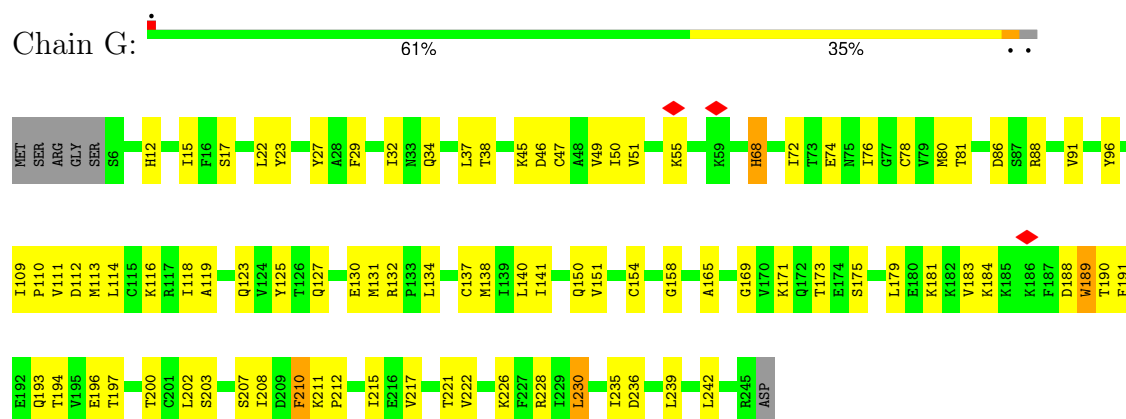




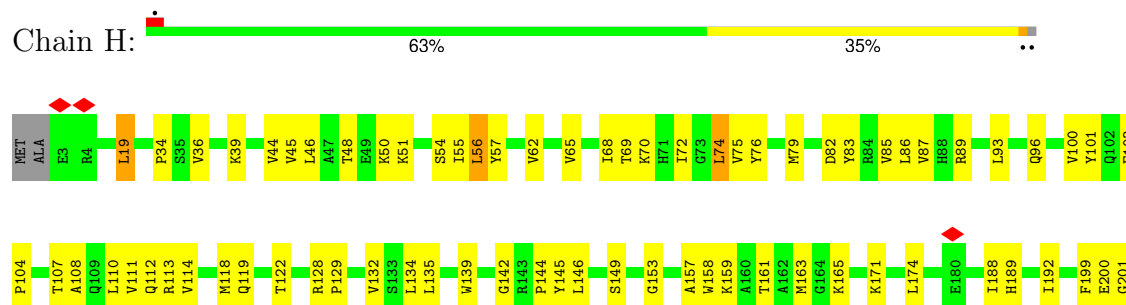
• Molecule 3: 26S protease regulatory subunit 10B



• Molecule 4: Proteasome subunit alpha type-6



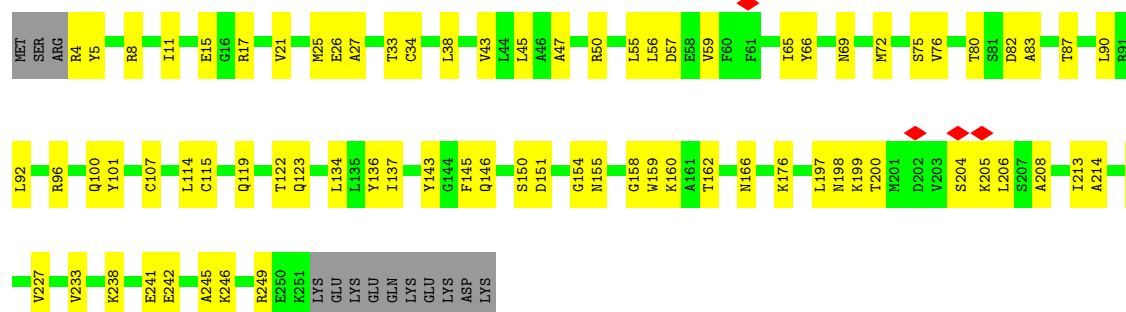
• Molecule 5: Proteasome subunit alpha type-2





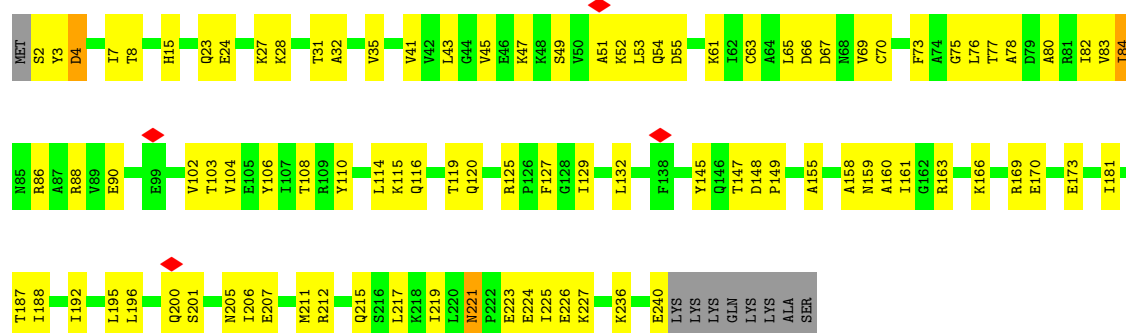
• Molecule 6: Proteasome subunit alpha type-4

Chain I: 66% 30% 5%



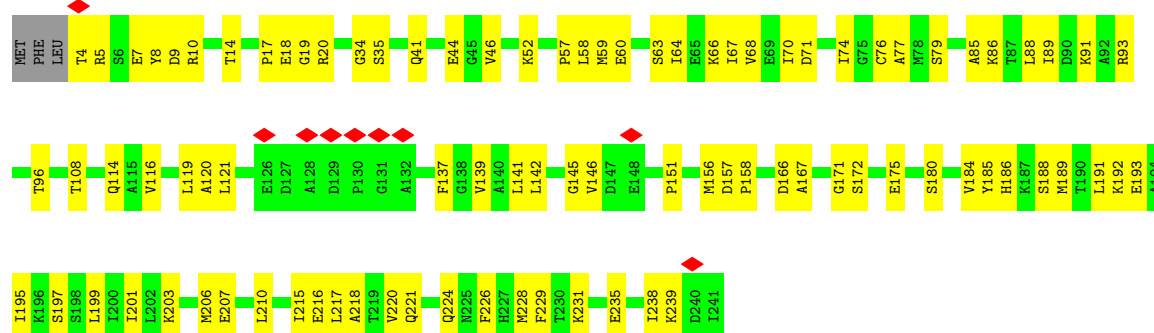
• Molecule 7: Proteasome subunit alpha type-7

Chain J: 58% 37% . .

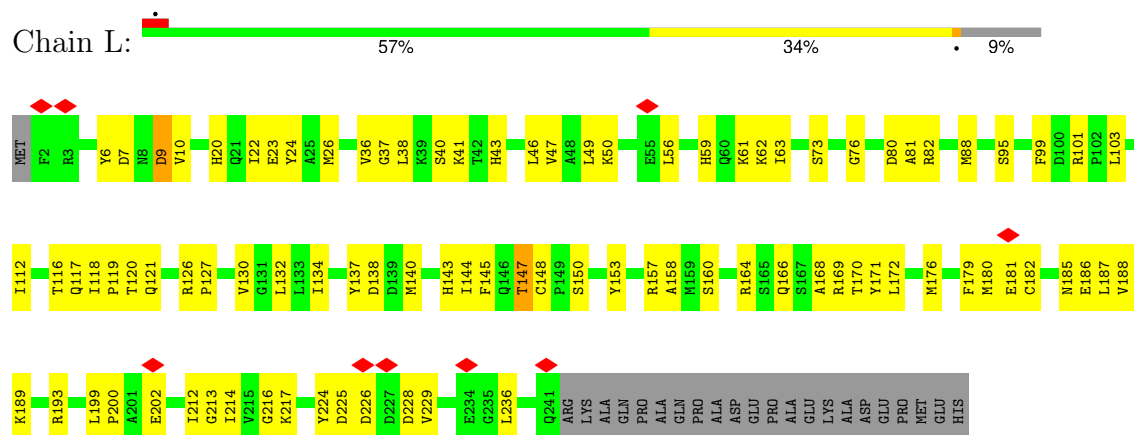


• Molecule 8: Proteasome subunit alpha type-5

Chain K: 61% 38% .



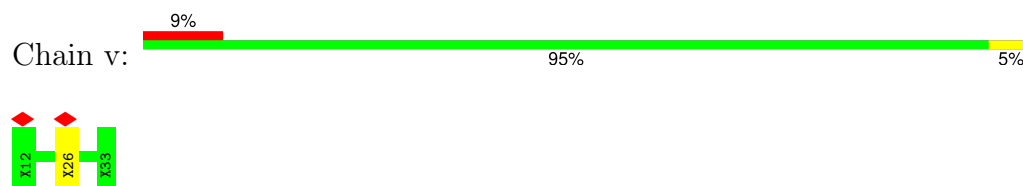
• Molecule 9: Proteasome subunit alpha type-1



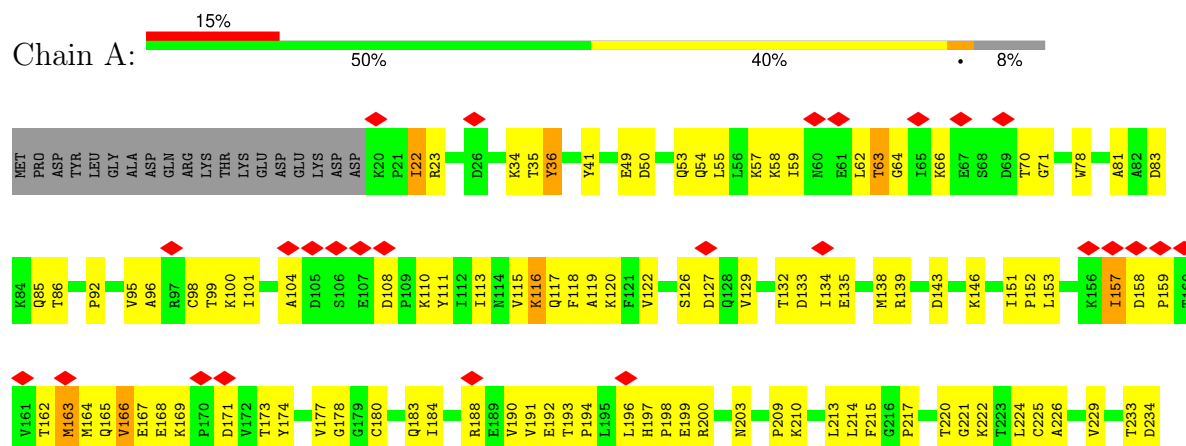
• Molecule 10: Proteasome subunit alpha type-3

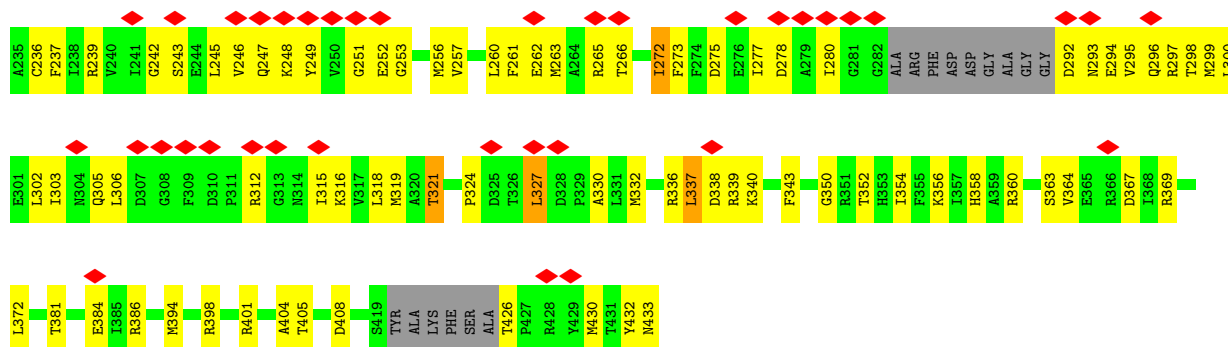


• Molecule 11: Substrate polypeptide



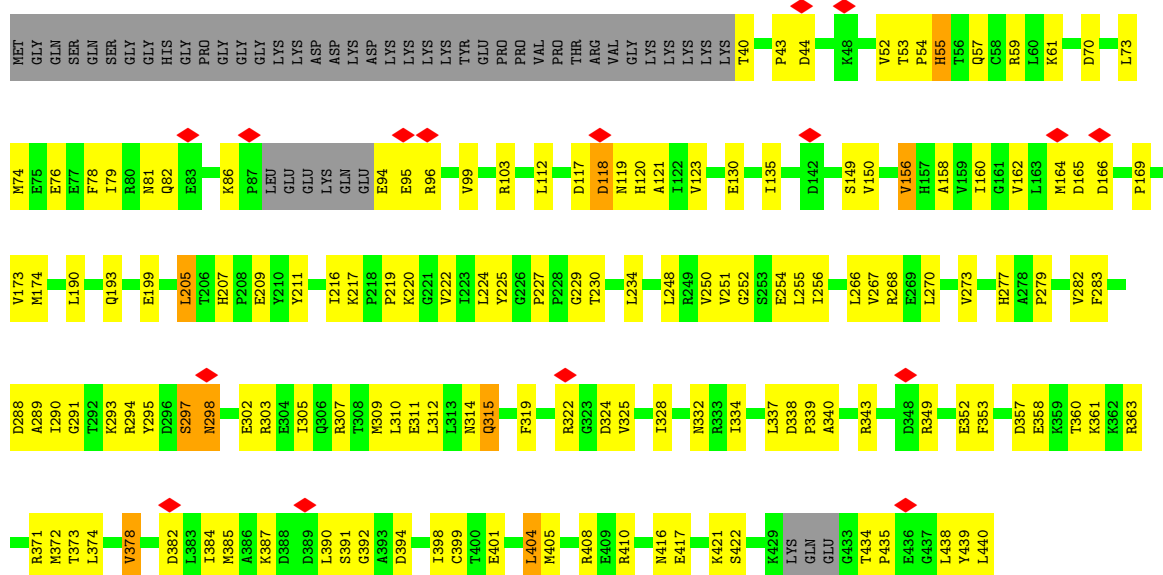
• Molecule 12: 26S proteasome regulatory subunit 7





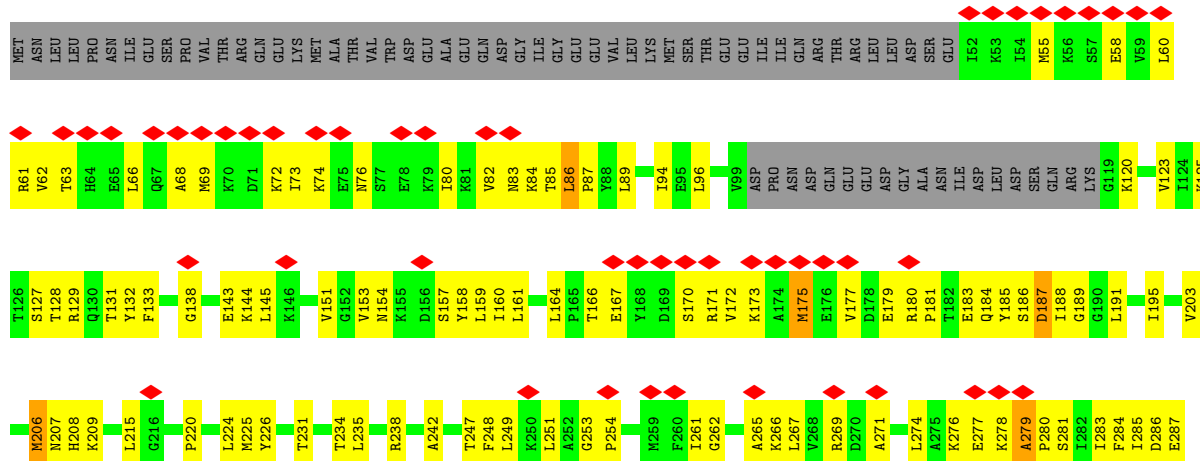
• Molecule 13: 26S proteasome regulatory subunit 4

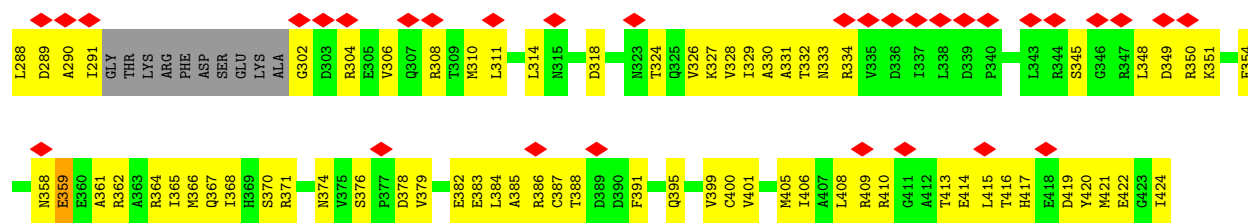
Chain B: 56% 31% 11%



• Molecule 14: 26S proteasome regulatory subunit 6A

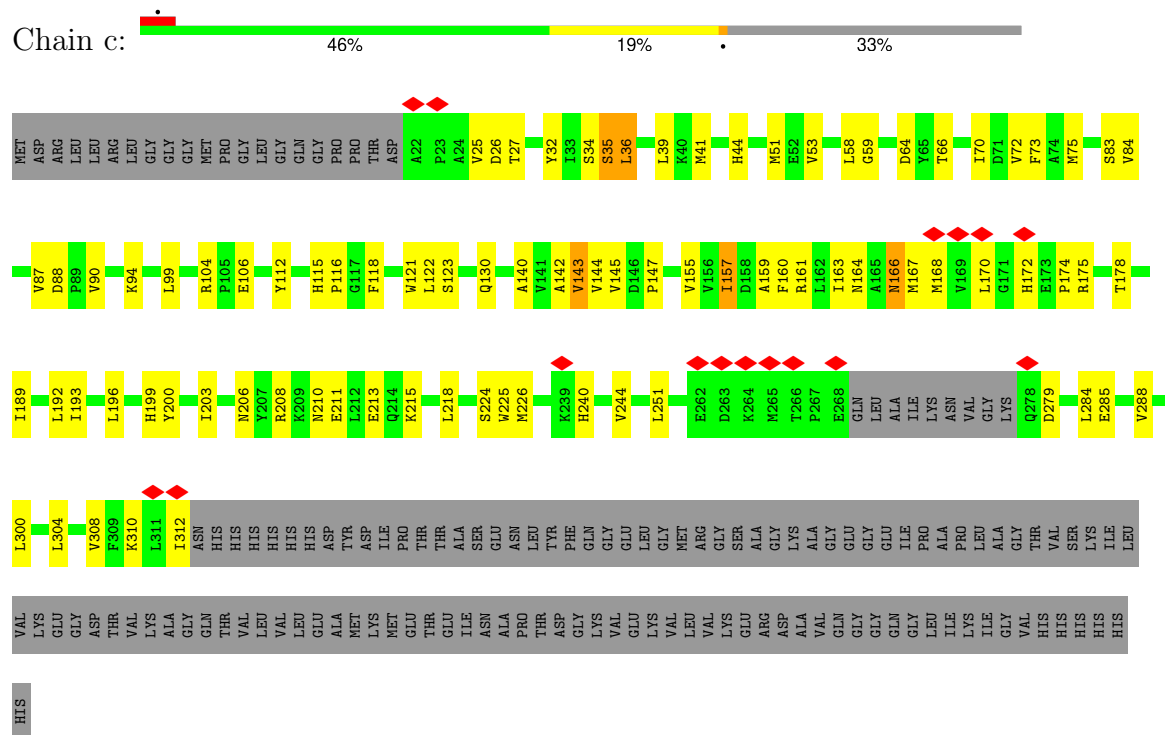
Chain F: 20% 39% 41% 18%





• Molecule 15: 26S proteasome non-ATPase regulatory subunit 14

Chain c:



4 Experimental information

Property	Value	Source
EM reconstruction method	SINGLE PARTICLE	Depositor
Imposed symmetry	POINT, Not provided	
Number of particles used	73136	Depositor
Resolution determination method	FSC 0.143 CUT-OFF	Depositor
CTF correction method	PHASE FLIPPING AND AMPLITUDE CORRECTION	Depositor
Microscope	TFS KRIOS	Depositor
Voltage (kV)	300	Depositor
Electron dose ($e^-/\text{\AA}^2$)	50	Depositor
Minimum defocus (nm)	500	Depositor
Maximum defocus (nm)	1700	Depositor
Magnification	Not provided	
Image detector	GATAN K3 (6k x 4k)	Depositor
Maximum map value	0.878	Depositor
Minimum map value	-0.288	Depositor
Average map value	0.004	Depositor
Map value standard deviation	0.033	Depositor
Recommended contour level	0.15	Depositor
Map size ($\text{\AA}$)	356.32, 356.32, 356.32	wwPDB
Map dimensions	340, 340, 340	wwPDB
Map angles ($^\circ$)	90.0, 90.0, 90.0	wwPDB
Pixel spacing ($\text{\AA}$)	1.048, 1.048, 1.048	Depositor

5 Model quality

5.1 Standard geometry

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

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	C	0.19	0/3094	0.38	0/4158
2	D	0.18	0/3090	0.40	0/4168
3	E	0.35	0/2931	0.66	1/3947 (0.0%)
4	G	0.17	0/1901	0.39	0/2572
5	H	0.16	0/1840	0.35	0/2495
6	I	0.16	0/1963	0.35	0/2650
7	J	0.15	0/1886	0.36	0/2551
8	K	0.21	0/1841	0.41	0/2486
9	L	0.16	0/1911	0.35	0/2584
10	M	0.16	0/1925	0.39	0/2592
12	A	0.19	0/3195	0.57	0/4312
13	B	0.18	0/3120	0.43	0/4210
14	F	0.19	0/2840	0.59	0/3828
15	c	0.15	0/2262	0.36	0/3059
All	All	0.20	0/33799	0.45	1/45612 (0.0%)

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

Mol	Chain	#Chirality outliers	#Planarity outliers
3	E	0	4
14	F	0	2
All	All	0	6

There are no bond length outliers.

All (1) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
3	E	245	GLU	CB-CA-C	-6.45	109.13	116.54

There are no chirality outliers.

All (6) planarity outliers are listed below:

Mol	Chain	Res	Type	Group
3	E	241	ARG	Sidechain
3	E	242	ARG	Sidechain
3	E	251	ARG	Sidechain
3	E	272	ARG	Sidechain
14	F	279	ALA	Peptide
14	F	287	GLU	Peptide

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	C	3053	0	3173	99	0
2	D	3040	0	3075	101	0
3	E	2887	0	2952	137	0
4	G	1867	0	1867	64	0
5	H	1801	0	1773	64	0
6	I	1933	0	1923	65	0
7	J	1860	0	1846	74	0
8	K	1813	0	1796	72	0
9	L	1876	0	1856	75	0
10	M	1890	0	1880	74	0
11	v	110	0	28	1	0
12	A	3146	0	3218	173	0
13	B	3075	0	3139	115	0
14	F	2803	0	2898	162	0
15	c	2220	0	2230	57	0
16	B	31	0	12	2	0
16	C	31	0	12	3	0
17	B	1	0	0	0	0
17	C	1	0	0	0	0
17	D	1	0	0	0	0
18	A	27	0	12	3	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
18	D	27	0	12	2	0
18	E	27	0	12	6	0
18	F	27	0	12	2	0
19	c	1	0	0	0	0
All	All	33548	0	33726	1216	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 18.

