



Full wwPDB EM Validation Report ⓘ

Apr 21, 2026 – 01:22 AM JST

PDB ID : 9K50 / pdb_00009k50
EMDB ID : EMD-62076
Title : Structure of substrate-engaged human 26S proteasome RP-CP subcomplex in state ED1.2
Authors : Wu, Z.; Chen, E.; Mao, Y.
Deposited on : 2024-10-21
Resolution : 3.20 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:

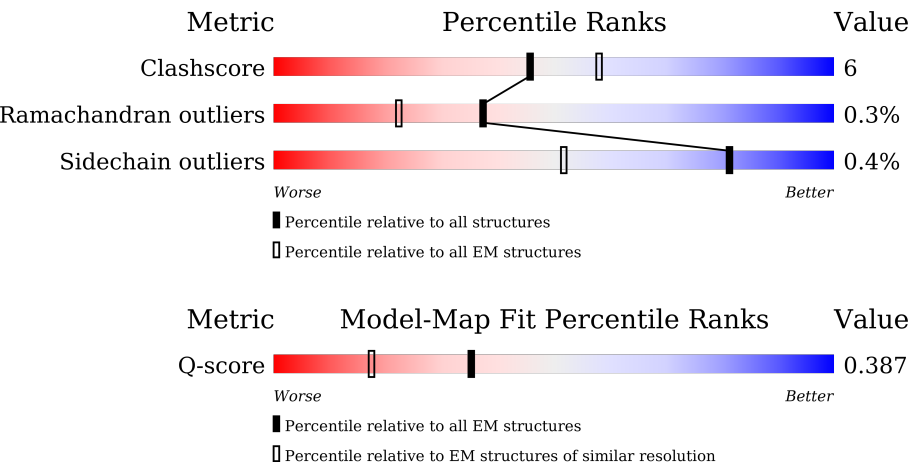
EMDB validation analysis : 0.0.1.dev132
Mogul : 1.8.5 (274361), CSD as541be (2020)
MolProbity : 4-5-2 with Phenix2.0
Buster-report : wwPDB partial adaption of 1.1.7 (2018)
Percentile statistics : 20250101.v01 (using entries in the PDB archive January 1st 2025)
EM percentile statistics : 202505.v01 (Using 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 i

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

The reported resolution of this entry is 3.20 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	15020 (2.70 - 3.70)

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

Mol	Chain	Length	Quality of chain
1	A	433	<div><div>42%</div><div><div></div><div>72%</div><div>21%</div><div>• 5%</div></div></div>
2	B	440	<div><div>19%</div><div><div></div><div>72%</div><div>22%</div><div>7%</div></div></div>
3	C	398	<div><div>9%</div><div><div></div><div>74%</div><div>24%</div><div>••</div></div></div>
4	D	418	<div><div>5%</div><div><div></div><div>71%</div><div>18%</div><div>• 9%</div></div></div>











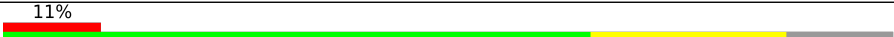


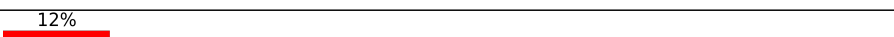
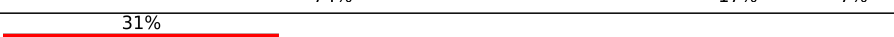
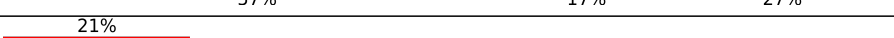

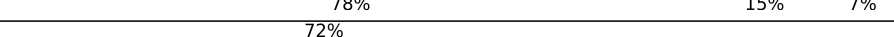
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Mol	Chain	Length	Quality of chain
5	E	403	
6	F	439	
7	G	246	
7	g	246	
8	H	234	
8	h	234	
9	I	261	
9	i	261	
10	J	248	
10	j	248	
11	K	241	
11	k	241	
12	L	263	
12	l	263	
13	M	255	
13	m	255	
14	N	239	
14	n	239	
15	O	277	
15	o	277	
16	P	205	
16	p	205	
17	Q	201	
17	q	201	
18	R	263	

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Mol	Chain	Length	Quality of chain
18	r	263	
19	S	241	
19	s	241	
20	T	264	
20	t	264	
21	U	953	
22	V	534	
23	W	456	
24	X	422	
25	Y	389	
26	Z	324	
27	a	376	
28	b	377	
29	c	310	
30	d	350	
31	e	70	
32	f	908	
33	v	36	

2 Entry composition

There are 37 unique types of molecules in this entry. The entry contains 106307 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 regulatory subunit 7.

Mol	Chain	Residues	Atoms					AltConf	Trace
1	A	413	Total	C	N	O	S	0	0
			3229	2034	566	611	18		

- Molecule 2 is a protein called 26S proteasome regulatory subunit 4.

Mol	Chain	Residues	Atoms					AltConf	Trace
2	B	411	Total	C	N	O	S	0	0
			3207	2022	548	622	15		

- Molecule 3 is a protein called 26S proteasome regulatory subunit 8.

Mol	Chain	Residues	Atoms					AltConf	Trace
3	C	396	Total	C	N	O	S	0	0
			3105	1954	558	576	17		

- Molecule 4 is a protein called 26S proteasome regulatory subunit 6B.

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

- Molecule 5 is a protein called Proteasome 26S subunit, ATPase 6.

Mol	Chain	Residues	Atoms					AltConf	Trace
5	E	389	Total	C	N	O	S	0	0
			3097	1947	552	581	17		

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

Mol	Chain	Residues	Atoms					AltConf	Trace
6	F	395	Total	C	N	O	S	0	0
			3098	1951	533	596	18		

- Molecule 7 is a protein called Proteasome subunit alpha type-6.

Mol	Chain	Residues	Atoms					AltConf	Trace
7	G	240	Total	C	N	O	S	0	0
			1867	1187	312	355	13		
7	g	244	Total	C	N	O	S	0	0
			1879	1193	318	355	13		

- Molecule 8 is a protein called Proteasome subunit alpha type-2.

Mol	Chain	Residues	Atoms					AltConf	Trace
8	H	232	Total	C	N	O	S	0	0
			1801	1149	304	342	6		
8	h	232	Total	C	N	O	S	0	0
			1805	1154	307	338	6		

- Molecule 9 is a protein called Proteasome subunit alpha type-4.

Mol	Chain	Residues	Atoms					AltConf	Trace
9	I	248	Total	C	N	O	S	0	0
			1933	1222	330	371	10		
9	i	250	Total	C	N	O	S	0	0
			1955	1234	336	375	10		

- Molecule 10 is a protein called Proteasome subunit alpha type-7.

Mol	Chain	Residues	Atoms					AltConf	Trace
10	J	239	Total	C	N	O	S	0	0
			1861	1166	327	363	5		
10	j	239	Total	C	N	O	S	0	0
			1861	1168	332	356	5		

- Molecule 11 is a protein called Proteasome subunit alpha type-5.

Mol	Chain	Residues	Atoms					AltConf	Trace
11	K	238	Total	C	N	O	S	0	0
			1813	1139	302	361	11		
11	k	234	Total	C	N	O	S	0	0
			1782	1119	295	357	11		

- Molecule 12 is a protein called Proteasome subunit alpha type-1.

Mol	Chain	Residues	Atoms					AltConf	Trace
12	L	240	Total	C	N	O	S	0	0
			1876	1175	338	352	11		
12	l	238	Total	C	N	O	S	0	0
			1861	1165	335	350	11		

- Molecule 13 is a protein called Proteasome subunit alpha type-3.

Mol	Chain	Residues	Atoms					AltConf	Trace
13	M	242	Total	C	N	O	S	1	0
			1893	1202	323	356	12		
13	m	240	Total	C	N	O	S	0	0
			1881	1193	321	356	11		

- Molecule 14 is a protein called Proteasome subunit beta type-6.

Mol	Chain	Residues	Atoms					AltConf	Trace
14	N	203	Total	C	N	O	S	0	0
			1521	954	259	296	12		
14	n	202	Total	C	N	O	S	0	0
			1510	947	258	293	12		

- Molecule 15 is a protein called Proteasome subunit beta type-7.

Mol	Chain	Residues	Atoms					AltConf	Trace
15	O	220	Total	C	N	O	S	0	0
			1645	1035	278	320	12		
15	o	220	Total	C	N	O	S	0	0
			1659	1044	283	320	12		

- Molecule 16 is a protein called Proteasome subunit beta type-3.

Mol	Chain	Residues	Atoms					AltConf	Trace
16	P	204	Total	C	N	O	S	0	0
			1587	1010	264	294	19		
16	p	204	Total	C	N	O	S	0	0
			1591	1013	265	294	19		

- Molecule 17 is a protein called Proteasome subunit beta type-2.

Mol	Chain	Residues	Atoms					AltConf	Trace
17	Q	199	Total	C	N	O	S	1	0
			1591	1019	270	292	10		

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Mol	Chain	Residues	Atoms					AltConf	Trace
17	q	199	Total	C	N	O	S	0	0
			1578	1012	267	290	9		

- Molecule 18 is a protein called Proteasome subunit beta type-5.

Mol	Chain	Residues	Atoms					AltConf	Trace
18	R	201	Total	C	N	O	S	0	0
			1559	982	274	294	9		
18	r	201	Total	C	N	O	S	0	0
			1549	977	270	293	9		

- Molecule 19 is a protein called Proteasome subunit beta type-1.

Mol	Chain	Residues	Atoms					AltConf	Trace
19	S	213	Total	C	N	O	S	0	0
			1641	1041	281	309	10		
19	s	213	Total	C	N	O	S	0	0
			1650	1044	283	313	10		

- Molecule 20 is a protein called Proteasome subunit beta type-4.

Mol	Chain	Residues	Atoms					AltConf	Trace
20	T	216	Total	C	N	O	S	0	0
			1683	1062	291	318	12		
20	t	216	Total	C	N	O	S	0	0
			1687	1064	291	320	12		

- Molecule 21 is a protein called 26S proteasome non-ATPase regulatory subunit 1.

Mol	Chain	Residues	Atoms					AltConf	Trace
21	U	878	Total	C	N	O	S	0	0
			6867	4352	1163	1306	46		

- Molecule 22 is a protein called 26S proteasome non-ATPase regulatory subunit 3.

Mol	Chain	Residues	Atoms					AltConf	Trace
22	V	444	Total	C	N	O	S	0	0
			3612	2301	645	653	13		

- Molecule 23 is a protein called 26S proteasome non-ATPase regulatory subunit 12.

Mol	Chain	Residues	Atoms					AltConf	Trace
23	W	441	Total	C	N	O	S	0	0
			3596	2277	613	682	24		

- Molecule 24 is a protein called 26S proteasome non-ATPase regulatory subunit 11.

Mol	Chain	Residues	Atoms					AltConf	Trace
24	X	422	Total	C	N	O	S	0	0
			3335	2116	567	639	13		

- Molecule 25 is a protein called 26S proteasome non-ATPase regulatory subunit 6.

Mol	Chain	Residues	Atoms					AltConf	Trace
25	Y	389	Total	C	N	O	S	0	0
			3202	2041	545	598	18		

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

Mol	Chain	Residues	Atoms					AltConf	Trace
26	Z	286	Total	C	N	O	S	0	0
			2281	1457	392	427	5		

- Molecule 27 is a protein called 26S proteasome non-ATPase regulatory subunit 13.

Mol	Chain	Residues	Atoms					AltConf	Trace
27	a	373	Total	C	N	O	S	0	0
			2995	1911	510	559	15		

- Molecule 28 is a protein called 26S proteasome non-ATPase regulatory subunit 4.

Mol	Chain	Residues	Atoms					AltConf	Trace
28	b	191	Total	C	N	O	S	0	0
			1458	910	261	279	8		

- Molecule 29 is a protein called 26S proteasome non-ATPase regulatory subunit 14.

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

- Molecule 30 is a protein called 26S proteasome non-ATPase regulatory subunit 8.

Mol	Chain	Residues	Atoms					AltConf	Trace
30	d	257	Total	C	N	O	S	0	0
			2116	1371	346	390	9		

- Molecule 31 is a protein called 26S proteasome complex subunit SEM1.

Mol	Chain	Residues	Atoms				AltConf	Trace
31	e	50	Total	C	N	O	0	0
			425	260	65	100		

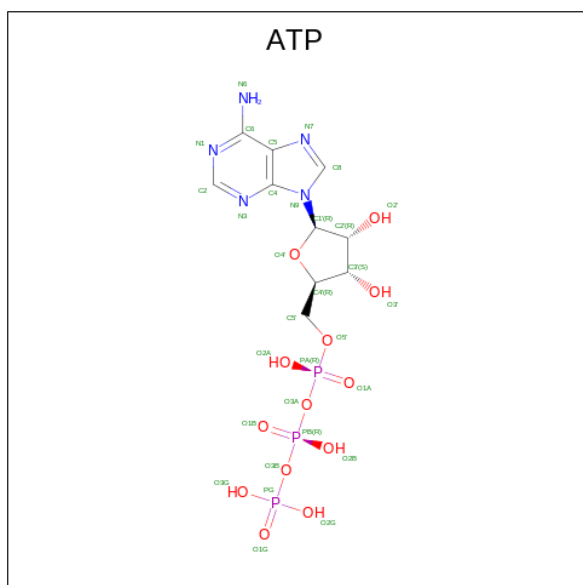
- Molecule 32 is a protein called 26S proteasome non-ATPase regulatory subunit 2.

Mol	Chain	Residues	Atoms					AltConf	Trace
32	f	844	Total	C	N	O	S	0	0
			6529	4126	1108	1250	45		

- Molecule 33 is a protein called Substrate.

Mol	Chain	Residues	Atoms				AltConf	Trace
33	v	36	Total	C	N	O	0	0
			180	108	36	36		

- Molecule 34 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
34	A	1	Total	C	N	O	P	0
			31	10	5	13	3	

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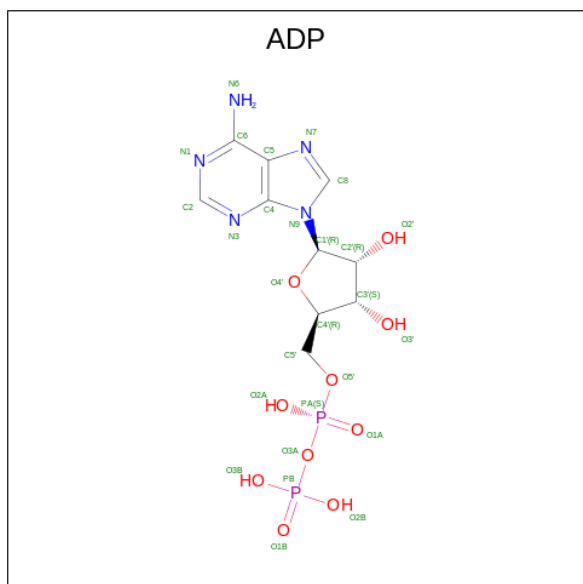
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Mol	Chain	Residues	Atoms					AltConf
34	B	1	Total	C	N	O	P	0
			31	10	5	13	3	
34	C	1	Total	C	N	O	P	0
			31	10	5	13	3	
34	D	1	Total	C	N	O	P	0
			31	10	5	13	3	

- Molecule 35 is MAGNESIUM ION (CCD ID: MG) (formula: Mg) (labeled as "Ligand of Interest" by depositor).

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

- Molecule 36 is ADENOSINE-5'-DIPHOSPHATE (CCD ID: ADP) (formula: C₁₀H₁₅N₅O₁₀P₂) (labeled as "Ligand of Interest" by depositor).



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

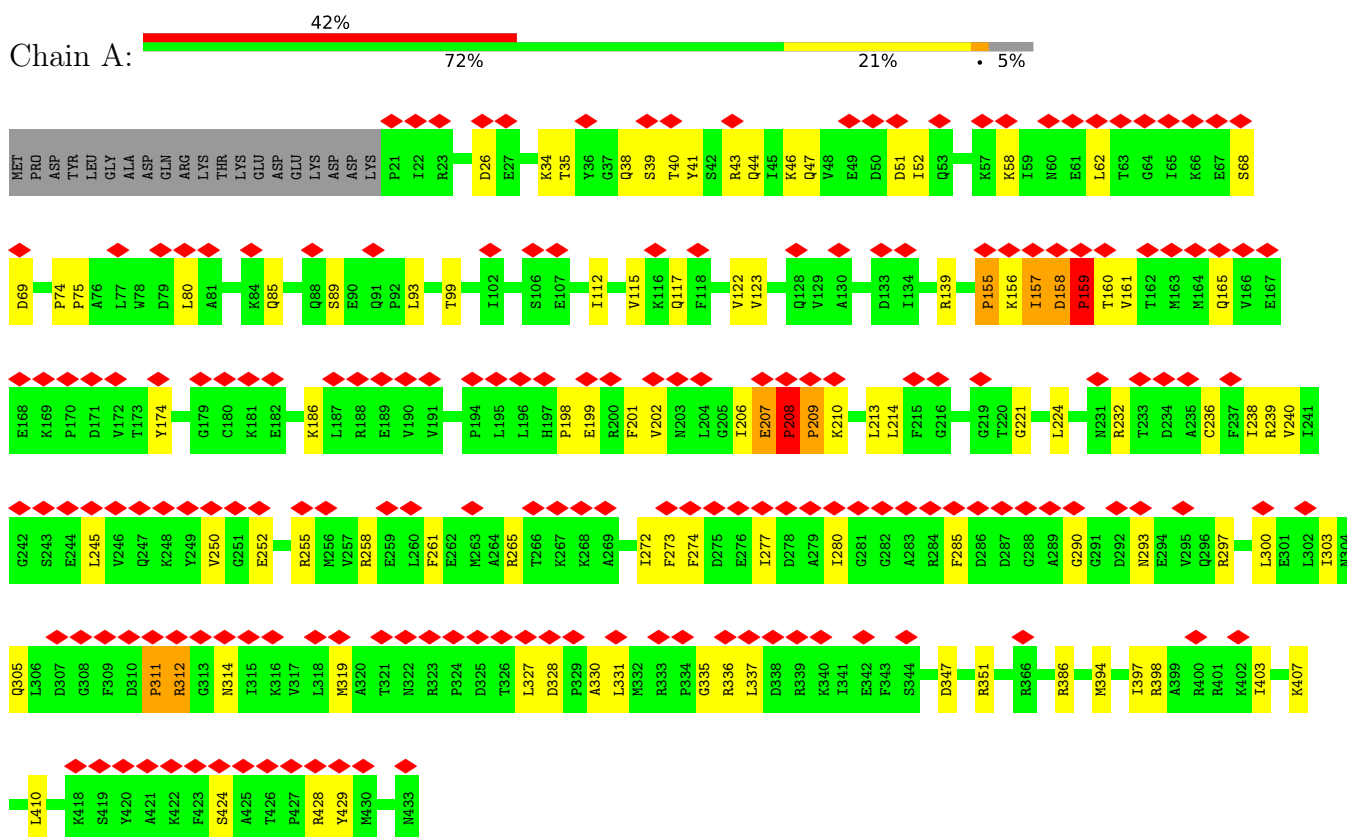
- Molecule 37 is ZINC ION (CCD ID: ZN) (formula: Zn) (labeled as "Ligand of Interest" by depositor).

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

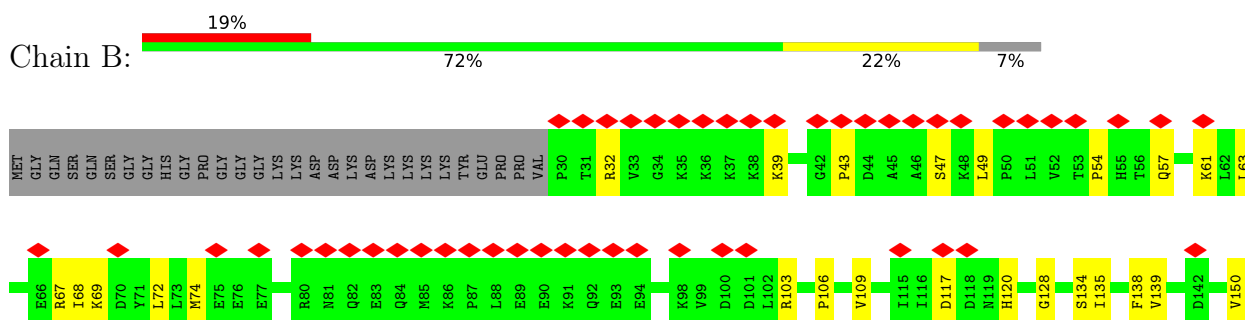
3 Residue-property plots

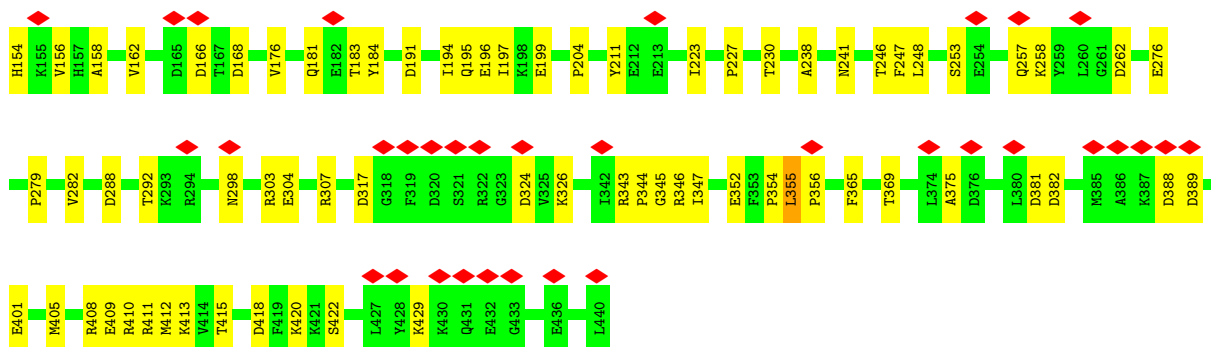
These plots are drawn for all protein, RNA, DNA and oligosaccharide chains in the entry. The first graphic for a chain summarises the proportions of the various outlier classes displayed in the second graphic. The second graphic shows the sequence view annotated by issues in geometry and atom inclusion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

• Molecule 1: 26S proteasome regulatory subunit 7

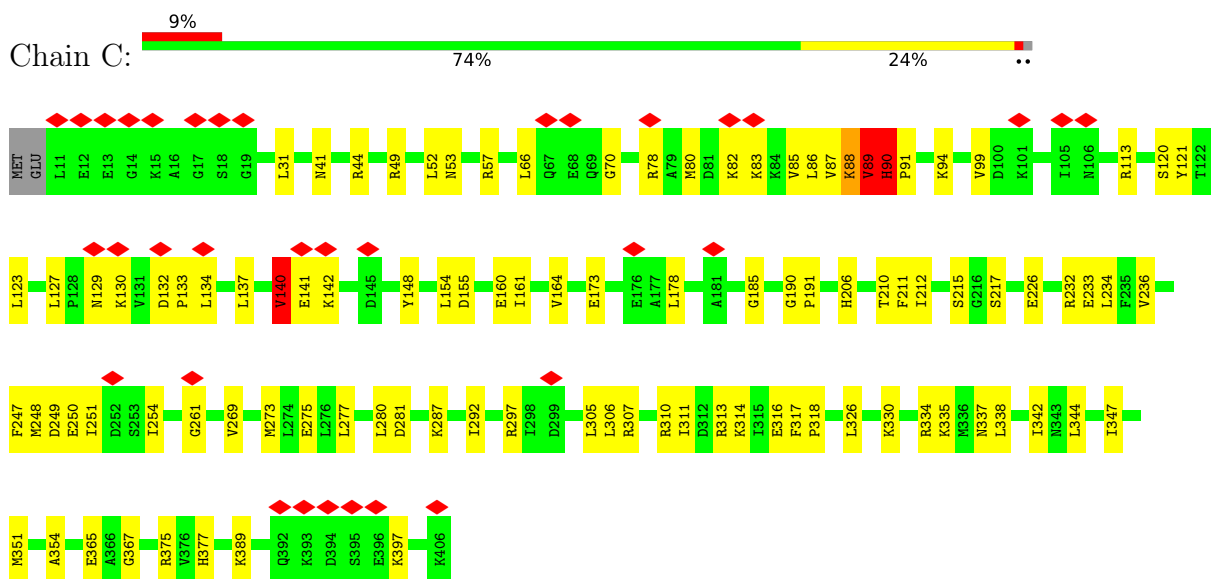


• Molecule 2: 26S proteasome regulatory subunit 4

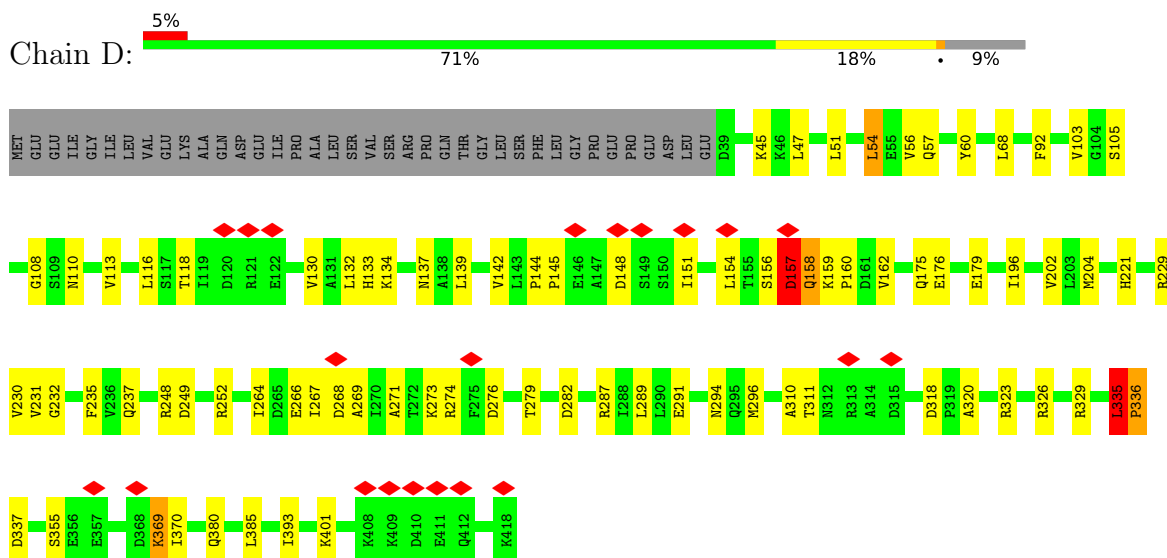




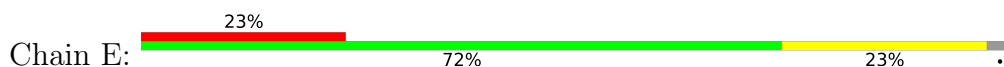
• Molecule 3: 26S proteasome regulatory subunit 8

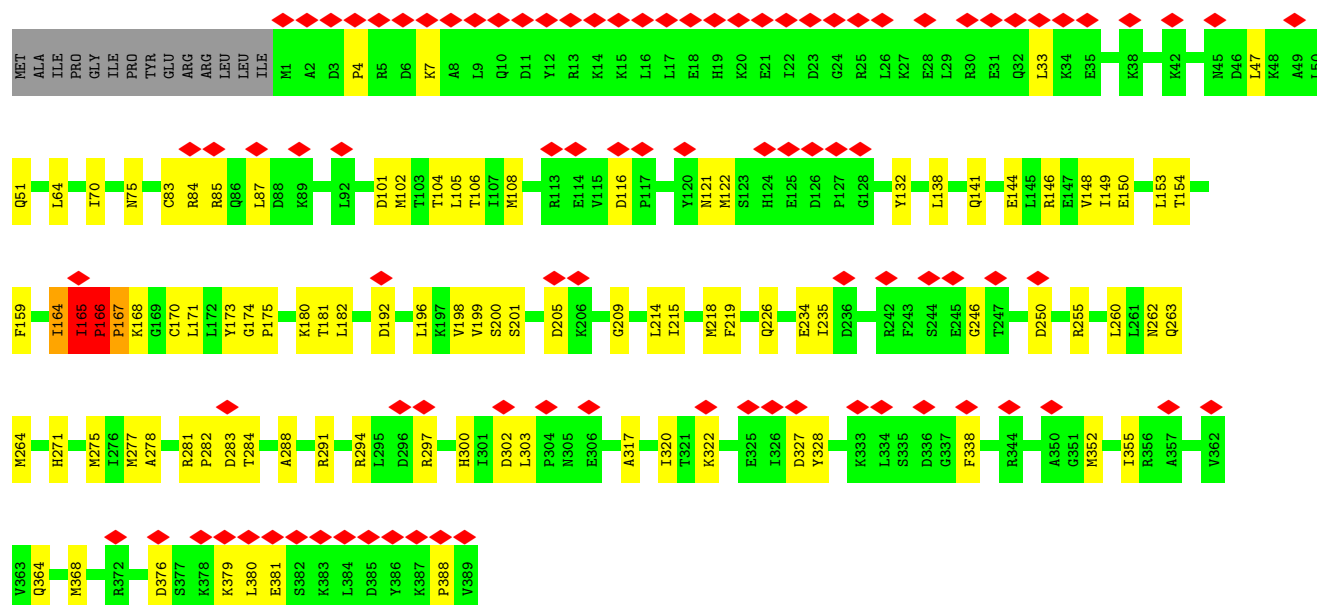


• Molecule 4: 26S proteasome regulatory subunit 6B

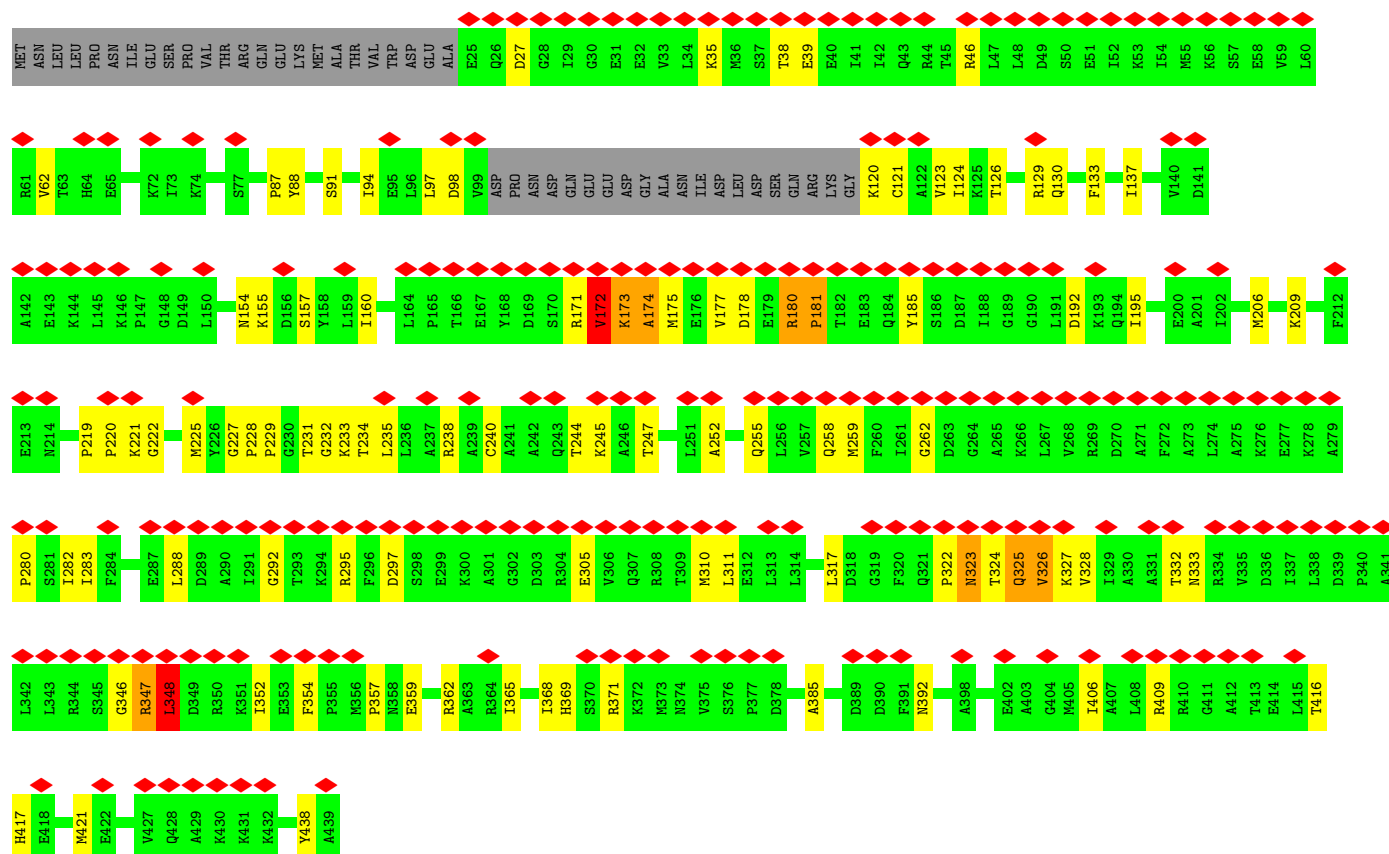


• Molecule 5: Proteasome 26S subunit, ATPase 6

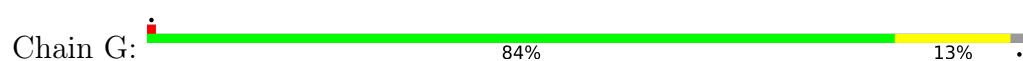


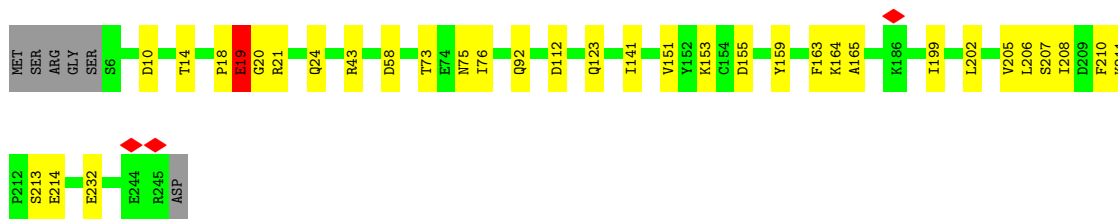


• Molecule 6: 26S proteasome regulatory subunit 6A

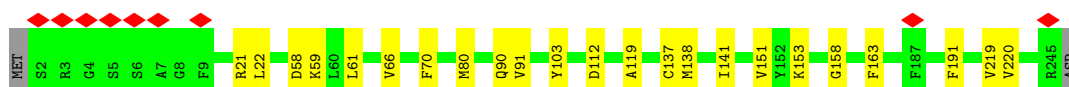
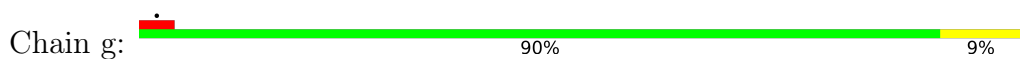


