Full wwPDB EM Validation Report ⓘ

Apr 6, 2026 – 04:04 AM UTC

PDB ID	:	9U7R / pdb_00009u7r
EMDB ID	:	EMD-63943
Title	:	Substrate-free human 26S proteasome purified by midnolin, 20S proteasome, RPTs and RPN11 part
Authors	:	Zhu, C.; Qin, L.; Liang, L.
Deposited on	:	2025-03-25
Resolution	:	3.17 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:

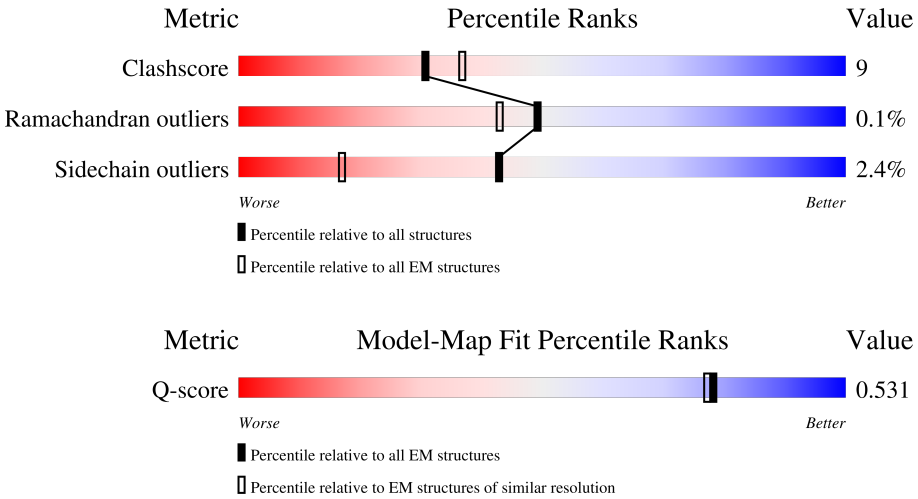
EMDB validation analysis	:	0.0.1.dev132
Mogul	:	2022.3.0, CSD as543be (2022)
MolProbity	:	4-5-2 with Phenix2.0
Buster-report	:	wwPDB partial adaption of 1.1.7 (2018)
Percentile statistics	:	20250101.v01 (using entries in the PDB archive January 1st 2025)
EM percentile statistics	:	202505.v01 (Using data 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)	:	2.49

1 Overall quality at a glance

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

The reported resolution of this entry is 3.17 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	229148	23984	-
Ramachandran outliers	224038	23583	-
Sidechain outliers	223484	23102	-
Q-score	-	25397	14465 (2.67 - 3.67)

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

Mol	Chain	Length	Quality of chain
1	c	309	47% 47% 43% • 7%
2	A	433	6% 62% 22% • 15%
3	B	440	7% 59% 18% 23%
4	C	398	9% 62% 23% • 14%

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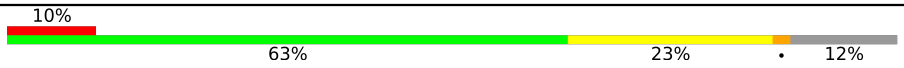
Mol	Chain	Length	Quality of chain
5	D	418	
6	E	403	
7	F	439	
8	G	245	
8	g	245	
9	H	233	
9	h	233	
10	I	260	
10	i	260	
11	J	247	
11	j	247	
12	K	240	
12	k	240	
13	L	268	
13	l	268	
14	M	254	
14	m	254	
15	N	238	
15	n	238	
16	O	276	
16	o	276	
17	P	204	
17	p	204	
18	Q	201	
18	q	201	

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Mol	Chain	Length	Quality of chain
19	R	262	
19	r	262	
20	S	240	
20	s	240	
21	T	263	
21	t	263	

2 Entry composition (i)

There are 26 unique types of molecules in this entry. The entry contains 66567 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 proteasome non-ATPase regulatory subunit 14.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
1	c	287	2260	1430	389	422	19	0	0

- Molecule 2 is a protein called 26S proteasome regulatory subunit 7.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
2	A	366	2863	1805	503	537	18	0	0

- Molecule 3 is a protein called 26S proteasome regulatory subunit 4.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
3	B	340	2647	1663	451	521	12	0	0

- Molecule 4 is a protein called 26S proteasome regulatory subunit 8.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
4	C	344	2703	1704	489	494	16	0	0

- Molecule 5 is a protein called 26S proteasome regulatory subunit 6B.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
5	D	368	2929	1853	505	558	13	0	0

- Molecule 6 is a protein called Proteasome 26S subunit, ATPase 6.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
6	E	347	2721	1713	484	508	16	0	0

- Molecule 7 is a protein called 26S proteasome regulatory subunit 6A.

Mol	Chain	Residues	Atoms					AltConf	Trace
7	F	346	Total	C	N	O	S	0	0
			2701	1706	465	515	15		

- Molecule 8 is a protein called Proteasome subunit alpha type-6.

Mol	Chain	Residues	Atoms					AltConf	Trace
8	G	240	Total	C	N	O	S	0	0
			1826	1160	305	348	13		
8	g	240	Total	C	N	O	S	0	0
			1826	1160	305	348	13		

- Molecule 9 is a protein called Proteasome subunit alpha type-2.

Mol	Chain	Residues	Atoms					AltConf	Trace
9	H	232	Total	C	N	O	S	0	0
			1708	1081	289	333	5		
9	h	232	Total	C	N	O	S	0	0
			1708	1081	289	333	5		

- Molecule 10 is a protein called Proteasome subunit alpha type-4.

Mol	Chain	Residues	Atoms					AltConf	Trace
10	I	250	Total	C	N	O	S	0	0
			1912	1204	329	371	8		
10	i	250	Total	C	N	O	S	0	0
			1912	1204	329	371	8		

- Molecule 11 is a protein called Proteasome subunit alpha type-7.

Mol	Chain	Residues	Atoms					AltConf	Trace
11	J	239	Total	C	N	O	S	0	0
			1713	1062	311	335	5		
11	j	239	Total	C	N	O	S	0	0
			1704	1056	308	335	5		

- Molecule 12 is a protein called Proteasome subunit alpha type-5.

Mol	Chain	Residues	Atoms					AltConf	Trace
12	K	228	Total	C	N	O	S	0	0
			1722	1080	284	348	10		

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Mol	Chain	Residues	Atoms					AltConf	Trace
12	k	228	Total 1722	C 1080	N 284	O 348	S 10	0	0

- Molecule 13 is a protein called Isoform Long of Proteasome subunit alpha type-1.

Mol	Chain	Residues	Atoms					AltConf	Trace
13	L	238	Total 1850	C 1159	N 334	O 346	S 11	0	0
13	l	238	Total 1850	C 1159	N 334	O 346	S 11	0	0

- Molecule 14 is a protein called Proteasome subunit alpha type-3.

Mol	Chain	Residues	Atoms					AltConf	Trace
14	M	240	Total 1856	C 1178	N 314	O 353	S 11	0	0
14	m	240	Total 1856	C 1178	N 314	O 353	S 11	0	0

- Molecule 15 is a protein called Proteasome subunit beta type-6.

Mol	Chain	Residues	Atoms					AltConf	Trace
15	N	191	Total 1430	C 893	N 245	O 280	S 12	0	0
15	n	191	Total 1430	C 893	N 245	O 280	S 12	0	0

- Molecule 16 is a protein called Proteasome subunit beta type-7.

Mol	Chain	Residues	Atoms					AltConf	Trace
16	O	220	Total 1643	C 1033	N 280	O 318	S 12	0	0
16	o	220	Total 1643	C 1033	N 280	O 318	S 12	0	0

- Molecule 17 is a protein called Proteasome subunit beta type-3.

Mol	Chain	Residues	Atoms					AltConf	Trace
17	P	204	Total 1591	C 1013	N 265	O 294	S 19	0	0
17	p	204	Total 1591	C 1013	N 265	O 294	S 19	0	0

- Molecule 18 is a protein called Proteasome subunit beta type-2.

Mol	Chain	Residues	Atoms					AltConf	Trace
18	Q	199	Total	C	N	O	S	0	0
			1570	1006	265	290	9		
18	q	199	Total	C	N	O	S	0	0
			1574	1009	266	290	9		

- Molecule 19 is a protein called Proteasome subunit beta type-5.

Mol	Chain	Residues	Atoms					AltConf	Trace
19	R	201	Total	C	N	O	S	0	0
			1548	974	273	292	9		
19	r	201	Total	C	N	O	S	0	0
			1548	974	273	292	9		

- Molecule 20 is a protein called Proteasome subunit beta type-1.

Mol	Chain	Residues	Atoms					AltConf	Trace
20	S	213	Total	C	N	O	S	0	0
			1645	1039	283	313	10		
20	s	213	Total	C	N	O	S	0	0
			1644	1039	282	313	10		

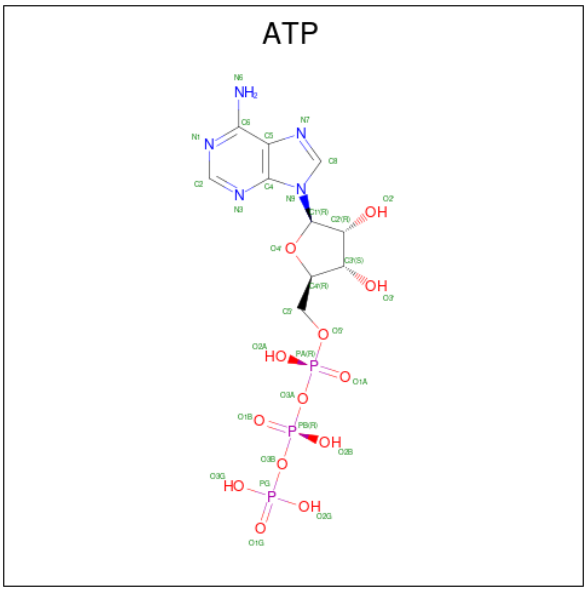
- Molecule 21 is a protein called Proteasome subunit beta type-4.

Mol	Chain	Residues	Atoms					AltConf	Trace
21	T	215	Total	C	N	O	S	0	0
			1667	1052	285	318	12		
21	t	215	Total	C	N	O	S	0	0
			1667	1052	285	318	12		

- Molecule 22 is ZINC ION (CCD ID: ZN) (formula: Zn) (labeled as "Ligand of Interest" by depositor).

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

- Molecule 23 is ADENOSINE-5'-TRIPHOSPHATE (CCD ID: ATP) (formula: $C_{10}H_{16}N_5O_{13}P_3$) (labeled as "Ligand of Interest" by depositor).

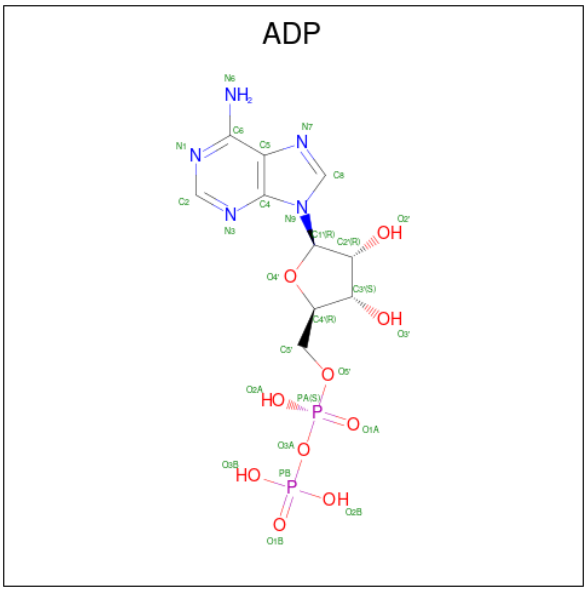


Mol	Chain	Residues	Atoms					AltConf
23	A	1	Total	C	N	O	P	0
			31	10	5	13	3	
23	B	1	Total	C	N	O	P	0
			31	10	5	13	3	
23	D	1	Total	C	N	O	P	0
			31	10	5	13	3	
23	E	1	Total	C	N	O	P	0
			31	10	5	13	3	

- Molecule 24 is MAGNESIUM ION (CCD ID: MG) (formula: Mg) (labeled as "Ligand of Interest" by depositor).

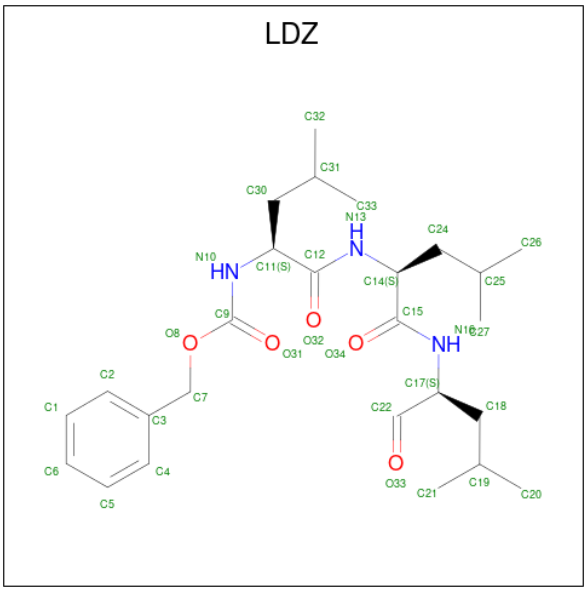
Mol	Chain	Residues	Atoms		AltConf
24	A	1	Total	Mg	0
			1	1	
24	B	1	Total	Mg	0
			1	1	
24	E	1	Total	Mg	0
			1	1	
24	F	1	Total	Mg	0
			1	1	

- Molecule 25 is ADENOSINE-5'-DIPHOSPHATE (CCD ID: ADP) (formula: $C_{10}H_{15}N_5O_{10}P_2$) (labeled as "Ligand of Interest" by depositor).



Mol	Chain	Residues	Atoms					AltConf
25	C	1	Total	C	N	O	P	0
			27	10	5	10	2	
25	F	1	Total	C	N	O	P	0
			27	10	5	10	2	

- Molecule 26 is N-[(benzyloxy)carbonyl]-L-leucyl-N-[(2S)-4-methyl-1-oxopentan-2-yl]-L-leucinamide (CCD ID: LDZ) (formula: $C_{26}H_{41}N_3O_5$) (labeled as "Ligand of Interest" by depositor).



Mol	Chain	Residues	Atoms				AltConf
26	N	1	Total	C	N	O	0
			34	26	3	5	

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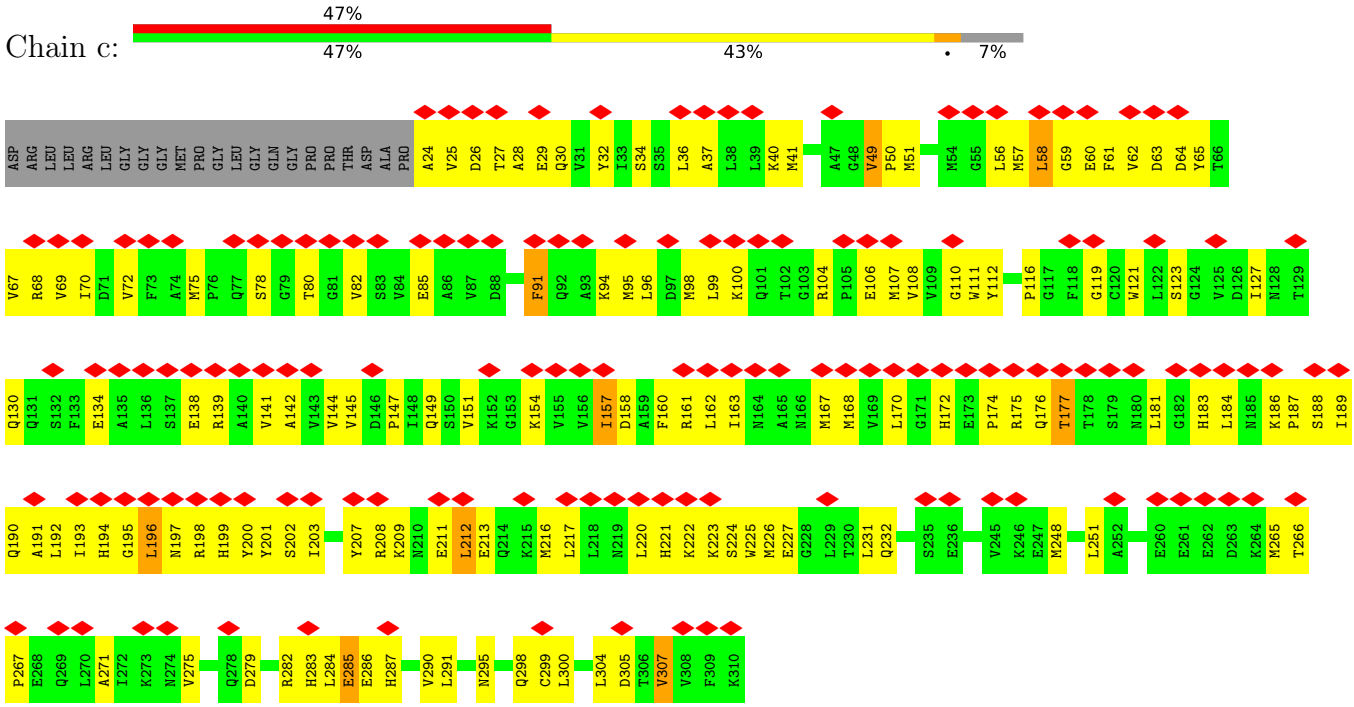
Mol	Chain	Residues	Atoms				AltConf
26	O	1	Total	C	N	O	0
			34	26	3	5	
26	R	1	Total	C	N	O	0
			34	26	3	5	
26	n	1	Total	C	N	O	0
			34	26	3	5	
26	o	1	Total	C	N	O	0
			34	26	3	5	
26	r	1	Total	C	N	O	0
			34	26	3	5	

3 Residue-property plots (i)

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

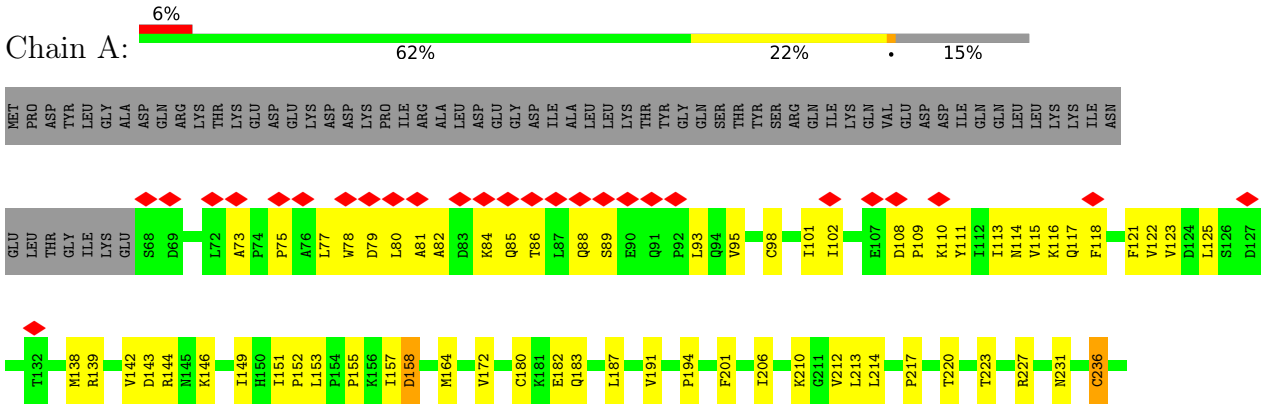
• Molecule 1: 26S proteasome non-ATPase regulatory subunit 14

Chain c:



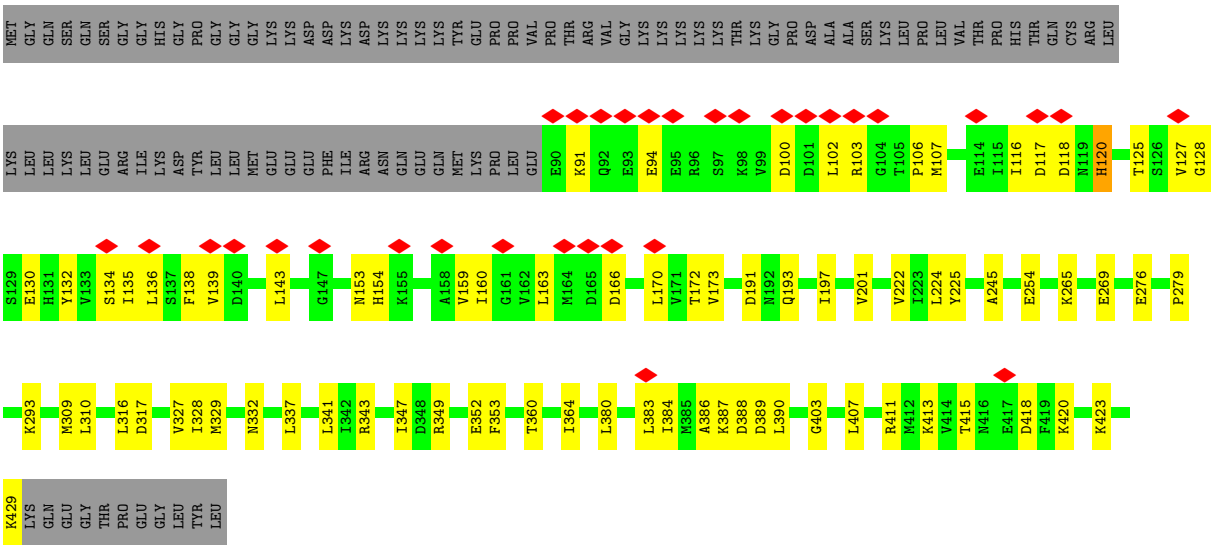
• Molecule 2: 26S proteasome regulatory subunit 7

Chain A:



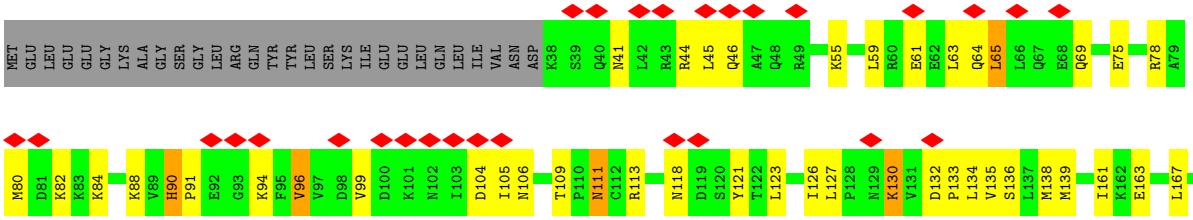
• Molecule 3: 26S proteasome regulatory subunit 4

Chain B:



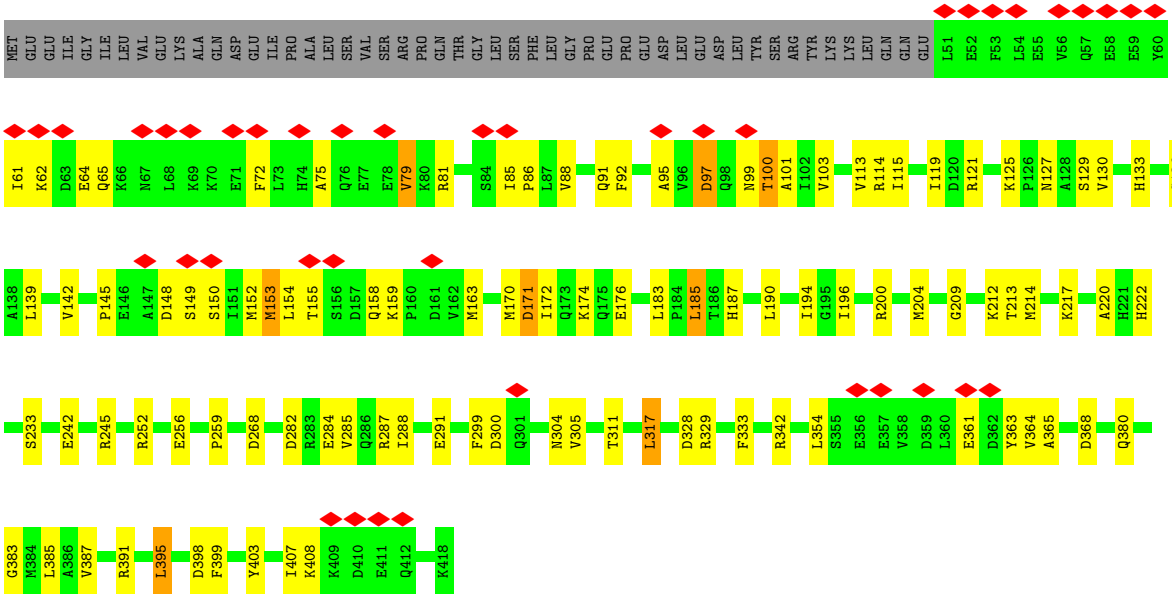
• Molecule 4: 26S proteasome regulatory subunit 8

Chain C:



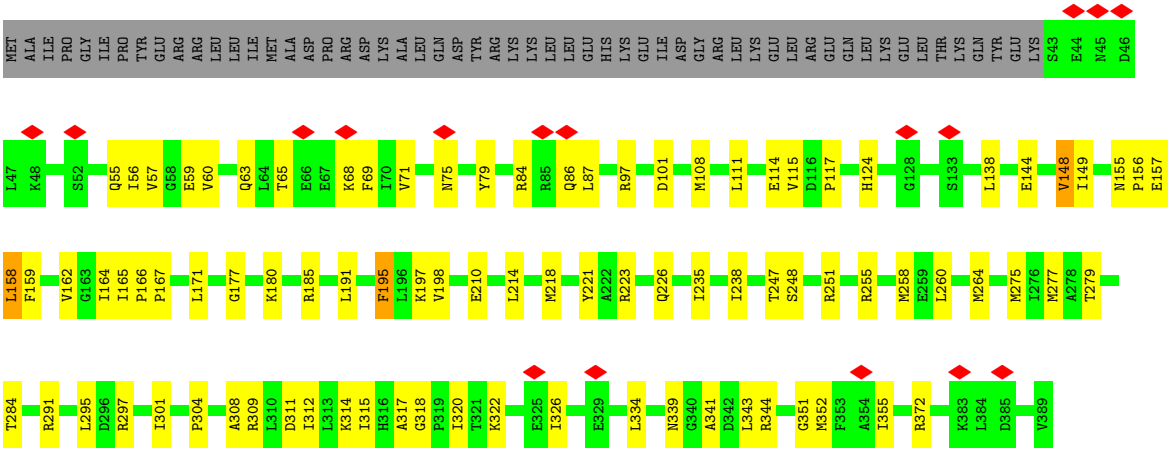
• Molecule 5: 26S proteasome regulatory subunit 6B

Chain D:



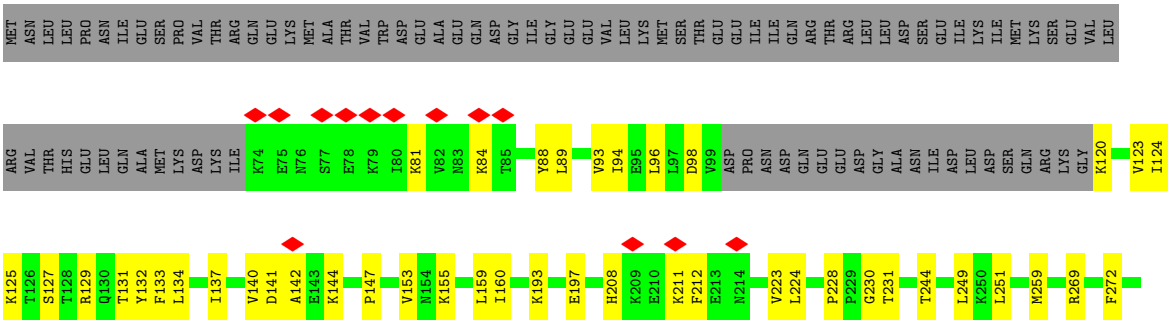
• Molecule 6: Proteasome 26S subunit, ATPase 6

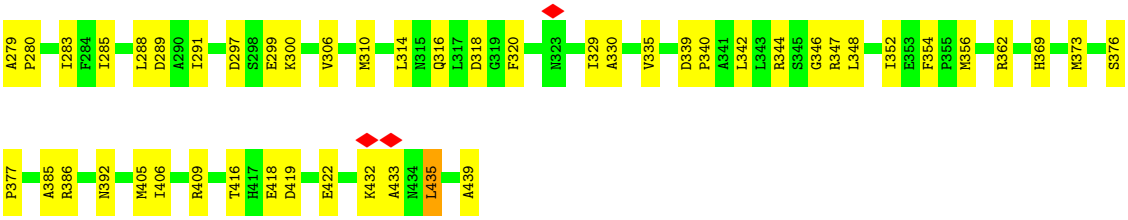
Chain E:



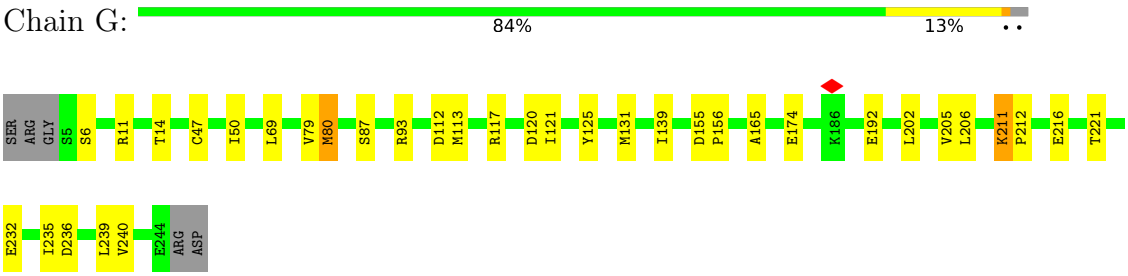
• Molecule 7: 26S proteasome regulatory subunit 6A

Chain F:

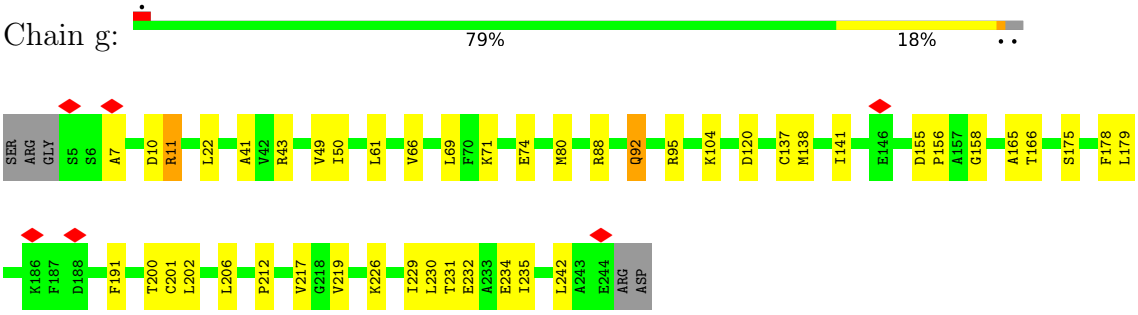




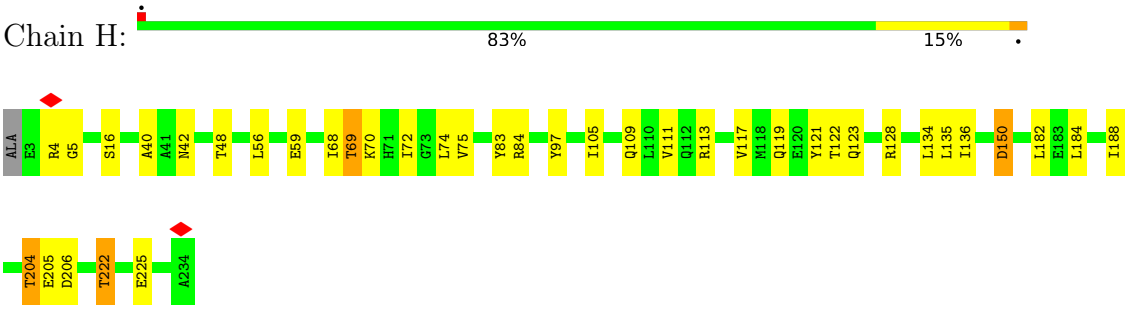
• Molecule 8: Proteasome subunit alpha type-6



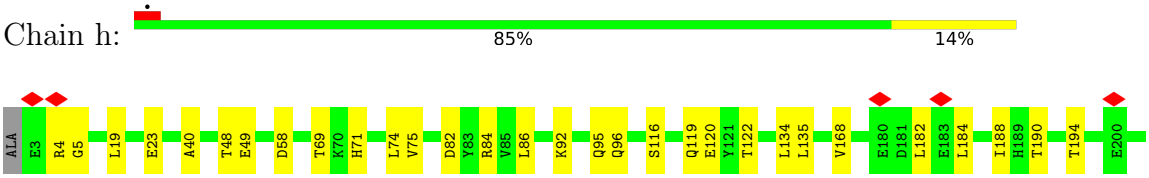
• Molecule 8: Proteasome subunit alpha type-6