All (1216) 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)
7:J:158:ALA:H	8:K:58:LEU:HD21	1.36	0.91
12:A:159:PRO:HD2	12:A:164:MET:HE2	1.55	0.88
10:M:184:MET:HE3	10:M:184:MET:H	1.40	0.87
2:D:380:GLN:NE2	3:E:165:ILE:O	2.14	0.81
2:D:203:LEU:HB2	2:D:327:LEU:HD13	1.64	0.80
14:F:285:ILE:HB	14:F:330:ALA:HA	1.62	0.79
3:E:203:ILE:HD11	3:E:238:ILE:HG12	1.63	0.78
4:G:211:LYS:HG2	4:G:212:PRO:HD2	1.64	0.78
9:L:49:LEU:HD11	9:L:199:LEU:HD13	1.65	0.78
5:H:192:ILE:HG23	5:H:203:MET:HE1	1.66	0.78
10:M:40:ARG:NH1	10:M:146:ALA:O	2.18	0.77
1:C:280:LEU:HD21	1:C:291:VAL:HG11	1.67	0.76
3:E:34:LYS:O	3:E:37:THR:OG1	2.02	0.76
2:D:144:PRO:HG2	2:D:147:ALA:HB2	1.67	0.76
3:E:327:ASP:OD1	3:E:364:GLN:NE2	2.20	0.75
8:K:157:ASP:OD2	14:F:436:GLN:NE2	2.20	0.75
13:B:54:PRO:O	13:B:55:HIS:ND1	2.19	0.74
12:A:23:ARG:HB3	13:B:410:ARG:HH22	1.53	0.74
1:C:375:ARG:NH2	1:C:382:ASP:OD2	2.21	0.74
14:F:207:ASN:OD1	14:F:208:HIS:ND1	2.21	0.73
12:A:163:MET:HE2	12:A:164:MET:N	2.04	0.72
14:F:69:MET:HA	14:F:72:LYS:HG2	1.71	0.71
10:M:51:LYS:NZ	10:M:63:ASN:O	2.24	0.71
3:E:145:LEU:HD23	3:E:183:LEU:HD22	1.72	0.71
12:A:330:ALA:O	12:A:336:ARG:NH1	2.23	0.71
3:E:206:LYS:HD3	14:F:261:ILE:H	1.55	0.71
6:I:238:LYS:HA	6:I:241:GLU:HG3	1.70	0.71
8:K:207:GLU:HA	12:A:372:LEU:HD11	1.72	0.71
12:A:209:PRO:HB3	12:A:339:ARG:NH2	2.06	0.71

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:217:SER:OG	2:D:291:GLU:OE1	2.08	0.70
2:D:381:GLU:HB3	2:D:402:ALA:HB1	1.73	0.70
1:C:396:GLU:HB3	1:C:402:LYS:HD3	1.73	0.70
3:E:161:ARG:O	3:E:161:ARG:NE	2.24	0.70
12:A:299:MET:HA	12:A:302:LEU:HG	1.73	0.70
13:B:217:LYS:HE2	13:B:322:ARG:HD3	1.73	0.70
9:L:148:CYS:HG	9:L:150:SER:HG	1.40	0.70
12:A:169:LYS:HD2	12:A:234:ASP:HA	1.73	0.70
3:E:135:ILE:O	18:E:501:ADP:N6	2.19	0.70
2:D:89:ILE:HD11	3:E:80:VAL:HG13	1.74	0.69
14:F:143:GLU:HG2	14:F:144:LYS:HD2	1.74	0.69
1:C:224:ILE:HD11	13:B:305:ILE:HG13	1.74	0.69
2:D:255:LYS:NZ	2:D:302:ASN:OD1	2.25	0.69
3:E:364:GLN:HE21	3:E:368:MET:HE2	1.57	0.69
14:F:172:VAL:HG11	14:F:274:LEU:HD21	1.75	0.69
12:A:430:MET:HE3	12:A:430:MET:HA	1.73	0.69
14:F:281:SER:HB2	14:F:326:VAL:HG22	1.73	0.69
3:E:330:ALA:HA	3:E:333:LYS:HE3	1.74	0.69
14:F:55:MET:H	14:F:55:MET:HE2	1.58	0.69
3:E:229:ILE:HD13	3:E:274:LYS:HB2	1.74	0.69
12:A:213:LEU:HD12	12:A:340:LYS:HE3	1.74	0.69
12:A:319:MET:HG3	12:A:337:LEU:HD11	1.73	0.68
8:K:91:LYS:HE3	8:K:119:LEU:HD13	1.73	0.68
15:c:51:MET:HE3	15:c:51:MET:HA	1.76	0.68
15:c:59:GLY:HA2	15:c:70:ILE:HG22	1.76	0.68
12:A:122:VAL:HG11	14:F:164:LEU:HD21	1.74	0.68
12:A:203:ASN:O	14:F:374:ASN:ND2	2.27	0.68
14:F:277:GLU:OE2	14:F:277:GLU:N	2.27	0.68
9:L:202:GLU:OE1	9:L:202:GLU:N	2.18	0.68
12:A:257:VAL:HA	12:A:260:LEU:HG	1.75	0.67
2:D:153:MET:SD	2:D:257:ASN:ND2	2.67	0.67
12:A:99:THR:HG22	12:A:100:LYS:H	1.59	0.67
2:D:384:MET:SD	3:E:297:ARG:NH2	2.67	0.67
2:D:264:ILE:HB	2:D:309:MET:HG2	1.76	0.67
2:D:122:GLU:OE1	2:D:122:GLU:N	2.22	0.67
7:J:51:ALA:H	7:J:54:GLN:HE22	1.42	0.67
1:C:164:VAL:HG13	1:C:183:PRO:HB2	1.76	0.67
14:F:368:ILE:HA	14:F:371:ARG:HE	1.60	0.67
1:C:113:ARG:HD3	1:C:130:LYS:HB2	1.77	0.66
12:A:339:ARG:HH11	14:F:405:MET:HE1	1.59	0.66
7:J:77:THR:HG22	13:B:440:LEU:HB2	1.75	0.66

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
9:L:160:SER:O	9:L:169:ARG:NH1	2.28	0.66
9:L:171:TYR:OH	9:L:193:ARG:NH1	2.28	0.66
10:M:34:SER:OG	10:M:65:ARG:NH1	2.28	0.66
15:c:35:SER:OG	15:c:213:GLU:OE2	2.12	0.66
4:G:32:ILE:HD13	4:G:137:CYS:HB2	1.78	0.66
12:A:55:LEU:O	12:A:59:ILE:HG12	1.96	0.66
12:A:70:THR:HA	13:B:164:MET:HE1	1.77	0.66
12:A:180:CYS:HB3	12:A:183:GLN:HB2	1.78	0.66
12:A:277:ILE:HG21	12:A:319:MET:SD	2.36	0.66
14:F:83:ASN:C	14:F:83:ASN:HD22	2.03	0.66
3:E:270:LEU:HD22	3:E:273:VAL:HG21	1.76	0.66
4:G:141:ILE:HG22	4:G:151:VAL:HG22	1.78	0.66
13:B:220:LYS:HG3	13:B:319:PHE:HE2	1.61	0.66
1:C:45:LEU:HB3	2:D:61:ILE:HG21	1.78	0.66
5:H:203:MET:HE2	5:H:230:LEU:HD21	1.78	0.65
14:F:382:GLU:HB3	14:F:386:ARG:HH21	1.60	0.65
5:H:159:LYS:HE2	6:I:55:LEU:HA	1.79	0.65
9:L:36:VAL:HG12	9:L:160:SER:HB2	1.78	0.65
13:B:164:MET:SD	13:B:164:MET:N	2.68	0.65
6:I:123:GLN:NE2	7:J:125:ARG:O	2.29	0.65
3:E:21:GLU:HG2	3:E:22:ILE:H	1.62	0.65
1:C:271:ARG:NH1	13:B:289:ALA:O	2.29	0.65
1:C:333:SER:HA	1:C:336:MET:HG3	1.78	0.65
8:K:114:GLN:O	9:L:82:ARG:NH2	2.26	0.65
12:A:364:VAL:HG12	12:A:404:ALA:HB3	1.77	0.64
2:D:40:LEU:HD22	2:D:43:ARG:HH21	1.60	0.64
7:J:195:LEU:HD23	7:J:206:ILE:HG23	1.79	0.64
1:C:280:LEU:HB3	1:C:310:ARG:HG2	1.80	0.64
14:F:74:LYS:HE3	14:F:74:LYS:HA	1.77	0.64
12:A:295:VAL:O	12:A:298:THR:OG1	2.13	0.64
3:E:83:CYS:HA	3:E:107:ILE:HB	1.79	0.64
8:K:199:LEU:HD11	8:K:215:ILE:HD13	1.79	0.64
14:F:345:SER:HA	14:F:349:ASP:HB3	1.80	0.64
3:E:240:GLY:O	3:E:241:ARG:C	2.40	0.64
13:B:340:ALA:HA	13:B:343:ARG:HG3	1.79	0.64
12:A:209:PRO:HB3	12:A:339:ARG:HH22	1.62	0.64
5:H:65:VAL:O	5:H:220:ARG:NH1	2.31	0.63
12:A:190:VAL:HG22	12:A:339:ARG:HH12	1.61	0.63
13:B:250:VAL:HG12	13:B:252:GLY:H	1.62	0.63
12:A:178:GLY:O	18:A:501:ADP:N6	2.31	0.63
14:F:290:ALA:HB3	14:F:306:VAL:HG21	1.80	0.63

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
14:F:362:ARG:NH1	14:F:391:PHE:O	2.31	0.63
13:B:358:GLU:OE1	13:B:387:LYS:NZ	2.30	0.63
14:F:406:ILE:HA	14:F:409:ARG:HB2	1.81	0.63
9:L:47:VAL:HG12	9:L:212:ILE:HG12	1.79	0.63
5:H:82:ASP:OD2	5:H:128:ARG:NH2	2.32	0.63
8:K:35:SER:O	8:K:66:LYS:NZ	2.31	0.63
13:B:81:ASN:OD1	13:B:82:GLN:N	2.32	0.62
13:B:43:PRO:HD3	13:B:279:PRO:HD2	1.80	0.62
4:G:12:HIS:HB2	4:G:15:ILE:HG12	1.79	0.62
1:C:313:ARG:HH22	13:B:404:LEU:HD23	1.64	0.62
14:F:225:MET:HG2	14:F:331:ALA:HA	1.81	0.62
3:E:242:ARG:HG2	3:E:254:GLN:HB3	1.80	0.62
12:A:296:GLN:HA	12:A:299:MET:SD	2.40	0.62
2:D:130:VAL:HG12	2:D:142:VAL:HG23	1.81	0.62
14:F:189:GLY:O	18:F:501:ADP:N6	2.26	0.62
2:D:101:ALA:HB2	2:D:115:ILE:HD11	1.82	0.62
5:H:79:MET:HE2	5:H:128:ARG:HH21	1.64	0.62
13:B:405:MET:HA	13:B:405:MET:HE3	1.82	0.62
14:F:235:LEU:HD22	18:F:501:ADP:H2'	1.81	0.62
12:A:99:THR:CG2	12:A:100:LYS:H	2.12	0.62
5:H:50:LYS:NZ	5:H:62:VAL:O	2.32	0.61
9:L:176:MET:HE3	9:L:176:MET:HA	1.81	0.61
14:F:96:LEU:HD23	14:F:120:LYS:HG2	1.81	0.61
7:J:2:SER:OG	7:J:3:TYR:N	2.30	0.61
12:A:81:ALA:O	12:A:85:GLN:HG2	2.00	0.61
3:E:47:LEU:HA	3:E:50:LEU:HD12	1.81	0.61
1:C:173:GLU:HB2	12:A:34:LYS:HZ2	1.65	0.61
1:C:326:LEU:HD22	1:C:345:ARG:HE	1.65	0.61
14:F:388:THR:HG22	14:F:424:ILE:HD11	1.82	0.61
3:E:229:ILE:HA	3:E:274:LYS:O	2.01	0.61
8:K:189:MET:HG3	8:K:193:GLU:HG3	1.81	0.61
1:C:394:ASP:OD2	1:C:394:ASP:N	2.34	0.61
14:F:181:PRO:HG2	14:F:242:ALA:HB2	1.83	0.61
14:F:289:ASP:OD1	14:F:290:ALA:N	2.33	0.61
15:c:25:VAL:HG23	15:c:175:ARG:HG2	1.81	0.61
2:D:45:LYS:HA	2:D:48:GLN:NE2	2.14	0.61
14:F:391:PHE:HE1	14:F:427:VAL:HG11	1.65	0.61
1:C:99:VAL:HG13	1:C:123:LEU:HD12	1.83	0.61
2:D:146:GLU:OE1	2:D:252:ARG:NH1	2.32	0.61
13:B:52:VAL:HG11	13:B:61:LYS:HG3	1.83	0.60
13:B:291:GLY:HA2	13:B:309:MET:HE3	1.83	0.60

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
3:E:56:ILE:HG12	14:F:132:TYR:CE1	2.37	0.60
9:L:164:ARG:HH12	9:L:200:PRO:HB3	1.65	0.60
3:E:344:ARG:NH2	18:E:501:ADP:O3'	2.34	0.60
1:C:21:ARG:C	1:C:21:ARG:HH11	2.09	0.60
3:E:310:LEU:HB3	3:E:332:VAL:HG21	1.84	0.60
9:L:225:ASP:H	9:L:228:ASP:HB2	1.67	0.60
12:A:277:ILE:HG12	12:A:319:MET:HE1	1.83	0.60
2:D:181:VAL:HG11	2:D:308:ILE:HD11	1.84	0.60
7:J:224:GLU:HB2	7:J:227:LYS:HD2	1.82	0.60
10:M:40:ARG:HA	10:M:45:VAL:HA	1.84	0.60
14:F:283:ILE:HG23	14:F:328:VAL:HG23	1.83	0.60
14:F:288:LEU:HB3	14:F:333:ASN:H	1.66	0.60
8:K:195:ILE:HD11	8:K:217:LEU:HD11	1.83	0.59
12:A:22:ILE:HB	13:B:408:ARG:HD2	1.84	0.59
1:C:252:ASP:OD2	1:C:297:ARG:NH1	2.35	0.59
8:K:19:GLY:O	14:F:438:TYR:OH	2.19	0.59
10:M:43:ASP:OD1	10:M:43:ASP:N	2.34	0.59
3:E:108:MET:HE3	3:E:108:MET:HA	1.82	0.59
12:A:242:GLY:O	12:A:246:VAL:HG23	2.03	0.59
12:A:312:ARG:O	12:A:312:ARG:NH1	2.35	0.59
10:M:70:ASP:OD2	10:M:99:ARG:NH2	2.34	0.59
10:M:76:ALA:O	10:M:136:MET:N	2.29	0.59
2:D:371:SER:OG	2:D:374:ASP:OD2	2.20	0.59
14:F:84:LYS:HG3	14:F:161:LEU:HD12	1.85	0.59
15:c:75:MET:HE1	15:c:87:VAL:HA	1.84	0.59
2:D:45:LYS:HD3	2:D:48:GLN:HE21	1.67	0.59
5:H:100:VAL:HG13	5:H:101:TYR:CD2	2.38	0.59
6:I:92:LEU:HD12	6:I:96:ARG:HH21	1.68	0.59
8:K:41:GLN:HA	8:K:46:VAL:HG12	1.82	0.59
9:L:189:LYS:HE2	9:L:236:LEU:HA	1.85	0.59
12:A:272:ILE:HG12	12:A:315:ILE:HG22	1.84	0.59
1:C:331:ILE:O	1:C:334:ARG:NH1	2.34	0.58
3:E:75:ASN:ND2	14:F:129:ARG:O	2.36	0.58
3:E:257:LEU:CD1	3:E:289:LEU:HD12	2.33	0.58
7:J:104:VAL:HG12	7:J:145:TYR:HD1	1.68	0.58
10:M:184:MET:H	10:M:184:MET:CE	2.14	0.58
14:F:432:LYS:HD2	14:F:432:LYS:C	2.27	0.58
15:c:240:HIS:O	15:c:244:VAL:HG23	2.02	0.58
2:D:359:ASP:HB2	2:D:362:ASP:HB3	1.84	0.58
6:I:69:ASN:HB3	6:I:72:MET:HB2	1.86	0.58
12:A:157:ILE:HD12	12:A:256:MET:HG2	1.85	0.58

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
15:c:168:MET:HE1	15:c:174:PRO:HD3	1.85	0.58
5:H:108:ALA:O	5:H:112:GLN:HG3	2.04	0.58
4:G:183:VAL:HA	4:G:189:TRP:HH2	1.68	0.58
7:J:84:ILE:O	7:J:88:ARG:HG3	2.04	0.58
9:L:46:LEU:HD22	9:L:73:SER:HB3	1.86	0.58
9:L:95:SER:HB2	9:L:103:LEU:HD13	1.84	0.58
10:M:45:VAL:HG12	10:M:216:VAL:HG12	1.84	0.58
7:J:31:THR:OG1	7:J:163:ARG:O	2.20	0.58
7:J:116:GLN:O	7:J:120:GLN:HG3	2.04	0.58
8:K:35:SER:HB2	8:K:66:LYS:HE3	1.85	0.58
12:A:261:PHE:O	12:A:265:ARG:HG2	2.03	0.58
12:A:394:MET:HE1	13:B:219:PRO:HG3	1.86	0.58
5:H:103:GLU:HG2	5:H:104:PRO:HD2	1.85	0.58
6:I:122:THR:O	7:J:125:ARG:NH1	2.37	0.58
8:K:206:MET:O	12:A:369:ARG:NH2	2.34	0.58
9:L:182:CYS:HB3	9:L:186:GLU:HB2	1.85	0.58
12:A:272:ILE:O	12:A:318:LEU:N	2.37	0.58
9:L:199:LEU:HD12	9:L:200:PRO:HD2	1.86	0.58
14:F:376:SER:HB3	14:F:415:LEU:HG	1.85	0.58
1:C:267:SER:OG	1:C:271:ARG:NH2	2.36	0.58
5:H:204:THR:H	5:H:207:ASN:HB2	1.69	0.58
6:I:143:TYR:HB2	6:I:146:GLN:HE21	1.68	0.58
6:I:45:LEU:HD22	6:I:75:SER:HB3	1.86	0.57
8:K:197:SER:O	8:K:201:ILE:HG12	2.03	0.57
12:A:63:THR:HG23	12:A:64:GLY:H	1.68	0.57
13:B:229:GLY:O	13:B:391:SER:OG	2.22	0.57
4:G:37:LEU:HD21	4:G:55:LYS:HG3	1.85	0.57
5:H:118:MET:SD	5:H:149:SER:OG	2.62	0.57
12:A:332:MET:SD	12:A:332:MET:N	2.75	0.57
12:A:100:LYS:HE3	14:F:167:GLU:HA	1.84	0.57
14:F:184:GLN:N	14:F:184:GLN:OE1	2.37	0.57
1:C:132:ASP:N	1:C:132:ASP:OD1	2.37	0.57
8:K:199:LEU:HD12	8:K:210:LEU:HD21	1.86	0.57
13:B:268:ARG:NH1	13:B:311:GLU:OE2	2.37	0.57
3:E:260:LEU:HG	3:E:264:MET:HE2	1.86	0.57
10:M:180:GLN:NE2	10:M:183:GLU:HG2	2.20	0.57
6:I:238:LYS:NZ	6:I:242:GLU:OE1	2.37	0.57
7:J:69:VAL:HG12	7:J:104:VAL:HG22	1.85	0.57
12:A:426:THR:HG23	12:A:430:MET:HG2	1.86	0.57
14:F:249:LEU:HB2	14:F:283:ILE:HG13	1.85	0.57
3:E:266:GLY:O	3:E:267:PHE:C	2.48	0.57

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
3:E:291:ARG:NH1	3:E:292:PRO:O	2.38	0.57
7:J:211:MET:HA	7:J:215:GLN:HE22	1.70	0.57
12:A:198:PRO:HB3	12:A:312:ARG:NH2	2.20	0.57
12:A:249:TYR:HE2	12:A:252:GLU:HG2	1.70	0.57
6:I:150:SER:OG	6:I:151:ASP:N	2.38	0.57
12:A:173:THR:OG1	12:A:174:TYR:N	2.38	0.57
8:K:224:GLN:N	8:K:224:GLN:OE1	2.38	0.57
3:E:22:ILE:HG21	3:E:30:ARG:HH22	1.70	0.57
13:B:149:SER:OG	13:B:166:ASP:OD1	2.13	0.57
5:H:134:LEU:HB2	5:H:149:SER:HB3	1.87	0.56
8:K:41:GLN:HE22	8:K:151:PRO:C	2.12	0.56
9:L:138:ASP:OD1	9:L:138:ASP:N	2.35	0.56
1:C:119:ASP:OD2	15:c:193:ILE:HG21	2.05	0.56
5:H:93:LEU:HD13	5:H:113:ARG:HB3	1.85	0.56
15:c:304:LEU:O	15:c:308:VAL:HG12	2.05	0.56
3:E:145:LEU:HD11	3:E:276:ILE:HD11	1.85	0.56
5:H:72:ILE:HG21	5:H:110:LEU:HD23	1.85	0.56
5:H:86:LEU:HD11	5:H:118:MET:HG2	1.86	0.56
6:I:50:ARG:HH12	6:I:166:ASN:ND2	2.04	0.56
7:J:211:MET:SD	7:J:217:LEU:HD23	2.45	0.56
10:M:187:ARG:O	10:M:191:LYS:NZ	2.38	0.56
12:A:273:PHE:HE1	12:A:275:ASP:HB3	1.71	0.56
15:c:99:LEU:HD12	15:c:104:ARG:HB3	1.87	0.56
15:c:118:PHE:O	15:c:121:TRP:NE1	2.24	0.56
15:c:224:SER:OG	15:c:226:MET:SD	2.62	0.56
2:D:79:VAL:O	2:D:82:ILE:HG22	2.05	0.56
3:E:250:ASP:O	3:E:254:GLN:HG2	2.05	0.56
12:A:273:PHE:CE1	12:A:275:ASP:HB3	2.40	0.56
14:F:379:VAL:HG12	14:F:417:HIS:HB2	1.87	0.56
2:D:78:GLU:OE1	2:D:81:ARG:NH2	2.38	0.56
9:L:9:ASP:N	9:L:9:ASP:OD1	2.36	0.56
12:A:50:ASP:O	12:A:54:GLN:HG2	2.05	0.56
14:F:421:MET:O	14:F:424:ILE:HG22	2.06	0.56
3:E:243:PHE:H	3:E:254:GLN:HE22	1.53	0.56
14:F:414:GLU:HG2	14:F:415:LEU:N	2.20	0.56
3:E:181:THR:HG23	3:E:231:PHE:CE2	2.40	0.56
3:E:366:ASP:HA	3:E:369:LYS:HE2	1.88	0.56
8:K:59:MET:HG2	8:K:64:ILE:HD11	1.87	0.56
12:A:151:ILE:HD12	12:A:152:PRO:HD2	1.87	0.56
1:C:263:SER:OG	1:C:264:GLY:N	2.37	0.55
2:D:200:ARG:N	2:D:328:ASP:OD2	2.37	0.55

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:D:143:LEU:HD13	3:E:70:ILE:HD11	1.88	0.55
5:H:122:THR:HG22	5:H:129:PRO:HB3	1.87	0.55
7:J:166:LYS:O	7:J:170:GLU:HG2	2.07	0.55
1:C:138:MET:HE2	1:C:214:VAL:HG23	1.87	0.55
3:E:335:SER:O	3:E:335:SER:OG	2.23	0.55
9:L:134:ILE:HB	9:L:145:PHE:HB2	1.87	0.55
13:B:207:HIS:ND1	13:B:207:HIS:O	2.39	0.55
2:D:394:VAL:HG11	2:D:399:PHE:HD2	1.70	0.55
10:M:231:ILE:HA	10:M:234:GLU:HG2	1.89	0.55
13:B:372:MET:HE1	13:B:399:CYS:HB3	1.89	0.55
14:F:311:LEU:O	14:F:314:LEU:HD12	2.07	0.55
2:D:170:MET:HB2	2:D:173:GLN:HB2	1.89	0.55
2:D:200:ARG:HH12	2:D:301:GLN:NE2	2.05	0.55
4:G:127:GLN:NE2	5:H:128:ARG:O	2.39	0.55
9:L:50:LYS:HB3	9:L:59:HIS:HB3	1.87	0.55
10:M:125:TYR:HB2	10:M:128:VAL:HG22	1.88	0.55
12:A:405:THR:OG1	12:A:408:ASP:OD1	2.17	0.55
13:B:279:PRO:HB3	13:B:324:ASP:HB2	1.86	0.55
15:c:192:LEU:HA	15:c:196:LEU:HB3	1.88	0.55
3:E:86:GLN:OE1	3:E:86:GLN:N	2.38	0.55
3:E:147:GLU:O	3:E:151:LEU:HB2	2.07	0.55
5:H:114:VAL:O	5:H:118:MET:HG3	2.06	0.55
8:K:77:ALA:HB3	8:K:142:LEU:HB3	1.89	0.55
7:J:63:CYS:HB2	7:J:84:ILE:HD12	1.88	0.55
12:A:139:ARG:HB3	12:A:153:LEU:O	2.07	0.55
14:F:349:ASP:OD1	14:F:349:ASP:N	2.36	0.55
14:F:416:THR:HG22	14:F:419:ASP:H	1.72	0.55
1:C:86:LEU:HB2	1:C:96:VAL:HG12	1.87	0.55
8:K:88:LEU:HD23	8:K:119:LEU:HD23	1.88	0.55
9:L:214:ILE:HD12	9:L:224:TYR:HE1	1.72	0.55
10:M:191:LYS:HB3	10:M:238:TYR:CD2	2.42	0.55
2:D:99:ASN:OD1	2:D:99:ASN:N	2.40	0.55
8:K:18:GLU:HB2	8:K:20:ARG:HD2	1.88	0.55
12:A:54:GLN:OE1	12:A:57:LYS:NZ	2.34	0.55
3:E:309:ARG:NH2	3:E:332:VAL:O	2.35	0.55
14:F:170:SER:OG	14:F:171:ARG:N	2.38	0.55
4:G:112:ASP:OD1	4:G:113:MET:N	2.40	0.54
8:K:116:VAL:HG12	8:K:156:MET:HE2	1.89	0.54
10:M:77:VAL:HG21	10:M:84:ALA:HB1	1.89	0.54
12:A:177:VAL:HG11	12:A:225:CYS:HA	1.88	0.54
5:H:68:ILE:HG21	5:H:110:LEU:HD21	1.89	0.54