• Molecule 7: Proteasome subunit alpha type-6

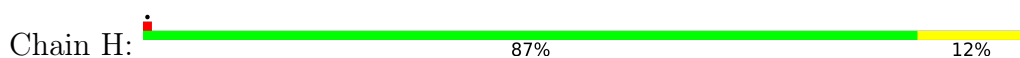




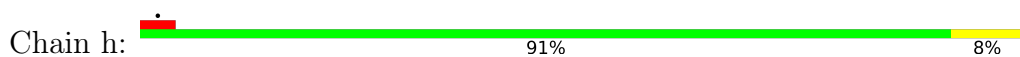
- Molecule 7: Proteasome subunit alpha type-6



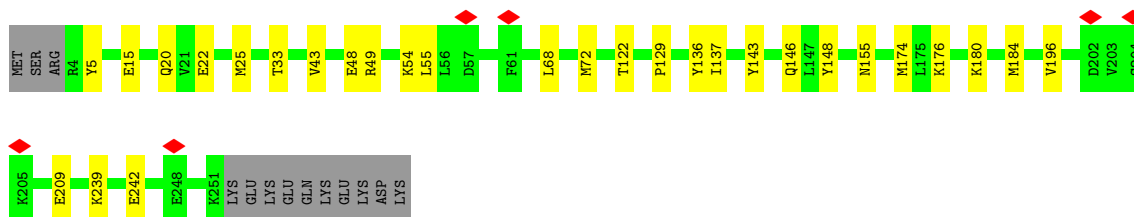
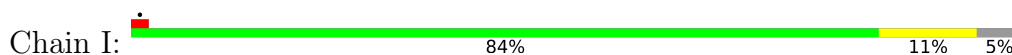
- Molecule 8: Proteasome subunit alpha type-2



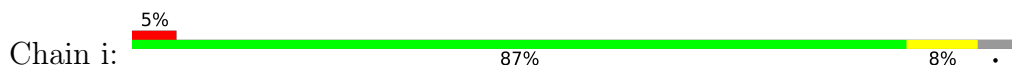
- Molecule 8: Proteasome subunit alpha type-2



- Molecule 9: Proteasome subunit alpha type-4




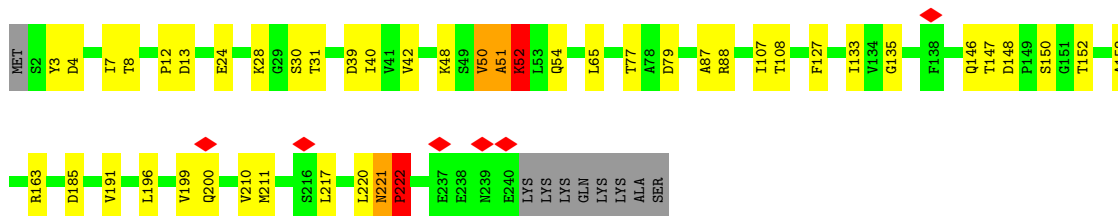
- Molecule 9: Proteasome subunit alpha type-4




GLU
LYS
ASP
LYS

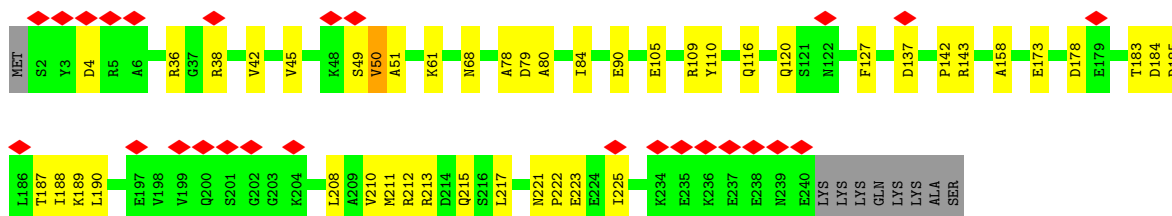
• Molecule 10: Proteasome subunit alpha type-7

Chain J: 




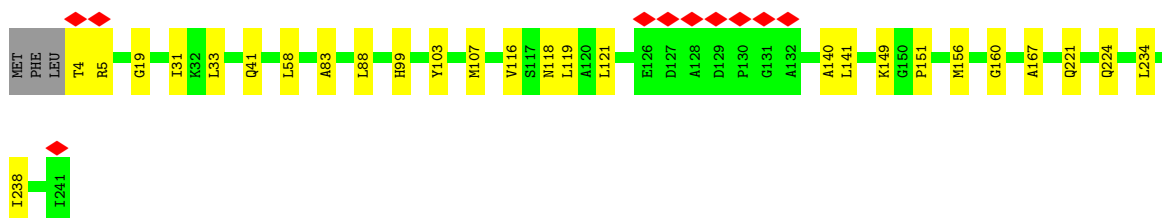
• Molecule 10: Proteasome subunit alpha type-7

Chain j: 




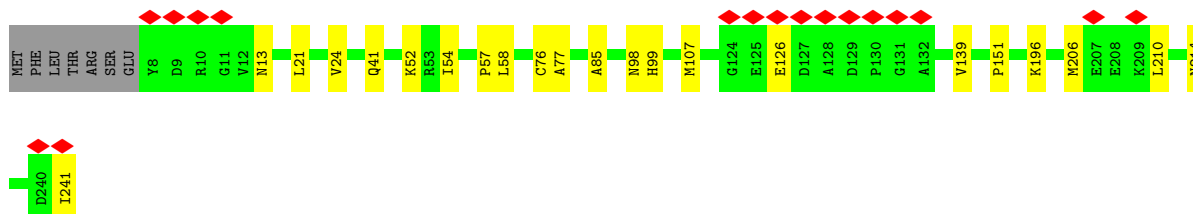
• Molecule 11: Proteasome subunit alpha type-5

Chain K: 

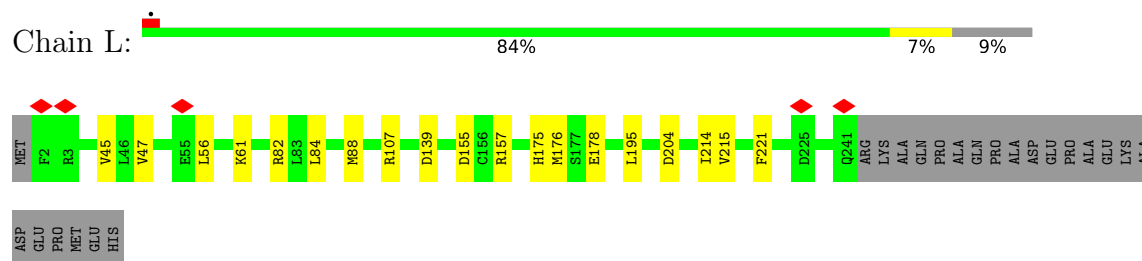


• Molecule 11: Proteasome subunit alpha type-5

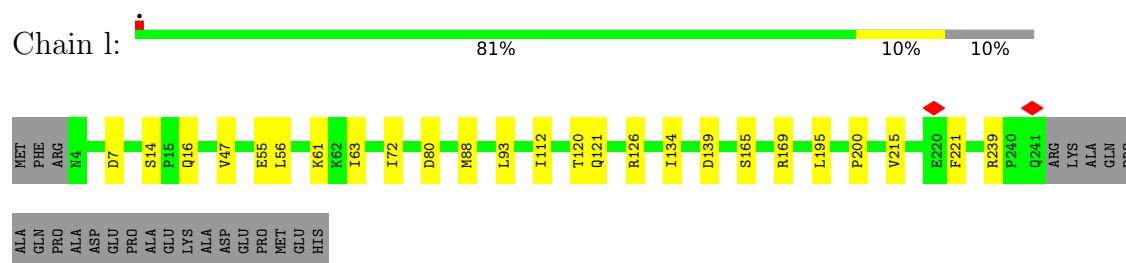
Chain k: 



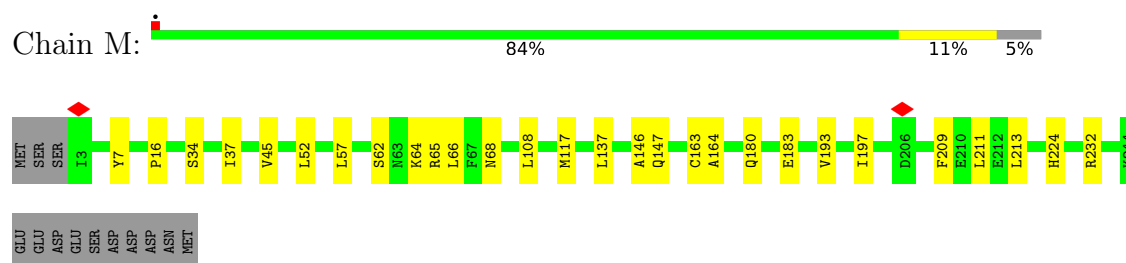
• Molecule 12: Proteasome subunit alpha type-1



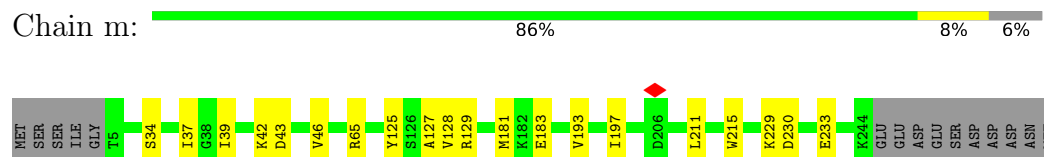
- Molecule 12: Proteasome subunit alpha type-1



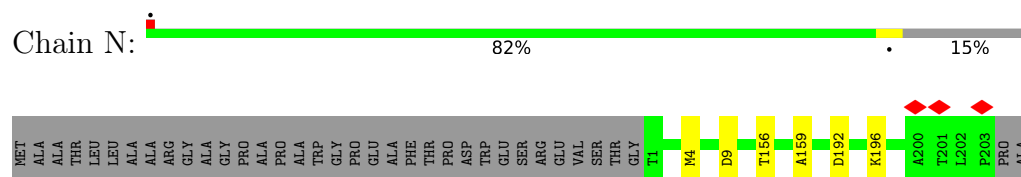
- Molecule 13: Proteasome subunit alpha type-3



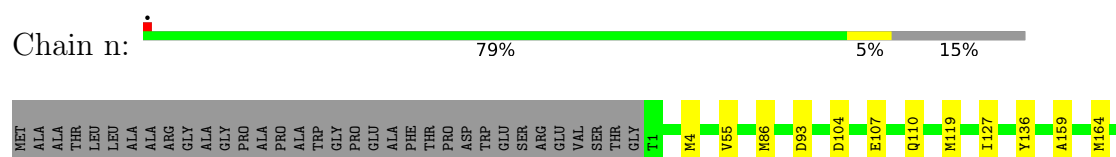
- Molecule 13: Proteasome subunit alpha type-3

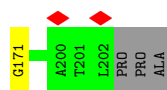


- Molecule 14: Proteasome subunit beta type-6



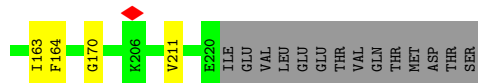
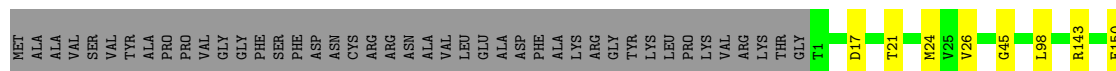
- Molecule 14: Proteasome subunit beta type-6





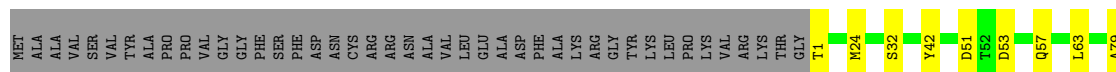
- Molecule 15: Proteasome subunit beta type-7

Chain O: 75% 21%



- Molecule 15: Proteasome subunit beta type-7

Chain o: 72% 21% 8%



- Molecule 16: Proteasome subunit beta type-3

Chain P: 91% 8%



- Molecule 16: Proteasome subunit beta type-3

Chain p: 89% 10%



- Molecule 17: Proteasome subunit beta type-2

Chain Q: 92% 7%



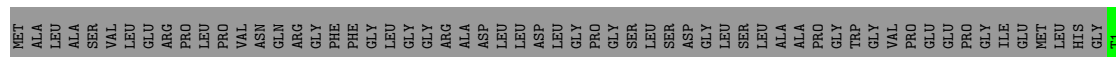
- Molecule 17: Proteasome subunit beta type-2

Chain q: 88% 11%



- Molecule 18: Proteasome subunit beta type-5

Chain R:



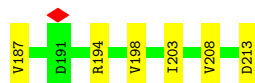
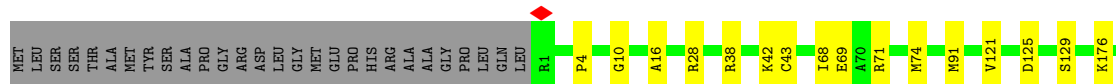
- Molecule 18: Proteasome subunit beta type-5

Chain r:



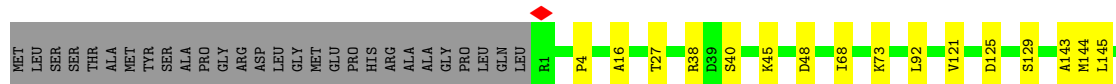
- Molecule 19: Proteasome subunit beta type-1

Chain S:



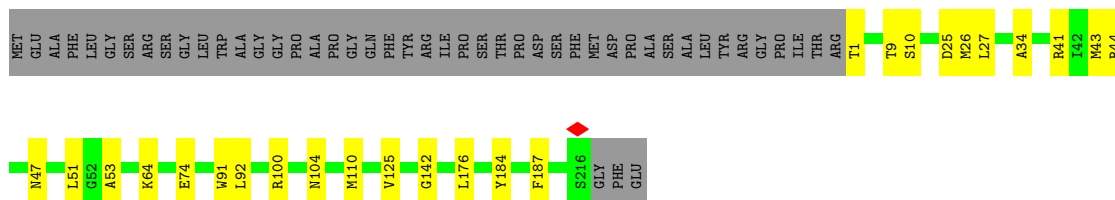
- Molecule 19: Proteasome subunit beta type-1

Chain s:

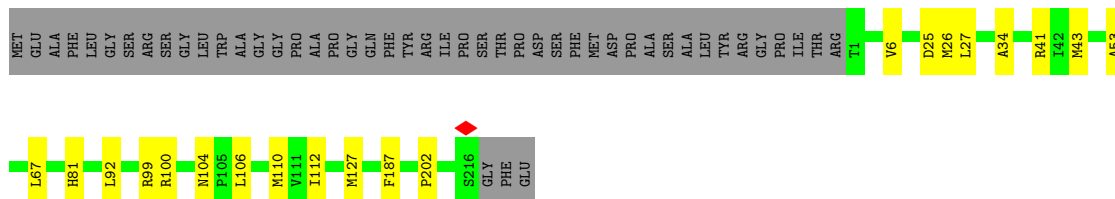


- Molecule 20: Proteasome subunit beta type-4

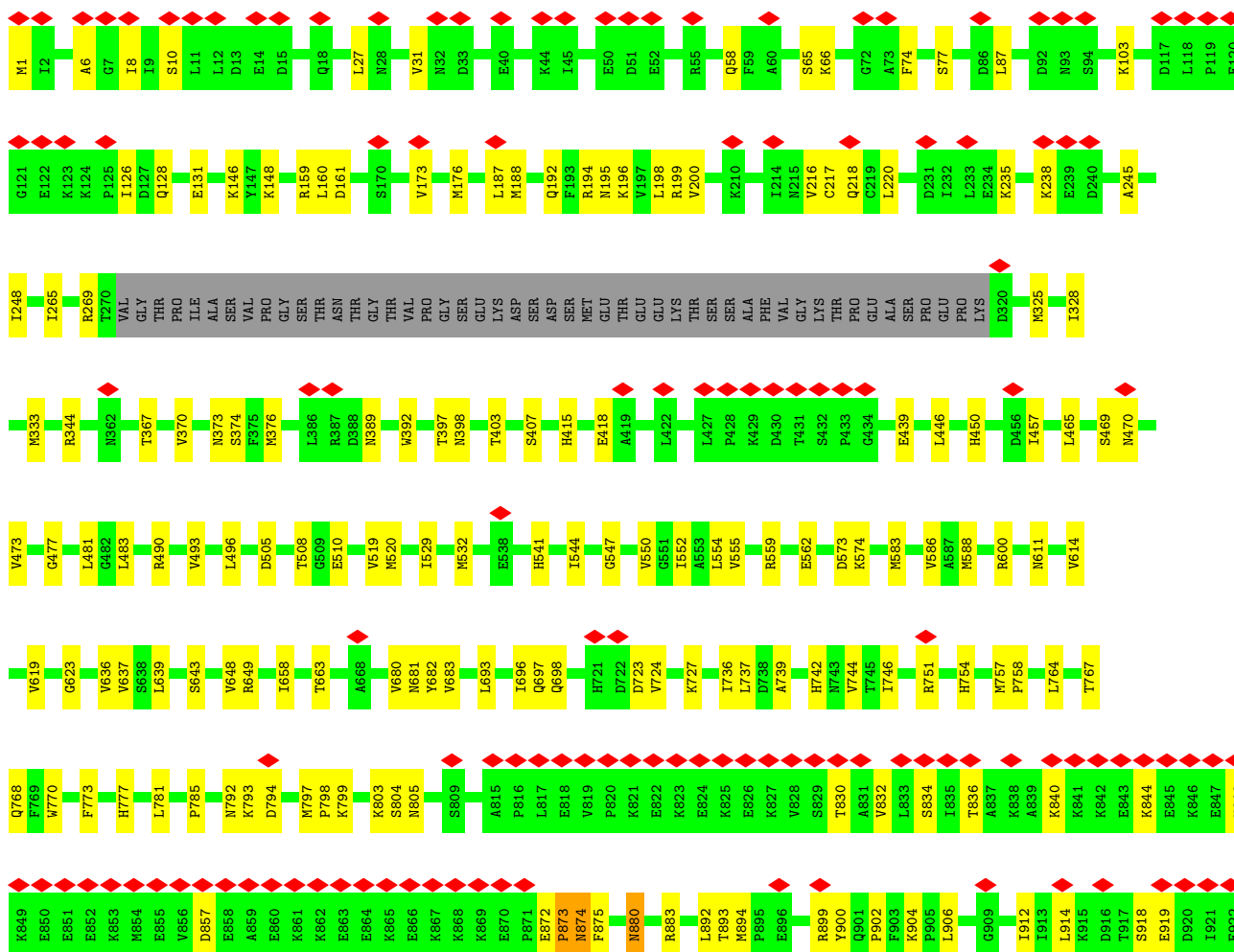
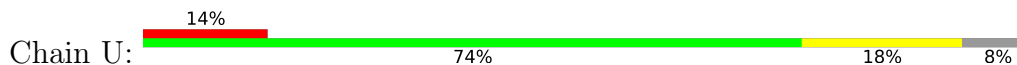
Chain T:



• Molecule 20: Proteasome subunit beta type-4

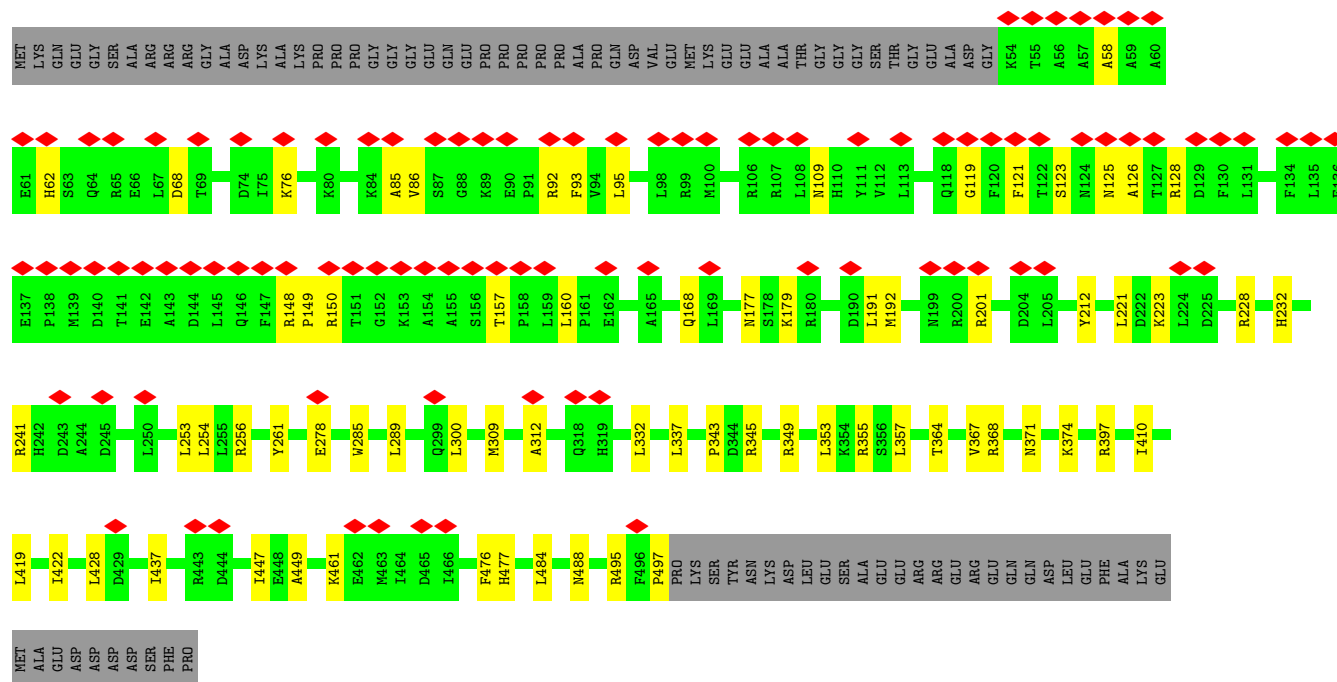


• Molecule 21: 26S proteasome non-ATPase regulatory subunit 1

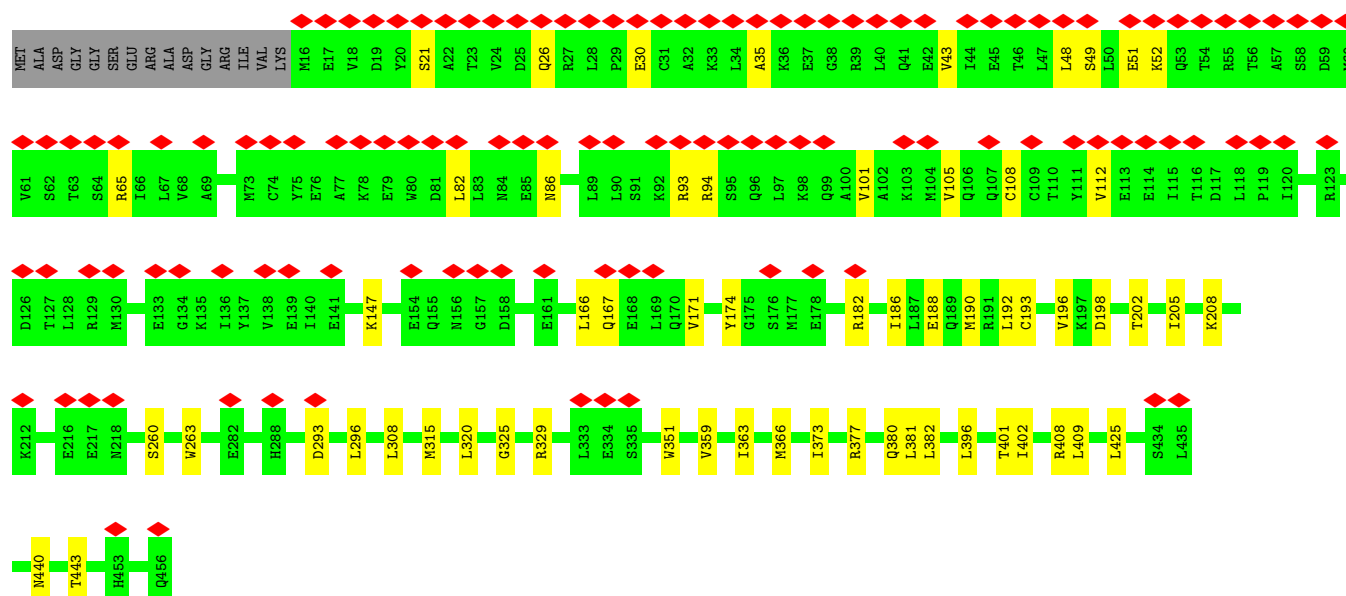
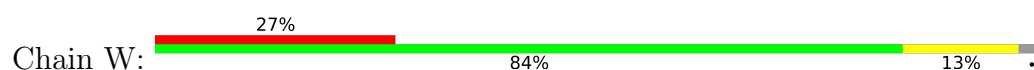




- Molecule 22: 26S proteasome non-ATPase regulatory subunit 3



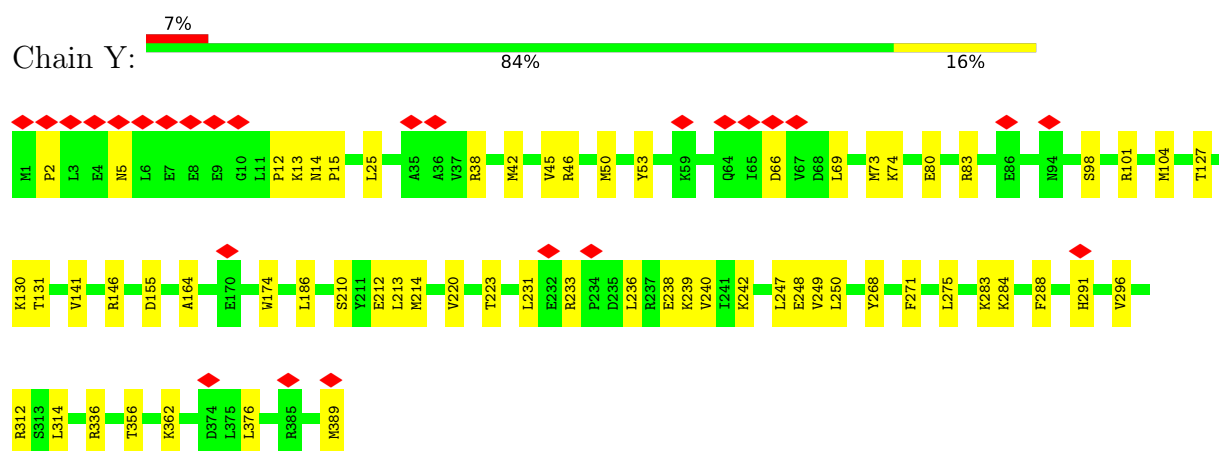
- Molecule 23: 26S proteasome non-ATPase regulatory subunit 12



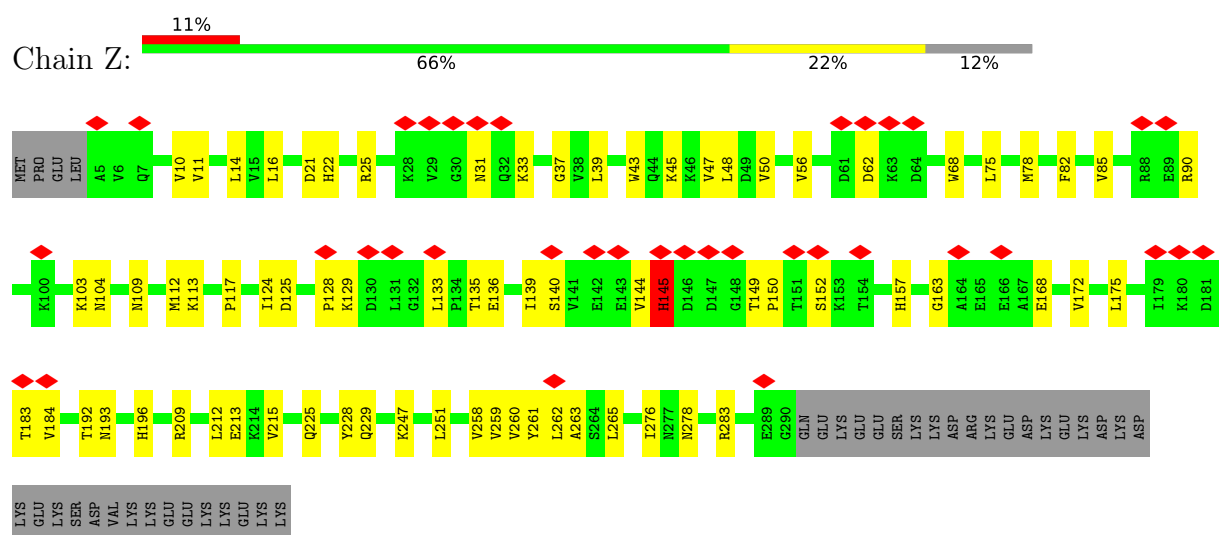
• Molecule 24: 26S proteasome non-ATPase regulatory subunit 11



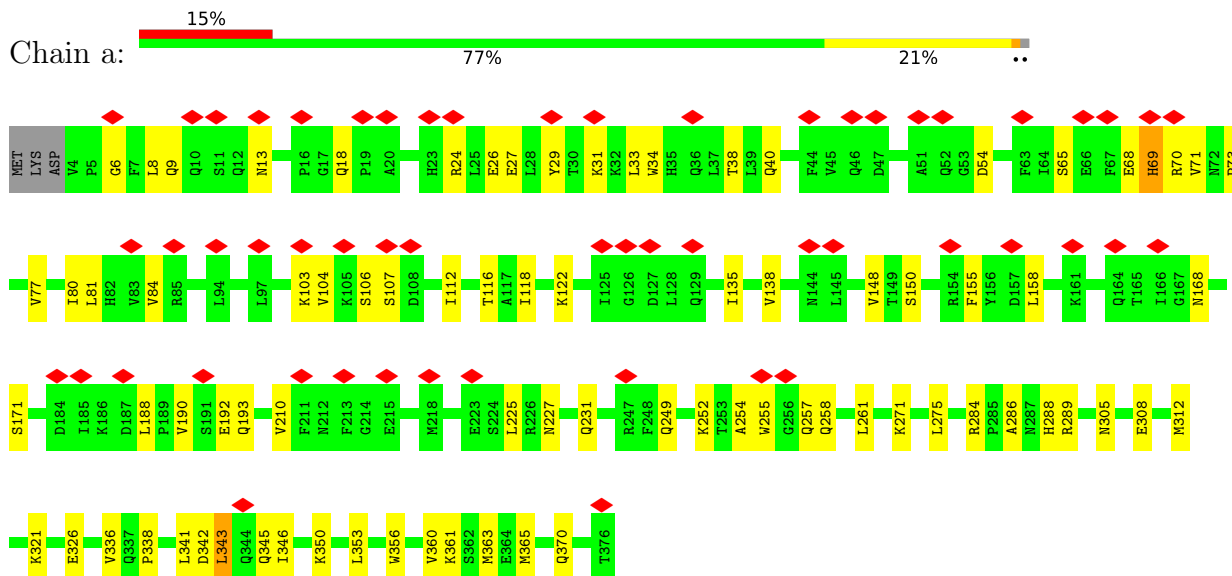
• Molecule 25: 26S proteasome non-ATPase regulatory subunit 6



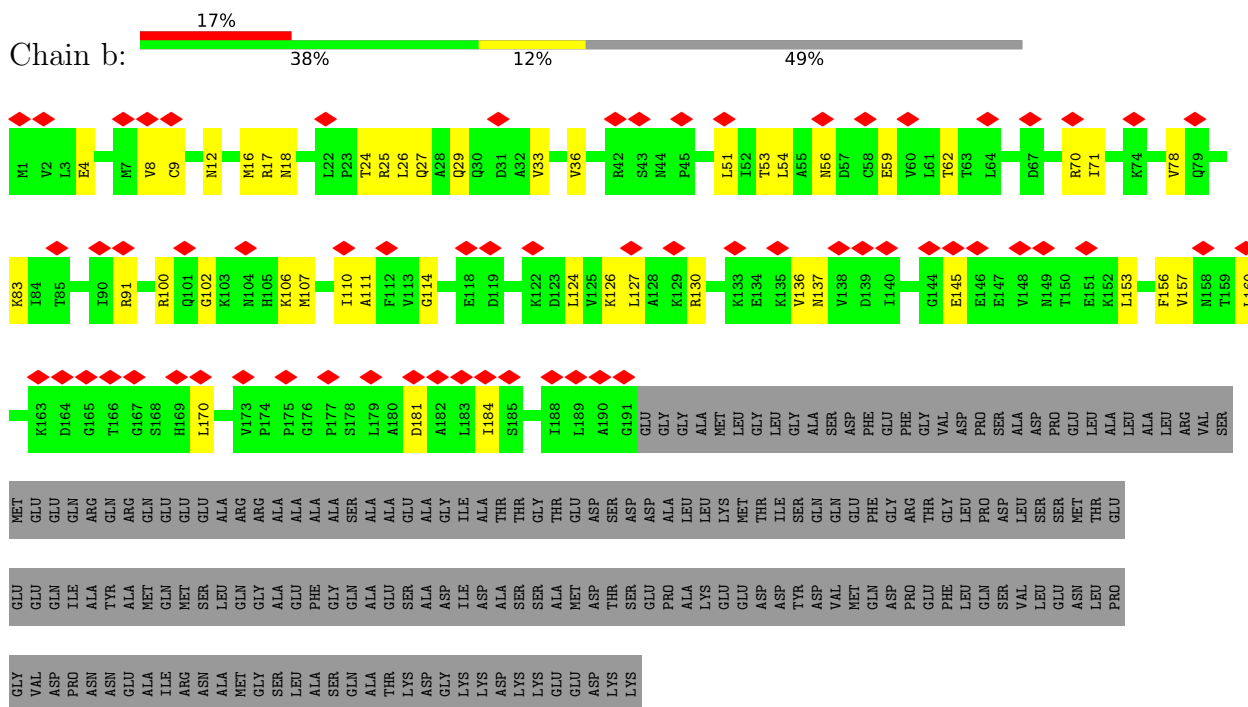
• Molecule 26: 26S proteasome non-ATPase regulatory subunit 7



