



Full wwPDB EM Validation Report ⓘ

Nov 18, 2024 – 06:50 PM JST

PDB ID : 8XQX
EMDB ID : EMD-38590
Title : Cryo-EM structure of the Ycf2-FtsHi motor complex from *Chlamydomonas reinhardtii* in apo state
Authors : Liang, K.; Zhan, X.; Wu, J.; Yan, Z.
Deposited on : 2024-01-05
Resolution : 2.80 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:

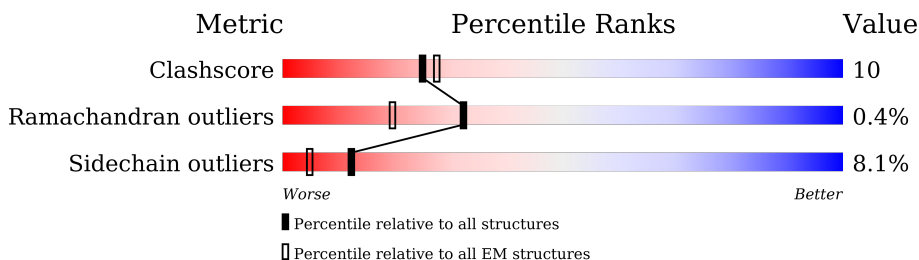
EMDB validation analysis : 0.0.1.dev113
Mogul : 1.8.5 (274361), CSD as541be (2020)
MolProbity : 4.02b-467
buster-report : 1.1.7 (2018)
Percentile statistics : 20231227.v01 (using entries in the PDB archive December 27th 2023)
MapQ : 1.9.13
Ideal geometry (proteins) : Engh & Huber (2001)
Ideal geometry (DNA, RNA) : Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP) : 2.39

1 Overall quality at a glance i

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

The reported resolution of this entry is 2.80 Å.

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



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

The table below summarises the geometric issues observed across the polymeric chains and their fit to the map. The red, orange, yellow and green segments of the bar indicate the fraction of residues that contain outliers for ≥ 3 , 2, 1 and 0 types of geometric quality criteria respectively. A grey segment represents the fraction of residues that are not modelled. The numeric value for each fraction is indicated below the corresponding segment, with a dot representing fractions $\leq 5\%$. 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	1182	
2	B	1112	
2	C	1112	
3	D	2971	
4	E	982	
5	F	1024	
6	G	495	
7	H	555	

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Mol	Chain	Length	Quality of chain
8	I	366	
9	J	117	
10	K	255	
11	L	303	
12	M	682	
13	N	137	
14	O	471	
15	P	691	
16	Q	365	
17	R	462	
18	S	324	
19	T	299	
20	U	156	
21	V	86	

2 Entry composition [i](#)

There are 29 unique types of molecules in this entry. The entry contains 73189 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 Fhl1.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
1	A	988	7627	4839	1342	1410	36	0	0

- Molecule 2 is a protein called Fhl3.

Mol	Chain	Residues	Atoms						AltConf	Trace
			Total	C	N	O	P	S		
2	B	751	5844	3675	1037	1094	3	35	0	0
2	C	690	5324	3359	949	985	31	0	0	

- Molecule 3 is a protein called Ycf2.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
3	D	1539	12719	8252	2175	2266	26	0	0

- Molecule 4 is a protein called Ctap1.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
4	E	868	6221	3881	1143	1183	14	0	0

- Molecule 5 is a protein called Ctap6.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
5	F	701	5333	3344	963	1007	19	0	0

- Molecule 6 is a protein called ARHL.

Mol	Chain	Residues	Atoms					AltConf	Trace
6	G	394	Total	C	N	O	S	0	0
			2931	1839	539	549	4		

- Molecule 7 is a protein called PcyA.

Mol	Chain	Residues	Atoms					AltConf	Trace
7	H	406	Total	C	N	O	S	0	0
			3246	2061	547	617	21		

- Molecule 8 is a protein called CrTam39.

Mol	Chain	Residues	Atoms					AltConf	Trace
8	I	272	Total	C	N	O	S	0	0
			2119	1336	394	374	15		

- Molecule 9 is a protein called ACP.

Mol	Chain	Residues	Atoms					AltConf	Trace	
9	J	85	Total	C	N	O	P	S	0	0
			651	404	101	141	1	4		

- Molecule 10 is a protein called CrTam29.

Mol	Chain	Residues	Atoms					AltConf	Trace
10	K	189	Total	C	N	O	S	0	0
			1567	1032	271	257	7		

- Molecule 11 is a protein called CrTam34.

Mol	Chain	Residues	Atoms					AltConf	Trace
11	L	151	Total	C	N	O	S	0	0
			1254	844	210	196	4		

- Molecule 12 is a protein called FADL.

Mol	Chain	Residues	Atoms					AltConf	Trace
12	M	390	Total	C	N	O	S	0	0
			3000	1958	510	516	16		

- Molecule 13 is a protein called CrTam15.

Mol	Chain	Residues	Atoms					AltConf	Trace
13	N	115	Total	C	N	O	S	0	0
			921	585	172	161	3		

- Molecule 14 is a protein called CrTam49.

Mol	Chain	Residues	Atoms					AltConf	Trace
14	O	318	Total	C	N	O	S	0	0
			1718	1044	335	337	2		

- Molecule 15 is a protein called Ctap7.

Mol	Chain	Residues	Atoms					AltConf	Trace
15	P	617	Total	C	N	O	S	0	0
			4510	2802	829	868	11		

- Molecule 16 is a protein called Tic22.

Mol	Chain	Residues	Atoms					AltConf	Trace
16	Q	262	Total	C	N	O	S	0	0
			2078	1316	365	388	9		

- Molecule 17 is a protein called DnaJ.

Mol	Chain	Residues	Atoms					AltConf	Trace	
17	R	401	Total	C	N	O	P	S	0	0
			3160	1981	571	585	2	21		

- Molecule 18 is a protein called CrTam35.

Mol	Chain	Residues	Atoms					AltConf	Trace	
18	S	117	Total	C	N	O	P	S	0	0
			951	588	169	190	3	1		

- Molecule 19 is a protein called CrTam31.

Mol	Chain	Residues	Atoms					AltConf	Trace	
19	T	110	Total	C	N	O	P	S	0	0
			868	535	147	182	2	2		

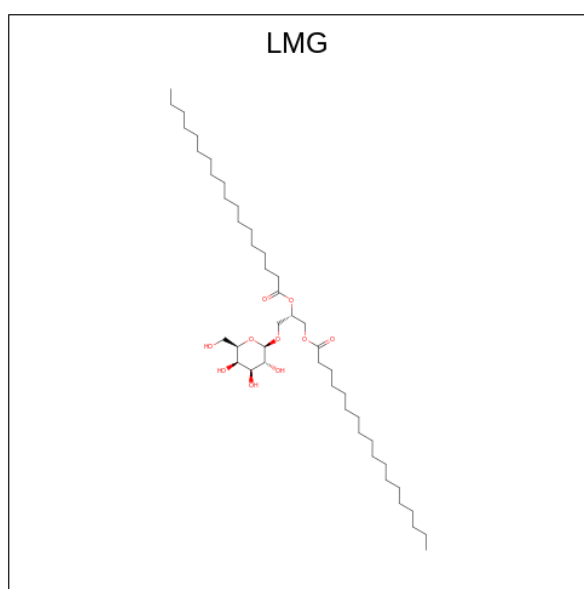
- Molecule 20 is a protein called UNK.

Mol	Chain	Residues	Atoms				AltConf	Trace
			Total	C	N	O		
20	U	36	188	115	36	37	1	0

- Molecule 21 is a protein called UNK.

Mol	Chain	Residues	Atoms				AltConf	Trace
			Total	C	N	O		
21	V	68	340	204	68	68	0	0

- Molecule 22 is 1,2-DISTEAROYL-MONOGALACTOSYL-DIGLYCERIDE (three-letter code: LMG) (formula: $C_{45}H_{86}O_{10}$).

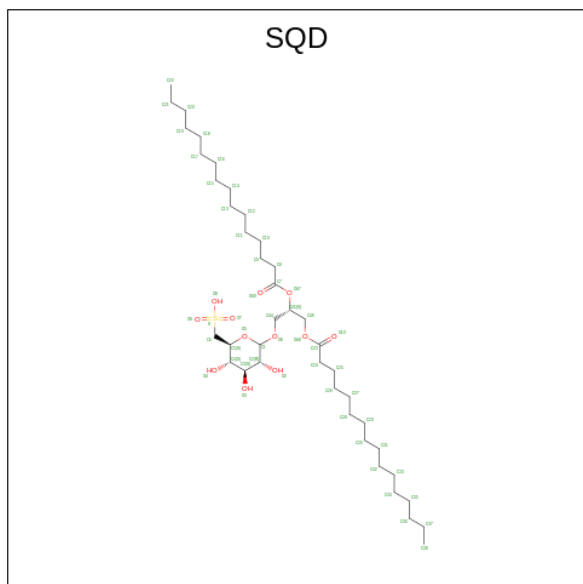


Mol	Chain	Residues	Atoms			AltConf
			Total	C	O	
22	A	1	46	36	10	0
22	C	1	25	20	5	0
22	I	1	32	22	10	0
22	K	1	41	31	10	0
22	M	1	48	38	10	0

- Molecule 23 is MAGNESIUM ION (three-letter code: MG) (formula: Mg).

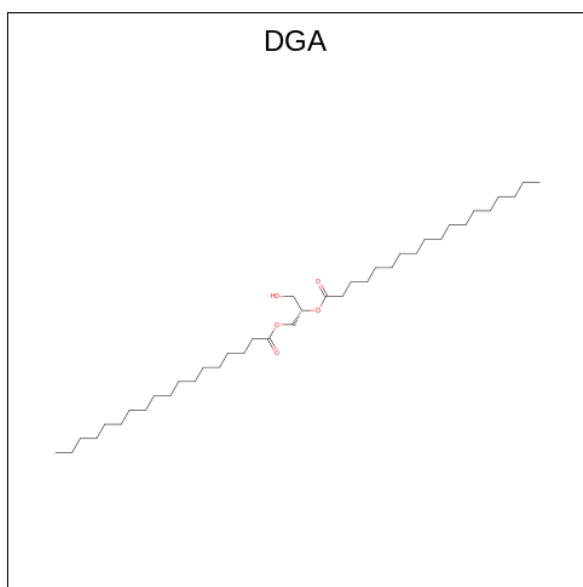
Mol	Chain	Residues	Atoms		AltConf
23	A	1	Total	Mg	0
			1	1	

- Molecule 24 is 1,2-DI-O-ACYL-3-O-[6-DEOXY-6-SULFO-ALPHA-D-GLUCOPYRANOSYL]-SN-GLYCEROL (three-letter code: SQD) (formula: $C_{41}H_{78}O_{12}S$).



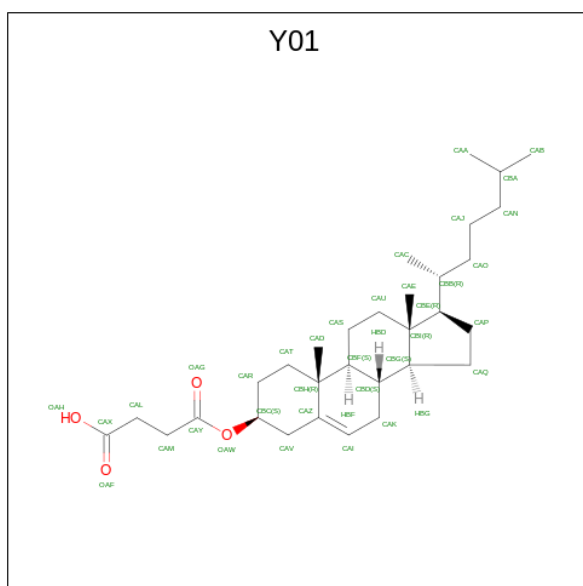
Mol	Chain	Residues	Atoms				AltConf
24	B	1	Total	C	O	S	0
			46	33	12	1	
24	I	1	Total	C	O	S	0
			49	36	12	1	
24	K	1	Total	C	O	S	0
			45	32	12	1	

- Molecule 25 is DIACYL GLYCEROL (three-letter code: DGA) (formula: $C_{39}H_{76}O_5$).



Mol	Chain	Residues	Atoms			AltConf
25	D	1	Total	C	O	0
			39	34	5	
25	L	1	Total	C	O	0
			34	29	5	

- Molecule 26 is CHOLESTEROL HEMISUCCINATE (three-letter code: Y01) (formula: $C_{31}H_{50}O_4$).



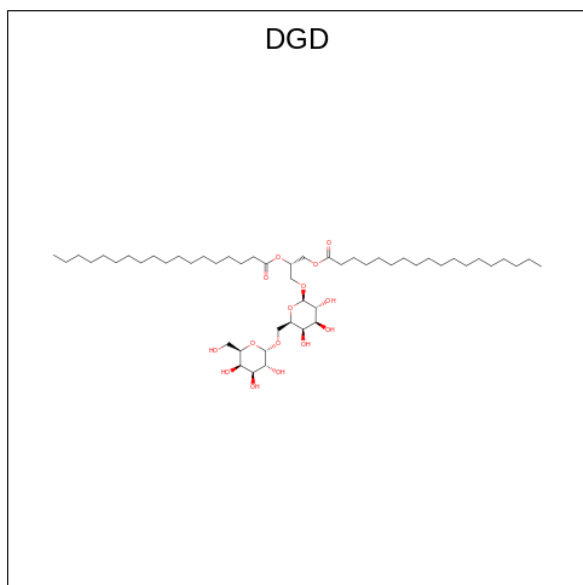
Mol	Chain	Residues	Atoms			AltConf
26	D	1	Total	C	O	0
			35	31	4	

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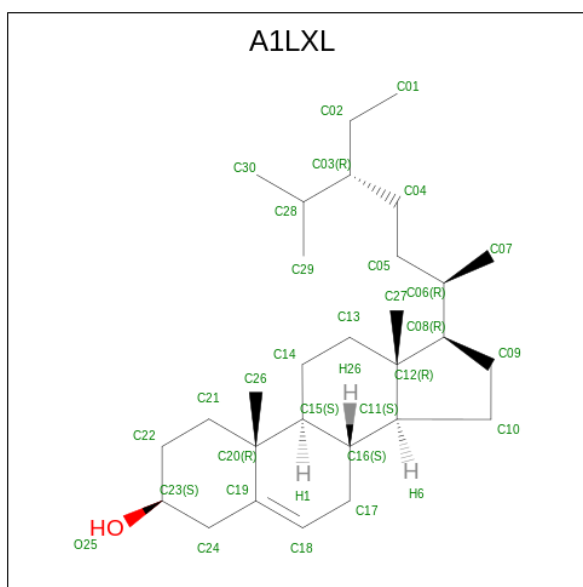
Mol	Chain	Residues	Atoms			AltConf
			Total	C	O	
26	M	1	35	31	4	0

- Molecule 27 is DIGALACTOSYL DIACYL GLYCEROL (DGDG) (three-letter code: DGD) (formula: $C_{51}H_{96}O_{15}$).



Mol	Chain	Residues	Atoms			AltConf
			Total	C	O	
27	I	1	40	25	15	0
27	N	1	41	26	15	0

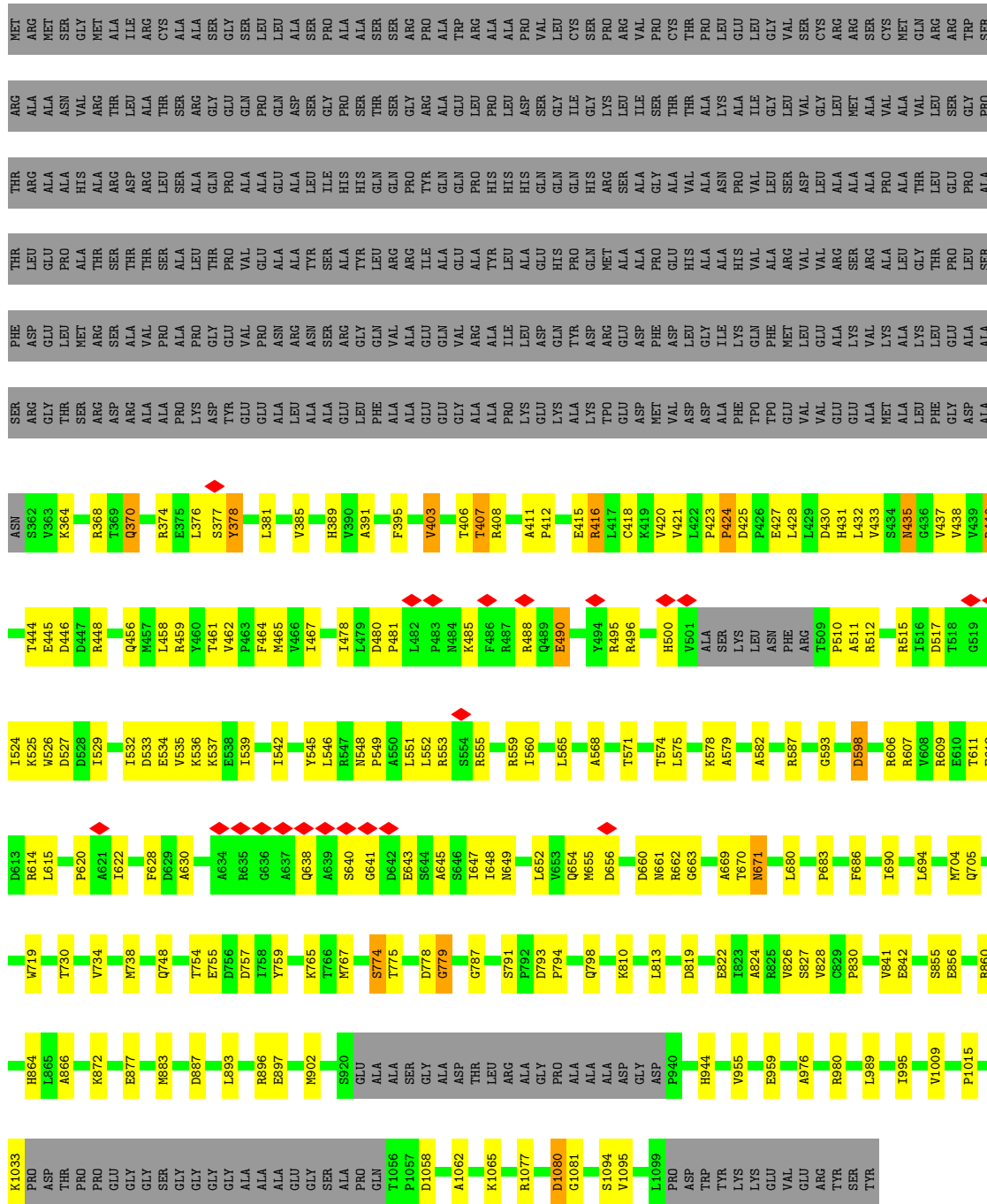
- Molecule 28 is Beta-Sitosterol (three-letter code: A1LXL) (formula: $C_{29}H_{50}O$).