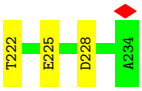


• Molecule 9: Proteasome subunit alpha type-2



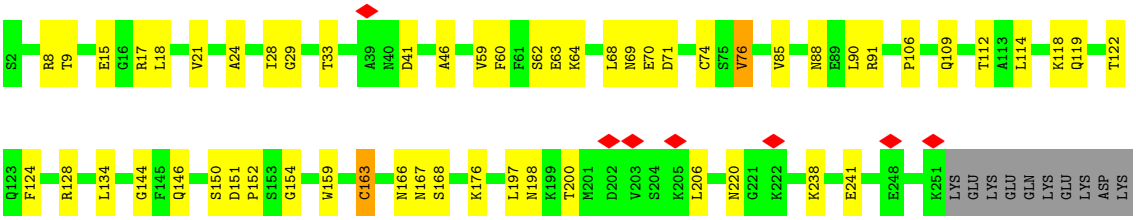
• Molecule 9: Proteasome subunit alpha type-2





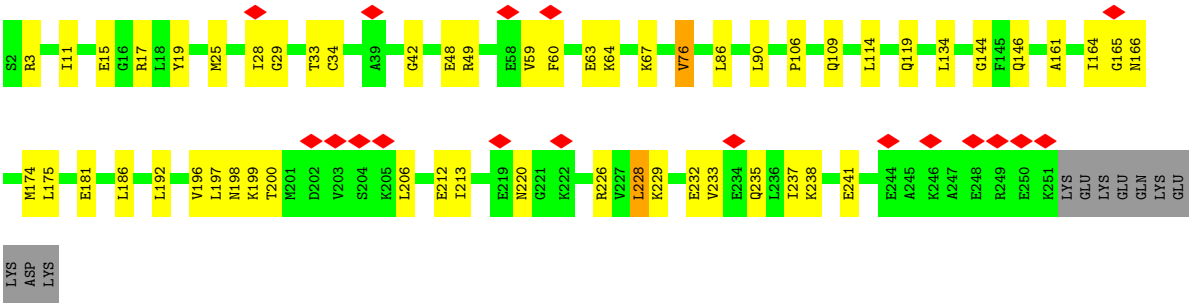
• Molecule 10: Proteasome subunit alpha type-4

Chain I:



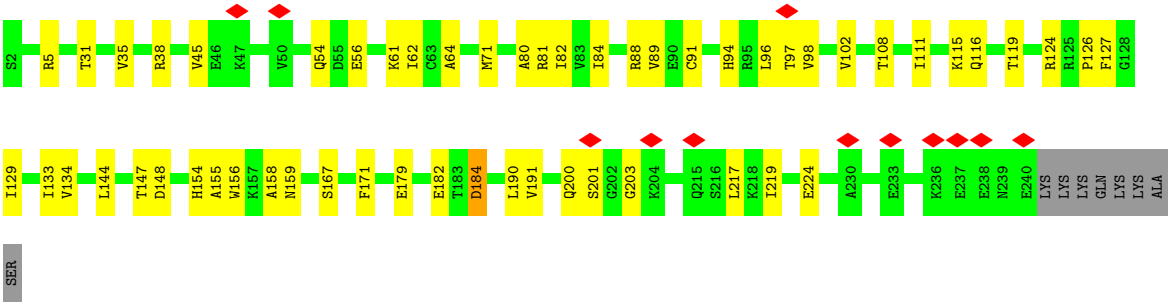
• Molecule 10: Proteasome subunit alpha type-4

Chain i:



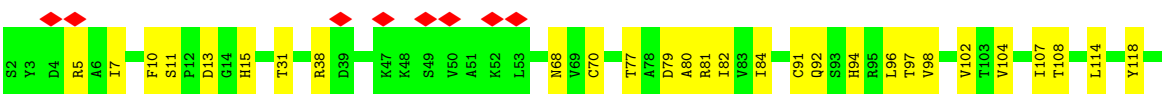
• Molecule 11: Proteasome subunit alpha type-7

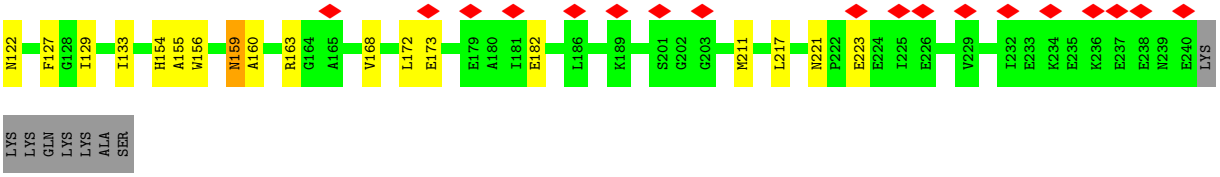
Chain J:



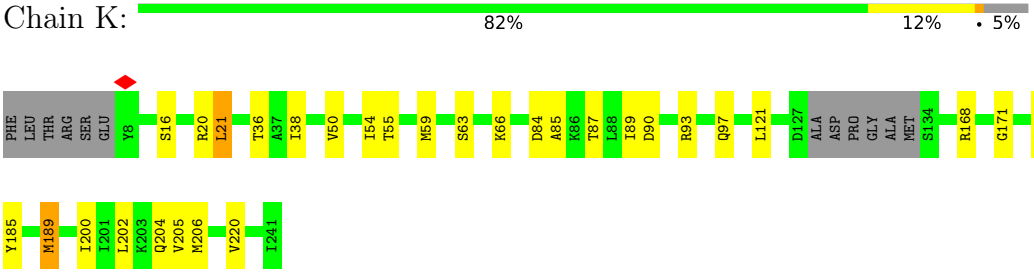
• Molecule 11: Proteasome subunit alpha type-7

Chain j:

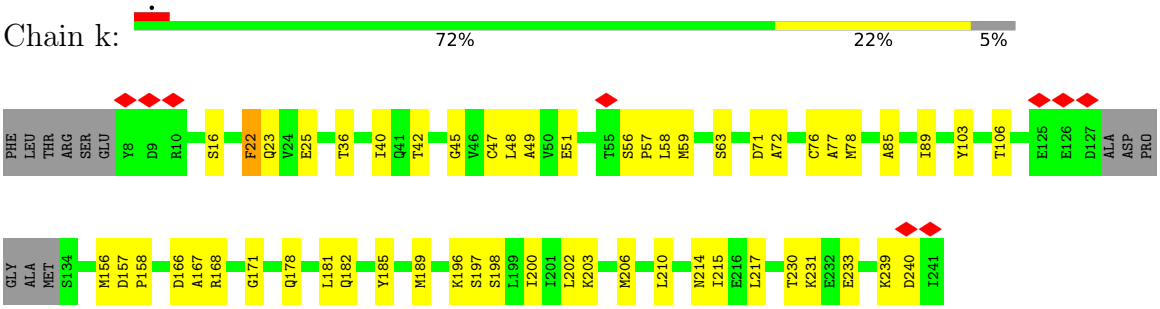




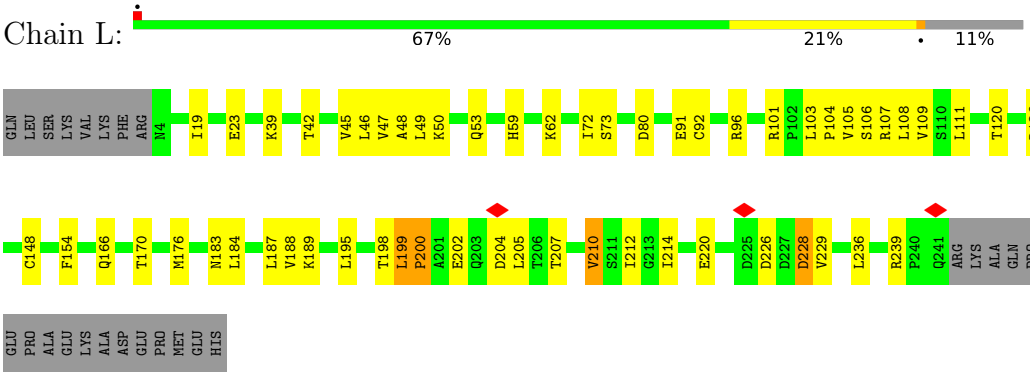
• Molecule 12: Proteasome subunit alpha type-5



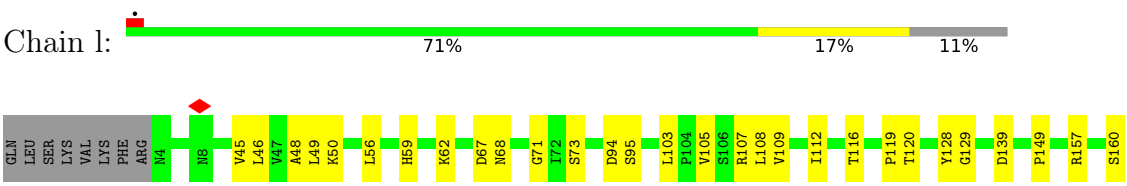
• Molecule 12: Proteasome subunit alpha type-5

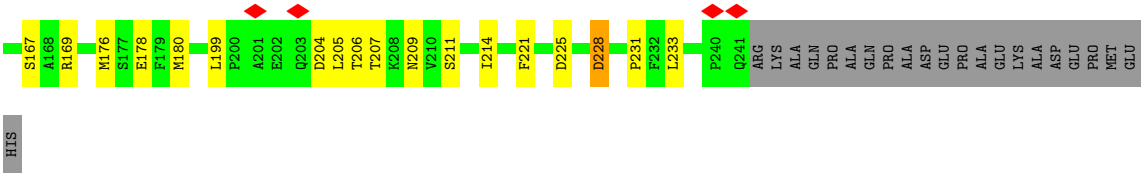


• Molecule 13: Isoform Long of Proteasome subunit alpha type-1



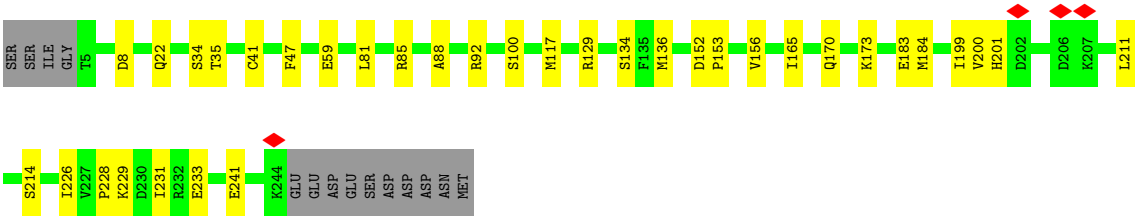
• Molecule 13: Isoform Long of Proteasome subunit alpha type-1





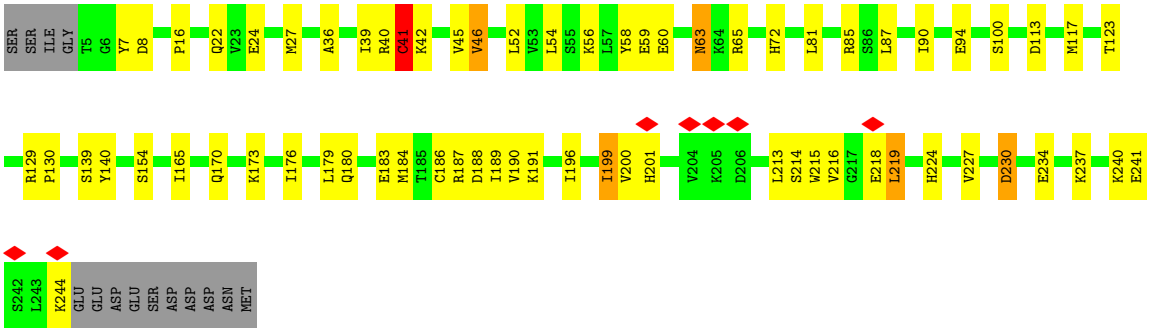
• Molecule 14: Proteasome subunit alpha type-3

Chain M:



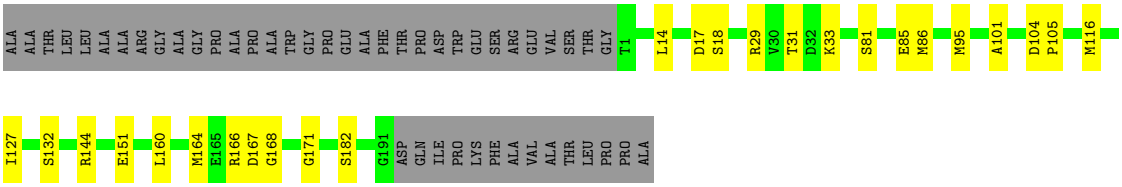
• Molecule 14: Proteasome subunit alpha type-3

Chain m:



• Molecule 15: Proteasome subunit beta type-6

Chain N:

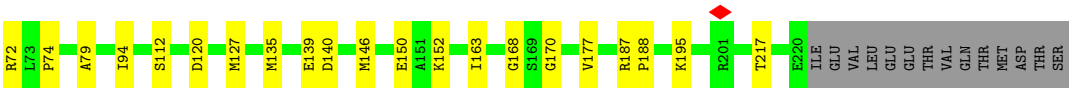


• Molecule 15: Proteasome subunit beta type-6

Chain n:

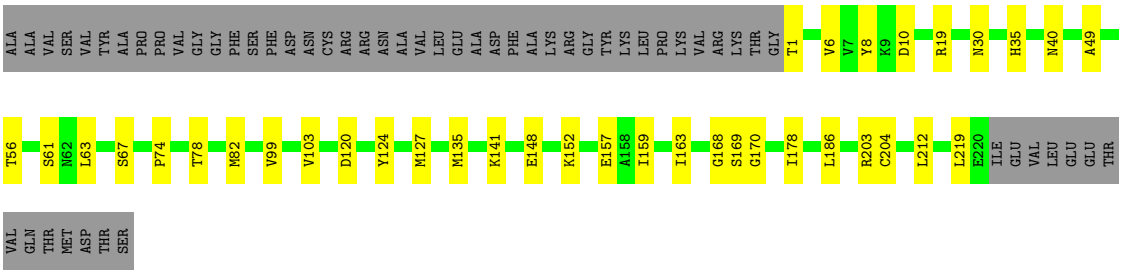
• Molecule 16: Proteasome subunit beta type-7

Chain O:



• Molecule 16: Proteasome subunit beta type-7

Chain o:

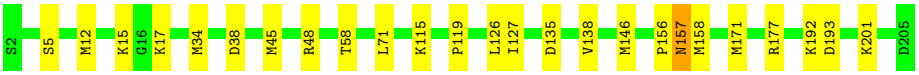


• Molecule 17: Proteasome subunit beta type-3

Chain P:

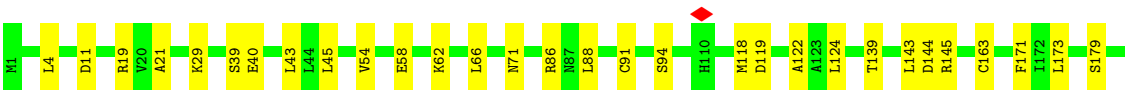
• Molecule 17: Proteasome subunit beta type-3

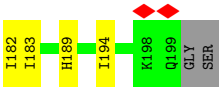
Chain p:



• Molecule 18: Proteasome subunit beta type-2

Chain Q:



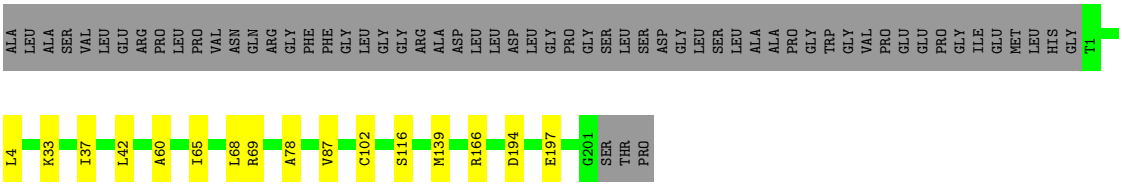


• Molecule 18: Proteasome subunit beta type-2

Chain q:

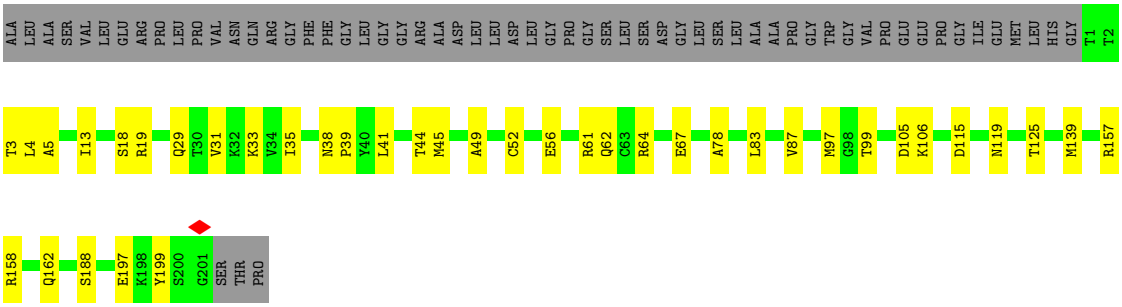
• Molecule 19: Proteasome subunit beta type-5

Chain R:



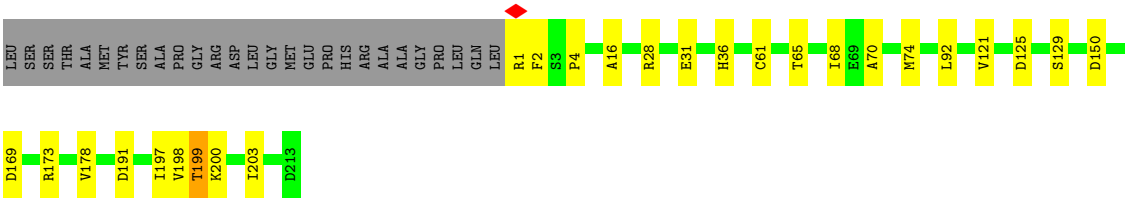
• Molecule 19: Proteasome subunit beta type-5

Chain r:



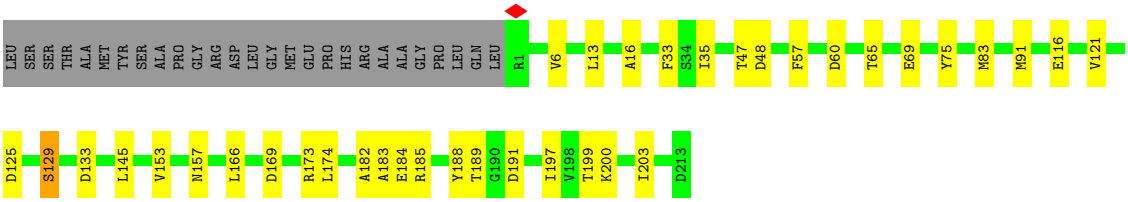
• Molecule 20: Proteasome subunit beta type-1

Chain S:



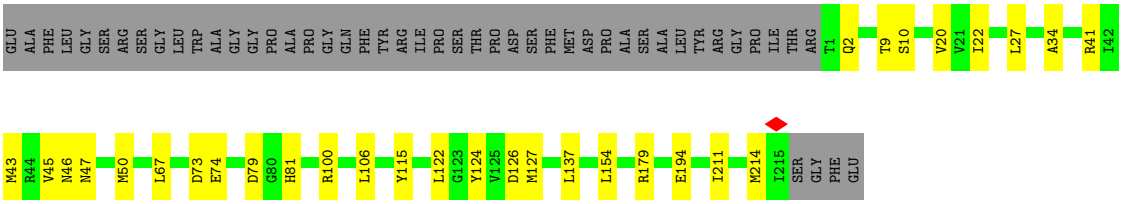
• Molecule 20: Proteasome subunit beta type-1

Chain s:



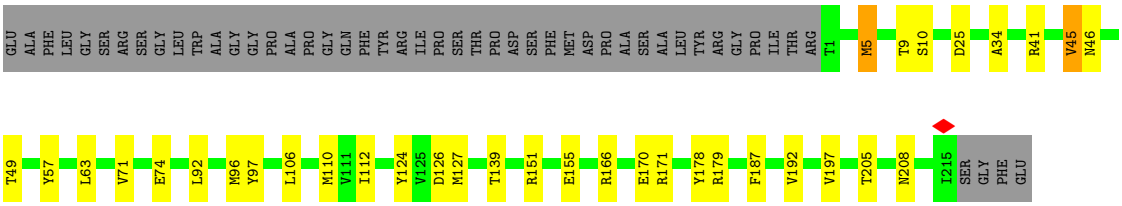
• Molecule 21: Proteasome subunit beta type-4

Chain T:



• Molecule 21: Proteasome subunit beta type-4

Chain t:



4 Experimental information (i)

Property	Value	Source
EM reconstruction method	SINGLE PARTICLE	Depositor
Imposed symmetry	POINT, Not provided	
Number of particles used	22379	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 ($e^-/Å^2$)	40	Depositor
Minimum defocus (nm)	1200	Depositor
Maximum defocus (nm)	1800	Depositor
Magnification	Not provided	
Image detector	GATAN K3 (6k x 4k)	Depositor
Maximum map value	1.094	Depositor
Minimum map value	-0.671	Depositor
Average map value	-0.000	Depositor
Map value standard deviation	0.042	Depositor
Recommended contour level	0.18	Depositor
Map size (Å)	510.0, 510.0, 510.0	wwPDB
Map dimensions	600, 600, 600	wwPDB
Map angles (°)	90.0, 90.0, 90.0	wwPDB
Pixel spacing (Å)	0.85, 0.85, 0.85	Depositor

5 Model quality

5.1 Standard geometry

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

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	0.34	0/2302	0.61	0/3110
2	A	0.26	0/2914	0.47	0/3937
3	B	0.16	0/2684	0.41	0/3623
4	C	0.16	0/2739	0.43	0/3684
5	D	0.26	0/2977	0.48	0/4019
6	E	0.17	0/2765	0.44	0/3730
7	F	0.19	0/2739	0.42	0/3694
8	G	0.16	0/1859	0.42	0/2523
8	g	0.29	0/1859	0.49	0/2523
9	H	0.16	0/1743	0.40	0/2372
9	h	0.14	0/1743	0.37	0/2372
10	I	0.17	0/1942	0.44	0/2628
10	i	0.15	0/1942	0.40	0/2628
11	J	0.16	0/1737	0.41	0/2369
11	j	0.27	0/1728	0.51	0/2358
12	K	0.17	0/1747	0.42	0/2364
12	k	0.26	0/1747	0.45	0/2364
13	L	0.23	0/1885	0.47	0/2552
13	l	0.16	0/1885	0.44	0/2552
14	M	0.27	0/1891	0.50	0/2552
14	m	0.25	0/1891	0.50	1/2552 (0.0%)
15	N	0.16	0/1454	0.37	0/1967
15	n	0.16	0/1454	0.37	0/1967
16	O	0.15	0/1670	0.37	0/2265
16	o	0.16	0/1670	0.38	0/2265
17	P	0.24	0/1620	0.45	0/2184
17	p	0.15	0/1620	0.34	0/2184
18	Q	0.17	0/1603	0.38	0/2174
18	q	0.21	0/1607	0.40	0/2178
19	R	0.15	0/1579	0.32	0/2134
19	r	0.29	0/1579	0.47	0/2134
20	S	0.23	0/1675	0.41	0/2257

Mol	Chain	Bond lengths		Bond angles	
		RMSZ	$\#\|Z\|>5$	RMSZ	$\#\|Z\|>5$
20	s	0.26	0/1674	0.46	0/2257
21	T	0.16	0/1700	0.38	0/2305
21	t	0.15	0/1700	0.35	0/2305
All	All	0.21	0/67324	0.44	1/91082 (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
14	m	0	1

There are no bond length outliers.

All (1) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
14	m	41	CYS	CB-CA-C	-5.35	109.36	117.07

There are no chirality outliers.

All (1) planarity outliers are listed below:

Mol	Chain	Res	Type	Group
14	m	40	ARG	Sidechain

5.2 Too-close contacts (i)

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

Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
1	c	2260	0	2276	139	0
2	A	2863	0	2895	77	0
3	B	2647	0	2685	57	0
4	C	2703	0	2806	71	0
5	D	2929	0	2966	84	0
6	E	2721	0	2771	69	0
7	F	2701	0	2770	69	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
8	G	1826	0	1796	24	0
8	g	1826	0	1796	33	0
9	H	1708	0	1594	29	0
9	h	1708	0	1594	18	0
10	I	1912	0	1851	33	0
10	i	1912	0	1851	36	0
11	J	1713	0	1537	37	0
11	j	1704	0	1517	31	0
12	K	1722	0	1673	27	0
12	k	1722	0	1673	39	0
13	L	1850	0	1822	37	0
13	l	1850	0	1822	29	0
14	M	1856	0	1816	23	0
14	m	1856	0	1816	53	0
15	N	1430	0	1398	17	0
15	n	1430	0	1398	18	0
16	O	1643	0	1644	23	0
16	o	1643	0	1644	22	0
17	P	1591	0	1609	22	0
17	p	1591	0	1609	19	0
18	Q	1570	0	1547	23	0
18	q	1574	0	1558	17	0
19	R	1548	0	1499	11	0
19	r	1548	0	1499	25	0
20	S	1645	0	1629	14	0
20	s	1644	0	1627	26	0
21	T	1667	0	1628	21	0
21	t	1667	0	1628	28	0
22	c	1	0	0	0	0
23	A	31	0	12	0	0
23	B	31	0	12	0	0
23	D	31	0	12	1	0
23	E	31	0	12	0	0
24	A	1	0	0	0	0
24	B	1	0	0	0	0
24	E	1	0	0	0	0
24	F	1	0	0	0	0
25	C	27	0	12	2	0
25	F	27	0	12	1	0
26	N	34	0	41	2	0
26	O	34	0	41	2	0
26	R	34	0	41	2	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
26	n	34	0	41	1	0
26	o	34	0	41	2	0
26	r	34	0	41	2	0
All	All	66567	0	65562	1178	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 9.

All (1178) 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)
11:j:96:LEU:HD13	18:q:62:LYS:HG2	1.53	0.90
10:I:69:ASN:OD1	10:I:70:GLU:N	2.06	0.89
16:o:163:ILE:HG23	16:o:170:GLY:HA2	1.55	0.88
8:g:191:PHE:HE2	8:g:219:VAL:HG21	1.41	0.85
10:i:63:GLU:HG2	10:i:64:LYS:HG3	1.61	0.83
1:c:25:VAL:HB	1:c:28:ALA:HB3	1.61	0.82
6:E:264:MET:HG2	6:E:275:MET:HE1	1.61	0.81
5:D:380:GLN:HA	6:E:164:ILE:HD11	1.63	0.81
15:N:18:SER:HB2	15:N:31:THR:H	1.45	0.80
1:c:224:SER:HB3	1:c:227:GLU:HG2	1.64	0.79
1:c:195:GLY:HA2	1:c:198:ARG:HB3	1.64	0.79
1:c:248:MET:HE1	1:c:284:LEU:HA	1.64	0.79
12:k:48:LEU:HD21	12:k:77:ALA:HB2	1.63	0.79
1:c:104:ARG:H	1:c:104:ARG:HD3	1.46	0.78
3:B:103:ARG:HB3	3:B:160:ILE:HG21	1.67	0.76
14:m:63:ASN:O	14:m:63:ASN:ND2	2.13	0.76
14:M:47:PHE:HB2	14:M:214:SER:HB2	1.68	0.76
10:i:90:LEU:HD23	10:i:114:LEU:HD22	1.66	0.76
7:F:435:LEU:HD21	12:K:20:ARG:HB3	1.67	0.76
4:C:90:HIS:HD2	4:C:91:PRO:HD2	1.51	0.75
8:G:80:MET:HG3	8:G:87:SER:HB2	1.68	0.75
5:D:145:PRO:HG2	5:D:256:GLU:HG2	1.69	0.75
14:m:63:ASN:HD22	14:m:63:ASN:C	1.95	0.74
1:c:248:MET:HE3	1:c:287:HIS:HB2	1.69	0.74
7:F:418:GLU:OE2	7:F:418:GLU:N	2.19	0.74
1:c:41:MET:HE2	1:c:41:MET:HA	1.69	0.74
4:C:224:ILE:HD11	4:C:234:LEU:HA	1.69	0.74
1:c:163:ILE:HD11	1:c:201:TYR:HB3	1.69	0.73
10:I:106:PRO:HD2	10:I:109:GLN:HE21	1.53	0.73
20:s:116:GLU:N	20:s:116:GLU:OE1	2.21	0.73

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
6:E:177:GLY:HA2	7:F:344:ARG:HH21	1.53	0.73
14:m:214:SER:OG	14:m:224:HIS:NE2	2.21	0.73
5:D:155:THR:HA	5:D:159:LYS:HD3	1.70	0.73
4:C:69:GLN:HB3	4:C:118:ASN:HD21	1.54	0.72
13:l:48:ALA:HB1	13:l:62:LYS:HE3	1.69	0.72
11:j:38:ARG:HH12	11:j:182:GLU:HA	1.54	0.72
4:C:375:ARG:NH2	4:C:382:ASP:OD2	2.23	0.72
4:C:235:PHE:O	4:C:239:ARG:HG2	1.90	0.71
16:O:195:LYS:HG3	20:s:184:GLU:OE2	1.90	0.71
12:K:202:LEU:O	12:K:206:MET:HG3	1.89	0.71
18:q:37:LYS:O	18:q:61:GLN:NE2	2.23	0.71
1:c:275:VAL:HG12	5:D:121:ARG:HB3	1.71	0.71
15:N:17:ASP:OD2	15:N:33:LYS:NZ	2.23	0.71
5:D:329:ARG:HA	5:D:329:ARG:HH11	1.56	0.70
12:k:182:GLN:HG2	13:l:56:LEU:HD11	1.72	0.70
1:c:163:ILE:H	1:c:200:TYR:HA	1.57	0.70
4:C:99:VAL:HA	4:C:123:LEU:HB2	1.74	0.70
12:k:71:ASP:OD1	12:k:72:ALA:N	2.21	0.70
6:E:372:ARG:HD3	14:M:170:GLN:HB3	1.73	0.70
8:g:230:LEU:HD22	8:g:234:GLU:HG3	1.72	0.70
3:B:107:MET:HB3	4:C:96:VAL:HG13	1.74	0.69
5:D:242:GLU:OE2	5:D:245:ARG:NH2	2.25	0.69
6:E:284:THR:HG22	7:F:297:ASP:HB2	1.73	0.69
14:m:65:ARG:HH12	14:m:81:LEU:HD21	1.57	0.69
19:r:197:GLU:OE2	19:r:197:GLU:N	2.24	0.69
4:C:90:HIS:CD2	4:C:91:PRO:HD2	2.26	0.69
11:J:156:TRP:CG	11:J:159:ASN:HD21	2.10	0.69
2:A:149:ILE:HD12	2:A:149:ILE:H	1.57	0.69
5:D:115:ILE:HG22	5:D:139:LEU:HD13	1.75	0.69
6:E:308:ALA:O	6:E:312:ILE:HG13	1.93	0.69
13:l:120:THR:O	14:m:129:ARG:NH2	2.25	0.69
4:C:59:LEU:HD22	5:D:75:ALA:HB1	1.75	0.69
7:F:96:LEU:HD21	7:F:142:ALA:HB1	1.74	0.69
6:E:97:ARG:HE	6:E:111:LEU:HB2	1.57	0.68
20:S:4:PRO:O	21:T:100:ARG:NH2	2.22	0.68
14:m:179:LEU:HD12	14:m:184:MET:HE1	1.76	0.68
16:o:141:LYS:NZ	16:o:157:GLU:OE1	2.24	0.68
1:c:108:VAL:HG22	1:c:110:GLY:H	1.59	0.68
1:c:25:VAL:HA	1:c:176:GLN:O	1.93	0.68
11:J:154:HIS:NE2	12:K:59:MET:SD	2.64	0.68
1:c:251:LEU:HD21	1:c:283:HIS:HB3	1.75	0.68