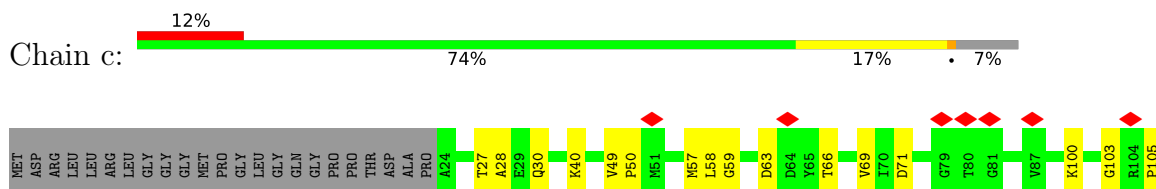
- Molecule 27: 26S proteasome non-ATPase regulatory subunit 13

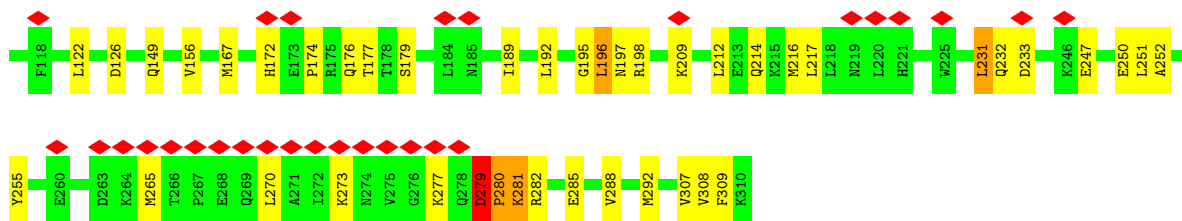


- Molecule 28: 26S proteasome non-ATPase regulatory subunit 4

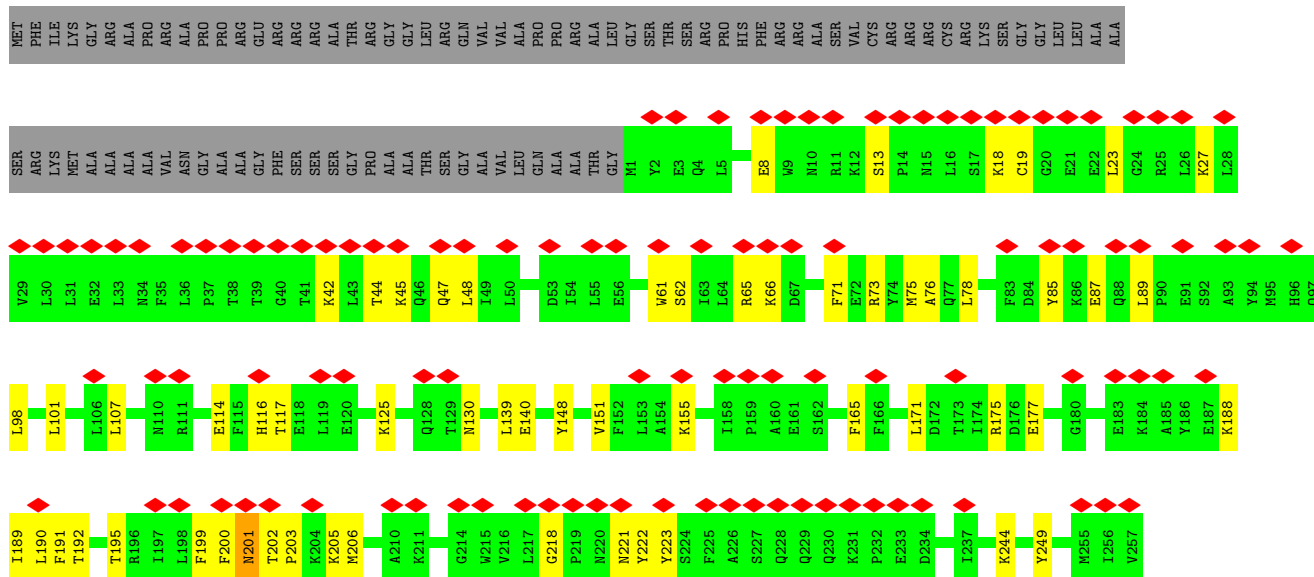


- Molecule 29: 26S proteasome non-ATPase regulatory subunit 14

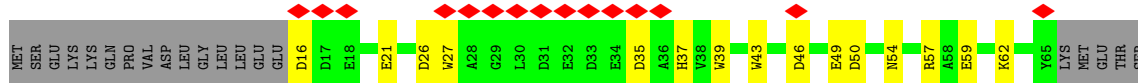




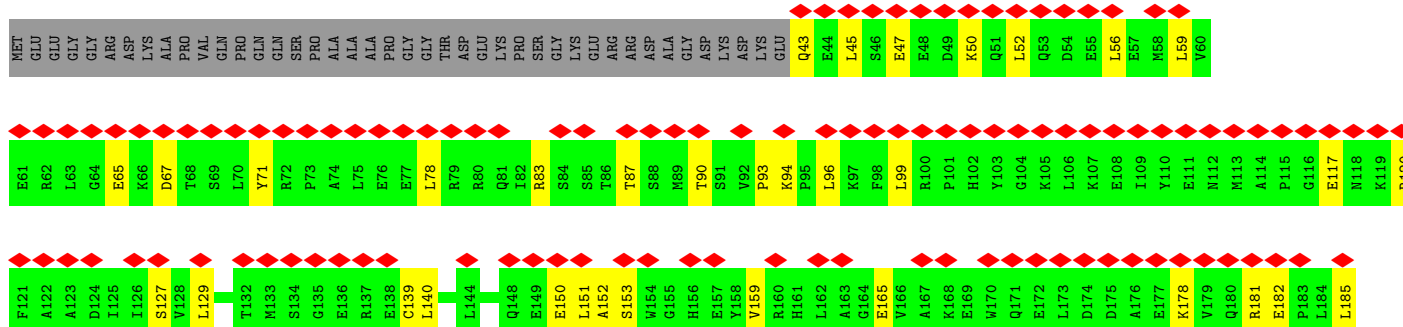
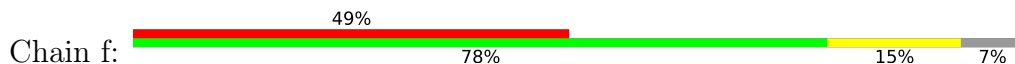
- Molecule 30: 26S proteasome non-ATPase regulatory subunit 8

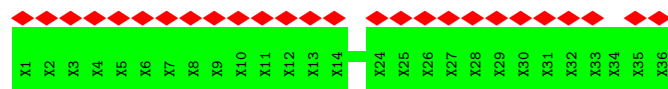
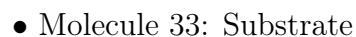


- Molecule 31: 26S proteasome complex subunit SEM1



- Molecule 32: 26S proteasome non-ATPase regulatory subunit 2





4 Experimental information

Property	Value	Source
EM reconstruction method	SINGLE PARTICLE	Depositor
Imposed symmetry	POINT, Not provided	
Number of particles used	175114	Depositor
Resolution determination method	FSC 0.143 CUT-OFF	Depositor
CTF correction method	PHASE FLIPPING AND AMPLITUDE CORRECTION	Depositor
Microscope	FEI TITAN KRIOS	Depositor
Voltage (kV)	300	Depositor
Electron dose ($e^-/\text{\AA}^2$)	44	Depositor
Minimum defocus (nm)	600	Depositor
Maximum defocus (nm)	3500	Depositor
Magnification	Not provided	
Image detector	GATAN K2 SUMMIT (4k x 4k)	Depositor
Maximum map value	0.023	Depositor
Minimum map value	-0.004	Depositor
Average map value	0.000	Depositor
Map value standard deviation	0.001	Depositor
Recommended contour level	0.00588	Depositor
Map size (Å)	411.0, 411.0, 411.0	wwPDB
Map dimensions	600, 600, 600	wwPDB
Map angles (°)	90.0, 90.0, 90.0	wwPDB
Pixel spacing (Å)	0.685, 0.685, 0.685	Depositor

5 Model quality ⓘ

5.1 Standard geometry ⓘ

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

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

Mol	Chain	Bond lengths		Bond angles	
		RMSZ	$\# Z > 5$	RMSZ	$\# Z > 5$
1	A	0.24	0/3283	0.66	5/4433 (0.1%)
2	B	0.20	0/3254	0.51	0/4388
3	C	0.21	0/3146	0.58	2/4226 (0.0%)
4	D	0.24	0/3090	0.59	1/4168 (0.0%)
5	E	0.21	0/3145	0.58	4/4233 (0.1%)
6	F	0.27	0/3137	0.55	0/4223
7	G	0.21	0/1901	0.42	0/2572
7	g	0.17	0/1913	0.40	0/2589
8	H	0.21	0/1840	0.45	0/2495
8	h	0.19	0/1844	0.40	0/2497
9	I	0.20	0/1963	0.44	0/2650
9	i	0.18	0/1985	0.42	0/2677
10	J	0.23	0/1887	0.46	0/2553
10	j	0.21	0/1887	0.45	0/2549
11	K	0.17	0/1841	0.35	0/2486
11	k	0.16	0/1809	0.36	0/2444
12	L	0.18	0/1911	0.38	0/2584
12	l	0.17	0/1896	0.39	0/2565
13	M	0.18	0/1931	0.39	0/2600
13	m	0.17	0/1916	0.38	0/2580
14	N	0.16	0/1548	0.31	0/2097
14	n	0.19	0/1536	0.39	0/2080
15	O	0.18	0/1672	0.39	0/2267
15	o	0.18	0/1686	0.39	0/2282
16	P	0.19	0/1616	0.45	0/2180
16	p	0.18	0/1620	0.44	0/2184
17	Q	0.20	0/1627	0.42	2/2202 (0.1%)
17	q	0.20	0/1611	0.44	2/2182 (0.1%)
18	R	0.18	0/1590	0.37	0/2147
18	r	0.19	0/1580	0.36	0/2135
19	S	0.21	0/1671	0.49	3/2252 (0.1%)
19	s	0.19	0/1680	0.42	0/2264

Mol	Chain	Bond lengths		Bond angles	
		RMSZ	# Z >5	RMSZ	# Z >5
20	T	0.19	0/1716	0.41	0/2323
20	t	0.18	0/1720	0.38	0/2328
21	U	0.20	0/6984	0.50	0/9435
22	V	0.18	0/3681	0.44	0/4969
23	W	0.18	0/3644	0.45	0/4901
24	X	0.19	0/3381	0.45	1/4558 (0.0%)
25	Y	0.18	0/3261	0.50	2/4393 (0.0%)
26	Z	0.22	0/2324	0.59	1/3150 (0.0%)
27	a	0.22	0/3053	0.55	0/4133
28	b	0.18	0/1478	0.54	0/2001
29	c	0.24	0/2302	0.69	5/3110 (0.2%)
30	d	0.25	0/2162	0.62	2/2919 (0.1%)
31	e	0.19	0/437	0.51	0/595
32	f	0.21	0/6640	0.53	1/8988 (0.0%)
All	All	0.20	0/107799	0.48	31/145587 (0.0%)

There are no bond length outliers.

All (31) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
29	c	279	ASP	CA-C-N	9.14	131.26	119.84
29	c	279	ASP	C-N-CA	9.14	131.26	119.84
1	A	207	GLU	CA-C-N	8.94	129.59	120.38
1	A	207	GLU	C-N-CA	8.94	129.59	120.38
24	X	317	PRO	N-CA-C	-8.04	95.91	112.47
17	q	23	SER	CA-C-N	6.62	134.18	121.54
17	q	23	SER	C-N-CA	6.62	134.18	121.54
5	E	165	ILE	CA-C-N	6.57	127.14	120.38
5	E	165	ILE	C-N-CA	6.57	127.14	120.38
29	c	231	LEU	CA-C-N	6.19	133.36	121.54
29	c	231	LEU	C-N-CA	6.19	133.36	121.54
32	f	610	GLN	CA-CB-CG	6.15	126.39	114.10
1	A	208	PRO	N-CA-C	5.62	117.56	110.70
25	Y	291	HIS	CA-C-N	5.50	132.05	121.54
25	Y	291	HIS	C-N-CA	5.50	132.05	121.54
1	A	155	PRO	CA-C-N	5.50	134.83	122.19
1	A	155	PRO	C-N-CA	5.50	134.83	122.19
4	D	54	LEU	CA-CB-CG	5.48	135.47	116.30
19	S	69	GLU	N-CA-CB	5.33	119.09	110.40
30	d	201	ASN	CA-C-N	5.32	128.58	122.83
30	d	201	ASN	C-N-CA	5.32	128.58	122.83
26	Z	168	GLU	N-CA-C	-5.24	107.91	114.56

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
5	E	166	PRO	CA-C-N	5.22	126.36	119.84
5	E	166	PRO	C-N-CA	5.22	126.36	119.84
3	C	397	LYS	CA-C-N	5.21	131.49	121.54
3	C	397	LYS	C-N-CA	5.21	131.49	121.54
29	c	279	ASP	N-CA-C	5.20	121.30	109.81
17	Q	23	SER	CA-C-N	5.08	131.24	121.54
17	Q	23	SER	C-N-CA	5.08	131.24	121.54
19	S	68	ILE	CA-C-N	-5.01	112.37	121.14
19	S	68	ILE	C-N-CA	-5.01	112.37	121.14

There are no chirality outliers.

There are no planarity outliers.

5.2 Too-close contacts

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

Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
1	A	3229	0	3261	75	0
2	B	3207	0	3277	73	0
3	C	3105	0	3219	84	0
4	D	3040	0	3076	72	0
5	E	3097	0	3174	76	0
6	F	3098	0	3187	85	0
7	G	1867	0	1867	22	0
7	g	1879	0	1872	15	0
8	H	1801	0	1773	19	0
8	h	1805	0	1798	15	0
9	I	1933	0	1923	18	0
9	i	1955	0	1955	14	0
10	J	1861	0	1846	33	0
10	j	1861	0	1865	29	0
11	K	1813	0	1796	18	0
11	k	1782	0	1766	15	0
12	L	1876	0	1856	14	0
12	l	1861	0	1839	18	0
13	M	1893	0	1885	17	0
13	m	1881	0	1868	14	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
14	N	1521	0	1494	5	0
14	n	1510	0	1483	10	0
15	O	1645	0	1648	8	0
15	o	1659	0	1681	13	0
16	P	1587	0	1598	12	0
16	p	1591	0	1609	16	0
17	Q	1591	0	1589	9	0
17	q	1578	0	1569	14	0
18	R	1559	0	1523	3	0
18	r	1549	0	1506	7	0
19	S	1641	0	1639	12	0
19	s	1650	0	1645	18	0
20	T	1683	0	1662	17	0
20	t	1687	0	1666	13	0
21	U	6867	0	6929	110	0
22	V	3612	0	3682	47	0
23	W	3596	0	3713	42	0
24	X	3335	0	3435	42	0
25	Y	3202	0	3204	40	0
26	Z	2281	0	2312	50	0
27	a	2995	0	3012	60	0
28	b	1458	0	1505	31	0
29	c	2260	0	2276	46	0
30	d	2116	0	2146	41	0
31	e	425	0	328	14	0
32	f	6529	0	6541	82	0
33	v	180	0	42	0	0
34	A	31	0	12	2	0
34	B	31	0	12	1	0
34	C	31	0	12	1	0
34	D	31	0	12	0	0
35	A	1	0	0	0	0
35	B	1	0	0	0	0
35	C	1	0	0	0	0
35	D	1	0	0	0	0
36	E	27	0	12	2	0
37	c	1	0	0	0	0
All	All	106307	0	106600	1313	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 6.

All (1313) 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)
5:E:159:PHE:HB3	5:E:164:ILE:O	1.39	1.22
3:C:140:VAL:HG12	3:C:211:PHE:O	1.40	1.19
3:C:90:HIS:NE2	4:D:110:ASN:HB3	1.57	1.18
6:F:180:ARG:HB2	6:F:181:PRO:HD2	1.38	1.06
3:C:90:HIS:HB3	3:C:91:PRO:HD3	1.44	0.99
3:C:90:HIS:CB	3:C:91:PRO:CD	2.50	0.90
5:E:159:PHE:CB	5:E:164:ILE:O	2.20	0.89
29:c:279:ASP:HB3	29:c:280:PRO:CD	2.04	0.88
29:c:277:LYS:HA	29:c:282:ARG:HE	1.35	0.88
3:C:90:HIS:HB3	3:C:91:PRO:CD	2.04	0.87
4:D:335:LEU:HB2	4:D:336:PRO:HD3	1.58	0.86
10:j:212:ARG:H	10:j:215:GLN:HE22	1.27	0.83
5:E:159:PHE:HB2	5:E:165:ILE:HD12	1.62	0.82
6:F:280:PRO:HA	6:F:325:GLN:HB3	1.62	0.81
24:X:317:PRO:HD2	24:X:319:ILE:HG12	1.63	0.81
5:E:84:ARG:HD2	5:E:108:MET:HG2	1.63	0.80
24:X:103:THR:HA	24:X:106:GLU:HG3	1.63	0.80
6:F:220:PRO:HB3	6:F:348:LEU:HD22	1.63	0.80
3:C:90:HIS:CB	3:C:91:PRO:HD3	2.11	0.79
5:E:165:ILE:N	5:E:166:PRO:HD3	1.97	0.79
3:C:90:HIS:NE2	4:D:110:ASN:CB	2.43	0.79
24:X:316:ASP:C	24:X:318:ILE:H	1.89	0.78
6:F:220:PRO:HA	6:F:348:LEU:HD13	1.66	0.77
22:V:397:ARG:HH21	30:d:116:HIS:HB3	1.51	0.76
23:W:425:LEU:HB2	26:Z:247:LYS:HD3	1.67	0.75
2:B:68:ILE:HG12	32:f:670:MET:HE1	1.66	0.75
5:E:198:VAL:HG12	5:E:200:SER:H	1.52	0.74
27:a:135:ILE:HG12	27:a:158:LEU:HD13	1.69	0.74
29:c:279:ASP:HB3	29:c:280:PRO:HD3	1.69	0.74
29:c:192:LEU:HA	29:c:196:LEU:HB2	1.70	0.73
30:d:19:CYS:SG	30:d:65:ARG:NH2	2.62	0.73
5:E:281:ARG:HH22	5:E:284:THR:H	1.37	0.72
1:A:209:PRO:HD2	1:A:311:PRO:O	1.90	0.71
13:M:211:LEU:O	13:M:232:ARG:NH2	2.23	0.71
31:e:35:ASP:HB3	31:e:37:HIS:HD2	1.55	0.71
21:U:773:PHE:HB2	29:c:177:THR:HB	1.73	0.71
28:b:9:CYS:HB2	28:b:111:ALA:HA	1.73	0.70
21:U:10:SER:HB2	30:d:73:ARG:HG3	1.73	0.70
6:F:221:LYS:HD3	6:F:327:LYS:HE2	1.73	0.70
6:F:177:VAL:HG13	6:F:180:ARG:HD2	1.71	0.70
32:f:659:LEU:HA	32:f:662:MET:HE3	1.72	0.70
32:f:861:THR:HB	32:f:879:ARG:HH11	1.56	0.70

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:B:74:MET:HE1	32:f:609:VAL:HG12	1.73	0.69
21:U:265:ILE:HG23	21:U:269:ARG:HH22	1.57	0.69
3:C:90:HIS:HD2	4:D:110:ASN:N	1.90	0.69
21:U:873:PRO:C	21:U:875:PHE:H	2.00	0.68
19:S:4:PRO:HB2	20:T:100:ARG:HH21	1.58	0.68
26:Z:263:ALA:HB1	29:c:288:VAL:HG13	1.76	0.68
32:f:676:GLY:O	32:f:680:ARG:NH1	2.26	0.68
7:G:18:PRO:O	7:G:19:GLU:HB2	1.92	0.68
32:f:320:ILE:HA	32:f:325:GLN:HE22	1.58	0.68
12:L:176:MET:HE1	13:M:57:LEU:HA	1.76	0.67
8:h:77:SER:HB2	8:h:163:MET:HE2	1.77	0.67
22:V:85:ALA:HB2	22:V:93:PHE:HB2	1.76	0.67
5:E:327:ASP:H	5:E:364:GLN:HG3	1.60	0.67
19:s:68:ILE:HD11	19:s:92:LEU:HD13	1.77	0.67
4:D:355:SER:HB3	4:D:393:ILE:HD11	1.75	0.66
23:W:401:THR:HG23	23:W:402:ILE:HD12	1.78	0.66
24:X:316:ASP:C	24:X:318:ILE:N	2.52	0.66
25:Y:69:LEU:O	25:Y:73:MET:HB2	1.95	0.66
11:k:210:LEU:HA	11:k:214:ASN:HD21	1.60	0.66
1:A:210:LYS:HB2	1:A:336:ARG:HG3	1.78	0.66
28:b:107:MET:HG3	28:b:136:VAL:HG22	1.78	0.65
26:Z:145:HIS:HB3	26:Z:149:THR:OG1	1.97	0.65
9:I:143:TYR:HB2	9:I:146:GLN:HE21	1.61	0.65
9:i:143:TYR:HB2	9:i:146:GLN:HE21	1.60	0.65
1:A:207:GLU:N	1:A:208:PRO:HD2	2.11	0.65
30:d:188:LYS:HD2	30:d:221:ASN:HD21	1.60	0.65
29:c:58:LEU:HB3	29:c:71:ASP:HB3	1.78	0.65
2:B:32:ARG:HH11	32:f:750:GLN:HG2	1.61	0.65
5:E:165:ILE:N	5:E:166:PRO:CD	2.60	0.65
5:E:173:TYR:HB2	5:E:282:PRO:HG3	1.78	0.65
13:M:213:LEU:H	13:M:232:ARG:HH12	1.45	0.64
21:U:797:MET:HG3	21:U:880:ASN:HD22	1.63	0.64
22:V:300:LEU:HD11	30:d:116:HIS:HD2	1.63	0.64
27:a:34:TRP:HD1	28:b:18:ASN:HA	1.60	0.64
27:a:193:GLN:HB3	27:a:225:LEU:HD13	1.79	0.64
30:d:98:LEU:HA	30:d:101:LEU:HD12	1.80	0.64
1:A:300:LEU:HD22	6:F:173:LYS:HD3	1.80	0.64
9:I:174:MET:HE1	9:I:196:VAL:HG22	1.79	0.64
3:C:88:LYS:HG2	3:C:94:LYS:HG2	1.80	0.64
6:F:292:GLY:HA2	6:F:295:ARG:HH21	1.63	0.64
22:V:221:LEU:HB2	22:V:223:LYS:HZ2	1.62	0.64

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
21:U:235:LYS:HA	21:U:238:LYS:HD2	1.80	0.63
19:s:148:LEU:HD23	19:s:178:VAL:HG12	1.79	0.63
27:a:118:ILE:O	27:a:122:LYS:HB2	1.99	0.63
24:X:182:ASN:ND2	25:Y:248:GLU:OE2	2.31	0.63
21:U:588:MET:HE3	21:U:764:LEU:HD22	1.81	0.62
5:E:47:LEU:O	5:E:51:GLN:NE2	2.31	0.62
3:C:82:LYS:HG3	3:C:83:LYS:HE3	1.81	0.62
1:A:68:SER:HB3	3:C:80:MET:HB2	1.81	0.62
14:N:4:MET:HE1	14:N:159:ALA:HB3	1.81	0.62
30:d:195:THR:O	30:d:199:PHE:HA	1.99	0.62
15:O:21:THR:HG22	15:O:26:VAL:HA	1.80	0.62
17:Q:4:LEU:HD22	17:Q:45:LEU:HD23	1.82	0.62
21:U:6:ALA:HB1	30:d:76:ALA:HB1	1.80	0.62
3:C:90:HIS:HB2	3:C:91:PRO:CD	2.30	0.62
3:C:140:VAL:HG13	3:C:212:ILE:HG12	1.82	0.62
21:U:742:HIS:HB3	21:U:883:ARG:HH21	1.65	0.62
23:W:308:LEU:HB3	23:W:315:MET:HE1	1.82	0.62
26:Z:183:THR:HG23	26:Z:184:VAL:HG23	1.80	0.61
32:f:96:LEU:HD13	32:f:129:LEU:HD13	1.81	0.61
4:D:158:GLN:CD	4:D:158:GLN:H	2.08	0.61
28:b:25:ARG:NH1	28:b:145:GLU:OE1	2.28	0.61
3:C:90:HIS:CD2	4:D:110:ASN:N	2.67	0.61
6:F:180:ARG:HB2	6:F:181:PRO:CD	2.23	0.61
32:f:151:LEU:HB3	32:f:159:VAL:HG22	1.83	0.61
5:E:380:LEU:HD12	5:E:381:GLU:HG3	1.82	0.61
30:d:203:PRO:HG2	30:d:206:MET:H	1.66	0.61
9:I:122:THR:HG22	9:I:129:PRO:HB3	1.81	0.61
30:d:61:TRP:HB3	30:d:65:ARG:HH21	1.66	0.61
25:Y:239:LYS:HG3	25:Y:240:VAL:HG13	1.83	0.60
26:Z:225:GLN:HE21	26:Z:229:GLN:HB2	1.66	0.60
3:C:305:LEU:HA	3:C:310:ARG:HD2	1.83	0.60
3:C:254:ILE:HD11	3:C:273:MET:HB2	1.83	0.60
21:U:58:GLN:HB2	21:U:87:LEU:HD12	1.83	0.60
5:E:148:VAL:HG13	5:E:149:ILE:HG13	1.82	0.60
23:W:205:ILE:HA	23:W:208:LYS:HZ3	1.65	0.60
26:Z:128:PRO:HB2	26:Z:133:LEU:HD11	1.82	0.60
11:k:52:LYS:HE3	11:k:54:ILE:HD11	1.82	0.60
3:C:134:LEU:H	3:C:137:LEU:HD23	1.66	0.60
3:C:351:MET:HB3	3:C:354:ALA:HB2	1.84	0.60
5:E:159:PHE:CG	5:E:165:ILE:HA	2.37	0.60
27:a:249:GLN:HA	27:a:252:LYS:HB2	1.83	0.60

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:B:279:PRO:HB3	2:B:324:ASP:HB3	1.83	0.60
1:A:206:ILE:HG22	1:A:208:PRO:HG2	1.83	0.59
25:Y:12:PRO:O	25:Y:146:ARG:NH1	2.34	0.59
27:a:69:HIS:O	27:a:70:ARG:HD2	2.01	0.59
5:E:83:CYS:HB2	5:E:87:LEU:HB2	1.84	0.59
4:D:231:VAL:HG13	5:E:262:ASN:HD22	1.65	0.59
5:E:215:ILE:HD13	5:E:260:LEU:HB2	1.84	0.59
2:B:183:THR:HG22	2:B:184:TYR:H	1.68	0.59
4:D:380:GLN:HG2	5:E:166:PRO:HG3	1.84	0.59
21:U:681:ASN:ND2	21:U:723:ASP:OD2	2.36	0.59
26:Z:212:LEU:HA	26:Z:215:VAL:HG12	1.84	0.59
32:f:47:GLU:HA	32:f:50:LYS:HE2	1.84	0.59
6:F:177:VAL:HG13	6:F:180:ARG:CD	2.33	0.59
14:n:107:GLU:HB2	14:n:110:GLN:HE21	1.68	0.59
19:S:38:ARG:NH2	15:o:164:PHE:O	2.36	0.59
21:U:803:LYS:HD2	21:U:875:PHE:HB2	1.84	0.59
27:a:13:ASN:HA	27:a:18:GLN:HE21	1.65	0.59
12:l:120:THR:O	13:m:129:ARG:NH1	2.36	0.59
1:A:38:GLN:NE2	1:A:40:THR:OG1	2.36	0.59
5:E:101:ASP:HB3	5:E:105:LEU:H	1.67	0.59
6:F:227:GLY:HA3	6:F:354:PHE:HB2	1.84	0.59
21:U:344:ARG:HH22	21:U:925:VAL:HG13	1.68	0.59
25:Y:66:ASP:HB3	25:Y:69:LEU:HB3	1.83	0.59
19:s:27:THR:HB	19:s:40:SER:H	1.67	0.59
6:F:317:LEU:HD21	6:F:347:ARG:HE	1.67	0.58
17:q:44:LEU:HD11	17:q:102:LEU:HD23	1.83	0.58
24:X:74:ARG:HH21	24:X:116:TRP:HB3	1.69	0.58
10:j:49:SER:O	10:j:50:VAL:C	2.46	0.58
1:A:26:ASP:OD1	32:f:43:GLN:N	2.36	0.58
3:C:41:ASN:OD1	3:C:44:ARG:NH2	2.35	0.58
15:O:164:PHE:O	19:s:38:ARG:NH2	2.37	0.58
1:A:158:ASP:O	1:A:159:PRO:C	2.46	0.58
6:F:229:PRO:O	6:F:392:ASN:ND2	2.36	0.58
22:V:343:PRO:O	31:e:43:TRP:NE1	2.36	0.58
2:B:409:GLU:OE2	2:B:411:ARG:NH2	2.36	0.58
5:E:122:MET:HE1	5:E:196:LEU:HD13	1.86	0.58
7:G:43:ARG:HH21	7:G:164:LYS:HG2	1.66	0.58
21:U:902:PRO:HA	21:U:914:LEU:HA	1.85	0.58
3:C:90:HIS:CD2	4:D:110:ASN:H	2.22	0.58
4:D:335:LEU:HB2	4:D:336:PRO:CD	2.29	0.58
2:B:166:ASP:OD1	3:C:78:ARG:NH1	2.37	0.57

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
3:C:232:ARG:NH1	3:C:275:GLU:OE2	2.37	0.57
21:U:217:CYS:O	21:U:754:HIS:NE2	2.37	0.57
29:c:270:LEU:HA	29:c:273:LYS:HG2	1.85	0.57
32:f:285:CYS:O	32:f:291:GLN:NE2	2.37	0.57
15:o:216:ILE:HD11	16:p:194:LYS:HD2	1.86	0.57
16:P:145:GLN:NE2	19:s:143:ALA:HB1	2.19	0.57
27:a:112:ILE:HD11	27:a:138:VAL:HA	1.87	0.57
27:a:190:VAL:HA	27:a:193:GLN:HB2	1.86	0.57
13:m:34:SER:OG	13:m:65:ARG:NH1	2.37	0.57
16:p:45:MET:HE3	16:p:71:LEU:HD22	1.86	0.57
1:A:165:GLN:HG3	1:A:236:CYS:HB2	1.86	0.57
5:E:144:GLU:O	5:E:297:ARG:NH2	2.37	0.57
5:E:165:ILE:O	5:E:165:ILE:HG23	2.04	0.57
8:h:14:SER:HB3	8:h:18:LYS:H	1.70	0.57
19:s:158:MET:HE2	19:s:161:VAL:HG11	1.86	0.57
1:A:139:ARG:NH2	1:A:252:GLU:OE2	2.37	0.57
6:F:97:LEU:O	6:F:120:LYS:N	2.38	0.57
22:V:289:LEU:HB3	22:V:312:ALA:HB2	1.85	0.57
27:a:252:LYS:HA	27:a:255:TRP:HE3	1.69	0.57
28:b:51:LEU:HD23	28:b:71:ILE:HG23	1.85	0.57
1:A:201:PHE:HB3	1:A:207:GLU:HG2	1.85	0.57
1:A:240:VAL:HB	1:A:274:PHE:HA	1.85	0.57
6:F:35:LYS:HD3	6:F:39:GLU:HB2	1.86	0.57
6:F:229:PRO:HB3	6:F:333:ASN:HD21	1.70	0.57
6:F:359:GLU:HB3	6:F:385:ALA:HB1	1.86	0.57
30:d:44:THR:OG1	30:d:47:GLN:NE2	2.38	0.57
2:B:412:MET:HE1	3:C:178:LEU:HA	1.87	0.57
8:H:222:THR:OG1	8:H:225:GLU:OE1	2.22	0.57
11:K:221:GLN:HB2	11:K:224:GLN:HG2	1.86	0.57
22:V:349:ARG:HH12	31:e:37:HIS:HE1	1.53	0.57
32:f:83:ARG:O	32:f:87:THR:OG1	2.22	0.57
32:f:389:LYS:HB2	32:f:392:THR:HB	1.85	0.57
2:B:412:MET:HB2	32:f:90:THR:HG21	1.87	0.57
15:o:201:ARG:HH22	15:o:203:ARG:HB2	1.69	0.57
3:C:297:ARG:NH1	4:D:274:ARG:O	2.38	0.57
6:F:94:ILE:HD12	6:F:123:VAL:HG12	1.86	0.57
2:B:181:GLN:O	2:B:241:ASN:ND2	2.38	0.56
5:E:264:MET:HE2	5:E:294:ARG:HB3	1.85	0.56
27:a:356:TRP:HH2	29:c:309:PHE:HA	1.69	0.56
32:f:607:LEU:HA	32:f:610:GLN:HG2	1.86	0.56
32:f:696:LEU:HD11	32:f:796:LEU:HD13	1.86	0.56