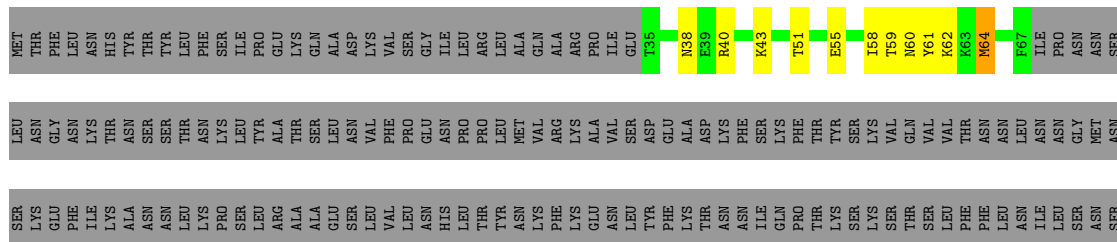
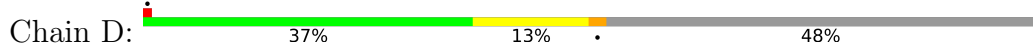
Mol	Chain	Residues	Atoms		AltConf
28	P	1	Total	C O	0
			30	29 1	
28	P	1	Total	C O	0
			30	29 1	

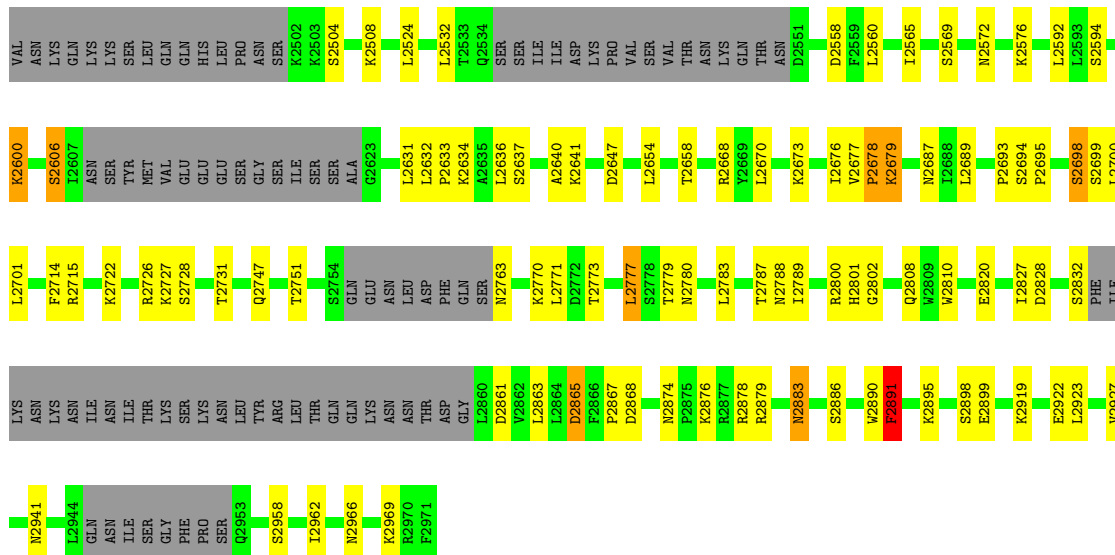
- Molecule 29 is ZINC ION (three-letter code: ZN) (formula: Zn).

Mol	Chain	Residues	Atoms		AltConf
29	R	2	Total	Zn	0
			2	2	

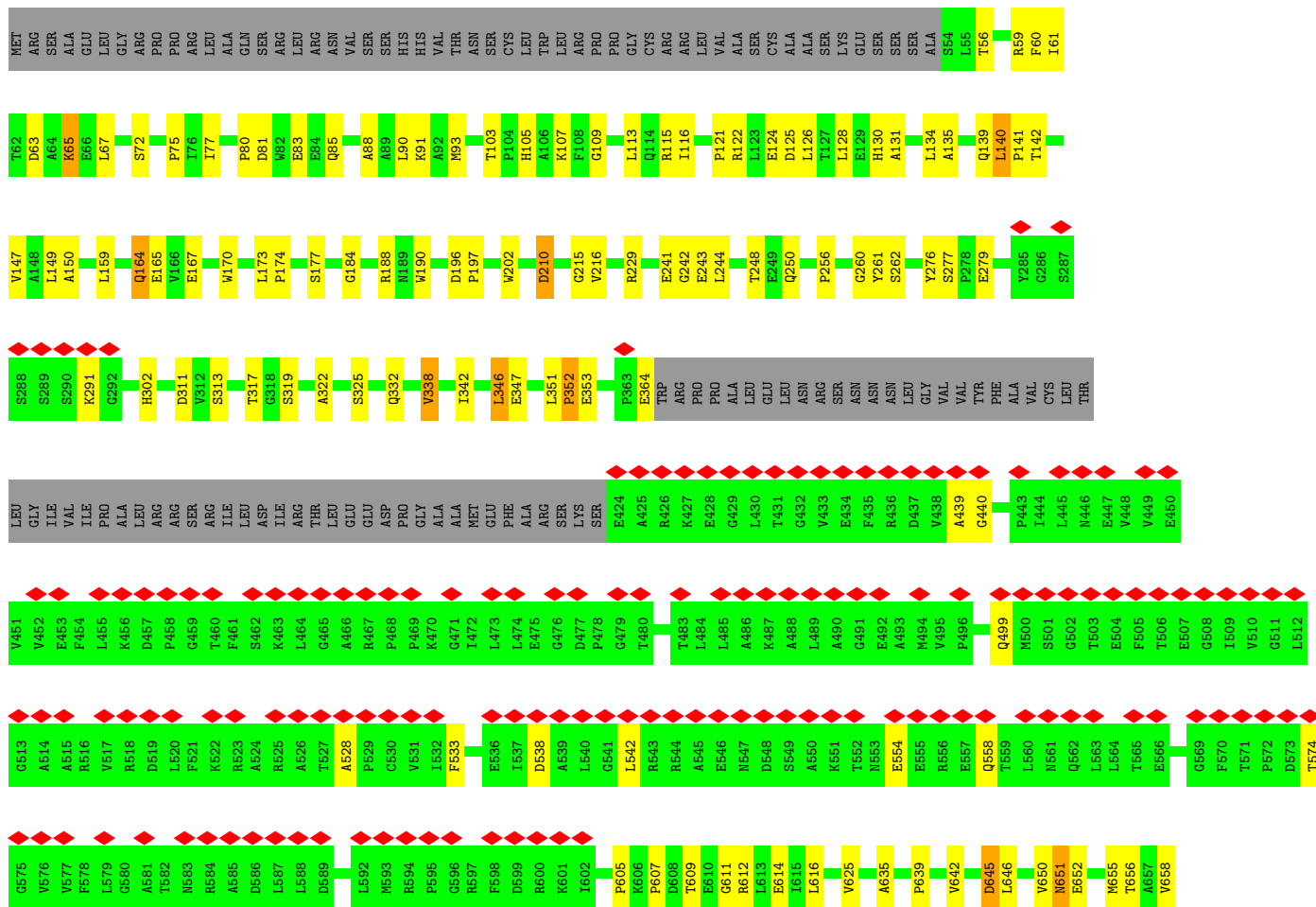


● Molecule 3: Ycf2



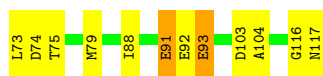
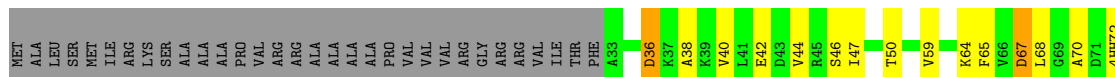


Molecule 4: Ctap1

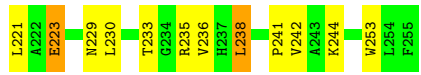
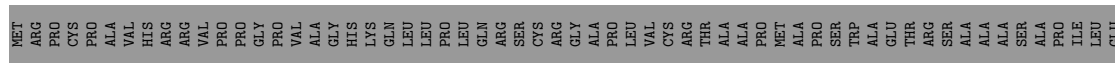




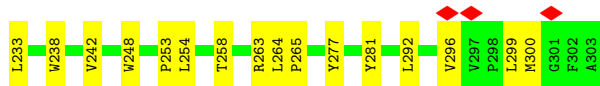
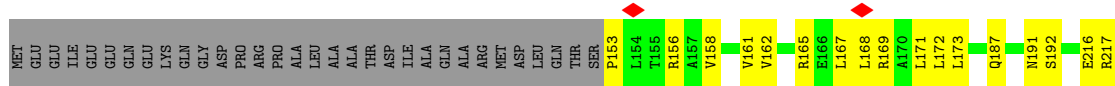
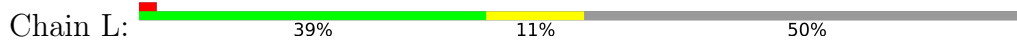
• Molecule 9: ACP