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
6:I:21:VAL:O	6:I:25:MET:HG2	2.06	0.54
10:M:37:ILE:HD11	10:M:193:VAL:HG13	1.89	0.54
14:F:83:ASN:C	14:F:83:ASN:ND2	2.66	0.54
3:E:216:ARG:O	3:E:220:ASN:ND2	2.40	0.54
5:H:45:VAL:HG23	5:H:212:ILE:HG22	1.90	0.54
12:A:198:PRO:HB3	12:A:312:ARG:HH21	1.72	0.54
8:K:175:GLU:CD	8:K:175:GLU:H	2.15	0.54
12:A:245:LEU:HD23	12:A:245:LEU:H	1.73	0.54
13:B:293:LYS:HD3	13:B:339:PRO:HD3	1.89	0.54
14:F:224:LEU:HD23	14:F:351:LYS:HG2	1.90	0.54
15:c:170:LEU:HD22	15:c:172:HIS:NE2	2.23	0.54
2:D:349:THR:HA	2:D:352:MET:HB2	1.89	0.54
6:I:15:GLU:O	7:J:28:LYS:NZ	2.33	0.54
7:J:24:GLU:HA	7:J:27:LYS:HE3	1.90	0.54
8:K:141:LEU:HB2	8:K:156:MET:HB3	1.89	0.54
8:K:218:ALA:HB1	8:K:226:PHE:HE1	1.71	0.54
10:M:106:ILE:HG12	10:M:111:LEU:HB2	1.90	0.54
2:D:400:GLU:O	2:D:404:LYS:HG2	2.07	0.54
3:E:64:LEU:HD13	3:E:70:ILE:HG13	1.90	0.54
6:I:136:TYR:CE1	6:I:150:SER:HB2	2.42	0.54
14:F:385:ALA:O	14:F:388:THR:OG1	2.24	0.54
5:H:65:VAL:HG22	5:H:75:VAL:HG22	1.89	0.54
7:J:23:GLN:NE2	7:J:148:ASP:OD2	2.41	0.54
14:F:382:GLU:OE2	14:F:382:GLU:N	2.36	0.54
2:D:89:ILE:HB	3:E:78:ARG:HG3	1.89	0.54
9:L:99:PHE:HD2	9:L:101:ARG:HE	1.55	0.54
10:M:192:GLU:OE1	10:M:192:GLU:N	2.41	0.54
14:F:179:GLU:OE2	14:F:247:THR:HA	2.08	0.54
3:E:36:LEU:HD23	14:F:69:MET:HE1	1.89	0.54
9:L:7:ASP:HB3	9:L:20:HIS:HB2	1.90	0.53
12:A:95:VAL:HG13	12:A:139:ARG:HG3	1.90	0.53
13:B:297:SER:HB2	13:B:302:GLU:HG3	1.90	0.53
14:F:185:TYR:CD1	14:F:195:ILE:HD13	2.43	0.53
1:C:135:VAL:HA	1:C:138:MET:SD	2.48	0.53
1:C:141:GLU:OE2	1:C:141:GLU:N	2.33	0.53
6:I:33:THR:OG1	6:I:166:ASN:O	2.25	0.53
12:A:92:PRO:HG3	13:B:156:VAL:HA	1.88	0.53
14:F:154:ASN:OD1	14:F:157:SER:N	2.38	0.53
1:C:171:HIS:HB3	12:A:34:LYS:NZ	2.23	0.53
5:H:39:LYS:HA	5:H:44:VAL:HG12	1.90	0.53
10:M:180:GLN:HE22	10:M:183:GLU:HG2	1.73	0.53

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
12:A:83:ASP:HA	12:A:86:THR:HG22	1.91	0.53
2:D:89:ILE:HD12	2:D:143:LEU:HD11	1.89	0.53
3:E:242:ARG:HD2	3:E:258:MET:HE3	1.90	0.53
12:A:253:GLY:HA2	12:A:256:MET:SD	2.48	0.53
13:B:164:MET:H	13:B:164:MET:CE	2.21	0.53
5:H:19:LEU:HD22	5:H:19:LEU:H	1.74	0.53
8:K:167:ALA:HB3	9:L:56:LEU:HD21	1.91	0.53
15:c:164:ASN:OD1	15:c:166:ASN:ND2	2.34	0.53
2:D:201:GLY:HA2	2:D:307:VAL:O	2.07	0.53
5:H:89:ARG:O	5:H:93:LEU:HG	2.08	0.53
9:L:81:ALA:N	9:L:130:VAL:HG21	2.24	0.53
9:L:88:MET:HG2	9:L:112:ILE:HD11	1.90	0.53
12:A:99:THR:HG22	12:A:100:LYS:N	2.23	0.53
4:G:183:VAL:HA	4:G:189:TRP:CH2	2.44	0.53
12:A:71:GLY:HA3	13:B:162:VAL:HG12	1.91	0.53
12:A:398:ARG:NH2	13:B:199:GLU:OE1	2.42	0.53
13:B:334:ILE:HD12	13:B:337:LEU:HD12	1.90	0.53
3:E:17:LEU:H	3:E:17:LEU:HD23	1.74	0.53
5:H:107:THR:HG21	5:H:145:TYR:HB2	1.91	0.53
9:L:76:GLY:O	14:F:439:ALA:N	2.41	0.53
13:B:118:ASP:OD2	13:B:119:ASN:ND2	2.42	0.53
7:J:158:ALA:N	8:K:58:LEU:HD21	2.16	0.53
9:L:138:ASP:OD1	9:L:143:HIS:NE2	2.41	0.53
13:B:298:ASN:OD1	13:B:298:ASN:N	2.42	0.53
14:F:234:THR:O	14:F:238:ARG:HG3	2.09	0.53
15:c:32:TYR:HD2	15:c:66:THR:HG23	1.74	0.53
2:D:212:LYS:NZ	18:D:501:ADP:O3B	2.32	0.52
2:D:353:ASN:ND2	2:D:392:TYR:O	2.42	0.52
5:H:68:ILE:HD11	5:H:74:LEU:HD22	1.91	0.52
14:F:391:PHE:CE1	14:F:427:VAL:HG11	2.44	0.52
2:D:99:ASN:HD22	2:D:114:ARG:HH12	1.57	0.52
4:G:200:THR:HG23	4:G:242:LEU:HD21	1.91	0.52
6:I:76:VAL:HG23	6:I:134:LEU:HD21	1.91	0.52
10:M:41:CYS:N	10:M:44:GLY:O	2.42	0.52
12:A:35:THR:OG1	12:A:36:TYR:N	2.41	0.52
12:A:133:ASP:OD1	12:A:133:ASP:N	2.35	0.52
13:B:225:TYR:HD1	13:B:334:ILE:HG21	1.74	0.52
15:c:143:VAL:HA	15:c:159:ALA:HA	1.89	0.52
5:H:76:TYR:HB2	5:H:132:VAL:HG13	1.90	0.52
3:E:29:LEU:HD22	14:F:62:VAL:HG13	1.90	0.52
10:M:170:GLN:O	10:M:174:THR:HG23	2.09	0.52

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
10:M:229:LYS:HZ1	10:M:233:GLU:HB3	1.74	0.52
15:c:208:ARG:HB3	15:c:208:ARG:NH1	2.24	0.52
1:C:296:ASN:ND2	16:C:501:ATP:O3G	2.40	0.52
9:L:157:ARG:HG3	10:M:59:GLU:HG2	1.91	0.52
9:L:158:ALA:O	10:M:57:LEU:HG	2.09	0.52
14:F:171:ARG:O	14:F:175:MET:N	2.43	0.52
14:F:432:LYS:HZ2	14:F:434:ASN:H	1.56	0.52
2:D:317:LEU:HD12	2:D:322:LEU:HD21	1.90	0.52
5:H:96:GLN:O	5:H:100:VAL:HG12	2.08	0.52
6:I:160:LYS:HG3	7:J:53:LEU:HD12	1.91	0.52
14:F:288:LEU:HD13	14:F:334:ARG:HE	1.74	0.52
14:F:366:MET:HA	14:F:366:MET:HE3	1.90	0.52
15:c:32:TYR:HE1	15:c:206:ASN:HD22	1.58	0.52
2:D:309:MET:HE2	2:D:327:LEU:HD21	1.91	0.52
5:H:76:TYR:HB3	5:H:83:TYR:CD1	2.45	0.52
7:J:23:GLN:HA	7:J:149:PRO:HG2	1.92	0.52
1:C:49:ARG:NE	2:D:64:GLU:OE1	2.43	0.52
3:E:66:GLU:N	3:E:66:GLU:OE1	2.42	0.52
12:A:192:GLU:OE1	12:A:192:GLU:HA	2.10	0.52
13:B:288:ASP:OD1	13:B:288:ASP:N	2.39	0.52
14:F:86:LEU:HG	14:F:87:PRO:HD3	1.92	0.52
8:K:114:GLN:HG3	9:L:82:ARG:NH2	2.25	0.52
14:F:171:ARG:HG2	14:F:267:LEU:HD13	1.92	0.52
8:K:71:ASP:HB2	8:K:96:THR:HG21	1.92	0.52
14:F:166:THR:OG1	14:F:167:GLU:N	2.43	0.52
14:F:302:GLY:O	14:F:304:ARG:NE	2.43	0.52
14:F:432:LYS:HD2	14:F:433:ALA:N	2.25	0.52
1:C:31:LEU:HB3	2:D:47:LEU:HD12	1.92	0.51
3:E:281:ARG:HE	3:E:281:ARG:HA	1.75	0.51
15:c:170:LEU:HD22	15:c:172:HIS:CE1	2.45	0.51
4:G:165:ALA:HB1	4:G:179:LEU:HD13	1.92	0.51
4:G:37:LEU:HD12	4:G:68:HIS:CE1	2.45	0.51
7:J:7:ILE:HG23	7:J:8:THR:HG23	1.92	0.51
14:F:383:GLU:O	14:F:386:ARG:HG2	2.11	0.51
10:M:144:ASP:OD2	10:M:147:GLN:NE2	2.43	0.51
12:A:165:GLN:HG3	12:A:167:GLU:H	1.76	0.51
1:C:239:ARG:HG3	1:C:239:ARG:HH11	1.75	0.51
2:D:317:LEU:HB2	2:D:322:LEU:HD11	1.92	0.51
7:J:215:GLN:N	7:J:215:GLN:OE1	2.43	0.51
12:A:122:VAL:HG11	14:F:164:LEU:CD2	2.40	0.51
13:B:121:ALA:HB2	13:B:135:ILE:HD11	1.92	0.51

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
7:J:212:ARG:H	7:J:215:GLN:NE2	2.08	0.51
9:L:46:LEU:N	9:L:213:GLY:O	2.40	0.51
12:A:338:ASP:HB3	12:A:339:ARG:HE	1.74	0.51
13:B:205:LEU:HD11	13:B:279:PRO:HB2	1.92	0.51
14:F:175:MET:HE2	14:F:251:LEU:HD12	1.92	0.51
8:K:68:VAL:HG21	8:K:89:ILE:HG13	1.93	0.51
13:B:374:LEU:HB3	13:B:378:VAL:HG11	1.92	0.51
14:F:177:VAL:HG23	14:F:247:THR:HG23	1.93	0.51
14:F:247:THR:N	14:F:281:SER:HA	2.25	0.51
7:J:159:ASN:OD1	7:J:160:ALA:N	2.44	0.51
10:M:141:SER:HB3	10:M:144:ASP:HB3	1.92	0.51
13:B:112:LEU:HD11	13:B:121:ALA:HB1	1.91	0.51
1:C:189:TYR:CZ	1:C:316:GLU:HB2	2.46	0.51
3:E:175:PRO:O	3:E:178:THR:OG1	2.19	0.51
4:G:125:TYR:CD1	4:G:131:MET:HG2	2.46	0.51
5:H:135:LEU:HG	5:H:163:MET:HE1	1.93	0.51
10:M:181:MET:HE3	10:M:182:LYS:HA	1.92	0.51
14:F:422:GLU:HA	14:F:425:LEU:HG	1.92	0.51
15:c:300:LEU:O	15:c:304:LEU:HG	2.11	0.51
1:C:178:LEU:HD23	1:C:180:ILE:HD13	1.92	0.51
1:C:349:GLU:O	6:I:204:SER:OG	2.26	0.51
3:E:45:ASN:HA	3:E:48:LYS:HE2	1.92	0.51
12:A:197:HIS:HB2	12:A:200:ARG:HD2	1.93	0.51
12:A:213:LEU:HD23	12:A:319:MET:HB3	1.93	0.51
12:A:222:LYS:HG2	12:A:343:PHE:CG	2.46	0.51
12:A:401:ARG:NH2	12:A:408:ASP:OD1	2.44	0.51
13:B:169:PRO:O	13:B:173:VAL:HG12	2.11	0.51
1:C:131:VAL:HG22	1:C:136:SER:HB3	1.93	0.50
3:E:341:ALA:O	3:E:345:ASN:ND2	2.25	0.50
10:M:27:MET:O	10:M:31:GLU:HG2	2.11	0.50
10:M:45:VAL:HG11	10:M:138:GLY:HA3	1.93	0.50
12:A:184:ILE:HD13	12:A:225:CYS:HB3	1.92	0.50
12:A:260:LEU:HD12	12:A:261:PHE:N	2.26	0.50
13:B:57:GLN:OE1	13:B:57:GLN:HA	2.11	0.50
13:B:73:LEU:O	13:B:76:GLU:HG3	2.10	0.50
1:C:256:SER:O	1:C:302:ASP:N	2.44	0.50
4:G:131:MET:HA	4:G:131:MET:HE2	1.92	0.50
7:J:221:ASN:ND2	7:J:223:GLU:OE2	2.25	0.50
14:F:419:ASP:OD1	14:F:420:TYR:N	2.43	0.50
1:C:338:LEU:HD12	1:C:342:ILE:HG13	1.92	0.50
2:D:202:VAL:HG12	2:D:329:ARG:HB2	1.93	0.50

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
12:A:108:ASP:O	12:A:110:LYS:N	2.43	0.50
12:A:127:ASP:OD1	12:A:127:ASP:N	2.44	0.50
3:E:203:ILE:HD11	3:E:238:ILE:CG1	2.39	0.50
5:H:157:ALA:HB1	6:I:57:ASP:HB2	1.94	0.50
7:J:200:GLN:N	13:B:385:MET:HE3	2.26	0.50
8:K:85:ALA:HB2	8:K:139:VAL:HG21	1.94	0.50
10:M:195:LYS:O	10:M:199:ILE:HG22	2.11	0.50
15:c:130:GLN:NE2	15:c:140:ALA:O	2.45	0.50
1:C:406:LYS:HE3	6:I:80:THR:HG23	1.92	0.50
2:D:116:LEU:HB3	2:D:119:ILE:HD12	1.92	0.50
2:D:259:PRO:HB3	2:D:304:ASN:HB3	1.92	0.50
14:F:384:LEU:HD23	14:F:421:MET:HE2	1.93	0.50
4:G:189:TRP:HE1	4:G:197:THR:HG21	1.77	0.50
4:G:190:THR:HG22	4:G:193:GLN:HB2	1.94	0.50
5:H:74:LEU:HD21	5:H:87:VAL:HG22	1.93	0.50
10:M:219:LEU:HG	10:M:220:THR:HG23	1.92	0.50
12:A:251:GLY:HA2	12:A:294:GLU:HG2	1.94	0.50
12:A:293:ASN:OD1	12:A:293:ASN:N	2.44	0.50
16:C:501:ATP:O1G	2:D:326:ARG:NH1	2.34	0.50
6:I:100:GLN:HB3	6:I:101:TYR:HD1	1.77	0.50
8:K:210:LEU:HG	8:K:238:ILE:HD11	1.92	0.50
9:L:138:ASP:CG	9:L:143:HIS:HE2	2.20	0.50
10:M:215:TRP:NE1	10:M:225:GLU:OE2	2.42	0.50
12:A:239:ARG:HG3	12:A:273:PHE:HD1	1.77	0.50
13:B:224:LEU:HD23	13:B:353:PHE:CE1	2.46	0.50
14:F:138:GLY:HA2	14:F:159:LEU:HD12	1.93	0.50
5:H:45:VAL:HG21	5:H:188:ILE:HG12	1.93	0.50
6:I:136:TYR:HE1	6:I:150:SER:HB2	1.76	0.50
8:K:5:ARG:HG2	8:K:9:ASP:OD1	2.11	0.50
8:K:192:LYS:O	8:K:195:ILE:HG22	2.12	0.50
10:M:192:GLU:HG3	10:M:195:LYS:HZ1	1.76	0.50
12:A:358:HIS:CE1	12:A:386:ARG:HB3	2.47	0.50
12:A:369:ARG:HE	12:A:372:LEU:HD12	1.77	0.50
1:C:130:LYS:HD3	1:C:131:VAL:N	2.27	0.49
2:D:99:ASN:HD22	2:D:114:ARG:NH1	2.10	0.49
4:G:131:MET:HE1	10:M:125:TYR:CE1	2.47	0.49
6:I:214:ALA:HB2	6:I:227:VAL:HG12	1.94	0.49
14:F:358:ASN:O	14:F:362:ARG:NE	2.45	0.49
6:I:4:ARG:HG2	6:I:5:TYR:H	1.77	0.49
6:I:8:ARG:HH12	6:I:11:ILE:HD13	1.76	0.49
6:I:176:LYS:HE2	7:J:52:LYS:HB2	1.93	0.49

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
13:B:94:GLU:N	13:B:94:GLU:OE1	2.45	0.49
8:K:70:ILE:HA	8:K:93:ARG:HG2	1.93	0.49
9:L:187:LEU:HD12	9:L:188:VAL:N	2.28	0.49
13:B:234:LEU:HD22	16:B:501:ATP:H2'	1.95	0.49
1:C:174:LEU:O	1:C:178:LEU:HB2	2.13	0.49
7:J:41:VAL:HG22	7:J:211:MET:HB3	1.92	0.49
7:J:90:GLU:HG2	7:J:110:TYR:CG	2.47	0.49
12:A:221:GLY:N	18:A:501:ADP:O1B	2.44	0.49
15:c:115:HIS:HB3	15:c:118:PHE:HB2	1.94	0.49
1:C:372:ARG:NE	2:D:179:GLU:OE2	2.44	0.49
3:E:110:TYR:O	3:E:111:LEU:HD23	2.12	0.49
3:E:152:PRO:HB3	3:E:166:PRO:HB3	1.94	0.49
3:E:257:LEU:HD13	3:E:289:LEU:HD12	1.95	0.49
14:F:247:THR:H	14:F:281:SER:HA	1.77	0.49
16:C:501:ATP:H5'2	2:D:323:ARG:NH1	2.27	0.49
3:E:65:THR:HG22	3:E:68:LYS:HB2	1.95	0.49
7:J:115:LYS:O	7:J:119:THR:HG22	2.12	0.49
12:A:174:TYR:OH	12:A:229:VAL:HG23	2.13	0.49
12:A:295:VAL:HG13	12:A:299:MET:HE1	1.94	0.49
15:c:26:ASP:OD2	15:c:27:THR:N	2.46	0.49
1:C:155:ASP:O	1:C:159:LYS:HG2	2.13	0.49
7:J:169:ARG:O	7:J:173:GLU:HG3	2.12	0.49
15:c:155:VAL:HG12	15:c:157:ILE:HG22	1.95	0.49
1:C:61:GLU:O	1:C:65:LEU:HD22	2.11	0.49
3:E:345:ASN:OD1	14:F:345:SER:N	2.36	0.49
5:H:69:THR:OG1	5:H:70:LYS:N	2.45	0.49
1:C:395:SER:OG	1:C:396:GLU:N	2.46	0.49
2:D:161:ASP:OD1	2:D:161:ASP:N	2.36	0.49
4:G:23:TYR:O	4:G:27:TYR:HD1	1.96	0.49
7:J:66:ASP:OD1	7:J:67:ASP:N	2.44	0.49
7:J:224:GLU:HA	7:J:227:LYS:HB3	1.94	0.49
9:L:23:GLU:HA	9:L:26:MET:HG3	1.95	0.49
1:C:92:GLU:N	1:C:92:GLU:OE2	2.46	0.49
14:F:68:ALA:O	14:F:72:LYS:HE3	2.12	0.49
14:F:247:THR:N	14:F:280:PRO:O	2.34	0.49
15:c:116:PRO:HA	15:c:147:PRO:HD2	1.95	0.49
15:c:163:ILE:N	15:c:199:HIS:O	2.45	0.49
6:I:66:TYR:CD2	6:I:87:THR:HG21	2.47	0.48
12:A:174:TYR:HE2	12:A:229:VAL:HA	1.78	0.48
12:A:193:THR:OG1	12:A:194:PRO:HD3	2.12	0.48
13:B:332:ASN:ND2	16:B:501:ATP:O2G	2.42	0.48

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
14:F:262:GLY:O	14:F:266:LYS:HB3	2.13	0.48
14:F:410:ARG:NH1	14:F:413:THR:OG1	2.39	0.48
1:C:221:GLN:NE2	1:C:230:MET:SD	2.86	0.48
2:D:141:ASP:OD2	2:D:142:VAL:N	2.46	0.48
2:D:267:ILE:HB	2:D:309:MET:HB3	1.94	0.48
4:G:86:ASP:HA	10:M:120:HIS:CE1	2.48	0.48
8:K:203:LYS:HB2	8:K:210:LEU:HD22	1.95	0.48
10:M:99:ARG:HH12	10:M:105:ASN:ND2	2.11	0.48
12:A:210:LYS:HE2	12:A:306:LEU:HG	1.94	0.48
14:F:401:VAL:O	14:F:405:MET:HG2	2.13	0.48
4:G:46:ASP:OD1	4:G:46:ASP:N	2.46	0.48
7:J:35:VAL:HG13	7:J:158:ALA:HB2	1.95	0.48
13:B:94:GLU:HG2	13:B:95:GLU:H	1.78	0.48
13:B:248:LEU:HD12	13:B:282:VAL:HG22	1.95	0.48
13:B:391:SER:OG	13:B:392:GLY:N	2.46	0.48
3:E:151:LEU:HB3	3:E:159:PHE:CE2	2.48	0.48
12:A:252:GLU:CD	12:A:252:GLU:H	2.22	0.48
3:E:304:PRO:HG3	3:E:339:ASN:O	2.13	0.48
12:A:96:ALA:HB2	12:A:115:VAL:HG22	1.95	0.48
3:E:61:LEU:HB2	3:E:70:ILE:HG22	1.95	0.48
4:G:78:CYS:SG	4:G:80:MET:HE3	2.54	0.48
6:I:134:LEU:HB2	6:I:150:SER:HB3	1.94	0.48
12:A:327:LEU:H	12:A:327:LEU:HD22	1.79	0.48
14:F:370:SER:HB3	14:F:400:CYS:SG	2.53	0.48
1:C:46:GLN:O	1:C:50:ASN:ND2	2.40	0.48
1:C:146:SER:O	1:C:202:ALA:HA	2.14	0.48
4:G:22:LEU:HD21	5:H:128:ARG:HE	1.79	0.48
6:I:199:LYS:HD3	6:I:199:LYS:HA	1.58	0.48
7:J:103:THR:HG23	7:J:106:TYR:H	1.79	0.48
8:K:9:ASP:HB3	8:K:10:ARG:HH12	1.78	0.48
9:L:41:LYS:H	9:L:41:LYS:HD2	1.78	0.48
9:L:225:ASP:O	9:L:229:VAL:HG23	2.13	0.48
14:F:206:MET:O	14:F:209:LYS:NZ	2.46	0.48
15:c:211:GLU:O	15:c:215:LYS:HG2	2.14	0.48
1:C:130:LYS:HD3	1:C:130:LYS:C	2.38	0.48
12:A:278:ASP:H	12:A:321:THR:HG21	1.78	0.48
14:F:220:PRO:HG3	14:F:350:ARG:NH1	2.28	0.48
1:C:48:GLN:O	1:C:51:GLU:HG3	2.13	0.48
1:C:135:VAL:HG23	1:C:237:MET:HE3	1.96	0.48
1:C:258:ARG:HD3	1:C:274:LEU:HD21	1.94	0.48
4:G:212:PRO:HB3	4:G:239:LEU:HD21	1.95	0.48