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
10:j:137:ASP:OD2	10:j:143:ARG:NH1	2.38	0.56
6:F:347:ARG:HD3	6:F:347:ARG:C	2.29	0.56
27:a:24:ARG:NH1	27:a:40:GLN:OE1	2.38	0.56
10:j:68:ASN:HA	10:j:211:MET:HE1	1.87	0.56
17:q:168:GLN:NE2	17:q:175:LEU:O	2.38	0.56
4:D:133:HIS:HB3	4:D:137:ASN:H	1.70	0.56
10:J:148:ASP:OD2	10:J:150:SER:OG	2.21	0.56
22:V:92:ARG:HA	22:V:95:LEU:HD12	1.88	0.56
5:E:170:CYS:SG	5:E:171:LEU:N	2.78	0.56
5:E:219:PHE:HD2	5:E:263:GLN:HB3	1.69	0.56
6:F:209:LYS:HB3	6:F:324:THR:HG21	1.86	0.56
21:U:693:LEU:HD12	21:U:746:ILE:HD13	1.87	0.56
21:U:792:ASN:HB3	21:U:914:LEU:H	1.70	0.56
25:Y:231:LEU:HD21	25:Y:239:LYS:HZ1	1.69	0.56
2:B:304:GLU:HG3	2:B:307:ARG:HH21	1.70	0.56
28:b:53:THR:HG22	28:b:59:GLU:H	1.70	0.56
3:C:215:SER:HA	3:C:249:ASP:HB2	1.87	0.56
5:E:159:PHE:CA	5:E:164:ILE:O	2.54	0.56
22:V:76:LYS:HE3	22:V:149:PRO:HB3	1.87	0.56
21:U:8:ILE:HD12	21:U:27:LEU:HD13	1.87	0.56
22:V:477:HIS:HD1	30:d:249:TYR:HH	1.51	0.56
22:V:495:ARG:NH1	22:V:497:PRO:O	2.38	0.56
29:c:167:MET:HE1	29:c:172:HIS:HA	1.88	0.56
13:m:39:ILE:HG23	13:m:181:MET:HE3	1.86	0.56
3:C:217:SER:OG	4:D:248:ARG:NH2	2.38	0.56
23:W:26:GLN:NE2	23:W:30:GLU:OE2	2.39	0.56
1:A:51:ASP:OD1	2:B:69:LYS:NZ	2.38	0.55
3:C:66:LEU:HD21	4:D:116:LEU:HD21	1.88	0.55
22:V:92:ARG:HH22	25:Y:389:MET:H	1.53	0.55
7:g:21:ARG:HE	7:g:22:LEU:H	1.53	0.55
4:D:159:LYS:HD3	4:D:160:PRO:HD2	1.87	0.55
5:E:159:PHE:O	5:E:164:ILE:O	2.23	0.55
32:f:178:LYS:HD2	32:f:181:ARG:HD2	1.88	0.55
5:E:159:PHE:HB3	5:E:165:ILE:HA	1.86	0.55
21:U:880:ASN:OD1	21:U:880:ASN:N	2.38	0.55
21:U:900:TYR:HB3	21:U:914:LEU:HD21	1.88	0.55
26:Z:125:ASP:HB3	26:Z:128:PRO:HD2	1.89	0.55
1:A:424:SER:HB2	1:A:428:ARG:HH21	1.72	0.55
4:D:202:VAL:HA	4:D:329:ARG:HB2	1.88	0.55
5:E:4:PRO:HG2	5:E:7:LYS:HB3	1.87	0.55
18:R:166:ARG:NH2	17:q:144:ASP:OD2	2.39	0.55

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
23:W:425:LEU:HD23	26:Z:251:LEU:HD23	1.88	0.55
28:b:100:ARG:NH1	28:b:102:GLY:O	2.40	0.55
4:D:176:GLU:OE2	4:D:329:ARG:NH1	2.39	0.55
6:F:180:ARG:CB	6:F:181:PRO:HD2	2.25	0.55
26:Z:175:LEU:O	29:c:214:GLN:NE2	2.39	0.55
1:A:261:PHE:O	1:A:265:ARG:NH1	2.39	0.55
2:B:67:ARG:NH2	32:f:664:GLU:OE2	2.40	0.55
10:J:146:GLN:NE2	10:J:147:THR:O	2.40	0.55
25:Y:42:MET:HG2	25:Y:46:ARG:HH12	1.72	0.55
15:o:1:THR:N	15:o:168:GLY:O	2.39	0.55
20:t:99:ARG:NH1	20:t:104:ASN:O	2.40	0.55
7:G:141:ILE:HG22	7:G:151:VAL:HG22	1.87	0.55
9:I:180:LYS:HB2	9:I:184:MET:HE3	1.88	0.55
29:c:174:PRO:O	29:c:176:GLN:NE2	2.40	0.55
30:d:200:PHE:O	30:d:203:PRO:HD3	2.06	0.55
2:B:191:ASP:HA	2:B:194:ILE:HG22	1.88	0.55
7:G:207:SER:HA	23:W:94:ARG:HH21	1.71	0.55
22:V:119:GLY:HA2	22:V:148:ARG:HD3	1.88	0.55
27:a:34:TRP:HB3	27:a:71:VAL:HG22	1.89	0.55
29:c:57:MET:HB3	29:c:69:VAL:HG21	1.89	0.55
32:f:593:THR:OG1	32:f:649:HIS:NE2	2.37	0.55
1:A:250:VAL:HG12	1:A:297:ARG:HD3	1.89	0.55
2:B:54:PRO:HB2	2:B:61:LYS:HE3	1.89	0.55
27:a:8:LEU:HD11	27:a:26:GLU:HB3	1.89	0.55
13:m:229:LYS:NZ	13:m:233:GLU:OE2	2.39	0.55
17:q:2:GLU:HB2	17:q:47:VAL:HG21	1.88	0.55
2:B:194:ILE:HA	2:B:197:ILE:HG22	1.88	0.54
6:F:228:PRO:O	6:F:233:LYS:NZ	2.38	0.54
22:V:58:ALA:O	22:V:62:HIS:ND1	2.40	0.54
25:Y:25:LEU:HD11	25:Y:284:LYS:HZ2	1.72	0.54
29:c:209:LYS:HG3	29:c:214:GLN:HE21	1.72	0.54
17:Q:35:MET:HG2	17:Q:45:LEU:HG	1.89	0.54
21:U:764:LEU:O	21:U:767:THR:OG1	2.25	0.54
7:G:165:ALA:HB3	8:H:56:LEU:HD22	1.88	0.54
22:V:150:ARG:NH1	22:V:157:THR:O	2.40	0.54
12:l:55:GLU:HG2	12:l:56:LEU:HG	1.88	0.54
4:D:335:LEU:CB	4:D:336:PRO:HD3	2.35	0.54
6:F:35:LYS:HB2	6:F:38:THR:HB	1.90	0.54
29:c:247:GLU:O	29:c:251:LEU:HB2	2.07	0.54
32:f:573:ILE:HG13	32:f:599:ALA:HB2	1.89	0.54
19:s:4:PRO:O	20:t:100:ARG:NH2	2.37	0.54

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
10:J:42:VAL:HG11	10:J:191:VAL:HG21	1.89	0.54
13:M:163:CYS:SG	13:M:164:ALA:N	2.81	0.54
24:X:255:LEU:HD22	24:X:267:VAL:HG13	1.89	0.54
29:c:279:ASP:CB	29:c:280:PRO:CD	2.72	0.54
16:p:159:ASP:OD1	16:p:159:ASP:N	2.40	0.54
17:Q:38:MET:HE3	17:Q:44:LEU:HB3	1.90	0.54
28:b:91:ARG:HH21	28:b:127:LEU:HD11	1.72	0.54
3:C:277:LEU:O	3:C:310:ARG:NH1	2.40	0.54
5:E:352:MET:HA	5:E:355:ILE:HD12	1.89	0.54
10:J:30:SER:OG	10:J:48:LYS:NZ	2.38	0.54
17:Q:41:LYS:NZ	17:Q:184:ASP:O	2.41	0.54
22:V:201:ARG:NH1	22:V:241:ARG:O	2.40	0.54
24:X:96:PHE:HD2	24:X:97:LEU:HD22	1.73	0.54
30:d:87:GLU:HA	30:d:89:LEU:HD23	1.88	0.54
15:o:51:ASP:HB3	15:o:94:ILE:HG23	1.89	0.54
19:s:145:LEU:HD22	19:s:178:VAL:HB	1.90	0.54
8:H:177:ARG:NH1	24:X:202:CYS:SG	2.81	0.54
22:V:121:PHE:O	22:V:128:ARG:NH1	2.41	0.54
18:r:37:ILE:HD11	18:r:56:GLU:HB3	1.89	0.54
4:D:335:LEU:HD12	4:D:335:LEU:H	1.72	0.54
6:F:206:MET:SD	6:F:245:LYS:HD3	2.49	0.54
6:F:255:GLN:O	6:F:258:GLN:NE2	2.38	0.54
11:K:121:LEU:HD23	11:K:160:GLY:HA3	1.89	0.54
19:S:125:ASP:OD1	19:S:129:SER:N	2.40	0.54
23:W:174:TYR:O	23:W:182:ARG:NH2	2.41	0.54
27:a:103:LYS:HG3	27:a:104:VAL:HG23	1.90	0.54
1:A:161:VAL:HG13	1:A:238:ILE:HD11	1.90	0.53
7:G:123:GLN:NE2	8:H:82:ASP:OD1	2.41	0.53
22:V:278:GLU:HA	22:V:285:TRP:HZ2	1.73	0.53
10:j:79:ASP:HB3	10:j:127:PHE:HD1	1.72	0.53
12:l:215:VAL:HB	12:l:221:PHE:HD1	1.73	0.53
9:I:136:TYR:HB2	9:I:148:TYR:HB2	1.91	0.53
21:U:376:MET:HA	21:U:739:ALA:HA	1.90	0.53
21:U:510:GLU:HA	21:U:547:GLY:HA3	1.89	0.53
25:Y:38:ARG:HG2	25:Y:42:MET:HE1	1.89	0.53
32:f:338:ASP:HB3	32:f:340:MET:HG3	1.90	0.53
10:j:38:ARG:O	10:j:213:ARG:NH2	2.41	0.53
20:t:25:ASP:OD1	20:t:41:ARG:NH2	2.40	0.53
6:F:177:VAL:HA	6:F:180:ARG:CZ	2.38	0.53
6:F:221:LYS:NZ	6:F:323:ASN:O	2.32	0.53
13:M:108:LEU:HD23	13:M:147:GLN:HB2	1.89	0.53

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
21:U:797:MET:HG3	21:U:880:ASN:ND2	2.22	0.53
23:W:147:LYS:HE3	23:W:188:GLU:HG3	1.89	0.53
32:f:269:ALA:HA	32:f:272:LEU:HD12	1.90	0.53
16:p:65:GLN:OE1	17:q:86:ARG:NH2	2.42	0.53
4:D:249:ASP:OD1	4:D:252:ARG:NH2	2.41	0.53
4:D:162:VAL:O	4:D:221:HIS:ND1	2.41	0.53
25:Y:336:ARG:NH1	31:e:49:GLU:OE2	2.42	0.53
31:e:54:ASN:OD1	31:e:57:ARG:NH2	2.41	0.53
5:E:246:GLY:HA3	5:E:250:ASP:HB2	1.90	0.53
5:E:317:ALA:HA	5:E:320:ILE:HD12	1.89	0.53
21:U:265:ILE:O	21:U:269:ARG:NH1	2.42	0.53
21:U:834:SER:HB2	21:U:836:THR:HG23	1.89	0.53
9:i:46:ALA:HB1	9:i:197:LEU:HD11	1.90	0.53
3:C:212:ILE:HG21	3:C:234:LEU:HD11	1.90	0.53
20:T:110:MET:HB2	20:T:125:VAL:HB	1.90	0.53
24:X:317:PRO:CD	24:X:319:ILE:HG12	2.37	0.53
27:a:210:VAL:O	27:a:271:LYS:NZ	2.35	0.53
8:h:148:GLN:NE2	8:h:150:ASP:OD1	2.42	0.53
10:j:42:VAL:HG22	10:j:210:VAL:HG22	1.90	0.53
2:B:343:ARG:NH1	2:B:344:PRO:O	2.41	0.53
19:s:125:ASP:OD1	19:s:129:SER:N	2.42	0.53
21:U:697:GLN:NE2	21:U:744:VAL:O	2.42	0.53
5:E:121:ASN:HD22	6:F:311:LEU:HD13	1.74	0.52
6:F:221:LYS:HZ1	6:F:326:VAL:HB	1.73	0.52
20:T:44:ARG:NH2	20:T:47:ASN:OD1	2.39	0.52
22:V:355:ARG:NH1	31:e:27:TRP:O	2.42	0.52
25:Y:98:SER:OG	25:Y:101:ARG:NH2	2.42	0.52
26:Z:82:PHE:HA	26:Z:85:VAL:HG12	1.92	0.52
32:f:698:SER:OG	32:f:698:SER:O	2.25	0.52
10:j:38:ARG:NH2	10:j:178:ASP:OD1	2.40	0.52
11:k:41:GLN:NE2	11:k:151:PRO:O	2.43	0.52
4:D:204:MET:HE3	4:D:310:ALA:HB2	1.91	0.52
4:D:230:VAL:HB	4:D:264:ILE:HG22	1.91	0.52
6:F:283:ILE:HD12	6:F:328:VAL:HG22	1.90	0.52
21:U:446:LEU:O	21:U:450:HIS:ND1	2.42	0.52
32:f:127:SER:OG	32:f:139:CYS:O	2.25	0.52
10:j:45:VAL:HG21	10:j:61:LYS:HD2	1.91	0.52
2:B:401:GLU:OE1	3:C:313:ARG:NH1	2.42	0.52
2:B:411:ARG:NH2	2:B:415:THR:OG1	2.42	0.52
4:D:268:ASP:OD1	4:D:268:ASP:N	2.42	0.52
5:E:75:ASN:ND2	6:F:129:ARG:O	2.43	0.52

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
5:E:364:GLN:NE2	5:E:368:MET:SD	2.82	0.52
8:H:177:ARG:HD2	8:H:190:THR:HG23	1.90	0.52
25:Y:210:SER:HB3	25:Y:213:LEU:HD23	1.92	0.52
26:Z:21:ASP:OD1	26:Z:22:HIS:N	2.43	0.52
27:a:73:PRO:HB3	27:a:104:VAL:HG11	1.91	0.52
27:a:360:VAL:HG22	29:c:308:VAL:HG13	1.91	0.52
28:b:153:LEU:HD23	28:b:170:LEU:HD11	1.91	0.52
32:f:556:ARG:NH2	32:f:645:ASP:OD1	2.40	0.52
11:k:13:ASN:HB2	12:l:126:ARG:HB3	1.90	0.52
12:l:80:ASP:OD1	12:l:126:ARG:NH2	2.41	0.52
2:B:223:ILE:HG13	2:B:347:ILE:HG21	1.91	0.52
4:D:156:SER:O	4:D:157:ASP:HB2	2.07	0.52
13:M:52:LEU:HA	13:M:209:PHE:HA	1.91	0.52
16:P:35:VAL:HG12	16:P:36:THR:HG23	1.91	0.52
21:U:529:ILE:HD13	21:U:555:VAL:HG11	1.90	0.52
28:b:124:LEU:HD13	28:b:156:PHE:HB2	1.91	0.52
29:c:231:LEU:C	29:c:233:ASP:H	2.18	0.52
10:J:158:ALA:HB3	11:K:58:LEU:HD21	1.92	0.52
20:T:91:TRP:HE3	20:T:92:LEU:HD12	1.75	0.52
28:b:24:THR:HB	28:b:27:GLN:HG2	1.91	0.52
30:d:114:GLU:HA	30:d:117:THR:HG22	1.91	0.52
4:D:271:ALA:HA	4:D:289:LEU:HD21	1.91	0.52
15:O:24:MET:HE3	19:s:187:VAL:HG21	1.90	0.52
22:V:256:ARG:NH2	31:e:21:GLU:O	2.42	0.52
24:X:170:GLN:OE1	24:X:192:SER:OG	2.26	0.52
25:Y:247:LEU:HD12	25:Y:250:LEU:HD11	1.92	0.52
26:Z:31:ASN:HA	26:Z:33:LYS:HE2	1.92	0.52
26:Z:228:TYR:HB2	27:a:338:PRO:HB2	1.92	0.52
28:b:137:ASN:HA	28:b:160:LEU:HD21	1.91	0.52
9:i:3:ARG:NH2	11:k:126:GLU:OE2	2.42	0.52
3:C:99:VAL:HG12	3:C:123:LEU:HD12	1.90	0.52
3:C:277:LEU:HD12	3:C:305:LEU:HB3	1.91	0.52
5:E:159:PHE:C	5:E:164:ILE:O	2.52	0.52
12:L:107:ARG:NH2	20:T:74:GLU:OE2	2.37	0.52
19:S:10:GLY:HA3	19:S:42:LYS:HE2	1.92	0.52
20:T:43:MET:HB3	20:T:51:LEU:HB3	1.91	0.52
21:U:146:LYS:HE2	21:U:148:LYS:HD3	1.91	0.52
32:f:240:VAL:O	32:f:245:ASN:ND2	2.43	0.52
32:f:409:SER:O	32:f:819:TYR:OH	2.27	0.52
1:A:398:ARG:NH2	2:B:196:GLU:OE2	2.32	0.52
2:B:63:LEU:HD13	32:f:239:TYR:HB2	1.92	0.52

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
5:E:281:ARG:HH12	5:E:283:ASP:HB2	1.74	0.52
9:I:176:LYS:NZ	10:J:52:LYS:HG2	2.25	0.52
19:S:187:VAL:HG21	15:o:24:MET:HE3	1.92	0.52
23:W:373:ILE:HA	27:a:326:GLU:HB2	1.92	0.52
27:a:6:GLY:HA2	27:a:9:GLN:HB2	1.92	0.52
30:d:45:LYS:HG2	30:d:48:LEU:HD12	1.92	0.52
32:f:278:VAL:HG12	32:f:305:LEU:HD11	1.92	0.52
1:A:429:TYR:OH	11:K:33:LEU:O	2.27	0.52
21:U:770:TRP:HA	29:c:179:SER:HB3	1.92	0.52
19:s:16:ALA:HB2	19:s:121:VAL:HG23	1.91	0.52
5:E:226:GLN:NE2	5:E:271:HIS:O	2.43	0.51
11:K:103:TYR:HE1	19:S:91:MET:HE2	1.75	0.51
24:X:53:LEU:HD22	24:X:69:LEU:HD22	1.91	0.51
32:f:520:LEU:HD21	32:f:798:THR:HG23	1.91	0.51
7:g:158:GLY:O	8:h:84:ARG:NH2	2.43	0.51
10:j:158:ALA:HB3	11:k:58:LEU:HD21	1.91	0.51
8:H:111:VAL:HG22	8:H:136:ILE:HD12	1.91	0.51
19:S:176:LYS:HE2	19:S:208:VAL:HG21	1.90	0.51
21:U:804:SER:HA	21:U:892:LEU:HA	1.93	0.51
21:U:873:PRO:O	21:U:875:PHE:CD1	2.63	0.51
25:Y:238:GLU:HA	25:Y:242:LYS:HB2	1.91	0.51
7:g:191:PHE:HE1	7:g:219:VAL:HG21	1.74	0.51
11:k:99:HIS:HB2	11:k:107:MET:HE3	1.92	0.51
1:A:157:ILE:O	1:A:158:ASP:C	2.53	0.51
2:B:429:LYS:HD3	3:C:314:LYS:HG2	1.92	0.51
7:G:199:ILE:HG23	7:G:210:PHE:HZ	1.75	0.51
21:U:643:SER:O	21:U:649:ARG:NH1	2.40	0.51
22:V:349:ARG:NH2	31:e:39:TRP:O	2.43	0.51
27:a:168:ASN:OD1	27:a:171:SER:OG	2.28	0.51
29:c:27:THR:HG22	29:c:28:ALA:H	1.75	0.51
6:F:98:ASP:OD1	6:F:120:LYS:N	2.43	0.51
21:U:483:LEU:HD11	21:U:781:LEU:HD11	1.91	0.51
10:j:173:GLU:HG2	11:k:57:PRO:HG2	1.91	0.51
1:A:38:GLN:HE21	1:A:41:TYR:H	1.56	0.51
3:C:90:HIS:HB2	3:C:91:PRO:HD2	1.93	0.51
23:W:396:LEU:HD13	23:W:402:ILE:HD13	1.92	0.51
26:Z:172:VAL:HG22	29:c:217:LEU:HD21	1.92	0.51
10:j:116:GLN:NE2	10:j:120:GLN:OE1	2.44	0.51
21:U:793:LYS:NZ	21:U:794:ASP:OD1	2.37	0.51
25:Y:50:MET:HB3	25:Y:53:TYR:HB3	1.92	0.51
20:t:92:LEU:HD12	20:t:112:ILE:HD11	1.91	0.51

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
6:F:406:ILE:HG23	6:F:409:ARG:HH21	1.76	0.51
29:c:30:GLN:HB3	29:c:66:THR:HG22	1.91	0.51
29:c:279:ASP:HB3	29:c:280:PRO:HD2	1.89	0.51
30:d:107:LEU:HD11	30:d:140:GLU:HB2	1.93	0.51
32:f:150:GLU:HG3	32:f:152:ALA:H	1.76	0.51
1:A:80:LEU:O	1:A:85:GLN:NE2	2.44	0.51
1:A:258:ARG:NH2	1:A:305:GLN:OE1	2.41	0.51
2:B:204:PRO:HG3	2:B:211:TYR:HE2	1.75	0.51
2:B:317:ASP:OD2	2:B:346:ARG:NH1	2.44	0.51
6:F:438:TYR:OH	11:K:19:GLY:O	2.27	0.51
27:a:255:TRP:O	27:a:258:GLN:NE2	2.44	0.51
11:k:98:ASN:OD1	18:r:61:ARG:NH2	2.44	0.51
2:B:382:ASP:OD2	2:B:420:LYS:NZ	2.43	0.51
4:D:51:LEU:HA	4:D:54:LEU:HD23	1.92	0.51
32:f:65:GLU:O	32:f:71:TYR:OH	2.26	0.51
32:f:686:LEU:O	32:f:690:VAL:HG23	2.11	0.51
19:s:45:LYS:HE3	19:s:203:ILE:HD12	1.93	0.51
4:D:57:GLN:HA	4:D:60:TYR:CE1	2.46	0.50
6:F:262:GLY:N	6:F:305:GLU:OE2	2.43	0.50
19:S:28:ARG:NH2	19:S:213:ASP:OXT	2.41	0.50
21:U:873:PRO:O	21:U:875:PHE:HD1	1.93	0.50
27:a:65:SER:HA	27:a:68:GLU:HB2	1.92	0.50
29:c:100:LYS:HA	29:c:105:PRO:HB3	1.94	0.50
4:D:269:ALA:HB1	5:E:255:ARG:HG2	1.93	0.50
13:M:64:LYS:NZ	13:M:66:LEU:O	2.37	0.50
21:U:192:GLN:O	21:U:196:LYS:NZ	2.44	0.50
23:W:366:MET:HE3	23:W:373:ILE:HD13	1.93	0.50
7:g:61:LEU:HD21	7:g:66:VAL:HG11	1.92	0.50
5:E:64:LEU:HD13	5:E:70:ILE:HD11	1.94	0.50
9:I:22:GLU:HA	9:I:25:MET:HB2	1.92	0.50
21:U:505:ASP:HB3	21:U:508:THR:HG22	1.92	0.50
32:f:583:VAL:HB	32:f:588:ARG:HD3	1.93	0.50
9:i:53:HIS:HB3	9:i:56:LEU:HD23	1.93	0.50
9:i:119:GLN:NE2	10:j:79:ASP:OD1	2.45	0.50
2:B:354:PRO:O	2:B:356:PRO:HD3	2.12	0.50
16:P:143:ALA:HA	16:P:146:MET:HE3	1.93	0.50
2:B:150:VAL:HG12	2:B:162:VAL:HA	1.94	0.50
22:V:68:ASP:OD1	22:V:109:ASN:ND2	2.44	0.50
17:q:183:ILE:HG12	17:q:188:ILE:HG12	1.93	0.50
3:C:57:ARG:NH2	21:U:643:SER:O	2.43	0.50
5:E:159:PHE:CD2	5:E:165:ILE:HG13	2.46	0.50

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
20:T:43:MET:HE3	20:T:64:LYS:HG3	1.92	0.50
21:U:693:LEU:HD22	21:U:736:ILE:HG21	1.92	0.50
26:Z:45:LYS:HB3	26:Z:47:VAL:HG12	1.92	0.50
26:Z:129:LYS:HZ1	29:c:212:LEU:HA	1.77	0.50
7:g:137:CYS:SG	7:g:138:MET:N	2.85	0.50
9:I:49:ARG:NH1	9:I:209:GLU:O	2.44	0.50
26:Z:209:ARG:HH21	26:Z:213:GLU:HG3	1.76	0.50
10:j:90:GLU:HG3	10:j:110:TYR:CZ	2.47	0.50
1:A:155:PRO:O	1:A:255:ARG:NH2	2.45	0.50
3:C:134:LEU:HA	3:C:137:LEU:HB2	1.93	0.50
4:D:103:VAL:HG11	4:D:139:LEU:HD21	1.94	0.50
4:D:267:ILE:H	4:D:311:THR:HG22	1.77	0.50
4:D:385:LEU:HD21	4:D:401:LYS:HD2	1.94	0.50
5:E:167:PRO:HD2	5:E:168:LYS:HE3	1.93	0.50
22:V:212:TYR:HA	22:V:253:LEU:HD11	1.94	0.50
24:X:414:LEU:HD23	26:Z:276:ILE:HD12	1.93	0.50
32:f:235:SER:HB3	32:f:853:VAL:HG21	1.94	0.50
17:q:19:ARG:HD3	17:q:177:THR:HG22	1.94	0.50
5:E:104:THR:HG22	5:E:106:THR:HG23	1.94	0.49
10:J:31:THR:OG1	10:J:163:ARG:O	2.27	0.49
21:U:389:ASN:HB2	21:U:392:TRP:HB3	1.93	0.49
23:W:166:LEU:HD22	23:W:192:LEU:HD12	1.94	0.49
24:X:223:LYS:HD2	24:X:224:ASP:HB2	1.94	0.49
27:a:254:ALA:HA	27:a:261:LEU:HD23	1.94	0.49
7:g:70:PHE:HD2	7:g:91:VAL:HG21	1.76	0.49
3:C:247:PHE:HD1	3:C:292:ILE:HB	1.76	0.49
11:K:41:GLN:NE2	11:K:151:PRO:O	2.45	0.49
12:L:47:VAL:HG12	12:L:195:LEU:HD22	1.93	0.49
21:U:216:VAL:HA	21:U:220:LEU:HD23	1.93	0.49
32:f:398:TRP:HA	32:f:401:LYS:HD3	1.94	0.49
17:q:39:SER:OG	17:q:40:GLU:N	2.45	0.49
6:F:97:LEU:HB2	6:F:121:CYS:HB2	1.95	0.49
19:S:43:CYS:HB2	19:S:194:ARG:HH21	1.76	0.49
24:X:74:ARG:NH1	24:X:113:CYS:SG	2.86	0.49
10:j:183:THR:HG22	10:j:185:ASP:H	1.77	0.49
16:p:35:VAL:HG12	16:p:36:THR:HG23	1.94	0.49
5:E:159:PHE:HB3	5:E:165:ILE:CA	2.41	0.49
10:J:135:GLY:HA2	10:J:211:MET:HE1	1.94	0.49
12:L:45:VAL:HG12	12:L:214:ILE:HG12	1.94	0.49
13:M:37:ILE:HD11	13:M:193:VAL:HG13	1.95	0.49
25:Y:220:VAL:HA	25:Y:223:THR:HG22	1.94	0.49

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
27:a:321:LYS:HE2	27:a:336:VAL:HG21	1.94	0.49
5:E:159:PHE:HD2	5:E:165:ILE:HG13	1.76	0.49
6:F:185:TYR:OH	6:F:240:CYS:SG	2.64	0.49
29:c:231:LEU:O	29:c:232:GLN:HG3	2.13	0.49
10:j:185:ASP:OD1	10:j:189:LYS:NZ	2.32	0.49
15:o:63:LEU:HD11	15:o:79:ALA:HB2	1.95	0.49
3:C:90:HIS:HD2	4:D:110:ASN:H	1.53	0.49
5:E:300:HIS:NE2	5:E:302:ASP:OD1	2.44	0.49
10:J:196:LEU:HA	10:J:199:VAL:HG12	1.95	0.49
26:Z:16:LEU:HD12	29:c:216:MET:HE2	1.93	0.49
29:c:281:LYS:O	29:c:285:GLU:OE1	2.31	0.49
19:s:48:ASP:OD1	19:s:48:ASP:N	2.43	0.49
7:G:206:LEU:HB3	7:G:208:ILE:HG12	1.94	0.49
13:M:45:VAL:HG23	13:M:146:ALA:HB1	1.94	0.49
14:n:93:ASP:N	14:n:93:ASP:OD1	2.43	0.49
1:A:213:LEU:HA	1:A:319:MET:HB2	1.95	0.49
1:A:277:ILE:HA	1:A:280:ILE:HG12	1.94	0.49
6:F:232:GLY:HA2	6:F:235:LEU:HD13	1.94	0.49
21:U:198:LEU:HD21	21:U:218:GLN:HE21	1.77	0.49
25:Y:312:ARG:HA	25:Y:356:THR:HG22	1.95	0.49
26:Z:14:LEU:HB3	29:c:40:LYS:HZ1	1.76	0.49
11:k:196:LYS:HG3	11:k:241:ILE:HD11	1.94	0.49
12:l:88:MET:HE2	12:l:112:ILE:HG13	1.93	0.49
22:V:228:ARG:HH22	22:V:261:TYR:HB2	1.78	0.49
26:Z:192:THR:O	26:Z:196:HIS:ND1	2.43	0.49
26:Z:193:ASN:HA	26:Z:196:HIS:CE1	2.47	0.49
32:f:331:LEU:HG	32:f:335:ARG:HH21	1.78	0.49
32:f:416:MET:HE2	32:f:819:TYR:HE1	1.78	0.49
3:C:337:ASN:HD21	25:Y:174:TRP:CD1	2.30	0.49
6:F:124:ILE:HD11	6:F:160:ILE:HD11	1.95	0.49
8:H:51:LYS:NZ	8:H:199:PHE:O	2.45	0.49
8:H:204:THR:OG1	8:H:206:ASP:OD1	2.30	0.49
23:W:49:SER:HA	23:W:52:LYS:HE2	1.94	0.49
25:Y:42:MET:HA	25:Y:45:VAL:HB	1.95	0.49
25:Y:186:LEU:HD11	25:Y:214:MET:HE1	1.94	0.49
32:f:521:ALA:HA	32:f:524:MET:HE2	1.95	0.49
1:A:300:LEU:HD23	1:A:303:ILE:HD11	1.95	0.48
6:F:368:ILE:HG12	6:F:371:ARG:HH22	1.78	0.48
20:T:1:THR:N	20:T:104:ASN:OD1	2.46	0.48
26:Z:37:GLY:HA2	26:Z:56:VAL:HG12	1.95	0.48
8:h:39:LYS:HG3	8:h:44:VAL:HG22	1.94	0.48

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:89:SER:HA	1:A:93:LEU:HD23	1.95	0.48
1:A:210:LYS:HD2	1:A:337:LEU:O	2.12	0.48
3:C:85:VAL:HG21	3:C:123:LEU:HD11	1.95	0.48
10:J:4:ASP:OD1	10:J:4:ASP:N	2.47	0.48
19:S:198:VAL:HG22	19:S:203:ILE:HG12	1.94	0.48
27:a:284:ARG:HH11	27:a:288:HIS:HB2	1.77	0.48
28:b:107:MET:HB3	28:b:136:VAL:HG13	1.95	0.48
29:c:49:VAL:HG13	29:c:50:PRO:HD3	1.95	0.48
5:E:146:ARG:NH2	5:E:150:GLU:OE1	2.46	0.48
7:G:153:LYS:HD3	7:G:163:PHE:HE2	1.78	0.48
8:H:42:ASN:ND2	8:H:183:GLU:OE2	2.45	0.48
32:f:384:ALA:HA	32:f:419:LEU:HB3	1.95	0.48
7:g:141:ILE:HG22	7:g:151:VAL:HG22	1.95	0.48
3:C:269:VAL:HG11	4:D:287:ARG:HH12	1.78	0.48
5:E:159:PHE:CB	5:E:165:ILE:HA	2.43	0.48
21:U:894:MET:HG3	21:U:902:PRO:HD3	1.95	0.48
23:W:359:VAL:HG23	23:W:382:LEU:HD22	1.95	0.48
2:B:405:MET:HE1	2:B:422:SER:HB2	1.96	0.48
3:C:154:LEU:HD21	3:C:317:PHE:HE1	1.77	0.48
11:K:31:ILE:HD13	11:K:140:ALA:HB2	1.94	0.48
21:U:873:PRO:HA	21:U:875:PHE:CE1	2.48	0.48
12:l:61:LYS:NZ	12:l:63:ILE:O	2.41	0.48
1:A:58:LYS:O	1:A:62:LEU:HB2	2.12	0.48
3:C:155:ASP:N	3:C:155:ASP:OD1	2.44	0.48
21:U:490:ARG:HB3	21:U:493:VAL:HG12	1.95	0.48
26:Z:68:TRP:CD1	26:Z:104:ASN:HD21	2.32	0.48
27:a:188:LEU:HD13	27:a:192:GLU:HB3	1.96	0.48
8:h:3:GLU:OE2	13:m:127:ALA:HB3	2.13	0.48
14:n:4:MET:HG3	14:n:127:ILE:HG22	1.96	0.48
14:n:104:ASP:OD1	14:n:104:ASP:N	2.47	0.48
2:B:176:VAL:HG21	2:B:247:PHE:HD2	1.78	0.48
4:D:237:GLN:HA	5:E:209:GLY:HA3	1.96	0.48
21:U:696:ILE:HG22	21:U:737:LEU:HA	1.95	0.48
22:V:168:GLN:HB3	22:V:191:LEU:HD22	1.95	0.48
28:b:12:ASN:HD22	28:b:78:VAL:HG22	1.79	0.48
29:c:63:ASP:OD1	29:c:66:THR:OG1	2.28	0.48
16:p:2:SER:OG	16:p:3:ILE:N	2.47	0.48
1:A:69:ASP:OD1	1:A:69:ASP:N	2.44	0.48
20:T:92:LEU:HD23	20:T:110:MET:HG3	1.94	0.48
21:U:126:ILE:O	21:U:128:GLN:NE2	2.47	0.48
9:i:49:ARG:NH1	9:i:209:GLU:O	2.46	0.48