• Molecule 10: CrTam29

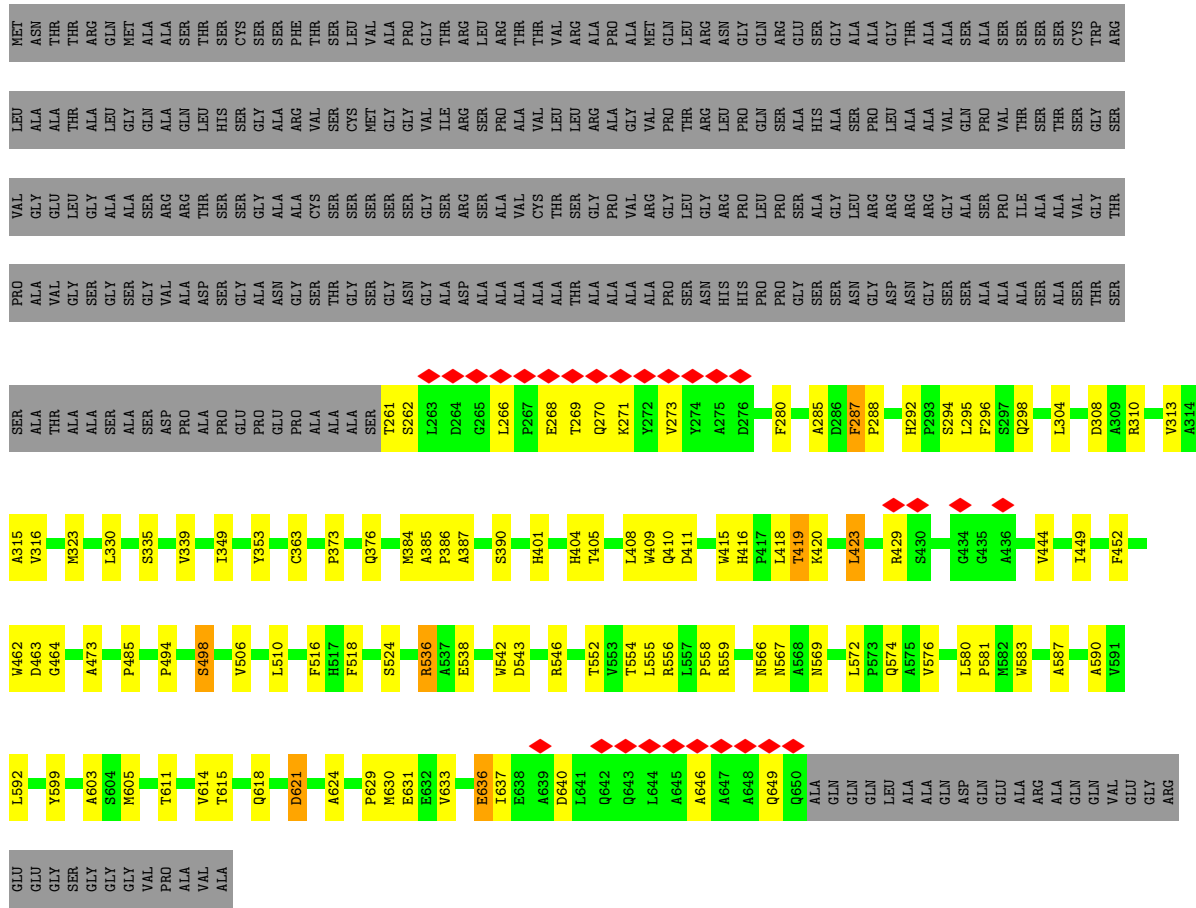


• Molecule 11: CrTam34

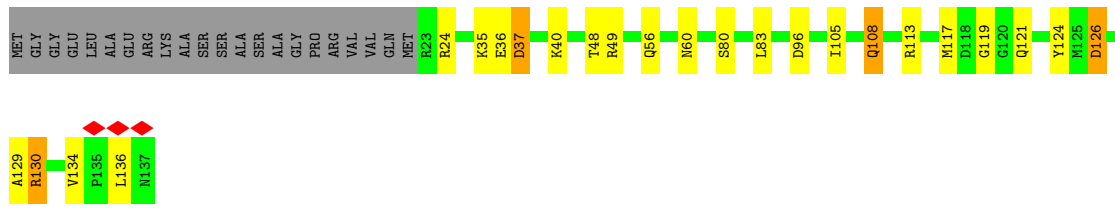


• Molecule 12: FADL

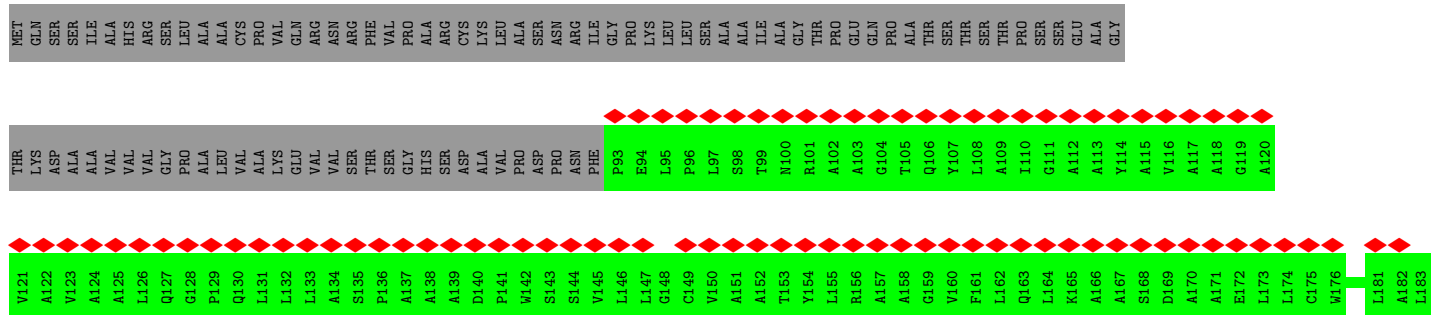


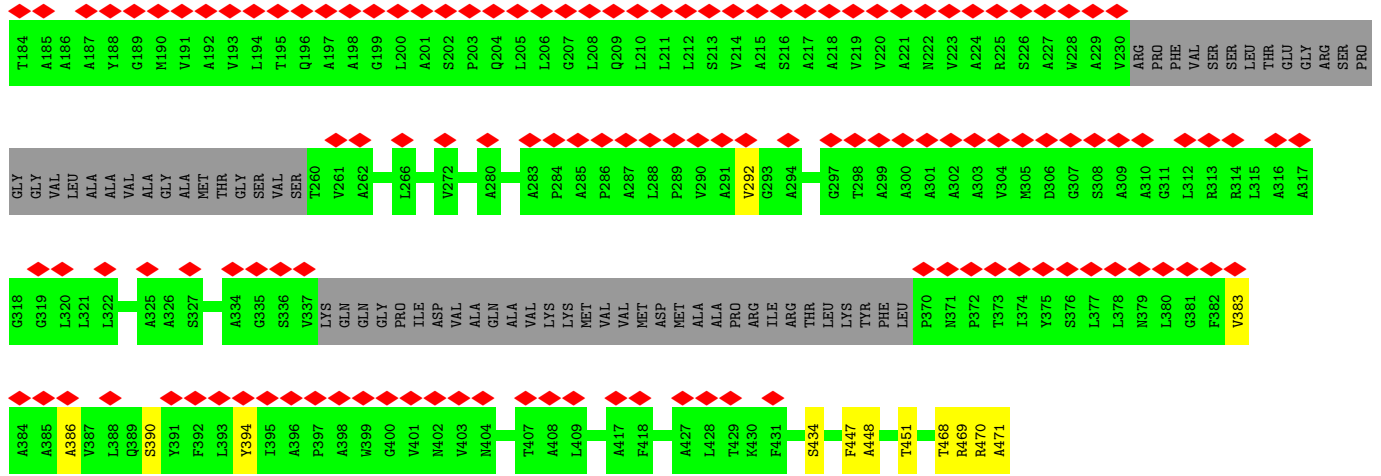


• Molecule 13: CrTam15

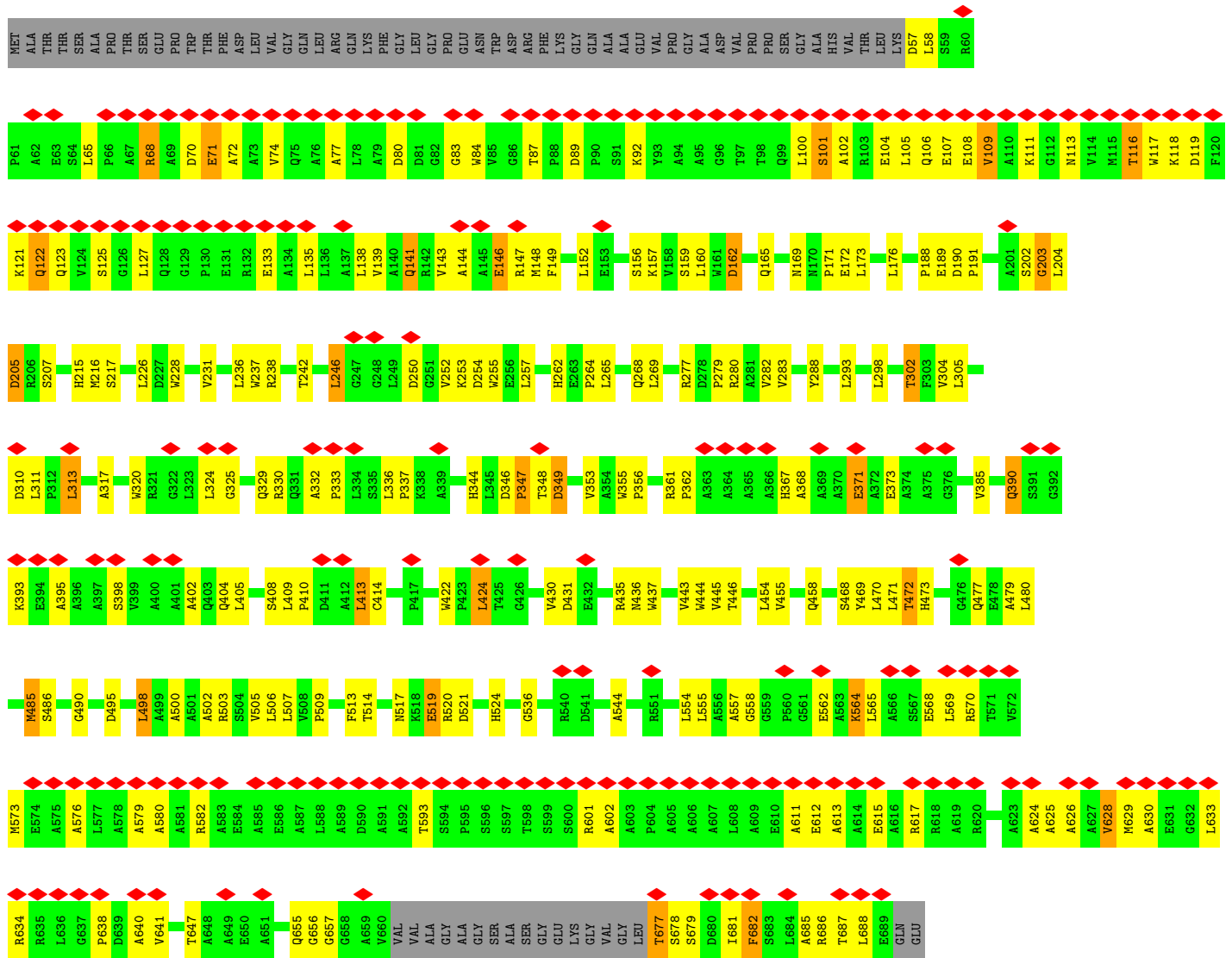


• Molecule 14: CrTam49

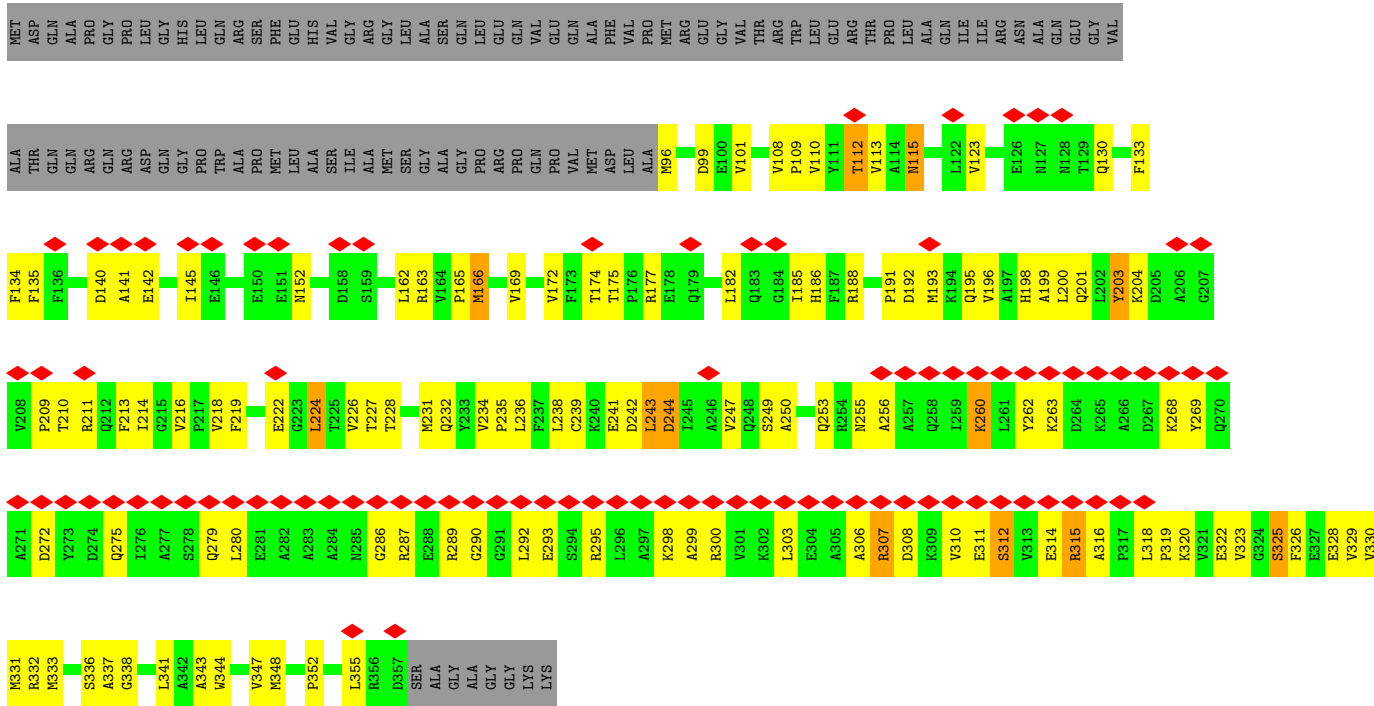




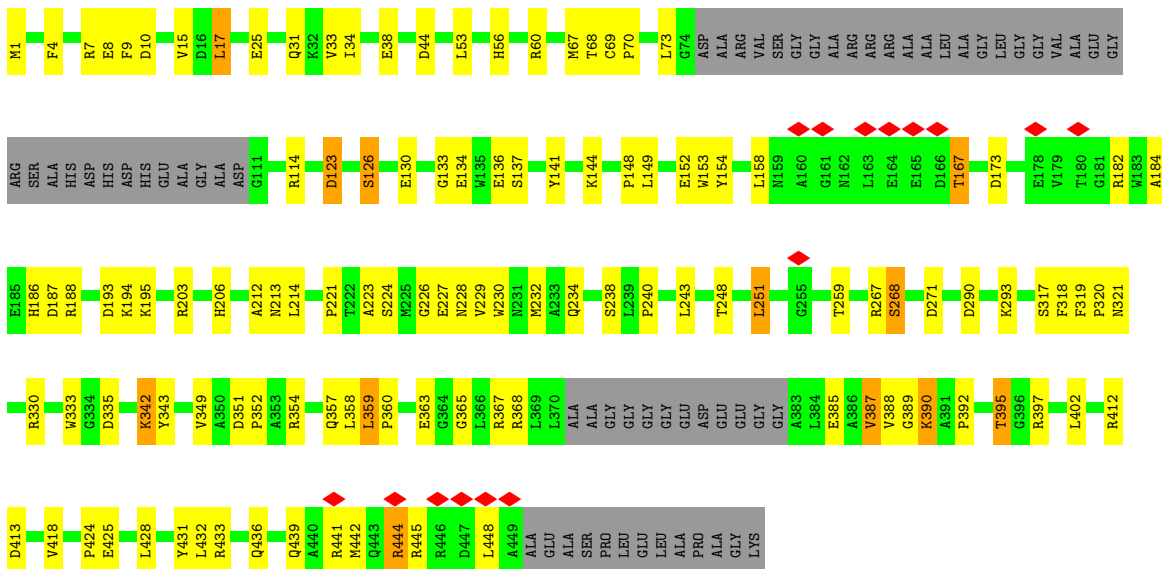
• Molecule 15: Ctap7



Molecule 16: Tic22



Molecule 17: DnaJ



Molecule 18: CrTam35





4 Experimental information

Property	Value	Source
EM reconstruction method	SINGLE PARTICLE	Depositor
Imposed symmetry	POINT, Not provided	
Number of particles used	461334	Depositor
Resolution determination method	FSC 0.143 CUT-OFF	Depositor
CTF correction method	PHASE FLIPPING AND AMPLITUDE CORRECTION	Depositor
Microscope	TFS KRIOS	Depositor
Voltage (kV)	300	Depositor
Electron dose ($e^-/\text{\AA}^2$)	50	Depositor
Minimum defocus (nm)	1400	Depositor
Maximum defocus (nm)	2000	Depositor
Magnification	Not provided	
Image detector	GATAN K3 (6k x 4k)	Depositor
Maximum map value	5.356	Depositor
Minimum map value	-2.856	Depositor
Average map value	0.008	Depositor
Map value standard deviation	0.130	Depositor
Recommended contour level	0.35	Depositor
Map size (Å)	391.32, 391.32, 391.32	wwPDB
Map dimensions	360, 360, 360	wwPDB
Map angles (°)	90.0, 90.0, 90.0	wwPDB
Pixel spacing (Å)	1.087, 1.087, 1.087	Depositor

5 Model quality i

5.1 Standard geometry i

Bond lengths and bond angles in the following residue types are not validated in this section: DGA, MG, 4HH, LMG, Y01, A1LXL, ZN, SQD, DGD, SEP, TPO

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	0.38	0/7792	0.49	1/10575 (0.0%)
2	B	0.40	0/5925	0.53	0/8024
2	C	0.39	0/5432	0.50	0/7359
3	D	0.40	0/12978	0.53	8/17507 (0.0%)
4	E	0.39	0/6350	0.50	0/8655
5	F	0.37	0/5432	0.49	0/7366
6	G	0.36	0/2999	0.52	0/4087
7	H	0.45	0/3324	0.48	0/4515
8	I	0.41	0/2177	0.48	0/2958
9	J	0.34	0/625	0.48	0/839
10	K	0.42	0/1627	0.48	0/2223
11	L	0.40	0/1303	0.47	0/1786
12	M	0.30	0/3103	0.47	0/4258
13	N	0.34	0/945	0.45	0/1280
14	O	0.26	0/1731	0.43	0/2391
15	P	0.28	0/4601	0.52	1/6273 (0.0%)
16	Q	0.29	0/2115	0.49	0/2857
17	R	0.34	0/3224	0.49	1/4379 (0.0%)
18	S	0.27	0/936	0.44	0/1267
19	T	0.29	0/862	0.49	0/1164
20	U	0.31	0/45	0.51	0/58
All	All	0.37	0/73526	0.50	11/99821 (0.0%)

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

Mol	Chain	#Chirality outliers	#Planarity outliers
3	D	0	2
4	E	0	1

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Mol	Chain	#Chirality outliers	#Planarity outliers
6	G	0	2
All	All	0	5

There are no bond length outliers.

All (11) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
3	D	2678	PRO	N-CD-CG	-9.34	89.18	103.20
3	D	2678	PRO	N-CA-CB	-9.12	92.36	103.30
3	D	2891	PHE	CA-CB-CG	-7.84	95.08	113.90
3	D	2867	PRO	N-CA-CB	-7.16	94.71	103.30
3	D	2891	PHE	CB-CA-C	6.93	124.27	110.40
3	D	971	PRO	N-CA-C	-5.87	96.84	112.10
3	D	971	PRO	N-CA-CB	-5.85	96.17	102.60
1	A	1163	PRO	N-CA-CB	5.64	110.07	103.30
17	R	251	LEU	CA-CB-CG	5.38	127.67	115.30
3	D	2891	PHE	N-CA-CB	5.27	120.09	110.60
15	P	349	ASP	CB-CG-OD2	5.22	123.00	118.30

There are no chirality outliers.

All (5) planarity outliers are listed below:

Mol	Chain	Res	Type	Group
3	D	962	ARG	Sidechain
3	D	979	ARG	Sidechain
4	E	676	ARG	Sidechain
6	G	257	ARG	Sidechain
6	G	265	ARG	Sidechain

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	7627	0	7581	138	0
2	B	5844	0	5784	162	0
2	C	5324	0	5301	138	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
3	D	12719	0	13029	304	0
4	E	6221	0	5650	109	0
5	F	5333	0	5318	122	0
6	G	2931	0	2867	66	0
7	H	3246	0	3152	58	0
8	I	2119	0	2069	39	0
9	J	651	0	657	17	0
10	K	1567	0	1558	21	0
11	L	1254	0	1246	21	0
12	M	3000	0	2945	60	0
13	N	921	0	917	19	0
14	O	1718	0	1100	9	0
15	P	4510	0	4451	173	0
16	Q	2078	0	2090	94	0
17	R	3160	0	2999	89	0
18	S	951	0	924	25	0
19	T	868	0	824	30	0
20	U	188	0	60	2	0
21	V	340	0	76	3	0
22	A	46	0	62	3	0
22	C	25	0	31	0	0
22	I	32	0	34	2	0
22	K	41	0	52	1	0
22	M	48	0	66	1	0
23	A	1	0	0	0	0
24	B	46	0	55	0	0
24	I	49	0	65	5	0
24	K	45	0	53	0	0
25	D	39	0	63	1	0
25	L	34	0	50	1	0
26	D	35	0	49	0	0
26	M	35	0	49	4	0
27	I	40	0	38	2	0
27	N	41	0	40	0	0
28	P	60	0	0	9	0
29	R	2	0	0	0	0
All	All	73189	0	71305	1482	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 10.