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
7:J:115:LYS:NZ	7:J:147:THR:OG1	2.46	0.48
12:A:59:ILE:O	12:A:63:THR:HG22	2.14	0.48
12:A:119:ALA:HB2	14:F:128:THR:HG22	1.96	0.48
13:B:76:GLU:HA	13:B:79:ILE:HG22	1.95	0.48
15:c:26:ASP:OD1	15:c:178:THR:OG1	2.25	0.48
3:E:138:LEU:HD11	3:E:301:ILE:HG23	1.96	0.48
6:I:158:GLY:O	7:J:55:ASP:N	2.37	0.48
8:K:52:LYS:HD3	8:K:216:GLU:HG3	1.95	0.48
10:M:184:MET:HE3	10:M:184:MET:N	2.20	0.48
10:M:186:CYS:HA	10:M:189:ILE:HG22	1.95	0.48
12:A:78:TRP:N	12:A:78:TRP:CD1	2.82	0.48
14:F:85:THR:OG1	14:F:86:LEU:N	2.47	0.48
2:D:411:GLU:HG2	2:D:412:GLN:H	1.79	0.47
5:H:135:LEU:HD22	5:H:146:LEU:HD11	1.95	0.47
8:K:34:GLY:O	8:K:172:SER:N	2.47	0.47
9:L:166:GLN:O	9:L:170:THR:HG23	2.14	0.47
12:A:41:TYR:HE2	13:B:59:ARG:HB2	1.78	0.47
13:B:96:ARG:O	13:B:99:VAL:HG12	2.14	0.47
3:E:372:ARG:CZ	3:E:372:ARG:HA	2.44	0.47
7:J:75:GLY:O	13:B:439:TYR:HD1	1.97	0.47
8:K:67:ILE:HG21	8:K:218:ALA:HB2	1.95	0.47
10:M:229:LYS:O	10:M:229:LYS:NZ	2.39	0.47
12:A:159:PRO:HB2	12:A:162:THR:HG22	1.94	0.47
13:B:358:GLU:OE2	13:B:358:GLU:N	2.47	0.47
14:F:188:ILE:HD11	14:F:191:LEU:HD23	1.96	0.47
14:F:405:MET:HA	14:F:408:LEU:HD12	1.96	0.47
3:E:135:ILE:HD11	3:E:183:LEU:HA	1.96	0.47
3:E:170:CYS:HB2	3:E:297:ARG:HB3	1.96	0.47
12:A:278:ASP:N	12:A:321:THR:HG21	2.29	0.47
13:B:70:ASP:O	13:B:74:MET:HG3	2.14	0.47
13:B:103:ARG:HG2	13:B:160:ILE:HB	1.95	0.47
13:B:297:SER:OG	13:B:303:ARG:HG3	2.15	0.47
13:B:357:ASP:N	13:B:360:THR:OG1	2.47	0.47
15:c:41:MET:HG3	15:c:72:VAL:HG11	1.95	0.47
3:E:71:VAL:HG21	3:E:107:ILE:HD11	1.95	0.47
6:I:76:VAL:HG21	6:I:83:ALA:HB1	1.97	0.47
7:J:80:ALA:HA	7:J:129:ILE:HD13	1.97	0.47
8:K:186:HIS:NE2	8:K:188:SER:OG	2.40	0.47
9:L:134:ILE:O	9:L:144:ILE:HA	2.14	0.47
9:L:168:ALA:O	9:L:172:LEU:HG	2.14	0.47
12:A:214:LEU:HG	12:A:343:PHE:HE1	1.79	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
13:B:374:LEU:HD12	13:B:374:LEU:H	1.79	0.47
1:C:69:GLN:HG3	1:C:118:ASN:ND2	2.29	0.47
3:E:326:ILE:HA	3:E:364:GLN:OE1	2.14	0.47
3:E:331:ILE:O	3:E:335:SER:HB3	2.14	0.47
4:G:217:VAL:HB	4:G:230:LEU:HB2	1.97	0.47
6:I:159:TRP:CG	6:I:162:THR:HG1	2.32	0.47
7:J:236:LYS:HZ3	7:J:240:GLU:HB3	1.79	0.47
8:K:71:ASP:HB3	8:K:74:ILE:HG22	1.95	0.47
14:F:179:GLU:HG3	14:F:180:ARG:HH11	1.79	0.47
14:F:324:THR:O	14:F:327:LYS:NZ	2.30	0.47
14:F:376:SER:OG	14:F:378:ASP:OD1	2.26	0.47
2:D:384:MET:SD	3:E:167:PRO:HG2	2.54	0.47
3:E:46:ASP:O	3:E:50:LEU:HG	2.14	0.47
3:E:144:GLU:OE2	3:E:297:ARG:HG2	2.14	0.47
7:J:83:VAL:HG11	7:J:129:ILE:HD11	1.95	0.47
10:M:8:ASP:OD1	10:M:8:ASP:N	2.40	0.47
10:M:77:VAL:HA	10:M:135:PHE:HA	1.96	0.47
12:A:192:GLU:OE1	12:A:233:THR:HG22	2.15	0.47
14:F:73:ILE:HG23	14:F:74:LYS:HD2	1.96	0.47
14:F:253:GLY:N	14:F:286:ASP:OD1	2.47	0.47
14:F:291:ILE:HA	14:F:310:MET:SD	2.55	0.47
15:c:44:HIS:CE1	15:c:53:VAL:HB	2.50	0.47
5:H:50:LYS:HD2	5:H:209:GLU:OE2	2.14	0.47
9:L:43:HIS:CE1	9:L:216:GLY:HA3	2.49	0.47
12:A:224:LEU:HD22	18:A:501:ADP:H2'	1.96	0.47
12:A:297:ARG:O	12:A:300:LEU:HD12	2.15	0.47
13:B:130:GLU:OE2	13:B:130:GLU:N	2.48	0.47
13:B:156:VAL:O	13:B:158:ALA:N	2.42	0.47
13:B:382:ASP:N	13:B:382:ASP:OD1	2.47	0.47
3:E:138:LEU:HD12	3:E:141:GLN:HB2	1.96	0.47
3:E:311:ASP:HA	3:E:314:LYS:HG2	1.97	0.47
13:B:294:ARG:HB2	13:B:338:ASP:OD2	2.15	0.47
1:C:321:ASN:OD1	1:C:321:ASN:N	2.46	0.47
3:E:93:LYS:HA	3:E:93:LYS:HD3	1.60	0.47
7:J:188:ILE:O	7:J:192:ILE:HG12	2.14	0.47
9:L:10:VAL:HG21	9:L:119:PRO:O	2.15	0.47
9:L:200:PRO:HB2	9:L:202:GLU:OE1	2.15	0.47
12:A:367:ASP:OD1	12:A:367:ASP:N	2.46	0.47
13:B:361:LYS:HB3	13:B:384:ILE:HG22	1.97	0.47
1:C:145:ASP:OD1	1:C:145:ASP:N	2.43	0.47
2:D:52:GLU:O	2:D:56:VAL:HG23	2.15	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:D:228:ILE:HG21	2:D:250:VAL:HG23	1.96	0.47
5:H:199:PHE:CD2	5:H:203:MET:HG2	2.50	0.47
7:J:61:LYS:HE3	7:J:73:PHE:O	2.15	0.47
12:A:273:PHE:HD2	12:A:318:LEU:HB3	1.80	0.47
13:B:174:MET:HE3	13:B:270:LEU:HD13	1.97	0.47
2:D:351:LYS:HB2	2:D:351:LYS:HE3	1.69	0.46
3:E:36:LEU:HA	3:E:39:GLN:HG2	1.97	0.46
8:K:166:ASP:HB3	8:K:185:TYR:CZ	2.50	0.46
9:L:117:GLN:HG2	10:M:86:SER:HB3	1.96	0.46
10:M:152:ASP:OD1	10:M:156:VAL:HG22	2.15	0.46
12:A:98:CYS:SG	12:A:99:THR:N	2.89	0.46
12:A:99:THR:CG2	12:A:100:LYS:N	2.78	0.46
3:E:84:ARG:HH21	3:E:87:LEU:HD13	1.80	0.46
10:M:69:VAL:HG23	10:M:75:MET:HB2	1.97	0.46
12:A:226:ALA:O	12:A:229:VAL:HG12	2.15	0.46
12:A:350:GLY:O	12:A:354:ILE:HG13	2.15	0.46
13:B:205:LEU:HD13	13:B:205:LEU:HA	1.70	0.46
1:C:369:TYR:CE2	1:C:385:MET:HB2	2.50	0.46
2:D:342:ARG:HA	2:D:364:VAL:HG21	1.98	0.46
3:E:313:LEU:HD21	3:E:343:LEU:HD22	1.98	0.46
8:K:180:SER:O	8:K:184:VAL:HG23	2.14	0.46
13:B:78:PHE:C	13:B:78:PHE:CD1	2.92	0.46
13:B:290:ILE:HG13	13:B:309:MET:HE2	1.96	0.46
13:B:401:GLU:O	13:B:405:MET:HG2	2.15	0.46
2:D:221:HIS:HD2	2:D:222:HIS:CE1	2.32	0.46
2:D:271:ALA:HA	2:D:289:LEU:HD13	1.97	0.46
3:E:180:LYS:HG2	3:E:301:ILE:HG13	1.96	0.46
5:H:139:TRP:CH2	5:H:142:GLY:HA2	2.50	0.46
12:A:168:GLU:O	12:A:236:CYS:HA	2.15	0.46
14:F:284:PHE:HD1	14:F:329:ILE:HG23	1.80	0.46
15:c:279:ASP:OD2	15:c:279:ASP:N	2.37	0.46
3:E:151:LEU:HB3	3:E:159:PHE:HE2	1.80	0.46
6:I:155:ASN:HD21	13:B:438:LEU:HA	1.80	0.46
9:L:112:ILE:O	9:L:116:THR:HG22	2.16	0.46
2:D:356:GLU:OE2	2:D:356:GLU:O	2.34	0.46
3:E:290:LEU:O	3:E:298:LYS:NZ	2.29	0.46
8:K:217:LEU:HD13	8:K:218:ALA:N	2.30	0.46
8:K:218:ALA:HB1	8:K:226:PHE:CE1	2.48	0.46
9:L:157:ARG:HH21	9:L:176:MET:HE2	1.81	0.46
12:A:302:LEU:HD12	12:A:303:ILE:HD13	1.96	0.46
14:F:151:VAL:HB	14:F:160:ILE:HG23	1.97	0.46