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:B:405:MET:HA	2:B:408:ARG:HD3	1.96	0.48
5:E:199:VAL:HG23	5:E:201:SER:H	1.79	0.48
5:E:303:LEU:HB3	5:E:338:PHE:HB3	1.96	0.48
6:F:317:LEU:HD11	6:F:328:VAL:HG21	1.96	0.48
11:K:167:ALA:HB3	12:L:56:LEU:HD21	1.96	0.48
21:U:325:MET:HA	21:U:328:ILE:HG12	1.94	0.48
1:A:122:VAL:HB	6:F:88:TYR:HB2	1.96	0.48
2:B:248:LEU:HD12	2:B:282:VAL:HG22	1.96	0.48
3:C:161:ILE:HA	3:C:164:VAL:HG12	1.95	0.48
5:E:205:ASP:OD1	5:E:205:ASP:N	2.45	0.48
22:V:300:LEU:HD11	30:d:116:HIS:CD2	2.45	0.48
23:W:315:MET:HE3	23:W:320:LEU:HD21	1.95	0.48
26:Z:43:TRP:O	26:Z:90:ARG:NH2	2.45	0.48
15:o:53:ASP:O	15:o:57:GLN:HG2	2.14	0.48
19:s:198:VAL:HG22	19:s:203:ILE:HG12	1.96	0.48
20:t:25:ASP:HA	20:t:187:PHE:HA	1.95	0.48
1:A:293:ASN:HA	6:F:259:MET:HG2	1.96	0.47
4:D:320:ALA:O	4:D:326:ARG:NH1	2.47	0.47
7:G:213:SER:OG	7:G:232:GLU:OE2	2.31	0.47
21:U:74:PHE:HD1	21:U:103:LYS:HZ3	1.62	0.47
23:W:363:ILE:HD11	23:W:382:LEU:HD11	1.95	0.47
26:Z:136:GLU:OE2	26:Z:157:HIS:ND1	2.47	0.47
27:a:363:MET:HE3	29:c:307:VAL:HG11	1.96	0.47
3:C:49:ARG:NH1	21:U:639:LEU:O	2.47	0.47
5:E:214:LEU:O	5:E:218:MET:HG2	2.14	0.47
6:F:252:ALA:HB3	6:F:255:GLN:HB2	1.96	0.47
21:U:798:PRO:O	21:U:880:ASN:ND2	2.47	0.47
26:Z:43:TRP:HB3	26:Z:90:ARG:HH12	1.78	0.47
6:F:325:GLN:HA	6:F:325:GLN:HE21	1.78	0.47
14:N:4:MET:HE3	14:N:156:THR:HG23	1.96	0.47
21:U:611:ASN:HB3	21:U:614:VAL:HG12	1.96	0.47
21:U:805:ASN:OD1	21:U:893:THR:OG1	2.25	0.47
24:X:310:ARG:O	24:X:314:ARG:NE	2.48	0.47
32:f:679:LEU:HB3	32:f:690:VAL:HG11	1.96	0.47
13:m:42:LYS:NZ	13:m:183:GLU:OE1	2.37	0.47
14:n:164:MET:HE3	14:n:171:GLY:HA2	1.96	0.47
1:A:214:LEU:N	1:A:319:MET:O	2.45	0.47
10:J:185:ASP:OD1	10:J:185:ASP:N	2.46	0.47
14:N:9:ASP:OD1	14:N:9:ASP:N	2.46	0.47
16:P:53:LEU:HB3	16:P:60:VAL:HG22	1.96	0.47
21:U:65:SER:O	21:U:77:SER:OG	2.29	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
21:U:245:ALA:HA	21:U:248:ILE:HG12	1.96	0.47
21:U:681:ASN:OD1	21:U:682:TYR:N	2.47	0.47
22:V:447:ILE:HG13	22:V:449:ALA:H	1.79	0.47
23:W:48:LEU:HB2	23:W:93:ARG:HH22	1.80	0.47
28:b:24:THR:HG22	28:b:26:LEU:H	1.79	0.47
29:c:122:LEU:HD12	29:c:126:ASP:HB3	1.96	0.47
32:f:698:SER:OG	32:f:701:ASN:O	2.33	0.47
10:j:211:MET:HB2	10:j:217:LEU:HD12	1.97	0.47
4:D:279:THR:OG1	4:D:282:ASP:OD2	2.30	0.47
8:H:12:THR:OG1	9:I:20:GLN:NE2	2.47	0.47
22:V:177:ASN:O	22:V:179:LYS:NZ	2.48	0.47
24:X:380:GLN:HB2	25:Y:314:LEU:HA	1.94	0.47
26:Z:75:LEU:HD11	26:Z:112:MET:HE1	1.97	0.47
3:C:160:GLU:OE1	3:C:313:ARG:NH2	2.47	0.47
20:T:25:ASP:OD1	20:T:41:ARG:NH2	2.39	0.47
21:U:857:ASP:OD1	21:U:857:ASP:N	2.46	0.47
26:Z:113:LYS:NZ	26:Z:117:PRO:O	2.41	0.47
32:f:393:ASP:OD1	32:f:393:ASP:N	2.44	0.47
7:g:58:ASP:OD1	7:g:58:ASP:N	2.48	0.47
14:n:127:ILE:HD11	14:n:136:TYR:CE1	2.49	0.47
20:t:27:LEU:HD11	20:t:34:ALA:HB1	1.95	0.47
1:A:224:LEU:HD11	34:A:501:ATP:H3'	1.96	0.47
1:A:407:LYS:O	1:A:410:LEU:N	2.48	0.47
4:D:380:GLN:CG	5:E:166:PRO:HG3	2.44	0.47
6:F:87:PRO:HG2	6:F:155:LYS:HD3	1.97	0.47
6:F:357:PRO:O	6:F:362:ARG:NH1	2.47	0.47
15:O:143:ARG:NH2	15:O:150:GLU:OE1	2.48	0.47
20:T:27:LEU:HD22	20:T:184:TYR:HB2	1.96	0.47
25:Y:127:THR:O	25:Y:131:THR:OG1	2.25	0.47
27:a:343:LEU:O	27:a:346:ILE:N	2.47	0.47
32:f:93:PRO:HB2	32:f:96:LEU:HD23	1.96	0.47
32:f:203:GLU:HA	32:f:206:ASP:HB2	1.96	0.47
32:f:438:ASP:OD1	32:f:438:ASP:N	2.45	0.47
10:j:173:GLU:HG3	11:k:58:LEU:HB2	1.95	0.47
4:D:369:LYS:N	4:D:369:LYS:HD2	2.28	0.47
5:E:182:LEU:HD11	36:E:401:ADP:H2'	1.97	0.47
7:G:73:THR:HG23	7:G:75:ASN:H	1.80	0.47
21:U:161:ASP:OD1	21:U:161:ASP:N	2.47	0.47
23:W:171:VAL:HG12	23:W:182:ARG:HG3	1.95	0.47
24:X:74:ARG:HA	24:X:77:LEU:HG	1.97	0.47
24:X:255:LEU:HB2	24:X:287:LEU:HD13	1.96	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:B:375:ALA:HB2	2:B:413:LYS:HB3	1.97	0.47
6:F:295:ARG:NE	6:F:310:MET:HE1	2.30	0.47
9:I:15:GLU:O	10:J:28:LYS:NZ	2.46	0.47
21:U:550:VAL:HG21	21:U:768:GLN:HG3	1.97	0.47
21:U:583:MET:HA	21:U:586:VAL:HG12	1.96	0.47
22:V:345:ARG:NH2	31:e:46:ASP:OD1	2.48	0.47
27:a:343:LEU:C	27:a:345:GLN:N	2.70	0.47
32:f:486:GLY:HA2	32:f:525:ILE:HD11	1.97	0.47
4:D:336:PRO:HG2	4:D:369:LYS:HE3	1.96	0.47
5:E:235:ILE:HG13	5:E:277:MET:HB3	1.97	0.47
27:a:81:LEU:HA	27:a:84:VAL:HG12	1.97	0.47
31:e:16:ASP:OD1	31:e:16:ASP:N	2.47	0.47
31:e:26:ASP:OD1	31:e:26:ASP:N	2.42	0.47
6:F:91:SER:HB2	6:F:126:THR:HA	1.97	0.46
21:U:519:VAL:HG23	21:U:520:MET:SD	2.55	0.46
21:U:559:ARG:HB3	21:U:562:GLU:HB2	1.96	0.46
21:U:900:TYR:OH	21:U:919:GLU:O	2.33	0.46
23:W:377:ARG:HA	23:W:380:GLN:HG2	1.96	0.46
17:q:182:ILE:HD11	17:q:191:LEU:HD11	1.97	0.46
3:C:140:VAL:CG1	3:C:211:PHE:O	2.34	0.46
12:L:84:LEU:O	12:L:88:MET:HG3	2.14	0.46
20:T:142:GLY:HA2	20:T:176:LEU:HD21	1.96	0.46
21:U:439:GLU:HG3	21:U:473:VAL:HG22	1.96	0.46
24:X:172:LEU:HD12	24:X:175:LYS:HD3	1.98	0.46
12:l:139:ASP:N	12:l:139:ASP:OD1	2.48	0.46
3:C:233:GLU:HA	3:C:236:VAL:HG12	1.97	0.46
4:D:45:LYS:HG2	21:U:187:LEU:HB2	1.96	0.46
25:Y:220:VAL:HG21	25:Y:249:VAL:HG21	1.97	0.46
28:b:181:ASP:OD1	28:b:181:ASP:N	2.46	0.46
32:f:347:ASP:HA	32:f:350:LYS:HB3	1.98	0.46
19:s:145:LEU:HD21	19:s:182:ALA:HB2	1.96	0.46
10:J:42:VAL:HG22	10:J:210:VAL:HG12	1.96	0.46
13:M:108:LEU:HD11	13:M:137:LEU:HB3	1.96	0.46
21:U:554:LEU:HD12	21:U:764:LEU:HD23	1.97	0.46
23:W:315:MET:HE3	23:W:320:LEU:HD11	1.97	0.46
10:j:36:ARG:NH1	10:j:142:PRO:O	2.42	0.46
20:t:99:ARG:HD3	20:t:106:LEU:HG	1.97	0.46
4:D:92:PHE:HA	4:D:103:VAL:HG12	1.98	0.46
21:U:173:VAL:O	21:U:176:MET:N	2.48	0.46
21:U:415:HIS:CD2	21:U:418:GLU:HB3	2.51	0.46
26:Z:124:ILE:HG22	26:Z:135:THR:HG22	1.98	0.46

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
26:Z:213:GLU:HA	27:a:350:LYS:HD3	1.97	0.46
30:d:148:TYR:OH	30:d:177:GLU:OE2	2.33	0.46
30:d:171:LEU:O	30:d:175:ARG:HG2	2.16	0.46
32:f:470:VAL:HG13	32:f:471:LEU:HG	1.97	0.46
11:k:76:CYS:SG	11:k:77:ALA:N	2.89	0.46
6:F:192:ASP:HA	6:F:195:ILE:HD12	1.96	0.46
6:F:282:ILE:HG22	6:F:327:LYS:HB2	1.97	0.46
9:I:155:ASN:OD1	10:J:77:THR:OG1	2.33	0.46
28:b:9:CYS:HB3	28:b:54:LEU:HD23	1.96	0.46
32:f:52:LEU:HB3	32:f:94:LYS:HZ1	1.81	0.46
13:m:46:VAL:HG22	13:m:215:TRP:HB3	1.98	0.46
14:n:119:MET:HE1	20:t:6:VAL:HG11	1.97	0.46
2:B:381:ASP:OD1	2:B:381:ASP:N	2.49	0.46
3:C:338:LEU:HD22	3:C:342:ILE:HD13	1.98	0.46
4:D:232:GLY:HA2	4:D:235:PHE:HE1	1.81	0.46
4:D:336:PRO:HB3	4:D:370:ILE:O	2.15	0.46
6:F:172:VAL:HG12	6:F:258:GLN:NE2	2.30	0.46
6:F:175:MET:HE3	6:F:252:ALA:HB2	1.98	0.46
7:G:14:THR:HG23	8:H:128:ARG:HB3	1.96	0.46
13:m:230:ASP:OD1	13:m:230:ASP:N	2.49	0.46
10:J:221:ASN:O	10:J:222:PRO:C	2.58	0.46
23:W:35:ALA:HB2	23:W:43:VAL:HG21	1.96	0.46
30:d:125:LYS:HE3	30:d:130:ASN:HB2	1.97	0.46
8:h:189:HIS:CE1	8:h:233:ILE:HD13	2.51	0.46
10:j:222:PRO:HA	10:j:225:ILE:HG12	1.97	0.46
1:A:26:ASP:H	2:B:410:ARG:HH22	1.63	0.46
1:A:112:ILE:HG12	1:A:122:VAL:HG22	1.97	0.46
2:B:156:VAL:HG23	2:B:158:ALA:H	1.81	0.46
4:D:148:ASP:OD1	4:D:148:ASP:N	2.48	0.46
6:F:219:PRO:HA	6:F:220:PRO:HD3	1.87	0.46
7:G:202:LEU:HA	7:G:205:VAL:HG12	1.97	0.46
10:J:211:MET:HB2	10:J:217:LEU:HD13	1.97	0.46
11:K:4:THR:OG1	11:K:5:ARG:N	2.48	0.46
17:Q:47:VAL:HG23	17:Q:101:ASN:HB2	1.98	0.46
21:U:469:SER:OG	21:U:470:ASN:N	2.43	0.46
21:U:899:ARG:NH1	21:U:918:SER:OG	2.48	0.46
27:a:77:VAL:HA	27:a:80:ILE:HG22	1.98	0.46
16:p:143:ALA:HA	16:p:146:MET:HE3	1.97	0.46
20:t:26:MET:HE1	20:t:202:PRO:HB3	1.97	0.46
6:F:173:LYS:O	6:F:174:ALA:HB2	2.15	0.46
10:J:65:LEU:HD13	10:J:88:ARG:HG3	1.98	0.46

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
13:M:34:SER:HB2	13:M:65:ARG:HH12	1.81	0.46
25:Y:13:LYS:HE2	25:Y:212:GLU:HA	1.97	0.46
32:f:654:VAL:HA	32:f:657:ILE:HD12	1.98	0.46
16:p:203:ARG:NH2	16:p:205:ASP:OD2	2.44	0.46
17:q:31:ASP:OD1	17:q:31:ASP:N	2.49	0.46
22:V:337:LEU:HD21	22:V:364:THR:HG23	1.98	0.45
24:X:122:ARG:HD2	24:X:125:LEU:HB2	1.97	0.45
27:a:188:LEU:HD12	27:a:193:GLN:HG3	1.98	0.45
29:c:149:GLN:HB3	29:c:156:VAL:HG21	1.98	0.45
30:d:155:LYS:HD3	30:d:171:LEU:HD11	1.97	0.45
31:e:59:GLU:HA	31:e:62:LYS:HG2	1.97	0.45
16:p:193:ASP:OD1	16:p:193:ASP:N	2.46	0.45
17:q:11:ASP:N	17:q:11:ASP:OD1	2.49	0.45
1:A:35:THR:O	1:A:39:SER:OG	2.33	0.45
1:A:290:GLY:HA3	2:B:303:ARG:HH12	1.81	0.45
3:C:132:ASP:HA	3:C:133:PRO:HD3	1.79	0.45
5:E:181:THR:OG1	36:E:401:ADP:O1A	2.31	0.45
9:I:239:LYS:O	9:I:242:GLU:N	2.48	0.45
17:Q:69:MET:HE2	17:Q:69:MET:HB2	1.83	0.45
25:Y:212:GLU:HG2	25:Y:213:LEU:HD22	1.98	0.45
32:f:405:HIS:CE1	32:f:813:LYS:HD2	2.51	0.45
7:g:153:LYS:HD3	7:g:163:PHE:HE2	1.81	0.45
9:i:216:LEU:HD12	9:i:225:ILE:HG12	1.98	0.45
18:r:82:LEU:O	18:r:86:MET:HG3	2.16	0.45
1:A:285:PHE:HA	1:A:327:LEU:HD11	1.98	0.45
2:B:43:PRO:HA	2:B:246:THR:HG22	1.99	0.45
10:J:40:ILE:HD11	10:J:210:VAL:HB	1.98	0.45
22:V:192:MET:HE2	22:V:192:MET:HB2	1.84	0.45
29:c:195:GLY:O	29:c:196:LEU:C	2.59	0.45
7:g:141:ILE:HD12	7:g:220:VAL:HG12	1.98	0.45
6:F:173:LYS:HD2	6:F:173:LYS:HA	1.35	0.45
6:F:231:THR:OG1	6:F:233:LYS:NZ	2.34	0.45
24:X:397:TYR:HE2	25:Y:362:LYS:HD2	1.81	0.45
27:a:34:TRP:O	27:a:38:THR:OG1	2.30	0.45
27:a:69:HIS:ND1	27:a:70:ARG:HG2	2.32	0.45
30:d:190:LEU:HD22	30:d:192:THR:HG22	1.99	0.45
1:A:207:GLU:OE1	1:A:312:ARG:HG3	2.17	0.45
4:D:130:VAL:HG12	4:D:142:VAL:HG22	1.99	0.45
10:J:87:ALA:HB1	10:J:107:ILE:HD11	1.98	0.45
21:U:333:MET:SD	21:U:333:MET:N	2.85	0.45
23:W:293:ASP:HB2	23:W:296:LEU:HD23	1.99	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
27:a:26:GLU:HA	27:a:29:TYR:CD1	2.51	0.45
28:b:56:ASN:HB2	28:b:83:LYS:H	1.82	0.45
30:d:189:ILE:HG13	30:d:222:TYR:HB2	1.97	0.45
17:q:37:LYS:HZ3	17:q:188:ILE:HD12	1.82	0.45
5:E:153:LEU:HD12	5:E:154:THR:HG23	1.99	0.45
13:M:197:ILE:HG21	13:M:211:LEU:HD13	1.97	0.45
22:V:368:ARG:HH22	31:e:46:ASP:HB2	1.82	0.45
30:d:201:ASN:OD1	30:d:201:ASN:N	2.49	0.45
3:C:367:GLY:HA3	4:D:196:ILE:HG23	1.98	0.45
5:E:165:ILE:H	5:E:166:PRO:HD3	1.78	0.45
18:R:115:ASP:OD1	18:R:119:ASN:N	2.49	0.45
21:U:873:PRO:O	21:U:874:ASN:ND2	2.50	0.45
27:a:54:ASP:N	27:a:54:ASP:OD1	2.48	0.45
19:s:144:MET:HE1	19:s:185:ARG:HB2	1.99	0.45
1:A:328:ASP:O	1:A:330:ALA:N	2.48	0.45
11:K:116:VAL:HG12	11:K:156:MET:HE1	1.98	0.45
28:b:8:VAL:HA	28:b:110:ILE:HG13	1.98	0.45
1:A:43:ARG:HA	1:A:46:LYS:HG2	1.99	0.45
1:A:44:GLN:OE1	1:A:47:GLN:NE2	2.50	0.45
4:D:158:GLN:O	4:D:159:LYS:C	2.59	0.45
6:F:137:ILE:HG23	6:F:160:ILE:HD12	1.99	0.45
8:H:181:ASP:OD1	8:H:181:ASP:N	2.49	0.45
20:T:25:ASP:HA	20:T:187:PHE:HA	1.99	0.45
24:X:373:LYS:HB2	24:X:373:LYS:HE3	1.65	0.45
27:a:70:ARG:NH2	28:b:17:ARG:HG2	2.32	0.45
32:f:479:LEU:HD21	32:f:816:TYR:CZ	2.52	0.45
11:k:21:LEU:HB2	11:k:24:VAL:HG22	1.99	0.45
1:A:198:PRO:HB3	1:A:312:ARG:HH21	1.82	0.45
1:A:199:GLU:HA	1:A:202:VAL:HG22	1.98	0.45
5:E:376:ASP:HA	5:E:379:LYS:HG2	1.99	0.45
11:K:88:LEU:HD23	11:K:119:LEU:HD23	1.98	0.45
12:L:215:VAL:HB	12:L:221:PHE:HD1	1.81	0.45
21:U:415:HIS:NE2	21:U:418:GLU:OE1	2.50	0.45
32:f:59:LEU:HD22	32:f:78:LEU:HD12	1.99	0.45
2:B:49:LEU:HD11	32:f:666:ILE:HA	1.99	0.44
2:B:298:ASN:OD1	2:B:303:ARG:NH2	2.50	0.44
6:F:178:ASP:H	6:F:180:ARG:NH2	2.15	0.44
10:J:50:VAL:O	10:J:51:ALA:C	2.60	0.44
15:O:45:GLY:HA2	15:O:98:LEU:HD23	1.99	0.44
16:P:190:ILE:HG12	16:P:195:ILE:HD12	1.98	0.44
30:d:139:LEU:HD11	30:d:151:VAL:HG13	1.99	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
32:f:140:LEU:HD22	32:f:165:GLU:HG3	1.99	0.44
2:B:355:LEU:HD23	2:B:355:LEU:HA	1.72	0.44
6:F:234:THR:O	6:F:238:ARG:HG2	2.17	0.44
6:F:245:LYS:H	6:F:245:LYS:HD2	1.81	0.44
9:I:5:TYR:OH	10:J:4:ASP:OD2	2.30	0.44
16:P:159:ASP:N	16:P:159:ASP:OD1	2.50	0.44
27:a:148:VAL:HG12	27:a:150:SER:H	1.82	0.44
27:a:286:ALA:HA	27:a:289:ARG:HB3	1.99	0.44
30:d:8:GLU:HB2	30:d:18:LYS:HD2	1.99	0.44
32:f:822:VAL:HA	32:f:825:MET:HE2	1.98	0.44
32:f:828:ARG:HH21	32:f:875:ALA:HA	1.83	0.44
2:B:389:ASP:OD1	2:B:389:ASP:N	2.48	0.44
5:E:116:ASP:N	5:E:116:ASP:OD1	2.49	0.44
6:F:27:ASP:N	6:F:27:ASP:OD1	2.49	0.44
16:P:38:ASP:OD1	16:P:38:ASP:N	2.49	0.44
16:P:135:ASP:OD1	16:P:136:PHE:N	2.50	0.44
23:W:260:SER:HA	23:W:263:TRP:NE1	2.33	0.44
1:A:207:GLU:HB2	1:A:208:PRO:CD	2.47	0.44
17:Q:118:MET:HE2	17:Q:124:LEU:HD13	2.00	0.44
21:U:373:ASN:HA	21:U:376:MET:HG2	1.99	0.44
23:W:167:GLN:NE2	23:W:193:CYS:SG	2.87	0.44
27:a:271:LYS:O	27:a:275:LEU:HB2	2.17	0.44
30:d:23:LEU:O	30:d:27:LYS:HG2	2.18	0.44
30:d:78:LEU:HD13	30:d:98:LEU:HD21	2.00	0.44
12:l:121:GLN:HG3	13:m:129:ARG:HG2	1.99	0.44
14:n:4:MET:HE1	14:n:159:ALA:HB3	2.00	0.44
16:p:204:MET:HE2	16:p:204:MET:HB2	1.89	0.44
21:U:374:SER:HB3	21:U:407:SER:HB3	2.00	0.44
26:Z:212:LEU:HD21	27:a:353:LEU:HD22	1.99	0.44
29:c:255:TYR:HE1	29:c:281:LYS:HE3	1.82	0.44
32:f:117:GLU:HA	32:f:120:ARG:HD2	1.99	0.44
12:l:165:SER:OG	12:l:169:ARG:NH1	2.50	0.44
1:A:38:GLN:HG2	2:B:57:GLN:HG3	2.00	0.44
1:A:210:LYS:O	1:A:337:LEU:C	2.61	0.44
2:B:253:SER:HB2	3:C:275:GLU:HG3	1.98	0.44
6:F:347:ARG:O	6:F:348:LEU:C	2.60	0.44
9:I:43:VAL:HG21	9:I:137:ILE:HB	1.98	0.44
23:W:51:GLU:OE1	23:W:93:ARG:NH1	2.44	0.44
25:Y:231:LEU:HG	25:Y:236:LEU:HD12	1.99	0.44
32:f:182:GLU:HA	32:f:185:LEU:HB2	1.99	0.44
20:t:43:MET:HE1	20:t:67:LEU:HB3	1.98	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:239:ARG:HG2	1:A:273:PHE:HD2	1.82	0.44
1:A:347:ASP:OD1	1:A:347:ASP:N	2.51	0.44
4:D:336:PRO:HG2	4:D:369:LYS:CE	2.48	0.44
5:E:192:ASP:OD1	5:E:192:ASP:N	2.49	0.44
6:F:209:LYS:CB	6:F:324:THR:HG21	2.48	0.44
10:J:52:LYS:HE2	10:J:52:LYS:HB2	1.48	0.44
21:U:195:ASN:HB2	21:U:199:ARG:HH21	1.83	0.44
23:W:21:SER:OG	23:W:65:ARG:NH2	2.50	0.44
1:A:99:THR:HG21	1:A:115:VAL:HG22	1.99	0.44
3:C:326:LEU:HG	3:C:330:LYS:HE3	2.00	0.44
4:D:103:VAL:HG21	4:D:132:LEU:HD21	2.00	0.44
20:T:9:THR:OG1	20:T:10:SER:N	2.49	0.44
21:U:1:MET:HG2	30:d:85:TYR:CE2	2.53	0.44
21:U:541:HIS:HB2	21:U:544:ILE:HG22	2.00	0.44
21:U:840:LYS:HB3	21:U:844:LYS:NZ	2.33	0.44
32:f:294:MET:HG3	32:f:297:MET:HE3	1.98	0.44
10:j:49:SER:O	10:j:51:ALA:N	2.51	0.44
2:B:195:GLN:NE2	2:B:199:GLU:OE2	2.50	0.44
2:B:388:ASP:OD1	2:B:388:ASP:N	2.50	0.44
10:J:152:THR:HG22	11:K:83:ALA:HB2	1.99	0.44
21:U:160:LEU:HD12	21:U:200:VAL:HG21	2.00	0.44
21:U:481:LEU:HD23	21:U:496:LEU:HD11	1.99	0.44
24:X:103:THR:C	24:X:105:GLN:N	2.75	0.44
24:X:143:TYR:HD2	24:X:144:GLN:HG2	1.83	0.44
12:l:47:VAL:HG12	12:l:195:LEU:HD22	1.99	0.44
16:p:12:MET:HG3	16:p:138:VAL:HG12	1.99	0.44
8:H:55:ILE:HD12	8:H:55:ILE:H	1.83	0.43
25:Y:376:LEU:HD23	26:Z:265:LEU:HD23	2.00	0.43
30:d:203:PRO:HG2	30:d:206:MET:N	2.32	0.43
12:l:7:ASP:OD1	12:l:7:ASP:N	2.51	0.43
12:l:88:MET:HG2	12:l:112:ILE:HD11	1.98	0.43
16:p:205:ASP:OD1	16:p:205:ASP:N	2.50	0.43
1:A:186:LYS:HD2	1:A:186:LYS:HA	1.85	0.43
2:B:257:GLN:HB2	2:B:262:ASP:HB3	2.00	0.43
2:B:258:LYS:HD3	3:C:226:GLU:HB2	2.00	0.43
2:B:411:ARG:NH2	2:B:418:ASP:OD2	2.51	0.43
3:C:375:ARG:HG2	3:C:377:HIS:H	1.84	0.43
4:D:336:PRO:HG2	4:D:369:LYS:HZ2	1.83	0.43
5:E:288:ALA:O	5:E:294:ARG:NH1	2.51	0.43
21:U:103:LYS:HB2	21:U:103:LYS:HE3	1.79	0.43
23:W:440:ASN:O	23:W:443:THR:OG1	2.28	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
29:c:265:MET:SD	29:c:265:MET:N	2.90	0.43
32:f:412:ALA:HA	32:f:447:ALA:HB2	2.01	0.43
1:A:174:TYR:H	1:A:232:ARG:NH1	2.16	0.43
2:B:74:MET:HB3	2:B:74:MET:HE2	1.76	0.43
2:B:135:ILE:HD11	2:B:139:VAL:HG21	2.00	0.43
3:C:217:SER:OG	4:D:291:GLU:OE1	2.33	0.43
34:C:501:ATP:O3B	4:D:323:ARG:NH1	2.51	0.43
5:E:138:LEU:HG	5:E:141:GLN:HB2	2.00	0.43
6:F:222:GLY:HA3	6:F:347:ARG:HD3	2.00	0.43
16:P:193:ASP:OD1	16:P:193:ASP:N	2.50	0.43
23:W:377:ARG:NH2	27:a:305:ASN:O	2.52	0.43
24:X:239:TYR:HB3	24:X:247:ALA:HB2	1.98	0.43
25:Y:74:LYS:HB3	25:Y:74:LYS:HE3	1.89	0.43
26:Z:10:VAL:N	26:Z:48:LEU:O	2.51	0.43
32:f:571:GLU:O	32:f:574:GLU:HG2	2.18	0.43
10:j:184:ASP:O	10:j:187:THR:OG1	2.36	0.43
1:A:117:GLN:NE2	2:B:128:GLY:O	2.51	0.43
1:A:398:ARG:NH1	2:B:195:GLN:OE1	2.52	0.43
3:C:120:SER:HB3	29:c:189:ILE:HD11	1.99	0.43
3:C:190:GLY:HA2	3:C:191:PRO:HD3	1.87	0.43
3:C:248:MET:HB3	3:C:251:ILE:HD11	1.99	0.43
4:D:56:VAL:HG22	21:U:600:ARG:HH21	1.83	0.43
10:J:79:ASP:HB3	10:J:127:PHE:HD1	1.83	0.43
17:Q:102:LEU:HB2	17:Q:118:MET:HB3	1.99	0.43
22:V:86:VAL:HG21	22:V:160:LEU:HD13	2.00	0.43
24:X:344:ARG:HG3	24:X:386:ILE:HG12	2.00	0.43
27:a:138:VAL:HG21	27:a:158:LEU:HD21	2.01	0.43
7:g:103:TYR:O	15:o:81:ARG:NH2	2.51	0.43
7:g:112:ASP:OD1	7:g:112:ASP:N	2.52	0.43
5:E:174:GLY:O	5:E:180:LYS:NZ	2.51	0.43
10:J:3:TYR:HD2	10:J:12:PRO:HD3	1.83	0.43
13:M:7:TYR:CD2	13:M:16:PRO:HD3	2.53	0.43
21:U:636:VAL:HG23	21:U:637:VAL:HG23	1.99	0.43
26:Z:78:MET:HE3	26:Z:82:PHE:CE1	2.53	0.43
4:D:144:PRO:HA	4:D:145:PRO:HD3	1.89	0.43
6:F:123:VAL:HG22	6:F:133:PHE:HD1	1.83	0.43
6:F:180:ARG:O	6:F:181:PRO:C	2.61	0.43
6:F:225:MET:HA	6:F:352:ILE:HB	2.00	0.43
7:G:58:ASP:OD1	7:G:58:ASP:N	2.49	0.43
15:O:17:ASP:OD1	15:O:17:ASP:N	2.44	0.43
15:O:211:VAL:HG21	16:P:198:ARG:HD3	2.01	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
21:U:744:VAL:HA	21:U:785:PRO:HA	2.00	0.43
21:U:830:THR:HB	21:U:832:VAL:HG23	2.00	0.43
23:W:198:ASP:O	23:W:202:THR:OG1	2.28	0.43
17:q:53:THR:HG22	17:q:100:VAL:HG12	2.00	0.43
1:A:245:LEU:HD23	1:A:280:ILE:HD11	2.00	0.43
3:C:87:VAL:HG12	3:C:89:VAL:H	1.84	0.43
9:I:176:LYS:HZ2	10:J:52:LYS:HG2	1.83	0.43
21:U:663:THR:C	21:U:698:GLN:HE22	2.27	0.43
21:U:757:MET:HE3	21:U:758:PRO:HG3	2.01	0.43
21:U:799:LYS:HB2	21:U:923:GLU:HB3	2.01	0.43
24:X:70:LEU:O	24:X:74:ARG:HG3	2.18	0.43
24:X:154:LEU:HB3	24:X:155:ARG:HH12	1.84	0.43
24:X:208:ALA:HB2	24:X:238:GLY:HA3	2.01	0.43
28:b:157:VAL:HG21	28:b:170:LEU:HB2	2.01	0.43
9:i:119:GLN:HG3	10:j:78:ALA:HB1	2.01	0.43
15:o:32:SER:HB2	15:o:187:ARG:HH21	1.84	0.43
1:A:123:VAL:HG12	6:F:87:PRO:HB3	2.00	0.43
3:C:89:VAL:HB	3:C:90:HIS:H	1.66	0.43
3:C:185:GLY:HA3	3:C:311:ILE:HA	2.00	0.43
6:F:417:HIS:CE1	6:F:421:MET:HE2	2.53	0.43
26:Z:259:VAL:HA	29:c:292:MET:HE1	2.01	0.43
27:a:356:TRP:CH2	29:c:309:PHE:HA	2.53	0.43
32:f:83:ARG:NH2	32:f:153:SER:O	2.52	0.43
3:C:306:LEU:HD13	3:C:311:ILE:HD12	2.01	0.43
7:G:73:THR:HG22	7:G:76:ILE:HB	2.01	0.43
8:H:10:LEU:HD13	8:H:21:GLN:HB3	2.01	0.43
9:I:54:LYS:HG3	9:I:55:LEU:HD12	2.01	0.43
17:Q:52:ASP:OD1	18:R:88:TYR:OH	2.29	0.43
20:T:26:MET:HE2	20:T:26:MET:HB3	1.84	0.43
20:T:41:ARG:NH1	20:T:53:ALA:O	2.52	0.43
23:W:108:CYS:O	23:W:112:VAL:HG23	2.18	0.43
25:Y:283:LYS:HA	25:Y:288:PHE:CE1	2.53	0.43
32:f:748:LEU:HD23	32:f:748:LEU:HA	1.85	0.43
10:j:105:GLU:OE1	10:j:109:ARG:NH1	2.52	0.43
12:l:93:LEU:HD21	19:s:73:LYS:HD2	2.01	0.43
3:C:99:VAL:HA	3:C:123:LEU:HB2	2.01	0.43
6:F:171:ARG:O	6:F:172:VAL:C	2.62	0.43
22:V:371:ASN:HB3	22:V:374:LYS:HD2	2.01	0.43
22:V:476:PHE:CG	26:Z:260:VAL:HG11	2.53	0.43
22:V:495:ARG:HD3	26:Z:278:ASN:HD21	1.83	0.43
27:a:342:ASP:O	27:a:343:LEU:C	2.62	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
28:b:62:THR:HA	28:b:70:ARG:HH21	1.84	0.43
18:r:32:LYS:HE2	18:r:32:LYS:HB3	1.74	0.43
2:B:292:THR:HB	3:C:261:GLY:HA2	2.01	0.42
6:F:406:ILE:HA	6:F:409:ARG:HE	1.84	0.42
12:L:139:ASP:OD1	12:L:139:ASP:N	2.49	0.42
24:X:103:THR:C	24:X:105:GLN:H	2.26	0.42
25:Y:14:ASN:HA	25:Y:15:PRO:HA	1.92	0.42
8:h:133:SER:HB3	8:h:163:MET:HE1	2.01	0.42
9:i:202:ASP:OD1	9:i:203:VAL:N	2.52	0.42
1:A:252:GLU:HA	1:A:255:ARG:HB3	2.01	0.42
2:B:227:PRO:O	2:B:230:THR:OG1	2.33	0.42
3:C:127:LEU:HD23	3:C:127:LEU:HA	1.86	0.42
3:C:254:ILE:HD13	3:C:269:VAL:HB	2.01	0.42
14:N:196:LYS:HB2	14:N:196:LYS:HE3	1.82	0.42
16:P:45:MET:HE3	16:P:71:LEU:HD13	2.01	0.42
21:U:131:GLU:OE1	21:U:159:ARG:NH2	2.47	0.42
21:U:188:MET:HE2	21:U:194:ARG:HB2	2.01	0.42
22:V:419:LEU:HA	22:V:422:ILE:HG22	2.01	0.42
22:V:484:LEU:O	22:V:488:ASN:ND2	2.52	0.42
23:W:196:VAL:HG23	23:W:198:ASP:HB2	2.01	0.42
30:d:62:SER:HA	30:d:65:ARG:HG2	2.02	0.42
8:h:3:GLU:N	13:m:125:TYR:HB3	2.34	0.42
8:h:111:VAL:HG21	8:h:147:PHE:HD2	1.83	0.42
5:E:281:ARG:NH1	5:E:283:ASP:HB2	2.35	0.42
6:F:297:ASP:N	6:F:297:ASP:OD1	2.48	0.42
10:J:13:ASP:OD1	10:J:13:ASP:N	2.48	0.42
23:W:329:ARG:HH21	23:W:351:TRP:CD1	2.37	0.42
24:X:421:LEU:HB2	26:Z:283:ARG:HH22	1.84	0.42
32:f:323:ASN:HB3	32:f:326:LEU:HB2	2.01	0.42
32:f:589:SER:HB3	32:f:649:HIS:CE1	2.53	0.42
1:A:52:ILE:HD11	2:B:72:LEU:HD22	2.02	0.42
3:C:70:GLY:HA3	4:D:113:VAL:HG12	2.01	0.42
3:C:280:LEU:HD12	3:C:281:ASP:HB2	2.00	0.42
4:D:274:ARG:NE	4:D:276:ASP:O	2.52	0.42
5:E:84:ARG:O	5:E:85:ARG:NE	2.46	0.42
6:F:225:MET:HE1	6:F:233:LYS:HA	2.01	0.42
6:F:322:PRO:O	6:F:323:ASN:O	2.38	0.42
22:V:337:LEU:HD22	22:V:367:VAL:HG11	2.01	0.42
22:V:353:LEU:HG	22:V:357:LEU:HG	2.01	0.42
23:W:409:LEU:HD11	24:X:344:ARG:HH21	1.84	0.42
24:X:407:MET:HE3	29:c:252:ALA:HB1	2.00	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
25:Y:80:GLU:HA	25:Y:83:ARG:HG2	2.00	0.42
26:Z:258:VAL:HA	26:Z:262:LEU:HD12	2.01	0.42
30:d:191:PHE:HZ	30:d:202:THR:H	1.67	0.42
32:f:266:LEU:HD12	32:f:269:ALA:HB3	2.01	0.42
2:B:47:SER:OG	2:B:241:ASN:OD1	2.35	0.42
3:C:52:LEU:HB3	4:D:68:LEU:HD22	2.01	0.42
5:E:264:MET:HE3	5:E:275:MET:HE1	2.02	0.42
5:E:322:LYS:NZ	5:E:328:TYR:OH	2.53	0.42
6:F:220:PRO:O	6:F:327:LYS:NZ	2.38	0.42
21:U:367:THR:HA	21:U:370:VAL:HG22	2.00	0.42
21:U:403:THR:HG23	21:U:777:HIS:HE1	1.84	0.42
24:X:332:GLU:HB2	24:X:368:MET:HE1	2.02	0.42
30:d:195:THR:HG23	30:d:201:ASN:HB3	2.01	0.42
32:f:349:TYR:HA	32:f:352:HIS:HB2	2.02	0.42
32:f:678:LEU:HD23	32:f:686:LEU:HD21	2.01	0.42
18:r:52:CYS:O	18:r:56:GLU:HG3	2.19	0.42
1:A:347:ASP:O	1:A:351:ARG:NH2	2.53	0.42
3:C:365:GLU:OE1	3:C:389:LYS:NZ	2.47	0.42
4:D:154:LEU:HD21	4:D:229:ARG:HG2	2.00	0.42
6:F:221:LYS:HZ1	6:F:326:VAL:CB	2.32	0.42
8:H:9:SER:OG	8:H:10:LEU:N	2.52	0.42
13:M:180:GLN:HE22	13:M:183:GLU:HG2	1.85	0.42
19:S:71:ARG:HD2	19:S:74:MET:HE2	2.02	0.42
23:W:192:LEU:HD23	23:W:192:LEU:HA	1.85	0.42
24:X:371:ASP:OD1	25:Y:233:ARG:NH1	2.53	0.42
10:j:4:ASP:OD1	10:j:4:ASP:N	2.52	0.42
10:j:221:ASN:ND2	10:j:223:GLU:OE2	2.53	0.42
13:m:37:ILE:HD11	13:m:193:VAL:HG13	2.01	0.42
3:C:31:LEU:HB3	4:D:47:LEU:HB3	2.02	0.42
4:D:156:SER:H	4:D:159:LYS:NZ	2.17	0.42
10:J:39:ASP:OD1	10:J:39:ASP:N	2.50	0.42
16:P:145:GLN:HE22	19:s:143:ALA:HB1	1.84	0.42
24:X:394:ASP:OD1	24:X:394:ASP:N	2.51	0.42
28:b:181:ASP:HA	28:b:184:ILE:HG12	2.01	0.42
30:d:71:PHE:CZ	30:d:75:MET:HE1	2.54	0.42
7:g:59:LYS:HE2	7:g:59:LYS:HB2	1.89	0.42
1:A:386:ARG:HH22	2:B:345:GLY:HA2	1.85	0.42
5:E:75:ASN:HD21	6:F:130:GLN:HG2	1.85	0.42
20:T:27:LEU:HD11	20:T:34:ALA:HB1	2.02	0.42
27:a:70:ARG:O	28:b:17:ARG:NH1	2.44	0.42
32:f:45:LEU:HD21	32:f:50:LYS:HB3	2.01	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
32:f:56:LEU:HD22	32:f:99:LEU:HD21	2.02	0.42
10:j:188:ILE:HD12	10:j:208:LEU:HD21	2.01	0.42
11:k:206:MET:SD	11:k:210:LEU:HB3	2.60	0.42
7:G:20:GLY:HA3	8:H:28:ALA:CA	2.50	0.42
7:G:92:GLN:HB2	13:M:117:MET:HE1	2.01	0.42
7:G:211:LYS:HB2	7:G:214:GLU:HG3	2.02	0.42
24:X:35:ILE:HD12	24:X:46:LYS:HD2	2.01	0.42
27:a:33:LEU:HA	28:b:18:ASN:HB2	2.01	0.42
7:g:119:ALA:HB3	8:h:84:ARG:HH12	1.85	0.42
2:B:103:ARG:HH21	2:B:138:PHE:HE1	1.68	0.42
4:D:116:LEU:HB3	4:D:118:THR:H	1.84	0.42
5:E:291:ARG:HE	5:E:294:ARG:NH1	2.18	0.42
10:J:7:ILE:HG13	10:J:8:THR:HG23	2.00	0.42
11:K:99:HIS:CD2	11:K:107:MET:HB2	2.55	0.42
21:U:724:VAL:HA	21:U:727:LYS:HG2	2.02	0.42
23:W:82:LEU:O	23:W:86:ASN:ND2	2.53	0.42
32:f:560:LEU:O	32:f:564:LEU:N	2.52	0.42
10:j:80:ALA:O	10:j:84:ILE:HG12	2.20	0.42
18:r:41:LEU:HD23	18:r:103:GLY:HA3	2.01	0.42
1:A:221:GLY:N	34:A:501:ATP:O2A	2.53	0.41
2:B:39:LYS:HD2	2:B:276:GLU:HB3	2.02	0.41
2:B:168:ASP:OD1	2:B:168:ASP:N	2.53	0.41
5:E:102:MET:HE3	5:E:102:MET:HB2	1.91	0.41
7:G:10:ASP:O	7:G:24:GLN:NE2	2.53	0.41
21:U:196:LYS:HA	21:U:199:ARG:HG2	2.02	0.41
32:f:242:GLU:HG2	32:f:245:ASN:HD22	1.85	0.41
14:n:55:VAL:HG22	14:n:86:MET:HE2	2.02	0.41
20:t:127:MET:HE3	20:t:127:MET:HB2	1.90	0.41
1:A:238:ILE:HB	1:A:272:ILE:HA	2.02	0.41
1:A:331:LEU:HA	1:A:335:GLY:HA3	2.02	0.41
2:B:352:GLU:HG3	2:B:354:PRO:HD3	2.01	0.41
5:E:234:GLU:N	5:E:278:ALA:O	2.53	0.41
8:H:148:GLN:OE1	8:H:158:TRP:NE1	2.49	0.41
12:L:61:LYS:HB3	12:L:61:LYS:HE3	1.76	0.41
12:L:175:HIS:ND1	12:L:178:GLU:OE2	2.43	0.41
22:V:309:MET:HE1	22:V:332:LEU:HA	2.01	0.41
22:V:461:LYS:HD3	22:V:461:LYS:HA	1.92	0.41
29:c:176:GLN:HB3	29:c:177:THR:H	1.66	0.41
1:A:139:ARG:HD2	1:A:156:LYS:HE3	2.02	0.41
3:C:344:LEU:HA	3:C:347:ILE:HD12	2.00	0.41
4:D:148:ASP:HB2	4:D:151:ILE:HB	2.02	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
12:L:155:ASP:HB3	13:M:62:SER:HB2	2.01	0.41
22:V:232:HIS:CE1	22:V:254:LEU:HD11	2.56	0.41
23:W:101:VAL:O	23:W:105:VAL:HG23	2.20	0.41
26:Z:25:ARG:HB3	29:c:103:GLY:HA2	2.00	0.41
27:a:227:ASN:O	27:a:231:GLN:NE2	2.53	0.41
11:k:85:ALA:HB2	11:k:139:VAL:HG11	2.02	0.41
16:p:138:VAL:HG11	16:p:146:MET:HB3	2.03	0.41
1:A:158:ASP:O	1:A:160:THR:N	2.53	0.41
2:B:288:ASP:OD1	2:B:288:ASP:N	2.54	0.41
2:B:326:LYS:HA	2:B:326:LYS:HD3	1.77	0.41
4:D:273:LYS:HB3	4:D:318:ASP:HA	2.03	0.41
6:F:46:ARG:HH21	27:a:103:LYS:HA	1.85	0.41
11:K:141:LEU:HD12	11:K:156:MET:HE2	2.02	0.41
21:U:450:HIS:CE1	21:U:457:ILE:HD13	2.54	0.41
27:a:138:VAL:HG11	27:a:155:PHE:HB2	2.01	0.41
27:a:308:GLU:O	27:a:312:MET:HG2	2.21	0.41
28:b:33:VAL:HA	28:b:36:VAL:HG22	2.03	0.41
31:e:50:ASP:OD1	31:e:50:ASP:N	2.51	0.41
32:f:67:ASP:OD1	32:f:67:ASP:N	2.50	0.41
32:f:407:MET:SD	32:f:407:MET:N	2.94	0.41
14:n:164:MET:HE2	14:n:164:MET:HB3	1.86	0.41
2:B:117:ASP:OD1	2:B:117:ASP:N	2.49	0.41
3:C:287:LYS:HA	3:C:287:LYS:HD3	1.90	0.41
6:F:154:ASN:HD22	6:F:157:SER:HB3	1.85	0.41
21:U:397:THR:OG1	21:U:398:ASN:N	2.54	0.41
24:X:377:ILE:HG22	24:X:386:ILE:HB	2.02	0.41
27:a:106:SER:OG	27:a:107:SER:N	2.52	0.41
28:b:126:LYS:HB3	28:b:130:ARG:NH1	2.36	0.41
29:c:59:GLY:HA3	29:c:69:VAL:HA	2.01	0.41
30:d:203:PRO:HB2	30:d:205:LYS:H	1.86	0.41
9:i:245:ALA:O	9:i:249:ARG:HG2	2.21	0.41
13:m:43:ASP:OD1	13:m:43:ASP:N	2.50	0.41
1:A:238:ILE:O	1:A:273:PHE:N	2.49	0.41
2:B:184:TYR:HD1	2:B:238:ALA:HB1	1.86	0.41
2:B:365:PHE:O	2:B:369:THR:OG1	2.31	0.41
34:B:501:ATP:O2G	3:C:307:ARG:NE	2.52	0.41
3:C:250:GLU:HB2	4:D:294:ASN:HD21	1.86	0.41
12:L:204:ASP:N	12:L:204:ASP:OD1	2.53	0.41
21:U:532:MET:HE3	21:U:552:ILE:HG22	2.02	0.41
23:W:380:GLN:HG3	23:W:381:LEU:HD12	2.03	0.41
26:Z:11:VAL:O	26:Z:163:GLY:N	2.37	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
26:Z:109:ASN:HD21	26:Z:140:SER:HB2	1.85	0.41
26:Z:145:HIS:HB2	26:Z:150:PRO:O	2.21	0.41
30:d:42:LYS:HD2	30:d:45:LYS:HB2	2.02	0.41
30:d:66:LYS:HD3	30:d:165:PHE:HE1	1.85	0.41
2:B:120:HIS:HB3	2:B:134:SER:HA	2.02	0.41
5:E:132:TYR:HE2	5:E:146:ARG:HD2	1.85	0.41
26:Z:62:ASP:OD1	26:Z:62:ASP:N	2.53	0.41
26:Z:144:VAL:O	26:Z:152:SER:N	2.53	0.41
26:Z:261:TYR:HA	26:Z:265:LEU:HD13	2.01	0.41
27:a:27:GLU:O	27:a:31:LYS:HG2	2.21	0.41
9:i:136:TYR:HB2	9:i:148:TYR:HB2	2.02	0.41
12:l:14:SER:OG	12:l:16:GLN:OE1	2.38	0.41
13:m:197:ILE:HG21	13:m:211:LEU:HD11	2.02	0.41
1:A:52:ILE:HD13	2:B:69:LYS:HA	2.03	0.41
2:B:405:MET:HA	2:B:408:ARG:HB2	2.02	0.41
4:D:133:HIS:CD2	4:D:134:LYS:H	2.39	0.41
5:E:33:LEU:HD22	6:F:62:VAL:HG13	2.02	0.41
6:F:365:ILE:HG23	6:F:369:HIS:CE1	2.56	0.41
7:G:155:ASP:OD1	7:G:159:TYR:N	2.38	0.41
8:H:109:GLN:HB3	8:H:113:ARG:HH12	1.85	0.41
11:K:149:LYS:HE3	11:K:149:LYS:HB3	1.72	0.41
14:N:192:ASP:OD1	14:N:192:ASP:N	2.53	0.41
21:U:623:GLY:HA3	21:U:658:ILE:HG13	2.02	0.41
21:U:894:MET:HE2	21:U:902:PRO:HD2	2.02	0.41
21:U:906:LEU:HD13	21:U:912:ILE:HD13	2.03	0.41
27:a:361:LYS:O	27:a:365:MET:HG3	2.20	0.41
32:f:537:THR:HB	32:f:562:LEU:HD13	2.02	0.41
9:i:45:LEU:HD11	9:i:137:ILE:HD13	2.02	0.41
15:o:42:TYR:HB2	15:o:178:ILE:HD11	2.02	0.41
16:p:12:MET:SD	16:p:167:ILE:HG13	2.60	0.41
18:r:18:SER:OG	18:r:173:ALA:N	2.53	0.41
1:A:34:LYS:HD3	3:C:173:GLU:HG3	2.02	0.41
2:B:106:PRO:HB3	3:C:121:TYR:HB2	2.03	0.41
2:B:109:VAL:HB	3:C:94:LYS:HB2	2.02	0.41
3:C:113:ARG:NE	3:C:130:LYS:O	2.54	0.41
3:C:148:TYR:HB2	3:C:206:HIS:CD2	2.56	0.41
4:D:105:SER:OG	4:D:108:GLY:O	2.39	0.41
4:D:266:GLU:HA	4:D:311:THR:HG22	2.03	0.41
9:I:68:LEU:HB2	9:I:72:MET:HB2	2.02	0.41
12:L:157:ARG:HB2	12:L:176:MET:HE2	2.03	0.41
15:O:163:ILE:HG12	15:O:170:GLY:HA2	2.03	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
19:S:16:ALA:HB2	19:S:121:VAL:HG23	2.02	0.41
21:U:31:VAL:HG11	21:U:66:LYS:HD3	2.02	0.41
21:U:465:LEU:HD11	21:U:477:GLY:HA3	2.03	0.41
21:U:573:ASP:OD1	21:U:574:LYS:N	2.52	0.41
23:W:186:ILE:O	23:W:190:MET:HG2	2.20	0.41
23:W:325:GLY:O	23:W:329:ARG:HB2	2.20	0.41
25:Y:155:ASP:N	25:Y:155:ASP:OD1	2.54	0.41
26:Z:139:ILE:HD12	26:Z:139:ILE:HA	1.94	0.41
28:b:16:MET:HE1	28:b:114:GLY:HA3	2.02	0.41
28:b:26:LEU:HA	28:b:29:GLN:HG2	2.03	0.41
30:d:23:LEU:HG	30:d:27:LYS:HE2	2.02	0.41
32:f:201:GLU:HB2	32:f:228:LYS:NZ	2.36	0.41
8:h:118:MET:HE2	8:h:151:PRO:HA	2.03	0.41
12:l:72:ILE:HG22	12:l:134:ILE:HG12	2.02	0.41
12:l:139:ASP:OD1	20:t:81:HIS:NE2	2.54	0.41
5:E:175:PRO:HD3	5:E:388:PRO:HG3	2.02	0.41
11:K:234:LEU:O	11:K:238:ILE:HG12	2.21	0.41
23:W:408:ARG:HH21	24:X:342:PHE:HD2	1.68	0.41
24:X:1:MET:HE1	24:X:35:ILE:HG12	2.03	0.41
24:X:27:LEU:HB3	24:X:53:LEU:HD12	2.03	0.41
25:Y:104:MET:HE3	25:Y:130:LYS:HD3	2.02	0.41
27:a:112:ILE:O	27:a:116:THR:HG23	2.21	0.41
29:c:27:THR:HG23	29:c:176:GLN:HB2	2.03	0.41
32:f:441:LYS:NZ	32:f:477:MET:SD	2.87	0.41
8:h:179:ASN:OD1	8:h:180:GLU:N	2.53	0.41
15:o:163:ILE:HG12	15:o:170:GLY:HA2	2.02	0.41
1:A:428:ARG:HH12	10:J:24:GLU:HG2	1.86	0.40
3:C:316:GLU:HG2	3:C:318:PRO:HD3	2.02	0.40
4:D:175:GLN:NE2	4:D:179:GLU:OE2	2.55	0.40
4:D:296:MET:HE2	4:D:296:MET:HB3	1.73	0.40
7:G:18:PRO:O	7:G:19:GLU:CB	2.63	0.40
10:J:50:VAL:HG23	10:J:54:GLN:HB2	2.03	0.40
13:M:68:ASN:OD1	13:M:224:HIS:ND1	2.42	0.40
21:U:619:VAL:HG11	21:U:648:VAL:HG13	2.03	0.40
21:U:751:ARG:HH22	21:U:904:LYS:HD3	1.86	0.40
22:V:123:SER:H	22:V:150:ARG:NH2	2.19	0.40
22:V:125:ASN:OD1	22:V:126:ALA:N	2.53	0.40
23:W:329:ARG:HE	23:W:351:TRP:NE1	2.19	0.40
25:Y:141:VAL:HG11	25:Y:164:ALA:HB2	2.03	0.40
25:Y:275:LEU:HD21	25:Y:296:VAL:HG13	2.03	0.40
27:a:257:GLN:HB3	27:a:261:LEU:HD22	2.02	0.40