All (1482) 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)
2:B:760:ALA:O	2:B:763:GLU:HB2	1.68	0.94
16:Q:286:GLY:H	16:Q:289:ARG:HG2	1.31	0.93
15:P:472:THR:OG1	28:P:701:A1LXL:C17	2.22	0.88
3:D:881:LEU:HD11	3:D:990:LYS:HA	1.55	0.85
4:E:439:ALA:HB1	4:E:614:GLU:HG3	1.58	0.85
15:P:108:GLU:HB2	15:P:113:ASN:HB2	1.60	0.83
16:Q:200:LEU:HD11	16:Q:213:PHE:HB2	1.60	0.82
17:R:195:LYS:HB2	19:T:27:TYR:HE1	1.44	0.81
3:D:1993:LEU:HD11	3:D:2338:ILE:HG23	1.62	0.80
28:P:701:A1LXL:C09	28:P:702:A1LXL:C26	2.58	0.80
15:P:455:VAL:HG13	15:P:471:LEU:HB2	1.63	0.80
15:P:68:ARG:N	15:P:348:THR:HG21	1.97	0.79
4:E:347:GLU:HA	4:E:351:LEU:HB2	1.63	0.79
8:I:218:TRP:HE1	24:I:401:SQD:HO2	1.31	0.79
3:D:2572:ASN:HD22	3:D:2576:LYS:HG2	1.49	0.78
4:E:322:ALA:HB3	4:E:325:SER:HB3	1.66	0.76
11:L:168:LEU:HA	11:L:171:LEU:HD12	1.67	0.76
16:Q:177:ARG:HB3	16:Q:182:LEU:HD22	1.66	0.76
17:R:351:ASP:HB2	17:R:354:ARG:HH12	1.50	0.76
16:Q:227:THR:HA	16:Q:232:GLN:HA	1.67	0.76
4:E:134:LEU:HD11	4:E:149:LEU:HG	1.67	0.75
2:B:601:SER:HA	2:B:643:GLU:OE2	1.87	0.75
15:P:165:GLN:O	15:P:169:ASN:HB3	1.87	0.75
12:M:285:ALA:H	12:M:599:TYR:HA	1.52	0.75
7:H:92:ILE:HD11	12:M:288:PRO:HG2	1.68	0.74
2:C:641:GLY:O	2:C:645:ALA:HB3	1.86	0.74
6:G:364:LEU:O	6:G:368:ASN:ND2	2.20	0.74
16:Q:262:TYR:CZ	16:Q:307:ARG:HB3	2.22	0.74
16:Q:269:TYR:HE1	16:Q:299:ALA:HB1	1.53	0.74
15:P:557:ALA:HB3	16:Q:325:SER:H	1.51	0.74
2:B:498:MET:HG3	3:D:1811:ILE:HD11	1.68	0.74
15:P:138:LEU:O	15:P:141:GLN:NE2	2.21	0.73
3:D:59:THR:C	3:D:61:TYR:H	1.90	0.73
4:E:740:ARG:NH2	4:E:829:VAL:O	2.21	0.73
7:H:149:THR:OG1	7:H:150:GLY:N	2.22	0.73
7:H:341:ARG:NH1	7:H:356:CYS:SG	2.62	0.73
1:A:905:ARG:NH1	1:A:961:GLU:OE1	2.21	0.73
3:D:40:ARG:HA	3:D:43:LYS:HE3	1.71	0.72
3:D:947:ILE:HA	3:D:950:LYS:HD2	1.70	0.72
5:F:617:GLU:OE2	5:F:629:ARG:NH1	2.22	0.71
10:K:92:LYS:HG3	10:K:105:PRO:HG3	1.71	0.71
15:P:677:THR:OG1	15:P:678:SER:N	2.23	0.71

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:B:431:HIS:O	2:B:435:ASN:ND2	2.25	0.70
11:L:242:VAL:HG13	11:L:248:TRP:HB3	1.73	0.70
5:F:617:GLU:O	5:F:629:ARG:NH1	2.24	0.70
12:M:415:TRP:HE1	12:M:524:SER:HG	1.38	0.70
15:P:443:VAL:HG21	28:P:701:A1LXL:C01	2.21	0.70
2:B:610:GLU:OE2	13:N:113:ARG:NH1	2.25	0.70
3:D:566:LEU:HD12	15:P:268:GLN:HA	1.72	0.70
1:A:444:LYS:HA	1:A:451:MET:HB3	1.72	0.70
2:B:762:MET:SD	2:B:762:MET:N	2.65	0.70
3:D:2298:ASP:HA	3:D:2301:VAL:HG12	1.73	0.70
4:E:956:ALA:O	5:F:949:ARG:NH1	2.24	0.70
2:C:660:ASP:OD2	2:C:662:ARG:NH2	2.24	0.70
2:C:536:LYS:HA	2:C:539:ILE:HG12	1.72	0.70
5:F:206:ARG:O	5:F:215:ARG:NH2	2.24	0.69
2:C:748:GLN:HG3	10:K:113:ARG:HG2	1.72	0.69
2:B:494:TYR:N	2:B:497:GLU:OE2	2.25	0.69
4:E:241:GLU:HB2	4:E:261:TYR:CZ	2.28	0.69
3:D:2124:ARG:O	4:E:827:ARG:NH2	2.25	0.69
4:E:167:GLU:OE2	4:E:170:TRP:NE1	2.23	0.69
6:G:250:TYR:C	6:G:252:ALA:H	1.96	0.69
2:C:376:LEU:HB2	2:C:420:VAL:HG22	1.75	0.69
15:P:100:LEU:HD13	15:P:105:LEU:HD13	1.75	0.69
7:H:449:LYS:H	7:H:449:LYS:HD3	1.57	0.69
12:M:555:LEU:O	12:M:569:ASN:ND2	2.26	0.69
2:B:245:MET:HE2	18:S:126:LEU:HD11	1.74	0.68
2:C:810:LYS:NZ	2:C:887:ASP:OD2	2.26	0.68
3:D:1308:ASN:ND2	3:D:1318:SER:OG	2.26	0.68
3:D:560:ILE:HD11	15:P:298:LEU:HD11	1.75	0.68
3:D:904:LYS:NZ	18:S:106:ALA:O	2.26	0.68
5:F:991:ARG:NH1	5:F:998:GLU:OE1	2.27	0.68
7:H:440:SER:OG	7:H:441:GLN:OE1	2.12	0.68
1:A:325:SER:OG	1:A:327:GLN:NE2	2.26	0.68
1:A:693:LEU:HG	1:A:694:PRO:HD3	1.76	0.68
2:B:510:PRO:HD3	2:B:607:ARG:HE	1.59	0.68
3:D:750:PRO:HG3	15:P:215:HIS:CE1	2.29	0.68
3:D:2059:VAL:HG21	3:D:2293:LEU:HG	1.76	0.68
5:F:825:ALA:HB3	5:F:866:GLU:HG3	1.75	0.68
6:G:182:ARG:HG2	6:G:491:LEU:HD13	1.76	0.68
12:M:558:PRO:HD3	12:M:605:MET:SD	2.34	0.68
3:D:550:LYS:HB2	15:P:353:VAL:HG21	1.75	0.67
15:P:554:LEU:HD21	15:P:562:GLU:HG2	1.77	0.67

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
3:D:1328:SER:O	3:D:1330:TRP:N	2.27	0.67
3:D:2376:MET:HB2	12:M:473:ALA:HB1	1.76	0.67
5:F:70:LEU:HD22	5:F:71:PRO:HD2	1.76	0.67
4:E:135:ALA:HB1	4:E:139:GLN:HG2	1.76	0.67
1:A:380:ARG:NH1	2:B:478:ILE:O	2.24	0.67
4:E:131:ALA:HA	4:E:149:LEU:O	1.95	0.67
8:I:218:TRP:NE1	24:I:401:SQD:O2	2.23	0.67
12:M:420:LYS:HA	12:M:423:LEU:HD23	1.75	0.67
16:Q:307:ARG:NH1	16:Q:308:ASP:OD1	2.28	0.67
2:C:511:ALA:HB2	2:C:611:THR:HG22	1.77	0.67
3:D:988:ARG:NH1	17:R:212:ALA:O	2.26	0.67
9:J:92:GLU:HB3	10:K:208:THR:HG23	1.77	0.67
15:P:562:GLU:HA	15:P:565:LEU:HG	1.75	0.67
15:P:557:ALA:HB2	16:Q:329:VAL:HG13	1.78	0.67
1:A:981:ILE:HD11	1:A:1066:LEU:HD21	1.77	0.66
6:G:477:GLU:HA	6:G:480:VAL:HG12	1.77	0.66
13:N:126:ASP:O	13:N:130:ARG:N	2.28	0.66
3:D:2600:LYS:NZ	3:D:2637:SER:OG	2.28	0.66
17:R:9:PHE:HB3	17:R:15:VAL:HG11	1.76	0.66
1:A:260:ASN:HA	17:R:413:ASP:HA	1.76	0.66
2:B:545:TYR:HB2	2:B:552:LEU:HD22	1.77	0.66
1:A:802:VAL:HG22	3:D:2789:ILE:HD13	1.78	0.66
19:T:31:SER:HA	19:T:34:TYR:HB3	1.78	0.66
8:I:248:LEU:HD12	12:M:494:PRO:HG3	1.78	0.65
18:S:48:GLU:OE1	18:S:51:ARG:NH1	2.29	0.65
2:C:412:PRO:O	2:C:416:ARG:NH1	2.28	0.65
4:E:242:GLY:H	4:E:260:GLY:HA3	1.62	0.65
15:P:202:SER:O	15:P:205:ASP:N	2.28	0.65
16:Q:112:THR:OG1	16:Q:113:VAL:N	2.25	0.65
16:Q:96:MET:N	16:Q:336:SER:O	2.29	0.65
3:D:2878:ARG:NH1	4:E:855:PRO:O	2.29	0.65
5:F:656:GLN:HA	5:F:701:ASP:HB3	1.78	0.65
16:Q:186:HIS:HB3	16:Q:188:ARG:HH11	1.62	0.65
17:R:213:ASN:OD1	17:R:214:LEU:N	2.30	0.65
2:C:391:ALA:HB2	2:C:408:ARG:HB3	1.78	0.65
3:D:743:ASN:OD1	15:P:458:GLN:NE2	2.30	0.65
15:P:165:GLN:O	15:P:169:ASN:CB	2.44	0.65
15:P:536:GLY:N	16:Q:348:MET:SD	2.70	0.65
2:B:257:ASN:O	2:B:258:ARG:NH1	2.25	0.65
4:E:141:PRO:O	4:E:142:THR:OG1	2.14	0.65
15:P:569:LEU:HD12	15:P:640:ALA:HB1	1.78	0.65

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:B:353:ALA:HB1	3:D:891:LEU:HD11	1.78	0.64
3:D:547:LEU:HD21	3:D:635:TYR:HE1	1.60	0.64
2:C:641:GLY:O	2:C:645:ALA:CB	2.46	0.64
18:S:109:GLU:HG2	18:S:113:ASP:HB2	1.79	0.64
4:E:80:PRO:HG2	4:E:85:GLN:HG2	1.80	0.64
2:B:892:ASN:HD22	2:B:896:ARG:HH12	1.44	0.64
3:D:816:TYR:O	3:D:820:ASN:ND2	2.31	0.64
16:Q:123:VAL:HA	20:U:151:UNK:HA	1.78	0.64
16:Q:201:GLN:HA	16:Q:204:LYS:HZ3	1.61	0.64
1:A:573:ASP:HB3	1:A:576:SER:HB3	1.80	0.64
15:P:557:ALA:HB1	16:Q:328:GLU:HB3	1.80	0.64
16:Q:306:ALA:O	16:Q:310:VAL:HG23	1.98	0.64
1:A:296:ASP:OD2	17:R:293:LYS:NZ	2.30	0.63
5:F:245:GLY:HA3	19:T:114:LYS:HD3	1.80	0.63
17:R:243:LEU:O	17:R:267:ARG:NH1	2.31	0.63
19:T:20:GLU:HG2	19:T:24:GLY:HA2	1.79	0.63
2:C:855:SER:HB2	2:C:1015:PRO:HG2	1.80	0.63
3:D:1126:ASN:ND2	3:D:1129:ASP:OD1	2.30	0.63
2:B:267:GLN:OE1	3:D:1251:ARG:NH1	2.31	0.63
3:D:1372:ASN:OD1	3:D:1392:GLN:NE2	2.30	0.63
5:F:573:LYS:H	5:F:573:LYS:HD3	1.63	0.63
15:P:485:MET:SD	15:P:486:SER:OG	2.56	0.63
3:D:2033:ASN:HD22	3:D:2317:THR:HB	1.63	0.63
5:F:70:LEU:HD23	19:T:101:LEU:HD11	1.81	0.63
16:Q:312:SER:O	16:Q:316:ALA:N	2.32	0.63
17:R:144:LYS:HE2	17:R:214:LEU:HD23	1.79	0.63
2:B:761:ALA:O	2:B:764:ASN:ND2	2.32	0.63
3:D:348:THR:HG23	3:D:1374:LYS:HB3	1.81	0.63
11:L:254:LEU:O	11:L:258:THR:HG23	1.98	0.63
2:B:369:THR:O	2:B:373:LEU:HB2	1.99	0.63
2:B:510:PRO:HG2	2:B:596:PHE:CZ	2.34	0.63
3:D:736:ASN:O	28:P:701:A1LXL:C26	2.47	0.63
3:D:2678:PRO:HG2	3:D:2891:PHE:CE2	2.34	0.63
5:F:569:ARG:HG3	5:F:570:THR:HG23	1.81	0.63
12:M:462:TRP:O	12:M:464:GLY:N	2.32	0.62
2:C:374:ARG:HH12	2:C:376:LEU:HD21	1.62	0.62
2:C:490:GLU:OE1	2:C:512:ARG:NH2	2.32	0.62
5:F:232:VAL:HG11	5:F:259:TYR:HB3	1.80	0.62
15:P:279:PRO:HB3	15:P:507:LEU:HD11	1.81	0.62
6:G:351:ASP:OD1	6:G:352:VAL:N	2.33	0.62
18:S:77:ILE:HD12	18:S:77:ILE:H	1.64	0.62

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
3:D:1364:ASN:ND2	17:R:317:SER:OG	2.32	0.62
17:R:424:PRO:O	17:R:433:ARG:NH2	2.32	0.62
3:D:566:LEU:HD22	15:P:656:GLY:HA2	1.80	0.62
16:Q:260:LYS:HA	16:Q:263:LYS:HD3	1.81	0.62
11:L:187:GLN:O	11:L:191:ASN:ND2	2.33	0.62
5:F:809:PHE:O	5:F:813:GLU:HG2	2.00	0.62
10:K:212:ARG:NH2	10:K:218:ASN:OD1	2.32	0.62
1:A:322:ASP:OD2	1:A:325:SER:HB3	2.00	0.62
13:N:113:ARG:HE	14:O:470:ARG:HH12	1.48	0.62
15:P:171:PRO:HB2	18:S:130:LEU:HD13	1.81	0.62
2:B:508:ARG:NH2	3:D:1781:ASP:OD1	2.33	0.61
3:D:473:ASN:HA	3:D:476:LEU:HB2	1.81	0.61
4:E:840:ASP:O	5:F:892:GLN:NE2	2.31	0.61
6:G:473:GLU:OE1	6:G:476:ARG:NH2	2.32	0.61
15:P:101:SER:OG	15:P:102:ALA:N	2.33	0.61
15:P:424:LEU:HD12	15:P:430:VAL:HG21	1.82	0.61
2:B:598:ASP:HB3	2:B:600:TYR:CE1	2.35	0.61
3:D:739:LYS:HA	15:P:469:TYR:HA	1.82	0.61
4:E:65:LYS:NZ	19:T:121:THR:O	2.32	0.61
15:P:346:ASP:O	15:P:349:ASP:N	2.31	0.61
3:D:1363:ILE:HG21	17:R:317:SER:HB2	1.83	0.61
2:B:528:ASP:O	2:B:530:ASN:ND2	2.33	0.61
3:D:951:ARG:HH22	17:R:167:TPO:HB	1.66	0.61
17:R:385:GLU:HA	17:R:389:GLY:HA2	1.82	0.61
1:A:782:THR:O	1:A:793:ASP:N	2.34	0.61
2:B:251:ALA:HB3	2:B:254:GLU:HG2	1.82	0.61
12:M:633:VAL:O	12:M:637:ILE:HG13	2.00	0.61
16:Q:320:LYS:NZ	16:Q:322:GLU:OE1	2.31	0.61
1:A:144:THR:O	1:A:161:TRP:NE1	2.29	0.61
3:D:756:LYS:HE3	15:P:520:ARG:HD3	1.83	0.61
3:D:2699:SER:OG	3:D:2699:SER:O	2.13	0.61
4:E:93:MET:HB3	5:F:80:PRO:HG3	1.82	0.61
4:E:173:LEU:HD12	4:E:174:PRO:HD2	1.82	0.61
2:C:549:PRO:O	2:C:553:ARG:HB2	2.01	0.61
2:C:757:ASP:OD1	10:K:113:ARG:NH1	2.33	0.61
5:F:651:ASP:OD2	5:F:695:ASN:ND2	2.34	0.61
7:H:311:ARG:NH2	7:H:317:GLN:OE1	2.33	0.61
16:Q:308:ASP:O	16:Q:312:SER:HB3	2.00	0.61
1:A:851:PRO:HG2	1:A:1049:ILE:HG21	1.83	0.60
7:H:439:MET:HA	7:H:443:MET:HB2	1.83	0.60
6:G:182:ARG:HB3	6:G:491:LEU:HB2	1.83	0.60

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
6:G:328:CYS:HB2	6:G:452:LEU:HB2	1.83	0.60
15:P:119:ASP:O	15:P:123:GLN:HG2	2.01	0.60
1:A:137:LYS:HE3	1:A:138:GLN:HG3	1.84	0.60
2:B:536:LYS:O	2:B:540:ASN:ND2	2.33	0.60
3:D:2454:LYS:HD3	7:H:480:MET:HG3	1.83	0.60
3:D:2800:ARG:O	3:D:2802:GLY:N	2.34	0.60
2:C:428:LEU:O	2:C:432:LEU:HD12	2.02	0.60
3:D:449:LEU:HA	3:D:452:ILE:HG22	1.84	0.60
15:P:517:ASN:ND2	15:P:519:GLU:OE2	2.34	0.60
1:A:911:ARG:NE	1:A:949:GLU:OE2	2.30	0.60
2:B:535:VAL:HG12	2:B:690:ILE:HG22	1.81	0.60
6:G:134:ARG:NH2	6:G:400:HIS:O	2.34	0.60
17:R:365:GLY:HA2	17:R:368:ARG:HB2	1.84	0.60
1:A:542:SER:O	1:A:546:ASN:ND2	2.35	0.60
3:D:59:THR:C	3:D:61:TYR:N	2.54	0.60
4:E:128:LEU:HD21	5:F:104:LEU:HD21	1.84	0.60
6:G:243:VAL:HG13	6:G:244:PRO:HD3	1.84	0.60
2:C:568:ALA:O	2:C:571:THR:OG1	2.20	0.60
3:D:970:PHE:N	3:D:971:PRO:HD3	2.16	0.60
18:S:68:VAL:O	18:S:72:TYR:N	2.35	0.60
2:B:199:TYR:O	2:B:203:LEU:HD12	2.02	0.59
7:H:175:ASP:OD1	7:H:175:ASP:N	2.35	0.59
17:R:442:MET:HA	17:R:445:ARG:HB2	1.83	0.59
16:Q:172:VAL:O	16:Q:175:THR:OG1	2.20	0.59
3:D:2055:ARG:NH2	3:D:2056:TYR:OH	2.34	0.59
7:H:89:PRO:HB3	12:M:288:PRO:HG3	1.83	0.59
15:P:580:ALA:HB2	15:P:625:ALA:HB2	1.82	0.59
3:D:2962:ILE:HG23	8:I:144:LEU:HD11	1.84	0.59
8:I:235:SER:HB2	8:I:243:PRO:HG2	1.83	0.59
8:I:294:HIS:NE2	27:I:403:DGD:O5E	2.34	0.59
11:L:217:ARG:NH2	13:N:96:ASP:OD1	2.36	0.59
15:P:633:LEU:HB3	15:P:641:VAL:HG12	1.85	0.59
1:A:855:SER:O	1:A:855:SER:OG	2.19	0.59
2:B:446:ASP:OD1	2:B:446:ASP:N	2.36	0.59
2:C:755:GLU:HG3	6:G:258:HIS:CD2	2.38	0.59
4:E:126:LEU:HA	5:F:104:LEU:HD23	1.85	0.59
4:E:751:ARG:NH1	4:E:793:TYR:OH	2.36	0.59
5:F:70:LEU:HD12	13:N:24:ARG:HG2	1.84	0.59
7:H:431:GLY:O	7:H:435:THR:OG1	2.20	0.59
15:P:630:ALA:O	15:P:634:ARG:HB2	2.02	0.59
2:C:705:GLN:O	2:C:709:ARG:NH1	2.36	0.59