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
14:F:427:VAL:HG23	14:F:428:GLN:N	2.30	0.46
15:c:145:VAL:HG23	15:c:157:ILE:HB	1.98	0.46
3:E:56:ILE:O	3:E:100:LEU:N	2.23	0.46
3:E:91:LYS:O	3:E:93:LYS:N	2.48	0.46
3:E:317:ALA:HB1	3:E:322:LYS:HE3	1.97	0.46
12:A:120:LYS:N	14:F:127:SER:OG	2.33	0.46
13:B:225:TYR:CD1	13:B:334:ILE:HG21	2.50	0.46
1:C:232:ARG:HH21	13:B:254:GLU:HA	1.80	0.46
6:I:72:MET:HE1	6:I:107:CYS:SG	2.56	0.46
7:J:15:HIS:HA	12:A:432:TYR:OH	2.16	0.46
8:K:231:LYS:O	8:K:235:GLU:HG2	2.15	0.46
12:A:338:ASP:CB	12:A:339:ARG:HE	2.29	0.46
14:F:362:ARG:HD3	14:F:388:THR:OG1	2.16	0.46
15:c:90:VAL:O	15:c:94:LYS:HG2	2.15	0.46
4:G:118:ILE:HD13	4:G:138:MET:SD	2.56	0.46
4:G:230:LEU:HB3	4:G:235:ILE:HG23	1.98	0.46
7:J:51:ALA:H	7:J:54:GLN:NE2	2.11	0.46
7:J:108:THR:HG21	7:J:145:TYR:HB3	1.98	0.46
14:F:60:LEU:O	14:F:63:THR:HG22	2.15	0.46
4:G:74:GLU:HB2	4:G:226:LYS:NZ	2.31	0.46
4:G:76:ILE:HD12	4:G:111:VAL:HG22	1.96	0.46
7:J:201:SER:HB3	13:B:385:MET:HE1	1.96	0.46
12:A:352:THR:O	12:A:356:LYS:HG3	2.16	0.46
13:B:268:ARG:HA	13:B:315:GLN:OE1	2.16	0.46
1:C:99:VAL:HA	1:C:123:LEU:HB3	1.98	0.45
3:E:161:ARG:HE	3:E:161:ARG:C	2.24	0.45
3:E:340:GLY:HA3	18:E:501:ADP:N3	2.31	0.45
7:J:225:ILE:HG13	7:J:226:GLU:OE1	2.16	0.45
12:A:196:LEU:HG	12:A:197:HIS:CE1	2.51	0.45
13:B:378:VAL:HA	13:B:416:ASN:HB2	1.97	0.45
3:E:32:GLN:H	3:E:32:GLN:CD	2.23	0.45
7:J:70:CYS:SG	7:J:217:LEU:HD21	2.56	0.45
7:J:192:ILE:O	7:J:196:LEU:HG	2.16	0.45
10:M:216:VAL:HG23	10:M:223:ARG:C	2.40	0.45
12:A:104:ALA:HA	12:A:108:ASP:O	2.16	0.45
12:A:199:GLU:O	12:A:203:ASN:ND2	2.50	0.45
14:F:262:GLY:H	14:F:308:ARG:HH12	1.63	0.45
15:c:75:MET:HE1	15:c:88:ASP:H	1.80	0.45
1:C:329:LEU:HG	1:C:359:VAL:HG13	1.98	0.45
3:E:340:GLY:HA3	18:E:501:ADP:C2	2.51	0.45
4:G:181:LYS:HA	4:G:184:LYS:NZ	2.31	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
5:H:51:LYS:HE3	5:H:199:PHE:CZ	2.51	0.45
9:L:7:ASP:HB3	9:L:20:HIS:CB	2.47	0.45
12:A:111:TYR:O	12:A:122:VAL:HA	2.16	0.45
12:A:157:ILE:HB	12:A:249:TYR:OH	2.16	0.45
1:C:171:HIS:HB2	1:C:174:LEU:HD12	1.98	0.45
1:C:311:ILE:O	1:C:314:LYS:NZ	2.48	0.45
3:E:145:LEU:HD13	3:E:170:CYS:SG	2.56	0.45
9:L:153:TYR:O	10:M:63:ASN:ND2	2.49	0.45
10:M:196:ILE:O	10:M:200:VAL:HG22	2.15	0.45
10:M:197:ILE:HG21	10:M:211:LEU:HD23	1.99	0.45
1:C:26:SER:O	1:C:29:GLU:HG3	2.17	0.45
1:C:173:GLU:HB2	12:A:34:LYS:NZ	2.31	0.45
4:G:72:ILE:HG21	4:G:114:LEU:HD21	1.99	0.45
4:G:228:ARG:HG3	4:G:228:ARG:HH11	1.81	0.45
6:I:208:ALA:HB1	6:I:233:VAL:HG13	1.98	0.45
9:L:63:ILE:HD13	9:L:73:SER:HB2	1.98	0.45
12:A:292:ASP:O	12:A:296:GLN:HB2	2.16	0.45
13:B:307:ARG:HA	13:B:310:LEU:HG	1.98	0.45
14:F:179:GLU:O	14:F:180:ARG:NH1	2.49	0.45
2:D:153:MET:SD	2:D:226:ALA:HB1	2.57	0.45
3:E:20:LYS:HB2	3:E:21:GLU:OE1	2.17	0.45
6:I:238:LYS:HE2	6:I:238:LYS:HB2	1.74	0.45
12:A:58:LYS:O	12:A:62:LEU:HG	2.16	0.45
12:A:398:ARG:HE	12:A:398:ARG:HB2	1.62	0.45
14:F:94:ILE:HB	14:F:123:VAL:HG23	1.99	0.45
1:C:262:GLY:HA3	13:B:295:TYR:CE1	2.52	0.45
2:D:385:LEU:O	2:D:389:GLU:HG3	2.17	0.45
6:I:145:PHE:HZ	6:I:218:ARG:H	1.64	0.45
6:I:205:LYS:HA	6:I:205:LYS:HD3	1.59	0.45
6:I:245:ALA:O	6:I:249:ARG:HG2	2.17	0.45
12:A:363:SER:O	12:A:363:SER:OG	2.33	0.45
13:B:211:TYR:HE1	13:B:219:PRO:HD3	1.82	0.45
14:F:426:GLU:HB3	14:F:430:LYS:HA	1.99	0.45
4:G:88:ARG:HA	4:G:91:VAL:HG22	1.99	0.45
4:G:208:ILE:HD11	4:G:210:PHE:HD2	1.82	0.45
5:H:157:ALA:CB	6:I:57:ASP:HB2	2.47	0.45
9:L:157:ARG:HE	9:L:176:MET:HE2	1.82	0.45
13:B:227:PRO:HD2	13:B:353:PHE:O	2.17	0.45
14:F:58:GLU:HA	14:F:61:ARG:HG2	1.99	0.45
14:F:89:LEU:O	14:F:153:VAL:N	2.41	0.45
14:F:274:LEU:HD23	14:F:274:LEU:H	1.82	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
15:c:44:HIS:ND1	15:c:112:TYR:OH	2.38	0.45
1:C:281:ASP:HB3	1:C:310:ARG:HG3	1.99	0.45
3:E:33:LEU:HD13	3:E:33:LEU:HA	1.83	0.45
4:G:191:PHE:O	4:G:194:THR:OG1	2.32	0.45
6:I:214:ALA:HA	6:I:227:VAL:HA	1.98	0.45
7:J:236:LYS:NZ	7:J:240:GLU:HB3	2.31	0.45
12:A:247:GLN:OE1	12:A:248:LYS:HG2	2.17	0.45
14:F:388:THR:CG2	14:F:424:ILE:HD11	2.46	0.45
1:C:149:GLU:OE2	1:C:149:GLU:N	2.44	0.45
1:C:167:LEU:HB3	1:C:168:PRO:HD3	1.98	0.45
3:E:244:SER:O	3:E:245:GLU:C	2.60	0.45
9:L:6:TYR:OH	10:M:8:ASP:OD2	2.20	0.45
10:M:12:SER:HG	10:M:126:SER:HG	1.63	0.45
12:A:165:GLN:O	12:A:166:VAL:HG12	2.17	0.45
12:A:245:LEU:HG	12:A:280:ILE:HD11	1.99	0.45
12:A:381:THR:HG23	12:A:384:GLU:H	1.81	0.45
14:F:395:GLN:O	14:F:399:VAL:HG23	2.15	0.45
15:c:130:GLN:OE1	15:c:142:ALA:HB2	2.17	0.45
1:C:293:MET:HE3	1:C:311:ILE:HD11	2.00	0.44
1:C:371:LEU:HB2	2:D:194:ILE:HD13	1.99	0.44
3:E:205:ASP:OD1	3:E:206:LYS:N	2.50	0.44
3:E:251:ARG:HA	3:E:254:GLN:HG3	1.98	0.44
4:G:203:SER:O	4:G:207:SER:N	2.46	0.44
7:J:28:LYS:HD2	13:B:439:TYR:CD2	2.52	0.44
7:J:166:LYS:HB3	7:J:166:LYS:HE3	1.79	0.44
8:K:41:GLN:HB3	8:K:166:ASP:HA	1.98	0.44
10:M:116:ALA:HA	10:M:119:VAL:HG12	1.99	0.44
14:F:224:LEU:HD13	14:F:348:LEU:HD23	1.99	0.44
2:D:160:PRO:O	2:D:221:HIS:ND1	2.38	0.44
3:E:354:ALA:HB3	14:F:215:LEU:HD21	1.99	0.44
5:H:44:VAL:HG13	5:H:144:PRO:HB2	1.98	0.44
9:L:140:MET:SD	9:L:140:MET:N	2.90	0.44
13:B:205:LEU:HD11	13:B:279:PRO:CB	2.46	0.44
14:F:276:LYS:C	14:F:279:ALA:HB2	2.42	0.44
2:D:164:TYR:CD1	2:D:218:ALA:HB1	2.52	0.44
5:H:50:LYS:N	5:H:207:ASN:O	2.42	0.44
6:I:8:ARG:NH1	6:I:11:ILE:HD13	2.33	0.44
13:B:55:HIS:HD2	13:B:371:ARG:HE	1.66	0.44
14:F:262:GLY:N	14:F:308:ARG:HH12	2.15	0.44
1:C:245:ILE:HA	1:C:290:LYS:O	2.16	0.44
3:E:22:ILE:HG13	3:E:26:LEU:HB3	2.00	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
8:K:217:LEU:HD12	8:K:229:PHE:CD1	2.52	0.44
11:v:26:UNK:HA	12:A:118:PHE:CE1	2.52	0.44
12:A:262:GLU:O	12:A:266:THR:HG23	2.17	0.44
13:B:53:THR:OG1	13:B:54:PRO:HD3	2.17	0.44
13:B:401:GLU:HB3	13:B:422:SER:OG	2.18	0.44
15:c:58:LEU:HD21	15:c:73:PHE:HE2	1.82	0.44
15:c:189:ILE:O	15:c:193:ILE:HG22	2.17	0.44
3:E:57:VAL:CG1	14:F:131:THR:HG22	2.47	0.44
4:G:132:ARG:HB3	10:M:124:LEU:HB2	1.99	0.44
6:I:38:LEU:HD12	6:I:43:VAL:HG12	2.00	0.44
8:K:146:VAL:HA	8:K:151:PRO:HA	2.00	0.44
12:A:41:TYR:N	12:A:41:TYR:CD1	2.82	0.44
12:A:126:SER:H	12:A:129:VAL:HG22	1.82	0.44
15:c:88:ASP:C	15:c:88:ASP:OD1	2.60	0.44
3:E:372:ARG:HH11	3:E:372:ARG:HG2	1.83	0.44
8:K:175:GLU:OE2	8:K:175:GLU:N	2.37	0.44
10:M:33:SER:OG	10:M:34:SER:N	2.49	0.44
10:M:64:LYS:HA	10:M:64:LYS:HE2	1.99	0.44
12:A:101:ILE:HG23	12:A:111:TYR:HE2	1.83	0.44
12:A:215:PHE:CE1	12:A:340:LYS:HB3	2.52	0.44
14:F:314:LEU:O	14:F:318:ASP:HB2	2.18	0.44
15:c:90:VAL:HG22	15:c:94:LYS:NZ	2.32	0.44
2:D:196:ILE:HD12	2:D:196:ILE:C	2.43	0.44
8:K:217:LEU:HB3	8:K:229:PHE:HB2	1.99	0.44
10:M:169:ARG:O	10:M:173:LYS:HG2	2.18	0.44
12:A:116:LYS:HB3	12:A:117:GLN:H	1.46	0.44
13:B:117:ASP:OD1	13:B:120:HIS:HB2	2.17	0.44
1:C:188:LEU:HD22	1:C:317:PHE:HE1	1.83	0.44
2:D:267:ILE:HG12	2:D:309:MET:SD	2.58	0.44
3:E:307:GLN:O	3:E:310:LEU:HG	2.17	0.44
4:G:29:PHE:O	4:G:32:ILE:HB	2.17	0.44
4:G:86:ASP:HA	10:M:120:HIS:HE1	1.81	0.44
4:G:138:MET:HE2	4:G:140:LEU:HD21	2.00	0.44
14:F:361:ALA:O	14:F:365:ILE:HG13	2.17	0.44
2:D:360:LEU:HD23	2:D:360:LEU:HA	1.87	0.44
2:D:384:MET:HE3	3:E:159:PHE:HE1	1.82	0.44
3:E:353:PHE:HA	3:E:356:ARG:HG2	2.00	0.44
7:J:43:LEU:HD23	7:J:43:LEU:HA	1.85	0.44
9:L:137:TYR:CE1	9:L:217:LYS:HA	2.53	0.44
9:L:189:LYS:HD2	9:L:189:LYS:HA	1.67	0.44
10:M:8:ASP:O	10:M:22:GLN:NE2	2.51	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
12:A:275:ASP:OD1	12:A:275:ASP:C	2.61	0.44
12:A:297:ARG:HE	14:F:173:LYS:NZ	2.14	0.44
13:B:216:ILE:HD12	13:B:216:ILE:O	2.17	0.44
13:B:390:LEU:HD21	13:B:398:ILE:HD12	2.00	0.44
15:c:32:TYR:CD2	15:c:66:THR:HG23	2.52	0.44
7:J:115:LYS:HG2	7:J:127:PHE:HB2	2.00	0.43
8:K:17:PRO:HA	9:L:24:TYR:CD1	2.53	0.43
10:M:131:PHE:O	10:M:153:PRO:HB3	2.18	0.43
14:F:203:VAL:HA	14:F:206:MET:HB3	2.00	0.43
14:F:220:PRO:HG3	14:F:350:ARG:HH11	1.83	0.43
15:c:83:SER:OG	15:c:84:VAL:N	2.50	0.43
4:G:50:ILE:HG23	4:G:141:ILE:HD13	2.01	0.43
6:I:90:LEU:HD23	6:I:90:LEU:HA	1.90	0.43
8:K:120:ALA:O	8:K:121:LEU:HG	2.17	0.43
9:L:176:MET:HE3	9:L:179:PHE:HD1	1.83	0.43
10:M:49:VAL:HG21	10:M:65:ARG:HD2	2.01	0.43
13:B:222:VAL:HG23	13:B:349:ARG:HB2	2.00	0.43
13:B:256:ILE:HD12	13:B:305:ILE:HG12	2.00	0.43
13:B:309:MET:SD	13:B:312:LEU:HD23	2.57	0.43
14:F:61:ARG:HG3	14:F:62:VAL:N	2.34	0.43
15:c:167:MET:SD	15:c:172:HIS:HB2	2.58	0.43
3:E:275:MET:HB3	3:E:275:MET:HE2	1.67	0.43
4:G:228:ARG:HG3	4:G:228:ARG:NH1	2.34	0.43
6:I:160:LYS:HE2	6:I:160:LYS:HB3	1.89	0.43
12:A:302:LEU:HA	12:A:305:GLN:HE21	1.82	0.43
14:F:154:ASN:HB3	14:F:158:TYR:N	2.33	0.43
14:F:184:GLN:HG2	14:F:186:SER:HB3	1.99	0.43
14:F:224:LEU:HD22	14:F:348:LEU:HD23	2.00	0.43
2:D:274:ARG:HG3	2:D:289:LEU:HD23	2.00	0.43
5:H:201:GLY:C	5:H:202:GLN:HG3	2.44	0.43
8:K:137:PHE:O	8:K:158:PRO:HB3	2.18	0.43
12:A:171:ASP:OD1	12:A:171:ASP:N	2.51	0.43
13:B:255:LEU:HD13	13:B:267:VAL:HG22	2.01	0.43
14:F:125:LYS:HG2	14:F:131:THR:OG1	2.18	0.43
14:F:387:CYS:SG	14:F:421:MET:HE1	2.58	0.43
3:E:34:LYS:NZ	14:F:66:LEU:HD13	2.34	0.43
3:E:103:THR:OG1	3:E:104:THR:N	2.52	0.43
3:E:242:ARG:HA	3:E:254:GLN:OE1	2.18	0.43
5:H:39:LYS:HD2	5:H:144:PRO:O	2.19	0.43
6:I:119:GLN:HG3	7:J:78:ALA:HB1	1.99	0.43
10:M:61:GLY:O	10:M:64:LYS:HG2	2.18	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
14:F:367:GLN:O	14:F:371:ARG:HG3	2.18	0.43
14:F:435:LEU:HD23	14:F:438:TYR:CE2	2.53	0.43
15:c:251:LEU:HB3	15:c:284:LEU:HD13	1.99	0.43
1:C:171:HIS:HB3	12:A:34:LYS:HZ3	1.83	0.43
1:C:219:LEU:HD13	1:C:231:VAL:HG22	2.00	0.43
2:D:345:PHE:O	2:D:349:THR:OG1	2.29	0.43
4:G:134:LEU:HD12	4:G:134:LEU:HA	1.83	0.43
5:H:199:PHE:O	5:H:200:GLU:HG3	2.18	0.43
13:B:209:GLU:OE1	13:B:209:GLU:N	2.46	0.43
14:F:231:THR:HG23	14:F:354:PHE:HD2	1.82	0.43
1:C:66:LEU:HD11	2:D:116:LEU:HD13	2.00	0.43
2:D:387:VAL:HG23	3:E:162:VAL:HG21	2.00	0.43
5:H:119:GLN:HB3	5:H:153:GLY:HA3	2.01	0.43
7:J:4:ASP:OD1	7:J:4:ASP:N	2.52	0.43
12:A:177:VAL:HG12	12:A:224:LEU:HD23	2.01	0.43
14:F:123:VAL:HG12	14:F:133:PHE:HD1	1.84	0.43
14:F:376:SER:O	14:F:379:VAL:HG22	2.19	0.43
1:C:405:TRP:CH2	6:I:27:ALA:HB1	2.53	0.43
3:E:145:LEU:HD23	3:E:183:LEU:CD2	2.46	0.43
3:E:177:GLY:N	18:E:501:ADP:O2B	2.51	0.43
9:L:120:THR:HG22	10:M:129:ARG:NH2	2.33	0.43
9:L:225:ASP:O	9:L:229:VAL:N	2.40	0.43
12:A:143:ASP:OD1	12:A:146:LYS:N	2.52	0.43
12:A:184:ILE:HD12	12:A:184:ILE:HA	1.80	0.43
14:F:55:MET:H	14:F:55:MET:CE	2.30	0.43
14:F:278:LYS:H	14:F:278:LYS:HD3	1.83	0.43
15:c:210:ASN:OD1	15:c:213:GLU:HG3	2.19	0.43
1:C:188:LEU:O	1:C:196:LYS:HD2	2.18	0.43
1:C:307:ARG:HD2	13:B:229:GLY:HA3	2.01	0.43
2:D:200:ARG:HE	2:D:200:ARG:HB3	1.60	0.43
2:D:263:PHE:HA	2:D:308:ILE:O	2.19	0.43
4:G:23:TYR:HB3	4:G:27:TYR:CE1	2.53	0.43
9:L:41:LYS:NZ	9:L:181:GLU:HA	2.34	0.43
9:L:132:LEU:HB2	9:L:147:THR:OG1	2.18	0.43
12:A:164:MET:SD	12:A:166:VAL:HB	2.59	0.43
13:B:225:TYR:CZ	13:B:352:GLU:HG2	2.53	0.43
14:F:364:ARG:O	14:F:368:ILE:HG13	2.19	0.43
15:c:122:LEU:HB2	15:c:200:TYR:CE2	2.54	0.43
3:E:148:VAL:HG12	3:E:149:ILE:HD12	2.01	0.43
8:K:67:ILE:HG23	8:K:76:CYS:O	2.19	0.43
10:M:181:MET:HE3	10:M:181:MET:C	2.43	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:301:LEU:HD12	1:C:306:LEU:HD21	2.00	0.42
1:C:399:MET:HG2	5:H:158:TRP:CZ2	2.54	0.42
2:D:200:ARG:HH12	2:D:301:GLN:HE22	1.67	0.42
2:D:235:PHE:CD1	2:D:246:MET:HG2	2.53	0.42
5:H:44:VAL:HG23	5:H:213:CYS:HB3	2.01	0.42
7:J:132:LEU:HG	7:J:161:ILE:HD13	2.00	0.42
10:M:45:VAL:HG21	10:M:148:LEU:HD13	2.01	0.42
12:A:194:PRO:CG	12:A:209:PRO:HD2	2.48	0.42
13:B:387:LYS:HD3	13:B:387:LYS:HA	1.72	0.42
14:F:159:LEU:O	14:F:161:LEU:HD22	2.19	0.42
14:F:288:LEU:HD11	14:F:334:ARG:HH21	1.84	0.42
6:I:17:ARG:HA	13:B:439:TYR:OH	2.19	0.42
8:K:221:GLN:OE1	8:K:221:GLN:N	2.51	0.42
9:L:41:LYS:HD2	9:L:180:MET:O	2.18	0.42
2:D:356:GLU:O	2:D:357:GLU:HB2	2.19	0.42
3:E:191:LEU:HD23	3:E:191:LEU:HA	1.80	0.42
4:G:22:LEU:HD13	5:H:79:MET:HE1	2.01	0.42
8:K:228:MET:HB2	8:K:228:MET:HE2	1.80	0.42
12:A:194:PRO:HG3	12:A:209:PRO:HD2	2.01	0.42
14:F:179:GLU:O	14:F:181:PRO:HD3	2.20	0.42
15:c:285:GLU:O	15:c:288:VAL:HG12	2.18	0.42
1:C:399:MET:HE3	6:I:56:LEU:HD21	2.00	0.42
6:I:45:LEU:O	6:I:213:ILE:HA	2.20	0.42
7:J:236:LYS:NZ	7:J:236:LYS:O	2.48	0.42
9:L:40:SER:HB3	9:L:187:LEU:HD23	2.02	0.42
12:A:49:GLU:O	12:A:53:GLN:HG2	2.19	0.42
12:A:316:LYS:HD3	12:A:316:LYS:HA	1.79	0.42
13:B:227:PRO:O	13:B:230:THR:OG1	2.30	0.42
2:D:143:LEU:HD22	3:E:64:LEU:HD21	2.02	0.42
2:D:409:LYS:HA	2:D:409:LYS:HD3	1.79	0.42
4:G:123:GLN:OE1	5:H:85:VAL:HG21	2.19	0.42
9:L:121:GLN:HA	10:M:129:ARG:HH21	1.85	0.42
10:M:191:LYS:HD2	10:M:238:TYR:CD1	2.55	0.42
12:A:215:PHE:CD2	12:A:324:PRO:HB3	2.53	0.42
1:C:277:LEU:O	1:C:310:ARG:NH1	2.52	0.42
3:E:283:ASP:OD2	3:E:284:THR:N	2.52	0.42
4:G:119:ALA:HB1	4:G:158:GLY:O	2.19	0.42
5:H:54:SER:O	5:H:57:TYR:HD1	2.03	0.42
5:H:230:LEU:HD23	5:H:230:LEU:HA	1.75	0.42
9:L:80:ASP:CG	9:L:126:ARG:HH12	2.27	0.42
9:L:118:ILE:HD13	9:L:118:ILE:HA	1.89	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
12:A:339:ARG:NH1	14:F:405:MET:HE1	2.32	0.42
13:B:190:LEU:HB3	13:B:193:GLN:HB2	2.01	0.42
14:F:226:TYR:HE1	14:F:351:LYS:HB3	1.85	0.42
14:F:265:ALA:C	14:F:269:ARG:HG2	2.45	0.42
15:c:90:VAL:HG22	15:c:94:LYS:HZ2	1.84	0.42
1:C:127:LEU:HD13	2:D:102:ILE:HD11	2.01	0.42
3:E:121:ASN:OD1	3:E:122:MET:N	2.53	0.42
3:E:231:PHE:HD1	3:E:276:ILE:HG22	1.84	0.42
6:I:115:CYS:HB3	6:I:154:GLY:O	2.19	0.42
6:I:197:LEU:HA	6:I:200:THR:HG22	2.00	0.42
8:K:145:GLY:HA2	8:K:220:VAL:HG11	2.01	0.42
12:A:116:LYS:HD2	12:A:116:LYS:HA	1.64	0.42
13:B:405:MET:HG3	13:B:421:LYS:HG3	2.00	0.42
15:c:310:LYS:HG3	15:c:312:ILE:H	1.85	0.42
1:C:372:ARG:NH2	2:D:179:GLU:OE1	2.50	0.42
3:E:238:ILE:HG13	3:E:256:THR:HG21	2.02	0.42
3:E:261:LEU:HD22	3:E:294:ARG:HD3	2.00	0.42
3:E:271:HIS:O	3:E:273:VAL:HG22	2.19	0.42
4:G:34:GLN:NE2	10:M:19:ARG:HD2	2.34	0.42
4:G:179:LEU:HD23	4:G:179:LEU:HA	1.83	0.42
6:I:25:MET:HG3	13:B:435:PRO:HG2	2.01	0.42
7:J:86:ARG:HH21	7:J:114:LEU:HD13	1.84	0.42
7:J:155:ALA:HB3	8:K:63:SER:HB2	2.00	0.42
8:K:4:THR:O	8:K:4:THR:OG1	2.34	0.42
8:K:85:ALA:O	8:K:86:LYS:C	2.63	0.42
9:L:62:LYS:HE2	9:L:62:LYS:HB3	1.65	0.42
9:L:119:PRO:HB2	9:L:127:PRO:HA	2.01	0.42
12:A:101:ILE:HA	12:A:111:TYR:HD2	1.85	0.42
12:A:135:GLU:HB2	12:A:138:MET:HE1	2.01	0.42
12:A:319:MET:CG	12:A:337:LEU:HD11	2.45	0.42
14:F:226:TYR:CE1	14:F:351:LYS:HB3	2.55	0.42
1:C:405:TRP:HH2	6:I:27:ALA:HB1	1.85	0.42
2:D:337:ASP:O	2:D:340:GLN:N	2.53	0.42
4:G:80:MET:SD	4:G:91:VAL:HG13	2.60	0.42
6:I:160:LYS:H	6:I:160:LYS:HG2	1.69	0.42
6:I:198:ASN:OD1	6:I:206:LEU:HD22	2.19	0.42
7:J:181:ILE:HA	7:J:187:THR:HG22	2.01	0.42
1:C:140:VAL:HG22	1:C:213:ARG:HG2	2.01	0.42
1:C:281:ASP:OD2	1:C:307:ARG:NH2	2.42	0.42
3:E:195:PHE:CE2	3:E:197:LYS:HB2	2.55	0.42
7:J:47:LYS:HE2	7:J:207:GLU:HG3	2.02	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
9:L:80:ASP:HB2	9:L:130:VAL:HG23	2.02	0.42
9:L:217:LYS:HB2	9:L:217:LYS:HE3	1.89	0.42
10:M:137:LEU:HD23	10:M:137:LEU:HA	1.91	0.42
12:A:169:LYS:HD3	12:A:169:LYS:HA	1.89	0.42
14:F:181:PRO:HB2	14:F:183:GLU:OE1	2.20	0.42
1:C:63:LEU:O	1:C:67:GLN:HG2	2.20	0.41
2:D:214:MET:HE1	18:D:501:ADP:C4	2.55	0.41
10:M:205:LYS:HB3	10:M:205:LYS:HE2	1.79	0.41
14:F:188:ILE:HD11	14:F:191:LEU:HB2	2.01	0.41
14:F:288:LEU:HA	14:F:332:THR:HB	2.02	0.41
1:C:96:VAL:HG23	1:C:96:VAL:O	2.19	0.41
3:E:181:THR:HG23	3:E:231:PHE:HE2	1.83	0.41
3:E:363:VAL:HG23	3:E:366:ASP:H	1.84	0.41
6:I:114:LEU:HD12	6:I:114:LEU:HA	1.90	0.41
8:K:235:GLU:HB3	8:K:239:LYS:NZ	2.35	0.41
9:L:22:ILE:HD11	9:L:120:THR:HG23	2.02	0.41
12:A:188:ARG:O	12:A:192:GLU:HB3	2.20	0.41
12:A:305:GLN:HE21	12:A:305:GLN:HB2	1.58	0.41
14:F:253:GLY:H	14:F:254:PRO:HD2	1.84	0.41
1:C:133:PRO:HA	1:C:136:SER:OG	2.20	0.41
1:C:313:ARG:NH2	13:B:404:LEU:HD23	2.33	0.41
4:G:51:VAL:HG23	4:G:215:ILE:HG23	2.02	0.41
6:I:45:LEU:HB3	6:I:65:ILE:HD12	2.01	0.41
8:K:79:SER:OG	8:K:171:GLY:HA2	2.20	0.41
12:A:356:LYS:O	12:A:360:ARG:HG3	2.20	0.41
14:F:179:GLU:OE2	14:F:179:GLU:HA	2.21	0.41
14:F:379:VAL:HA	14:F:417:HIS:HB2	2.03	0.41
2:D:164:TYR:HD1	2:D:218:ALA:HB1	1.85	0.41
3:E:87:LEU:HD12	3:E:87:LEU:HA	1.85	0.41
3:E:182:LEU:HD22	18:E:501:ADP:H3'	2.01	0.41
7:J:195:LEU:HD12	7:J:195:LEU:HA	1.75	0.41
12:A:35:THR:O	12:A:36:TYR:C	2.63	0.41
12:A:101:ILE:HG23	12:A:111:TYR:CE2	2.55	0.41
12:A:191:VAL:HG21	12:A:318:LEU:HD21	2.03	0.41
13:B:230:THR:HG21	13:B:353:PHE:O	2.21	0.41
13:B:391:SER:H	13:B:394:ASP:HB2	1.86	0.41
2:D:173:GLN:NE2	2:D:332:GLU:O	2.40	0.41
5:H:206:ASP:OD1	5:H:206:ASP:C	2.63	0.41
8:K:59:MET:HG3	8:K:60:GLU:N	2.35	0.41
9:L:38:LEU:HD13	9:L:179:PHE:CE2	2.55	0.41
10:M:19:ARG:NH2	10:M:24:GLU:OE2	2.53	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
12:A:98:CYS:HA	12:A:113:ILE:HG22	2.03	0.41
12:A:247:GLN:OE1	12:A:248:LYS:HE3	2.20	0.41
15:c:64:ASP:C	15:c:64:ASP:OD2	2.64	0.41
1:C:187:LEU:HD11	1:C:295:THR:HG22	2.02	0.41
2:D:92:PHE:HZ	2:D:95:ALA:HB2	1.85	0.41
3:E:42:LYS:HA	3:E:45:ASN:HD22	1.83	0.41
3:E:172:LEU:O	3:E:180:LYS:HD2	2.21	0.41
3:E:288:ALA:O	3:E:291:ARG:HG2	2.21	0.41
4:G:196:GLU:HA	4:G:242:LEU:HD22	2.03	0.41
4:G:235:ILE:HG13	4:G:236:ASP:N	2.36	0.41
5:H:158:TRP:CD2	5:H:161:THR:HB	2.55	0.41
5:H:189:HIS:CG	5:H:233:ILE:HD11	2.56	0.41
5:H:205:GLU:OE1	5:H:223:PRO:HB3	2.20	0.41
6:I:90:LEU:HD11	6:I:136:TYR:HE2	1.86	0.41
9:L:61:LYS:H	9:L:61:LYS:HG2	1.64	0.41
9:L:185:ASN:O	9:L:189:LYS:HG2	2.21	0.41
10:M:110:HIS:O	10:M:114:ARG:HG2	2.21	0.41
12:A:312:ARG:HD2	12:A:312:ARG:HA	1.73	0.41
13:B:166:ASP:OD2	13:B:166:ASP:O	2.37	0.41
14:F:271:ALA:HB1	14:F:283:ILE:HD11	2.01	0.41
2:D:229:ARG:HD3	3:E:267:PHE:CD1	2.56	0.41
2:D:246:MET:O	2:D:250:VAL:HG12	2.21	0.41
3:E:22:ILE:HG12	3:E:30:ARG:HH21	1.86	0.41
3:E:50:LEU:HD11	14:F:80:ILE:HD13	2.02	0.41
3:E:234:GLU:N	3:E:278:ALA:O	2.53	0.41
4:G:38:THR:HA	4:G:169:GLY:HA3	2.02	0.41
4:G:47:CYS:HB2	4:G:221:THR:HG22	2.03	0.41
6:I:34:CYS:HA	6:I:47:ALA:HA	2.02	0.41
7:J:201:SER:H	13:B:385:MET:CE	2.34	0.41
14:F:224:LEU:N	14:F:350:ARG:O	2.50	0.41
2:D:45:LYS:HA	2:D:45:LYS:HD3	1.87	0.41
2:D:120:ASP:C	2:D:120:ASP:OD1	2.63	0.41
3:E:300:HIS:CE1	3:E:302:ASP:HB3	2.55	0.41
4:G:171:LYS:O	4:G:175:SER:OG	2.27	0.41
4:G:230:LEU:HB3	4:G:235:ILE:CG2	2.51	0.41
9:L:37:GLY:C	9:L:38:LEU:HD23	2.45	0.41
10:M:140:TYR:HE2	10:M:218:GLU:HB3	1.85	0.41
13:B:99:VAL:O	13:B:103:ARG:HG3	2.21	0.41
13:B:283:PHE:HA	13:B:328:ILE:O	2.21	0.41
14:F:248:PHE:O	14:F:249:LEU:HD13	2.20	0.41
1:C:102:ASN:OD1	1:C:102:ASN:C	2.63	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:251:ILE:HG12	1:C:293:MET:SD	2.61	0.41
2:D:183:LEU:HD12	2:D:183:LEU:HA	1.92	0.41
3:E:234:GLU:C	3:E:236:ASP:N	2.78	0.41
3:E:295:LEU:HD23	3:E:295:LEU:HA	1.86	0.41
4:G:138:MET:HB3	4:G:154:CYS:HB3	2.03	0.41
5:H:174:LEU:HD23	5:H:174:LEU:HA	1.84	0.41
8:K:235:GLU:HB3	8:K:239:LYS:HZ1	1.86	0.41
13:B:417:GLU:O	13:B:421:LYS:HG2	2.21	0.41
14:F:359:GLU:OE2	14:F:386:ARG:HA	2.21	0.41
15:c:121:TRP:HZ3	15:c:123:SER:HB3	1.85	0.41
15:c:218:LEU:HD12	15:c:218:LEU:HA	1.86	0.41
1:C:139:MET:HE2	1:C:139:MET:HB2	1.74	0.41
2:D:268:ASP:HB3	2:D:317:LEU:HD21	2.03	0.41
3:E:249:ALA:O	3:E:250:ASP:C	2.64	0.41
4:G:130:GLU:O	4:G:131:MET:HE2	2.21	0.41
5:H:34:PRO:HG3	5:H:165:LYS:HB3	2.02	0.41
5:H:50:LYS:HE2	5:H:50:LYS:HB3	1.97	0.41
5:H:54:SER:C	5:H:56:LEU:N	2.78	0.41
6:I:82:ASP:N	6:I:82:ASP:OD1	2.53	0.41
7:J:65:LEU:HB2	7:J:69:VAL:HG23	2.02	0.41
7:J:82:ILE:HD13	7:J:82:ILE:HA	1.90	0.41
7:J:173:GLU:OE2	8:K:57:PRO:HD2	2.21	0.41
7:J:211:MET:HA	7:J:215:GLN:NE2	2.34	0.41
7:J:226:GLU:OE1	7:J:226:GLU:N	2.33	0.41
8:K:66:LYS:HE2	12:A:433:ASN:O	2.21	0.41
8:K:220:VAL:HG22	8:K:226:PHE:HA	2.03	0.41
14:F:366:MET:HE2	14:F:420:TYR:HE1	1.85	0.41
2:D:344:ILE:HG22	2:D:375:ILE:HG21	2.02	0.40
2:D:387:VAL:HG22	3:E:158:LEU:HD11	2.03	0.40
5:H:55:ILE:HD12	5:H:56:LEU:N	2.37	0.40
7:J:32:ALA:HA	7:J:45:VAL:HA	2.04	0.40
12:A:243:SER:O	12:A:247:GLN:HG3	2.21	0.40
13:B:112:LEU:HD13	13:B:123:VAL:HG12	2.02	0.40
13:B:273:VAL:O	13:B:277:HIS:HB2	2.21	0.40
14:F:132:TYR:CD2	14:F:158:TYR:CD1	3.09	0.40
15:c:224:SER:OG	15:c:225:TRP:N	2.54	0.40
1:C:78:ARG:NH2	13:B:165:ASP:O	2.48	0.40
2:D:162:VAL:HG11	2:D:214:MET:HG3	2.03	0.40
3:E:242:ARG:CD	3:E:258:MET:HE3	2.52	0.40
5:H:107:THR:O	5:H:111:VAL:HG23	2.21	0.40
6:I:26:GLU:OE2	6:I:26:GLU:N	2.54	0.40

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
8:K:8:TYR:HA	8:K:14:THR:HG21	2.02	0.40
9:L:46:LEU:O	9:L:213:GLY:N	2.43	0.40
12:A:64:GLY:O	12:A:66:LYS:N	2.55	0.40
14:F:187:ASP:O	14:F:368:ILE:HG21	2.20	0.40
15:c:104:ARG:HD3	15:c:106:GLU:OE1	2.20	0.40
1:C:167:LEU:HG	1:C:175:PHE:HE1	1.86	0.40
2:D:231:VAL:HG12	2:D:234:GLU:HB2	2.02	0.40
2:D:268:ASP:OD2	2:D:311:THR:OG1	2.34	0.40
2:D:335:LEU:HD23	2:D:371:SER:HB3	2.03	0.40
3:E:171:LEU:HB2	3:E:295:LEU:HD13	2.03	0.40
6:I:197:LEU:HA	6:I:197:LEU:HD23	1.82	0.40
8:K:4:THR:OG1	8:K:7:GLU:OE2	2.39	0.40
10:M:57:LEU:HD12	10:M:57:LEU:HA	1.90	0.40
10:M:236:GLU:O	10:M:240:LYS:HG2	2.22	0.40
12:A:217:PRO:O	12:A:220:THR:OG1	2.21	0.40
12:A:237:PHE:HE1	12:A:239:ARG:HB2	1.85	0.40
12:A:247:GLN:O	12:A:249:TYR:N	2.55	0.40
12:A:260:LEU:HA	12:A:263:MET:HG3	2.03	0.40
14:F:153:VAL:HG12	14:F:158:TYR:HA	2.02	0.40
14:F:184:GLN:O	14:F:185:TYR:HB3	2.20	0.40
1:C:210:THR:O	1:C:210:THR:OG1	2.32	0.40
2:D:191:TYR:HD2	2:D:196:ILE:HD11	1.87	0.40
4:G:37:LEU:HA	4:G:37:LEU:HD23	1.74	0.40
4:G:109:ILE:HD12	4:G:110:PRO:HD2	2.03	0.40
8:K:44:GLU:HB2	8:K:191:LEU:HB2	2.03	0.40
12:A:157:ILE:O	12:A:158:ASP:C	2.64	0.40
13:B:363:ARG:HD2	13:B:363:ARG:HA	1.92	0.40
15:c:161:ARG:HB2	15:c:203:ILE:HD11	2.03	0.40
1:C:168:PRO:HB2	1:C:290:LYS:HE3	2.03	0.40
3:E:338:PHE:N	3:E:338:PHE:CD1	2.88	0.40
3:E:367:PHE:O	3:E:371:VAL:HG12	2.22	0.40
4:G:45:LYS:NZ	4:G:188:ASP:OD1	2.53	0.40
4:G:46:ASP:HB2	4:G:222:VAL:HG22	2.03	0.40
4:G:96:TYR:C	4:G:96:TYR:CD2	3.00	0.40
4:G:116:LYS:HE3	4:G:116:LYS:HB2	1.74	0.40
6:I:134:LEU:H	6:I:150:SER:HB3	1.86	0.40
6:I:246:LYS:HA	6:I:249:ARG:HG2	2.03	0.40
14:F:120:LYS:HE2	14:F:120:LYS:HB2	1.96	0.40
15:c:34:SER:OG	15:c:36:LEU:HD23	2.21	0.40

There are no symmetry-related clashes.