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
30:d:218:GLY:HA3	30:d:223:TYR:HE2	1.85	0.40
32:f:371:ASN:ND2	32:f:401:LYS:O	2.53	0.40
7:g:80:MET:HE1	7:g:90:GLN:HB3	2.02	0.40
20:t:53:ALA:HB2	20:t:110:MET:HG3	2.03	0.40
1:A:394:MET:HA	1:A:397:ILE:HB	2.03	0.40
6:F:185:TYR:HB3	6:F:195:ILE:HD13	2.02	0.40
6:F:310:MET:HE2	6:F:310:MET:HB3	1.97	0.40
21:U:844:LYS:O	21:U:848:LYS:HG2	2.22	0.40
22:V:428:LEU:HD21	22:V:437:ILE:HD12	2.03	0.40
25:Y:2:PRO:HG2	25:Y:5:ASN:HB2	2.03	0.40
26:Z:39:LEU:HD11	26:Z:50:VAL:HG11	2.02	0.40
16:p:11:VAL:HG23	16:p:54:ALA:HB2	2.03	0.40
16:p:93:ASN:C	16:p:93:ASN:HD22	2.30	0.40
3:C:86:LEU:HD21	3:C:94:LYS:HD2	2.03	0.40
3:C:334:ARG:HH21	3:C:335:LYS:HZ2	1.67	0.40
4:D:47:LEU:HD23	4:D:47:LEU:HA	1.92	0.40
7:G:112:ASP:N	7:G:112:ASP:OD1	2.54	0.40
10:J:3:TYR:CD2	10:J:12:PRO:HD3	2.56	0.40
10:J:108:THR:HG22	10:J:133:ILE:HD12	2.04	0.40
11:K:118:ASN:OD1	12:L:82:ARG:NH2	2.54	0.40
32:f:446:LEU:HD12	32:f:480:GLY:HA2	2.03	0.40
8:h:3:GLU:OE2	13:m:128:VAL:HG13	2.22	0.40
8:h:3:GLU:O	8:h:5:GLY:N	2.54	0.40
2:B:106:PRO:HG2	2:B:154:HIS:CD2	2.57	0.40
6:F:288:LEU:HB2	6:F:332:THR:HG22	2.03	0.40
8:H:143:ARG:NH1	8:H:144:PRO:O	2.54	0.40
9:I:33:THR:H	9:I:48:GLU:HB3	1.86	0.40
21:U:680:VAL:HB	21:U:683:VAL:HG12	2.04	0.40
25:Y:268:TYR:HA	25:Y:271:PHE:HB3	2.03	0.40
27:a:370:GLN:HG2	30:d:244:LYS:HG3	2.02	0.40
28:b:56:ASN:N	28:b:83:LYS:O	2.55	0.40
9:i:151:ASP:N	9:i:151:ASP:OD1	2.54	0.40
9:i:209:GLU:HB3	9:i:230:GLN:HE22	1.87	0.40
12:l:200:PRO:O	12:l:239:ARG:NH2	2.55	0.40
1:A:74:PRO:HA	1:A:75:PRO:HD3	1.85	0.40
22:V:410:ILE:HG21	22:V:422:ILE:HG13	2.04	0.40
28:b:4:GLU:HA	28:b:106:LYS:H	1.85	0.40
29:c:247:GLU:HA	29:c:250:GLU:HG3	2.03	0.40
10:j:187:THR:O	10:j:190:LEU:HG	2.22	0.40
15:o:42:TYR:HE2	15:o:183:LEU:HD21	1.87	0.40
17:q:69:MET:HE3	17:q:69:MET:HB3	1.94	0.40

There are no symmetry-related clashes.

5.3 Torsion angles

5.3.1 Protein backbone

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

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

Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
1	A	411/433 (95%)	362 (88%)	44 (11%)	5 (1%)	10	42
2	B	409/440 (93%)	357 (87%)	52 (13%)	0	100	100
3	C	394/398 (99%)	349 (89%)	40 (10%)	5 (1%)	9	40
4	D	378/418 (90%)	325 (86%)	50 (13%)	3 (1%)	16	50
5	E	387/403 (96%)	342 (88%)	43 (11%)	2 (0%)	24	59
6	F	391/439 (89%)	349 (89%)	33 (8%)	9 (2%)	5	29
7	G	238/246 (97%)	221 (93%)	16 (7%)	1 (0%)	30	62
7	g	242/246 (98%)	226 (93%)	16 (7%)	0	100	100
8	H	230/234 (98%)	215 (94%)	15 (6%)	0	100	100
8	h	230/234 (98%)	219 (95%)	11 (5%)	0	100	100
9	I	246/261 (94%)	237 (96%)	9 (4%)	0	100	100
9	i	248/261 (95%)	242 (98%)	6 (2%)	0	100	100
10	J	237/248 (96%)	221 (93%)	13 (6%)	3 (1%)	9	40
10	j	237/248 (96%)	224 (94%)	12 (5%)	1 (0%)	30	62
11	K	236/241 (98%)	227 (96%)	9 (4%)	0	100	100
11	k	232/241 (96%)	224 (97%)	8 (3%)	0	100	100
12	L	238/263 (90%)	226 (95%)	12 (5%)	0	100	100
12	l	236/263 (90%)	228 (97%)	8 (3%)	0	100	100
13	M	241/255 (94%)	232 (96%)	9 (4%)	0	100	100
13	m	238/255 (93%)	232 (98%)	6 (2%)	0	100	100
14	N	201/239 (84%)	197 (98%)	4 (2%)	0	100	100
14	n	200/239 (84%)	193 (96%)	7 (4%)	0	100	100

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
15	O	218/277 (79%)	210 (96%)	8 (4%)	0	100	100
15	o	218/277 (79%)	211 (97%)	7 (3%)	0	100	100
16	P	202/205 (98%)	192 (95%)	10 (5%)	0	100	100
16	p	202/205 (98%)	195 (96%)	7 (4%)	0	100	100
17	Q	198/201 (98%)	192 (97%)	6 (3%)	0	100	100
17	q	197/201 (98%)	193 (98%)	4 (2%)	0	100	100
18	R	199/263 (76%)	193 (97%)	6 (3%)	0	100	100
18	r	199/263 (76%)	193 (97%)	6 (3%)	0	100	100
19	S	211/241 (88%)	203 (96%)	8 (4%)	0	100	100
19	s	211/241 (88%)	203 (96%)	8 (4%)	0	100	100
20	T	214/264 (81%)	208 (97%)	6 (3%)	0	100	100
20	t	214/264 (81%)	206 (96%)	8 (4%)	0	100	100
21	U	874/953 (92%)	806 (92%)	66 (8%)	2 (0%)	43	73
22	V	442/534 (83%)	427 (97%)	15 (3%)	0	100	100
23	W	439/456 (96%)	428 (98%)	11 (2%)	0	100	100
24	X	420/422 (100%)	400 (95%)	18 (4%)	2 (0%)	24	59
25	Y	387/389 (100%)	368 (95%)	19 (5%)	0	100	100
26	Z	284/324 (88%)	260 (92%)	23 (8%)	1 (0%)	30	62
27	a	371/376 (99%)	340 (92%)	29 (8%)	2 (0%)	24	59
28	b	189/377 (50%)	167 (88%)	22 (12%)	0	100	100
29	c	285/310 (92%)	245 (86%)	37 (13%)	3 (1%)	11	43
30	d	255/350 (73%)	214 (84%)	41 (16%)	0	100	100
31	e	48/70 (69%)	41 (85%)	7 (15%)	0	100	100
32	f	840/908 (92%)	804 (96%)	36 (4%)	0	100	100
All	All	13417/14876 (90%)	12547 (94%)	831 (6%)	39 (0%)	37	68

All (39) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	A	159	PRO
1	A	208	PRO
3	C	90	HIS
4	D	157	ASP
4	D	336	PRO

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Mol	Chain	Res	Type
6	F	174	ALA
6	F	247	THR
6	F	323	ASN
7	G	19	GLU
10	J	52	LYS
10	J	222	PRO
29	c	279	ASP
29	c	280	PRO
10	j	50	VAL
1	A	209	PRO
3	C	140	VAL
6	F	181	PRO
6	F	244	THR
6	F	348	LEU
24	X	203	PRO
24	X	318	ILE
26	Z	145	HIS
27	a	69	HIS
29	c	198	ARG
1	A	314	ASN
3	C	89	VAL
6	F	172	VAL
6	F	346	GLY
10	J	51	ALA
21	U	873	PRO
21	U	874	ASN
3	C	142	LYS
5	E	167	PRO
3	C	129	ASN
27	a	343	LEU
5	E	166	PRO
6	F	180	ARG
4	D	335	LEU
1	A	311	PRO

5.3.2 Protein sidechains ⓘ

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

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

Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
1	A	348/372 (94%)	343 (99%)	5 (1%)	59	77
2	B	357/385 (93%)	356 (100%)	1 (0%)	86	88
3	C	340/346 (98%)	333 (98%)	7 (2%)	47	71
4	D	333/366 (91%)	328 (98%)	5 (2%)	57	76
5	E	341/353 (97%)	339 (99%)	2 (1%)	78	84
6	F	340/379 (90%)	333 (98%)	7 (2%)	47	71
7	G	202/210 (96%)	200 (99%)	2 (1%)	68	80
7	g	201/210 (96%)	201 (100%)	0	100	100
8	H	187/191 (98%)	187 (100%)	0	100	100
8	h	188/191 (98%)	187 (100%)	1 (0%)	81	85
9	I	202/221 (91%)	202 (100%)	0	100	100
9	i	206/221 (93%)	206 (100%)	0	100	100
10	J	197/211 (93%)	191 (97%)	6 (3%)	36	66
10	j	196/211 (93%)	196 (100%)	0	100	100
11	K	197/203 (97%)	197 (100%)	0	100	100
11	k	195/203 (96%)	195 (100%)	0	100	100
12	L	202/224 (90%)	202 (100%)	0	100	100
12	l	201/224 (90%)	201 (100%)	0	100	100
13	M	199/212 (94%)	199 (100%)	0	100	100
13	m	198/212 (93%)	198 (100%)	0	100	100
14	N	158/181 (87%)	158 (100%)	0	100	100
14	n	156/181 (86%)	156 (100%)	0	100	100
15	O	178/228 (78%)	178 (100%)	0	100	100
15	o	181/228 (79%)	181 (100%)	0	100	100
16	P	172/174 (99%)	172 (100%)	0	100	100
16	p	173/174 (99%)	173 (100%)	0	100	100
17	Q	169/171 (99%)	169 (100%)	0	100	100
17	q	166/171 (97%)	166 (100%)	0	100	100
18	R	156/202 (77%)	156 (100%)	0	100	100
18	r	154/202 (76%)	154 (100%)	0	100	100
19	S	175/199 (88%)	175 (100%)	0	100	100
19	s	177/199 (89%)	177 (100%)	0	100	100

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Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
20	T	178/215 (83%)	178 (100%)	0	100	100
20	t	179/215 (83%)	179 (100%)	0	100	100
21	U	752/816 (92%)	750 (100%)	2 (0%)	86	88
22	V	390/460 (85%)	390 (100%)	0	100	100
23	W	406/416 (98%)	406 (100%)	0	100	100
24	X	362/362 (100%)	361 (100%)	1 (0%)	86	88
25	Y	344/344 (100%)	344 (100%)	0	100	100
26	Z	257/295 (87%)	255 (99%)	2 (1%)	73	82
27	a	333/336 (99%)	332 (100%)	1 (0%)	86	88
28	b	167/312 (54%)	167 (100%)	0	100	100
29	c	252/268 (94%)	249 (99%)	3 (1%)	63	79
30	d	231/294 (79%)	230 (100%)	1 (0%)	84	86
31	e	44/63 (70%)	44 (100%)	0	100	100
32	f	711/763 (93%)	711 (100%)	0	100	100
All	All	11451/12614 (91%)	11405 (100%)	46 (0%)	81	86

All (46) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	157	ILE
1	A	158	ASP
1	A	159	PRO
1	A	312	ARG
1	A	403	ILE
2	B	355	LEU
3	C	53	ASN
3	C	88	LYS
3	C	89	VAL
3	C	90	HIS
3	C	140	VAL
3	C	141	GLU
3	C	210	THR
4	D	157	ASP
4	D	158	GLN
4	D	335	LEU
4	D	337	ASP
4	D	369	LYS

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Mol	Chain	Res	Type
5	E	164	ILE
5	E	165	ILE
6	F	172	VAL
6	F	173	LYS
6	F	325	GLN
6	F	326	VAL
6	F	347	ARG
6	F	348	LEU
6	F	416	THR
7	G	19	GLU
7	G	21	ARG
10	J	50	VAL
10	J	52	LYS
10	J	200	GLN
10	J	220	LEU
10	J	221	ASN
10	J	222	PRO
21	U	872	GLU
21	U	880	ASN
24	X	106	GLU
26	Z	103	LYS
26	Z	145	HIS
27	a	341	LEU
29	c	196	LEU
29	c	197	ASN
29	c	281	LYS
30	d	13	SER
8	h	3	GLU

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (108) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	38	GLN
1	A	128	GLN
1	A	145	ASN
1	A	150	HIS
1	A	247	GLN
1	A	293	ASN
2	B	425	ASN
3	C	53	ASN
3	C	124	HIS
3	C	171	HIS

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Mol	Chain	Res	Type
3	C	221	GLN
3	C	278	ASN
3	C	392	GLN
4	D	340	GLN
5	E	10	GLN
5	E	121	ASN
5	E	155	ASN
5	E	307	GLN
5	E	323	HIS
6	F	208	HIS
6	F	315	ASN
6	F	333	ASN
7	G	33	ASN
7	G	68	HIS
7	G	75	ASN
8	H	21	GLN
8	H	88	HIS
8	H	102	GLN
9	I	95	GLN
10	J	15	HIS
10	J	23	GLN
10	J	92	GLN
10	J	146	GLN
11	K	98	ASN
11	K	186	HIS
13	M	32	ASN
15	O	116	HIS
15	O	165	ASN
16	P	72	ASN
16	P	93	ASN
16	P	145	GLN
17	Q	82	ASN
17	Q	101	ASN
19	S	151	ASN
20	T	213	HIS
21	U	171	ASN
21	U	340	GLN
21	U	355	ASN
21	U	596	ASN
21	U	632	GLN
21	U	698	GLN
23	W	86	ASN

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Mol	Chain	Res	Type
23	W	107	GLN
23	W	155	GLN
23	W	444	HIS
24	X	44	GLN
24	X	213	GLN
24	X	292	GLN
24	X	296	ASN
24	X	380	GLN
24	X	405	GLN
25	Y	160	ASN
25	Y	273	GLN
25	Y	302	HIS
25	Y	351	ASN
26	Z	256	GLN
27	a	9	GLN
27	a	13	ASN
27	a	288	HIS
28	b	38	HIS
28	b	94	HIS
29	c	92	GLN
29	c	115	HIS
29	c	214	GLN
29	c	240	HIS
29	c	287	HIS
30	d	116	HIS
30	d	141	GLN
30	d	221	ASN
30	d	245	GLN
31	e	37	HIS
32	f	148	GLN
32	f	245	ASN
32	f	325	GLN
32	f	356	ASN
32	f	750	GLN
8	h	21	GLN
8	h	102	GLN
9	i	88	ASN
9	i	95	GLN
9	i	142	HIS
9	i	167	ASN
10	j	154	HIS
10	j	175	ASN

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Mol	Chain	Res	Type
10	j	221	ASN
11	k	23	GLN
11	k	99	HIS
11	k	204	GLN
13	m	68	ASN
13	m	110	HIS
14	n	110	GLN
16	p	7	ASN
17	q	32	HIS
17	q	82	ASN
17	q	101	ASN
17	q	186	ASN
18	r	151	GLN
19	s	159	GLN

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 10 ligands modelled in this entry, 5 are monoatomic - leaving 5 for Mogul analysis.