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
7:H:96:VAL:HG12	12:M:295:LEU:HD11	1.85	0.59
2:C:525:LYS:HD3	2:C:527:ASP:H	1.66	0.59
3:D:621:HIS:HD2	15:P:57:ASP:HB3	1.65	0.59
4:E:655:MET:HA	4:E:658:VAL:HG12	1.84	0.59
4:E:439:ALA:HB1	4:E:614:GLU:CG	2.33	0.59
5:F:822:LEU:HD22	5:F:1011:ASP:HB3	1.85	0.59
2:B:635:ARG:NH1	3:D:2055:ARG:O	2.36	0.58
1:A:496:ILE:HB	1:A:625:VAL:HG23	1.85	0.58
1:A:948:GLY:HA2	1:A:951:LEU:HB2	1.85	0.58
3:D:557:LEU:HA	3:D:560:ILE:HD12	1.85	0.58
3:D:1224:SER:O	3:D:1228:ILE:HG13	2.02	0.58
6:G:311:THR:HG23	6:G:314:GLY:H	1.68	0.58
3:D:2152:ASP:O	3:D:2154:SER:N	2.36	0.58
7:H:413:CYS:SG	7:H:414:ASP:N	2.76	0.58
2:B:629:ASP:N	2:B:629:ASP:OD1	2.37	0.58
6:G:112:LYS:NZ	6:G:329:GLY:O	2.36	0.58
3:D:448:ASP:OD1	3:D:448:ASP:N	2.34	0.58
9:J:75:THR:O	9:J:79:MET:HG2	2.03	0.58
2:B:256:PRO:HB2	2:B:258:ARG:HH12	1.68	0.58
4:E:59:ARG:HH22	19:T:122:GLN:HE22	1.50	0.58
7:H:317:GLN:HB2	7:H:320:TYR:HD2	1.69	0.58
12:M:614:VAL:O	12:M:618:GLN:NE2	2.37	0.58
16:Q:109:PRO:HA	16:Q:165:PRO:HA	1.85	0.58
2:B:635:ARG:HD2	3:D:2055:ARG:HH11	1.68	0.58
16:Q:256:ALA:O	16:Q:260:LYS:HD2	2.03	0.58
3:D:2330:ARG:HD3	3:D:2333:ARG:HH21	1.68	0.58
5:F:234:THR:HG23	19:T:99:ARG:HG3	1.86	0.58
12:M:621:ASP:OD1	12:M:624:ALA:N	2.37	0.58
3:D:977:ARG:HD3	17:R:153:TRP:CD1	2.39	0.57
6:G:111:ASP:HA	6:G:114:VAL:HG12	1.86	0.57
1:A:364:GLY:O	1:A:367:GLU:HG3	2.05	0.57
2:C:430:ASP:OD1	2:C:430:ASP:N	2.36	0.57
2:C:593:GLY:HA3	2:C:630:ALA:HB3	1.86	0.57
4:E:727:GLN:O	4:E:735:ARG:NH2	2.30	0.57
12:M:574:GLN:NE2	12:M:580:LEU:O	2.29	0.57
2:B:1002:HIS:O	2:B:1006:SER:OG	2.22	0.57
12:M:462:TRP:HH2	12:M:485:PRO:HB2	1.69	0.57
15:P:203:GLY:O	15:P:207:SER:OG	2.21	0.57
2:B:679:ALA:O	2:B:685:ARG:NH1	2.37	0.57
2:B:757:ASP:O	2:B:760:ALA:HB3	2.04	0.57
3:D:545:SER:HB3	15:P:226:LEU:HA	1.86	0.57

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
3:D:784:HIS:HE1	17:R:60:ARG:NH1	2.02	0.57
9:J:91:GLU:OE2	9:J:92:GLU:N	2.38	0.57
12:M:611:THR:O	12:M:615:THR:OG1	2.22	0.57
16:Q:280:LEU:HD21	16:Q:293:GLU:HB2	1.86	0.57
5:F:84:LYS:NZ	5:F:92:GLY:O	2.35	0.57
3:D:2865:ASP:OD1	3:D:2865:ASP:N	2.36	0.57
11:L:258:THR:HG22	11:L:264:LEU:HA	1.85	0.57
13:N:105:ILE:O	13:N:108:GLN:NE2	2.37	0.57
19:T:50:ASP:HB2	19:T:53:GLU:HG2	1.85	0.57
2:B:217:MET:SD	2:B:222:HIS:NE2	2.78	0.57
5:F:584:GLY:HA3	5:F:710:PHE:HA	1.86	0.57
18:S:68:VAL:HA	18:S:71:ARG:HB2	1.87	0.57
2:C:425:ASP:OD1	2:C:427:GLU:HG2	2.05	0.57
2:C:822:GLU:HB2	2:C:841:VAL:HG13	1.87	0.57
2:C:1062:ALA:N	7:H:223:GLU:OE2	2.38	0.57
4:E:722:GLU:OE1	4:E:723:ARG:NH1	2.37	0.57
15:P:320:TRP:CH2	28:P:701:A1LXL:C02	2.87	0.57
16:Q:193:MET:HA	16:Q:196:VAL:HG12	1.86	0.57
1:A:647:LYS:NZ	5:F:578:GLY:O	2.32	0.56
2:C:485:LYS:HD2	2:C:488:ARG:HH22	1.70	0.56
5:F:745:SER:O	5:F:749:LEU:HB2	2.05	0.56
15:P:624:ALA:O	15:P:628:VAL:HG22	2.04	0.56
2:B:897:GLU:O	2:B:901:SER:HB2	2.05	0.56
2:B:906:ARG:NH1	2:C:1094:SER:OG	2.31	0.56
4:E:538:ASP:O	4:E:542:LEU:N	2.38	0.56
7:H:138:THR:HG22	7:H:143:LEU:HD21	1.87	0.56
10:K:125:MET:HA	10:K:129:THR:OG1	2.06	0.56
15:P:626:ALA:HB2	15:P:687:THR:HB	1.88	0.56
16:Q:307:ARG:HH21	16:Q:311:GLU:HG3	1.70	0.56
17:R:1:MET:N	17:R:25:GLU:OE1	2.35	0.56
1:A:1073:ARG:NH2	2:B:873:LEU:O	2.38	0.56
3:D:894:LEU:HD13	3:D:975:TRP:CZ3	2.40	0.56
5:F:684:GLU:OE1	5:F:685:GLN:N	2.34	0.56
12:M:308:ASP:OD1	12:M:583:TRP:NE1	2.39	0.56
2:C:645:ALA:O	2:C:649:ASN:ND2	2.39	0.56
3:D:2632:LEU:O	3:D:2634:LYS:N	2.39	0.56
16:Q:130:GLN:HB2	16:Q:185:ILE:HG13	1.87	0.56
1:A:390:THR:HG23	2:B:495:ARG:HE	1.71	0.56
6:G:221:ARG:NH2	6:G:471:GLU:OE1	2.38	0.56
3:D:813:TYR:O	3:D:817:VAL:HG22	2.05	0.56
5:F:266:ALA:HA	19:T:83:LYS:HD3	1.88	0.56

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
16:Q:262:TYR:OH	16:Q:303:LEU:HG	2.06	0.56
15:P:144:ALA:HB1	15:P:160:LEU:HB2	1.87	0.56
16:Q:198:HIS:O	16:Q:201:GLN:HG3	2.06	0.56
5:F:150:GLY:HA2	17:R:268:SER:HB3	1.88	0.55
12:M:315:ALA:O	12:M:566:ASN:ND2	2.30	0.55
8:I:144:LEU:H	8:I:144:LEU:HD22	1.71	0.55
10:K:112:ARG:HH12	10:K:114:GLU:HB2	1.69	0.55
13:N:56:GLN:NE2	13:N:60:ASN:OD1	2.39	0.55
13:N:119:GLY:HA3	17:R:8:GLU:HG2	1.88	0.55
4:E:121:PRO:O	4:E:122:ARG:NH1	2.39	0.55
4:E:612:ARG:NH1	4:E:635:ALA:O	2.39	0.55
15:P:361:ARG:HB3	15:P:362:PRO:HD3	1.87	0.55
1:A:740:PRO:HD2	1:A:760:ILE:HD11	1.89	0.55
7:H:481:GLU:OE2	7:H:484:ARG:NH2	2.39	0.55
10:K:229:ASN:OD1	10:K:235:ARG:NH2	2.40	0.55
5:F:574:PHE:HA	5:F:577:SER:HB3	1.87	0.55
10:K:233:THR:OG1	10:K:235:ARG:NE	2.38	0.55
12:M:296:PHE:HB2	12:M:576:VAL:HG21	1.88	0.55
4:E:184:GLY:O	4:E:188:ARG:NH1	2.39	0.55
5:F:184:GLU:HG2	5:F:185:PRO:HD2	1.89	0.55
15:P:118:LYS:HA	15:P:121:LYS:HB2	1.89	0.55
2:C:896:ARG:HH11	2:C:944:HIS:HD2	1.54	0.55
5:F:227:VAL:HG23	5:F:236:VAL:HB	1.88	0.55
5:F:554:ASN:HB2	5:F:557:ALA:HB3	1.87	0.55
15:P:337:PRO:HB3	15:P:385:VAL:HG23	1.89	0.55
16:Q:110:VAL:HG21	16:Q:134:PHE:HB3	1.89	0.55
19:T:77:ARG:HH12	19:T:81:ALA:HB2	1.71	0.55
3:D:1917:ILE:HD13	14:O:448:ALA:HB1	1.88	0.55
6:G:397:LEU:HD22	6:G:411:SER:HB2	1.89	0.55
11:L:169:ARG:NH2	21:V:13:UNK:O	2.39	0.55
15:P:84:TRP:NE1	15:P:100:LEU:HB2	2.22	0.55
15:P:149:PHE:CG	15:P:157:LYS:HB3	2.42	0.55
3:D:1781:ASP:O	3:D:1785:THR:HG23	2.06	0.55
1:A:493:LYS:HA	1:A:601:LEU:HD23	1.88	0.55
2:C:976:ALA:HB1	8:I:63:TRP:HB3	1.89	0.55
4:E:134:LEU:HB2	4:E:147:VAL:HG13	1.89	0.55
5:F:556:GLN:O	5:F:560:GLU:HG2	2.06	0.55
15:P:237:TRP:HA	15:P:253:LYS:HA	1.89	0.55
2:C:370:GLN:H	8:I:290:VAL:HG13	1.71	0.54
2:C:374:ARG:NH1	2:C:418:CYS:SG	2.80	0.54
3:D:2962:ILE:HD12	8:I:144:LEU:HD21	1.89	0.54

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
6:G:150:TRP:NE1	6:G:152:TYR:O	2.40	0.54
6:G:239:ASP:OD1	6:G:242:LYS:N	2.26	0.54
15:P:355:TRP:CD1	15:P:356:PRO:HD3	2.42	0.54
19:T:65:CYS:O	19:T:69:LYS:HG2	2.07	0.54
1:A:267:PRO:HA	1:A:278:TRP:CD2	2.42	0.54
1:A:329:ILE:HD13	2:B:238:PRO:HA	1.89	0.54
3:D:1415:GLN:OE1	3:D:1415:GLN:N	2.37	0.54
3:D:1417:ARG:NH1	3:D:1761:PRO:O	2.40	0.54
4:E:276:TYR:CD1	4:E:302:HIS:HB3	2.43	0.54
4:E:656:THR:O	4:E:660:SER:OG	2.24	0.54
24:I:401:SQD:H311	26:M:802:Y01:HAR1	1.89	0.54
15:P:89:ASP:HB3	15:P:92:LYS:HG2	1.89	0.54
2:B:977:ILE:HG13	2:B:978:ASN:ND2	2.22	0.54
2:C:385:VAL:O	2:C:435:ASN:ND2	2.40	0.54
5:F:608:VAL:HG12	5:F:609:ALA:H	1.72	0.54
16:Q:195:GLN:HE21	16:Q:239:CYS:HA	1.73	0.54
12:M:404:HIS:HD2	12:M:410:GLN:HB3	1.72	0.54
5:F:715:GLU:OE1	5:F:717:ARG:NE	2.39	0.54
12:M:580:LEU:HD12	12:M:581:PRO:HD2	1.90	0.54
15:P:367:HIS:HD2	15:P:611:ALA:HB1	1.72	0.54
16:Q:192:ASP:OD1	16:Q:192:ASP:N	2.39	0.54
1:A:481:ASP:N	1:A:481:ASP:OD1	2.40	0.54
1:A:583:LEU:HD11	1:A:616:LEU:HD21	1.87	0.54
2:B:260:SER:O	2:B:264:VAL:HG13	2.08	0.54
2:C:456:GLN:HE22	2:C:459:ARG:HH21	1.56	0.54
2:C:755:GLU:CG	6:G:258:HIS:CD2	2.90	0.54
3:D:738:THR:HG23	15:P:470:LEU:HB3	1.89	0.54
5:F:225:GLY:O	5:F:236:VAL:N	2.29	0.54
9:J:36:ASP:N	9:J:36:ASP:OD1	2.38	0.54
12:M:646:ALA:HA	12:M:649:GLN:OE1	2.07	0.54
17:R:368:ARG:O	17:R:368:ARG:NH2	2.41	0.54
2:C:628:PHE:HB3	2:C:670:THR:HB	1.90	0.54
2:C:652:LEU:O	2:C:656:ASP:N	2.41	0.54
3:D:969:PHE:HB2	3:D:971:PRO:HG3	1.89	0.54
4:E:346:LEU:O	4:E:351:LEU:N	2.40	0.54
6:G:250:TYR:C	6:G:252:ALA:N	2.61	0.54
16:Q:242:ASP:HB3	16:Q:355:LEU:HD23	1.90	0.54
16:Q:318:LEU:HD22	16:Q:319:PRO:HD2	1.90	0.54
3:D:1363:ILE:C	3:D:1365:SER:H	2.11	0.54
4:E:701:GLU:OE2	4:E:736:THR:OG1	2.21	0.54
11:L:172:LEU:HD12	11:L:173:LEU:HG	1.90	0.54

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:718:LYS:NZ	1:A:927:GLU:OE2	2.36	0.54
2:C:778:ASP:O	2:C:779:GLY:C	2.46	0.54
3:D:272:LYS:HE3	8:I:135:GLU:HG3	1.88	0.54
3:D:2827:ILE:HG13	3:D:2828:ASP:H	1.73	0.54
1:A:134:ASN:O	1:A:137:LYS:HG3	2.08	0.53
2:C:872:LYS:HG3	2:C:877:GLU:HG3	1.90	0.53
3:D:461:ASN:ND2	16:Q:174:THR:HG22	2.23	0.53
9:J:38:ALA:O	9:J:42:GLU:HG2	2.08	0.53
1:A:656:LEU:O	1:A:660:THR:HG22	2.07	0.53
2:B:526:TRP:CZ2	2:B:536:LYS:HG3	2.43	0.53
3:D:1696:LEU:HD23	13:N:83:LEU:HD21	1.90	0.53
16:Q:244:ASP:HA	16:Q:247:VAL:HB	1.89	0.53
3:D:1363:ILE:O	3:D:1365:SER:N	2.39	0.53
3:D:2262:GLU:OE2	3:D:2263:GLN:N	2.41	0.53
3:D:2727:LYS:HG3	3:D:2728:SER:O	2.08	0.53
3:D:2966:ASN:ND2	7:H:460:GLU:OE2	2.22	0.53
4:E:116:ILE:HG22	5:F:97:LEU:HD21	1.90	0.53
6:G:258:HIS:O	6:G:259:ALA:HB3	2.08	0.53
1:A:289:GLU:OE1	2:B:364:LYS:N	2.41	0.53
1:A:875:ARG:HB3	3:D:2185:ASN:HD21	1.74	0.53
2:B:601:SER:HA	2:B:643:GLU:CD	2.28	0.53
7:H:295:MET:HE2	7:H:300:VAL:HG22	1.90	0.53
11:L:299:LEU:HD21	15:P:246:LEU:HD23	1.90	0.53
2:B:222:HIS:HB3	2:B:225:HIS:HB3	1.90	0.53
2:B:498:MET:HA	2:B:501:VAL:HG22	1.91	0.53
2:C:793:ASP:HB2	2:C:794:PRO:HD3	1.91	0.53
12:M:462:TRP:HB2	26:M:802:Y01:HAD2	1.89	0.53
15:P:71:GLU:HA	15:P:74:VAL:HG23	1.91	0.53
3:D:884:SER:HA	17:R:431:TYR:HE2	1.73	0.53
2:B:598:ASP:HB3	2:B:600:TYR:HE1	1.72	0.53
3:D:964:LYS:HZ2	3:D:965:LYS:H	1.55	0.53
5:F:685:GLN:HG2	5:F:686:GLN:H	1.74	0.53
7:H:198:ASP:OD1	7:H:198:ASP:N	2.42	0.53
9:J:103:ASP:OD1	9:J:104:ALA:N	2.42	0.53
1:A:647:LYS:HD3	1:A:680:ALA:HB2	1.89	0.53
1:A:696:VAL:O	1:A:700:VAL:HG13	2.09	0.53
2:C:421:VAL:O	2:C:423:PRO:HD3	2.09	0.53
6:G:251:LEU:HD21	6:G:273:PRO:HD3	1.91	0.53
12:M:353:TYR:HE2	12:M:387:ALA:HB2	1.73	0.53
15:P:236:LEU:O	15:P:254:ASP:N	2.42	0.53
3:D:457:ASN:OD1	16:Q:175:THR:HA	2.08	0.53