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:A:151:ILE:HD12	2:A:152:PRO:HD2	1.76	0.67
14:m:39:ILE:HD11	14:m:189:ILE:HD12	1.76	0.67
15:n:167:ASP:OD2	15:n:168:GLY:N	2.27	0.67
2:A:265:ARG:NH1	2:A:312:ARG:O	2.27	0.67
7:F:94:ILE:HD11	7:F:125:LYS:HB2	1.76	0.67
2:A:85:GLN:HA	2:A:88:GLN:HB2	1.76	0.67
5:D:159:LYS:NZ	5:D:220:ALA:O	2.28	0.67
8:g:120:ASP:OD1	9:h:84:ARG:NH1	2.27	0.67
13:l:107:ARG:NH2	21:t:74:GLU:OE2	2.27	0.67
15:n:18:SER:HB2	15:n:31:THR:H	1.59	0.67
13:l:160:SER:O	13:l:169:ARG:NH1	2.27	0.67
4:C:163:GLU:HA	4:C:167:LEU:HD13	1.77	0.67
11:j:98:VAL:HG13	19:r:78:ALA:HB2	1.77	0.67
14:m:7:TYR:HD2	14:m:16:PRO:HD3	1.59	0.67
5:D:92:PHE:HA	5:D:103:VAL:HG12	1.75	0.67
17:P:65:GLN:OE1	18:Q:86:ARG:NH2	2.28	0.66
20:S:16:ALA:HB2	20:S:121:VAL:HG23	1.76	0.66
5:D:113:VAL:HG22	5:D:114:ARG:H	1.60	0.66
1:c:116:PRO:HA	1:c:147:PRO:HD2	1.76	0.66
1:c:141:VAL:HG23	1:c:203:ILE:HD12	1.77	0.66
7:F:137:ILE:HG23	7:F:160:ILE:HD11	1.76	0.66
1:c:196:LEU:HA	1:c:200:TYR:CE1	2.31	0.66
7:F:272:PHE:HB2	7:F:316:GLN:HE21	1.61	0.66
12:k:202:LEU:O	12:k:206:MET:HG2	1.96	0.66
13:l:176:MET:SD	14:m:56:LYS:HE3	2.36	0.65
2:A:116:LYS:HG3	2:A:117:GLN:HG2	1.78	0.65
14:m:56:LYS:HD2	14:m:56:LYS:O	1.97	0.65
19:r:45:MET:HG2	19:r:52:CYS:HB3	1.77	0.65
15:N:29:ARG:NH1	16:O:139:GLU:OE1	2.30	0.65
8:g:92:GLN:NE2	15:n:69:GLU:OE1	2.29	0.65
2:A:81:ALA:HB3	3:B:138:PHE:CE2	2.32	0.65
2:A:113:ILE:HD11	2:A:142:VAL:HG11	1.78	0.65
10:I:118:LYS:NZ	10:I:150:SER:OG	2.30	0.65
21:T:9:THR:O	21:T:41:ARG:NH2	2.29	0.65
10:i:106:PRO:HD2	10:i:109:GLN:HE21	1.59	0.65
1:c:149:GLN:OE1	5:D:81:ARG:NH1	2.29	0.65
6:E:144:GLU:OE2	6:E:297:ARG:NH2	2.30	0.65
11:J:38:ARG:HH12	11:J:182:GLU:HA	1.61	0.65
5:D:133:HIS:ND1	5:D:136:SER:OG	2.30	0.65
13:L:204:ASP:HB2	13:L:205:LEU:HD22	1.79	0.64
1:c:40:LYS:HZ1	1:c:72:VAL:HB	1.60	0.64

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
3:B:135:ILE:HA	3:B:159:VAL:HB	1.78	0.64
9:H:184:LEU:O	9:H:188:ILE:HD12	1.96	0.64
3:B:159:VAL:C	3:B:160:ILE:HD13	2.23	0.64
13:l:67:ASP:OD1	13:l:68:ASN:N	2.28	0.64
21:t:25:ASP:OD1	21:t:41:ARG:NH1	2.29	0.64
6:E:171:LEU:HB2	6:E:295:LEU:HD13	1.80	0.64
1:c:213:GLU:N	1:c:213:GLU:OE2	2.31	0.64
4:C:46:GLN:HA	5:D:61:ILE:HG21	1.79	0.64
21:T:79:ASP:OD2	21:T:81:HIS:ND1	2.30	0.64
2:A:180:CYS:HB2	2:A:183:GLN:HB2	1.80	0.64
10:I:124:PHE:HB3	11:J:124:ARG:HG3	1.80	0.64
12:k:166:ASP:OD1	12:k:166:ASP:N	2.31	0.64
2:A:172:VAL:O	2:A:231:ASN:ND2	2.31	0.64
12:K:55:THR:H	12:K:59:MET:HE1	1.63	0.63
4:C:113:ARG:HB2	4:C:127:LEU:HB2	1.80	0.63
4:C:373:GLU:OE2	4:C:375:ARG:NH1	2.31	0.63
6:E:101:ASP:HB2	6:E:108:MET:HE1	1.80	0.63
5:D:99:ASN:HA	5:D:115:ILE:HG12	1.80	0.63
1:c:195:GLY:HA2	1:c:198:ARG:CB	2.29	0.63
12:K:185:TYR:HA	12:K:189:MET:HE3	1.80	0.63
6:E:84:ARG:HB2	6:E:87:LEU:HD13	1.80	0.63
14:m:183:GLU:N	14:m:183:GLU:OE2	2.31	0.63
7:F:310:MET:HE1	7:F:339:ASP:HB2	1.81	0.62
6:E:214:LEU:O	6:E:218:MET:HG3	1.98	0.62
11:J:97:THR:HG22	11:J:98:VAL:H	1.64	0.62
4:C:41:ASN:O	4:C:44:ARG:NH1	2.32	0.62
6:E:124:HIS:O	6:E:124:HIS:ND1	2.31	0.62
6:E:322:LYS:HD3	6:E:326:ILE:HD12	1.81	0.62
20:S:150:ASP:OD2	17:p:177:ARG:NH2	2.28	0.62
1:c:151:VAL:HG22	1:c:154:LYS:HB3	1.81	0.62
1:c:26:ASP:HB3	1:c:175:ARG:HB2	1.82	0.62
2:A:86:THR:HG22	3:B:102:LEU:HD12	1.82	0.62
2:A:115:VAL:HG21	2:A:118:PHE:HB2	1.80	0.62
5:D:155:THR:H	5:D:158:GLN:HB2	1.64	0.62
14:m:180:GLN:O	14:m:184:MET:HE2	1.99	0.62
10:i:42:GLY:HA3	10:i:186:LEU:HD22	1.81	0.61
11:J:98:VAL:HG13	19:R:78:ALA:HB2	1.83	0.61
5:D:380:GLN:HE21	6:E:167:PRO:HD3	1.64	0.61
5:D:385:LEU:HD23	5:D:398:ASP:HA	1.82	0.61
18:Q:144:ASP:OD2	19:r:162:GLN:NE2	2.33	0.61
1:c:27:THR:C	1:c:177:THR:HG21	2.25	0.61

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
4:C:55:LYS:HZ3	5:D:72:PHE:HD1	1.47	0.61
6:E:75:ASN:HA	7:F:129:ARG:NH1	2.15	0.61
7:F:224:LEU:HB2	7:F:348:LEU:HD13	1.83	0.61
9:H:74:LEU:HD21	9:H:134:LEU:HD22	1.82	0.61
8:g:200:THR:HG23	8:g:242:LEU:HD11	1.82	0.61
4:C:191:PRO:HG2	4:C:319:PRO:HG3	1.82	0.61
5:D:284:GLU:O	5:D:288:ILE:HG12	2.00	0.61
10:I:59:VAL:HG22	10:I:60:PHE:H	1.65	0.61
5:D:129:SER:OG	5:D:252:ARG:NH1	2.33	0.61
10:I:68:LEU:HD22	10:I:90:LEU:HD11	1.82	0.61
14:M:136:MET:HE2	14:M:165:ILE:HG12	1.82	0.61
19:r:52:CYS:SG	19:r:97:MET:HG2	2.40	0.61
7:F:279:ALA:HB3	7:F:280:PRO:HD3	1.83	0.61
12:k:103:TYR:HE1	20:s:91:MET:HE2	1.66	0.61
14:m:56:LYS:HD2	14:m:56:LYS:C	2.25	0.61
12:K:20:ARG:HG2	12:K:21:LEU:H	1.65	0.61
21:t:192:VAL:HG12	21:t:197:VAL:HG22	1.82	0.61
2:A:351:ARG:NH1	2:A:378:PRO:O	2.34	0.61
3:B:91:LYS:HA	3:B:94:GLU:HB3	1.82	0.61
4:C:75:GLU:HG2	4:C:88:LYS:HB2	1.83	0.61
1:c:24:ALA:HB1	1:c:176:GLN:NE2	2.15	0.60
21:T:27:LEU:HD11	21:T:34:ALA:HB1	1.83	0.60
14:m:60:GLU:OE1	14:m:60:GLU:N	2.29	0.60
2:A:113:ILE:HG22	2:A:121:PHE:H	1.66	0.60
6:E:75:ASN:HA	7:F:129:ARG:HH12	1.65	0.60
1:c:161:ARG:HB3	1:c:201:TYR:CZ	2.37	0.60
12:K:36:THR:HA	12:K:171:GLY:HA3	1.83	0.60
13:l:45:VAL:HG13	13:l:214:ILE:HG13	1.83	0.60
11:j:108:THR:HG22	11:j:133:ILE:HD13	1.83	0.60
16:O:67:SER:HB2	16:O:74:PRO:HG3	1.82	0.60
14:m:184:MET:HE3	14:m:189:ILE:HD11	1.84	0.60
1:c:32:TYR:HB3	1:c:68:ARG:HH21	1.67	0.60
5:D:214:MET:HE1	23:D:501:ATP:C4	2.36	0.60
5:D:200:ARG:NH1	5:D:305:VAL:O	2.34	0.59
5:D:91:GLN:NE2	5:D:127:ASN:OD1	2.35	0.59
7:F:129:ARG:O	7:F:129:ARG:HD3	2.02	0.59
12:K:20:ARG:H	12:K:20:ARG:HD2	1.67	0.59
4:C:239:ARG:NH2	4:C:284:GLU:OE1	2.36	0.59
17:P:7:ASN:ND2	17:P:29:GLY:O	2.36	0.59
18:Q:88:LEU:HB3	18:Q:122:ALA:HB2	1.84	0.59
1:c:134:GLU:HB2	1:c:138:GLU:HA	1.83	0.59

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
3:B:254:GLU:OE2	4:C:232:ARG:NH1	2.35	0.59
10:I:154:GLY:O	11:J:81:ARG:NH2	2.35	0.59
10:I:109:GLN:OE1	18:Q:71:ASN:ND2	2.35	0.59
11:J:45:VAL:HG22	11:J:62:ILE:HD11	1.84	0.59
12:k:167:ALA:HB3	13:l:56:LEU:HD22	1.85	0.58
16:o:78:THR:O	16:o:82:MET:HG3	2.03	0.58
19:r:105:ASP:OD2	19:r:106:LYS:N	2.34	0.58
3:B:222:VAL:HG22	3:B:349:ARG:HB2	1.84	0.58
7:F:439:ALA:HB1	13:L:62:LYS:HD3	1.85	0.58
11:J:111:ILE:O	11:J:115:LYS:HG3	2.03	0.58
14:M:117:MET:HE2	14:M:117:MET:HA	1.85	0.58
21:T:211:ILE:HA	21:T:214:MET:HE3	1.85	0.58
18:q:88:LEU:HB3	18:q:122:ALA:HB2	1.85	0.58
1:c:50:PRO:HG3	6:E:84:ARG:HD3	1.85	0.58
16:O:47:GLY:N	26:O:301:LDZ:O33	2.37	0.58
12:k:36:THR:HA	12:k:171:GLY:HA3	1.84	0.58
3:B:380:LEU:HA	3:B:383:LEU:HD12	1.84	0.58
5:D:62:LYS:O	5:D:65:GLN:NE2	2.35	0.58
7:F:433:ALA:HB3	12:K:20:ARG:HH22	1.69	0.58
15:N:166:ARG:NH2	15:n:140:ASP:OD2	2.37	0.58
13:l:205:LEU:HB3	13:l:233:LEU:HD11	1.85	0.58
5:D:213:THR:HG22	5:D:217:LYS:HE3	1.86	0.58
19:r:61:ARG:NH1	19:r:62:GLN:OE1	2.36	0.58
1:c:212:LEU:HB2	1:c:213:GLU:OE2	2.04	0.58
9:H:70:LYS:HD2	9:H:70:LYS:O	2.02	0.58
18:q:119:ASP:OD2	18:q:119:ASP:N	2.37	0.58
4:C:273:MET:CE	4:C:293:MET:HB2	2.33	0.58
5:D:163:MET:HA	5:D:222:HIS:HE1	1.69	0.58
13:L:45:VAL:HG11	13:L:188:VAL:HG22	1.85	0.58
13:l:178:GLU:OE1	13:l:178:GLU:N	2.36	0.58
6:E:210:GLU:OE2	6:E:210:GLU:N	2.36	0.58
15:N:160:LEU:O	15:N:164:MET:HG3	2.04	0.58
10:i:3:ARG:HB2	11:j:5:ARG:HH22	1.69	0.58
13:l:204:ASP:OD1	13:l:204:ASP:N	2.34	0.58
14:m:8:ASP:O	14:m:22:GLN:NE2	2.34	0.58
15:n:58:ALA:O	15:n:62:GLN:HG3	2.04	0.58
1:c:40:LYS:NZ	1:c:72:VAL:HB	2.19	0.57
3:B:166:ASP:OD1	4:C:78:ARG:NH1	2.36	0.57
6:E:260:LEU:HG	6:E:264:MET:HE3	1.86	0.57
10:i:76:VAL:HG23	10:i:134:LEU:HB3	1.86	0.57
1:c:27:THR:HB	1:c:177:THR:HG21	1.86	0.57

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
8:G:202:LEU:HA	8:G:205:VAL:HG12	1.86	0.57
13:L:49:LEU:HD21	13:L:199:LEU:HD11	1.86	0.57
12:k:157:ASP:OD1	12:k:158:PRO:HD2	2.03	0.57
16:o:219:LEU:HD23	17:p:48:ARG:NH1	2.19	0.57
8:G:117:ARG:O	8:G:121:ILE:HD12	2.05	0.57
10:I:159:TRP:HA	11:J:54:GLN:HA	1.86	0.57
10:I:198:ASN:HA	10:I:206:LEU:HD21	1.85	0.57
16:O:112:SER:HB2	16:O:127:MET:HE2	1.86	0.57
11:J:224:GLU:OE1	11:J:224:GLU:N	2.30	0.57
1:c:160:PHE:HD1	1:c:202:SER:HA	1.69	0.57
8:g:217:VAL:HG23	8:g:230:LEU:HB2	1.87	0.57
1:c:57:MET:SD	1:c:69:VAL:HG21	2.45	0.57
14:M:134:SER:HB3	14:M:153:PRO:HD3	1.87	0.57
15:n:45:ARG:HD2	15:n:52:THR:HB	1.85	0.57
2:A:277:ILE:HG21	2:A:319:MET:HG2	1.85	0.57
14:m:63:ASN:ND2	14:m:63:ASN:C	2.62	0.56
11:j:97:THR:HG22	11:j:98:VAL:H	1.70	0.56
1:c:41:MET:HE1	1:c:112:TYR:CE1	2.41	0.56
1:c:60:GLU:OE2	1:c:106:GLU:HG3	2.05	0.56
1:c:145:VAL:HG12	1:c:147:PRO:HD3	1.87	0.56
1:c:265:MET:HE2	1:c:265:MET:HA	1.87	0.56
5:D:113:VAL:HG21	5:D:137:ASN:O	2.05	0.56
8:g:7:ALA:N	8:g:10:ASP:OD1	2.32	0.56
8:g:49:VAL:HG22	8:g:219:VAL:HG23	1.87	0.56
9:h:4:ARG:NH1	9:h:5:GLY:O	2.39	0.56
14:m:7:TYR:CD2	14:m:16:PRO:HD3	2.39	0.56
11:j:168:VAL:O	11:j:172:LEU:HD12	2.05	0.56
12:k:185:TYR:HA	12:k:189:MET:HE3	1.86	0.56
1:c:300:LEU:O	1:c:304:LEU:HG	2.06	0.56
11:J:217:LEU:HD23	11:J:217:LEU:H	1.70	0.56
1:c:163:ILE:HB	1:c:199:HIS:O	2.06	0.56
17:p:17:LYS:HD3	17:p:157:ASN:HB3	1.85	0.56
20:s:145:LEU:HD21	20:s:182:ALA:HB2	1.88	0.56
1:c:41:MET:SD	1:c:145:VAL:HG21	2.45	0.56
3:B:380:LEU:O	3:B:384:ILE:HG23	2.05	0.56
18:q:139:THR:HB	18:q:163:CYS:SG	2.45	0.56
19:r:5:ALA:HA	19:r:13:ILE:O	2.05	0.56
19:r:157:ARG:NH1	19:r:188:SER:OG	2.39	0.56
7:F:369:HIS:NE2	25:F:501:ADP:O2'	2.39	0.56
18:Q:139:THR:HB	18:Q:163:CYS:SG	2.46	0.56
11:j:13:ASP:OD1	11:j:15:HIS:ND1	2.35	0.56

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
10:i:206:LEU:HB3	10:i:237:ILE:HD13	1.88	0.56
10:I:163:CYS:SG	10:I:168:SER:HA	2.45	0.55
1:c:265:MET:SD	1:c:266:THR:HG22	2.46	0.55
11:j:11:SER:HB3	11:j:15:HIS:H	1.70	0.55
1:c:221:HIS:HB3	1:c:223:LYS:HE2	1.89	0.55
2:A:75:PRO:HA	2:A:78:TRP:HB2	1.87	0.55
2:A:143:ASP:OD2	2:A:146:LYS:HE2	2.07	0.55
3:B:139:VAL:HB	3:B:160:ILE:O	2.07	0.55
3:B:265:LYS:O	3:B:269:GLU:HG3	2.05	0.55
6:E:86:GLN:O	6:E:86:GLN:HG3	2.06	0.55
7:F:98:ASP:HA	7:F:120:LYS:HB2	1.88	0.55
8:G:125:TYR:HA	8:G:131:MET:HE2	1.87	0.55
12:K:20:ARG:HG2	12:K:21:LEU:N	2.22	0.55
11:j:68:ASN:HA	11:j:211:MET:HE1	1.89	0.55
5:D:85:ILE:HG23	5:D:86:PRO:HD3	1.89	0.55
7:F:386:ARG:HH12	13:L:170:THR:HG22	1.70	0.55
2:A:77:LEU:HA	2:A:80:LEU:HD23	1.87	0.55
4:C:371:LEU:HD21	5:D:183:LEU:HD11	1.88	0.55
14:M:152:ASP:OD2	14:M:153:PRO:HD2	2.06	0.55
10:i:197:LEU:HA	10:i:200:THR:HG22	1.89	0.55
1:c:29:GLU:CD	1:c:203:ILE:HA	2.32	0.55
8:g:80:MET:HE2	8:g:80:MET:HA	1.88	0.55
14:m:170:GLN:HA	14:m:173:LYS:HE3	1.88	0.55
1:c:27:THR:HG22	1:c:181:LEU:HB3	1.89	0.55
1:c:36:LEU:O	1:c:40:LYS:HG3	2.07	0.55
1:c:197:ASN:HA	1:c:200:TYR:O	2.07	0.55
5:D:99:ASN:O	5:D:114:ARG:HB3	2.07	0.55
5:D:282:ASP:OD2	6:E:251:ARG:NH2	2.40	0.55
7:F:386:ARG:NH2	13:L:166:GLN:OE1	2.38	0.54
16:O:51:ASP:HB3	16:O:94:ILE:HG23	1.88	0.54
9:h:184:LEU:O	9:h:188:ILE:HG13	2.06	0.54
10:I:68:LEU:HD11	10:I:74:CYS:HB3	1.88	0.54
2:A:116:LYS:HZ2	3:B:130:GLU:HB2	1.72	0.54
7:F:318:ASP:HB3	7:F:347:ARG:HG2	1.90	0.54
16:O:63:LEU:HD11	16:O:79:ALA:HB2	1.89	0.54
18:Q:39:SER:OG	18:Q:40:GLU:N	2.39	0.54
2:A:214:LEU:HD23	2:A:343:PHE:HE2	1.71	0.54
7:F:208:HIS:HB3	7:F:211:LYS:HB3	1.90	0.54
9:H:123:GLN:HG3	10:I:128:ARG:HG2	1.89	0.54
13:L:72:ILE:HD12	13:L:132:LEU:HD22	1.89	0.54
15:n:160:LEU:O	15:n:164:MET:HG3	2.07	0.54

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
9:H:48:THR:OG1	9:H:75:VAL:HG21	2.08	0.54
9:h:74:LEU:HD21	9:h:134:LEU:HD22	1.90	0.54
11:j:31:THR:OG1	11:j:163:ARG:O	2.26	0.54
21:T:126:ASP:OD1	21:T:127:MET:N	2.41	0.54
9:h:116:SER:O	9:h:120:GLU:HG2	2.08	0.54
16:o:49:ALA:HB2	26:o:301:LDZ:H14	1.90	0.54
17:p:126:LEU:HD12	17:p:127:ILE:HG23	1.88	0.54
3:B:407:LEU:HD23	4:C:178:LEU:HD11	1.90	0.54
5:D:153:MET:HG3	5:D:158:GLN:HB3	1.89	0.54
6:E:235:ILE:HG22	6:E:279:THR:HB	1.88	0.54
14:m:186:CYS:HA	14:m:189:ILE:HB	1.88	0.54
5:D:95:ALA:HA	5:D:101:ALA:HA	1.90	0.53
8:G:80:MET:CG	8:G:87:SER:HB2	2.37	0.53
10:i:229:LYS:N	10:i:232:GLU:OE2	2.41	0.53
2:A:201:PHE:HD2	2:A:206:ILE:HD11	1.74	0.53
7:F:93:VAL:HG23	7:F:147:PRO:HA	1.88	0.53
7:F:125:LYS:HE3	7:F:129:ARG:HA	1.91	0.53
14:m:200:VAL:O	14:m:201:HIS:ND1	2.41	0.53
12:K:97:GLN:HG3	19:R:65:ILE:HG12	1.89	0.53
11:j:10:PHE:HB2	12:k:23:GLN:OE1	2.08	0.53
9:H:113:ARG:O	9:H:117:VAL:HG23	2.08	0.53
10:I:46:ALA:HB1	10:I:197:LEU:HD11	1.89	0.53
13:L:183:ASN:O	13:L:187:LEU:HB2	2.07	0.53
16:O:112:SER:OG	16:O:120:ASP:OD1	2.27	0.53
10:i:119:GLN:NE2	11:j:79:ASP:OD1	2.41	0.53
1:c:104:ARG:HG2	1:c:106:GLU:OE2	2.09	0.53
2:A:407:LYS:HE2	2:A:407:LYS:H	1.73	0.53
5:D:100:THR:HA	5:D:114:ARG:HA	1.90	0.53
20:s:199:THR:OG1	20:s:200:LYS:N	2.40	0.53
4:C:113:ARG:HG3	4:C:130:LYS:HB2	1.90	0.53
7:F:291:ILE:HG22	7:F:306:VAL:HG13	1.90	0.53
14:m:215:TRP:CZ2	14:m:219:LEU:HD11	2.44	0.53
1:c:95:MET:O	1:c:99:LEU:HG	2.09	0.53
3:B:120:HIS:HB3	3:B:134:SER:HA	1.91	0.53
3:B:403:GLY:HA3	4:C:180:ILE:HG21	1.90	0.53
18:Q:19:ARG:HD3	18:Q:179:SER:HB3	1.89	0.53
5:D:172:ILE:O	5:D:176:GLU:HG3	2.08	0.53
7:F:81:LYS:HD3	7:F:84:LYS:HE3	1.91	0.53
8:G:50:ILE:HG21	8:G:79:VAL:HB	1.91	0.53
17:P:135:ASP:OD1	17:P:135:ASP:N	2.42	0.53
11:j:82:ILE:HD11	11:j:127:PHE:HE1	1.74	0.53

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
21:t:166:ARG:O	21:t:170:GLU:HG3	2.09	0.53
1:c:201:TYR:HE1	1:c:203:ILE:HG12	1.74	0.53
5:D:300:ASP:OD1	5:D:300:ASP:N	2.41	0.53
6:E:311:ASP:O	6:E:315:ILE:HG23	2.09	0.53
13:L:228:ASP:OD1	13:L:228:ASP:N	2.31	0.53
11:j:154:HIS:NE2	12:k:59:MET:SD	2.82	0.53
20:s:47:THR:HG22	20:s:48:ASP:H	1.74	0.53
20:s:157:ASN:N	20:s:157:ASN:HD22	2.07	0.53
6:E:65:THR:H	6:E:68:LYS:HB2	1.74	0.52
6:E:148:VAL:HG13	6:E:149:ILE:HG23	1.91	0.52
12:K:168:ARG:NH2	13:L:53:GLN:OE1	2.41	0.52
1:c:61:PHE:CE1	1:c:139:ARG:HD3	2.45	0.52
1:c:75:MET:HA	1:c:91:PHE:CZ	2.44	0.52
2:A:116:LYS:NZ	3:B:130:GLU:HB2	2.24	0.52
9:H:4:ARG:NH1	9:H:5:GLY:O	2.42	0.52
10:i:63:GLU:OE2	10:i:63:GLU:N	2.42	0.52
16:o:212:LEU:HD21	17:p:201:LYS:HE2	1.90	0.52
5:D:97:ASP:OD1	5:D:97:ASP:N	2.41	0.52
14:M:199:ILE:HD12	14:M:199:ILE:H	1.75	0.52
20:S:199:THR:OG1	20:S:200:LYS:N	2.42	0.52
4:C:61:GLU:O	4:C:64:GLN:NE2	2.42	0.52
6:E:180:LYS:HG2	6:E:301:ILE:HD12	1.91	0.52
16:O:163:ILE:HG23	16:O:170:GLY:HA2	1.91	0.52
21:t:178:TYR:OH	21:t:208:ASN:N	2.37	0.52
9:H:111:VAL:HG22	9:H:136:ILE:HD12	1.91	0.52
20:S:70:ALA:O	20:S:74:MET:HG3	2.10	0.52
1:c:57:MET:HB2	1:c:110:GLY:C	2.34	0.52
12:K:93:ARG:HG2	19:R:68:LEU:HD13	1.90	0.52
10:i:86:LEU:HD22	10:i:114:LEU:HD11	1.91	0.52
1:c:28:ALA:HB1	1:c:65:TYR:HD2	1.75	0.52
1:c:29:GLU:O	1:c:30:GLN:C	2.53	0.52
1:c:198:ARG:HD2	1:c:199:HIS:CE1	2.45	0.52
1:c:286:GLU:O	1:c:290:VAL:HG23	2.10	0.52
2:A:73:ALA:HB3	2:A:78:TRP:HA	1.90	0.52
7:F:289:ASP:OD1	7:F:289:ASP:N	2.42	0.52
17:P:48:ARG:HA	17:P:190:ILE:HG21	1.92	0.52
13:l:94:ASP:OD2	13:l:95:SER:N	2.43	0.52
20:s:125:ASP:OD1	20:s:129:SER:N	2.40	0.52
1:c:196:LEU:HA	1:c:200:TYR:CZ	2.44	0.52
2:A:108:ASP:OD2	2:A:110:LYS:NZ	2.41	0.52
2:A:164:MET:HE3	2:A:240:VAL:HG22	1.92	0.52

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:A:394:MET:HG3	3:B:349:ARG:HH22	1.75	0.52
2:A:414:ASN:ND2	2:A:414:ASN:O	2.43	0.52
16:O:163:ILE:HG12	16:O:170:GLY:HA2	1.91	0.52
15:n:45:ARG:HG3	26:n:301:LDZ:H17	1.92	0.52
3:B:317:ASP:OD2	3:B:343:ARG:NH2	2.43	0.52
5:D:329:ARG:HA	5:D:329:ARG:NH1	2.24	0.52
16:O:120:ASP:OD1	16:O:120:ASP:N	2.43	0.52
21:T:43:MET:HE2	21:T:45:VAL:HG22	1.92	0.52
8:g:158:GLY:O	9:h:84:ARG:NH2	2.43	0.52
21:t:63:LEU:HD11	21:t:106:LEU:HD13	1.91	0.52
1:c:28:ALA:C	1:c:29:GLU:HG3	2.35	0.51
8:G:120:ASP:OD2	9:H:84:ARG:NH1	2.43	0.51
16:O:135:MET:HE3	21:t:179:ARG:CZ	2.40	0.51
1:c:78:SER:H	1:c:85:GLU:HG2	1.75	0.51
3:B:225:TYR:CZ	3:B:352:GLU:HB2	2.45	0.51
5:D:403:TYR:O	5:D:407:ILE:HG22	2.11	0.51
13:L:195:LEU:O	13:L:198:THR:HG22	2.09	0.51
18:Q:145:ARG:CD	19:r:158:ARG:HE	2.23	0.51
1:c:213:GLU:O	1:c:217:LEU:HD13	2.10	0.51
3:B:380:LEU:HD23	3:B:380:LEU:H	1.74	0.51
8:g:71:LYS:O	8:g:95:ARG:NH1	2.44	0.51
14:m:176:ILE:HD13	14:m:196:ILE:HD13	1.93	0.51
19:r:115:ASP:HB2	19:r:119:ASN:HB2	1.92	0.51
20:S:125:ASP:OD1	20:S:129:SER:HB3	2.09	0.51
9:h:48:THR:OG1	9:h:49:GLU:N	2.44	0.51
1:c:144:VAL:HG12	1:c:145:VAL:H	1.75	0.51
3:B:332:ASN:OD1	3:B:332:ASN:N	2.41	0.51
9:H:40:ALA:HB1	9:H:182:LEU:HB2	1.91	0.51
12:k:239:LYS:NZ	12:k:240:ASP:OD1	2.44	0.51
14:m:81:LEU:O	14:m:85:ARG:HG2	2.11	0.51
21:t:92:LEU:O	21:t:96:MET:HG2	2.11	0.51
6:E:351:GLY:O	6:E:355:ILE:HG12	2.10	0.51
16:O:24:MET:HE2	20:s:188:TYR:OH	2.11	0.51
21:t:45:VAL:HB	21:t:49:THR:HB	1.91	0.51
1:c:189:ILE:O	1:c:193:ILE:HG13	2.11	0.51
1:c:291:LEU:O	1:c:295:ASN:ND2	2.44	0.51
11:J:155:ALA:HB3	12:K:63:SER:HB3	1.93	0.51
13:l:157:ARG:NH2	14:m:59:GLU:OE1	2.44	0.51
2:A:279:ALA:HB2	3:B:310:LEU:HD12	1.91	0.51
6:E:155:ASN:HB2	6:E:158:LEU:HD21	1.92	0.51
6:E:312:ILE:HB	6:E:343:LEU:HD12	1.93	0.51

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
21:T:46:ASN:OD1	21:T:47:ASN:N	2.44	0.51
14:m:213:LEU:HB2	14:m:227:VAL:HG11	1.92	0.51
1:c:190:GLN:HA	1:c:193:ILE:HD12	1.91	0.51
9:H:150:ASP:OD2	9:H:150:ASP:N	2.42	0.51
10:I:167:ASN:HB2	10:I:200:THR:HG23	1.92	0.51
18:q:40:GLU:O	18:q:41:LYS:HG3	2.11	0.51
21:t:9:THR:O	21:t:41:ARG:NH2	2.44	0.51
2:A:143:ASP:OD1	2:A:143:ASP:N	2.33	0.50
3:B:420:LYS:HA	3:B:423:LYS:HE3	1.92	0.50
7:F:89:LEU:HD23	7:F:155:LYS:HG2	1.93	0.50
12:K:50:VAL:HG11	12:K:66:LYS:HB2	1.93	0.50
15:n:189:LEU:HD22	15:n:190:LEU:H	1.76	0.50
5:D:380:GLN:NE2	6:E:165:ILE:O	2.45	0.50
14:M:81:LEU:O	14:M:85:ARG:HG2	2.11	0.50
12:k:210:LEU:HD11	12:k:215:ILE:HG12	1.92	0.50
7:F:249:LEU:HB2	7:F:283:ILE:HD13	1.92	0.50
8:G:47:CYS:HB3	8:G:221:THR:HG23	1.92	0.50
10:i:25:MET:O	10:i:28:ILE:HG22	2.10	0.50
1:c:32:TYR:HD2	1:c:68:ARG:HB2	1.77	0.50
1:c:248:MET:HE3	1:c:287:HIS:CB	2.40	0.50
13:L:50:LYS:HB3	13:L:59:HIS:HB3	1.93	0.50
13:l:129:GLY:HA2	13:l:149:PRO:HG3	1.92	0.50
20:s:35:ILE:O	21:t:151:ARG:NH2	2.39	0.50
1:c:104:ARG:H	1:c:104:ARG:CD	2.18	0.50
1:c:119:GLY:HA3	1:c:121:TRP:CZ3	2.47	0.50
4:C:187:LEU:HB3	4:C:314:LYS:HG2	1.94	0.50
13:L:202:GLU:OE2	13:L:202:GLU:N	2.44	0.50
4:C:327:ASP:OD1	4:C:328:ILE:N	2.45	0.50
5:D:200:ARG:HD2	5:D:299:PHE:HD2	1.76	0.50
12:K:90:ASP:OD1	19:R:69:ARG:NH1	2.45	0.50
16:O:152:LYS:HE3	16:O:177:VAL:HG21	1.92	0.50
8:g:191:PHE:CE2	8:g:219:VAL:HG21	2.31	0.50
8:g:212:PRO:HB3	8:g:235:ILE:HG22	1.92	0.50
12:k:203:LYS:HB2	12:k:210:LEU:HD22	1.93	0.50
16:o:1:THR:N	16:o:168:GLY:O	2.45	0.50
4:C:240:GLU:N	4:C:240:GLU:OE2	2.45	0.50
3:B:387:LYS:HG2	3:B:388:ASP:H	1.76	0.50
4:C:88:LYS:HD2	4:C:94:LYS:HG2	1.93	0.50
13:L:204:ASP:OD1	13:L:204:ASP:N	2.40	0.50
14:M:34:SER:O	14:M:35:THR:OG1	2.26	0.50
1:c:157:ILE:HG23	1:c:158:ASP:H	1.77	0.50