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

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	# Z > 2	Counts	RMSZ	# Z > 2
36	ADP	E	401	-	27,29,29	1.37	4 (14%)	42,45,45	1.97	8 (19%)
34	ATP	C	501	35	29,33,33	0.33	0	44,52,52	0.51	0
34	ATP	A	501	35	29,33,33	0.29	0	44,52,52	0.50	1 (2%)
34	ATP	D	501	35	29,33,33	0.32	0	44,52,52	0.51	0
34	ATP	B	501	35	29,33,33	0.30	0	44,52,52	0.45	1 (2%)

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

Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
36	ADP	E	401	-	-	3/16/32/32	0/3/3/3
34	ATP	C	501	35	-	0/22/38/38	0/3/3/3
34	ATP	A	501	35	-	5/22/38/38	0/3/3/3
34	ATP	D	501	35	-	7/22/38/38	0/3/3/3
34	ATP	B	501	35	-	5/22/38/38	0/3/3/3

All (4) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
36	E	401	ADP	C5-C4	4.47	1.47	1.39
36	E	401	ADP	C5-N7	-2.69	1.33	1.39
36	E	401	ADP	C5-C6	2.51	1.48	1.41
36	E	401	ADP	C8-N7	2.27	1.35	1.31

All (10) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
36	E	401	ADP	C5-C4-N3	-6.72	117.99	126.75
36	E	401	ADP	N3-C4-N9	5.30	135.82	127.08
36	E	401	ADP	C2-N3-C4	3.93	121.02	111.75
36	E	401	ADP	C4-C5-N7	-3.23	106.68	110.62
36	E	401	ADP	N3-C2-N1	-3.12	123.73	128.60
36	E	401	ADP	C5-N7-C8	2.90	107.64	103.51
36	E	401	ADP	C3'-C2'-C1'	2.39	105.96	101.43
36	E	401	ADP	C4-N9-C8	2.30	108.22	105.73
34	A	501	ATP	PB-O3B-PG	2.05	139.86	132.83
34	B	501	ATP	PB-O3B-PG	2.02	139.75	132.83

There are no chirality outliers.

All (20) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
34	A	501	ATP	C5'-O5'-PA-O1A
34	A	501	ATP	O4'-C4'-C5'-O5'
34	A	501	ATP	C3'-C4'-C5'-O5'
34	B	501	ATP	C5'-O5'-PA-O1A
34	D	501	ATP	PB-O3B-PG-O3G
34	D	501	ATP	C5'-O5'-PA-O3A
36	E	401	ADP	PA-O3A-PB-O2B
34	D	501	ATP	O4'-C4'-C5'-O5'
34	D	501	ATP	C3'-C4'-C5'-O5'
34	B	501	ATP	C5'-O5'-PA-O3A
34	A	501	ATP	C5'-O5'-PA-O2A
34	B	501	ATP	C5'-O5'-PA-O2A
34	B	501	ATP	PA-O3A-PB-O1B
34	D	501	ATP	PB-O3B-PG-O1G
34	D	501	ATP	PB-O3B-PG-O2G
36	E	401	ADP	PA-O3A-PB-O3B
34	A	501	ATP	C5'-O5'-PA-O3A
34	B	501	ATP	PA-O3A-PB-O2B
34	D	501	ATP	C5'-O5'-PA-O1A
36	E	401	ADP	PA-O3A-PB-O1B

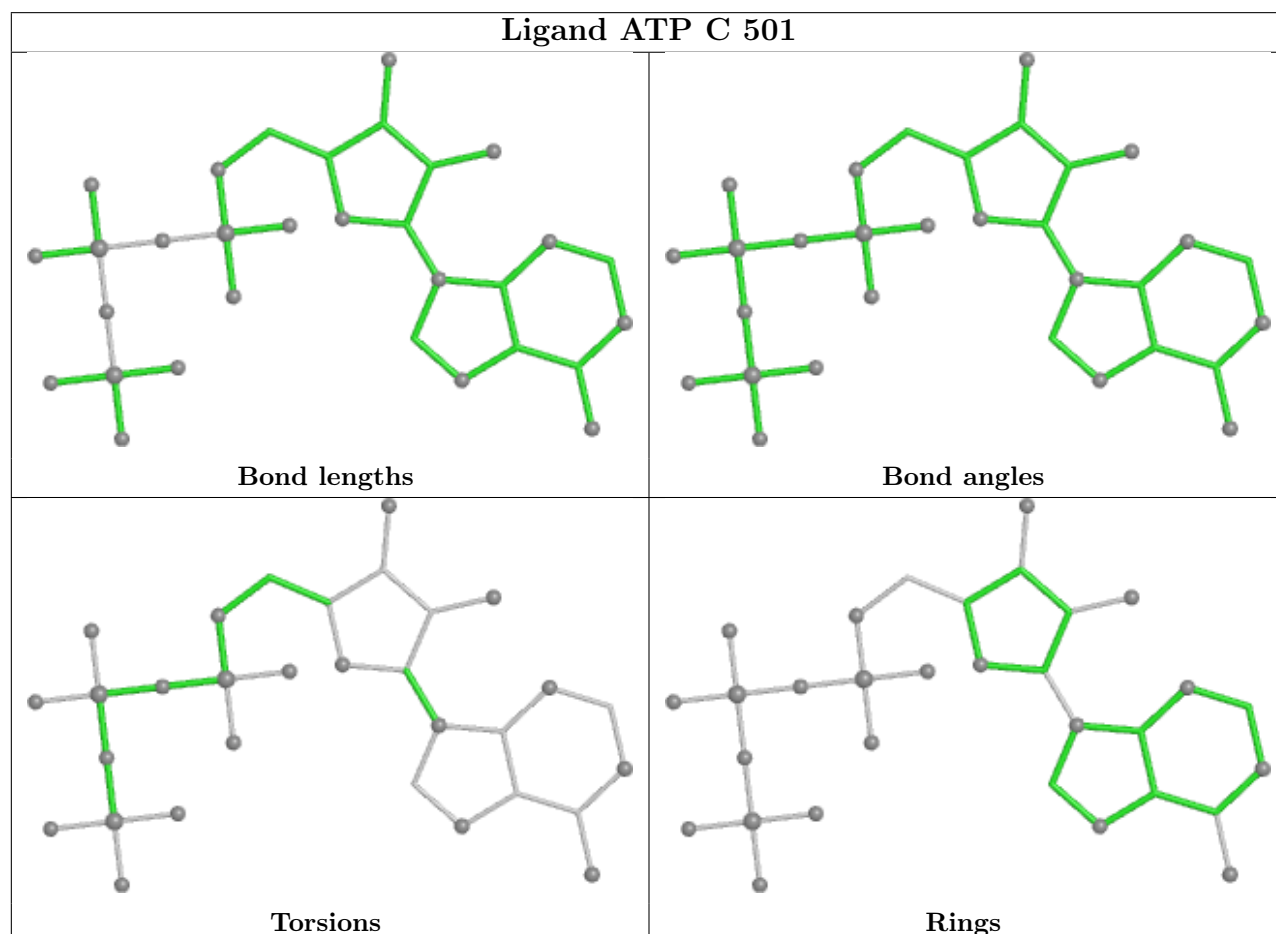
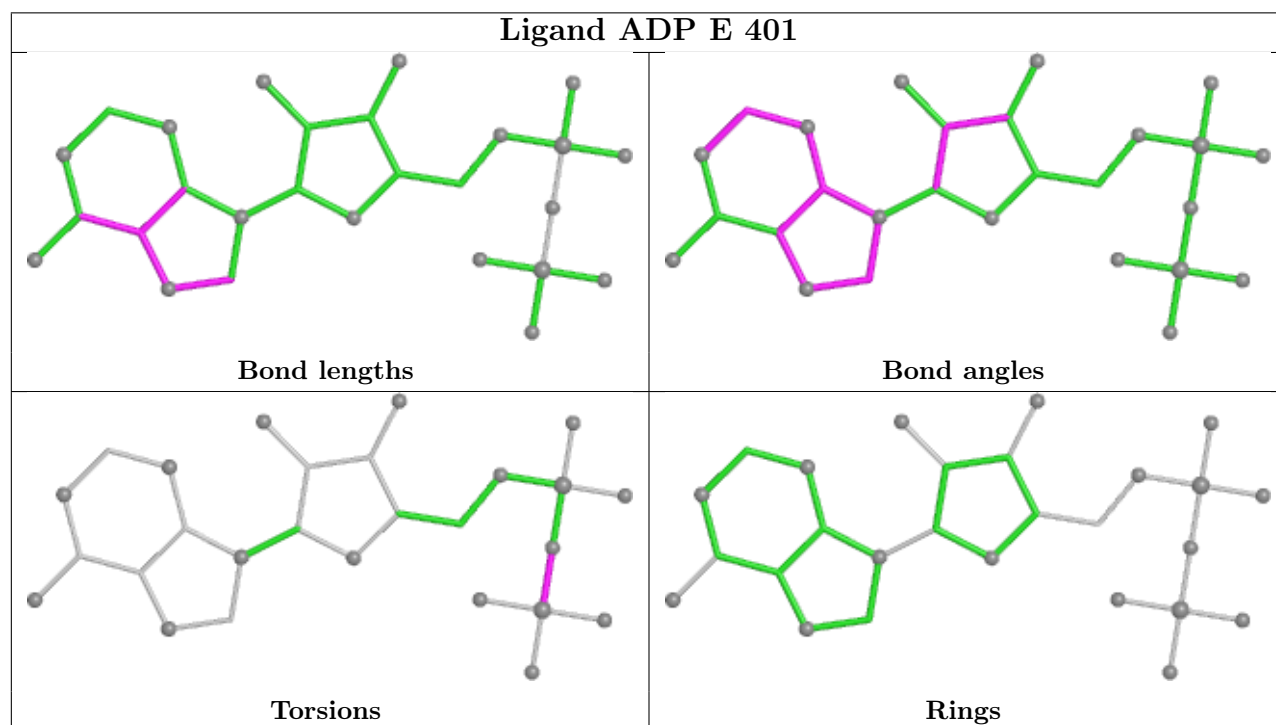
There are no ring outliers.

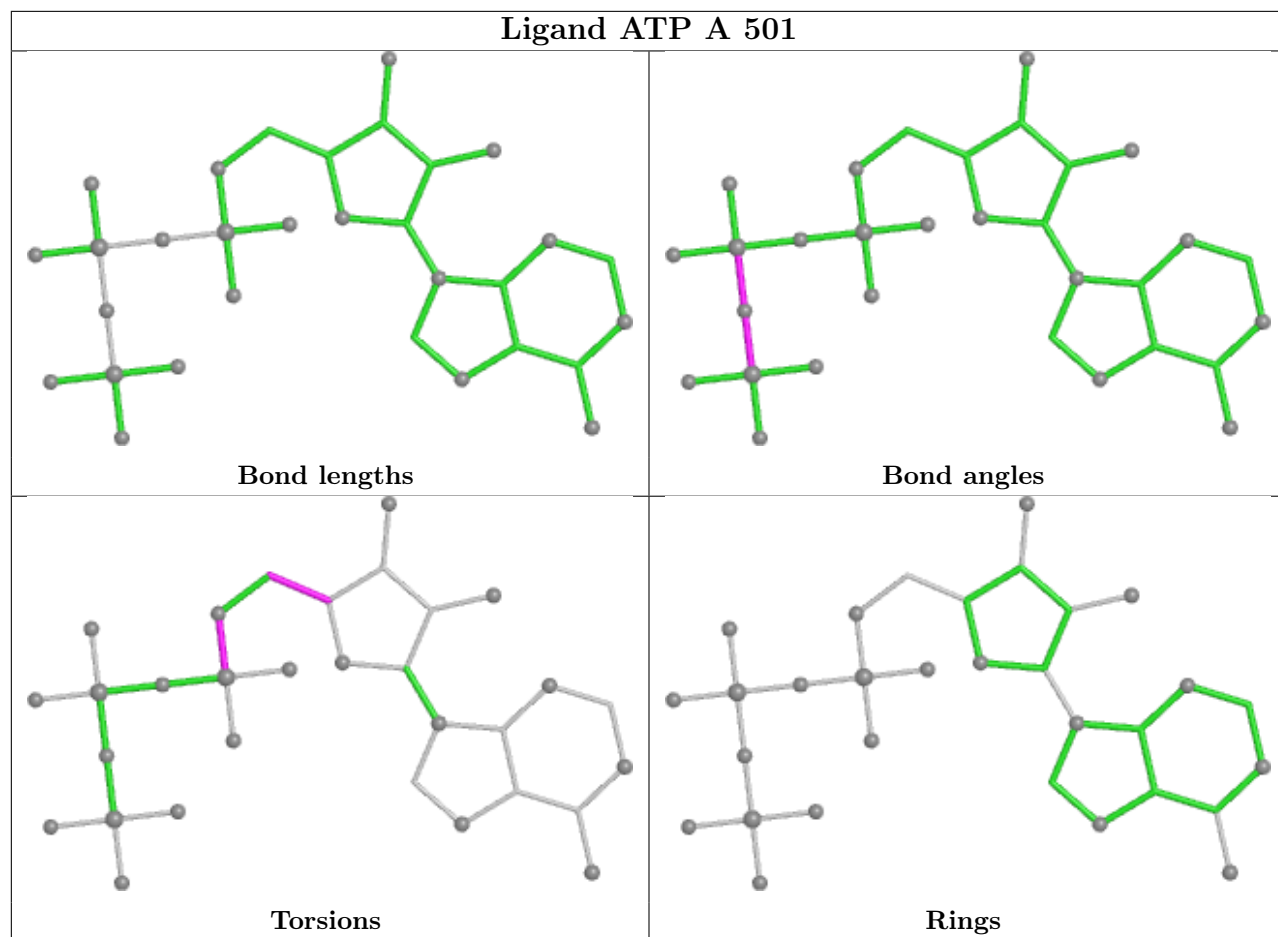
4 monomers are involved in 6 short contacts:

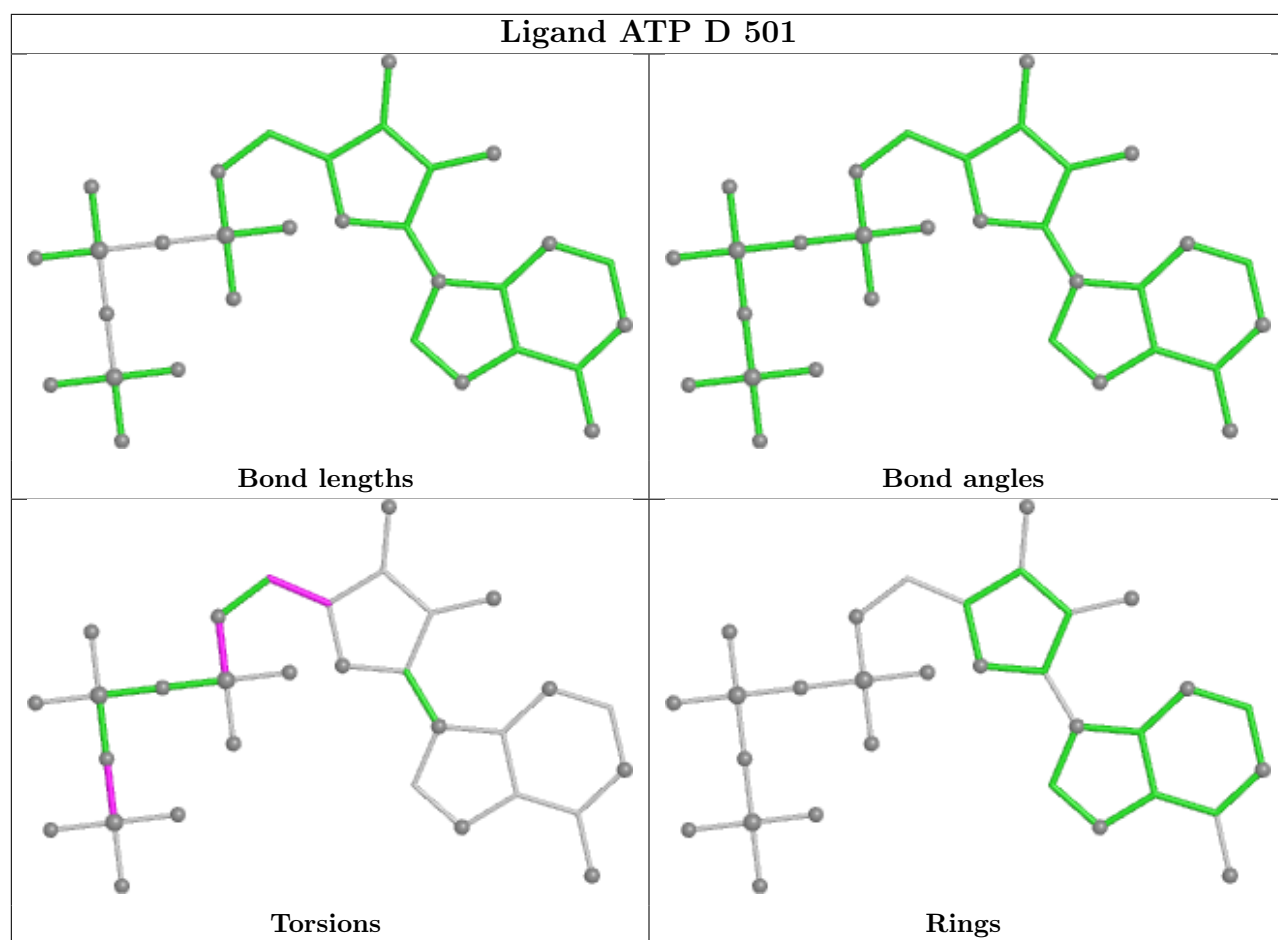
Mol	Chain	Res	Type	Clashes	Symm-Clashes
36	E	401	ADP	2	0
34	C	501	ATP	1	0
34	A	501	ATP	2	0
34	B	501	ATP	1	0

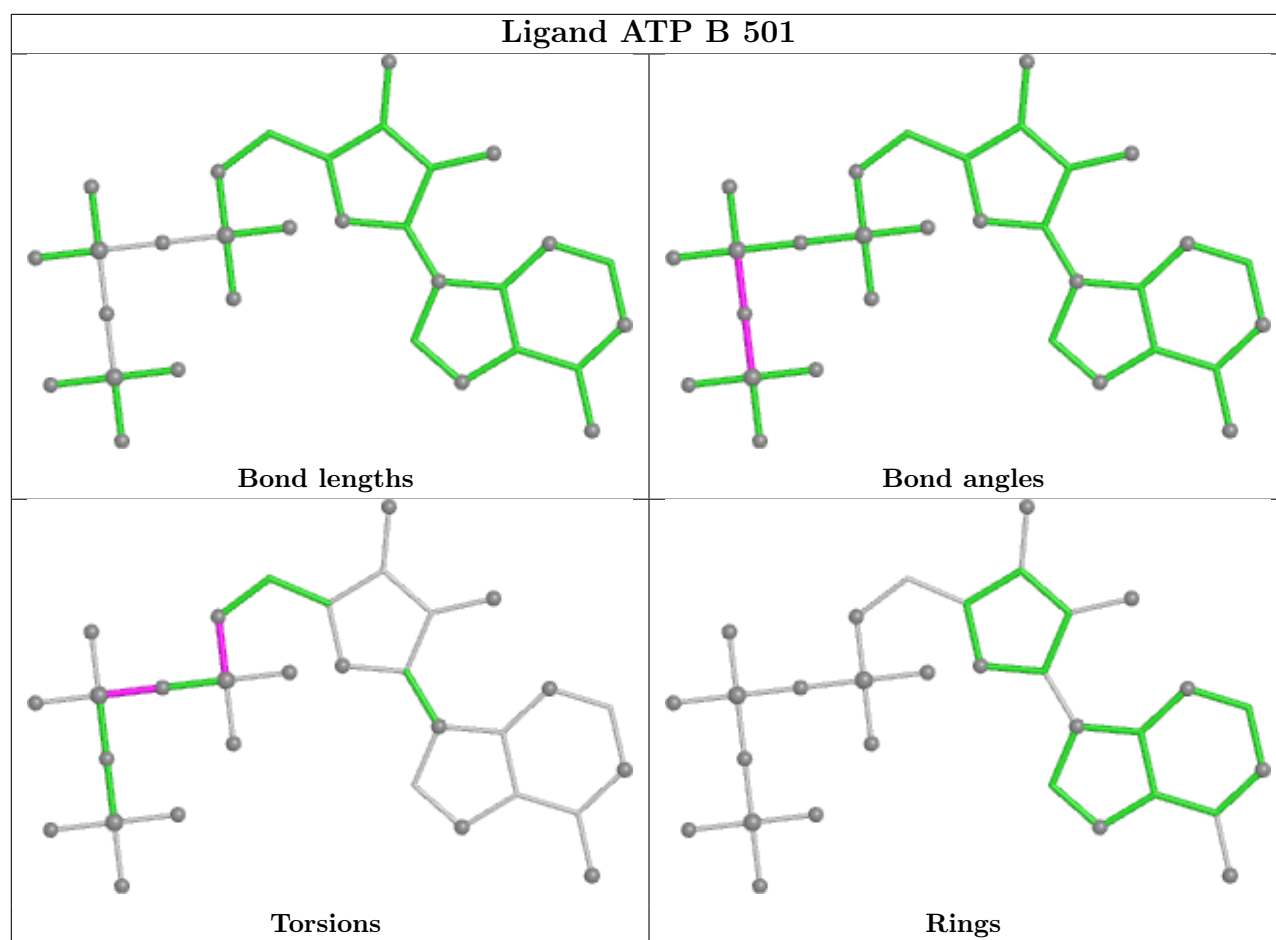
The following is a two-dimensional graphical depiction of Mogul quality analysis of bond lengths, bond angles, torsion angles, and ring geometry for all instances of the Ligand of Interest. In addition, ligands with molecular weight > 250 and outliers as shown on the validation Tables will also be included. For torsion angles, if less than 5% of the Mogul distribution of torsion angles is within 10 degrees of the torsion angle in question, then that torsion angle is considered an outlier. Any bond that is central to one or more torsion angles identified as an outlier by Mogul will be highlighted in the graph. For rings, the root-mean-square deviation (RMSD) between the ring in question and similar rings identified by Mogul is calculated over all ring torsion angles. If the average RMSD is greater than 60 degrees and the minimal RMSD between the ring in question and any Mogul-identified rings is also greater than 60 degrees, then that ring is considered an outlier.

The outliers are highlighted in purple. The color gray indicates Mogul did not find sufficient equivalents in the CSD to analyse the geometry.









5.7 Other polymers [i](#)

There are no such residues in this entry.

5.8 Polymer linkage issues [i](#)

There are no chain breaks in this entry.

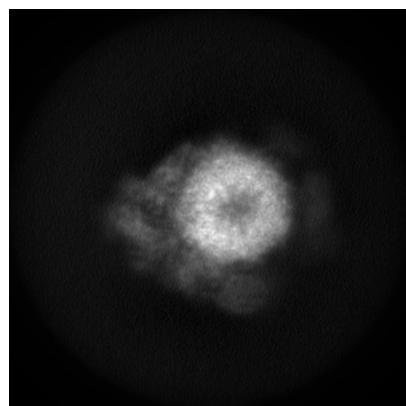
6 Map visualisation [i](#)

This section contains visualisations of the EMDB entry EMD-62076. These allow visual inspection of the internal detail of the map and identification of artifacts.

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

6.1 Orthogonal projections [i](#)

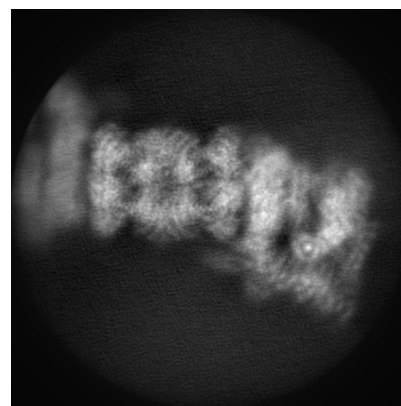
6.1.1 Primary map



X

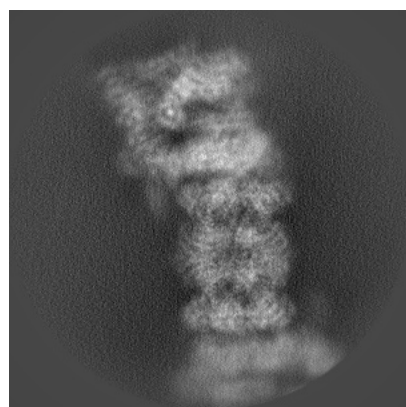


Y

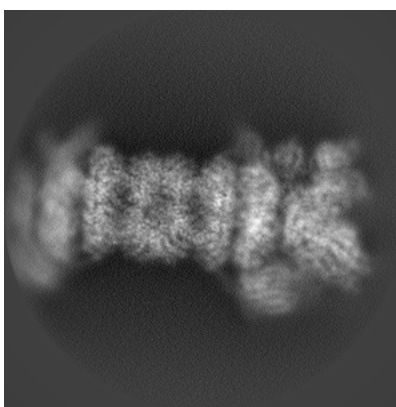


Z

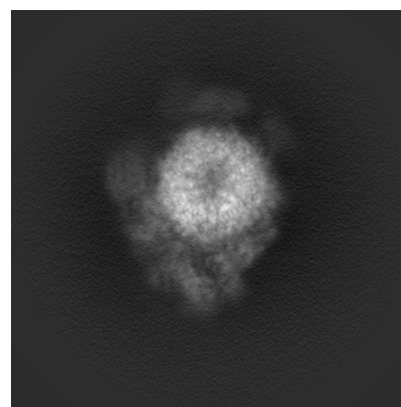
6.1.2 Raw map



X



Y

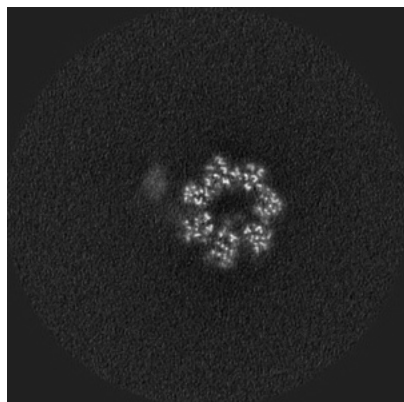


Z

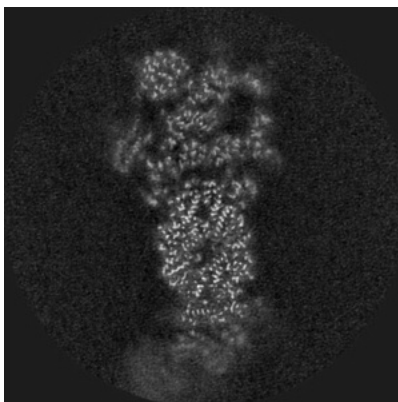
The images above show the map projected in three orthogonal directions.

6.2 Central slices [i](#)

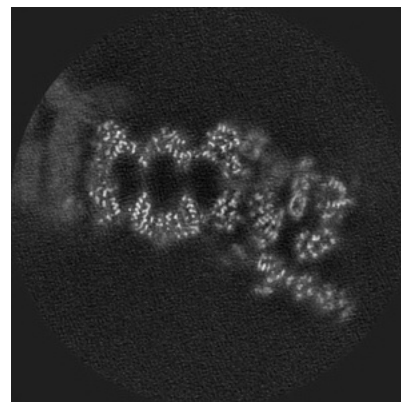
6.2.1 Primary map



X Index: 300

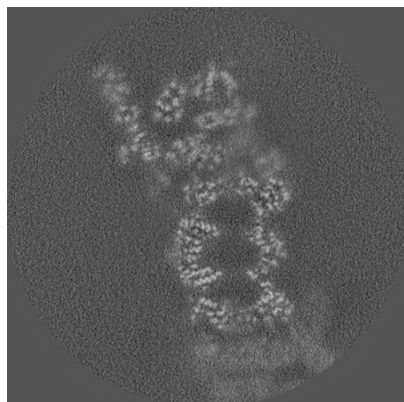


Y Index: 300

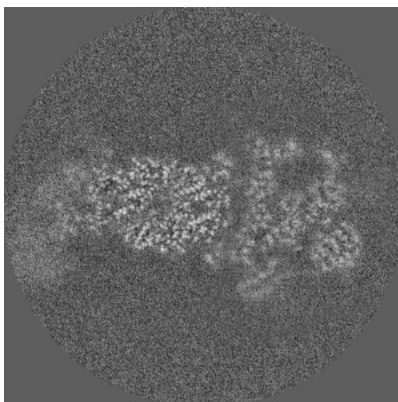


Z Index: 300

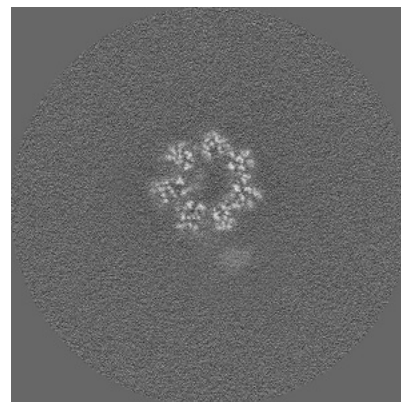
6.2.2 Raw map



X Index: 300



Y Index: 300

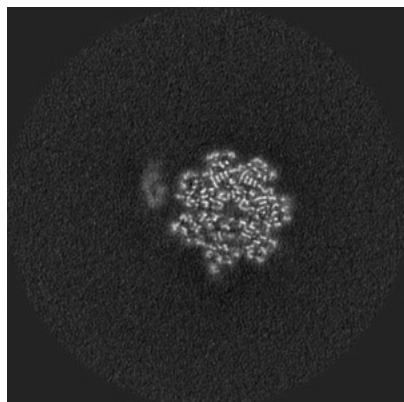


Z Index: 300

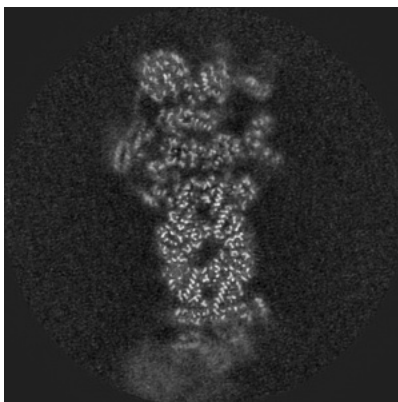
The images above show central slices of the map in three orthogonal directions.

6.3 Largest variance slices [i](#)

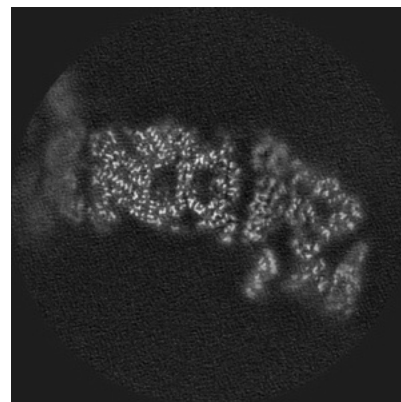
6.3.1 Primary map



X Index: 321

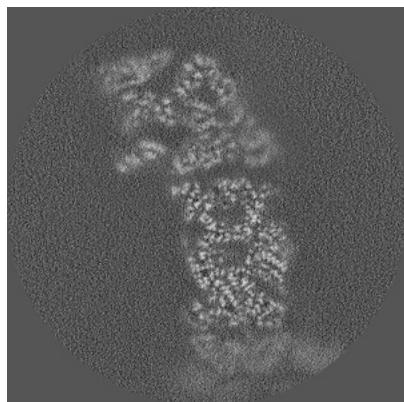


Y Index: 304

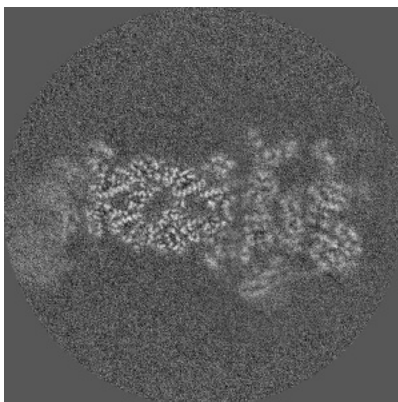


Z Index: 268

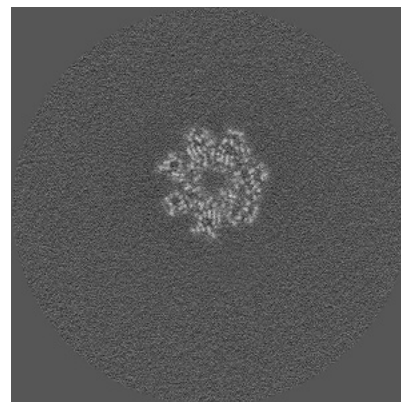
6.3.2 Raw map



X Index: 267



Y Index: 304

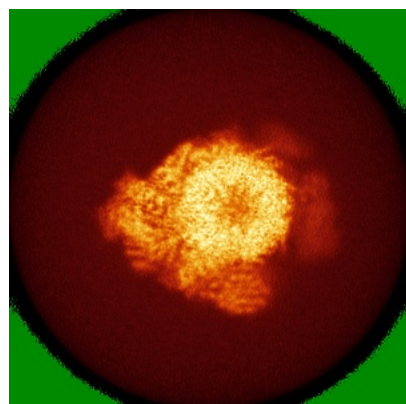


Z Index: 258

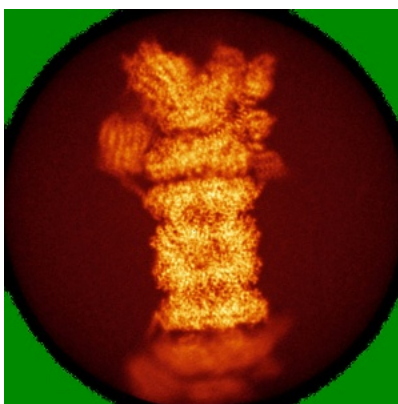
The images above show the largest variance slices of the map in three orthogonal directions.