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
3:D:561:THR:HG21	15:P:373:GLU:HG2	1.90	0.53
3:D:2820:GLU:HG3	4:E:845:SER:HB3	1.91	0.53
17:R:70:PRO:HA	17:R:73:LEU:HG	1.89	0.53
1:A:279:PHE:HZ	17:R:388:VAL:HG12	1.73	0.52
4:E:61:ILE:O	4:E:147:VAL:HA	2.08	0.52
2:C:456:GLN:NE2	2:C:459:ARG:HH21	2.07	0.52
3:D:2763:ASN:OD1	3:D:2763:ASN:N	2.40	0.52
3:D:2958:SER:O	3:D:2962:ILE:HG12	2.08	0.52
5:F:946:ASN:OD1	5:F:946:ASN:N	2.42	0.52
7:H:424:ARG:HA	7:H:427:GLU:HG2	1.91	0.52
1:A:580:GLU:O	1:A:584:LEU:HG	2.10	0.52
13:N:121:GLN:O	13:N:124:TYR:HB3	2.09	0.52
15:P:679:SER:HA	15:P:682:PHE:CD2	2.44	0.52
1:A:261:ARG:N	17:R:412:ARG:O	2.38	0.52
3:D:1259:LYS:NZ	3:D:1263:GLN:OE1	2.36	0.52
3:D:2259:LEU:HB2	3:D:2264:LEU:HD13	1.91	0.52
16:Q:108:VAL:HG23	16:Q:352:PRO:HD3	1.91	0.52
2:B:600:TYR:CE1	2:B:603:VAL:HG21	2.45	0.52
2:B:702:LYS:O	2:B:706:VAL:HG12	2.10	0.52
5:F:287:ARG:NH2	19:T:60:PRO:O	2.43	0.52
7:H:343:PRO:HD2	7:H:350:PHE:HE2	1.73	0.52
2:C:533:ASP:O	2:C:537:LYS:HG2	2.10	0.52
9:J:116:GLY:HA3	10:K:118:VAL:HG11	1.91	0.52
12:M:574:GLN:HG3	12:M:580:LEU:HB3	1.91	0.52
15:P:162:ASP:OD1	15:P:162:ASP:N	2.37	0.52
1:A:586:MET:O	1:A:590:MET:HG2	2.08	0.52
5:F:271:ASP:O	5:F:274:GLN:HG3	2.10	0.52
7:H:328:GLN:HG2	7:H:332:LEU:HD12	1.90	0.52
15:P:288:TYR:OH	15:P:503:ARG:O	2.28	0.52
1:A:162:ASP:HB3	22:A:1201:LMG:H111	1.92	0.52
2:B:241:PHE:HE2	18:S:126:LEU:HD22	1.75	0.52
2:B:616:ARG:NH1	2:B:654:GLN:OE1	2.38	0.52
2:C:488:ARG:HG2	3:D:2079:LEU:HD22	1.91	0.52
3:D:352:LEU:HD21	3:D:1370:SER:HB2	1.90	0.52
15:P:148:MET:SD	15:P:347:PRO:HB3	2.49	0.52
15:P:685:ALA:O	15:P:688:LEU:HB2	2.10	0.52
1:A:486:ARG:CZ	2:B:751:HIS:HB3	2.40	0.52
2:B:272:LEU:HD22	17:R:148:PRO:HB2	1.91	0.52
2:C:524:ILE:HG13	2:C:578:LYS:HB2	1.91	0.52
3:D:269:PHE:CZ	3:D:273:LEU:HD11	2.45	0.52
3:D:975:TRP:HB2	3:D:979:ARG:HH22	1.75	0.52

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
4:E:616:LEU:HD21	4:E:635:ALA:HB2	1.92	0.52
5:F:742:ASP:H	5:F:779:GLN:HE21	1.58	0.52
18:S:24:VAL:O	18:S:28:VAL:HG12	2.10	0.52
1:A:945:ASP:OD1	1:A:945:ASP:N	2.43	0.51
3:D:2126:GLU:HA	4:E:830:VAL:HG13	1.92	0.51
4:E:440:GLY:CA	4:E:611:GLY:HA2	2.40	0.51
4:E:607:PRO:HB2	4:E:611:GLY:HA3	1.92	0.51
5:F:216:ALA:O	5:F:220:GLN:HB2	2.10	0.51
11:L:158:VAL:O	11:L:162:VAL:HG23	2.09	0.51
1:A:324:ALA:HB3	2:B:231:ARG:HE	1.74	0.51
2:B:1106:GLU:OE2	2:B:1109:ARG:NH1	2.43	0.51
3:D:739:LYS:HB3	15:P:469:TYR:CE2	2.46	0.51
7:H:317:GLN:HB2	7:H:320:TYR:CD2	2.44	0.51
8:I:199:TRP:HE1	8:I:201:GLU:HB3	1.75	0.51
10:K:101:SER:HG	10:K:104:TYR:C	2.13	0.51
11:L:161:VAL:O	11:L:165:ARG:HG3	2.10	0.51
1:A:252:PRO:HG3	1:A:261:ARG:HH21	1.75	0.51
2:B:908:THR:HG23	2:B:959:GLU:OE1	2.11	0.51
2:B:1111:SER:O	2:B:1111:SER:OG	2.28	0.51
3:D:944:ARG:HA	3:D:947:ILE:HG12	1.91	0.51
8:I:65:SER:O	8:I:65:SER:OG	2.27	0.51
15:P:122:GLN:HA	15:P:125:SER:HB3	1.92	0.51
16:Q:238:LEU:HD12	16:Q:352:PRO:HG3	1.92	0.51
17:R:352:PRO:HB2	17:R:358:LEU:HD13	1.92	0.51
18:S:30:GLY:O	18:S:34:LEU:HG	2.09	0.51
1:A:966:GLU:OE1	1:A:966:GLU:N	2.42	0.51
2:B:354:MET:O	2:B:358:GLY:N	2.43	0.51
2:C:403:VAL:HG23	2:C:420:VAL:HB	1.92	0.51
2:C:458:LEU:O	2:C:461:THR:HG22	2.09	0.51
2:C:598:ASP:N	2:C:643:GLU:OE2	2.41	0.51
3:D:2068:LYS:HD2	3:D:2071:ARG:HG2	1.92	0.51
3:D:2175:ILE:O	3:D:2895:LYS:NZ	2.37	0.51
24:I:401:SQD:H342	26:M:802:Y01:HAU1	1.92	0.51
12:M:270:GLN:HA	12:M:273:VAL:HG22	1.93	0.51
15:P:414:CYS:HG	15:P:422:TRP:HZ2	1.59	0.51
16:Q:236:LEU:HD21	16:Q:347:VAL:HB	1.93	0.51
16:Q:289:ARG:HG3	16:Q:290:GLY:N	2.26	0.51
2:C:565:LEU:HB2	2:C:669:ALA:HA	1.93	0.51
3:D:794:LEU:H	5:F:134:PRO:HG2	1.76	0.51
3:D:1311:THR:OG1	3:D:1312:SER:N	2.43	0.51
12:M:506:VAL:HG13	12:M:510:LEU:HD23	1.92	0.51

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
12:M:543:ASP:HB3	12:M:546:ARG:HB3	1.92	0.51
15:P:355:TRP:CG	15:P:356:PRO:HD3	2.46	0.51
15:P:544:ALA:HB1	16:Q:227:THR:O	2.10	0.51
16:Q:199:ALA:HB1	16:Q:323:VAL:HG21	1.92	0.51
16:Q:204:LYS:HB2	16:Q:209:PRO:HA	1.91	0.51
1:A:570:LEU:HG	1:A:571:GLY:H	1.75	0.51
1:A:576:SER:O	1:A:580:GLU:HG2	2.10	0.51
3:D:882:ARG:HG3	3:D:883:GLY:O	2.10	0.51
16:Q:218:VAL:O	16:Q:323:VAL:HA	2.11	0.51
1:A:323:PRO:HG2	15:P:188:PRO:HG3	1.93	0.51
2:B:740:ARG:O	2:B:744:MET:HG3	2.10	0.51
1:A:300:ASP:OD1	1:A:300:ASP:N	2.44	0.51
2:B:430:ASP:N	2:B:430:ASP:OD1	2.43	0.51
5:F:769:ALA:HB2	5:F:777:VAL:HG22	1.92	0.51
16:Q:222:GLU:HG2	16:Q:320:LYS:HB3	1.93	0.51
2:C:524:ILE:HG22	2:C:579:ALA:HB2	1.92	0.51
2:C:552:LEU:HA	2:C:555:ARG:HB2	1.92	0.51
4:E:63:ASP:O	4:E:67:LEU:HD12	2.11	0.51
8:I:241:VAL:O	8:I:245:GLN:HG3	2.11	0.51
15:P:147:ARG:O	15:P:348:THR:HG22	2.11	0.51
16:Q:201:GLN:HA	16:Q:204:LYS:NZ	2.26	0.51
16:Q:210:THR:HG22	16:Q:211:ARG:H	1.74	0.51
17:R:395:THR:O	17:R:395:THR:OG1	2.25	0.51
1:A:1028:ASP:OD1	1:A:1028:ASP:N	2.43	0.51
2:B:241:PHE:CE1	15:P:176:LEU:HD21	2.46	0.51
2:B:831:LEU:HD21	3:D:2770:LYS:HG3	1.92	0.51
2:C:529:ILE:HB	2:C:532:ILE:HG12	1.92	0.51
4:E:872:LYS:HD2	4:E:935:MET:HB3	1.91	0.51
5:F:135:ARG:HD2	5:F:157:PRO:O	2.11	0.51
5:F:982:ASP:HA	5:F:985:THR:HG22	1.93	0.51
6:G:316:ASP:OD2	6:G:355:THR:OG1	2.28	0.51
15:P:255:TRP:CE3	15:P:305:LEU:HG	2.45	0.51
16:Q:226:VAL:HG12	16:Q:235:PRO:HD3	1.92	0.51
2:B:535:VAL:HG12	2:B:690:ILE:CG2	2.41	0.50
2:B:541:GLU:OE2	2:B:688:ARG:NH1	2.44	0.50
3:D:2022:PRO:HG3	3:D:2342:ASN:HB2	1.92	0.50
3:D:2352:THR:O	3:D:2356:GLU:HG2	2.11	0.50
5:F:613:SER:O	5:F:647:ILE:HA	2.11	0.50
5:F:879:GLU:HB2	5:F:887:LEU:HD21	1.92	0.50
6:G:239:ASP:OD1	6:G:241:LEU:N	2.44	0.50
2:B:214:HIS:HB3	2:B:216:GLN:HE22	1.75	0.50

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
4:E:646:LEU:O	4:E:650:VAL:HG23	2.11	0.50
6:G:265:ARG:C	6:G:267:ASP:N	2.62	0.50
2:C:430:ASP:HA	2:C:433:VAL:HG12	1.92	0.50
2:C:444:THR:OG1	2:C:446:ASP:OD1	2.28	0.50
3:D:1414:SER:HB2	3:D:1763:THR:HG23	1.93	0.50
7:H:401:ARG:O	7:H:405:ILE:HG12	2.11	0.50
2:B:837:PHE:HB3	3:D:2783:LEU:HD23	1.93	0.50
3:D:58:ILE:O	3:D:61:TYR:HB3	2.11	0.50
15:P:320:TRP:CZ3	28:P:701:A1LXL:C02	2.94	0.50
2:B:563:VAL:HG13	2:B:688:ARG:HB2	1.92	0.50
3:D:973:PRO:HB3	3:D:975:TRP:CD1	2.46	0.50
4:E:893:ILE:O	4:E:897:SER:OG	2.29	0.50
10:K:230:LEU:HD21	10:K:236:VAL:HA	1.94	0.50
1:A:1125:ASP:N	1:A:1125:ASP:OD1	2.45	0.50
2:C:643:GLU:O	2:C:647:ILE:HG12	2.12	0.50
5:F:779:GLN:O	5:F:783:THR:HG23	2.12	0.50
12:M:423:LEU:HD11	12:M:637:ILE:HG12	1.93	0.50
1:A:477:MET:HG2	1:A:491:CYS:SG	2.51	0.50
2:B:510:PRO:HG2	2:B:596:PHE:CE2	2.47	0.50
3:D:618:PRO:HB2	15:P:173:LEU:HD21	1.93	0.50
3:D:620:ASN:OD1	3:D:620:ASN:N	2.44	0.50
3:D:2366:ASN:HB2	3:D:2369:LYS:HG3	1.93	0.50
2:C:765:LYS:HG2	3:D:2149:PHE:HE1	1.76	0.50
3:D:894:LEU:HD13	3:D:975:TRP:HZ3	1.77	0.50
3:D:2668:ARG:HG2	3:D:2670:LEU:HD13	1.94	0.50
12:M:419:THR:HG22	12:M:420:LYS:H	1.75	0.50
3:D:2140:HIS:HD2	3:D:2144:HIS:ND1	2.10	0.50
5:F:675:LEU:O	5:F:709:ARG:NH2	2.45	0.50
15:P:77:ALA:HA	15:P:80:ASP:HB2	1.94	0.50
18:S:90:ALA:HA	18:S:93:ASN:HD21	1.77	0.50
3:D:630:ASN:ND2	3:D:742:LEU:HD13	2.26	0.49
4:E:215:GLY:H	4:E:332:GLN:HE21	1.60	0.49
12:M:268:GLU:HA	12:M:271:LYS:HG2	1.92	0.49
15:P:70:ASP:O	15:P:72:ALA:N	2.44	0.49
15:P:135:LEU:O	15:P:139:VAL:HG12	2.11	0.49
1:A:640:LEU:HB3	1:A:657:LEU:HD22	1.94	0.49
2:C:819:ASP:OD1	6:G:134:ARG:NH1	2.44	0.49
3:D:452:ILE:HA	3:D:455:CYS:HB3	1.93	0.49
3:D:1955:TYR:O	3:D:1972:PHE:HA	2.11	0.49
12:M:444:VAL:HA	12:M:449:ILE:HD11	1.93	0.49
16:Q:182:LEU:HD12	16:Q:185:ILE:H	1.77	0.49

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
16:Q:195:GLN:NE2	16:Q:241:GLU:OE2	2.45	0.49
2:B:241:PHE:CZ	15:P:172:GLU:HB3	2.47	0.49
2:B:751:HIS:CD2	2:B:751:HIS:H	2.29	0.49
2:C:526:TRP:CZ2	2:C:536:LYS:HE2	2.48	0.49
2:C:535:VAL:HA	2:C:690:ILE:HD11	1.93	0.49
3:D:739:LYS:HB3	15:P:469:TYR:CD2	2.47	0.49
3:D:2677:VAL:N	3:D:2678:PRO:HD3	2.27	0.49
5:F:727:ALA:HA	5:F:730:VAL:HG12	1.94	0.49
7:H:187:LEU:HD23	7:H:276:VAL:HG21	1.94	0.49
15:P:514:THR:O	15:P:524:HIS:NE2	2.45	0.49
1:A:530:GLU:OE2	1:A:539:ARG:NH2	2.45	0.49
1:A:568:SER:OG	1:A:569:THR:N	2.45	0.49
2:B:700:ARG:O	2:B:703:ILE:HG22	2.13	0.49
3:D:1770:GLU:O	3:D:1773:THR:HG22	2.12	0.49
16:Q:269:TYR:CG	16:Q:303:LEU:HD22	2.48	0.49
2:B:696:ASP:N	2:B:696:ASP:OD1	2.45	0.49
2:C:793:ASP:H	8:I:93:GLY:HA3	1.77	0.49
3:D:473:ASN:ND2	15:P:647:THR:HB	2.28	0.49
3:D:2061:ARG:HH21	3:D:2063:PHE:HD2	1.60	0.49
4:E:190:TRP:CZ3	17:R:357:GLN:HB2	2.47	0.49
17:R:229:VAL:O	17:R:232:MET:N	2.43	0.49
17:R:240:PRO:HD2	17:R:243:LEU:HD12	1.95	0.49
1:A:308:GLN:NE2	2:B:425:ASP:OD1	2.39	0.49
3:D:895:PHE:HD2	18:S:103:VAL:HG11	1.77	0.49
3:D:983:ASN:O	3:D:987:GLU:HG2	2.12	0.49
17:R:56:HIS:CD2	17:R:317:SER:HB3	2.48	0.49
2:C:765:LYS:HG2	3:D:2149:PHE:CE1	2.48	0.49
6:G:182:ARG:CB	6:G:491:LEU:HB2	2.42	0.49
6:G:460:GLU:H	6:G:460:GLU:CD	2.15	0.49
7:H:421:LYS:O	7:H:424:ARG:HG3	2.11	0.49
13:N:37:ASP:HB2	13:N:40:LYS:HB2	1.94	0.49
15:P:681:ILE:HD12	15:P:681:ILE:H	1.77	0.49
1:A:737:GLY:HA3	1:A:801:HIS:HE1	1.77	0.49
7:H:343:PRO:HD2	7:H:350:PHE:CE2	2.48	0.49
13:N:126:ASP:HA	13:N:129:ALA:HB3	1.95	0.49
15:P:477:GLN:HB3	15:P:480:LEU:HD12	1.95	0.49
1:A:744:VAL:HB	1:A:929:ILE:HG22	1.95	0.49
3:D:59:THR:O	3:D:61:TYR:N	2.45	0.49
4:E:124:GLU:N	4:E:124:GLU:OE1	2.45	0.49
4:E:130:HIS:O	4:E:150:ALA:HA	2.13	0.49
1:A:909:GLN:HE21	1:A:946:LEU:HD21	1.78	0.49