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
7:F:344:ARG:HH11	7:F:347:ARG:HG3	1.76	0.50
11:J:134:VAL:HG22	11:J:144:LEU:HB3	1.94	0.50
11:J:156:TRP:CG	11:J:159:ASN:ND2	2.80	0.50
10:i:109:GLN:CD	18:q:71:ASN:HD21	2.19	0.50
13:l:50:LYS:HB3	13:l:59:HIS:HB3	1.92	0.50
5:D:170:MET:HB3	5:D:174:LYS:HG3	1.94	0.49
18:Q:182:ILE:HG22	18:Q:189:HIS:HB2	1.93	0.49
20:s:16:ALA:HB2	20:s:121:VAL:HG23	1.93	0.49
1:c:282:ARG:O	1:c:285:GLU:HG3	2.12	0.49
3:B:106:PRO:HB3	4:C:121:TYR:HB2	1.93	0.49
5:D:119:ILE:O	5:D:121:ARG:NH1	2.45	0.49
6:E:318:GLY:O	6:E:320:ILE:N	2.41	0.49
17:P:26:ARG:HH11	17:P:26:ARG:HG2	1.77	0.49
11:j:173:GLU:OE2	12:k:57:PRO:HB2	2.11	0.49
14:m:234:GLU:O	14:m:237:LYS:HG3	2.12	0.49
2:A:213:LEU:HB2	2:A:337:LEU:HD13	1.93	0.49
5:D:171:ASP:OD2	5:D:171:ASP:N	2.42	0.49
6:E:352:MET:HE1	7:F:212:PHE:HZ	1.77	0.49
14:M:41:CYS:HB2	14:M:184:MET:O	2.12	0.49
9:h:19:LEU:O	9:h:23:GLU:HG2	2.11	0.49
2:A:81:ALA:HB1	2:A:85:GLN:HB2	1.94	0.49
2:A:333:ARG:HH21	2:A:336:ARG:CZ	2.26	0.49
6:E:55:GLN:HB2	7:F:133:PHE:HB3	1.95	0.49
11:J:82:ILE:HD11	11:J:127:PHE:HE1	1.77	0.49
16:O:33:LYS:HE2	26:O:301:LDZ:H22	1.94	0.49
1:c:216:MET:O	1:c:220:LEU:HB2	2.12	0.49
13:L:106:SER:OG	21:T:79:ASP:OD1	2.21	0.49
17:P:142:CYS:SG	17:P:146:MET:HE2	2.53	0.49
1:c:201:TYR:CE1	1:c:203:ILE:HG12	2.47	0.49
3:B:388:ASP:OD1	3:B:389:ASP:N	2.46	0.49
5:D:291:GLU:OE2	5:D:291:GLU:HA	2.13	0.49
19:R:33:LYS:HE2	26:R:301:LDZ:H19	1.94	0.49
10:i:235:GLN:O	10:i:238:LYS:HG3	2.12	0.49
1:c:167:MET:HG3	1:c:174:PRO:HB3	1.95	0.49
7:F:288:LEU:HD22	7:F:330:ALA:HB1	1.94	0.49
8:G:165:ALA:HB3	9:H:56:LEU:HD22	1.95	0.49
14:M:228:PRO:HD2	14:M:231:ILE:HD12	1.94	0.49
21:t:46:ASN:HB3	21:t:71:VAL:HG11	1.95	0.49
1:c:104:ARG:HD3	1:c:104:ARG:N	2.22	0.49
4:C:351:MET:HE1	4:C:359:VAL:HG22	1.95	0.49
6:E:317:ALA:O	6:E:322:LYS:NZ	2.41	0.49

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
7:F:272:PHE:CB	7:F:316:GLN:HE21	2.25	0.49
15:N:144:ARG:NH2	15:N:151:GLU:OE2	2.46	0.49
18:Q:118:MET:HE2	18:Q:124:LEU:HD13	1.95	0.49
9:h:40:ALA:HB1	9:h:182:LEU:HB2	1.94	0.49
9:h:225:GLU:HA	9:h:228:ASP:HB2	1.95	0.49
14:m:46:VAL:HG11	14:m:189:ILE:HG22	1.94	0.49
14:m:230:ASP:O	14:m:234:GLU:HG2	2.12	0.49
4:C:65:LEU:HD12	5:D:114:ARG:NH2	2.27	0.49
8:G:212:PRO:HB3	8:G:235:ILE:HG23	1.94	0.49
8:g:137:CYS:SG	8:g:138:MET:N	2.84	0.49
13:L:103:LEU:HD21	13:L:108:LEU:HB2	1.95	0.48
16:O:140:ASP:OD2	21:t:171:ARG:NH2	2.42	0.48
16:o:30:ASN:O	16:o:30:ASN:ND2	2.45	0.48
21:t:63:LEU:HD13	21:t:110:MET:HE1	1.94	0.48
8:G:6:SER:HB2	8:G:11:ARG:HE	1.76	0.48
11:j:92:GLN:HG3	18:q:62:LYS:HG3	1.95	0.48
2:A:111:TYR:N	2:A:123:VAL:O	2.46	0.48
10:i:164:ILE:O	10:i:164:ILE:HG22	2.14	0.48
20:s:75:TYR:CD2	20:s:83:MET:HG2	2.48	0.48
21:t:5:MET:HE2	21:t:5:MET:HA	1.95	0.48
1:c:25:VAL:HG11	1:c:65:TYR:CD2	2.48	0.48
1:c:100:LYS:O	1:c:100:LYS:HD3	2.13	0.48
4:C:332:HIS:NE2	25:C:501:ADP:O2'	2.45	0.48
17:P:143:ALA:HA	17:P:146:MET:HE3	1.95	0.48
11:j:91:CYS:HA	11:j:102:VAL:HG21	1.95	0.48
19:r:38:ASN:OD1	19:r:39:PRO:HD2	2.12	0.48
1:c:196:LEU:HD21	1:c:202:SER:HB3	1.95	0.48
7:F:432:LYS:HB3	7:F:432:LYS:HE3	1.61	0.48
14:m:241:GLU:O	14:m:244:LYS:NZ	2.46	0.48
1:c:32:TYR:CD2	1:c:68:ARG:HB2	2.49	0.48
9:H:68:ILE:HD11	9:H:74:LEU:HB2	1.95	0.48
14:M:200:VAL:O	14:M:201:HIS:ND1	2.47	0.48
15:N:95:MET:HG3	15:N:116:MET:HE1	1.95	0.48
18:Q:119:ASP:OD1	18:Q:119:ASP:N	2.46	0.48
19:R:87:VAL:HG11	19:R:116:SER:HA	1.96	0.48
1:c:94:LYS:O	1:c:98:MET:HG3	2.14	0.48
10:I:88:ASN:HA	10:I:91:ARG:HB2	1.96	0.48
15:N:81:SER:O	15:N:85:GLU:HG2	2.13	0.48
21:T:20:VAL:HG11	21:T:122:LEU:HD13	1.95	0.48
20:s:65:THR:O	20:s:69:GLU:HG3	2.13	0.48
2:A:240:VAL:HG21	2:A:260:LEU:HD11	1.95	0.48

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
3:B:429:LYS:HA	3:B:429:LYS:HE2	1.96	0.48
6:E:60:VAL:HA	6:E:71:VAL:HG12	1.95	0.48
6:E:97:ARG:HH22	6:E:114:GLU:HB3	1.78	0.48
12:K:168:ARG:HA	12:K:168:ARG:HD3	1.76	0.48
13:L:101:ARG:HH12	13:L:104:PRO:HD3	1.79	0.48
13:L:120:THR:HG22	14:M:129:ARG:HH12	1.77	0.48
15:N:167:ASP:OD1	15:N:168:GLY:N	2.47	0.48
19:R:37:ILE:HG23	19:R:60:ALA:HA	1.95	0.48
13:L:39:LYS:NZ	14:M:59:GLU:OE2	2.40	0.48
1:c:188:SER:O	1:c:189:ILE:C	2.57	0.48
8:G:155:ASP:HB2	8:G:156:PRO:HD2	1.96	0.48
11:J:108:THR:HG22	11:J:133:ILE:HD13	1.95	0.48
17:P:25:ASP:OD1	17:P:25:ASP:N	2.47	0.48
20:S:198:VAL:HG22	20:S:203:ILE:HG12	1.94	0.48
14:m:117:MET:HE2	14:m:117:MET:HA	1.96	0.48
2:A:332:MET:HE3	2:A:332:MET:HB3	1.78	0.47
4:C:69:GLN:HB3	4:C:118:ASN:ND2	2.26	0.47
4:C:326:LEU:HD11	4:C:344:LEU:HD13	1.96	0.47
6:E:156:PRO:HA	6:E:159:PHE:HD1	1.79	0.47
6:E:247:THR:OG1	6:E:248:SER:N	2.46	0.47
14:M:8:ASP:O	14:M:22:GLN:NE2	2.44	0.47
11:j:94:HIS:ND1	11:j:102:VAL:HG22	2.28	0.47
12:k:22:PHE:O	12:k:23:GLN:C	2.56	0.47
1:c:111:TRP:CZ2	1:c:130:GLN:HB2	2.49	0.47
5:D:61:ILE:HA	5:D:64:GLU:HB3	1.95	0.47
6:E:177:GLY:HA3	6:E:339:ASN:ND2	2.29	0.47
7:F:124:ILE:HD11	7:F:132:TYR:HB2	1.96	0.47
7:F:197:GLU:HG3	7:F:352:ILE:HG12	1.95	0.47
9:H:42:ASN:N	9:H:42:ASN:OD1	2.47	0.47
19:r:35:ILE:HD11	19:r:45:MET:SD	2.54	0.47
1:c:58:LEU:CD2	1:c:106:GLU:HB2	2.44	0.47
5:D:285:VAL:HG21	6:E:255:ARG:NH2	2.29	0.47
7:F:193:LYS:O	7:F:197:GLU:HG2	2.13	0.47
10:I:41:ASP:N	10:I:41:ASP:OD1	2.46	0.47
10:I:90:LEU:HD23	10:I:114:LEU:HG	1.96	0.47
16:o:67:SER:HB2	16:o:74:PRO:HG3	1.95	0.47
20:s:60:ASP:OD1	21:t:97:TYR:OH	2.24	0.47
2:A:214:LEU:HD23	2:A:343:PHE:CE2	2.50	0.47
6:E:97:ARG:NE	6:E:111:LEU:HB2	2.27	0.47
9:H:206:ASP:OD1	9:H:206:ASP:N	2.43	0.47
17:P:113:ASP:HB3	17:P:116:THR:O	2.13	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
18:q:182:ILE:HG23	18:q:189:HIS:HB2	1.96	0.47
4:C:90:HIS:CD2	4:C:91:PRO:CD	2.97	0.47
8:G:236:ASP:O	8:G:240:VAL:HG23	2.15	0.47
9:H:222:THR:HG23	9:H:225:GLU:HG2	1.96	0.47
17:p:38:ASP:OD2	17:p:38:ASP:N	2.47	0.47
20:s:35:ILE:HB	21:t:151:ARG:HH12	1.79	0.47
20:s:133:ASP:OD2	20:s:133:ASP:N	2.46	0.47
4:C:134:LEU:HD13	4:C:138:MET:HE1	1.96	0.47
8:G:112:ASP:OD1	8:G:112:ASP:N	2.46	0.47
10:I:24:ALA:O	10:I:28:ILE:HD12	2.14	0.47
14:m:186:CYS:O	14:m:187:ARG:C	2.57	0.47
5:D:113:VAL:HG22	5:D:114:ARG:N	2.28	0.47
5:D:130:VAL:HG12	5:D:142:VAL:HG12	1.96	0.47
5:D:194:ILE:HG23	5:D:196:ILE:HG13	1.97	0.47
6:E:157:GLU:OE2	6:E:157:GLU:N	2.47	0.47
7:F:339:ASP:OD1	7:F:340:PRO:HD2	2.15	0.47
8:G:232:GLU:HA	8:G:235:ILE:HG22	1.97	0.47
10:I:62:SER:OG	10:I:63:GLU:N	2.47	0.47
12:K:20:ARG:CG	12:K:21:LEU:H	2.27	0.47
13:L:107:ARG:HH12	21:T:74:GLU:HG2	1.79	0.47
20:S:197:ILE:HD12	20:S:197:ILE:N	2.30	0.47
9:h:222:THR:OG1	9:h:225:GLU:OE2	2.33	0.47
10:i:33:THR:HA	10:i:165:GLY:HA2	1.95	0.47
10:i:213:ILE:HB	10:i:228:LEU:HD11	1.97	0.47
12:k:16:SER:HB2	12:k:22:PHE:CE1	2.49	0.47
16:o:40:ASN:OD1	16:o:40:ASN:N	2.47	0.47
21:t:45:VAL:HG12	21:t:46:ASN:H	1.80	0.47
1:c:49:VAL:HG13	1:c:50:PRO:HD3	1.96	0.47
5:D:363:TYR:HE2	5:D:399:PHE:HB3	1.79	0.47
18:Q:21:ALA:HB3	18:Q:29:LYS:HB3	1.96	0.47
8:g:80:MET:HE1	8:g:138:MET:HA	1.97	0.47
1:c:299:CYS:SG	1:c:300:LEU:N	2.87	0.47
7:F:318:ASP:OD2	7:F:344:ARG:NH1	2.43	0.47
10:I:29:GLY:O	10:I:166:ASN:HA	2.15	0.47
19:R:194:ASP:O	19:R:197:GLU:HG3	2.14	0.47
17:p:156:PRO:O	17:p:158:MET:HG2	2.14	0.47
20:s:13:LEU:HD12	20:s:145:LEU:HD13	1.97	0.47
1:c:37:ALA:HA	1:c:40:LYS:HE3	1.97	0.47
1:c:170:LEU:HG	1:c:172:HIS:NE2	2.29	0.47
1:c:198:ARG:HH11	1:c:199:HIS:CE1	2.33	0.47
2:A:79:ASP:N	2:A:79:ASP:OD2	2.48	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:A:347:ASP:OD1	2:A:347:ASP:N	2.42	0.47
4:C:82:LYS:O	4:C:82:LYS:HG3	2.14	0.47
4:C:88:LYS:HE3	4:C:88:LYS:HB3	1.52	0.47
5:D:149:SER:O	5:D:150:SER:C	2.58	0.47
5:D:342:ARG:HB3	5:D:364:VAL:HG11	1.97	0.47
11:J:119:THR:HG22	11:J:126:PRO:HB3	1.96	0.47
15:N:127:ILE:HG12	15:N:132:SER:HB2	1.97	0.47
15:N:166:ARG:NH1	21:t:34:ALA:O	2.41	0.47
20:S:68:ILE:HD11	20:S:92:LEU:HD13	1.95	0.47
19:r:3:THR:HB	19:r:44:THR:HG21	1.95	0.47
1:c:59:GLY:HA2	1:c:106:GLU:HG2	1.97	0.46
1:c:107:MET:HG2	1:c:108:VAL:N	2.30	0.46
5:D:148:ASP:O	5:D:149:SER:C	2.57	0.46
6:E:57:VAL:HG13	6:E:97:ARG:HD3	1.97	0.46
6:E:158:LEU:HD23	6:E:158:LEU:H	1.80	0.46
11:J:35:VAL:HG11	11:J:190:LEU:HD11	1.98	0.46
14:m:184:MET:CE	14:m:189:ILE:HD11	2.45	0.46
19:r:158:ARG:HH12	19:r:199:TYR:HB3	1.79	0.46
1:c:163:ILE:N	1:c:200:TYR:HA	2.28	0.46
2:A:250:VAL:HG23	7:F:259:MET:HA	1.97	0.46
7:F:231:THR:HG21	7:F:354:PHE:HB3	1.97	0.46
13:L:105:VAL:O	13:L:109:VAL:HG23	2.16	0.46
16:O:24:MET:HE2	20:s:188:TYR:CZ	2.50	0.46
21:T:115:TYR:HE2	21:T:194:GLU:HG2	1.79	0.46
2:A:95:VAL:HG21	2:A:144:ARG:HD3	1.98	0.46
3:B:102:LEU:HD13	3:B:138:PHE:CE1	2.50	0.46
9:H:70:LYS:HD2	9:H:70:LYS:C	2.41	0.46
13:L:205:LEU:HD12	13:L:210:VAL:HG11	1.97	0.46
8:g:231:THR:HB	8:g:234:GLU:OE2	2.15	0.46
11:j:173:GLU:HG2	12:k:58:LEU:HG	1.97	0.46
17:p:135:ASP:OD1	17:p:135:ASP:N	2.48	0.46
2:A:236:CYS:SG	2:A:269:ALA:O	2.74	0.46
7:F:134:LEU:HD11	7:F:159:LEU:HA	1.97	0.46
12:k:85:ALA:O	12:k:89:ILE:HG12	2.15	0.46
3:B:420:LYS:HB2	3:B:420:LYS:HE3	1.81	0.46
4:C:99:VAL:HG11	4:C:105:ILE:HD12	1.98	0.46
7:F:269:ARG:HA	7:F:316:GLN:NE2	2.31	0.46
8:g:212:PRO:HB2	8:g:232:GLU:OE2	2.14	0.46
1:c:163:ILE:HG13	1:c:200:TYR:C	2.40	0.46
8:G:113:MET:HE2	8:G:113:MET:HA	1.98	0.46
18:Q:144:ASP:OD2	18:Q:144:ASP:C	2.58	0.46