5.3 Torsion angles

5.3.1 Protein backbone

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

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

Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
1	C	384/406 (95%)	363 (94%)	21 (6%)	0	100	100
2	D	378/418 (90%)	359 (95%)	18 (5%)	1 (0%)	37	68
3	E	362/389 (93%)	333 (92%)	27 (8%)	2 (1%)	22	55
4	G	238/246 (97%)	226 (95%)	12 (5%)	0	100	100
5	H	230/234 (98%)	218 (95%)	12 (5%)	0	100	100
6	I	246/261 (94%)	234 (95%)	12 (5%)	0	100	100
7	J	237/248 (96%)	223 (94%)	14 (6%)	0	100	100
8	K	236/241 (98%)	226 (96%)	10 (4%)	0	100	100
9	L	238/263 (90%)	230 (97%)	8 (3%)	0	100	100
10	M	240/255 (94%)	230 (96%)	10 (4%)	0	100	100
12	A	393/433 (91%)	342 (87%)	47 (12%)	4 (1%)	13	43
13	B	386/440 (88%)	361 (94%)	23 (6%)	2 (0%)	25	59
14	F	353/439 (80%)	302 (86%)	49 (14%)	2 (1%)	22	55
15	c	278/424 (66%)	262 (94%)	16 (6%)	0	100	100
All	All	4199/4697 (89%)	3909 (93%)	279 (7%)	11 (0%)	38	68

All (11) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
12	A	36	TYR
13	B	156	VAL
14	F	86	LEU
2	D	338	ARG
12	A	116	LYS
14	F	427	VAL
3	E	241	ARG
3	E	244	SER
12	A	163	MET

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Mol	Chain	Res	Type
13	B	86	LYS
12	A	166	VAL

5.3.2 Protein sidechains ⓘ

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

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

Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
1	C	338/352 (96%)	322 (95%)	16 (5%)	22	53
2	D	333/366 (91%)	328 (98%)	5 (2%)	60	82
3	E	318/341 (93%)	296 (93%)	22 (7%)	13	40
4	G	202/210 (96%)	192 (95%)	10 (5%)	20	51
5	H	187/191 (98%)	180 (96%)	7 (4%)	29	61
6	I	202/221 (91%)	200 (99%)	2 (1%)	73	87
7	J	197/211 (93%)	189 (96%)	8 (4%)	26	58
8	K	197/203 (97%)	196 (100%)	1 (0%)	86	94
9	L	202/224 (90%)	199 (98%)	3 (2%)	60	82
10	M	198/212 (93%)	189 (96%)	9 (4%)	23	55
12	A	347/372 (93%)	338 (97%)	9 (3%)	41	70
13	B	345/385 (90%)	328 (95%)	17 (5%)	21	52
14	F	306/379 (81%)	299 (98%)	7 (2%)	45	73
15	c	248/359 (69%)	240 (97%)	8 (3%)	34	65
All	All	3620/4026 (90%)	3496 (97%)	124 (3%)	34	64

All (124) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	C	23	TYR
1	C	28	ILE
1	C	73	VAL
1	C	76	VAL
1	C	89	VAL

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Mol	Chain	Res	Type
1	C	131	VAL
1	C	135	VAL
1	C	194	THR
1	C	203	VAL
1	C	210	THR
1	C	300	ILE
1	C	312	ASP
1	C	342	ILE
1	C	375	ARG
1	C	376	VAL
1	C	403	LYS
2	D	272	THR
2	D	307	VAL
2	D	313	ARG
2	D	395	LEU
2	D	407	ILE
3	E	41	GLU
3	E	57	VAL
3	E	103	THR
3	E	105	LEU
3	E	153	LEU
3	E	178	THR
3	E	230	ILE
3	E	232	MET
3	E	234	GLU
3	E	235	ILE
3	E	238	ILE
3	E	242	ARG
3	E	244	SER
3	E	248	SER
3	E	251	ARG
3	E	254	GLN
3	E	258	MET
3	E	262	ASN
3	E	273	VAL
3	E	275	MET
3	E	276	ILE
3	E	313	LEU
4	G	17	SER
4	G	49	VAL
4	G	68	HIS
4	G	81	THR

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Mol	Chain	Res	Type
4	G	150	GLN
4	G	173	THR
4	G	189	TRP
4	G	202	LEU
4	G	210	PHE
4	G	230	LEU
5	H	19	LEU
5	H	36	VAL
5	H	46	LEU
5	H	48	THR
5	H	56	LEU
5	H	74	LEU
5	H	171	LYS
6	I	59	VAL
6	I	137	ILE
7	J	4	ASP
7	J	49	SER
7	J	76	LEU
7	J	84	ILE
7	J	102	VAL
7	J	205	ASN
7	J	219	ILE
7	J	221	ASN
8	K	108	THR
9	L	9	ASP
9	L	147	THR
9	L	226	ASP
10	M	3	ILE
10	M	43	ASP
10	M	68	ASN
10	M	81	LEU
10	M	100	SER
10	M	136	MET
10	M	165	ILE
10	M	177	GLU
10	M	186	CYS
12	A	22	ILE
12	A	63	THR
12	A	132	THR
12	A	134	ILE
12	A	157	ILE
12	A	272	ILE

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Mol	Chain	Res	Type
12	A	321	THR
12	A	327	LEU
12	A	337	LEU
13	B	40	THR
13	B	44	ASP
13	B	55	HIS
13	B	118	ASP
13	B	150	VAL
13	B	205	LEU
13	B	251	VAL
13	B	266	LEU
13	B	297	SER
13	B	298	ASN
13	B	314	ASN
13	B	315	GLN
13	B	325	VAL
13	B	373	THR
13	B	378	VAL
13	B	404	LEU
13	B	434	THR
14	F	76	ASN
14	F	82	VAL
14	F	145	LEU
14	F	175	MET
14	F	187	ASP
14	F	206	MET
14	F	359	GLU
15	c	35	SER
15	c	36	LEU
15	c	39	LEU
15	c	143	VAL
15	c	144	VAL
15	c	157	ILE
15	c	160	PHE
15	c	166	ASN

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (29) such sidechains are listed below:

Mol	Chain	Res	Type
1	C	32	GLN
1	C	36	ASN
1	C	41	ASN

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Mol	Chain	Res	Type
1	C	124	HIS
2	D	48	GLN
2	D	301	GLN
2	D	390	ASN
3	E	55	GLN
3	E	75	ASN
3	E	194	ASN
3	E	254	GLN
3	E	300	HIS
5	H	71	HIS
5	H	102	GLN
5	H	112	GLN
6	I	123	GLN
8	K	104	ASN
8	K	155	HIS
9	L	209	ASN
10	M	68	ASN
10	M	97	ASN
12	A	305	GLN
12	A	358	HIS
13	B	366	GLN
13	B	416	ASN
15	c	30	GLN
15	c	183	HIS
15	c	232	GLN
15	c	287	HIS

5.3.3 RNA [i](#)

There are no RNA molecules in this entry.

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

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

5.5 Carbohydrates [i](#)

There are no oligosaccharides in this entry.

5.6 Ligand geometry

Of 10 ligands modelled in this entry, 4 are monoatomic - leaving 6 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$
18	ADP	F	501	-	24,29,29	0.92	0	29,45,45	1.16	2 (6%)
16	ATP	B	501	17	28,33,33	0.79	0	34,52,52	0.62	1 (2%)
16	ATP	C	501	17	28,33,33	0.70	0	34,52,52	0.67	1 (2%)
18	ADP	E	501	-	24,29,29	0.85	0	29,45,45	1.21	2 (6%)
18	ADP	A	501	-	24,29,29	0.91	0	29,45,45	1.18	2 (6%)
18	ADP	D	501	17	24,29,29	0.82	0	29,45,45	1.34	3 (10%)

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
18	ADP	F	501	-	-	3/12/32/32	0/3/3/3
16	ATP	B	501	17	-	3/18/38/38	0/3/3/3
16	ATP	C	501	17	-	6/18/38/38	0/3/3/3
18	ADP	E	501	-	-	5/12/32/32	0/3/3/3
18	ADP	A	501	-	-	6/12/32/32	0/3/3/3
18	ADP	D	501	17	-	6/12/32/32	0/3/3/3

There are no bond length outliers.

All (11) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
18	D	501	ADP	N3-C2-N1	-3.65	123.72	128.67
18	F	501	ADP	N3-C2-N1	-3.64	123.73	128.67
18	A	501	ADP	N3-C2-N1	-3.64	123.73	128.67
18	E	501	ADP	N3-C2-N1	-3.46	123.98	128.67

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
18	E	501	ADP	C4-C5-N7	-2.65	106.54	109.34
18	A	501	ADP	C4-C5-N7	-2.56	106.63	109.34
18	F	501	ADP	C4-C5-N7	-2.45	106.75	109.34
16	B	501	ATP	C5-C6-N6	2.35	123.90	120.31
16	C	501	ATP	C5-C6-N6	2.33	123.86	120.31
18	D	501	ADP	C4-C5-N7	-2.18	107.04	109.34
18	D	501	ADP	O4'-C1'-N9	-2.04	106.04	108.75

There are no chirality outliers.

All (29) torsion outliers are listed below:

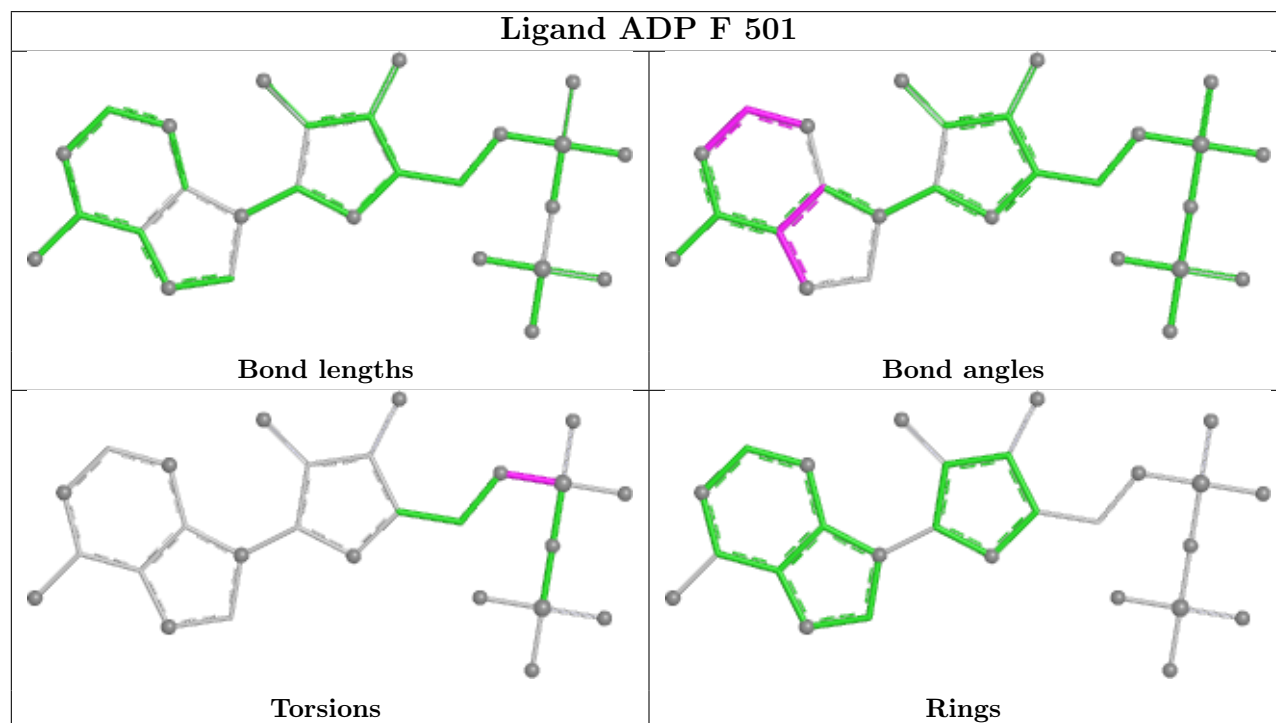
Mol	Chain	Res	Type	Atoms
16	B	501	ATP	C5'-O5'-PA-O1A
16	B	501	ATP	C5'-O5'-PA-O3A
18	D	501	ADP	PA-O3A-PB-O2B
18	D	501	ADP	C5'-O5'-PA-O1A
18	D	501	ADP	C5'-O5'-PA-O2A
18	D	501	ADP	C5'-O5'-PA-O3A
18	D	501	ADP	C3'-C4'-C5'-O5'
18	E	501	ADP	C5'-O5'-PA-O2A
18	E	501	ADP	C5'-O5'-PA-O3A
18	E	501	ADP	C3'-C4'-C5'-O5'
18	A	501	ADP	PA-O3A-PB-O3B
18	A	501	ADP	C5'-O5'-PA-O1A
18	A	501	ADP	O4'-C4'-C5'-O5'
18	F	501	ADP	C5'-O5'-PA-O1A
18	F	501	ADP	C5'-O5'-PA-O2A
18	F	501	ADP	C5'-O5'-PA-O3A
18	A	501	ADP	C3'-C4'-C5'-O5'
16	C	501	ATP	O4'-C4'-C5'-O5'
16	C	501	ATP	C3'-C4'-C5'-O5'
18	D	501	ADP	O4'-C4'-C5'-O5'
18	E	501	ADP	O4'-C4'-C5'-O5'
16	C	501	ATP	PG-O3B-PB-O2B
16	B	501	ATP	C5'-O5'-PA-O2A
18	E	501	ADP	C5'-O5'-PA-O1A
16	C	501	ATP	PB-O3B-PG-O1G
16	C	501	ATP	C4'-C5'-O5'-PA
18	A	501	ADP	PA-O3A-PB-O1B
18	A	501	ADP	PA-O3A-PB-O2B
16	C	501	ATP	PG-O3B-PB-O1B

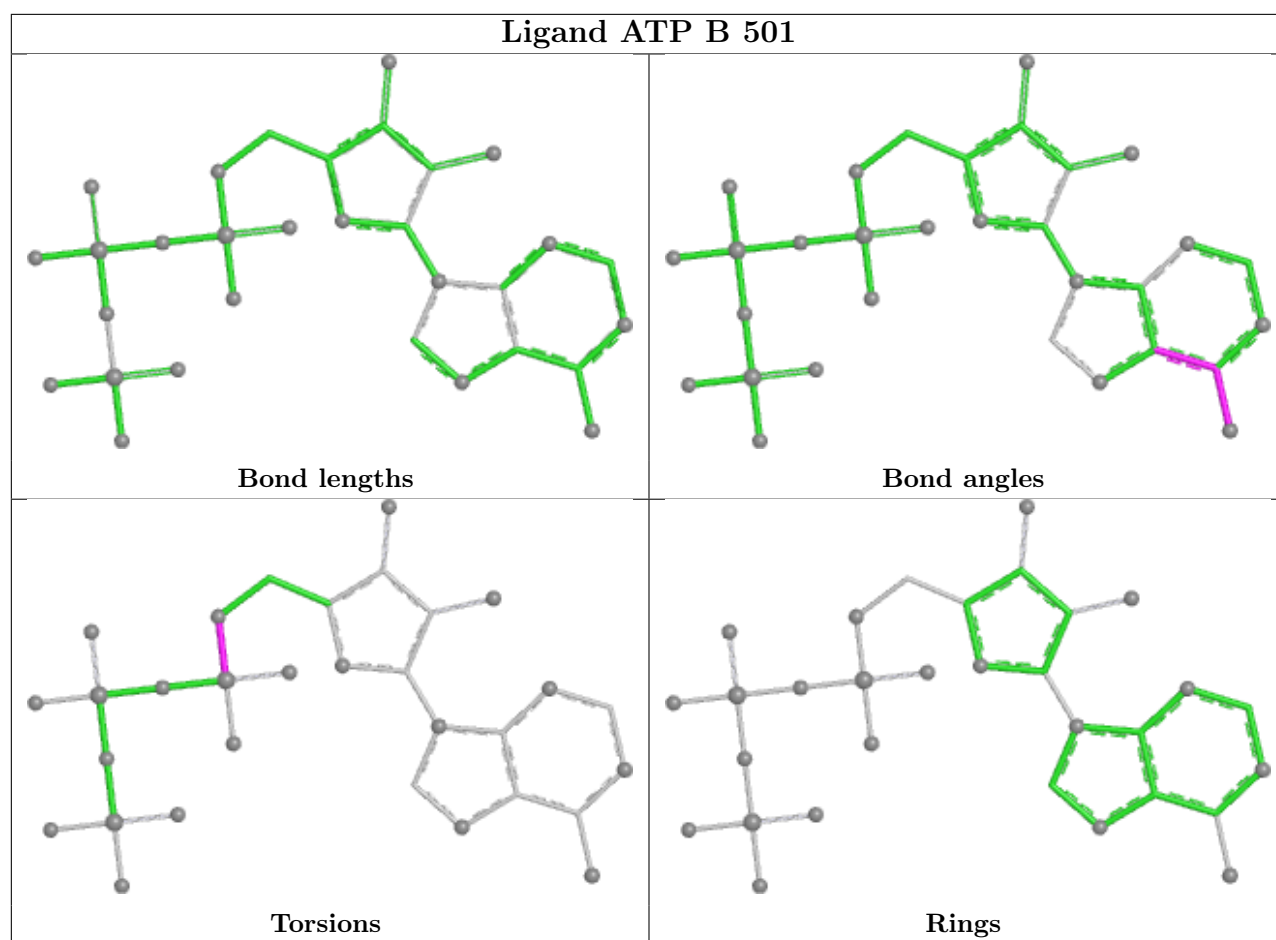
There are no ring outliers.

6 monomers are involved in 18 short contacts:

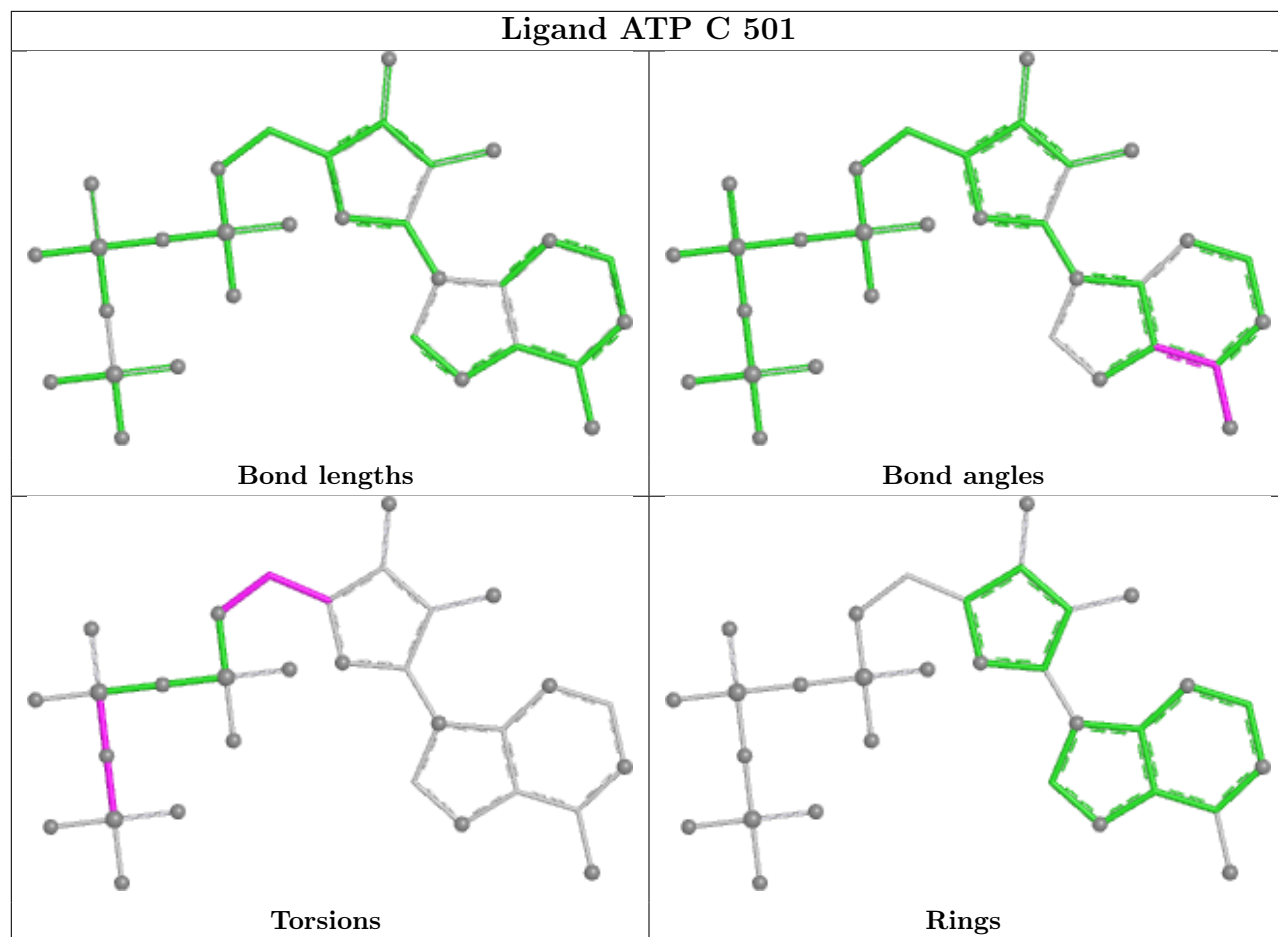
Mol	Chain	Res	Type	Clashes	Symm-Clashes
18	F	501	ADP	2	0
16	B	501	ATP	2	0
16	C	501	ATP	3	0
18	E	501	ADP	6	0
18	A	501	ADP	3	0
18	D	501	ADP	2	0

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 than 5% of the Mogul distribution of torsion angles is within 10 degrees of the torsion angle in question, then that torsion angle is considered an outlier. Any bond that is central to one or more torsion angles identified as an outlier by Mogul will be highlighted in the graph. For rings, the root-mean-square deviation (RMSD) between the ring in question and similar rings identified by Mogul is calculated over all ring torsion angles. If the average RMSD is greater than 60 degrees and the minimal RMSD between the ring in question and any Mogul-identified rings is also greater than 60 degrees, then that ring is considered an outlier. The outliers are highlighted in purple. The color gray indicates Mogul did not find sufficient equivalents in the CSD to analyse the geometry.