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:B:900:MET:HG2	2:B:913:LEU:HD12	1.95	0.49
2:C:525:LYS:NZ	2:C:527:ASP:HB2	2.28	0.49
3:D:2275:ARG:HH11	3:D:2275:ARG:HB2	1.78	0.49
8:I:208:LEU:HD21	10:K:221:LEU:HD23	1.94	0.49
15:P:105:LEU:HD21	15:P:116:THR:HG23	1.94	0.49
17:R:7:ARG:O	17:R:7:ARG:NE	2.46	0.49
1:A:332:TYR:HA	1:A:335:GLN:NE2	2.28	0.48
2:B:453:LEU:HD23	2:B:454:LEU:HD23	1.95	0.48
2:C:368:ARG:NH2	8:I:303:SER:O	2.46	0.48
3:D:1243:ASN:HA	3:D:1325:PHE:CD2	2.48	0.48
5:F:629:ARG:HA	5:F:632:ASP:OD2	2.13	0.48
5:F:741:ILE:HA	5:F:779:GLN:HE21	1.78	0.48
2:B:475:HIS:CE1	2:B:476:THR:HG23	2.48	0.48
2:B:600:TYR:CD1	2:B:603:VAL:HG21	2.48	0.48
3:D:1371:ILE:HD13	3:D:1395:LEU:HD22	1.95	0.48
3:D:2269:ARG:NH1	3:D:2272:TYR:OH	2.46	0.48
6:G:382:TYR:HH	6:G:433:SER:HG	1.54	0.48
1:A:715:SER:HB2	1:A:717:ALA:H	1.78	0.48
2:B:812:LEU:HD22	2:B:975:LEU:HD23	1.94	0.48
4:E:210:ASP:HB2	4:E:317:THR:O	2.12	0.48
6:G:250:TYR:O	6:G:252:ALA:N	2.46	0.48
16:Q:255:ASN:ND2	16:Q:314:GLU:HG2	2.28	0.48
2:B:595:ASP:O	2:B:607:ARG:NH2	2.47	0.48
6:G:295:GLU:CD	6:G:295:GLU:H	2.16	0.48
8:I:98:ARG:H	8:I:98:ARG:HG2	1.45	0.48
12:M:404:HIS:CD2	12:M:410:GLN:HB3	2.47	0.48
17:R:317:SER:OG	17:R:317:SER:O	2.30	0.48
1:A:465:GLU:HA	1:A:468:VAL:HG22	1.95	0.48
2:B:659:GLU:OE2	8:I:363:GLN:HG2	2.13	0.48
2:B:1087:TRP:HA	2:B:1087:TRP:CE3	2.48	0.48
2:C:828:VAL:HG13	2:C:989:LEU:HD22	1.95	0.48
4:E:440:GLY:HA3	4:E:611:GLY:HA2	1.94	0.48
9:J:40:VAL:O	9:J:44:VAL:HG23	2.13	0.48
2:B:526:TRP:CH2	2:B:539:ILE:HD11	2.48	0.48
3:D:1325:PHE:O	3:D:1327:ASN:N	2.47	0.48
5:F:784:LEU:O	5:F:787:GLU:HG3	2.13	0.48
6:G:260:SER:O	6:G:268:ARG:NH2	2.46	0.48
17:R:203:ARG:NH2	19:T:41:LYS:HA	2.29	0.48
2:B:222:HIS:O	2:B:226:VAL:HG12	2.13	0.48
3:D:1443:ASN:HA	3:D:1446:GLN:HB2	1.96	0.48
6:G:297:LEU:O	6:G:301:VAL:HG13	2.13	0.48

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
6:G:459:PRO:HD2	6:G:462:TRP:CE3	2.47	0.48
17:R:141:TYR:CZ	17:R:214:LEU:HD12	2.48	0.48
2:B:497:GLU:O	2:B:501:VAL:HG13	2.14	0.48
2:B:826:VAL:HG22	2:B:838:THR:HG23	1.96	0.48
2:C:902:MET:HG2	4:E:780:ALA:HB2	1.95	0.48
3:D:900:MET:HG3	18:S:104:VAL:HG21	1.95	0.48
3:D:1182:TRP:HE3	3:D:1230:LEU:HD22	1.77	0.48
3:D:2033:ASN:OD1	3:D:2033:ASN:N	2.47	0.48
5:F:587:LEU:HD22	5:F:714:ILE:HD11	1.95	0.48
19:T:77:ARG:NH1	19:T:81:ALA:HB2	2.28	0.48
2:C:1080:ASP:OD1	2:C:1080:ASP:N	2.44	0.48
4:E:317:THR:O	4:E:317:THR:OG1	2.29	0.48
5:F:696:ARG:HB3	5:F:699:VAL:HG23	1.96	0.48
15:P:555:LEU:HD13	16:Q:344:TRP:CE3	2.48	0.48
1:A:1114:ALA:HB2	2:B:1013:PRO:HB2	1.96	0.47
2:C:542:ILE:HD13	2:C:560:ILE:HG21	1.96	0.47
2:C:824:ALA:O	6:G:259:ALA:HB1	2.14	0.47
3:D:547:LEU:HD12	3:D:548:TYR:H	1.79	0.47
3:D:1776:TRP:HZ3	17:R:17:LEU:HD13	1.79	0.47
24:I:401:SQD:H131	24:I:401:SQD:H101	1.50	0.47
2:B:996:THR:O	2:B:1000:VAL:HG23	2.14	0.47
2:C:395:PHE:CZ	4:E:256:PRO:HG2	2.49	0.47
2:C:638:GLN:HG3	2:C:640:SER:HB3	1.95	0.47
5:F:112:SER:O	5:F:116:VAL:HG23	2.14	0.47
7:H:416:GLN:HB3	7:H:444:PHE:CZ	2.49	0.47
7:H:445:ASP:OD1	7:H:446:PHE:N	2.47	0.47
9:J:72:4HH:HP3	9:J:72:4HH:HS2	1.65	0.47
13:N:113:ARG:NE	14:O:470:ARG:HH12	2.11	0.47
16:Q:326:PHE:O	16:Q:330:VAL:HG23	2.14	0.47
2:B:401:ASN:OD1	2:B:401:ASN:N	2.44	0.47
2:B:403:VAL:HG13	2:B:422:LEU:HD11	1.94	0.47
2:C:496:ARG:HH22	13:N:136:LEU:HD23	1.80	0.47
2:C:798:GLN:NE2	8:I:81:GLU:O	2.47	0.47
3:D:334:TYR:O	3:D:338:PRO:HD2	2.14	0.47
3:D:566:LEU:H	15:P:268:GLN:HE22	1.61	0.47
3:D:616:SER:O	3:D:616:SER:OG	2.31	0.47
3:D:963:GLN:O	3:D:964:LYS:HB2	2.14	0.47
5:F:911:SER:OG	5:F:912:SER:N	2.47	0.47
19:T:61:SER:OG	19:T:62:GLN:N	2.47	0.47
1:A:1143:ASP:OD1	1:A:1161:PRO:HD3	2.13	0.47
6:G:128:ALA:O	6:G:222:ARG:NH2	2.44	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
8:I:218:TRP:HH2	26:M:802:Y01:HAM1	1.79	0.47
15:P:517:ASN:HD21	15:P:519:GLU:HG2	1.79	0.47
19:T:67:ALA:O	19:T:71:VAL:HG13	2.14	0.47
5:F:550:ASP:N	5:F:550:ASP:OD1	2.47	0.47
6:G:184:VAL:O	6:G:303:ARG:NE	2.41	0.47
7:H:192:ARG:O	7:H:196:ASP:HB3	2.15	0.47
15:P:302:THR:HA	15:P:445:VAL:O	2.15	0.47
15:P:657:GLY:O	15:P:686:ARG:NH2	2.48	0.47
1:A:588:VAL:O	1:A:592:GLY:N	2.47	0.47
1:A:1073:ARG:NH1	1:A:1092:PRO:O	2.47	0.47
2:C:1062:ALA:HA	2:C:1065:LYS:HE3	1.96	0.47
3:D:1669:SER:HB3	13:N:117:MET:HG2	1.97	0.47
4:E:645:ASP:OD1	4:E:645:ASP:N	2.47	0.47
6:G:265:ARG:C	6:G:267:ASP:H	2.18	0.47
15:P:402:ALA:HB2	15:P:479:ALA:HB3	1.97	0.47
1:A:714:ASP:N	1:A:714:ASP:OD1	2.48	0.47
2:B:259:ASN:ND2	3:D:1251:ARG:HH22	2.13	0.47
2:B:566:ALA:HA	2:B:670:THR:O	2.14	0.47
2:C:378:TYR:CZ	2:C:423:PRO:HD2	2.50	0.47
2:C:435:ASN:OD1	2:C:435:ASN:N	2.48	0.47
3:D:450:ILE:H	3:D:450:ILE:HD12	1.80	0.47
3:D:961:ARG:HE	3:D:961:ARG:HB2	1.56	0.47
3:D:1292:PHE:CE1	18:S:83:LEU:HD11	2.50	0.47
5:F:288:GLU:HA	5:F:291:VAL:HG12	1.97	0.47
25:L:3001:DGA:HA22	25:L:3001:DGA:HB21	1.96	0.47
15:P:100:LEU:HA	15:P:104:GLU:OE1	2.14	0.47
15:P:257:LEU:HA	15:P:305:LEU:HA	1.96	0.47
16:Q:333:MET:SD	16:Q:344:TRP:HB3	2.54	0.47
1:A:721:LEU:HD22	5:F:856:THR:HB	1.95	0.47
2:B:243:GLU:O	2:B:246:ARG:HG2	2.15	0.47
5:F:225:GLY:N	5:F:236:VAL:O	2.47	0.47
16:Q:250:ALA:O	16:Q:253:GLN:HG2	2.15	0.47
16:Q:326:PHE:HA	16:Q:329:VAL:HG22	1.96	0.47
1:A:332:TYR:HD1	1:A:335:GLN:HE22	1.63	0.47
1:A:588:VAL:HA	1:A:591:ASP:HB2	1.97	0.47
1:A:693:LEU:HA	1:A:696:VAL:HG12	1.96	0.47
2:C:559:ARG:NE	2:C:661:ASN:HB3	2.29	0.47
3:D:743:ASN:OD1	15:P:468:SER:OG	2.31	0.47
3:D:2777:LEU:O	3:D:2779:THR:N	2.42	0.47
4:E:277:SER:OG	4:E:279:GLU:OE2	2.24	0.47
5:F:632:ASP:OD1	5:F:633:LEU:N	2.48	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
5:F:645:ILE:HB	5:F:690:VAL:HG13	1.97	0.47
5:F:681:PHE:HD1	5:F:682:GLU:H	1.62	0.47
15:P:118:LYS:O	15:P:122:GLN:HG2	2.15	0.47
1:A:165:LEU:HD23	1:A:165:LEU:HA	1.75	0.47
2:C:485:LYS:HD2	2:C:488:ARG:NH2	2.29	0.47
3:D:545:SER:HA	15:P:228:TRP:CE3	2.50	0.47
3:D:2250:ILE:HG13	3:D:2715:ARG:HD3	1.97	0.47
3:D:2504:SER:OG	3:D:2508:LYS:NZ	2.48	0.47
5:F:834:ILE:HG23	5:F:988:LEU:HD22	1.96	0.47
5:F:862:ARG:O	5:F:866:GLU:HG2	2.15	0.47
7:H:269:ASP:OD1	7:H:269:ASP:N	2.48	0.47
8:I:310:THR:HG22	27:I:403:DGD:O2E	2.14	0.47
12:M:538:GLU:HG3	12:M:542:TRP:HB3	1.97	0.47
14:O:390:SER:O	14:O:394:TYR:N	2.41	0.47
15:P:68:ARG:H	15:P:348:THR:HG21	1.75	0.47
1:A:641:ARG:HH21	1:A:654:GLN:HG3	1.80	0.46
2:B:615:LEU:HD11	2:B:623:LEU:HB2	1.97	0.46
4:E:244:LEU:O	17:R:342:LYS:NZ	2.48	0.46
7:H:212:TRP:O	7:H:249:ASN:ND2	2.48	0.46
1:A:1108:PRO:O	3:D:2606:SER:OG	2.32	0.46
2:B:949:SER:OG	3:D:2899:GLU:OE1	2.32	0.46
3:D:2255:PRO:C	3:D:2257:THR:H	2.19	0.46
5:F:199:SER:OG	5:F:200:TYR:N	2.48	0.46
6:G:345:LEU:HD12	6:G:345:LEU:HA	1.79	0.46
6:G:448:LEU:HA	6:G:451:THR:HG22	1.97	0.46
16:Q:312:SER:HA	16:Q:315:ARG:HB2	1.96	0.46
2:C:510:PRO:HA	2:C:512:ARG:HH11	1.81	0.46
3:D:1126:ASN:HD22	3:D:1129:ASP:CG	2.18	0.46
3:D:2335:ASP:N	3:D:2335:ASP:OD1	2.48	0.46
4:E:244:LEU:HG	17:R:343:TYR:CE1	2.50	0.46
15:P:127:LEU:HD21	15:P:135:LEU:HD23	1.97	0.46
15:P:138:LEU:HA	15:P:141:GLN:HE22	1.80	0.46
15:P:236:LEU:HD22	15:P:254:ASP:HB2	1.97	0.46
15:P:304:VAL:HG22	15:P:444:TRP:CG	2.50	0.46
2:B:708:ALA:HB1	2:B:713:VAL:HG11	1.98	0.46
3:D:910:LYS:HG3	3:D:921:LYS:HG3	1.96	0.46
3:D:988:ARG:NH1	17:R:141:TYR:HB2	2.30	0.46
17:R:390:LYS:HZ2	17:R:392:PRO:HB3	1.79	0.46
2:B:661:ASN:HB3	2:B:664:ILE:HB	1.98	0.46
2:B:701:ALA:O	2:B:705:GLN:HG3	2.16	0.46
2:C:524:ILE:HG21	2:C:575:LEU:O	2.16	0.46

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:C:813:LEU:HG	2:C:866:ALA:HB2	1.98	0.46
3:D:64:MET:SD	3:D:64:MET:N	2.86	0.46
3:D:1335:ILE:O	3:D:1339:VAL:HG23	2.16	0.46
4:E:291:LYS:HA	4:E:291:LYS:HD3	1.65	0.46
4:E:754:LEU:HD23	4:E:793:TYR:HD2	1.80	0.46
5:F:144:PRO:HB3	5:F:148:LEU:HD12	1.98	0.46
15:P:159:SER:OG	15:P:162:ASP:OD1	2.32	0.46
3:D:2069:LEU:O	3:D:2073:VAL:HG13	2.14	0.46
3:D:2073:VAL:O	3:D:2077:ILE:HG12	2.16	0.46
5:F:273:TYR:CZ	19:T:76:LYS:HE2	2.50	0.46
12:M:587:ALA:O	12:M:590:ALA:HB3	2.15	0.46
15:P:325:GLY:O	15:P:329:GLN:HG2	2.16	0.46
16:Q:234:VAL:HB	16:Q:347:VAL:HG12	1.98	0.46
1:A:890:LYS:HD2	1:A:1148:ASP:HA	1.97	0.46
2:B:261:ARG:O	2:B:264:VAL:HG22	2.16	0.46
3:D:2832:SER:O	3:D:2832:SER:OG	2.29	0.46
5:F:616:ALA:HA	5:F:619:ILE:HG12	1.96	0.46
14:O:447:PHE:O	14:O:451:THR:HG23	2.16	0.46
17:R:60:ARG:NH2	17:R:67:MET:HG3	2.30	0.46
17:R:248:THR:OG1	17:R:259:THR:HG22	2.15	0.46
1:A:444:LYS:HB2	1:A:444:LYS:HE2	1.58	0.46
1:A:745:THR:HG22	1:A:747:TRP:H	1.79	0.46
3:D:2327:ALA:O	3:D:2333:ARG:NE	2.48	0.46
3:D:2422:VAL:HG21	7:H:148:ILE:HD13	1.96	0.46
3:D:2631:LEU:HD12	3:D:2636:LEU:HD13	1.97	0.46
4:E:777:ASN:O	4:E:780:ALA:HB3	2.16	0.46
17:R:154:TYR:O	17:R:158:LEU:HB2	2.15	0.46
19:T:63:ALA:HA	19:T:66:GLU:OE2	2.16	0.46
1:A:930:THR:HG23	1:A:933:ARG:H	1.81	0.46
3:D:951:ARG:NH2	17:R:167:TPO:HB	2.31	0.46
3:D:1729:LYS:HB2	3:D:1730:MET:SD	2.56	0.46
3:D:2969:LYS:HB2	3:D:2969:LYS:HE2	1.55	0.46
15:P:422:TRP:HB3	15:P:424:LEU:HD23	1.98	0.46
17:R:133:GLY:HA2	17:R:136:GLU:OE1	2.15	0.46
17:R:436:GLN:O	17:R:439:GLN:HG3	2.16	0.46
2:B:393:VAL:HG21	2:B:432:LEU:HD13	1.98	0.46
2:B:579:ALA:O	2:B:583:GLU:HG2	2.16	0.46
2:B:843:ASP:OD1	2:B:844:GLU:N	2.49	0.46
2:B:965:ASP:OD1	2:B:966:ALA:N	2.48	0.46
3:D:557:LEU:HD12	3:D:560:ILE:HB	1.98	0.46
3:D:885:LYS:NZ	17:R:413:ASP:OD2	2.33	0.46