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
17:p:45:MET:HG3	17:p:71:LEU:HD22	1.96	0.46
1:c:29:GLU:OE2	1:c:203:ILE:HA	2.16	0.46
2:A:187:LEU:O	2:A:191:VAL:HG22	2.16	0.46
3:B:100:ASP:HA	3:B:103:ARG:HG2	1.97	0.46
1:c:51:MET:HA	1:c:82:VAL:HG12	1.98	0.46
2:A:102:ILE:HD11	2:A:114:ASN:HB2	1.96	0.46
2:A:116:LYS:NZ	3:B:128:GLY:O	2.49	0.46
3:B:201:VAL:HG11	3:B:328:ILE:HD11	1.97	0.46
14:m:140:TYR:CE2	14:m:218:GLU:HB3	2.51	0.46
14:m:199:ILE:HD12	14:m:199:ILE:H	1.81	0.46
19:r:49:ALA:HB2	26:r:301:LDZ:H16	1.97	0.46
2:A:122:VAL:HB	7:F:88:TYR:HD2	1.81	0.46
4:C:346:LYS:O	4:C:350:LEU:HG	2.16	0.46
5:D:99:ASN:HA	5:D:115:ILE:CG1	2.44	0.46
5:D:361:GLU:OE1	5:D:365:ALA:HB2	2.15	0.46
5:D:391:ARG:NH2	5:D:395:LEU:HG	2.31	0.46
11:J:35:VAL:HG23	11:J:158:ALA:HB2	1.97	0.46
13:l:49:LEU:HD21	13:l:199:LEU:HD21	1.98	0.46
18:q:144:ASP:C	18:q:144:ASP:OD2	2.58	0.46
1:c:225:TRP:CD1	1:c:226:MET:HG2	2.50	0.46
4:C:80:MET:N	4:C:84:LYS:O	2.47	0.46
8:G:174:GLU:OE2	8:G:174:GLU:N	2.41	0.46
9:H:75:VAL:HG12	9:H:135:LEU:HB2	1.97	0.46
14:M:229:LYS:O	14:M:233:GLU:HG2	2.16	0.46
20:S:61:CYS:O	20:S:65:THR:HG23	2.16	0.46
21:t:92:LEU:HD23	21:t:112:ILE:HD11	1.98	0.46
1:c:163:ILE:HG22	1:c:168:MET:HE2	1.98	0.45
2:A:256:MET:HE2	2:A:256:MET:HB2	1.89	0.45
16:o:19:ARG:NH1	16:o:169:SER:O	2.49	0.45
2:A:394:MET:HG3	3:B:349:ARG:NH2	2.31	0.45
4:C:133:PRO:HG2	4:C:237:MET:HE3	1.98	0.45
5:D:204:MET:HG2	5:D:333:PHE:CE1	2.52	0.45
5:D:204:MET:HG2	5:D:333:PHE:HE1	1.81	0.45
7:F:251:LEU:HD22	7:F:285:ILE:HG12	1.97	0.45
11:J:64:ALA:O	11:J:88:ARG:NH1	2.49	0.45
10:i:49:ARG:NH1	10:i:212:GLU:OE2	2.49	0.45
21:t:25:ASP:HA	21:t:187:PHE:HA	1.98	0.45
2:A:210:LYS:HB3	2:A:312:ARG:HH12	1.80	0.45
7:F:376:SER:OG	7:F:377:PRO:HD2	2.17	0.45
9:H:69:THR:HG22	9:H:70:LYS:H	1.82	0.45
9:H:119:GLN:O	9:H:122:THR:HG22	2.16	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
10:I:176:LYS:HB3	10:I:176:LYS:HE2	1.86	0.45
16:O:1:THR:N	16:O:168:GLY:O	2.49	0.45
18:Q:91:CYS:O	18:Q:94:SER:OG	2.35	0.45
9:h:95:GLN:HG3	16:o:61:SER:OG	2.16	0.45
9:h:119:GLN:O	9:h:122:THR:HG22	2.16	0.45
13:l:139:ASP:OD2	13:l:139:ASP:C	2.58	0.45
14:m:41:CYS:HB2	14:m:42:LYS:H	1.53	0.45
1:c:57:MET:HA	1:c:72:VAL:HG22	1.99	0.45
1:c:181:LEU:O	1:c:184:LEU:HD23	2.16	0.45
2:A:98:CYS:SG	2:A:153:LEU:HD12	2.57	0.45
12:K:183:GLU:OE1	12:K:183:GLU:C	2.59	0.45
10:i:233:VAL:O	10:i:237:ILE:HG13	2.17	0.45
15:n:48:SER:HB2	15:n:95:MET:HE3	1.98	0.45
4:C:41:ASN:OD1	4:C:44:ARG:NH1	2.50	0.45
7:F:141:ASP:OD2	7:F:144:LYS:NZ	2.26	0.45
8:G:205:VAL:HG13	8:G:206:LEU:HD12	1.98	0.45
17:P:205:ASP:OD1	19:r:19:ARG:NH2	2.49	0.45
8:g:178:PHE:CE2	8:g:201:CYS:HA	2.51	0.45
19:r:18:SER:HB3	19:r:31:VAL:H	1.81	0.45
3:B:197:ILE:O	3:B:201:VAL:HG22	2.17	0.45
3:B:224:LEU:HD23	3:B:353:PHE:CZ	2.51	0.45
5:D:99:ASN:CA	5:D:115:ILE:HG12	2.45	0.45
6:E:210:GLU:N	6:E:210:GLU:CD	2.74	0.45
8:g:202:LEU:O	8:g:206:LEU:HB2	2.16	0.45
10:i:15:GLU:OE2	10:i:19:TYR:OH	2.29	0.45
15:n:51:ASP:HB3	15:n:94:LEU:HD22	1.97	0.45
21:t:151:ARG:O	21:t:155:GLU:HG3	2.17	0.45
2:A:101:ILE:H	2:A:101:ILE:HD12	1.81	0.45
4:C:63:LEU:HD13	5:D:79:VAL:HA	1.99	0.45
4:C:316:GLU:C	4:C:317:PHE:HD1	2.24	0.45
13:L:184:LEU:HD11	13:L:214:ILE:HG12	1.98	0.45
14:M:211:LEU:HD23	14:M:211:LEU:HA	1.82	0.45
17:P:144:GLU:CD	17:P:144:GLU:H	2.23	0.45
18:Q:145:ARG:NE	19:r:158:ARG:HE	2.15	0.45
21:T:73:ASP:C	21:T:73:ASP:OD2	2.60	0.45
21:T:179:ARG:NH1	15:n:26:ILE:O	2.44	0.45
20:s:83:MET:HE2	20:s:83:MET:HB3	1.71	0.45
2:A:101:ILE:HD12	2:A:101:ILE:N	2.32	0.45
2:A:277:ILE:HD13	2:A:319:MET:HG2	1.99	0.45
5:D:125:LYS:HE2	5:D:125:LYS:HB2	1.75	0.45
6:E:195:PHE:CD1	6:E:197:LYS:HE3	2.52	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
11:J:89:VAL:HG22	18:Q:66:LEU:HD21	1.97	0.45
13:L:47:VAL:HG22	13:L:212:ILE:HG23	1.98	0.45
19:R:4:LEU:HB2	19:R:139:MET:HE2	1.99	0.45
8:g:165:ALA:HB1	8:g:179:LEU:HD13	1.98	0.45
16:o:35:HIS:HB3	16:o:56:THR:HG21	1.98	0.45
2:A:265:ARG:HB2	2:A:265:ARG:CZ	2.47	0.45
3:B:116:ILE:O	3:B:116:ILE:HG12	2.16	0.45
3:B:118:ASP:O	3:B:120:HIS:CE1	2.70	0.45
5:D:383:GLY:HA3	6:E:164:ILE:HD12	1.97	0.45
8:g:50:ILE:HG23	8:g:141:ILE:HD13	1.98	0.45
8:g:74:GLU:HG3	8:g:226:LYS:HD2	1.99	0.45
12:k:49:ALA:HB2	12:k:217:LEU:HG	1.98	0.45
14:m:187:ARG:O	14:m:190:VAL:HG12	2.17	0.45
15:n:22:THR:HG23	15:n:22:THR:O	2.17	0.45
15:n:127:ILE:CG2	15:n:132:SER:HB2	2.46	0.45
3:B:245:ALA:HB1	3:B:279:PRO:O	2.17	0.45
4:C:273:MET:HE2	4:C:293:MET:HB2	1.97	0.45
14:m:123:THR:HG22	14:m:130:PRO:HB3	1.99	0.45
17:p:138:VAL:HB	17:p:146:MET:HE3	1.99	0.45
1:c:96:LEU:HD22	1:c:99:LEU:HD11	1.99	0.44
1:c:142:ALA:O	1:c:160:PHE:N	2.46	0.44
2:A:194:PRO:HA	2:A:201:PHE:CE1	2.52	0.44
4:C:197:THR:HG22	4:C:247:PHE:CE2	2.52	0.44
4:C:235:PHE:HA	4:C:238:ALA:HB3	1.99	0.44
7:F:129:ARG:O	7:F:129:ARG:CD	2.64	0.44
7:F:405:MET:O	7:F:409:ARG:HG3	2.17	0.44
13:L:48:ALA:HB1	13:L:62:LYS:HE3	1.99	0.44
17:P:189:ILE:HG23	17:P:196:THR:HB	1.98	0.44
18:q:44:LEU:HD11	18:q:102:LEU:HD13	1.99	0.44
1:c:267:PRO:O	1:c:271:ALA:N	2.43	0.44
2:A:337:LEU:HD23	2:A:337:LEU:HA	1.82	0.44
4:C:221:GLN:HA	4:C:224:ILE:HG22	1.99	0.44
5:D:363:TYR:CE2	5:D:399:PHE:HB3	2.52	0.44
8:G:211:LYS:H	8:G:211:LYS:HG2	1.53	0.44
17:P:77:LYS:HB3	17:P:77:LYS:NZ	2.32	0.44
10:i:67:LYS:HE2	10:i:67:LYS:HB3	1.78	0.44
11:j:155:ALA:HB3	12:k:63:SER:HB3	2.00	0.44
1:c:121:TRP:CD1	1:c:194:HIS:CD2	3.05	0.44
4:C:136:SER:HA	4:C:139:MET:HE2	1.99	0.44
17:P:66:ARG:O	17:P:70:ARG:HG3	2.18	0.44
1:c:191:ALA:O	1:c:196:LEU:HB2	2.18	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:A:217:PRO:O	2:A:220:THR:OG1	2.28	0.44
5:D:363:TYR:N	5:D:363:TYR:CD1	2.83	0.44
6:E:165:ILE:HD12	6:E:166:PRO:HD2	1.98	0.44
9:H:225:GLU:HG2	9:H:225:GLU:H	1.66	0.44
11:J:179:GLU:OE2	11:J:179:GLU:N	2.50	0.44
20:S:28:ARG:NH2	20:S:191:ASP:OD2	2.50	0.44
12:k:196:LYS:HD2	12:k:200:ILE:HD11	1.99	0.44
1:c:70:ILE:HD11	1:c:106:GLU:OE1	2.17	0.44
4:C:161:ILE:HD12	4:C:161:ILE:HA	1.90	0.44
5:D:125:LYS:H	5:D:125:LYS:HD3	1.81	0.44
8:G:192:GLU:H	8:G:192:GLU:CD	2.25	0.44
9:H:109:GLN:CD	17:P:78:GLU:HG2	2.42	0.44
14:m:240:LYS:HD3	14:m:240:LYS:N	2.33	0.44
17:p:58:THR:OG1	18:q:121:LEU:O	2.23	0.44
5:D:317:LEU:HD12	5:D:317:LEU:HA	1.82	0.44
6:E:255:ARG:HA	6:E:258:MET:HG3	2.00	0.44
9:H:97:TYR:CG	9:H:105:ILE:HD12	2.52	0.44
13:L:19:ILE:O	13:L:23:GLU:HG3	2.17	0.44
8:g:61:LEU:HD21	8:g:66:VAL:HG11	2.00	0.44
2:A:109:PRO:HB3	2:A:125:LEU:HD13	1.99	0.44
2:A:206:ILE:HG22	7:F:373:MET:SD	2.57	0.44
12:K:200:ILE:O	12:K:204:GLN:HG3	2.17	0.44
13:l:207:THR:O	13:l:207:THR:OG1	2.28	0.44
4:C:365:GLU:HB3	4:C:386:ALA:HB1	2.00	0.44
7:F:153:VAL:HG12	7:F:160:ILE:HG22	2.00	0.44
9:H:68:ILE:CD1	9:H:74:LEU:HB2	2.48	0.44
15:N:164:MET:HB3	15:N:171:GLY:HA2	2.00	0.44
17:P:11:VAL:HG12	17:P:24:ALA:HB2	2.00	0.44
8:g:104:LYS:HD2	8:g:104:LYS:HA	1.78	0.44
10:i:161:ALA:HB1	10:i:175:LEU:HD13	2.00	0.44
17:p:5:SER:O	17:p:5:SER:OG	2.32	0.44
1:c:187:PRO:CG	1:c:192:LEU:HD13	2.48	0.44
4:C:274:LEU:HD23	4:C:274:LEU:HA	1.81	0.44
10:I:119:GLN:O	10:I:122:THR:HG22	2.18	0.44
11:J:56:GLU:OE2	11:J:56:GLU:HA	2.17	0.44
11:j:154:HIS:HD2	11:j:156:TRP:NE1	2.16	0.44
12:k:168:ARG:HD2	12:k:168:ARG:HA	1.75	0.44
14:m:45:VAL:O	14:m:216:VAL:HG12	2.18	0.44
17:p:15:LYS:HG3	17:p:119:PRO:HB2	1.99	0.44
1:c:26:ASP:HB3	1:c:174:PRO:O	2.17	0.43
3:B:116:ILE:HG21	3:B:132:TYR:HE1	1.81	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
5:D:268:ASP:OD2	5:D:311:THR:OG1	2.28	0.43
13:l:206:THR:O	13:l:206:THR:OG1	2.30	0.43
1:c:130:GLN:NE2	1:c:162:LEU:HB3	2.33	0.43
13:L:212:ILE:HD12	13:L:229:VAL:HG22	2.00	0.43
17:P:125:ASP:OD2	17:P:129:CYS:N	2.44	0.43
19:r:83:LEU:HD21	19:r:99:THR:HG21	1.98	0.43
6:E:108:MET:SD	6:E:108:MET:N	2.91	0.43
7:F:299:GLU:HG3	7:F:300:LYS:N	2.33	0.43
10:I:144:GLY:O	10:I:146:GLN:NE2	2.42	0.43
11:J:116:GLN:HE21	12:K:84:ASP:HA	1.83	0.43
12:K:16:SER:HB3	12:K:20:ARG:HD2	2.01	0.43
14:m:41:CYS:HB3	14:m:189:ILE:HG13	1.99	0.43
1:c:162:LEU:HA	1:c:200:TYR:CB	2.48	0.43
1:c:175:ARG:NH2	1:c:201:TYR:OH	2.51	0.43
6:E:304:PRO:HB2	6:E:309:ARG:HG3	1.99	0.43
10:I:151:ASP:OD1	10:I:152:PRO:HD2	2.19	0.43
12:K:38:ILE:HD12	12:K:202:LEU:HG	2.00	0.43
16:O:187:ARG:HB2	16:O:188:PRO:HD3	1.99	0.43
12:k:181:LEU:HD23	12:k:181:LEU:HA	1.85	0.43
14:m:201:HIS:O	14:m:201:HIS:CG	2.72	0.43
26:o:301:LDZ:H23	26:o:301:LDZ:H16	1.80	0.43
1:c:27:THR:CA	1:c:177:THR:HG21	2.48	0.43
1:c:282:ARG:HH12	1:c:283:HIS:CD2	2.36	0.43
4:C:183:PRO:HA	4:C:312:ASP:OD1	2.18	0.43
15:N:104:ASP:OD2	15:N:105:PRO:HD2	2.17	0.43
1:c:304:LEU:O	1:c:307:VAL:HG12	2.19	0.43
6:E:63:GLN:HB2	6:E:69:PHE:CE2	2.53	0.43
26:R:301:LDZ:H39	26:R:301:LDZ:H9	1.89	0.43
10:i:174:MET:SD	10:i:199:LYS:HG2	2.59	0.43
11:j:221:ASN:O	11:j:223:GLU:N	2.45	0.43
13:l:50:LYS:N	13:l:209:ASN:O	2.43	0.43
21:t:126:ASP:OD2	21:t:127:MET:N	2.52	0.43
10:I:8:ARG:NH2	11:J:5:ARG:HD2	2.34	0.43
9:h:75:VAL:HG12	9:h:135:LEU:HB2	2.01	0.43
20:s:6:VAL:HG12	20:s:57:PHE:CE1	2.53	0.43
20:s:153:VAL:HG13	20:s:166:LEU:HD22	2.00	0.43
1:c:279:ASP:OD1	1:c:279:ASP:N	2.48	0.43
2:A:89:SER:HA	2:A:93:LEU:HG	2.01	0.43
3:B:170:LEU:HA	3:B:173:VAL:HG12	2.00	0.43
6:E:339:ASN:OD1	6:E:341:ALA:N	2.44	0.43
11:J:71:MET:SD	11:J:84:ILE:HG12	2.59	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
21:t:124:TYR:HE1	21:t:139:THR:HG22	1.83	0.43
1:c:59:GLY:N	1:c:106:GLU:HB3	2.33	0.43
3:B:418:ASP:N	3:B:418:ASP:OD1	2.51	0.43
6:E:117:PRO:HD3	7:F:94:ILE:HG23	2.00	0.43
7:F:288:LEU:HD12	7:F:288:LEU:HA	1.88	0.43
13:L:204:ASP:O	13:L:205:LEU:HD13	2.19	0.43
17:P:49:LEU:HD21	17:P:87:LEU:HD22	2.01	0.43
20:S:31:GLU:HG2	20:S:36:HIS:NE2	2.34	0.43
20:S:169:ASP:O	20:S:173:ARG:HG2	2.19	0.43
19:r:33:LYS:HE2	26:r:301:LDZ:H22	2.01	0.43
1:c:207:TYR:O	1:c:209:LYS:NZ	2.52	0.43
4:C:106:ASN:OD1	4:C:106:ASN:N	2.52	0.43
4:C:242:ALA:HB3	4:C:243:PRO:HD3	2.01	0.43
4:C:273:MET:O	4:C:273:MET:HG3	2.15	0.43
7:F:127:SER:C	7:F:129:ARG:H	2.27	0.43
9:H:74:LEU:HD22	9:H:83:TYR:HE1	1.84	0.43
10:I:166:ASN:OD1	10:I:166:ASN:N	2.50	0.43
12:K:121:LEU:HD12	12:K:121:LEU:HA	1.80	0.43
21:T:67:LEU:HD23	21:T:67:LEU:HA	1.87	0.43
10:i:11:ILE:HG22	11:j:7:ILE:HG23	2.00	0.43
18:q:4:LEU:HD22	18:q:45:LEU:HB3	2.00	0.43
1:c:26:ASP:N	1:c:175:ARG:HB3	2.34	0.42
2:A:357:ILE:O	2:A:360:ARG:NH1	2.51	0.42
4:C:197:THR:OG1	25:C:501:ADP:O1A	2.37	0.42
5:D:259:PRO:HG3	5:D:304:ASN:HD22	1.84	0.42
11:J:171:PHE:CD2	11:J:171:PHE:C	2.97	0.42
17:p:12:MET:HE2	17:p:146:MET:HG2	2.01	0.42
1:c:127:ILE:HG23	1:c:162:LEU:HD22	2.00	0.42
2:A:414:ASN:ND2	2:A:414:ASN:C	2.77	0.42
6:E:159:PHE:HA	6:E:162:VAL:HG12	2.00	0.42
6:E:314:LYS:HE3	6:E:314:LYS:HB3	1.93	0.42
12:K:54:ILE:HG23	12:K:59:MET:HE3	2.01	0.42
16:O:26:VAL:O	20:s:185:ARG:NH1	2.45	0.42
13:l:105:VAL:O	13:l:109:VAL:HG23	2.19	0.42
14:m:56:LYS:O	14:m:58:TYR:N	2.53	0.42
15:n:127:ILE:HD12	15:n:139:VAL:HG11	2.01	0.42
1:c:56:LEU:C	1:c:72:VAL:HG13	2.44	0.42
3:B:337:LEU:HD23	3:B:337:LEU:HA	1.92	0.42
7:F:93:VAL:HG12	7:F:124:ILE:HG22	2.02	0.42
12:K:85:ALA:O	12:K:89:ILE:HG12	2.18	0.42
13:L:148:CYS:SG	13:L:154:PHE:HE1	2.42	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
16:O:146:MET:HE2	16:O:150:GLU:HB2	2.01	0.42
17:P:126:LEU:HD12	17:P:127:ILE:HG23	2.01	0.42
13:l:71:GLY:HA3	13:l:221:PHE:CZ	2.54	0.42
17:p:115:LYS:HD2	17:p:115:LYS:HA	1.79	0.42
3:B:153:ASN:OD1	3:B:154:HIS:N	2.52	0.42
3:B:309:MET:HE3	3:B:341:LEU:HD22	2.01	0.42
3:B:411:ARG:HG2	3:B:413:LYS:H	1.83	0.42
5:D:92:PHE:HE1	5:D:101:ALA:HB1	1.85	0.42
8:G:69:LEU:CD2	8:G:216:GLU:HG3	2.49	0.42
11:J:219:ILE:HD12	11:J:219:ILE:H	1.83	0.42
19:R:42:LEU:HD12	19:R:42:LEU:HA	1.85	0.42
10:i:29:GLY:O	10:i:166:ASN:HA	2.20	0.42
11:j:80:ALA:HA	11:j:129:ILE:HD13	2.02	0.42
14:m:52:LEU:HD23	14:m:52:LEU:HA	1.89	0.42
16:o:63:LEU:HD12	16:o:74:PRO:HB3	2.02	0.42
16:o:99:VAL:HG23	16:o:127:MET:HG3	2.00	0.42
16:o:203:ARG:HG3	16:o:203:ARG:HH11	1.84	0.42
1:c:100:LYS:HD3	1:c:100:LYS:C	2.44	0.42
2:A:239:ARG:HH21	2:A:241:ILE:HD13	1.84	0.42
2:A:350:GLY:O	2:A:354:ILE:HG13	2.20	0.42
4:C:111:ASN:N	4:C:111:ASN:OD1	2.52	0.42
6:E:115:VAL:HG23	6:E:221:TYR:HE1	1.84	0.42
7:F:81:LYS:HA	7:F:84:LYS:HE3	2.01	0.42
8:G:239:LEU:HD12	8:G:239:LEU:HA	1.87	0.42
17:P:48:ARG:HH12	17:P:114:PRO:HA	1.85	0.42
21:T:22:ILE:HG13	21:T:50:MET:HE3	2.01	0.42
21:T:154:LEU:HD23	21:T:154:LEU:HA	1.83	0.42
9:h:82:ASP:O	9:h:86:LEU:HD12	2.19	0.42
10:i:226:ARG:NH1	10:i:228:LEU:HB3	2.34	0.42
14:m:87:LEU:O	14:m:90:ILE:HG13	2.20	0.42
1:c:183:HIS:C	1:c:184:LEU:HD22	2.45	0.42
1:c:221:HIS:CG	1:c:222:LYS:H	2.38	0.42
2:A:84:LYS:O	2:A:88:GLN:N	2.52	0.42
2:A:157:ILE:O	2:A:158:ASP:HB3	2.19	0.42
3:B:415:THR:OG1	3:B:418:ASP:OD1	2.37	0.42
4:C:44:ARG:HH12	4:C:45:LEU:HB2	1.84	0.42
5:D:65:GLN:H	5:D:65:GLN:HG3	1.64	0.42
14:M:183:GLU:OE2	14:M:183:GLU:N	2.52	0.42
10:i:192:LEU:O	10:i:196:VAL:HG23	2.20	0.42
11:j:159:ASN:HD22	11:j:160:ALA:H	1.68	0.42
12:k:22:PHE:O	12:k:25:GLU:N	2.52	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
12:k:196:LYS:O	12:k:196:LYS:HD3	2.19	0.42
13:l:112:ILE:O	13:l:116:THR:HG23	2.19	0.42
16:o:8:TYR:CE2	16:o:10:ASP:HB2	2.54	0.42
17:p:12:MET:HE3	17:p:171:MET:SD	2.60	0.42
20:s:169:ASP:O	20:s:173:ARG:HG3	2.20	0.42
2:A:333:ARG:HE	2:A:336:ARG:NH1	2.17	0.42
3:B:193:GLN:OE1	3:B:193:GLN:N	2.44	0.42
6:E:59:GLU:HA	6:E:59:GLU:OE2	2.20	0.42
7:F:362:ARG:NH2	7:F:385:ALA:O	2.47	0.42
7:F:416:THR:OG1	7:F:419:ASP:OD2	2.29	0.42
8:G:93:ARG:HH21	8:G:121:ILE:HG12	1.84	0.42
11:J:80:ALA:HA	11:J:129:ILE:HD13	2.01	0.42
13:L:189:LYS:HD3	13:L:236:LEU:HD12	2.02	0.42
16:O:135:MET:HE3	21:t:179:ARG:NH2	2.34	0.42
18:Q:4:LEU:HD22	18:Q:45:LEU:HB3	2.02	0.42
8:g:22:LEU:HD12	8:g:22:LEU:O	2.20	0.42
2:A:77:LEU:HA	2:A:80:LEU:CD2	2.49	0.42
2:A:79:ASP:O	2:A:82:ALA:HB2	2.19	0.42
2:A:149:ILE:HD12	2:A:149:ILE:N	2.29	0.42
5:D:259:PRO:HA	5:D:304:ASN:O	2.19	0.42
8:G:79:VAL:HG12	8:G:139:ILE:HB	2.02	0.42
21:T:106:LEU:O	21:T:127:MET:HB2	2.20	0.42
8:g:11:ARG:HD2	14:m:7:TYR:OH	2.19	0.42
15:n:59:VAL:HG11	15:n:83:PHE:CE2	2.55	0.42
19:r:45:MET:HG3	19:r:56:GLU:OE1	2.20	0.42
16:O:217:THR:HB	17:P:195:ILE:HG23	2.02	0.42
10:i:59:VAL:HG23	10:i:60:PHE:CD2	2.55	0.42
14:m:188:ASP:OD2	14:m:188:ASP:N	2.53	0.42
20:s:197:ILE:HD12	20:s:197:ILE:N	2.35	0.42
1:c:63:ASP:OD1	1:c:64:ASP:N	2.53	0.42
13:L:46:LEU:HD13	13:L:73:SER:HB2	2.02	0.42
13:L:80:ASP:OD1	13:L:126:ARG:NH2	2.53	0.42
8:g:155:ASP:HB2	8:g:156:PRO:HD2	2.02	0.42
9:h:69:THR:HG23	9:h:71:HIS:H	1.84	0.42
12:k:230:THR:OG1	12:k:231:LYS:N	2.52	0.42
13:l:228:ASP:O	13:l:231:PRO:HD2	2.20	0.42
19:r:64:ARG:NH1	19:r:67:GLU:OE2	2.53	0.42
4:C:369:TYR:CE2	4:C:385:MET:HB3	2.55	0.41
5:D:408:LYS:HB3	5:D:408:LYS:HE3	1.57	0.41
10:I:33:THR:OG1	10:I:166:ASN:OD1	2.37	0.41
11:J:91:CYS:HA	11:J:102:VAL:HG21	2.00	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
15:N:86:MET:HE2	15:N:86:MET:HB3	1.85	0.41
18:Q:54:VAL:O	18:Q:58:GLU:HG3	2.19	0.41
19:R:166:ARG:NH1	17:p:34:MET:O	2.53	0.41
21:T:124:TYR:HB2	21:T:137:LEU:HD13	2.02	0.41
8:g:88:ARG:HH21	14:m:113:ASP:CG	2.27	0.41
9:h:190:THR:O	9:h:194:THR:HG22	2.19	0.41
10:i:181:GLU:N	10:i:181:GLU:OE2	2.52	0.41
12:k:16:SER:HB2	12:k:22:PHE:CZ	2.55	0.41
12:k:206:MET:HE1	12:k:214:ASN:HB3	2.02	0.41
14:m:7:TYR:N	14:m:7:TYR:CD1	2.88	0.41
16:o:6:VAL:HG23	16:o:124:TYR:HB3	2.02	0.41
16:o:148:GLU:O	16:o:152:LYS:HG3	2.20	0.41
18:q:19:ARG:HH11	18:q:179:SER:HB3	1.85	0.41
18:q:124:LEU:HD23	18:q:124:LEU:HA	1.91	0.41
19:r:4:LEU:C	19:r:4:LEU:HD12	2.44	0.41
20:s:47:THR:HG22	20:s:48:ASP:N	2.33	0.41
1:c:24:ALA:HB1	1:c:176:GLN:HE22	1.83	0.41
2:A:139:ARG:HD3	2:A:155:PRO:HA	2.01	0.41
2:A:223:THR:O	2:A:227:ARG:HG3	2.20	0.41
2:A:274:PHE:HB2	2:A:319:MET:HG3	2.02	0.41
7:F:269:ARG:HA	7:F:316:GLN:HE22	1.85	0.41
7:F:406:ILE:HD13	7:F:422:GLU:HB3	2.01	0.41
11:J:82:ILE:HD11	11:J:127:PHE:CE1	2.54	0.41
11:J:94:HIS:HD2	11:J:97:THR:HB	1.83	0.41
12:k:78:MET:HE2	12:k:78:MET:HB3	1.79	0.41
19:r:125:THR:HB	19:r:139:MET:HE3	2.02	0.41
1:c:211:GLU:OE1	1:c:212:LEU:HD23	2.21	0.41
3:B:316:LEU:HD21	3:B:327:VAL:HG11	2.02	0.41
6:E:344:ARG:HH22	7:F:346:GLY:HA2	1.85	0.41
9:H:68:ILE:HB	9:H:72:ILE:HG22	2.02	0.41
10:I:71:ASP:N	10:I:71:ASP:OD2	2.53	0.41
11:J:184:ASP:OD2	11:J:184:ASP:N	2.49	0.41
13:L:91:GLU:HG2	13:L:111:LEU:HD12	2.02	0.41
13:L:92:CYS:O	13:L:96:ARG:HG3	2.20	0.41
15:N:14:LEU:HD21	15:N:101:ALA:HB3	2.01	0.41
8:g:43:ARG:HG2	8:g:43:ARG:NH1	2.35	0.41
11:j:81:ARG:HA	11:j:84:ILE:HD12	2.03	0.41
12:k:178:GLN:O	12:k:182:GLN:HG3	2.19	0.41
20:s:183:ALA:HA	20:s:189:THR:HB	2.02	0.41
1:c:27:THR:H	1:c:177:THR:HG23	1.86	0.41
1:c:201:TYR:C	1:c:201:TYR:CD1	2.97	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:A:113:ILE:HD12	2:A:123:VAL:HG11	2.02	0.41
3:B:386:ALA:HB3	3:B:390:LEU:HD11	2.03	0.41
3:B:407:LEU:HD21	4:C:174:LEU:HD21	2.00	0.41
4:C:384:GLU:OE1	4:C:385:MET:N	2.54	0.41
6:E:275:MET:SD	6:E:277:MET:HE3	2.60	0.41
9:H:109:GLN:O	9:H:113:ARG:HG3	2.20	0.41
14:M:241:GLU:N	14:M:241:GLU:OE1	2.53	0.41
15:N:95:MET:HE3	26:N:301:LDZ:H5	2.01	0.41
12:k:42:THR:OG1	12:k:45:GLY:O	2.30	0.41
1:c:295:ASN:O	1:c:298:GLN:HG3	2.21	0.41
4:C:132:ASP:HB3	4:C:135:VAL:HG23	2.01	0.41
5:D:212:LYS:HE3	5:D:212:LYS:HB2	1.88	0.41
5:D:383:GLY:O	5:D:387:VAL:HG23	2.20	0.41
10:I:220:ASN:OD1	10:I:220:ASN:N	2.52	0.41
21:T:73:ASP:OD2	21:T:74:GLU:N	2.53	0.41
21:T:179:ARG:NH2	16:o:135:MET:HE2	2.36	0.41
9:h:92:LYS:O	9:h:96:GLN:HG2	2.21	0.41
13:l:103:LEU:CD1	13:l:108:LEU:HB2	2.51	0.41
14:m:36:ALA:HB3	14:m:165:ILE:HG13	2.03	0.41
18:q:43:LEU:HD12	18:q:183:ILE:HD11	2.03	0.41
18:q:171:PHE:CE2	18:q:173:LEU:HB2	2.56	0.41
21:t:46:ASN:OD1	21:t:46:ASN:N	2.54	0.41
1:c:57:MET:H	1:c:111:TRP:HA	1.86	0.41
2:A:271:LEU:HD12	2:A:316:LYS:HB2	2.03	0.41
5:D:88:VAL:HG12	6:E:79:TYR:CE1	2.55	0.41
6:E:185:ARG:HG2	7:F:320:PHE:CE1	2.55	0.41
10:i:198:ASN:HB2	10:i:206:LEU:HD11	2.02	0.41
10:i:220:ASN:OD1	10:i:220:ASN:N	2.50	0.41
15:n:119:MET:HE2	21:t:57:TYR:HB3	2.03	0.41
1:c:123:SER:O	1:c:127:ILE:HG12	2.20	0.41
3:B:329:MET:HE2	3:B:347:ILE:HD11	2.03	0.41
7:F:94:ILE:HD12	7:F:123:VAL:HG12	2.02	0.41
7:F:228:PRO:HG2	7:F:356:MET:HG2	2.02	0.41
9:H:204:THR:HG22	9:H:205:GLU:H	1.86	0.41
10:I:15:GLU:OE2	10:I:17:ARG:NE	2.46	0.41
11:J:190:LEU:HD12	11:J:191:VAL:N	2.36	0.41
12:K:202:LEU:HA	12:K:205:VAL:HG22	2.03	0.41
14:m:27:MET:HE2	14:m:154:SER:HB3	2.03	0.41
2:A:212:VAL:HG12	2:A:339:ARG:HB2	2.01	0.41
4:C:126:ILE:HD12	4:C:126:ILE:O	2.21	0.41
4:C:297:ARG:O	4:C:297:ARG:HG3	2.20	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
6:E:138:LEU:O	6:E:138:LEU:HD12	2.21	0.41
11:j:107:ILE:HD12	11:j:107:ILE:HA	1.85	0.41
13:l:94:ASP:OD2	13:l:94:ASP:C	2.64	0.41
14:m:72:HIS:O	14:m:139:SER:HB2	2.20	0.41
15:n:189:LEU:HD22	15:n:190:LEU:N	2.36	0.41
1:c:59:GLY:CA	1:c:106:GLU:HB3	2.50	0.41
1:c:111:TRP:HZ2	1:c:130:GLN:HB2	1.86	0.41
4:C:273:MET:HE1	4:C:293:MET:HB2	2.02	0.41
5:D:209:GLY:N	6:E:291:ARG:HD2	2.36	0.41
14:M:170:GLN:HA	14:M:173:LYS:HG2	2.03	0.41
17:P:2:SER:OG	17:P:3:ILE:N	2.54	0.41
18:Q:11:ASP:OD1	18:Q:11:ASP:N	2.54	0.41
8:g:178:PHE:HE2	8:g:201:CYS:HA	1.86	0.41
10:i:17:ARG:HD2	10:i:17:ARG:HA	1.88	0.41
12:k:51:GLU:HA	12:k:215:ILE:HG22	2.02	0.41
12:k:233:GLU:OE1	12:k:233:GLU:N	2.36	0.41
21:t:9:THR:OG1	21:t:10:SER:N	2.54	0.41
5:D:99:ASN:O	5:D:100:THR:HG23	2.20	0.41
6:E:223:ARG:O	6:E:226:GLN:NE2	2.53	0.41
7:F:314:LEU:HD21	7:F:342:LEU:HB2	2.03	0.41
15:N:95:MET:HE2	15:N:95:MET:HB2	1.88	0.41
18:Q:43:LEU:HD12	18:Q:183:ILE:HD11	2.02	0.41
12:k:56:SER:HA	12:k:57:PRO:HD2	1.94	0.41
13:l:46:LEU:HD13	13:l:73:SER:HB2	2.01	0.41
17:p:177:ARG:HA	17:p:177:ARG:HD3	1.86	0.41
17:p:192:LYS:HG3	17:p:193:ASP:OD1	2.21	0.41
3:B:360:THR:O	3:B:364:ILE:HG13	2.21	0.40
4:C:126:ILE:C	4:C:127:LEU:HD23	2.46	0.40
4:C:393:LYS:HA	4:C:393:LYS:HD3	1.87	0.40
7:F:230:GLY:O	7:F:392:ASN:HB2	2.21	0.40
13:L:200:PRO:O	13:L:239:ARG:NH2	2.50	0.40
13:L:226:ASP:OD2	13:L:226:ASP:C	2.64	0.40
14:M:88:ALA:O	14:M:92:ARG:HG3	2.21	0.40
14:M:201:HIS:O	14:M:201:HIS:CG	2.74	0.40
14:M:226:ILE:H	14:M:226:ILE:HG12	1.62	0.40
20:S:1:ARG:HB2	20:S:2:PHE:H	1.69	0.40
10:i:144:GLY:O	10:i:146:GLN:NE2	2.52	0.40
10:i:238:LYS:O	10:i:241:GLU:HG3	2.20	0.40
12:k:40:ILE:HB	12:k:47:CYS:SG	2.61	0.40
1:c:139:ARG:O	1:c:161:ARG:NH2	2.53	0.40
1:c:231:LEU:O	1:c:232:GLN:HB3	2.21	0.40

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:A:101:ILE:HD13	2:A:138:MET:HG2	2.04	0.40
3:B:136:LEU:HD12	3:B:136:LEU:HA	1.91	0.40
5:D:153:MET:O	5:D:155:THR:N	2.54	0.40
6:E:191:LEU:HA	6:E:191:LEU:HD23	1.76	0.40
8:g:41:ALA:HB3	8:g:166:THR:HB	2.03	0.40
8:g:231:THR:HG22	8:g:232:GLU:N	2.36	0.40
13:l:119:PRO:HG3	13:l:128:TYR:CE2	2.56	0.40
1:c:34:SER:OG	1:c:70:ILE:O	2.37	0.40
6:E:339:ASN:OD1	6:E:339:ASN:C	2.63	0.40
7:F:300:LYS:HB2	7:F:300:LYS:HE3	1.85	0.40
26:N:301:LDZ:H30	26:N:301:LDZ:H11	1.80	0.40
18:Q:171:PHE:CE2	18:Q:173:LEU:HB2	2.56	0.40
11:j:217:LEU:H	11:j:217:LEU:HD23	1.85	0.40
12:k:76:CYS:SG	12:k:77:ALA:N	2.94	0.40
12:k:156:MET:HE3	12:k:156:MET:HB3	1.80	0.40
16:o:103:VAL:HG23	16:o:178:ILE:HG22	2.03	0.40
16:o:159:ILE:O	16:o:163:ILE:HG13	2.21	0.40
1:c:144:VAL:O	1:c:157:ILE:HD12	2.22	0.40
5:D:85:ILE:CG2	5:D:86:PRO:HD3	2.51	0.40
5:D:185:LEU:HD13	5:D:185:LEU:HA	1.86	0.40
9:H:128:ARG:HH11	9:H:128:ARG:HG3	1.87	0.40
10:I:63:GLU:HG2	10:I:64:LYS:HG3	2.03	0.40
11:J:45:VAL:HG11	11:J:61:LYS:HD3	2.04	0.40
13:L:205:LEU:O	13:L:207:THR:N	2.48	0.40
18:Q:62:LYS:HA	18:Q:62:LYS:HD2	1.90	0.40
8:g:69:LEU:HD12	8:g:229:ILE:HD12	2.02	0.40
10:i:3:ARG:HB2	11:j:5:ARG:HH12	1.86	0.40
11:j:5:ARG:H	11:j:122:ASN:HB3	1.86	0.40
14:m:191:LYS:HB3	14:m:191:LYS:HE2	1.74	0.40
1:c:24:ALA:HB1	1:c:176:GLN:CD	2.46	0.40
1:c:68:ARG:HD3	1:c:69:VAL:C	2.47	0.40
1:c:75:MET:HA	1:c:91:PHE:HZ	1.84	0.40
1:c:186:LYS:HE2	1:c:186:LYS:HA	2.03	0.40
1:c:208:ARG:HA	1:c:208:ARG:NE	2.37	0.40
2:A:182:GLU:CD	2:A:182:GLU:H	2.30	0.40
3:B:159:VAL:O	3:B:160:ILE:HD13	2.21	0.40
5:D:133:HIS:HB3	5:D:137:ASN:H	1.87	0.40
6:E:56:ILE:H	6:E:56:ILE:HG12	1.75	0.40
10:I:76:VAL:HG23	10:I:134:LEU:HB3	2.03	0.40
11:J:201:SER:O	11:J:203:GLY:N	2.48	0.40
18:Q:143:LEU:HD23	18:Q:143:LEU:HA	1.94	0.40

There are no symmetry-related clashes.

5.3 Torsion angles (i)

5.3.1 Protein backbone (i)

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

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

Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
1	c	285/309 (92%)	255 (90%)	30 (10%)	0	100	100
2	A	364/433 (84%)	336 (92%)	27 (7%)	1 (0%)	36	66
3	B	338/440 (77%)	323 (96%)	13 (4%)	2 (1%)	21	53
4	C	340/398 (85%)	324 (95%)	14 (4%)	2 (1%)	21	53
5	D	366/418 (88%)	335 (92%)	28 (8%)	3 (1%)	16	47
6	E	345/403 (86%)	320 (93%)	25 (7%)	0	100	100
7	F	342/439 (78%)	318 (93%)	24 (7%)	0	100	100
8	G	238/245 (97%)	226 (95%)	12 (5%)	0	100	100
8	g	238/245 (97%)	227 (95%)	11 (5%)	0	100	100
9	H	230/233 (99%)	223 (97%)	7 (3%)	0	100	100
9	h	230/233 (99%)	224 (97%)	6 (3%)	0	100	100
10	I	248/260 (95%)	229 (92%)	19 (8%)	0	100	100
10	i	248/260 (95%)	227 (92%)	21 (8%)	0	100	100
11	J	237/247 (96%)	222 (94%)	15 (6%)	0	100	100
11	j	237/247 (96%)	223 (94%)	14 (6%)	0	100	100
12	K	224/240 (93%)	216 (96%)	8 (4%)	0	100	100
12	k	224/240 (93%)	218 (97%)	5 (2%)	1 (0%)	30	60
13	L	236/268 (88%)	222 (94%)	13 (6%)	1 (0%)	30	60
13	l	236/268 (88%)	223 (94%)	13 (6%)	0	100	100
14	M	238/254 (94%)	224 (94%)	14 (6%)	0	100	100
14	m	238/254 (94%)	226 (95%)	12 (5%)	0	100	100
15	N	189/238 (79%)	182 (96%)	7 (4%)	0	100	100

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
15	n	189/238 (79%)	183 (97%)	6 (3%)	0	100	100
16	O	218/276 (79%)	212 (97%)	6 (3%)	0	100	100
16	o	218/276 (79%)	211 (97%)	7 (3%)	0	100	100
17	P	202/204 (99%)	188 (93%)	14 (7%)	0	100	100
17	p	202/204 (99%)	190 (94%)	12 (6%)	0	100	100
18	Q	197/201 (98%)	186 (94%)	11 (6%)	0	100	100
18	q	197/201 (98%)	186 (94%)	11 (6%)	0	100	100
19	R	199/262 (76%)	191 (96%)	8 (4%)	0	100	100
19	r	199/262 (76%)	192 (96%)	7 (4%)	0	100	100
20	S	211/240 (88%)	206 (98%)	5 (2%)	0	100	100
20	s	211/240 (88%)	207 (98%)	4 (2%)	0	100	100
21	T	213/263 (81%)	206 (97%)	7 (3%)	0	100	100
21	t	213/263 (81%)	202 (95%)	11 (5%)	0	100	100
All	All	8540/9702 (88%)	8083 (95%)	447 (5%)	10 (0%)	49	77

All (10) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
3	B	117	ASP
13	L	200	PRO
4	C	90	HIS
5	D	154	LEU
12	k	22	PHE
2	A	158	ASP
4	C	130	LYS
5	D	368	ASP
3	B	191	ASP
5	D	153	MET

5.3.2 Protein sidechains (i)

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

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

Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
1	c	252/267 (94%)	239 (95%)	13 (5%)	21	51
2	A	310/372 (83%)	307 (99%)	3 (1%)	68	78
3	B	296/385 (77%)	288 (97%)	8 (3%)	39	65
4	C	296/346 (86%)	285 (96%)	11 (4%)	30	59
5	D	321/366 (88%)	307 (96%)	14 (4%)	25	55
6	E	298/353 (84%)	292 (98%)	6 (2%)	48	69
7	F	294/379 (78%)	287 (98%)	7 (2%)	43	67
8	G	193/209 (92%)	190 (98%)	3 (2%)	55	72
8	g	193/209 (92%)	190 (98%)	3 (2%)	55	72
9	H	164/190 (86%)	157 (96%)	7 (4%)	26	56
9	h	164/190 (86%)	162 (99%)	2 (1%)	63	76
10	I	193/220 (88%)	184 (95%)	9 (5%)	23	54
10	i	193/220 (88%)	189 (98%)	4 (2%)	47	69
11	J	154/210 (73%)	147 (96%)	7 (4%)	24	55
11	j	152/210 (72%)	146 (96%)	6 (4%)	28	58
12	K	186/202 (92%)	180 (97%)	6 (3%)	34	62
12	k	186/202 (92%)	183 (98%)	3 (2%)	55	72
13	L	198/229 (86%)	191 (96%)	7 (4%)	32	61
13	l	198/229 (86%)	193 (98%)	5 (2%)	42	66
14	M	192/211 (91%)	190 (99%)	2 (1%)	68	78
14	m	192/211 (91%)	182 (95%)	10 (5%)	21	51
15	N	148/180 (82%)	147 (99%)	1 (1%)	76	81
15	n	148/180 (82%)	144 (97%)	4 (3%)	39	65
16	O	177/227 (78%)	174 (98%)	3 (2%)	53	72
16	o	177/227 (78%)	174 (98%)	3 (2%)	53	72
17	P	173/173 (100%)	169 (98%)	4 (2%)	44	68
17	p	173/173 (100%)	172 (99%)	1 (1%)	78	82
18	Q	164/171 (96%)	163 (99%)	1 (1%)	78	82
18	q	165/171 (96%)	164 (99%)	1 (1%)	78	82
19	R	153/201 (76%)	152 (99%)	1 (1%)	76	81
19	r	153/201 (76%)	150 (98%)	3 (2%)	48	69
20	S	175/198 (88%)	173 (99%)	2 (1%)	65	77

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Mol	Chain	Analysed	Rotameric	Outliers	Percentiles
20	s	175/198 (88%)	170 (97%)	5 (3%)	37 64
21	T	175/214 (82%)	173 (99%)	2 (1%)	65 77
21	t	175/214 (82%)	172 (98%)	3 (2%)	53 72
All	All	6956/8138 (86%)	6786 (98%)	170 (2%)	43 67

All (170) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	c	49	VAL
1	c	58	LEU
1	c	62	VAL
1	c	67	VAL
1	c	80	THR
1	c	91	PHE
1	c	157	ILE
1	c	177	THR
1	c	196	LEU
1	c	212	LEU
1	c	285	GLU
1	c	305	ASP
1	c	307	VAL
2	A	236	CYS
2	A	271	LEU
2	A	310	ASP
3	B	120	HIS
3	B	125	THR
3	B	127	VAL
3	B	143	LEU
3	B	163	LEU
3	B	172	THR
3	B	276	GLU
3	B	293	LYS
4	C	65	LEU
4	C	96	VAL
4	C	104	ASP
4	C	109	THR
4	C	111	ASN
4	C	210	THR
4	C	214	VAL
4	C	296	ASN
4	C	338	LEU

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Mol	Chain	Res	Type
4	C	339	THR
4	C	344	LEU
5	D	79	VAL
5	D	97	ASP
5	D	100	THR
5	D	152	MET
5	D	171	ASP
5	D	185	LEU
5	D	187	HIS
5	D	190	LEU
5	D	233	SER
5	D	287	ARG
5	D	317	LEU
5	D	328	ASP
5	D	354	LEU
5	D	395	LEU
6	E	148	VAL
6	E	158	LEU
6	E	195	PHE
6	E	198	VAL
6	E	238	ILE
6	E	334	LEU
7	F	131	THR
7	F	140	VAL
7	F	223	VAL
7	F	244	THR
7	F	329	ILE
7	F	335	VAL
7	F	435	LEU
8	G	14	THR
8	G	80	MET
8	G	211	LYS
9	H	16	SER
9	H	59	GLU
9	H	69	THR
9	H	121	TYR
9	H	150	ASP
9	H	204	THR
9	H	222	THR
10	I	9	THR
10	I	18	LEU
10	I	21	VAL

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Mol	Chain	Res	Type
10	I	76	VAL
10	I	85	VAL
10	I	112	THR
10	I	163	CYS
10	I	238	LYS
10	I	241	GLU
11	J	31	THR
11	J	96	LEU
11	J	147	THR
11	J	148	ASP
11	J	167	SER
11	J	184	ASP
11	J	200	GLN
12	K	21	LEU
12	K	87	THR
12	K	174	SER
12	K	182	GLN
12	K	189	MET
12	K	220	VAL
13	L	42	THR
13	L	130	VAL
13	L	176	MET
13	L	199	LEU
13	L	210	VAL
13	L	220	GLU
13	L	228	ASP
14	M	100	SER
14	M	156	VAL
15	N	182	SER
16	O	12	ILE
16	O	67	SER
16	O	72	ARG
17	P	181	SER
17	P	189	ILE
17	P	195	ILE
17	P	199	THR
18	Q	194	ILE
19	R	102	CYS
20	S	178	VAL
20	S	199	THR
21	T	2	GLN
21	T	10	SER

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Mol	Chain	Res	Type
8	g	11	ARG
8	g	92	GLN
8	g	175	SER
9	h	58	ASP
9	h	168	VAL
10	i	34	CYS
10	i	48	GLU
10	i	76	VAL
10	i	228	LEU
11	j	70	CYS
11	j	77	THR
11	j	104	VAL
11	j	114	LEU
11	j	118	TYR
11	j	159	ASN
12	k	106	THR
12	k	197	SER
12	k	198	SER
13	l	167	SER
13	l	180	MET
13	l	211	SER
13	l	225	ASP
13	l	228	ASP
14	m	24	GLU
14	m	41	CYS
14	m	46	VAL
14	m	54	LEU
14	m	63	ASN
14	m	94	GLU
14	m	100	SER
14	m	199	ILE
14	m	219	LEU
14	m	230	ASP
15	n	70	LEU
15	n	86	MET
15	n	127	ILE
15	n	142	THR
16	o	120	ASP
16	o	186	LEU
16	o	204	CYS
17	p	157	ASN
18	q	26	VAL

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Mol	Chain	Res	Type
19	r	29	GLN
19	r	41	LEU
19	r	87	VAL
20	s	33	PHE
20	s	129	SER
20	s	174	LEU
20	s	191	ASP
20	s	203	ILE
21	t	5	MET
21	t	45	VAL
21	t	205	THR

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (66) such sidechains are listed below:

Mol	Chain	Res	Type
1	c	199	HIS
2	A	94	GLN
2	A	305	GLN
3	B	315	GLN
4	C	48	GLN
4	C	118	ASN
4	C	241	HIS
5	D	173	GLN
5	D	222	HIS
5	D	237	GLN
5	D	353	ASN
5	D	380	GLN
6	E	155	ASN
6	E	226	GLN
6	E	280	ASN
7	F	92	ASN
7	F	130	GLN
7	F	316	GLN
8	G	12	HIS
8	G	75	ASN
8	G	128	ASN
9	H	63	HIS
9	H	109	GLN
10	I	40	ASN
10	I	84	ASN
10	I	95	GLN
11	J	92	GLN

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Mol	Chain	Res	Type
11	J	120	GLN
11	J	200	GLN
11	J	205	ASN
13	L	175	HIS
16	O	66	HIS
16	O	116	HIS
16	O	165	ASN
17	P	7	ASN
17	P	72	ASN
17	P	162	HIS
17	P	173	ASN
19	R	70	ASN
19	R	89	GLN
20	S	151	ASN
20	S	152	GLN
20	S	159	GLN
21	T	3	ASN
8	g	12	HIS
8	g	127	GLN
8	g	238	HIS
9	h	95	GLN
9	h	189	HIS
10	i	100	GLN
11	j	92	GLN
11	j	116	GLN
11	j	159	ASN
12	k	178	GLN
12	k	214	ASN
14	m	68	ASN
15	n	110	GLN
15	n	158	ASN
17	p	93	ASN
20	s	58	HIS
20	s	108	ASN
20	s	151	ASN
20	s	157	ASN
20	s	159	GLN
21	t	47	ASN
21	t	213	HIS

5.3.3 RNA (i)

There are no RNA molecules in this entry.