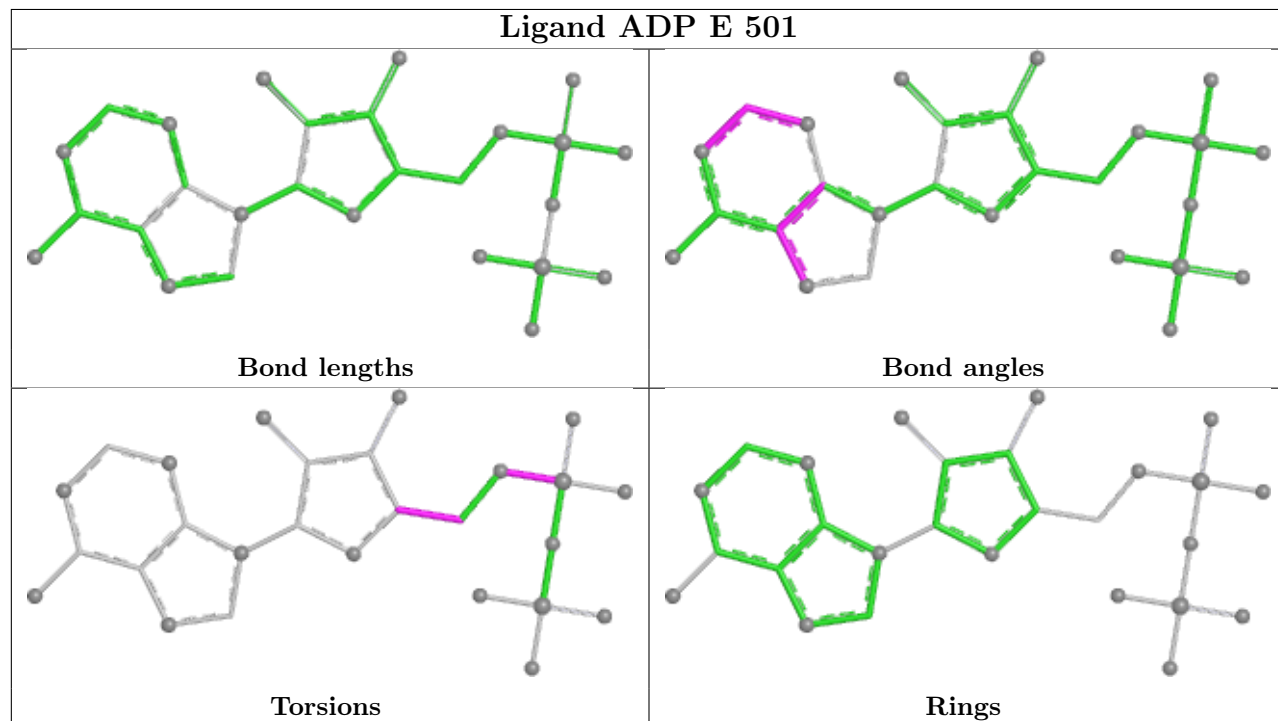


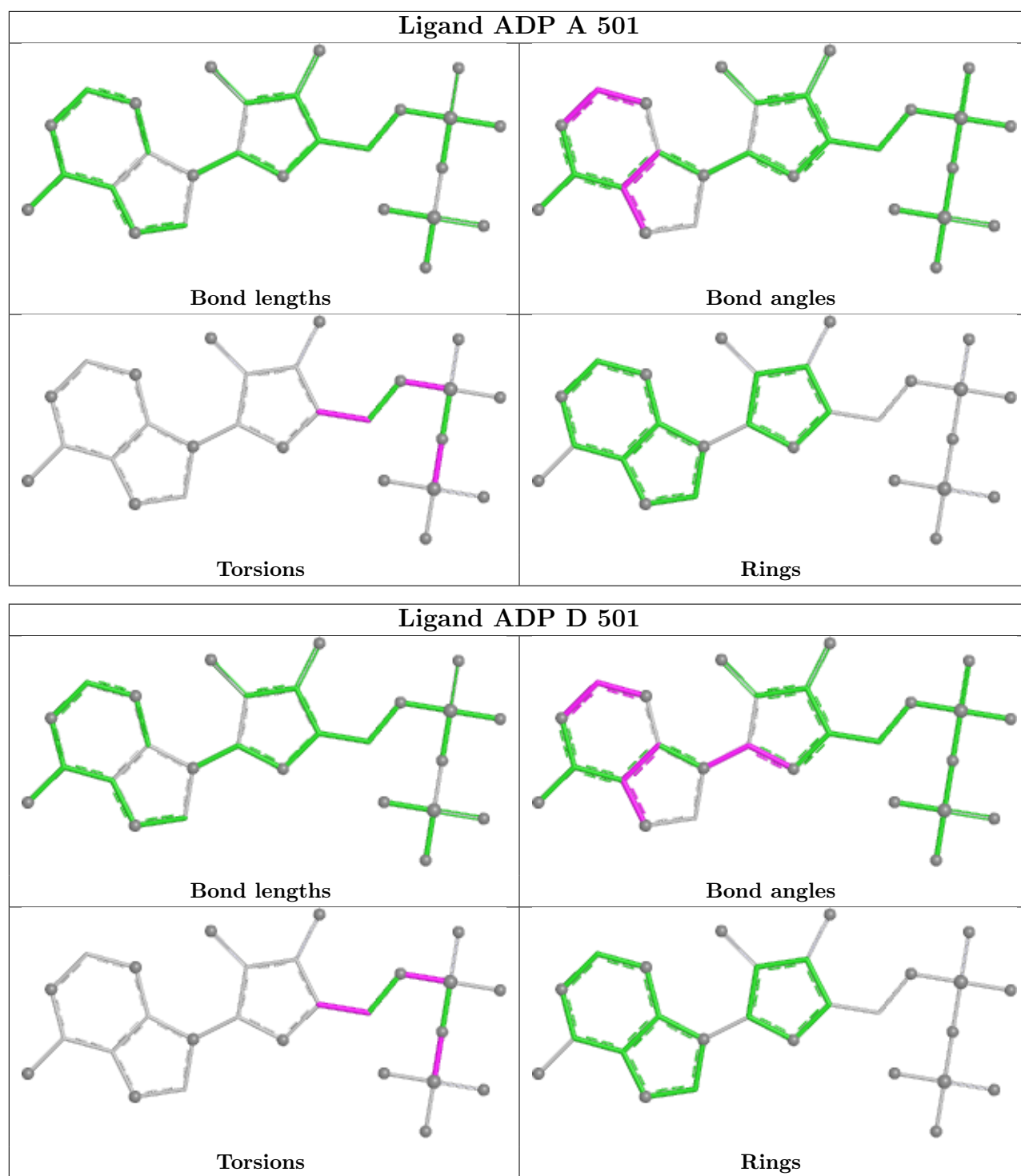


Ligand ATP C 501



Ligand ADP E 501





5.7 Other polymers ⓘ

There are no such residues in this entry.

5.8 Polymer linkage issues ⓘ

There are no chain breaks in this entry.

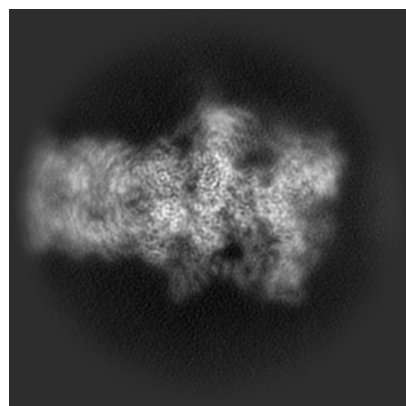
6 Map visualisation [i](#)

This section contains visualisations of the EMDB entry EMD-71534. These allow visual inspection of the internal detail of the map and identification of artifacts.

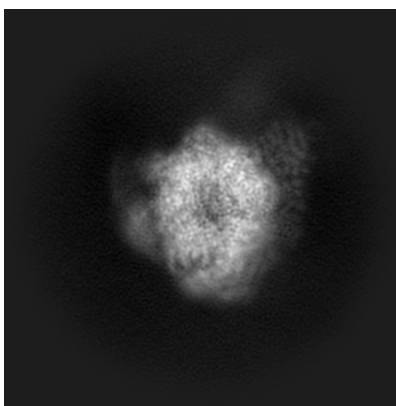
Images derived from a raw map, generated by summing the deposited half-maps, are presented below the corresponding image components of the primary map to allow further visual inspection and comparison with those of the primary map.

6.1 Orthogonal projections [i](#)

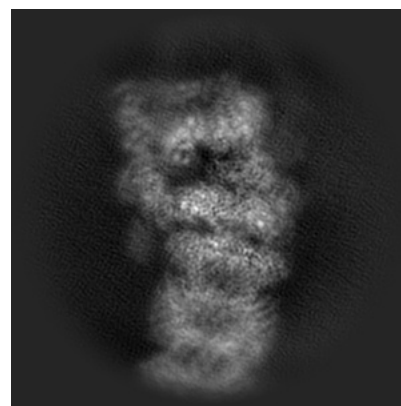
6.1.1 Primary map



X

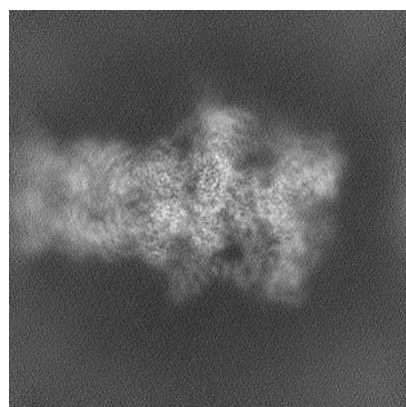


Y

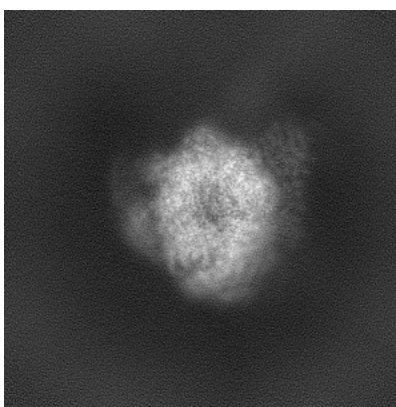


Z

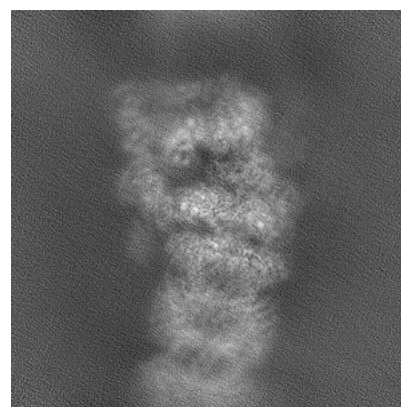
6.1.2 Raw map



X



Y

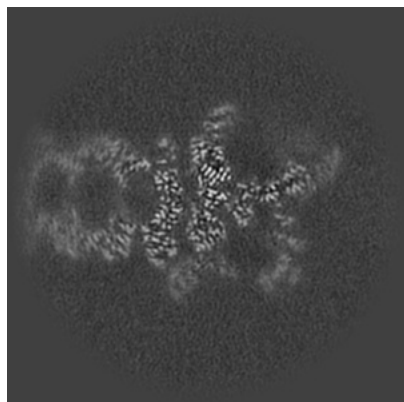


Z

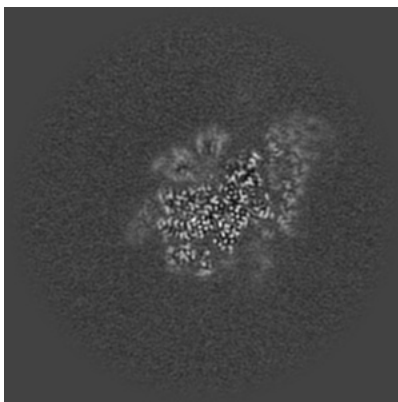
The images above show the map projected in three orthogonal directions.

6.2 Central slices [i](#)

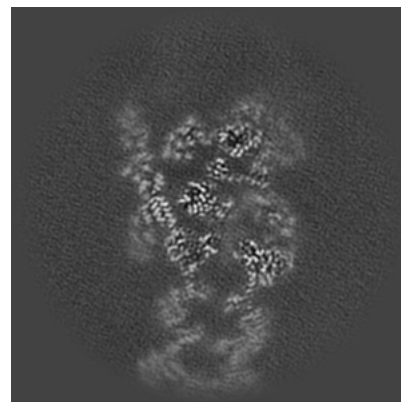
6.2.1 Primary map



X Index: 170

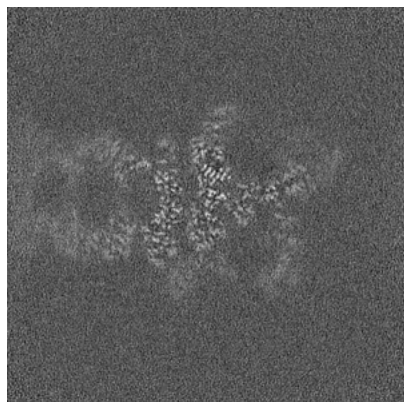


Y Index: 170

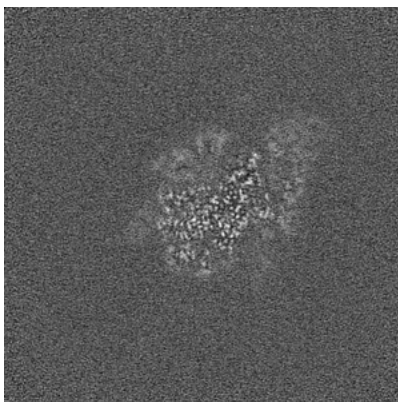


Z Index: 170

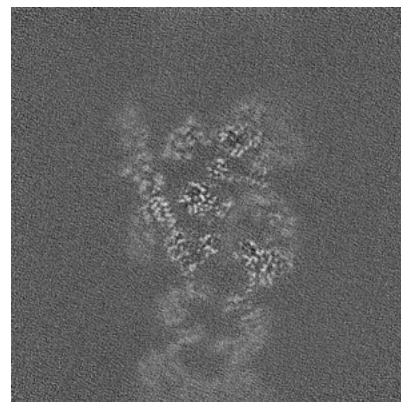
6.2.2 Raw map



X Index: 170



Y Index: 170

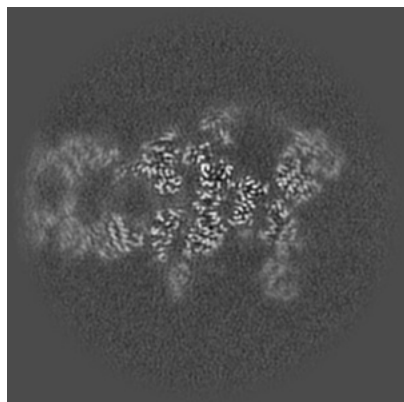


Z Index: 170

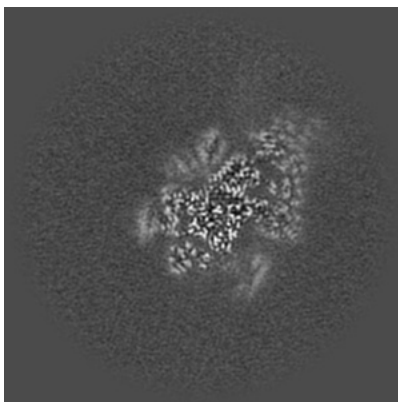
The images above show central slices of the map in three orthogonal directions.

6.3 Largest variance slices [i](#)

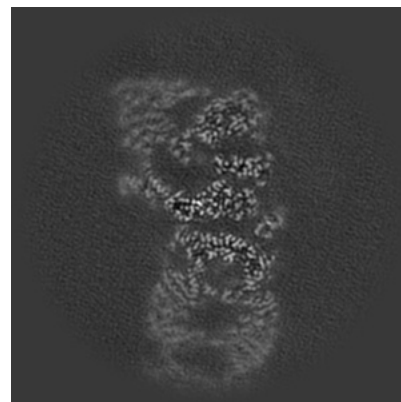
6.3.1 Primary map



X Index: 178

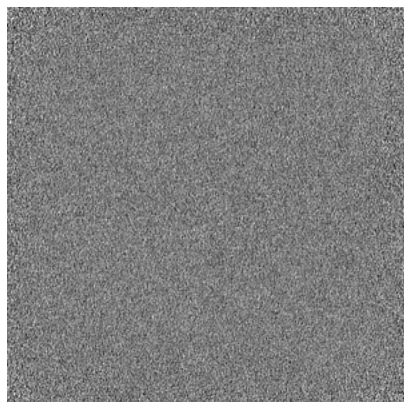


Y Index: 175

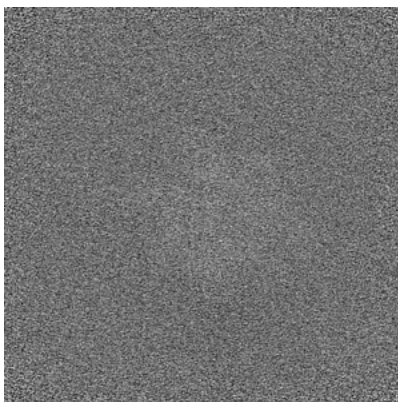


Z Index: 191

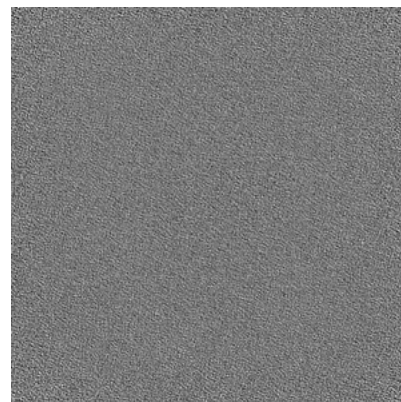
6.3.2 Raw map



X Index: 0



Y Index: 0

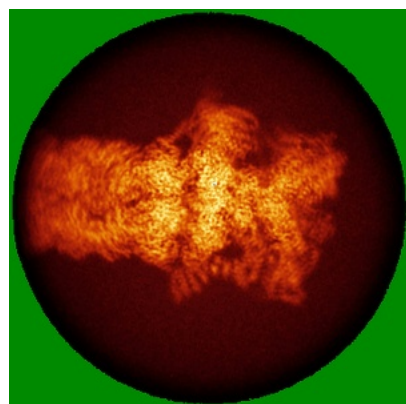


Z Index: 0

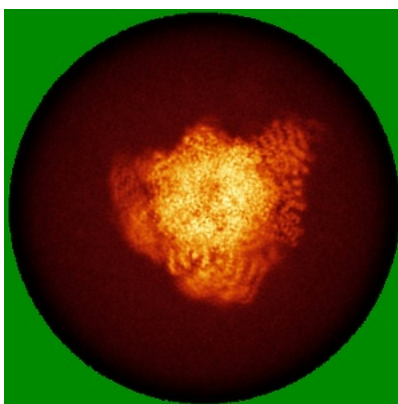
The images above show the largest variance slices of the map in three orthogonal directions.

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

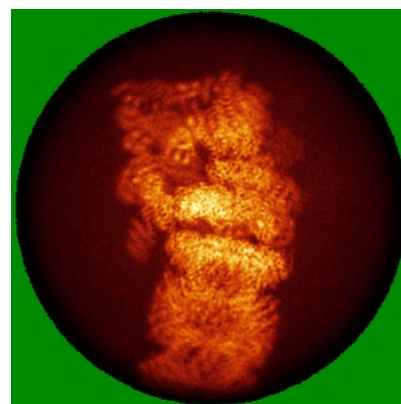
6.4.1 Primary map



X

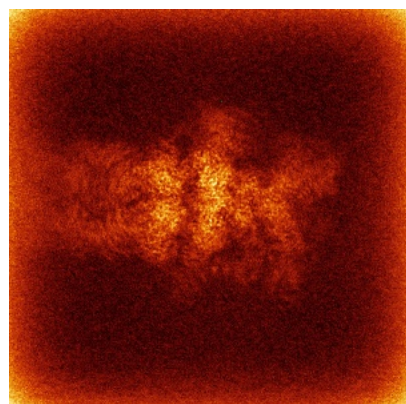


Y

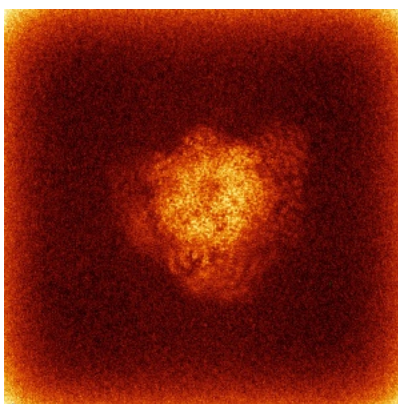


Z

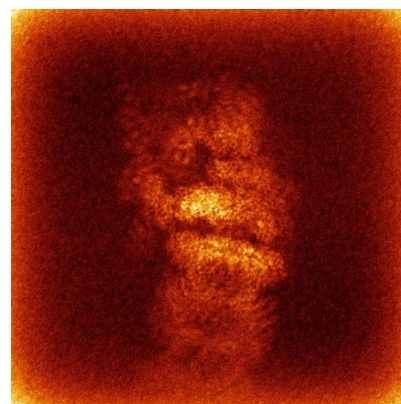
6.4.2 Raw map



X



Y

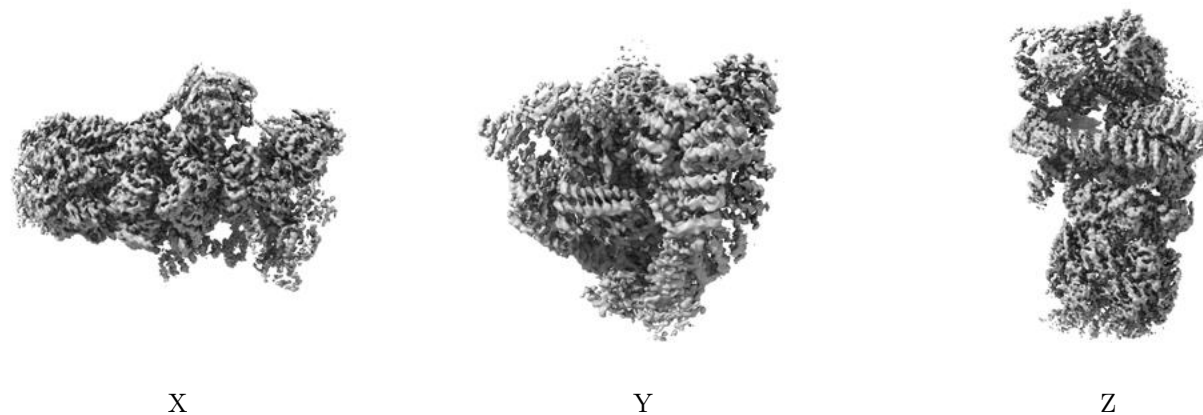


Z

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

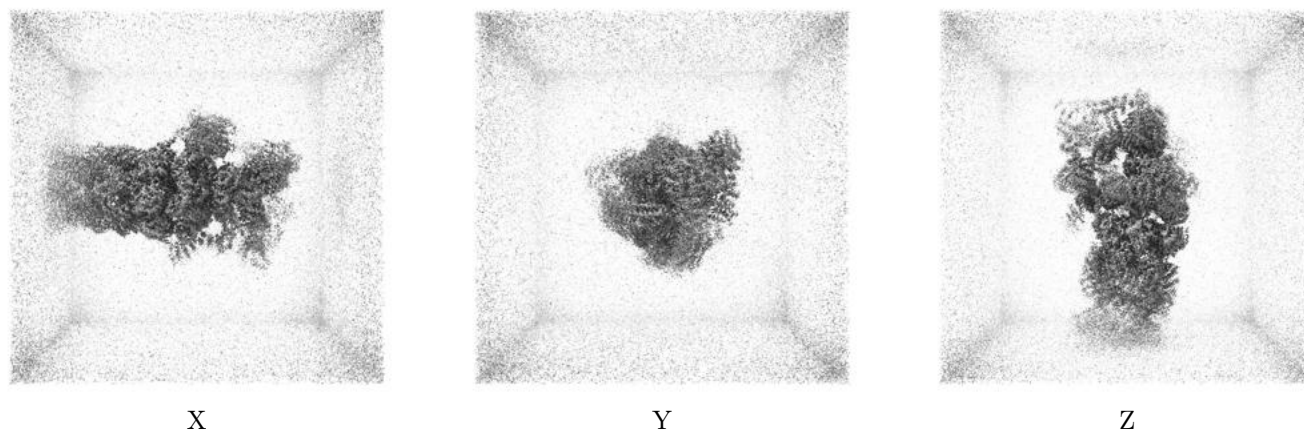
6.5 Orthogonal surface views [i](#)