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

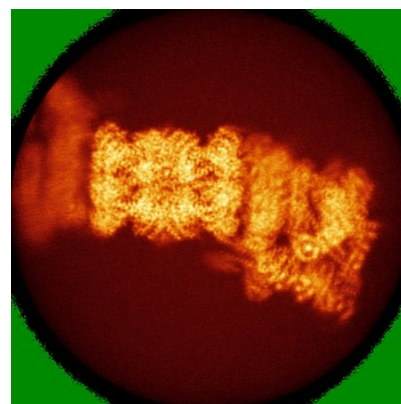
6.4.1 Primary map



X

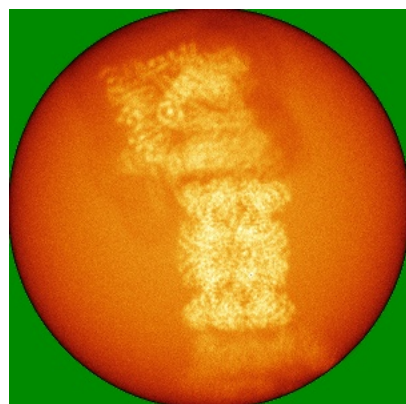


Y

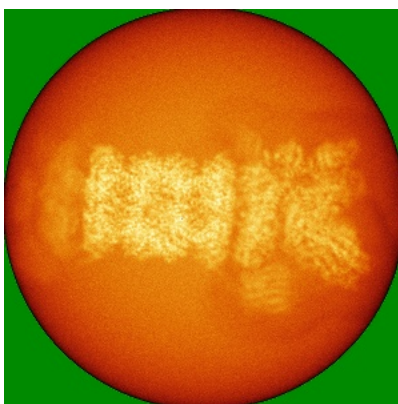


Z

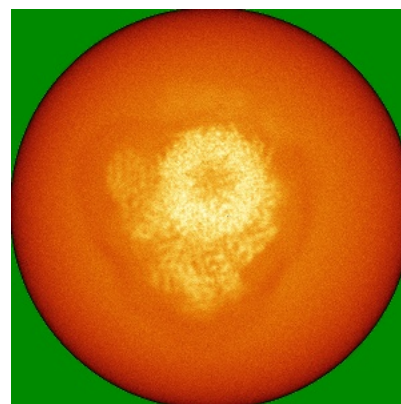
6.4.2 Raw map



X



Y

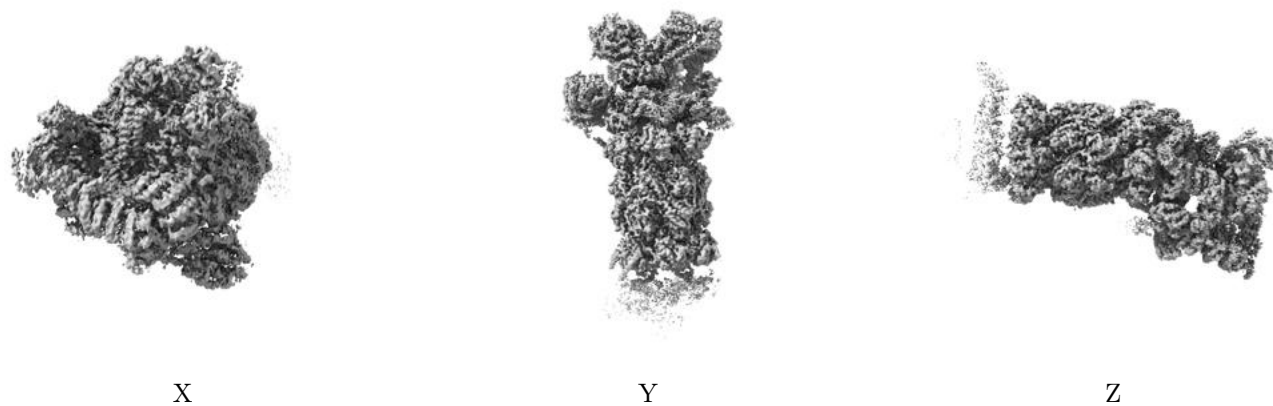


Z

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

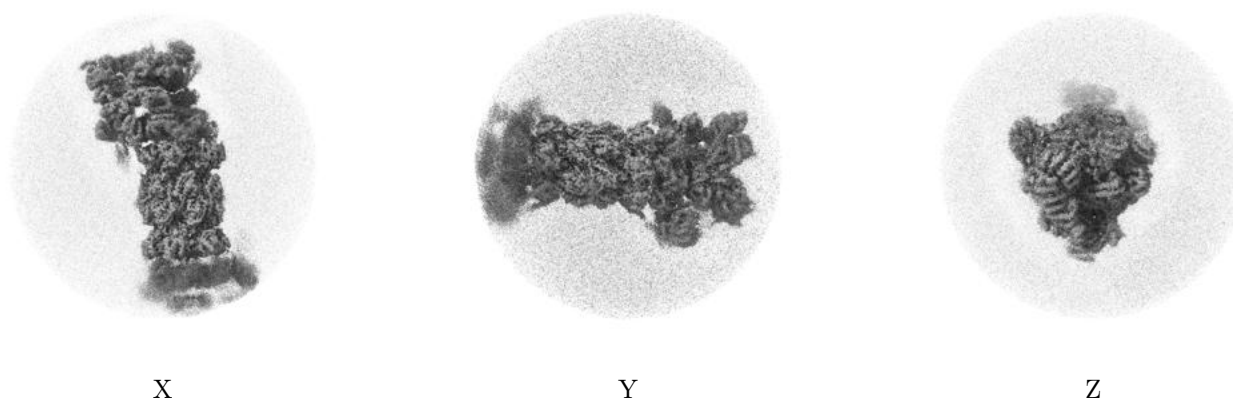
6.5 Orthogonal surface views [i](#)

6.5.1 Primary map



The images above show the 3D surface view of the map at the recommended contour level 0.00588. These images, in conjunction with the slice images, may facilitate assessment of whether an appropriate contour level has been provided.

6.5.2 Raw map



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

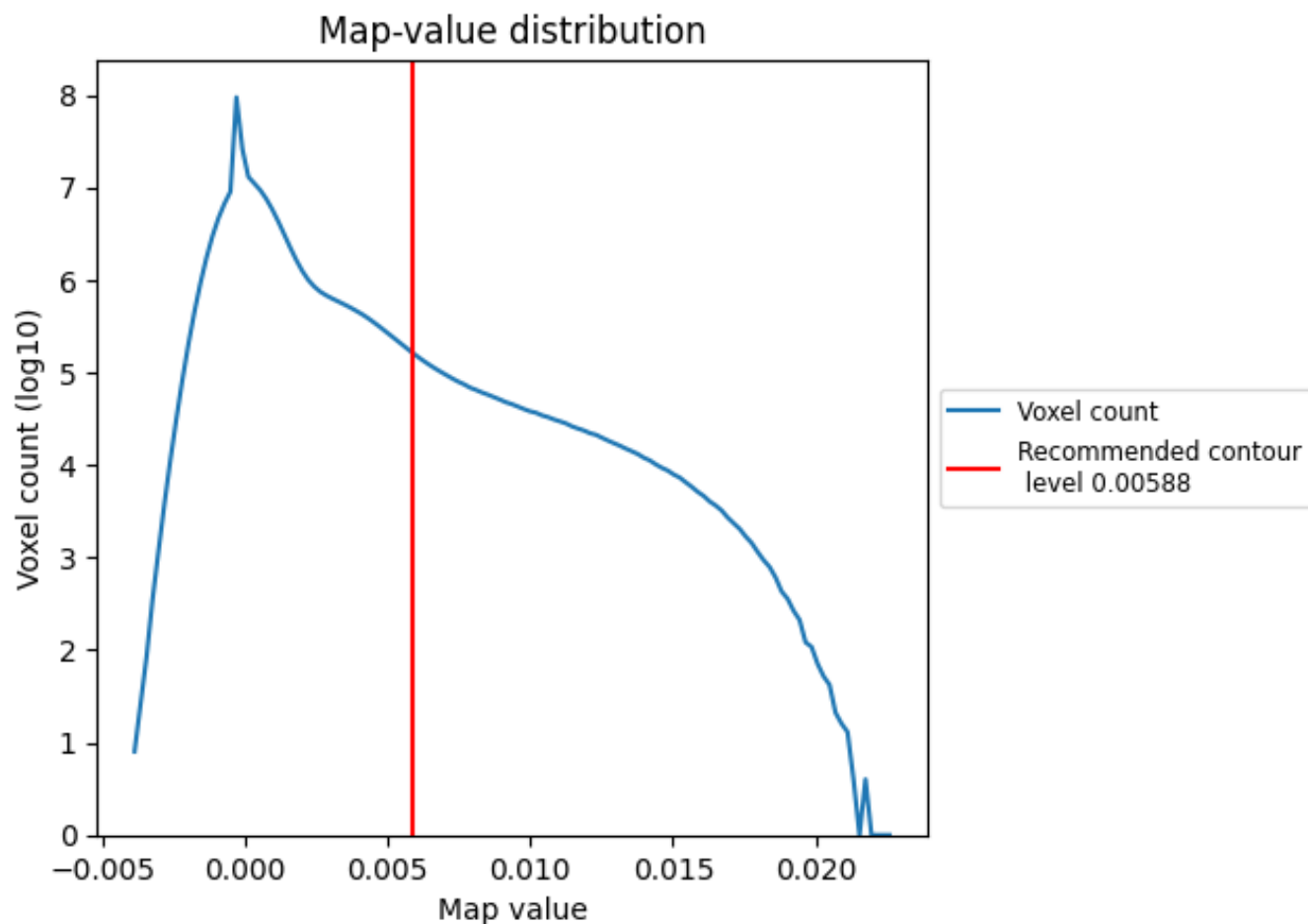
6.6 Mask visualisation [i](#)

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

7 Map analysis [i](#)

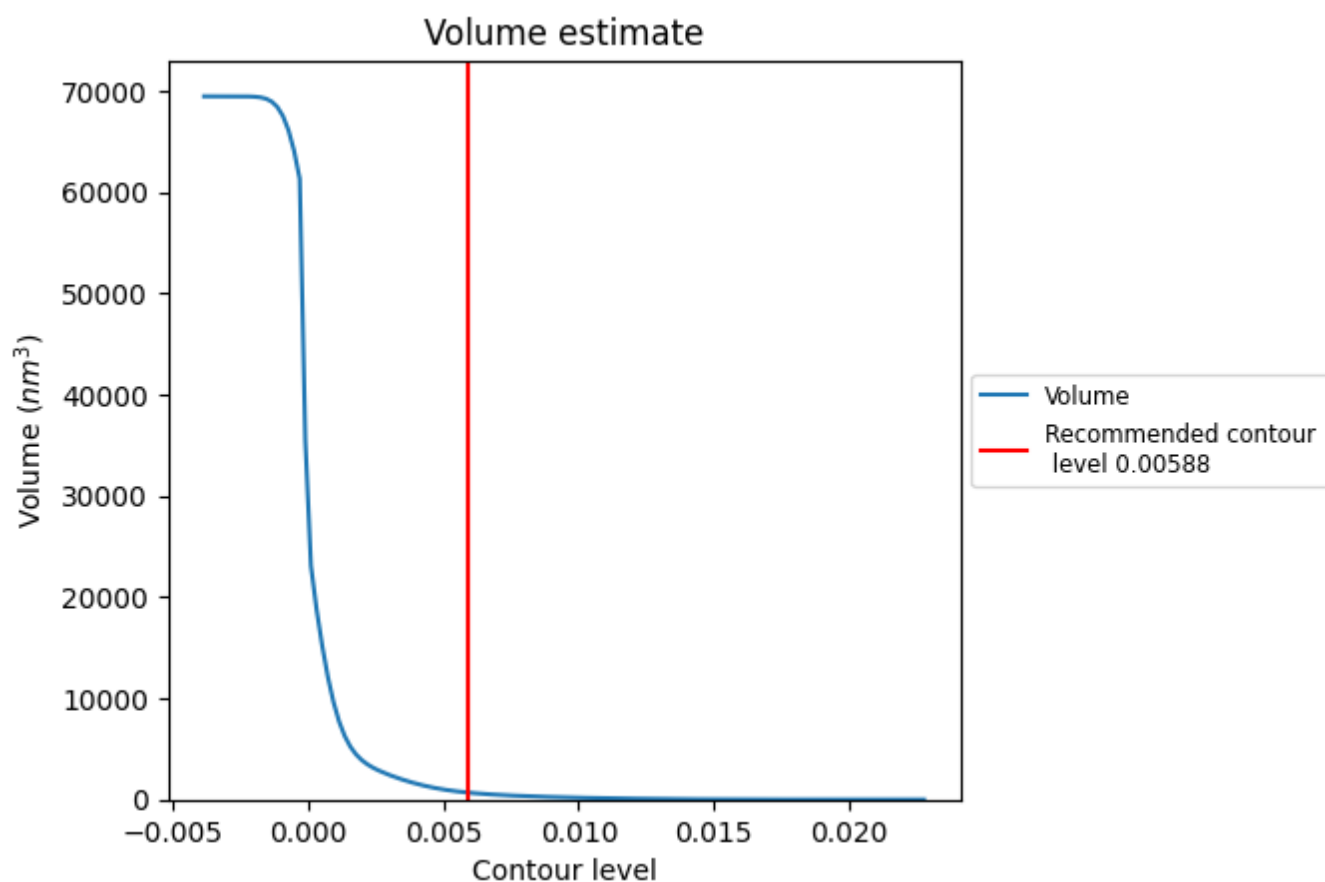
This section contains the results of statistical analysis of the map.

7.1 Map-value distribution [i](#)



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

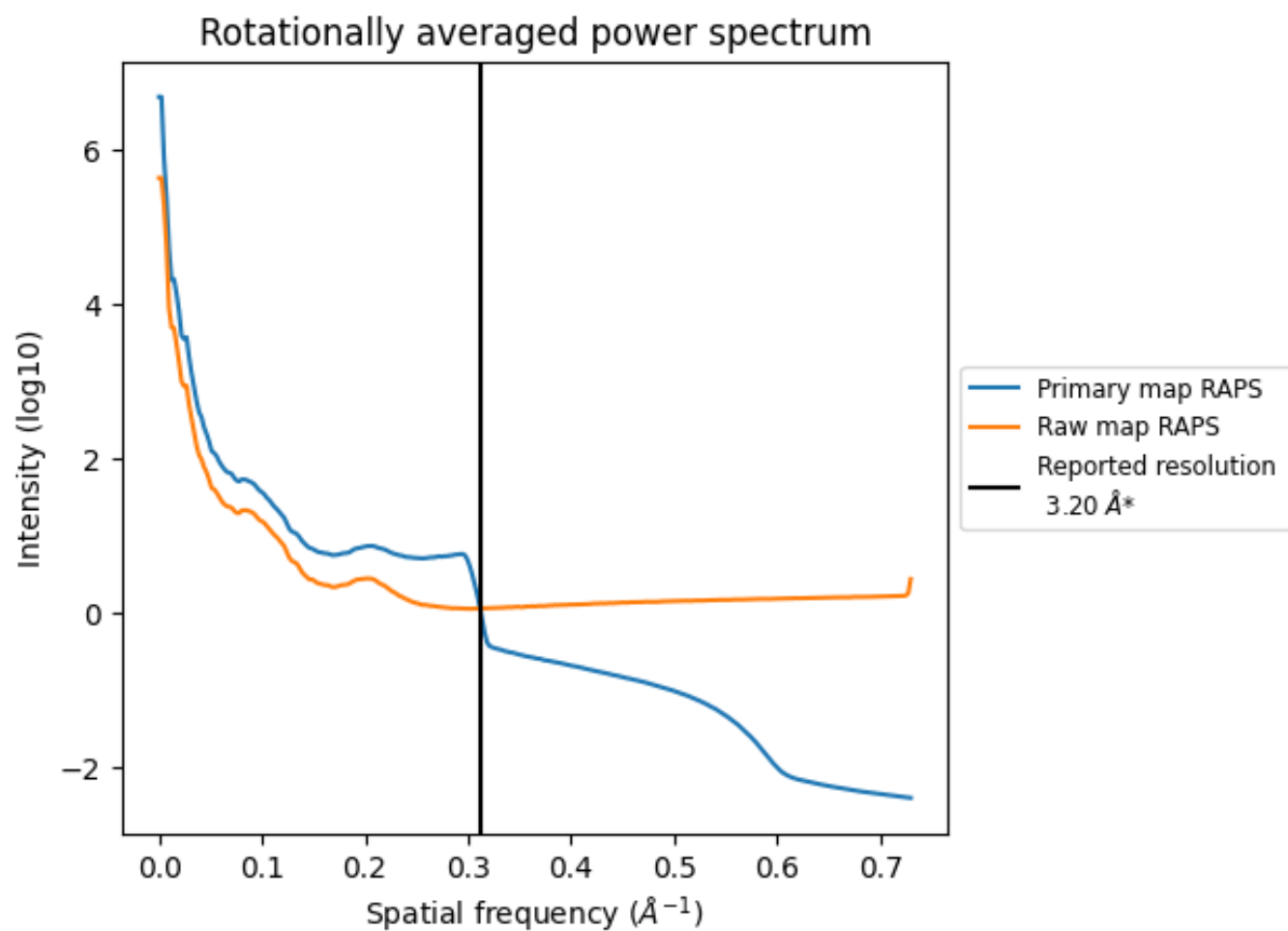
7.2 Volume estimate [i](#)



The volume at the recommended contour level is 696 nm³; this corresponds to an approximate mass of 628 kDa.

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

7.3 Rotationally averaged power spectrum ⓘ

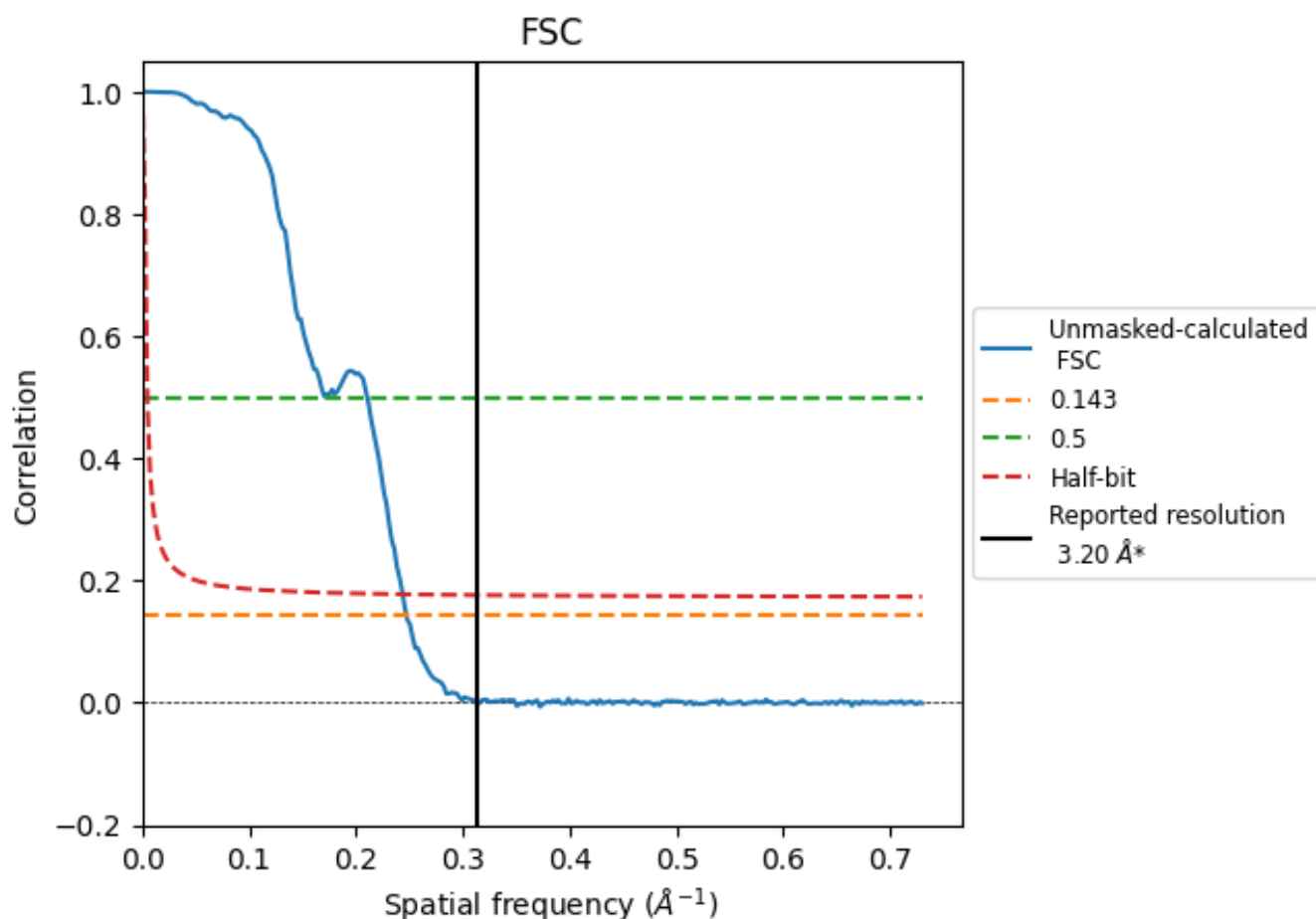


*Reported resolution corresponds to spatial frequency of 0.312 \AA^{-1}

8 Fourier-Shell correlation [i](#)

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

8.1 FSC [i](#)



*Reported resolution corresponds to spatial frequency of 0.312 \AA^{-1}

8.2 Resolution estimates [i](#)

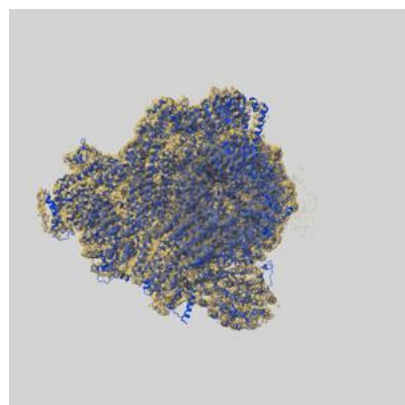
Resolution estimate (Å)	Estimation criterion (FSC cut-off)		
	0.143	0.5	Half-bit
Reported by author	3.20	-	-
Author-provided FSC curve	-	-	-
Unmasked-calculated*	4.04	4.75	4.10

*Resolution estimate based on FSC curve calculated by comparison of deposited half-maps. The value from deposited half-maps intersecting FSC 0.143 CUT-OFF 4.04 differs from the reported value 3.2 by more than 10 %

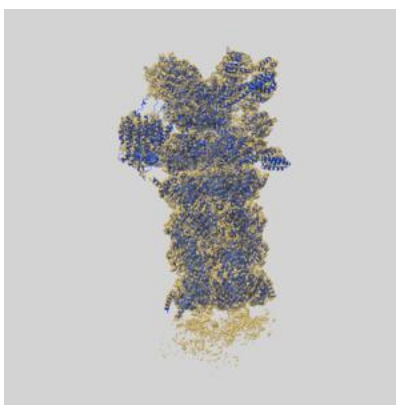
9 Map-model fit [i](#)

This section contains information regarding the fit between EMDB map EMD-62076 and PDB model 9K50. Per-residue inclusion information can be found in [section 3](#) on [page 13](#).

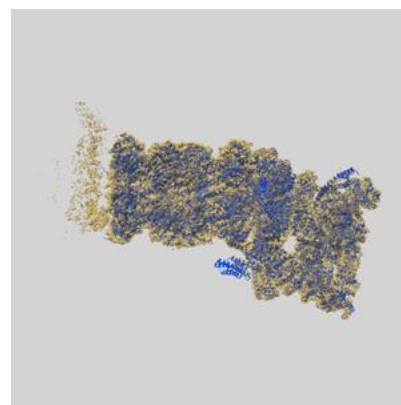
9.1 Map-model overlay [i](#)



X



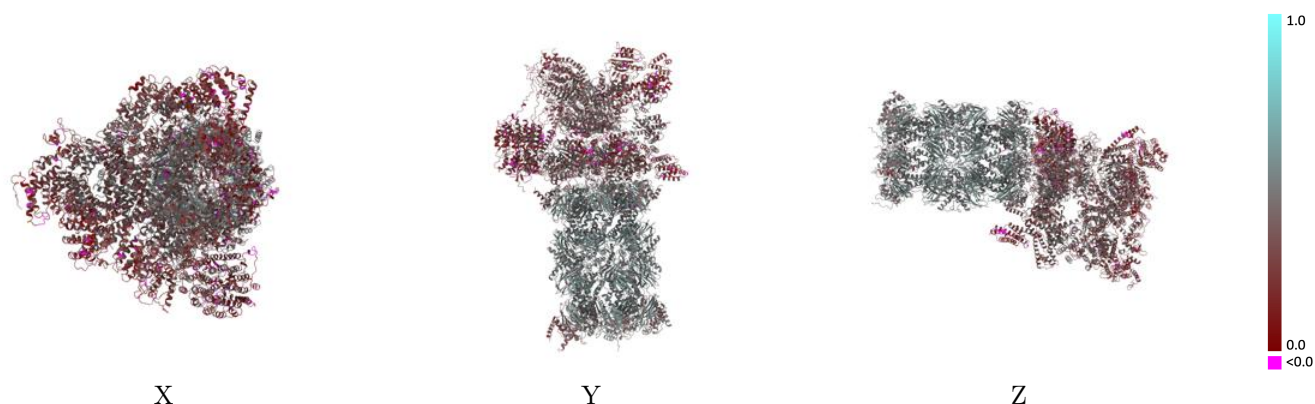
Y



Z

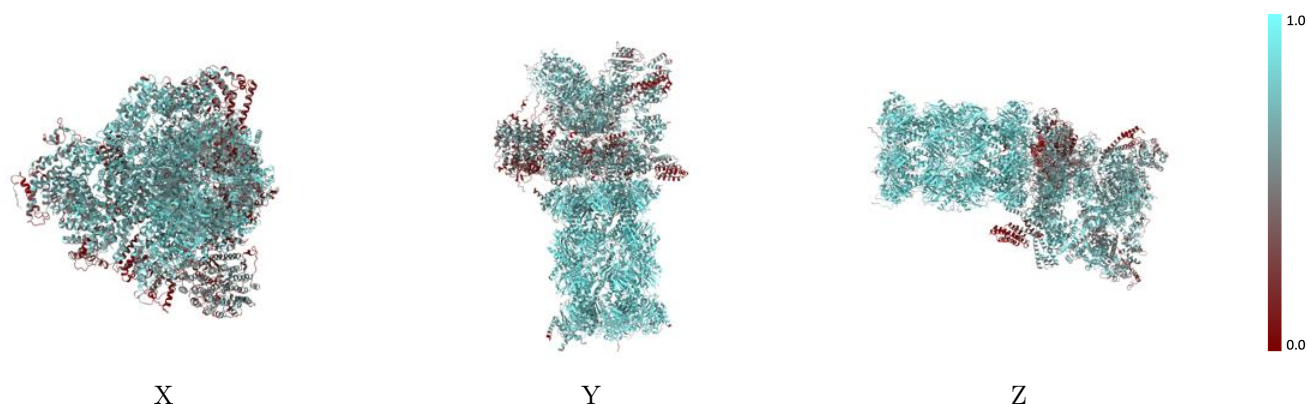
The images above show the 3D surface view of the map at the recommended contour level 0.00588 at 50% transparency in yellow overlaid with a ribbon representation of the model coloured in blue. These images allow for the visual assessment of the quality of fit between the atomic model and the map.

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



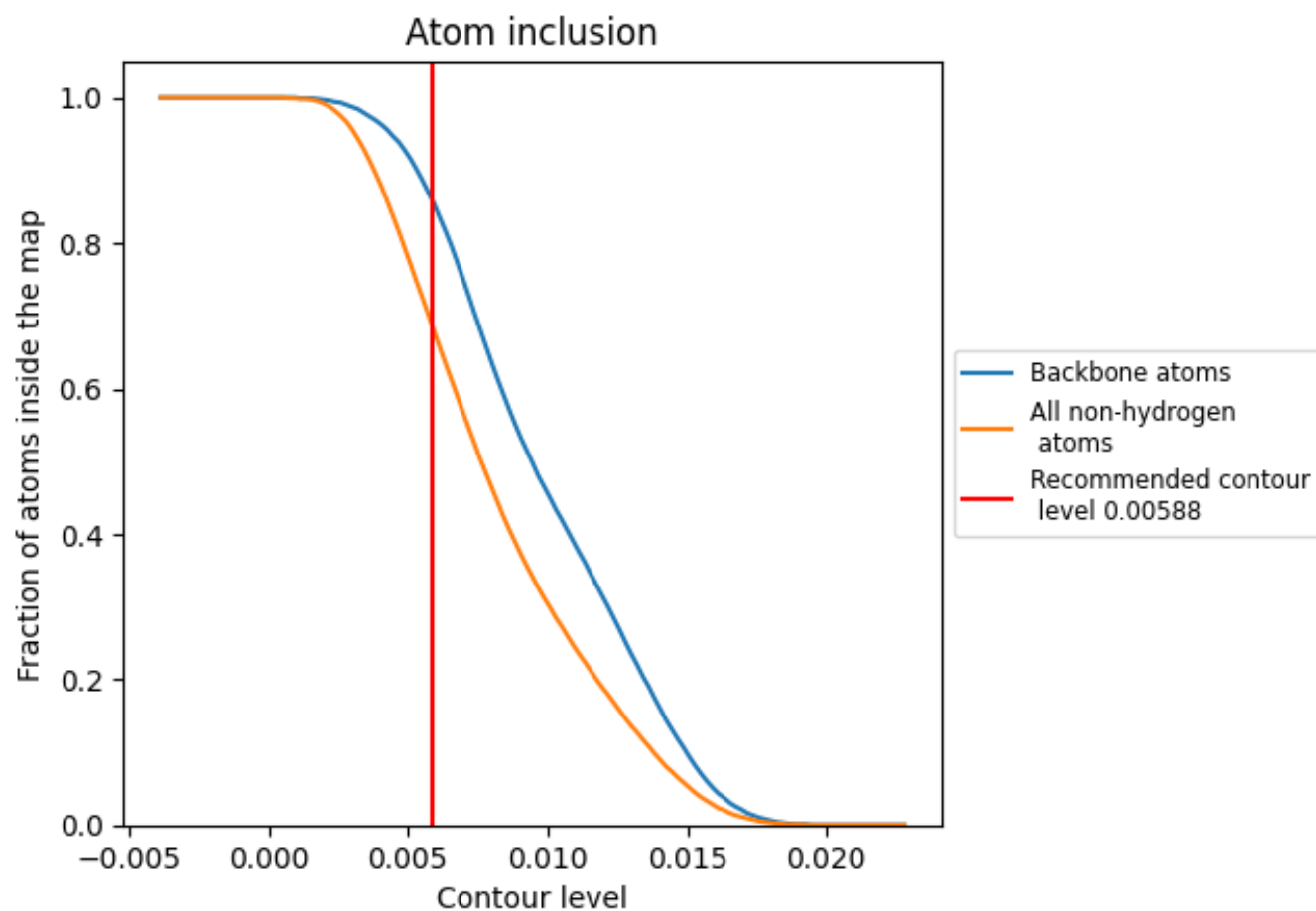
The images above show the model with each residue coloured according to its Q-score. This shows their resolvability in the map with higher Q-score values reflecting better resolvability. Please note: Q-score is calculating the resolvability of atoms, and thus high values are only expected at resolutions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

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



The images above show the model with each residue coloured according to its atom inclusion. This shows to what extent they are inside the map at the recommended contour level (0.00588).







































































9.4 Atom inclusion [i](#)



At the recommended contour level, 86% of all backbone atoms, 68% 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 (0.00588) and Q-score for the entire model and for each chain.

Chain	Atom inclusion	Q-score
All	 0.6850	 0.3870
A	 0.4540	 0.2580
B	 0.5790	 0.3490
C	 0.6930	 0.3840
D	 0.7010	 0.3910
E	 0.5650	 0.3350
F	 0.3550	 0.2220
G	 0.8380	 0.4830
H	 0.8430	 0.4880
I	 0.8080	 0.4770
J	 0.7810	 0.4570
K	 0.7890	 0.4790
L	 0.8420	 0.4920
M	 0.8330	 0.4830
N	 0.8680	 0.5170
O	 0.8790	 0.5090
P	 0.8910	 0.5100
Q	 0.8730	 0.5090
R	 0.8980	 0.5120
S	 0.8570	 0.5020
T	 0.8770	 0.5180
U	 0.6380	 0.3020
V	 0.5910	 0.2980
W	 0.5550	 0.3140
X	 0.4850	 0.3100
Y	 0.7470	 0.3590
Z	 0.6570	 0.3340
a	 0.6170	 0.2630
b	 0.5020	 0.2550
c	 0.6700	 0.3460
d	 0.4540	 0.2410
e	 0.5630	 0.3120
f	 0.3740	 0.2350
g	 0.8040	 0.4690
h	 0.7900	 0.4710



Continued on next page...

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Chain	Atom inclusion	Q-score
i	 0.7520	 0.4510
j	 0.7060	 0.4020
k	 0.7530	 0.4500
l	 0.8430	 0.4860
m	 0.8210	 0.4720
n	 0.8800	 0.5070
o	 0.8610	 0.5020
p	 0.8820	 0.5100
q	 0.8760	 0.5100
r	 0.8930	 0.5160
s	 0.8570	 0.5020
t	 0.8850	 0.5100
v	 0.2670	 0.2950