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

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

5.5 Carbohydrates (i)

There are no oligosaccharides in this entry.

5.6 Ligand geometry (i)

Of 17 ligands modelled in this entry, 5 are monoatomic - leaving 12 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	$\#\|Z\| > 2$
26	LDZ	n	301	-	33,34,34	0.49	1 (3%)	42,44,44	0.67	0
26	LDZ	R	301	-	33,34,34	0.50	1 (3%)	42,44,44	0.60	0
23	ATP	D	501	-	32,33,33	0.34	0	48,52,52	0.34	0
23	ATP	B	501	24	32,33,33	0.31	0	48,52,52	0.27	0
23	ATP	E	401	24	32,33,33	0.30	0	48,52,52	0.29	0
26	LDZ	o	301	-	33,34,34	0.45	0	42,44,44	0.54	0
26	LDZ	r	301	-	33,34,34	0.51	0	42,44,44	0.97	3 (7%)
26	LDZ	O	301	-	33,34,34	0.39	0	42,44,44	1.10	4 (9%)
23	ATP	A	501	24	32,33,33	0.41	0	48,52,52	0.30	0
25	ADP	F	501	24	28,29,29	1.40	4 (14%)	43,45,45	1.88	8 (18%)
25	ADP	C	501	-	28,29,29	1.40	4 (14%)	43,45,45	1.88	8 (18%)
26	LDZ	N	301	-	33,34,34	0.44	0	42,44,44	0.61	0

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
26	LDZ	n	301	-	-	16/38/39/39	0/1/1/1
26	LDZ	R	301	-	-	12/38/39/39	0/1/1/1
23	ATP	D	501	-	-	0/22/38/38	0/3/3/3
23	ATP	B	501	24	-	4/22/38/38	0/3/3/3
23	ATP	E	401	24	-	4/22/38/38	0/3/3/3
26	LDZ	o	301	-	-	17/38/39/39	0/1/1/1
26	LDZ	r	301	-	-	8/38/39/39	0/1/1/1
26	LDZ	O	301	-	-	17/38/39/39	0/1/1/1
23	ATP	A	501	24	-	1/22/38/38	0/3/3/3
25	ADP	F	501	24	-	4/16/32/32	0/3/3/3
25	ADP	C	501	-	-	3/16/32/32	0/3/3/3
26	LDZ	N	301	-	-	6/38/39/39	0/1/1/1

All (10) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
25	F	501	ADP	C5-C4	4.69	1.47	1.39
25	C	501	ADP	C5-C4	4.64	1.47	1.39
25	F	501	ADP	C5-C6	2.70	1.48	1.41
25	C	501	ADP	C5-C6	2.68	1.48	1.41
25	F	501	ADP	C5-N7	-2.44	1.34	1.39
25	C	501	ADP	C5-N7	-2.41	1.34	1.39
25	C	501	ADP	C8-N7	2.22	1.36	1.31
25	F	501	ADP	C8-N7	2.17	1.35	1.31
26	R	301	LDZ	C17-N16	-2.06	1.43	1.46
26	n	301	LDZ	C17-N16	-2.05	1.43	1.46

All (23) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
25	F	501	ADP	C5-C4-N3	-6.19	118.19	126.72
25	C	501	ADP	C5-C4-N3	-6.02	118.43	126.72
25	F	501	ADP	N3-C4-N9	4.92	135.53	127.17
25	C	501	ADP	N3-C4-N9	4.79	135.31	127.17
25	F	501	ADP	C2-N3-C4	3.86	121.26	111.83
25	C	501	ADP	C2-N3-C4	3.73	120.95	111.83
26	O	301	LDZ	C18-C17-N16	3.64	116.19	110.69
26	r	301	LDZ	C14-N13-C12	3.49	129.14	121.65
25	C	501	ADP	C4-C5-N7	-3.46	106.63	110.58

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
25	F	501	ADP	C4-C5-N7	-3.39	106.71	110.58
25	F	501	ADP	N3-C2-N1	-3.24	123.68	128.58
25	C	501	ADP	N3-C2-N1	-3.17	123.78	128.58
26	r	301	LDZ	C18-C17-C22	-3.03	106.32	110.99
26	O	301	LDZ	C24-C14-N13	2.65	116.57	110.58
25	C	501	ADP	C3'-C2'-C1'	2.64	106.45	101.46
26	r	301	LDZ	C22-C17-N16	2.58	114.49	109.50
25	C	501	ADP	C4-N9-C8	2.58	108.44	105.74
25	C	501	ADP	C5-N7-C8	2.57	107.49	103.45
25	F	501	ADP	C3'-C2'-C1'	2.50	106.19	101.46
25	F	501	ADP	C5-N7-C8	2.48	107.34	103.45
25	F	501	ADP	C4-N9-C8	2.34	108.19	105.74
26	O	301	LDZ	C14-C15-N16	2.23	121.38	116.63
26	O	301	LDZ	C25-C24-C14	2.01	120.81	115.40

There are no chirality outliers.

All (92) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
23	B	501	ATP	C5'-O5'-PA-O3A
23	E	401	ATP	C5'-O5'-PA-O1A
23	E	401	ATP	C5'-O5'-PA-O2A
23	E	401	ATP	C5'-O5'-PA-O3A
25	F	501	ADP	PA-O3A-PB-O2B
25	F	501	ADP	C5'-O5'-PA-O3A
26	O	301	LDZ	N13-C14-C24-C25
26	O	301	LDZ	C18-C17-N16-C15
26	O	301	LDZ	C22-C17-C18-C19
26	R	301	LDZ	O31-C9-O8-C7
26	R	301	LDZ	N10-C9-O8-C7
26	R	301	LDZ	C22-C17-C18-C19
26	n	301	LDZ	C30-C11-N10-C9
26	o	301	LDZ	C22-C17-C18-C19
26	r	301	LDZ	C15-C14-N13-C12
26	n	301	LDZ	O31-C9-N10-C11
26	O	301	LDZ	O8-C9-N10-C11
26	n	301	LDZ	O8-C9-N10-C11
26	O	301	LDZ	O31-C9-N10-C11
26	O	301	LDZ	C15-C14-C24-C25
25	C	501	ADP	O4'-C4'-C5'-O5'
26	R	301	LDZ	N16-C17-C18-C19
26	o	301	LDZ	N16-C17-C18-C19

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Mol	Chain	Res	Type	Atoms
26	O	301	LDZ	N16-C17-C18-C19
26	N	301	LDZ	N10-C11-C30-C31
26	o	301	LDZ	N13-C14-C24-C25
26	n	301	LDZ	N10-C11-C30-C31
26	r	301	LDZ	C15-C14-C24-C25
25	C	501	ADP	C3'-C4'-C5'-O5'
26	O	301	LDZ	O34-C15-N16-C17
26	r	301	LDZ	N13-C14-C24-C25
26	O	301	LDZ	C14-C15-N16-C17
26	n	301	LDZ	C12-C11-C30-C31
26	o	301	LDZ	C15-C14-C24-C25
26	O	301	LDZ	C12-C11-N10-C9
26	N	301	LDZ	C15-C14-C24-C25
26	n	301	LDZ	C14-C24-C25-C26
26	R	301	LDZ	C14-C24-C25-C27
26	n	301	LDZ	C14-C24-C25-C27
26	N	301	LDZ	N13-C14-C24-C25
26	o	301	LDZ	C11-C30-C31-C33
26	N	301	LDZ	C14-C24-C25-C26
26	R	301	LDZ	C12-C11-C30-C31
26	R	301	LDZ	C14-C24-C25-C26
26	o	301	LDZ	C11-C30-C31-C32
26	R	301	LDZ	N10-C11-C30-C31
26	o	301	LDZ	C17-C18-C19-C20
26	R	301	LDZ	C15-C14-C24-C25
26	o	301	LDZ	C17-C18-C19-C21
26	o	301	LDZ	N10-C11-C12-O32
26	n	301	LDZ	N10-C9-O8-C7
26	o	301	LDZ	N10-C11-C12-N13
26	o	301	LDZ	N13-C14-C15-N16
26	o	301	LDZ	N13-C14-C15-O34
26	n	301	LDZ	O31-C9-O8-C7
26	r	301	LDZ	C22-C17-N16-C15
26	n	301	LDZ	N10-C11-C12-O32
26	n	301	LDZ	N10-C11-C12-N13
26	R	301	LDZ	C17-C18-C19-C21
25	C	501	ADP	PA-O3A-PB-O3B
26	R	301	LDZ	N13-C14-C24-C25
26	n	301	LDZ	C18-C17-N16-C15
23	B	501	ATP	C5'-O5'-PA-O1A
25	F	501	ADP	C5'-O5'-PA-O1A
26	O	301	LDZ	N10-C9-O8-C7

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Mol	Chain	Res	Type	Atoms
26	R	301	LDZ	C17-C18-C19-C20
26	r	301	LDZ	N13-C14-C15-O34
26	o	301	LDZ	C30-C11-C12-O32
23	A	501	ATP	PG-O3B-PB-O2B
26	r	301	LDZ	N13-C14-C15-N16
23	E	401	ATP	PB-O3B-PG-O1G
23	B	501	ATP	C4'-C5'-O5'-PA
26	N	301	LDZ	C22-C17-N16-C15
26	O	301	LDZ	C22-C17-N16-C15
26	o	301	LDZ	C30-C11-C12-N13
26	O	301	LDZ	O31-C9-O8-C7
26	O	301	LDZ	C30-C11-N10-C9
25	F	501	ADP	PA-O3A-PB-O1B
26	N	301	LDZ	C18-C17-N16-C15
26	o	301	LDZ	C18-C17-N16-C15
26	r	301	LDZ	C18-C17-N16-C15
26	n	301	LDZ	C30-C11-C12-O32
26	O	301	LDZ	C17-C18-C19-C21
26	n	301	LDZ	C11-C30-C31-C33
26	n	301	LDZ	C11-C30-C31-C32
26	o	301	LDZ	C24-C14-C15-O34
26	n	301	LDZ	C30-C11-C12-N13
26	o	301	LDZ	C24-C14-C15-N16
26	O	301	LDZ	N10-C11-C12-N13
26	r	301	LDZ	N16-C17-C18-C19
26	O	301	LDZ	N10-C11-C12-O32
23	B	501	ATP	PA-O3A-PB-O2B

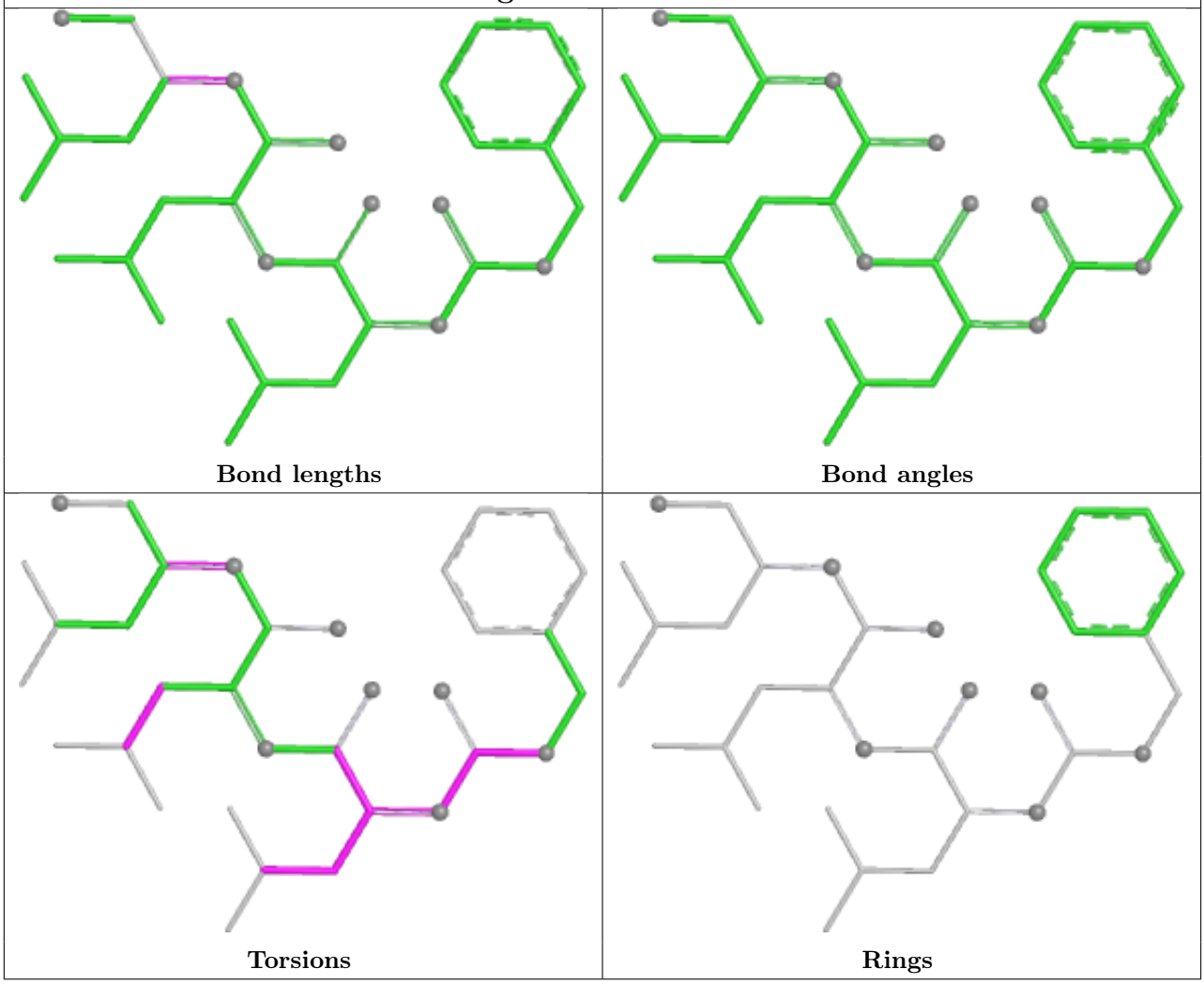
There are no ring outliers.

9 monomers are involved in 15 short contacts:

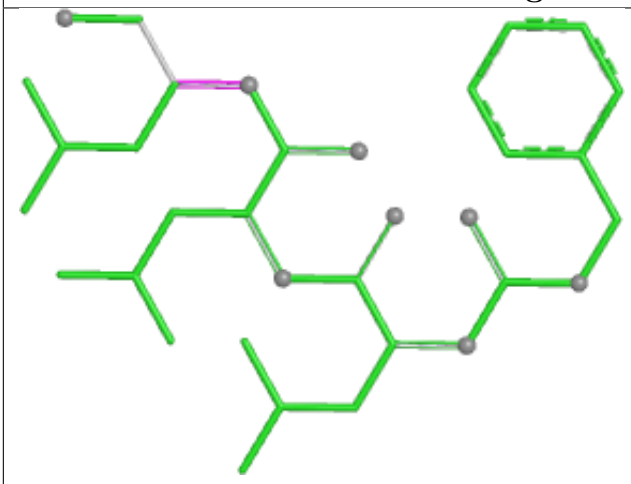
Mol	Chain	Res	Type	Clashes	Symm-Clashes
26	n	301	LDZ	1	0
26	R	301	LDZ	2	0
23	D	501	ATP	1	0
26	o	301	LDZ	2	0
26	r	301	LDZ	2	0
26	O	301	LDZ	2	0
25	F	501	ADP	1	0
25	C	501	ADP	2	0
26	N	301	LDZ	2	0

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

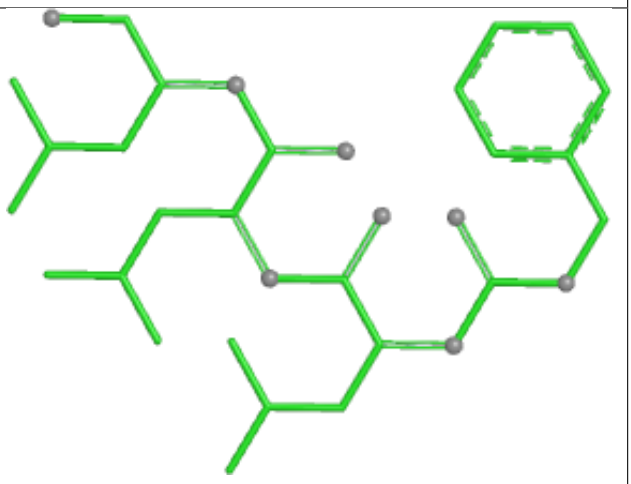
Ligand LDZ n 301



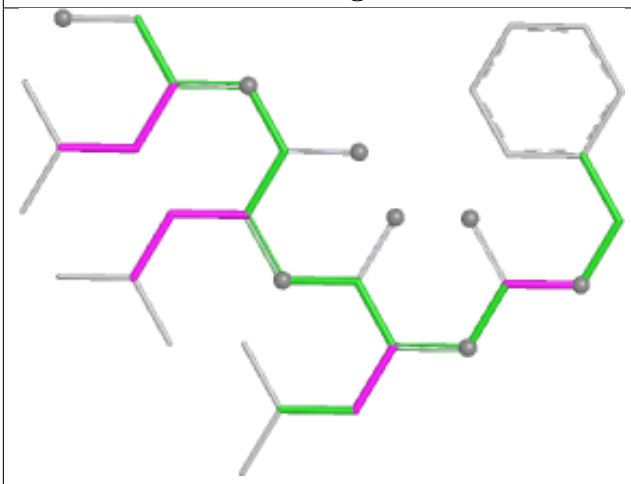
Ligand LDZ R 301



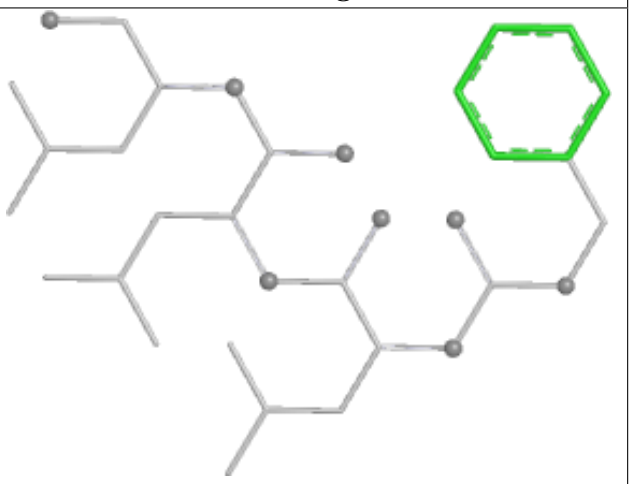
Bond lengths



Bond angles

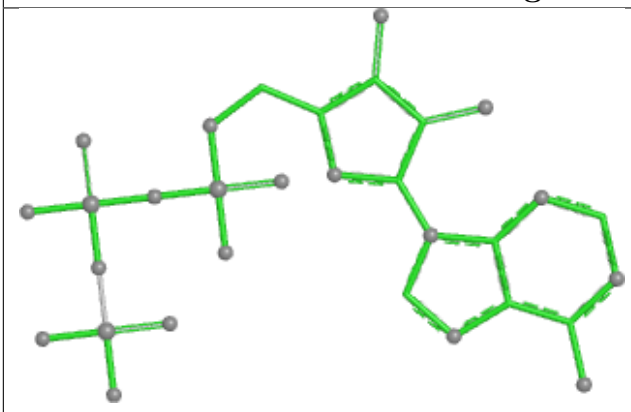


Torsions



Rings

Ligand ATP D 501



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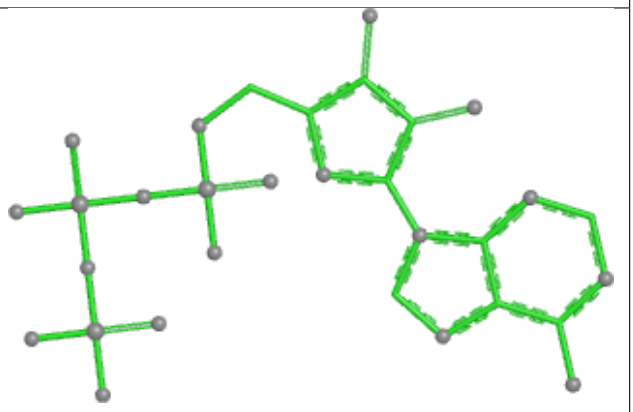

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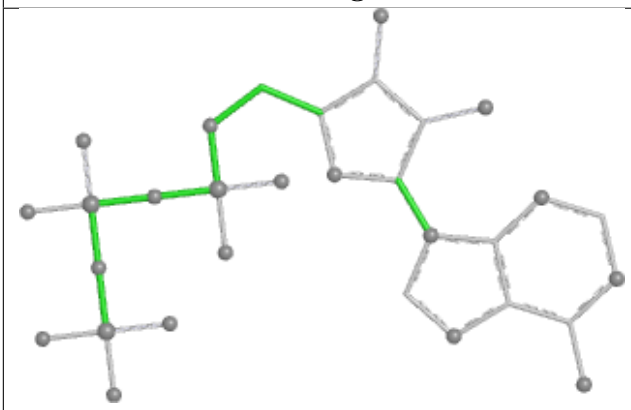

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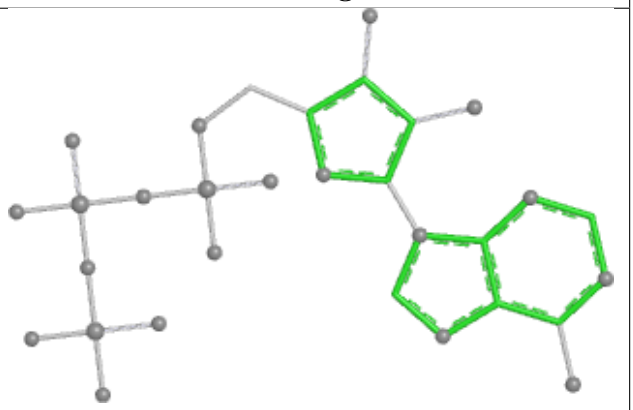
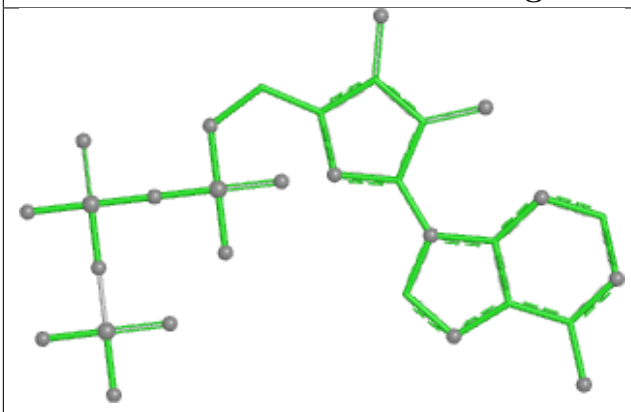


Rings

Ligand ATP B 501



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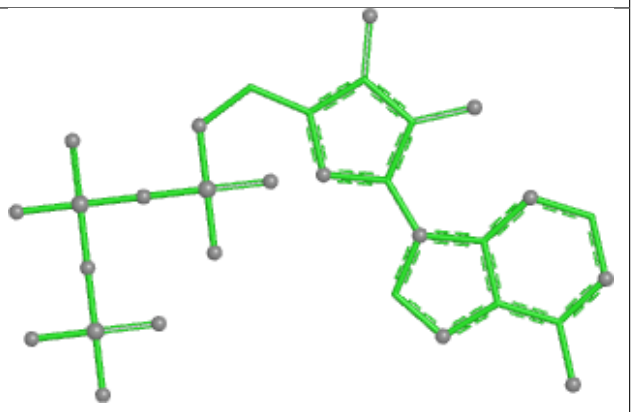

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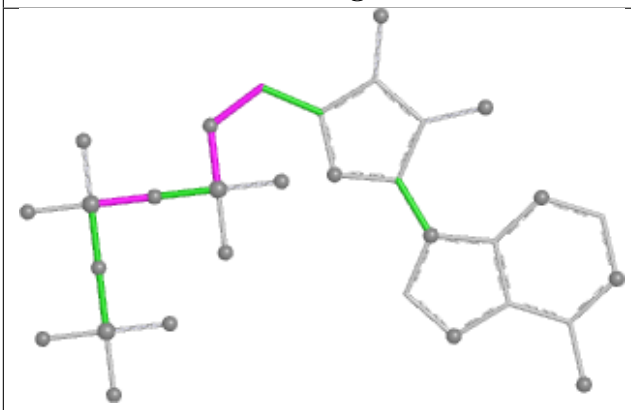

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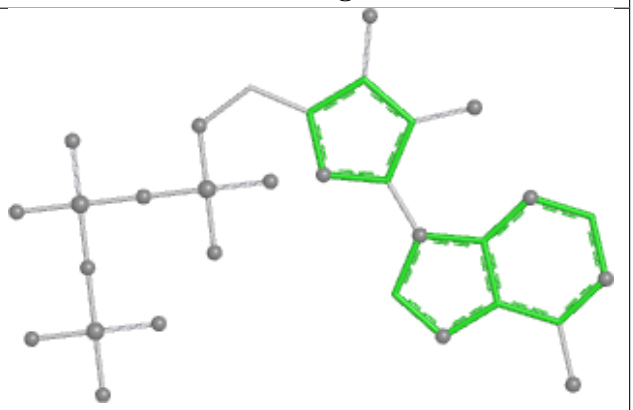
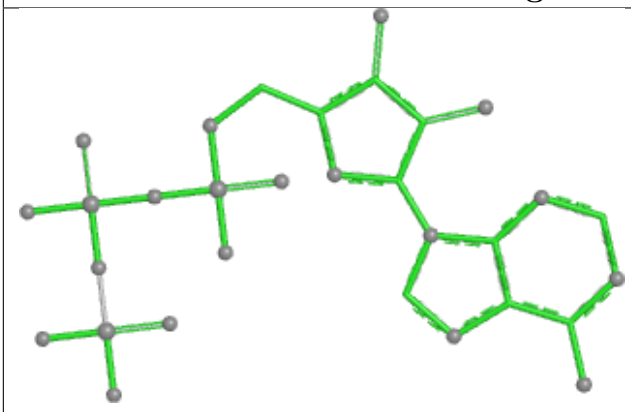


Rings

Ligand ATP E 401



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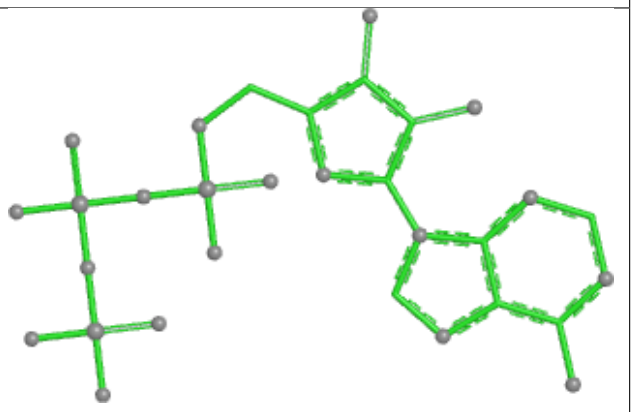
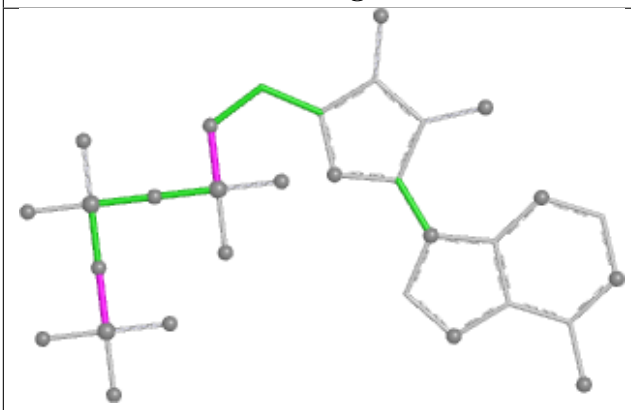