6.5.1 Primary map



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

6.5.2 Raw map



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

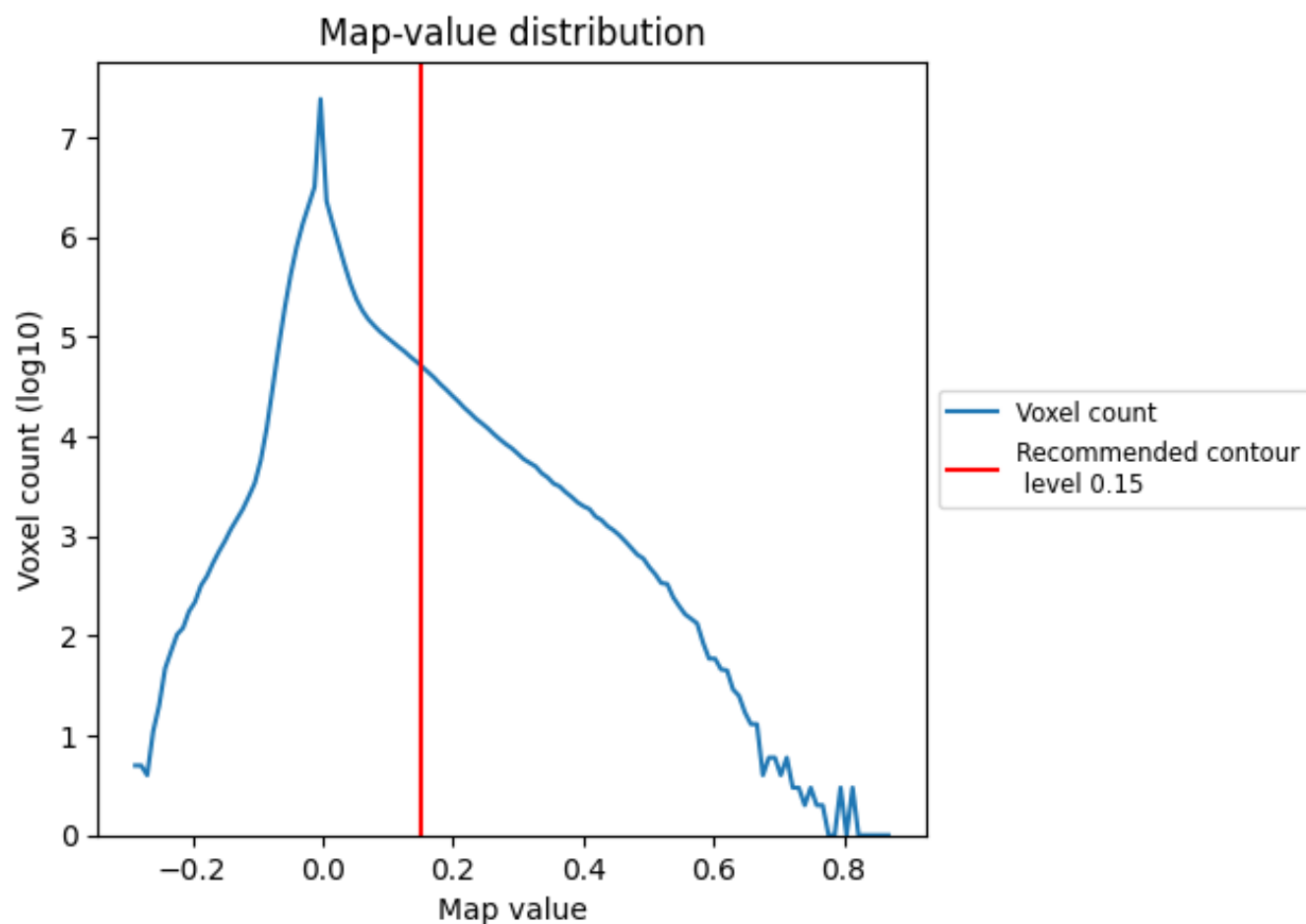
6.6 Mask visualisation [i](#)

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

7 Map analysis [i](#)

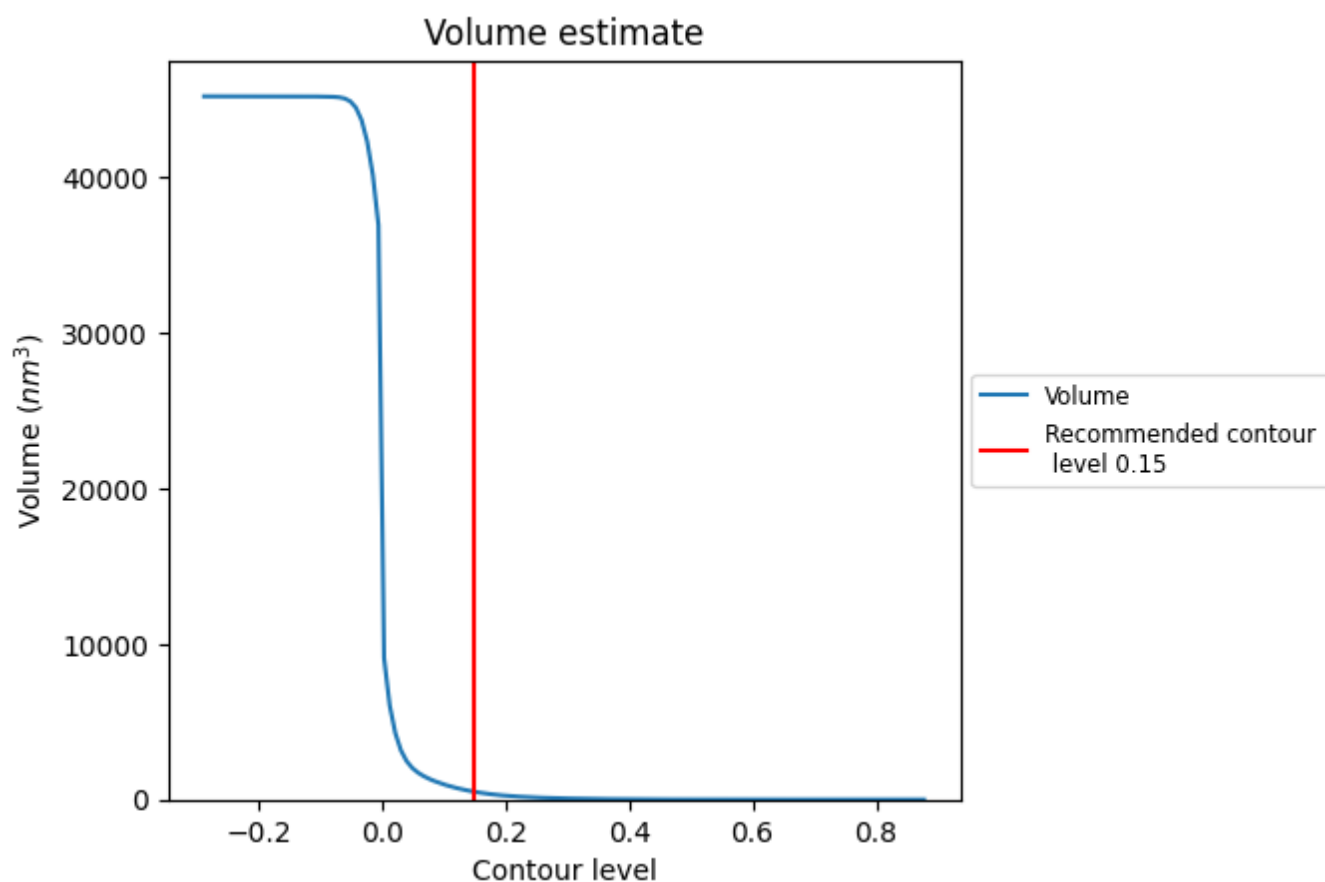
This section contains the results of statistical analysis of the map.

7.1 Map-value distribution [i](#)



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

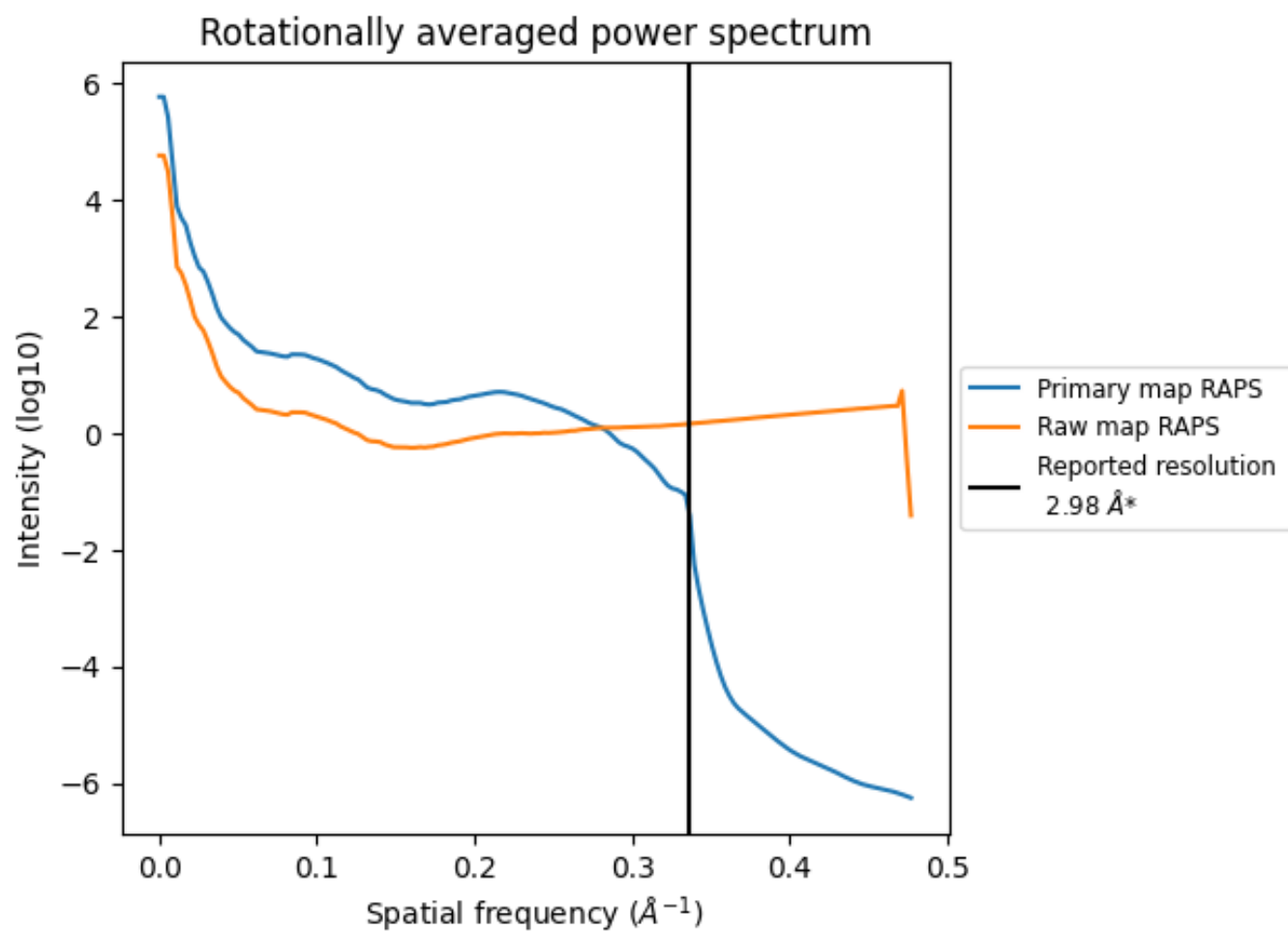
7.2 Volume estimate [i](#)



The volume at the recommended contour level is 499 nm³; this corresponds to an approximate mass of 451 kDa.

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

7.3 Rotationally averaged power spectrum ⓘ

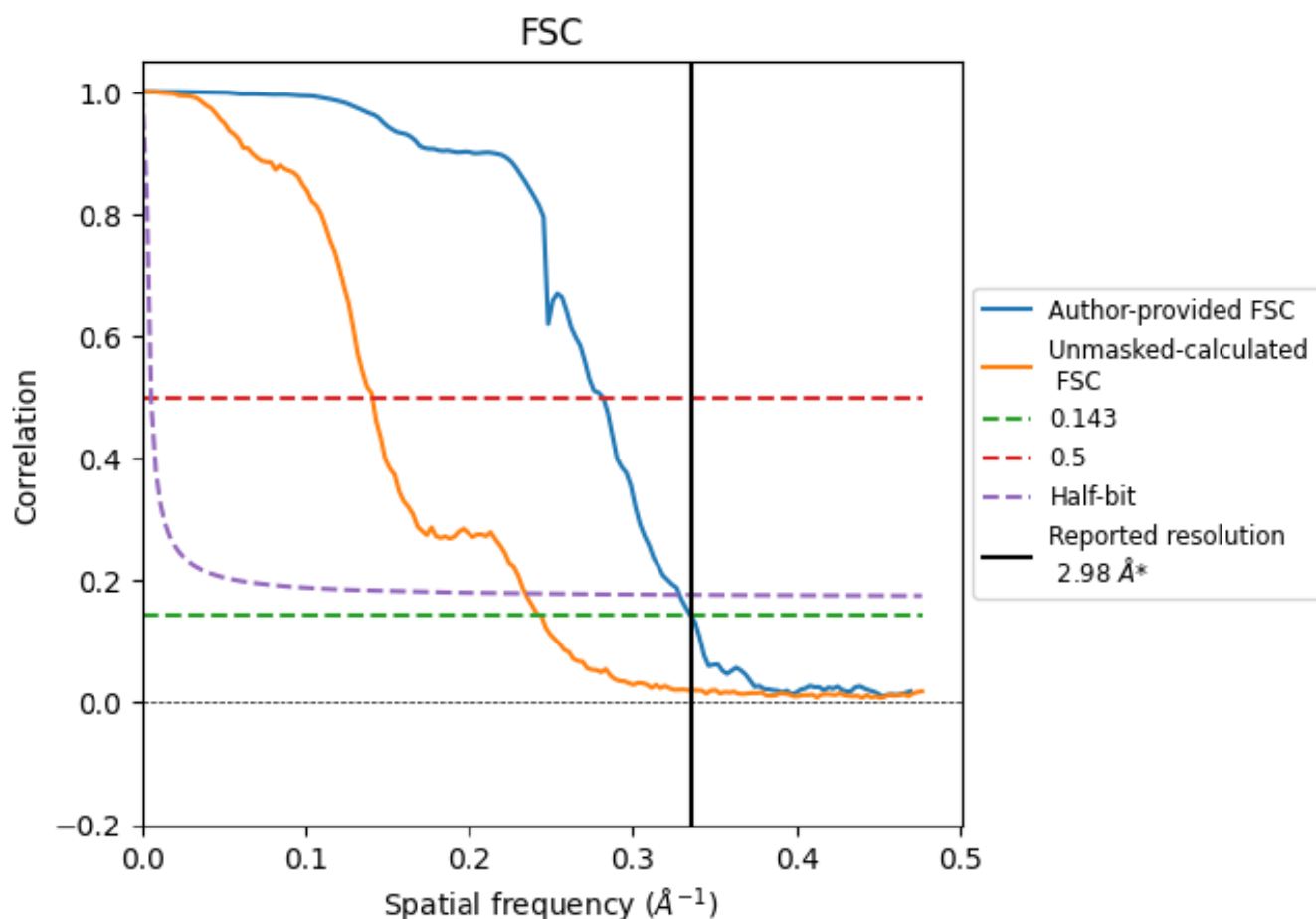


*Reported resolution corresponds to spatial frequency of 0.336 Å⁻¹

8 Fourier-Shell correlation [i](#)

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

8.1 FSC [i](#)



*Reported resolution corresponds to spatial frequency of 0.336 $\text{\AA}^{-1}$

8.2 Resolution estimates [i](#)

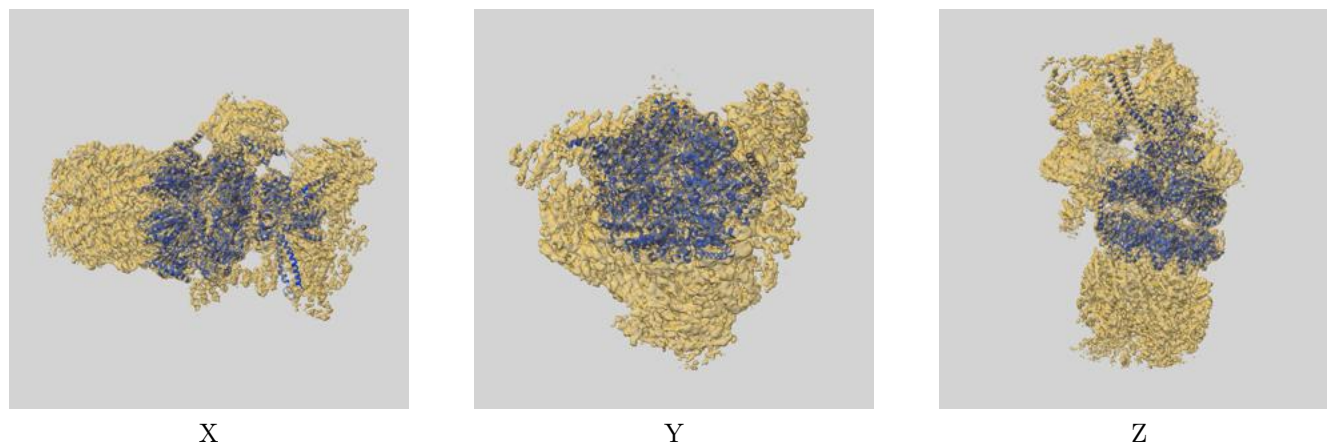
Resolution estimate (Å)	Estimation criterion (FSC cut-off)		
	0.143	0.5	Half-bit
Reported by author	2.98	-	-
Author-provided FSC curve	2.98	3.55	3.04
Unmasked-calculated*	4.11	7.11	4.26

*Resolution estimate based on FSC curve calculated by comparison of deposited half-maps. The value from deposited half-maps intersecting FSC 0.143 CUT-OFF 4.11 differs from the reported value 2.98 by more than 10 %

9 Map-model fit [i](#)

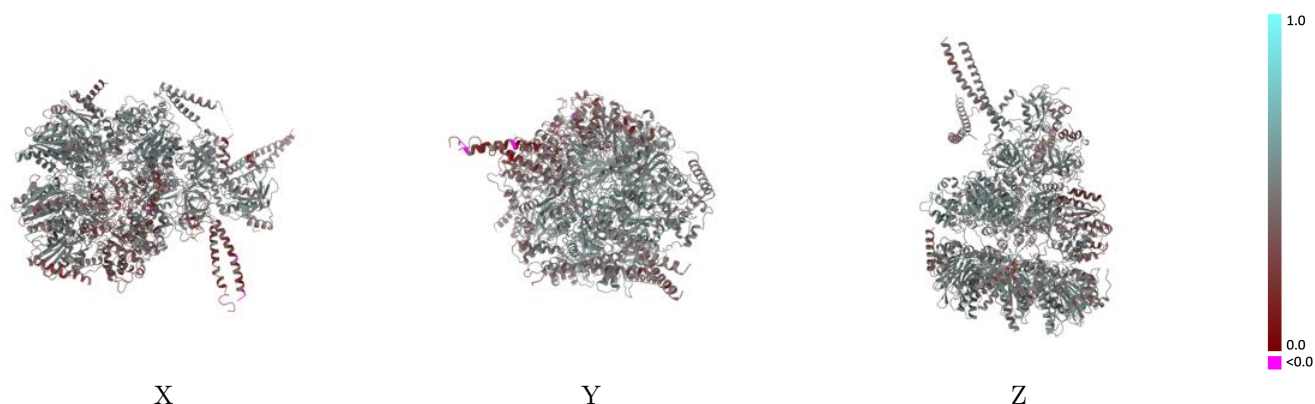
This section contains information regarding the fit between EMDB map EMD-71534 and PDB model 9PDI. Per-residue inclusion information can be found in section 3 on page 11.

9.1 Map-model overlay [i](#)



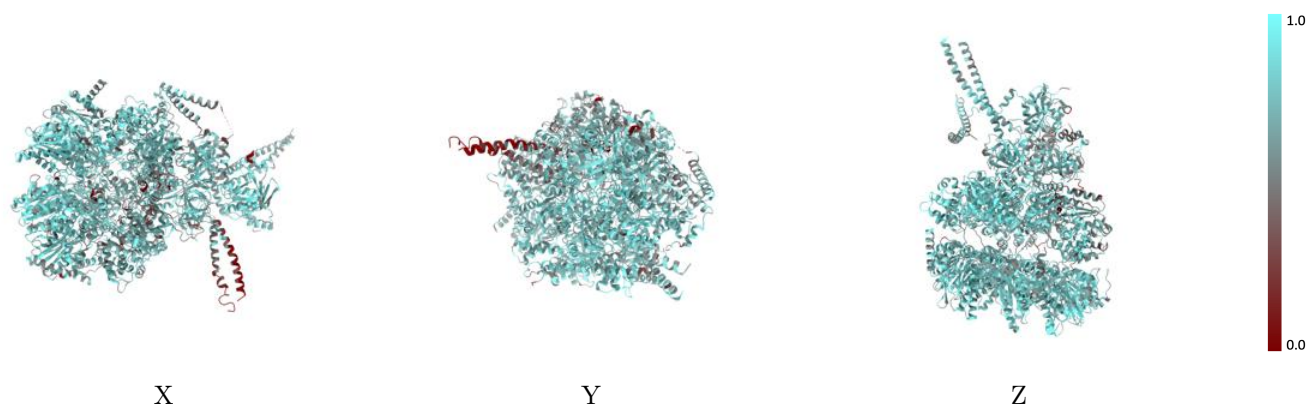
The images above show the 3D surface view of the map at the recommended contour level 0.15 at 50% transparency in yellow overlaid with a ribbon representation of the model coloured in blue. These images allow for the visual assessment of the quality of fit between the atomic model and the map.

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



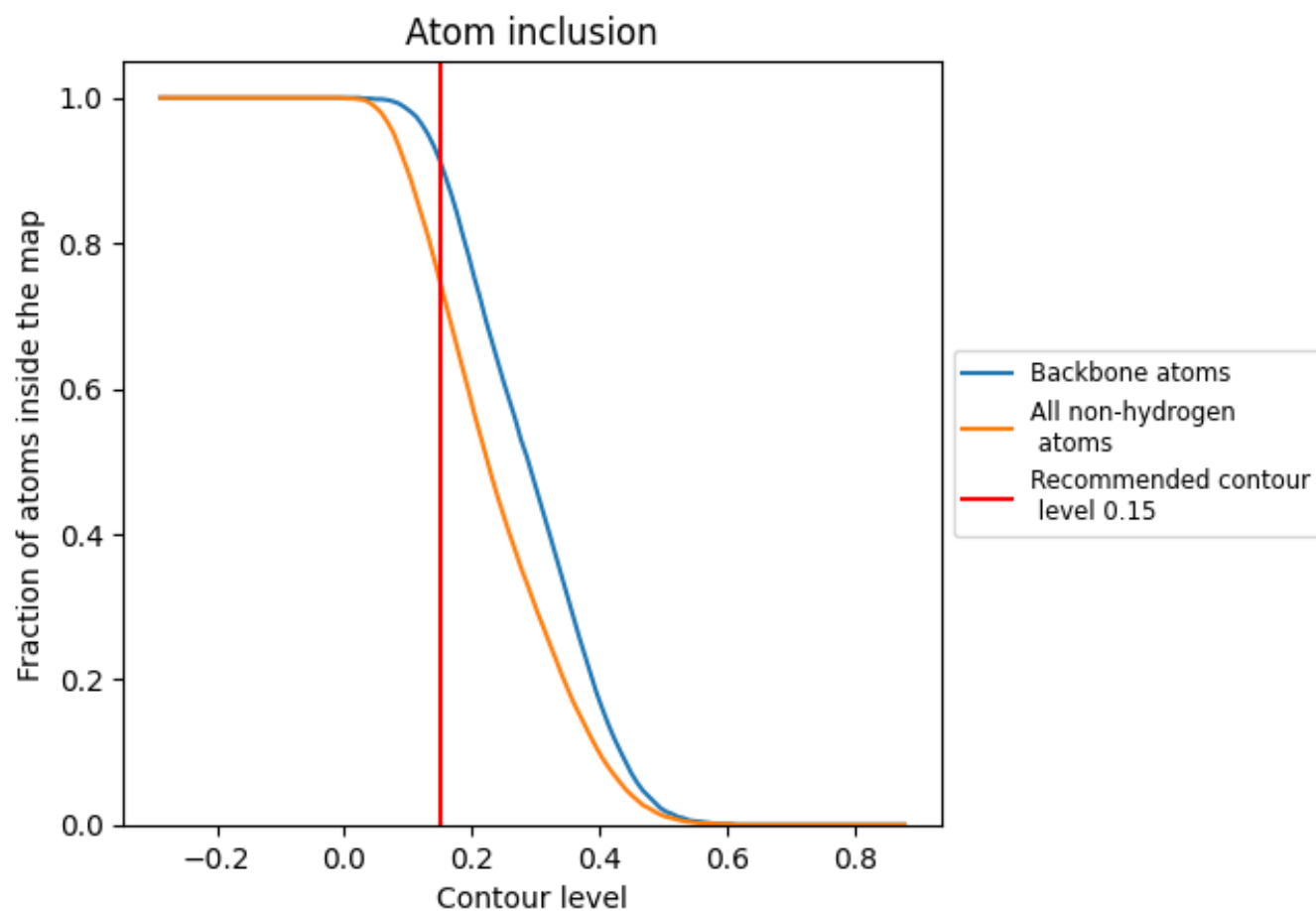
The images above show the model with each residue coloured according to its Q-score. This shows their resolvability in the map with higher Q-score values reflecting better resolvability. Please note: Q-score is calculating the resolvability of atoms, and thus high values are only expected at resolutions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

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



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

9.4 Atom inclusion [i](#)



At the recommended contour level, 91% of all backbone atoms, 75% of all non-hydrogen atoms, are inside the map.

9.5 Map-model fit summary ⓘ

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

Chain	Atom inclusion	Q-score
All	0.7480	0.4660
A	0.6320	0.4170
B	0.7400	0.4910
C	0.8200	0.5160
D	0.8070	0.5090
E	0.7280	0.4420
F	0.5630	0.3510
G	0.7860	0.4750
H	0.8220	0.5020
I	0.7860	0.4770
J	0.7870	0.4760
K	0.7960	0.4940
L	0.8110	0.4790
M	0.7880	0.4600
c	0.7230	0.4660
v	0.8180	0.5240

1.0

0.0

<0.0