Bond angles



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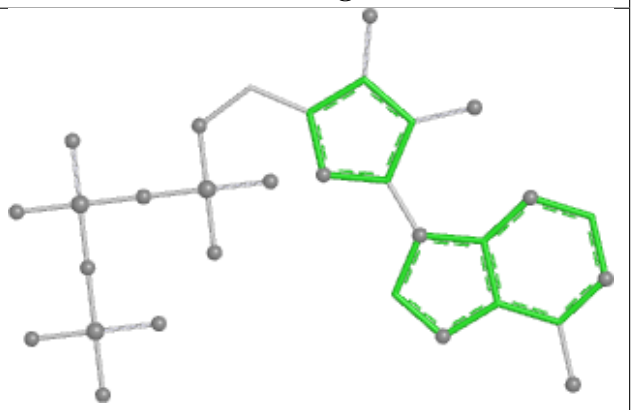
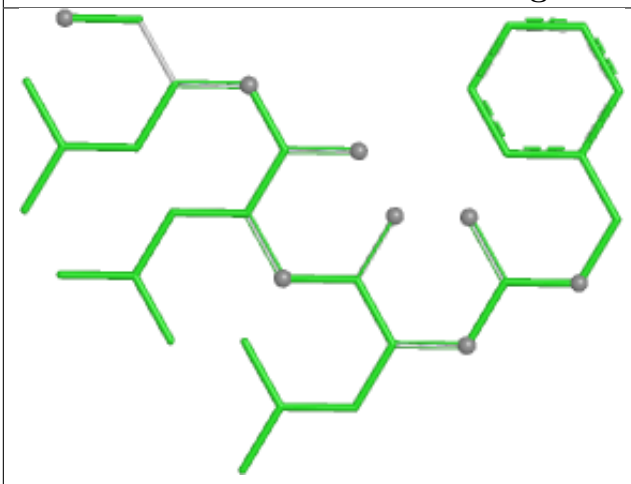
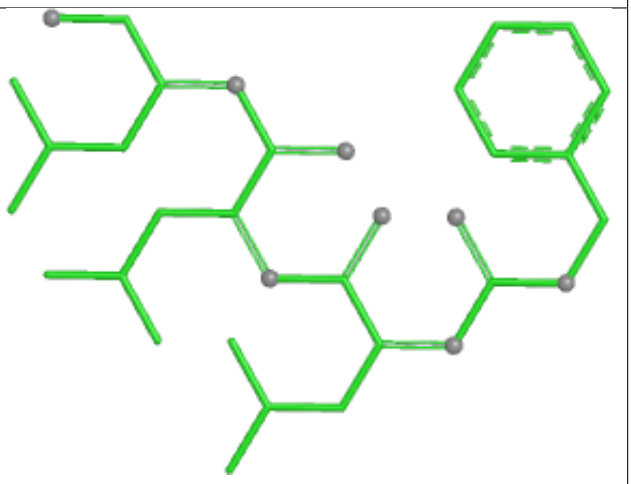


Rings

Ligand LDZ o 301

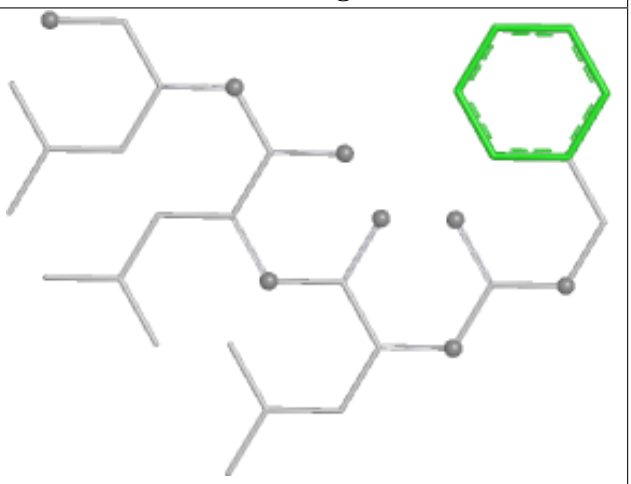


Bond lengths



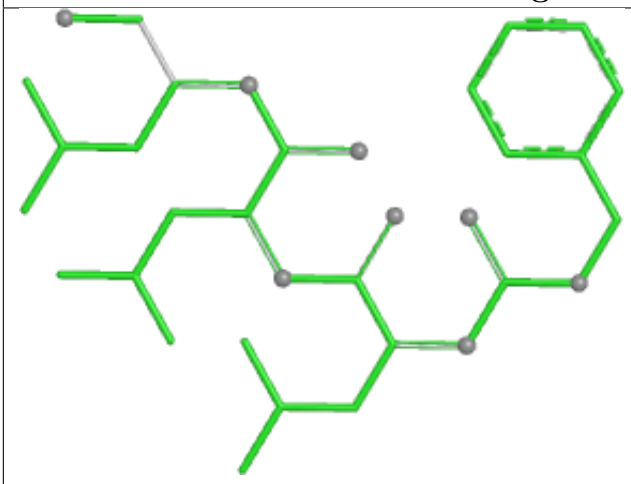
Bond angles

Torsions

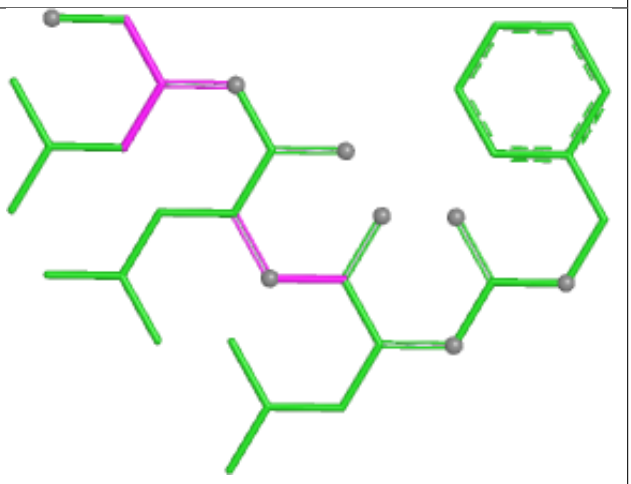


Rings

Ligand LDZ r 301

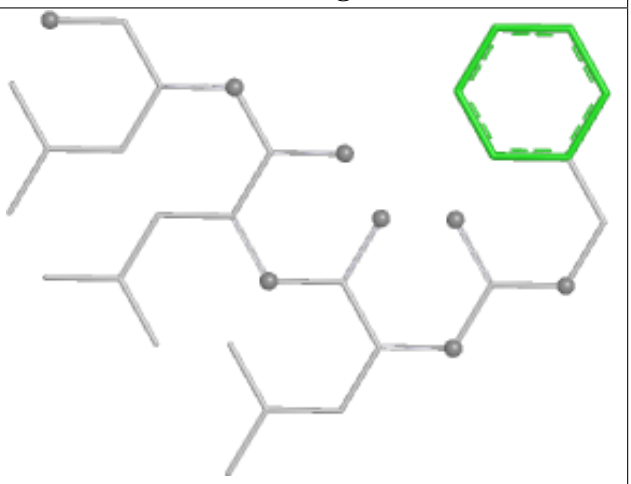


Bond lengths



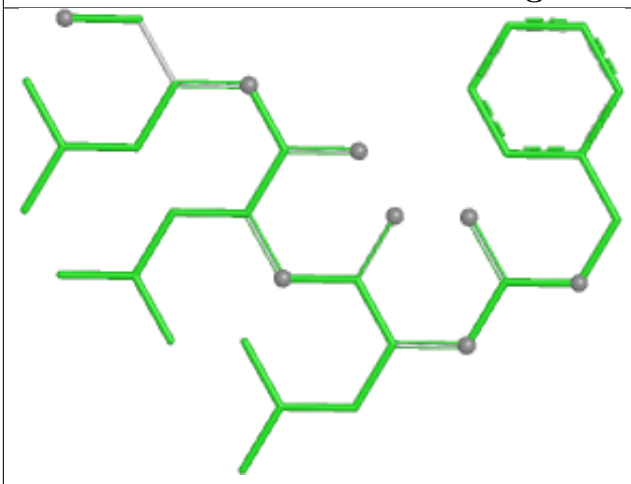
Bond angles

Torsions

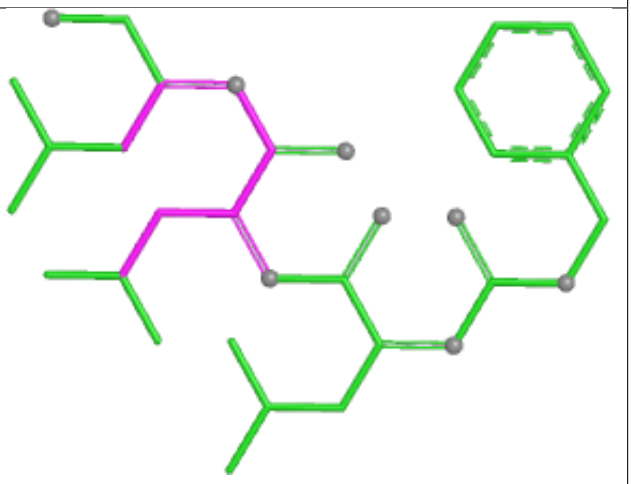


Rings

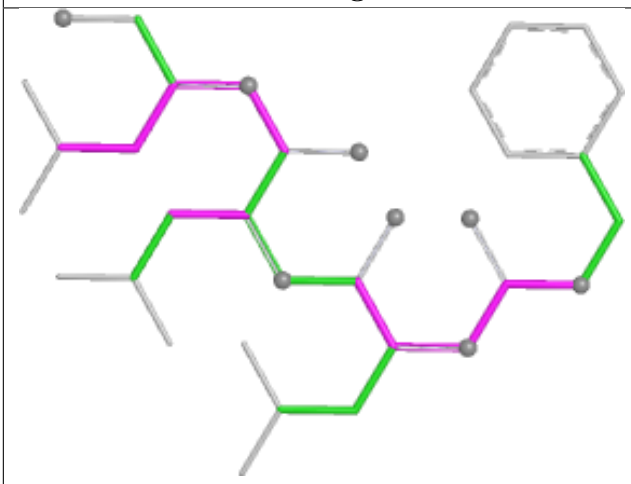
Ligand LDZ O 301



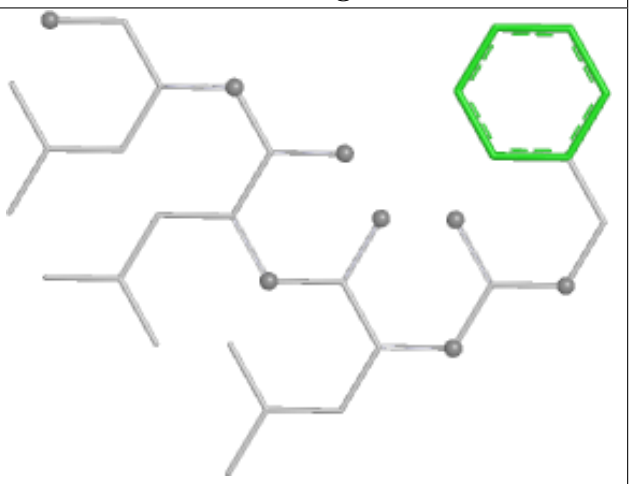
Bond lengths



Bond angles

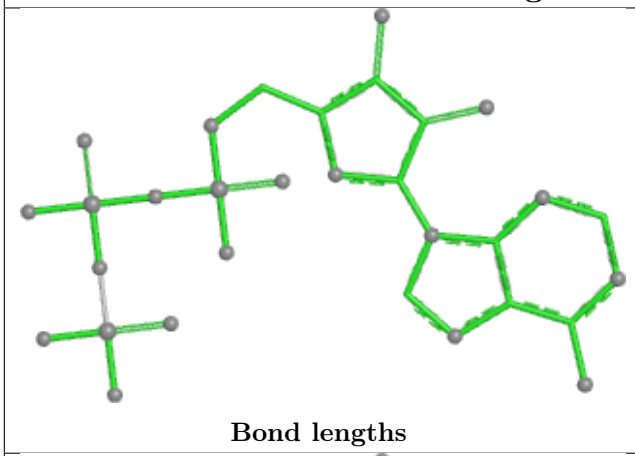


Torsions

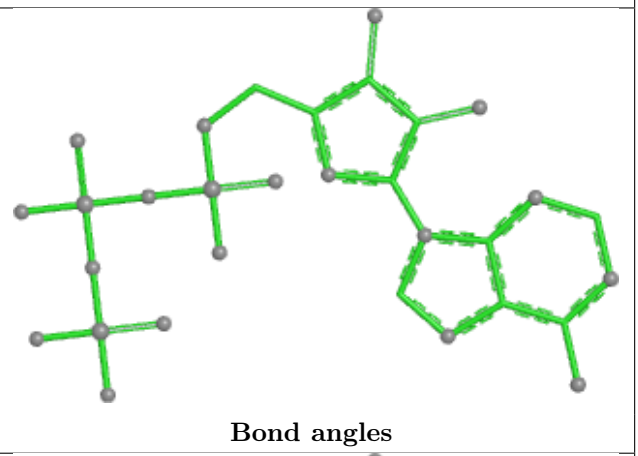


Rings

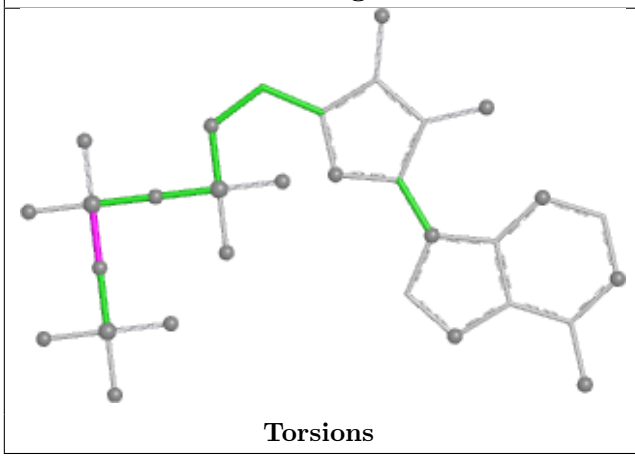
Ligand ATP A 501



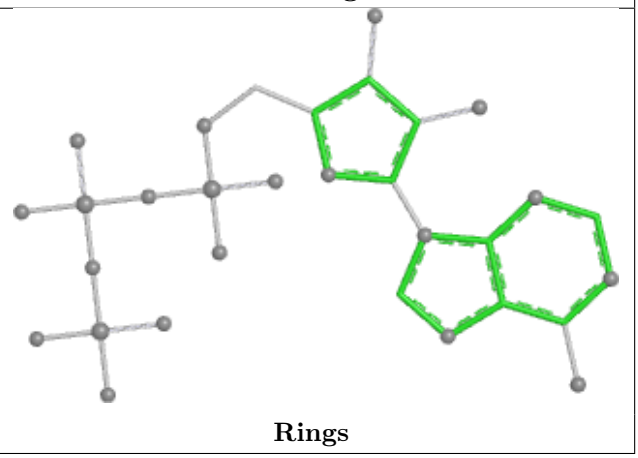
Bond lengths



Bond angles

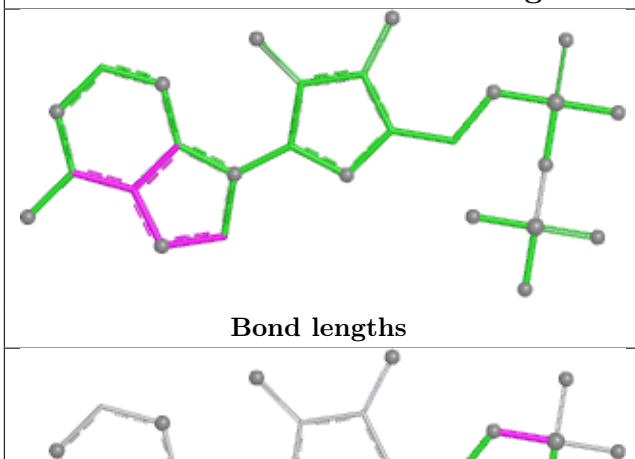


Torsions

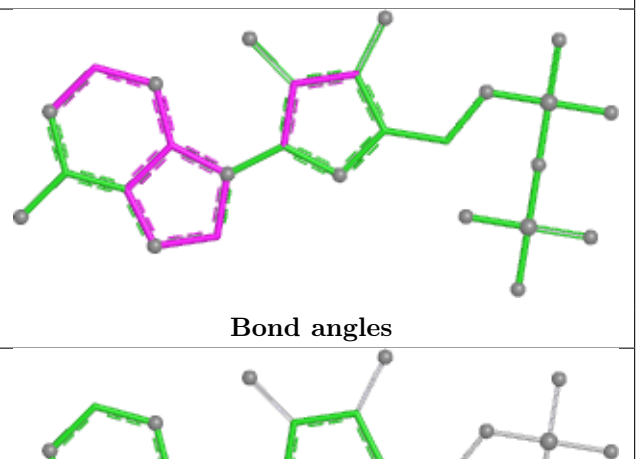


Rings

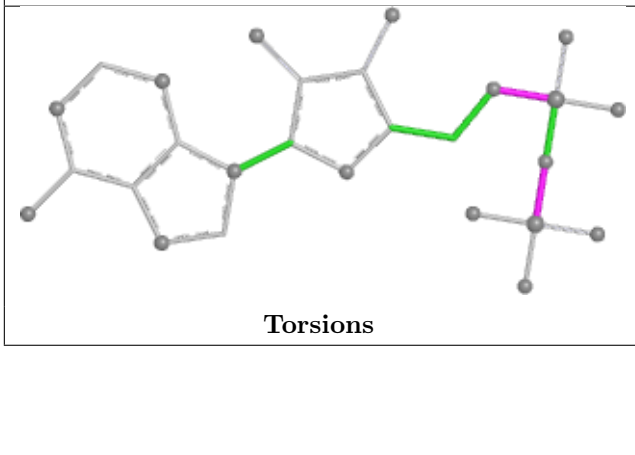
Ligand ADP F 501



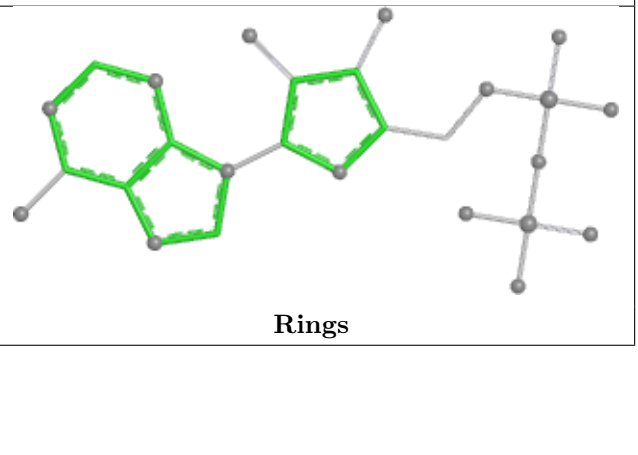
Bond lengths



Bond angles

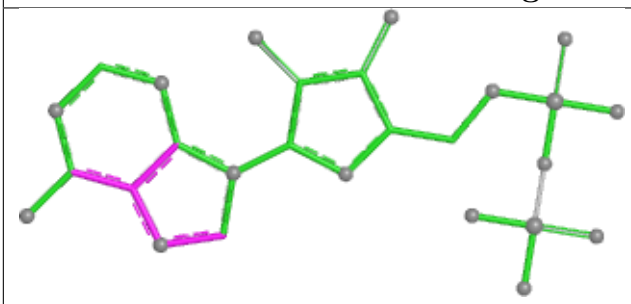


Torsions

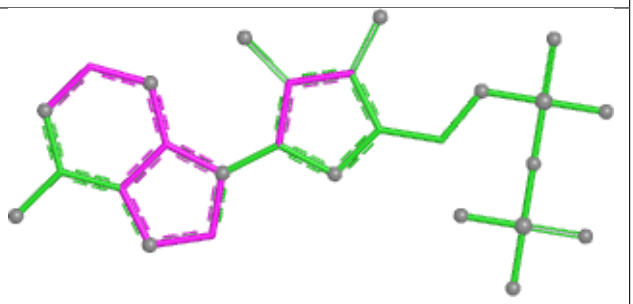


Rings

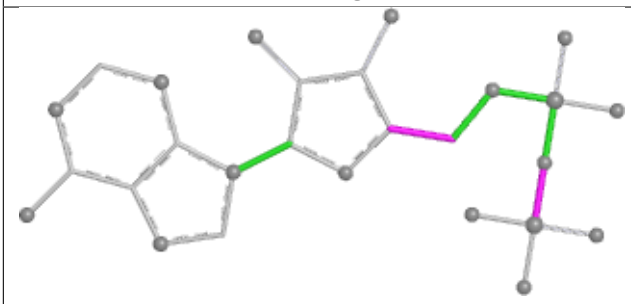
Ligand ADP C 501



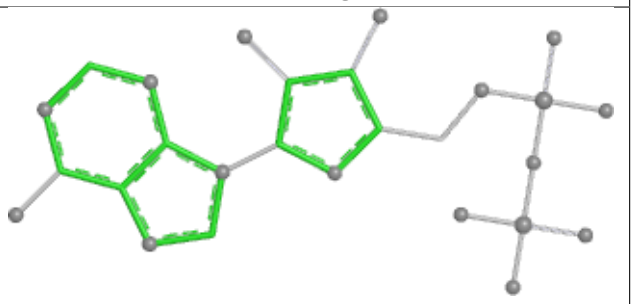
Bond lengths



Bond angles

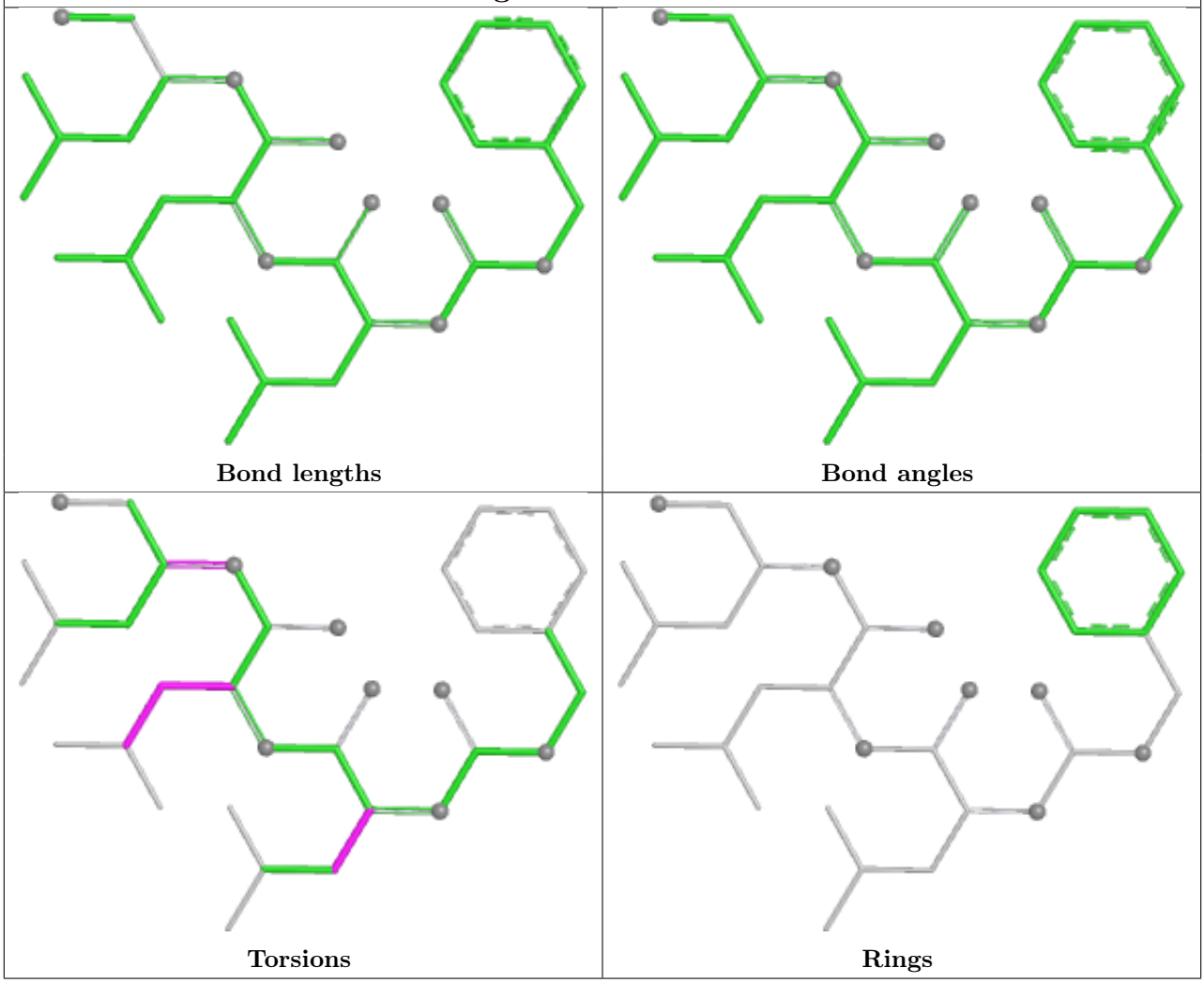


Torsions



Rings

Ligand LDZ N 301



5.7 Other polymers (i)

There are no such residues in this entry.

5.8 Polymer linkage issues (i)

There are no chain breaks in this entry.

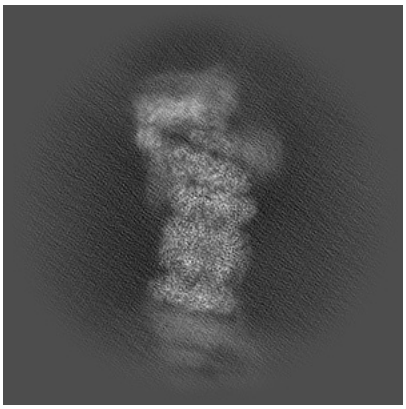
6 Map visualisation

This section contains visualisations of the EMDB entry EMD-63943. These allow visual inspection of the internal detail of the map and identification of artifacts.

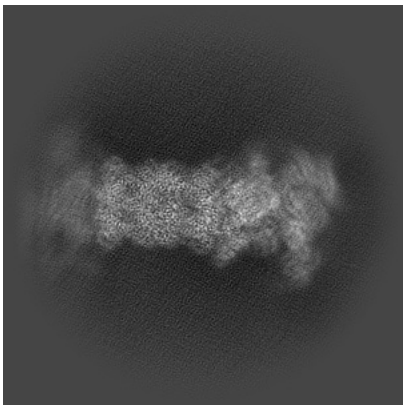
Images derived from a raw map, generated by summing the deposited half-maps, are presented below the corresponding image components of the primary map to allow further visual inspection and comparison with those of the primary map.

6.1 Orthogonal projections

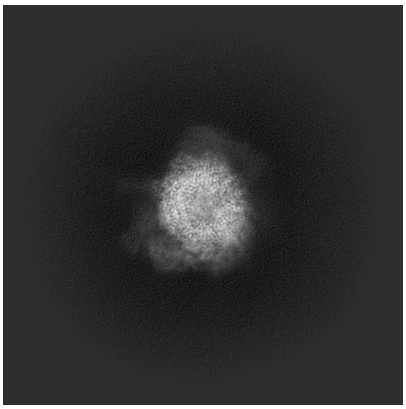
6.1.1 Primary map



X

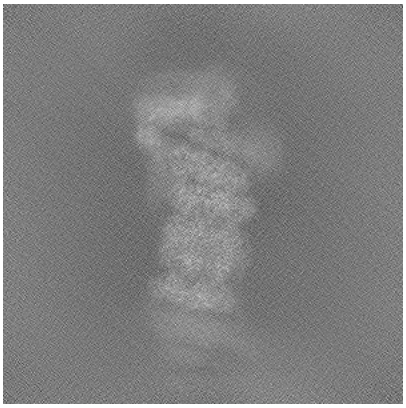


Y

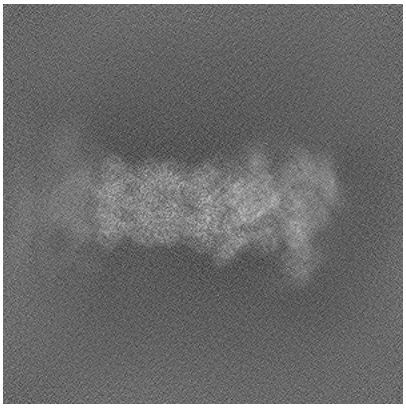


Z

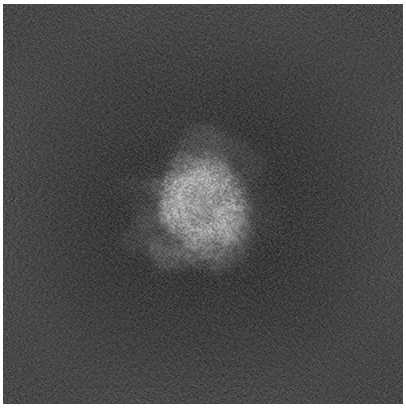
6.1.2 Raw map



X



Y

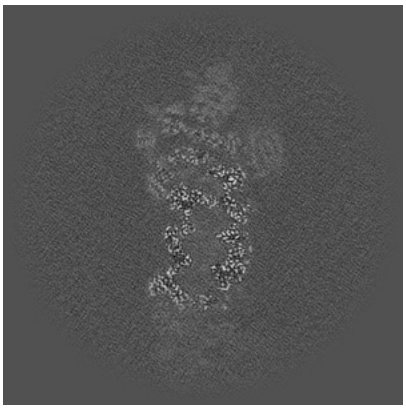


Z

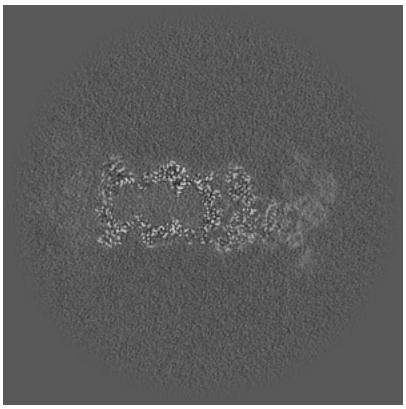
The images above show the map projected in three orthogonal directions.

6.2 Central slices (i)

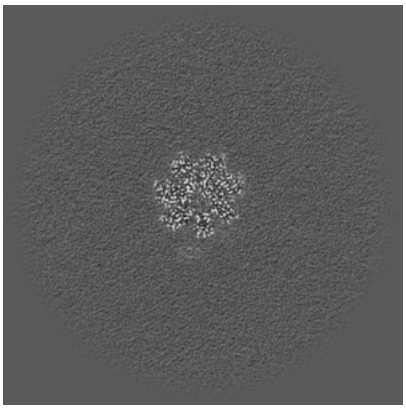
6.2.1 Primary map



X Index: 300

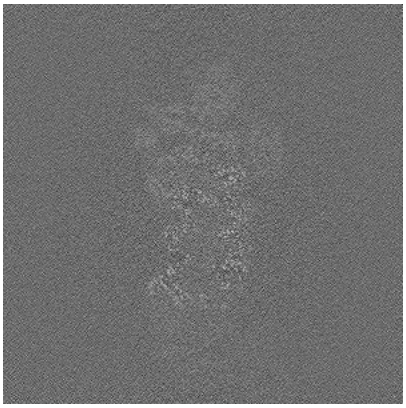


Y Index: 300

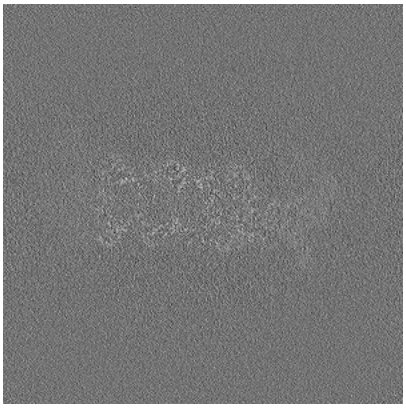


Z Index: 300

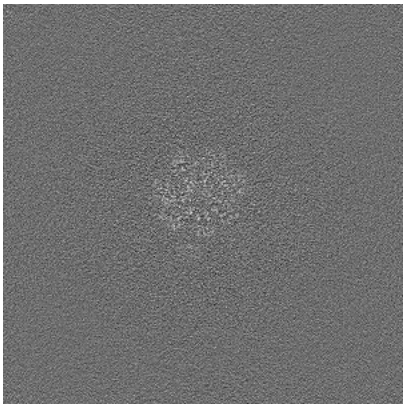
6.2.2 Raw map



X Index: 300



Y Index: 300

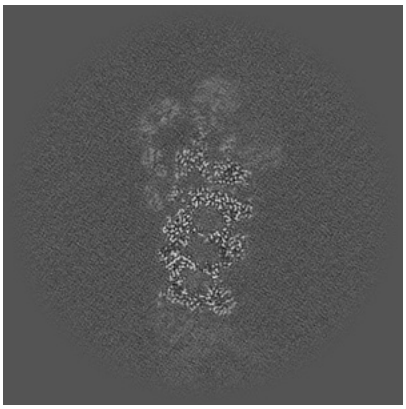


Z Index: 300

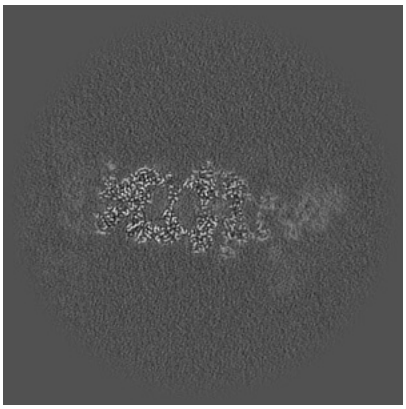
The images above show central slices of the map in three orthogonal directions.

6.3 Largest variance slices (i)

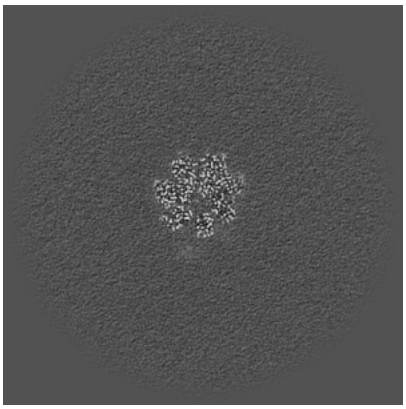
6.3.1 Primary map



X Index: 280

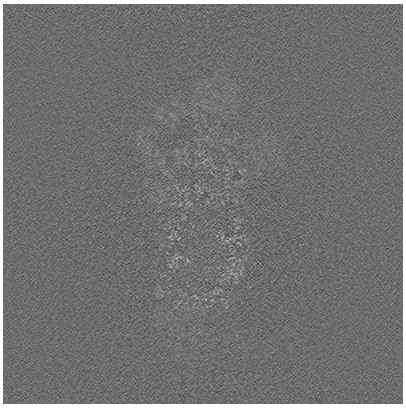


Y Index: 322

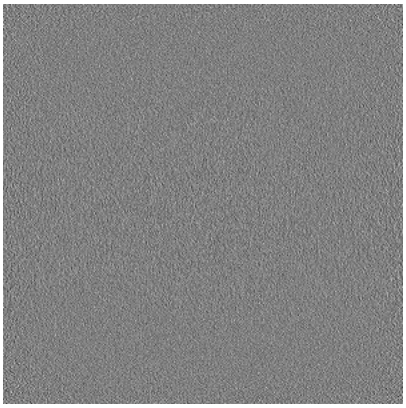


Z Index: 299

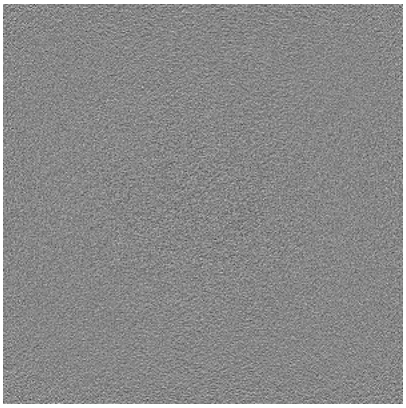
6.3.2 Raw map



X Index: 292



Y Index: 0

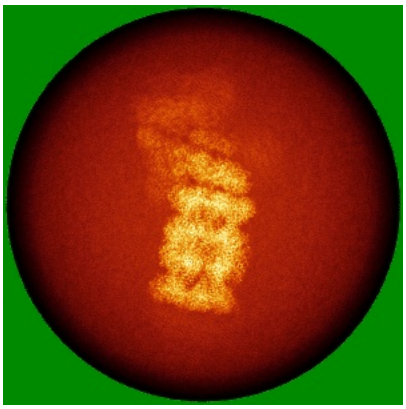


Z Index: 0

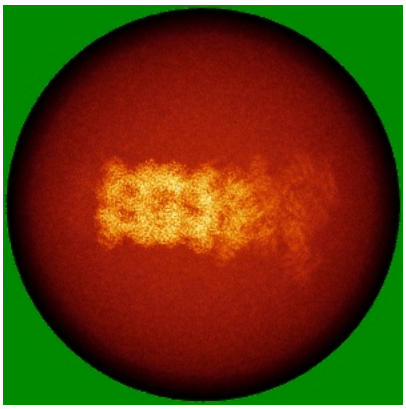
The images above show the largest variance slices of the map in three orthogonal directions.

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

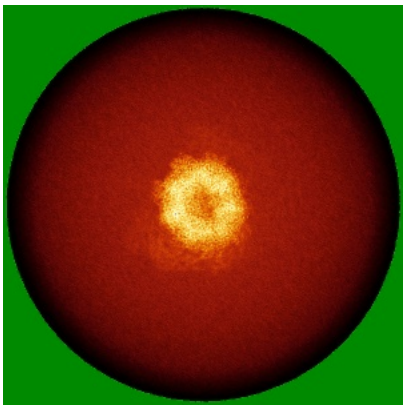
6.4.1 Primary map



X

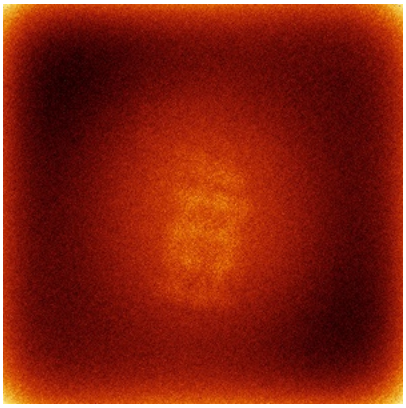


Y

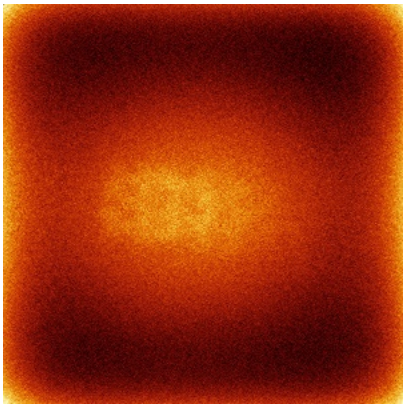


Z

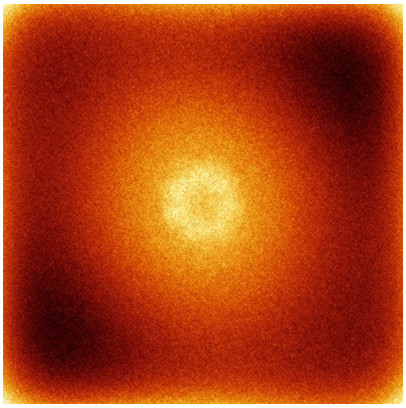
6.4.2 Raw map



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.

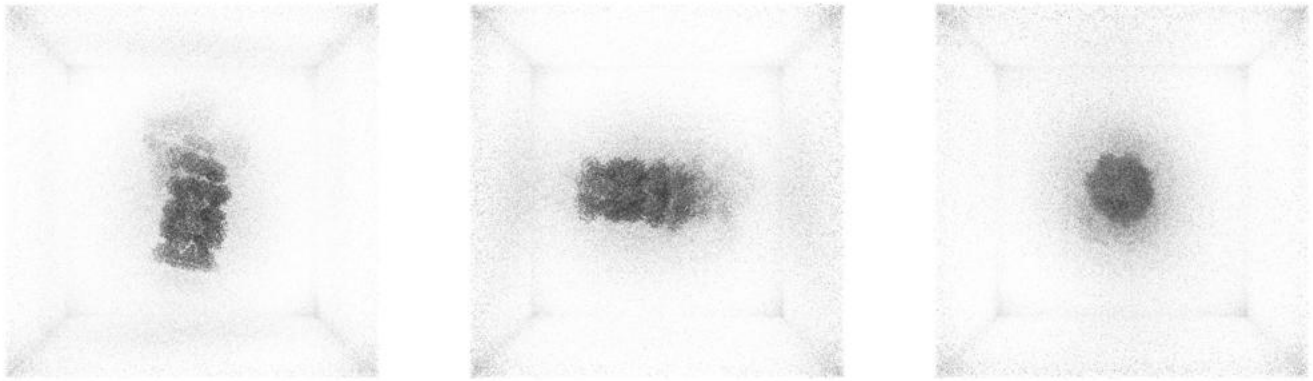
6.5 Orthogonal surface views (i)

6.5.1 Primary map

X Y Z

The images above show the 3D surface view of the map at the recommended contour level 0.18. These images, in conjunction with the slice images, may facilitate assessment of whether an appropriate contour level has been provided.

6.5.2 Raw map



X Y Z

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

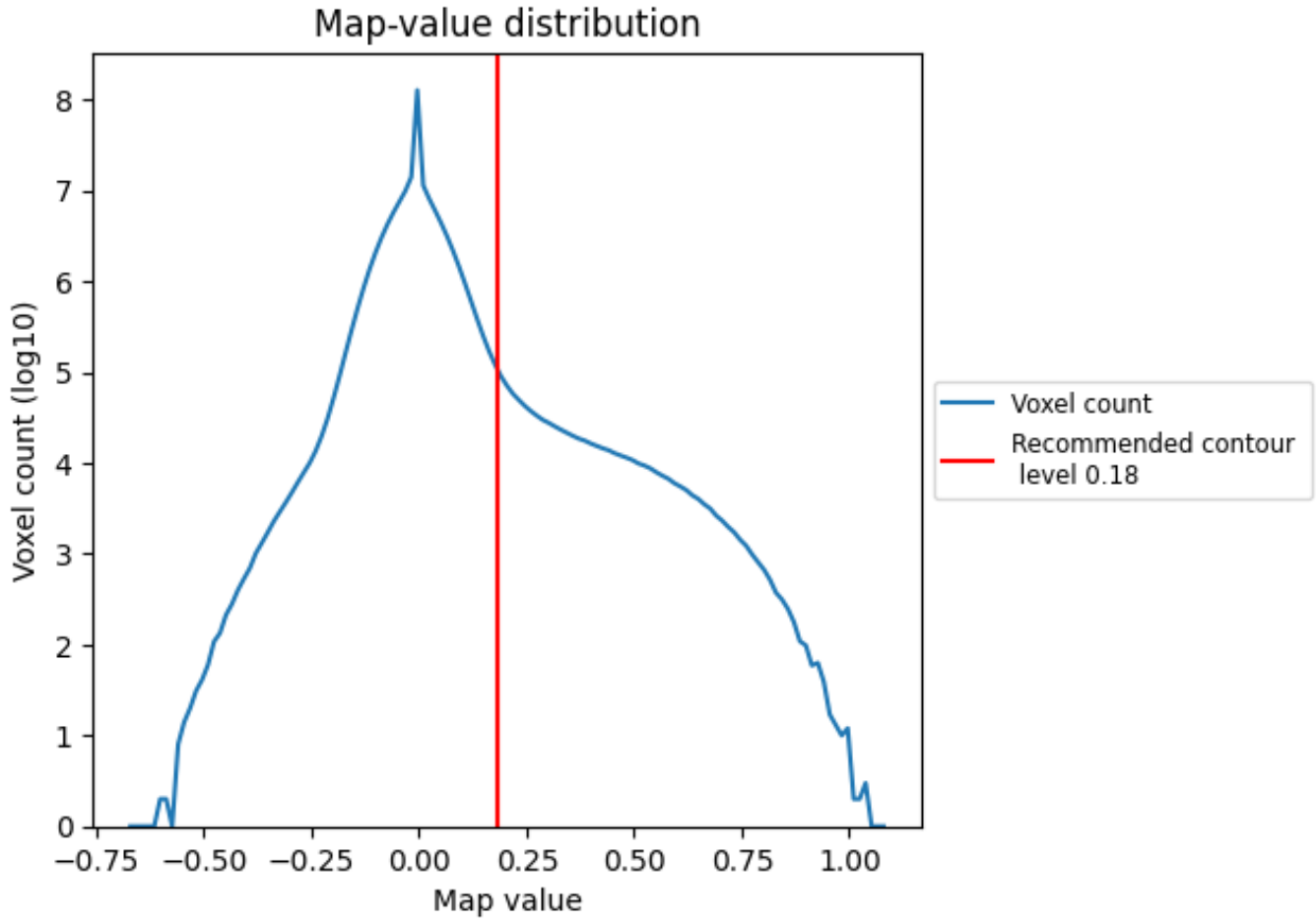
6.6 Mask visualisation (i)

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

7 Map analysis

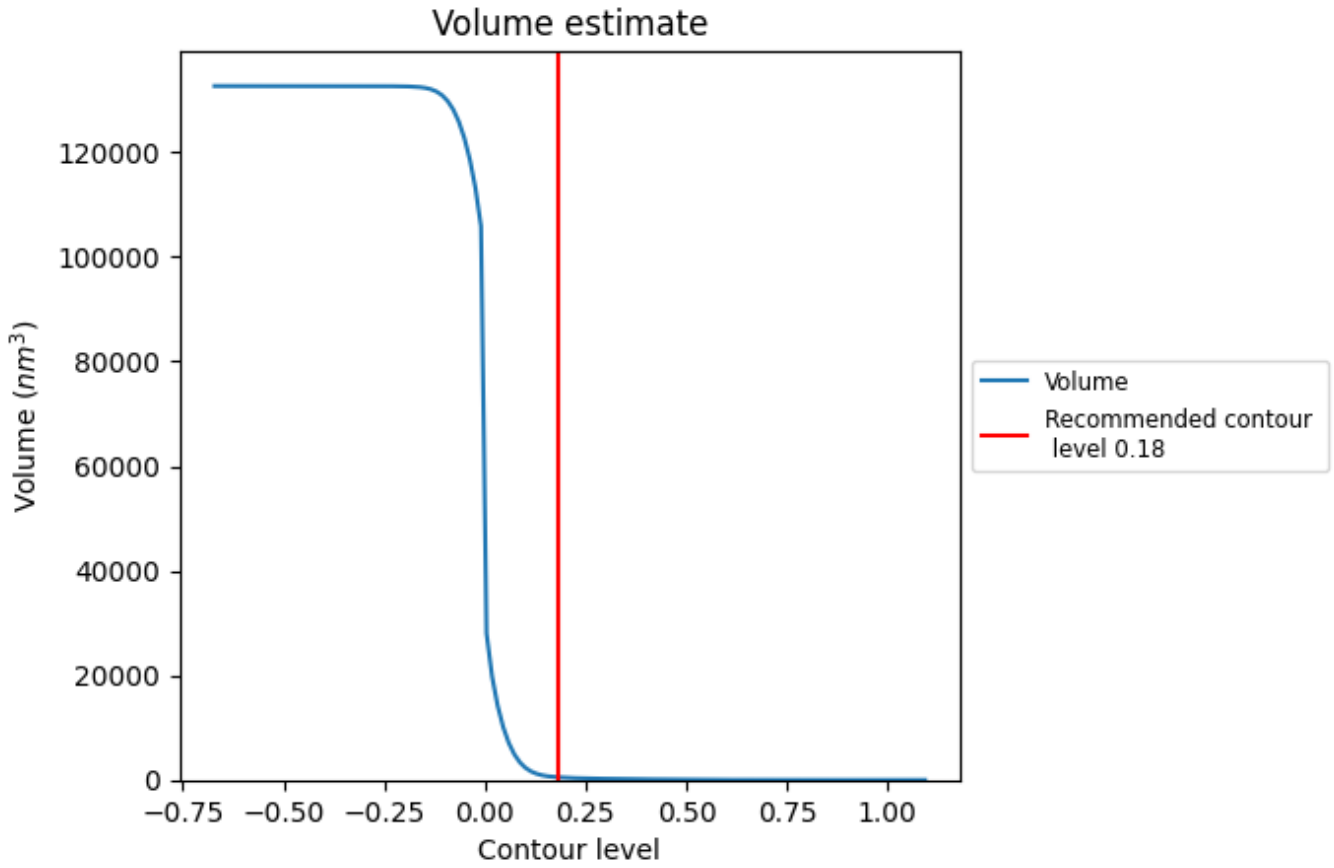
This section contains the results of statistical analysis of the map.

7.1 Map-value distribution



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

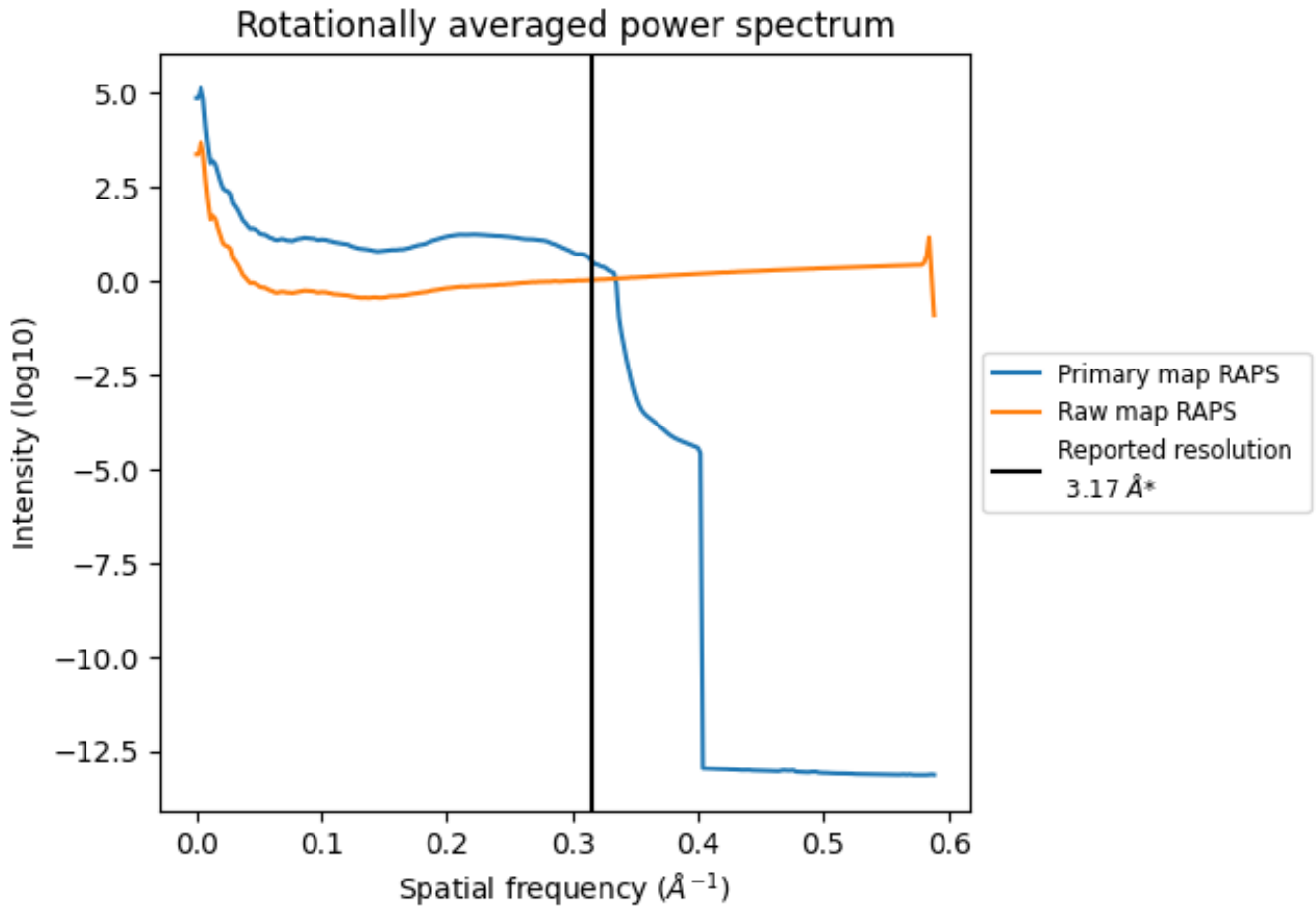
7.2 Volume estimate (i)



The volume at the recommended contour level is 527 nm^3; this corresponds to an approximate mass of 476 kDa.

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

7.3 Rotationally averaged power spectrum (i)

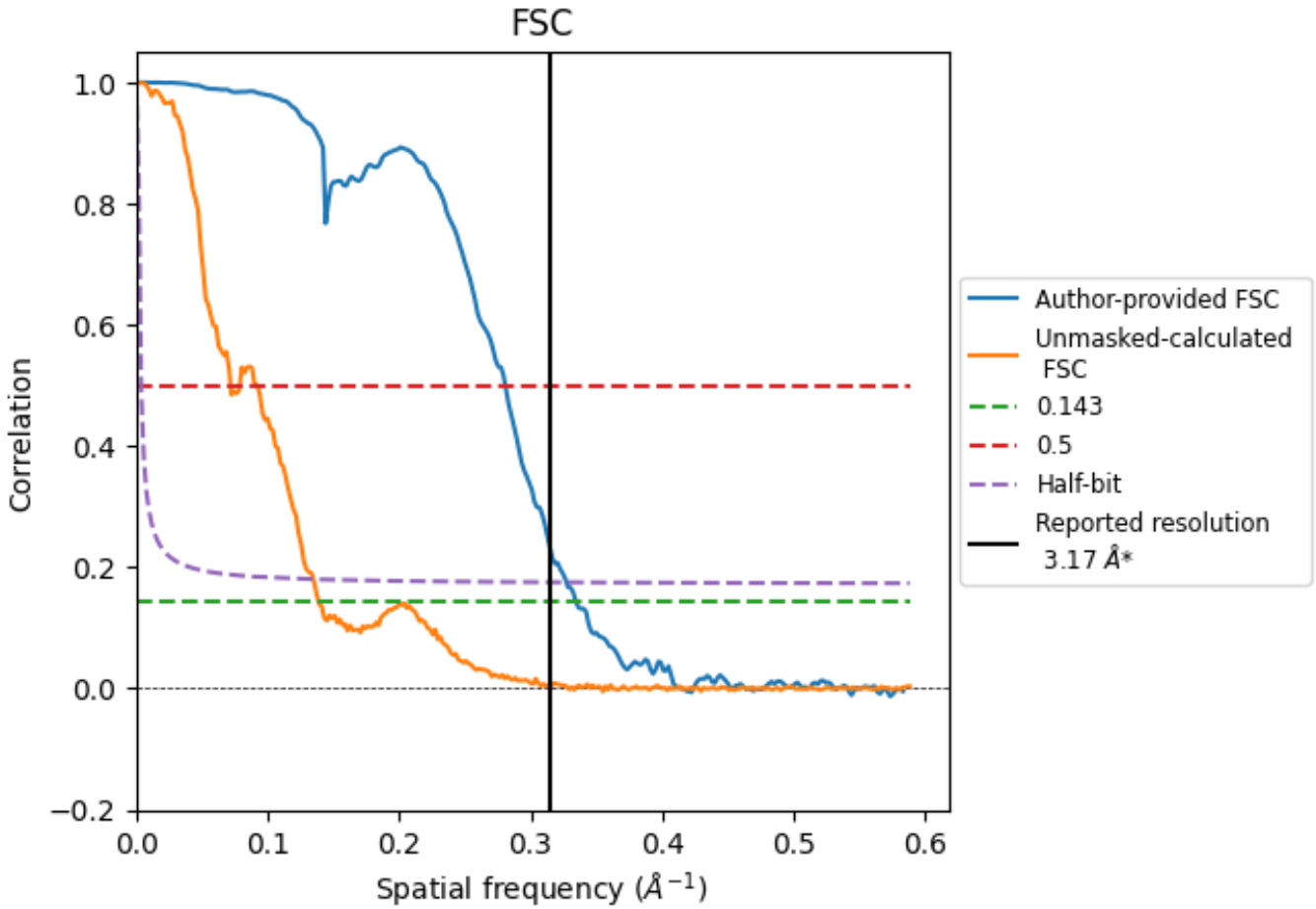


*Reported resolution corresponds to spatial frequency of 0.315 $Å^{-1}$

8 Fourier-Shell correlation

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

8.1 FSC



*Reported resolution corresponds to spatial frequency of 0.315 Å^{-1}

8.2 Resolution estimates (i)

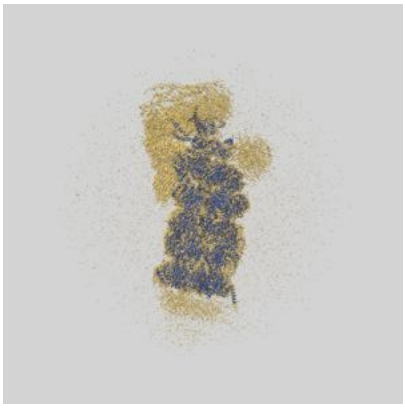
Resolution estimate (Å)	Estimation criterion (FSC cut-off)		
	0.143	0.5	Half-bit
Reported by author	3.17	-	-
Author-provided FSC curve	2.99	3.56	3.06
Unmasked-calculated*	7.20	13.91	7.42

*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 7.20 differs from the reported value 3.17 by more than 10 %

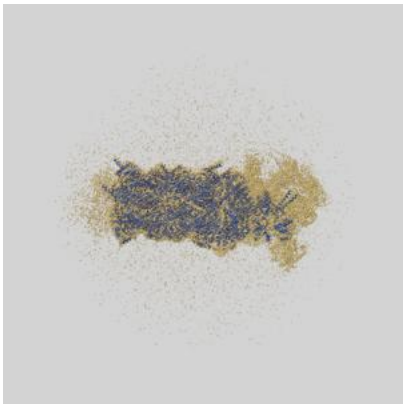
9 Map-model fit

This section contains information regarding the fit between EMDB map EMD-63943 and PDB model 9U7R. Per-residue inclusion information can be found in section 3 on page 12.

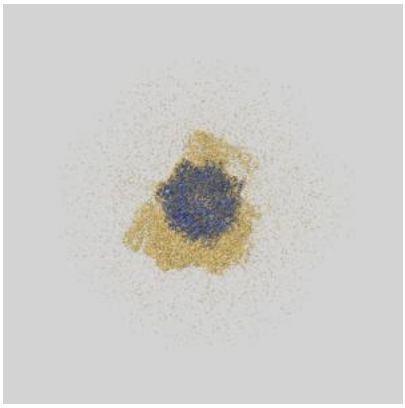
9.1 Map-model overlay



X



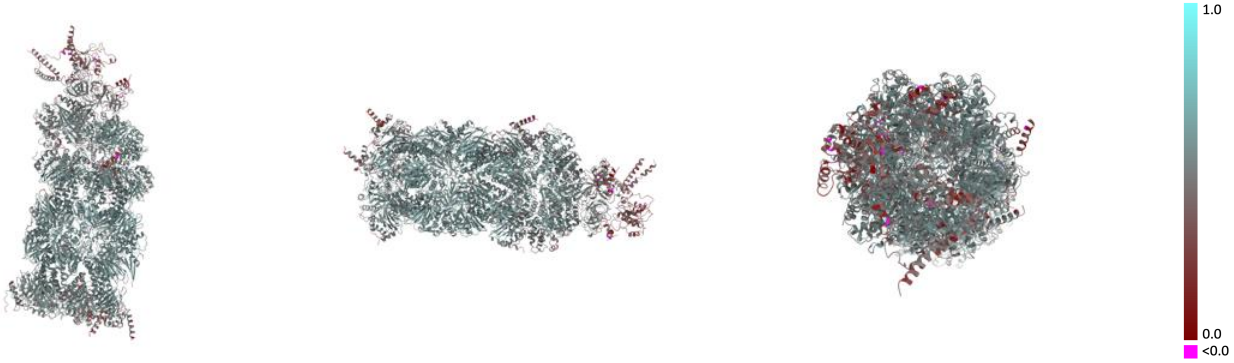
Y



Z

The images above show the 3D surface view of the map at the recommended contour level 0.18 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.

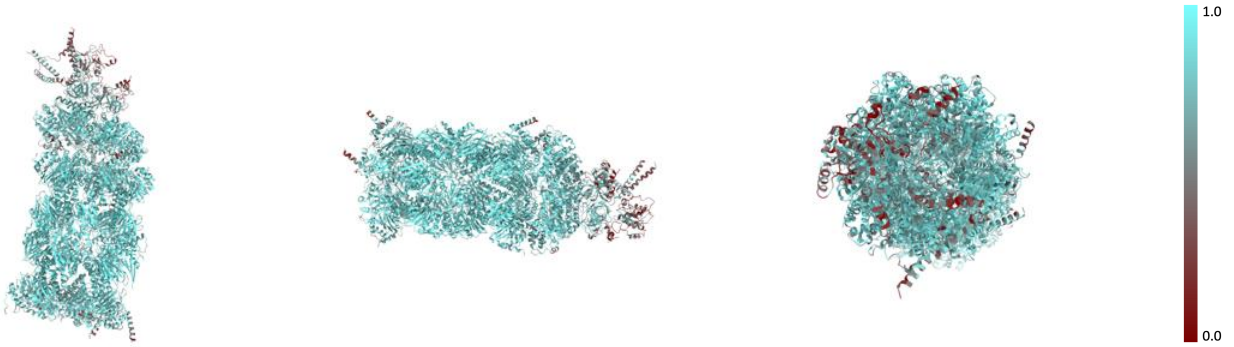
9.2 Q-score mapped to coordinate model (i)



X Y Z

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

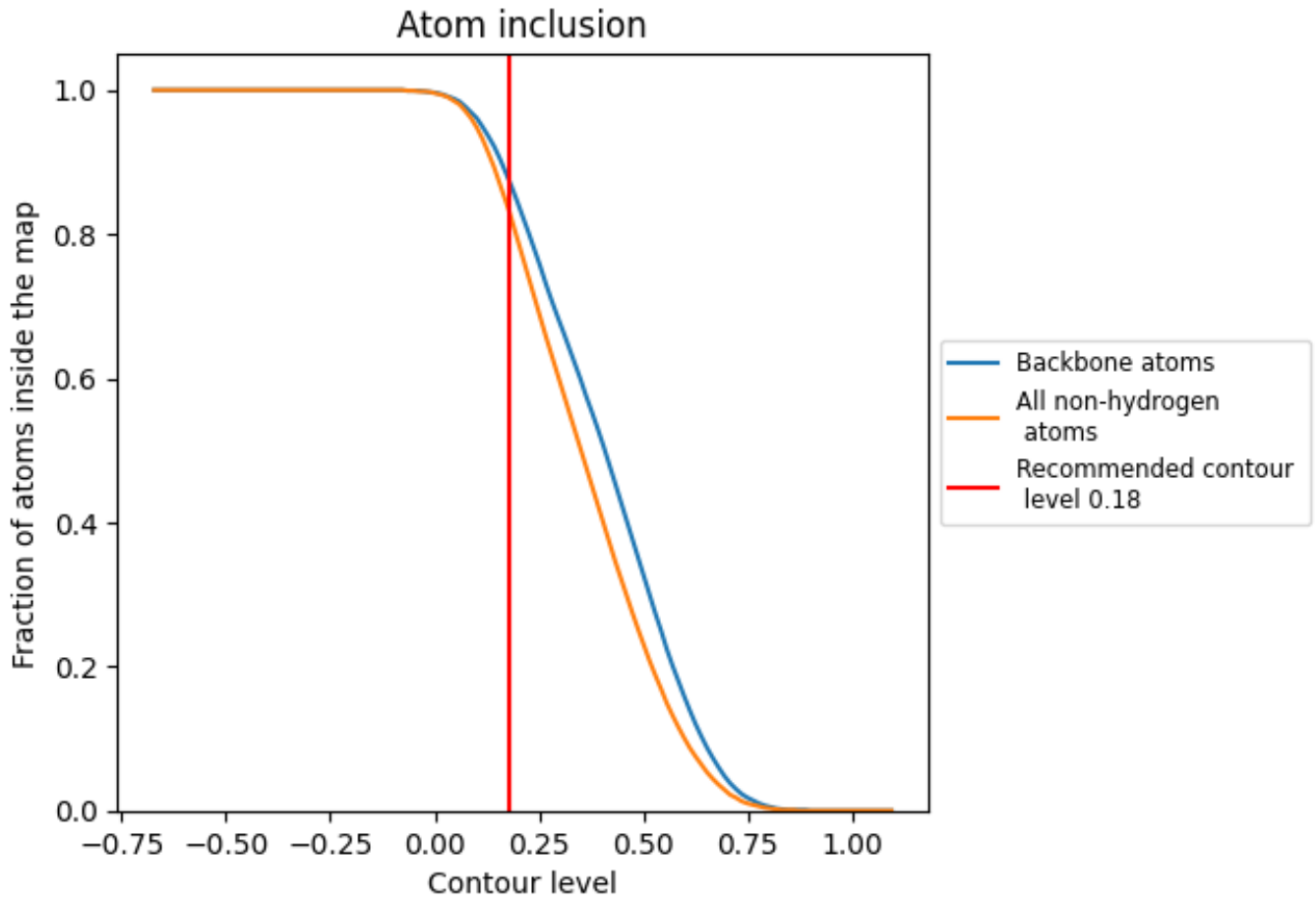
9.3 Atom inclusion mapped to coordinate model (i)



X Y Z

The images above show the model with each residue coloured according to its atom inclusion. This shows to what extent they are inside the map at the recommended contour level (0.18).

9.4 Atom inclusion (i)



At the recommended contour level, 87% of all backbone atoms, 83% 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 (0.18) and Q-score for the entire model and for each chain.

Chain	Atom inclusion	Q-score
All	0.8290	0.5310
A	0.7860	0.5170
B	0.7370	0.4970
C	0.7180	0.4780
D	0.7000	0.4780
E	0.7610	0.5030
F	0.7880	0.5170
G	0.8930	0.5540
H	0.8990	0.5630
I	0.8400	0.5240
J	0.8420	0.5040
K	0.8870	0.5560
L	0.8770	0.5570
M	0.8750	0.5520
N	0.9200	0.5860
O	0.9060	0.5680
P	0.9290	0.5720
Q	0.9050	0.5730
R	0.9390	0.5950
S	0.9180	0.5830
T	0.9260	0.5870
c	0.4010	0.3150
g	0.8350	0.5360
h	0.8620	0.5440
i	0.7850	0.5060
j	0.7480	0.4650
k	0.7950	0.5140
l	0.8220	0.5310
m	0.8230	0.5250
n	0.9130	0.5750
o	0.9170	0.5810
p	0.9290	0.5890
q	0.9150	0.5760
r	0.9160	0.5720
s	0.9070	0.5740
t	0.9130	0.5760