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
6:G:241:LEU:HB2	6:G:242:LYS:HD3	1.97	0.46
15:P:409:LEU:HB3	15:P:410:PRO:HD3	1.97	0.46
15:P:601:ARG:HG2	15:P:602:ALA:N	2.31	0.46
16:Q:214:ILE:O	16:Q:325:SER:HB2	2.16	0.46
16:Q:224:LEU:HD21	16:Q:235:PRO:HG2	1.98	0.46
3:D:811:ASN:OD1	3:D:811:ASN:N	2.48	0.45
3:D:2922:GLU:OE2	7:H:208:LYS:NZ	2.49	0.45
4:E:499:GLN:HA	4:E:533:PHE:O	2.16	0.45
4:E:976:LYS:HD2	4:E:979:ALA:HB3	1.98	0.45
5:F:572:GLU:O	5:F:575:LYS:HE2	2.16	0.45
5:F:750:MET:HB2	5:F:753:MET:SD	2.56	0.45
8:I:241:VAL:HB	12:M:498:SER:HB2	1.98	0.45
12:M:554:THR:OG1	12:M:572:LEU:HD23	2.16	0.45
15:P:612:GLU:HA	15:P:615:GLU:HB2	1.97	0.45
1:A:1119:TRP:CE2	3:D:2640:ALA:HB3	2.52	0.45
2:B:831:LEU:HD11	3:D:2770:LYS:HG3	1.99	0.45
2:C:438:VAL:HG22	2:C:440:ASP:OD1	2.17	0.45
2:C:734:VAL:O	2:C:738:MET:HG2	2.16	0.45
3:D:974:VAL:HG11	17:R:194:LYS:HG3	1.98	0.45
3:D:1746:ARG:HD3	3:D:1746:ARG:HA	1.77	0.45
3:D:1761:PRO:HD3	14:O:471:ALA:HB3	1.99	0.45
4:E:729:LYS:HB2	4:E:729:LYS:HE3	1.53	0.45
5:F:911:SER:O	5:F:917:GLN:HG3	2.16	0.45
12:M:452:PHE:CE2	12:M:518:PHE:HB2	2.51	0.45
2:B:702:LYS:HA	2:B:702:LYS:HD3	1.76	0.45
3:D:2883:ASN:HA	3:D:2886:SER:O	2.16	0.45
4:E:75:PRO:HD3	5:F:245:GLY:HA2	1.98	0.45
4:E:88:ALA:HA	4:E:91:LYS:HG2	1.97	0.45
7:H:93:MET:O	7:H:96:VAL:HG22	2.15	0.45
7:H:254:SER:OG	7:H:255:LYS:N	2.50	0.45
8:I:78:ALA:O	8:I:80:ALA:N	2.49	0.45
15:P:58:LEU:HD23	15:P:58:LEU:HA	1.82	0.45
2:B:346:TPO:HB	3:D:899:LYS:HZ2	1.81	0.45
2:B:539:ILE:O	2:B:543:ILE:HG13	2.16	0.45
2:B:608:VAL:HA	2:B:611:THR:HG22	1.98	0.45
2:B:793:ASP:OD2	2:B:800:ARG:NH1	2.49	0.45
3:D:951:ARG:O	3:D:955:LYS:HG2	2.16	0.45
3:D:1228:ILE:HG22	17:R:271:ASP:HB3	1.98	0.45
3:D:1310:MET:HG3	3:D:1311:THR:HG22	1.98	0.45
5:F:681:PHE:C	5:F:683:ALA:H	2.18	0.45
5:F:906:MET:SD	5:F:911:SER:HB2	2.57	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
7:H:309:PRO:HG3	7:H:314:LEU:HG	1.99	0.45
8:I:143:PRO:O	8:I:147:MET:HG3	2.16	0.45
22:M:801:LMG:O5	22:M:801:LMG:O4	2.27	0.45
15:P:638:PRO:O	15:P:641:VAL:HG22	2.16	0.45
1:A:856:LEU:HD13	1:A:1136:LEU:HD12	1.99	0.45
2:C:694:LEU:HD23	2:C:694:LEU:HA	1.82	0.45
3:D:1308:ASN:HB2	3:D:1316:VAL:HG11	1.98	0.45
5:F:626:GLY:O	5:F:630:VAL:HG23	2.17	0.45
6:G:316:ASP:O	6:G:320:VAL:HG22	2.15	0.45
6:G:319:HIS:CE1	6:G:352:VAL:HG13	2.51	0.45
11:L:169:ARG:HD2	21:V:14:UNK:HA	1.98	0.45
15:P:313:LEU:H	15:P:313:LEU:HD23	1.81	0.45
16:Q:200:LEU:HA	16:Q:203:TYR:HB2	1.97	0.45
1:A:333:ARG:HB3	17:R:387:VAL:O	2.17	0.45
2:B:243:GLU:H	2:B:243:GLU:HG2	1.53	0.45
12:M:313:VAL:HA	12:M:316:VAL:HG12	1.98	0.45
12:M:373:PRO:HA	12:M:376:GLN:HG2	1.99	0.45
15:P:277:ARG:HB2	15:P:282:VAL:HG23	1.98	0.45
1:A:258:ALA:O	1:A:260:ASN:N	2.48	0.45
2:B:600:TYR:HD1	2:B:600:TYR:H	1.64	0.45
2:B:670:THR:HG22	2:B:672:ARG:H	1.82	0.45
2:C:578:LYS:O	2:C:582:ALA:N	2.50	0.45
3:D:976:LEU:HG	3:D:977:ARG:N	2.31	0.45
3:D:1922:GLU:HA	3:D:1925:PHE:CZ	2.51	0.45
3:D:2565:ILE:O	3:D:2569:SER:OG	2.25	0.45
4:E:751:ARG:HD2	4:E:799:PHE:HB3	1.99	0.45
5:F:121:ARG:NE	17:R:363:GLU:OE2	2.48	0.45
8:I:199:TRP:CZ3	8:I:204:PRO:HB3	2.51	0.45
10:K:238:LEU:HD23	10:K:238:LEU:HA	1.74	0.45
11:L:216:GLU:OE1	11:L:216:GLU:N	2.39	0.45
16:Q:289:ARG:HG3	16:Q:290:GLY:H	1.82	0.45
1:A:457:ARG:HD2	1:A:515:GLU:HG3	1.98	0.45
2:B:258:ARG:HD3	2:B:360:ALA:HA	1.99	0.45
2:B:357:PHE:HB2	3:D:891:LEU:HD13	1.99	0.45
2:B:514:VAL:HG12	2:B:588:MET:HB3	1.99	0.45
3:D:1303:LYS:HD3	3:D:1303:LYS:HA	1.66	0.45
3:D:2252:GLU:HG2	3:D:2253:GLU:H	1.82	0.45
15:P:576:ALA:HA	15:P:628:VAL:HG21	1.98	0.45
1:A:466:PHE:O	1:A:470:GLU:HG2	2.17	0.45
2:C:645:ALA:O	2:C:648:ILE:HG13	2.16	0.45
3:D:975:TRP:O	3:D:979:ARG:HG2	2.16	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
3:D:2220:THR:O	3:D:2220:THR:OG1	2.31	0.45
4:E:115:ARG:NH2	4:E:125:ASP:OD1	2.50	0.45
4:E:828:LYS:HE3	4:E:828:LYS:HB3	1.77	0.45
5:F:586:LEU:HD23	5:F:586:LEU:HA	1.81	0.45
6:G:262:SER:HB2	6:G:399:PHE:HZ	1.82	0.45
8:I:235:SER:CB	8:I:244:VAL:HB	2.47	0.45
12:M:637:ILE:HA	12:M:640:ASP:OD2	2.17	0.45
1:A:300:ASP:OD1	17:R:68:THR:OG1	2.35	0.45
1:A:527:GLU:O	1:A:539:ARG:NH1	2.50	0.45
1:A:561:ASP:OD1	1:A:561:ASP:N	2.50	0.45
2:C:774:SER:OG	2:C:775:THR:N	2.50	0.45
3:D:325:GLN:O	3:D:326:LEU:HB2	2.16	0.45
4:E:898:ASP:OD1	4:E:898:ASP:N	2.48	0.45
14:O:292:VAL:O	15:P:500:ALA:HB1	2.17	0.45
15:P:570:ARG:HA	15:P:573:MET:HB2	1.99	0.45
1:A:133:LYS:HA	1:A:133:LYS:HD2	1.80	0.44
2:B:616:ARG:HA	2:B:664:ILE:HD11	1.99	0.44
3:D:51:THR:O	3:D:55:GLU:HG2	2.16	0.44
3:D:469:LEU:HD21	16:Q:332:ARG:HG2	1.99	0.44
3:D:2016:ASN:HB3	3:D:2334:LEU:HD23	1.99	0.44
3:D:2255:PRO:O	3:D:2256:TRP:HB2	2.17	0.44
4:E:105:HIS:ND1	4:E:107:LYS:HG2	2.31	0.44
4:E:159:LEU:HD22	5:F:177:GLN:NE2	2.32	0.44
4:E:164:GLN:HE21	4:E:164:GLN:HB3	1.42	0.44
5:F:608:VAL:HG11	5:F:642:PRO:HG2	1.98	0.44
15:P:495:ASP:O	15:P:498:LEU:HD23	2.17	0.44
19:T:42:LYS:HG2	19:T:48:GLU:HG3	1.99	0.44
19:T:99:ARG:O	19:T:103:LEU:HD12	2.16	0.44
2:B:543:ILE:O	2:B:547:ARG:HG3	2.18	0.44
3:D:979:ARG:HA	3:D:982:LEU:HD12	1.99	0.44
3:D:1296:ILE:O	3:D:1300:VAL:HG22	2.17	0.44
3:D:1981:PHE:CD2	3:D:2043:GLU:HG3	2.52	0.44
3:D:2325:ASP:OD1	3:D:2325:ASP:N	2.42	0.44
3:D:2348:ILE:HD12	8:I:96:MET:HG2	2.00	0.44
6:G:111:ASP:OD1	6:G:111:ASP:N	2.49	0.44
19:T:107:PRO:O	19:T:111:THR:HG22	2.18	0.44
1:A:450:LYS:HG3	1:A:451:MET:N	2.32	0.44
2:B:475:HIS:HB3	17:R:34:ILE:HG21	1.98	0.44
2:B:906:ARG:HD2	2:C:1094:SER:OG	2.18	0.44
2:C:432:LEU:HD23	2:C:437:VAL:HG11	2.00	0.44
10:K:220:PRO:O	10:K:223:GLU:HG3	2.18	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
17:R:182:ARG:HG2	17:R:186:HIS:CE1	2.53	0.44
1:A:1144:LEU:HD23	1:A:1144:LEU:HA	1.84	0.44
2:C:716:ASN:OD1	2:C:716:ASN:N	2.50	0.44
3:D:2298:ASP:OD1	3:D:2298:ASP:N	2.51	0.44
3:D:2694:SER:HB2	3:D:2695:PRO:HD2	1.98	0.44
3:D:2876:LYS:HE3	5:F:947:GLN:HB3	2.00	0.44
4:E:311:ASP:OD1	4:E:311:ASP:N	2.50	0.44
4:E:651:ASN:OD1	4:E:652:GLU:N	2.50	0.44
5:F:184:GLU:CG	5:F:185:PRO:HD2	2.47	0.44
5:F:562:MET:HA	5:F:565:VAL:HG22	1.99	0.44
6:G:206:VAL:HG11	6:G:214:SER:H	1.83	0.44
6:G:317:ALA:O	6:G:321:VAL:HG12	2.17	0.44
11:L:238:TRP:NE1	11:L:253:PRO:HG3	2.32	0.44
15:P:100:LEU:HA	15:P:100:LEU:HD23	1.77	0.44
15:P:471:LEU:HD13	28:P:701:A1LXL:C27	2.47	0.44
16:Q:135:PHE:CD1	16:Q:141:ALA:HB2	2.52	0.44
21:V:12:UNK:O	21:V:16:UNK:N	2.51	0.44
2:C:704:MET:HG3	2:C:719:TRP:CE3	2.53	0.44
3:D:2770:LYS:O	3:D:2773:THR:HB	2.18	0.44
4:E:351:LEU:N	4:E:352:PRO:HD2	2.33	0.44
5:F:785:ALA:O	5:F:788:GLN:HG3	2.17	0.44
7:H:310:VAL:O	7:H:408:GLY:HA3	2.17	0.44
7:H:316:LEU:HB2	7:H:321:MET:HG2	2.00	0.44
12:M:269:THR:O	12:M:273:VAL:HG13	2.17	0.44
17:R:441:ARG:HA	17:R:444:ARG:HE	1.82	0.44
18:S:72:TYR:HA	18:S:77:ILE:HG13	2.00	0.44
1:A:385:VAL:HG12	1:A:386:ILE:HD13	2.00	0.44
3:D:2282:ALA:HB2	3:D:2701:LEU:HD21	2.00	0.44
3:D:2679:LYS:HB2	3:D:2679:LYS:HE2	1.51	0.44
5:F:742:ASP:H	5:F:779:GLN:NE2	2.14	0.44
12:M:323:MET:HG2	12:M:349:ILE:HG23	1.99	0.44
15:P:106:GLN:O	15:P:109:VAL:HG12	2.17	0.44
15:P:443:VAL:CG2	28:P:701:A1LXL:C01	2.94	0.44
1:A:336:LYS:HA	1:A:336:LYS:HD3	1.90	0.44
1:A:922:LEU:HD23	1:A:922:LEU:HA	1.84	0.44
2:B:346:TPO:HB	3:D:899:LYS:NZ	2.33	0.44
2:C:526:TRP:HH2	2:C:539:ILE:HG13	1.82	0.44
3:D:790:ASN:OD1	3:D:790:ASN:N	2.50	0.44
5:F:679:ASP:OD2	5:F:706:ARG:NH2	2.48	0.44
5:F:913:HIS:CD2	5:F:914:PRO:HD2	2.52	0.44
7:H:339:LEU:HD23	7:H:357:ILE:HG23	2.00	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
12:M:552:THR:HG21	12:M:572:LEU:HG	1.99	0.44
16:Q:269:TYR:HA	16:Q:272:ASP:HB3	2.00	0.44
17:R:448:LEU:HD12	17:R:448:LEU:HA	1.90	0.44
2:B:457:MET:HB2	25:D:3101:DGA:HA91	1.99	0.44
2:C:537:LYS:HA	2:C:537:LYS:HD3	1.89	0.44
2:C:680:LEU:HG	2:C:686:PHE:CD2	2.53	0.44
3:D:1239:LYS:HD2	3:D:1239:LYS:HA	1.74	0.44
6:G:218:LEU:O	6:G:218:LEU:HD12	2.18	0.44
9:J:64:LYS:O	9:J:68:LEU:HG	2.17	0.44
9:J:91:GLU:OE2	9:J:93:GLU:HG3	2.17	0.44
10:K:112:ARG:HH11	10:K:112:ARG:HB3	1.81	0.44
15:P:116:THR:HG22	15:P:117:TRP:H	1.83	0.44
15:P:304:VAL:HG22	15:P:444:TRP:CD1	2.53	0.44
15:P:629:MET:HE1	15:P:688:LEU:HA	1.99	0.44
1:A:481:ASP:OD2	1:A:484:TYR:HB2	2.18	0.44
2:B:643:GLU:O	2:B:647:ILE:HG23	2.17	0.44
2:B:806:TYR:OH	2:B:887:ASP:OD2	2.35	0.44
2:C:511:ALA:HB3	2:C:614:ARG:HH11	1.82	0.44
3:D:330:THR:OG1	3:D:331:PHE:N	2.51	0.44
3:D:1303:LYS:O	3:D:1307:LEU:HG	2.18	0.44
5:F:236:VAL:HG21	5:F:252:ALA:HA	2.00	0.44
16:Q:177:ARG:HH12	16:Q:186:HIS:HA	1.82	0.44
16:Q:226:VAL:H	16:Q:235:PRO:HD3	1.83	0.44
19:T:118:TYR:O	19:T:121:THR:HG22	2.18	0.44
22:A:1201:LMG:H171	22:A:1201:LMG:H142	1.80	0.43
2:C:620:PRO:HB3	2:C:663:GLY:HA3	1.99	0.43
4:E:242:GLY:N	4:E:260:GLY:HA3	2.29	0.43
4:E:338:VAL:O	4:E:342:ILE:HG12	2.18	0.43
5:F:758:ILE:HA	5:F:761:VAL:HG12	2.00	0.43
9:J:92:GLU:HG2	10:K:212:ARG:HG3	2.00	0.43
14:O:383:VAL:O	14:O:386:ALA:HB3	2.18	0.43
15:P:149:PHE:CB	15:P:157:LYS:HB3	2.48	0.43
15:P:231:VAL:O	15:P:505:VAL:HG11	2.18	0.43
15:P:446:THR:OG1	15:P:454:LEU:HB2	2.19	0.43
16:Q:96:MET:HE2	16:Q:341:LEU:HD12	2.00	0.43
1:A:495:ILE:HD13	1:A:624:VAL:HB	2.00	0.43
3:D:2689:LEU:HD12	3:D:2689:LEU:HA	1.74	0.43
4:E:109:GLY:O	4:E:113:LEU:HG	2.17	0.43
5:F:235:PRO:HG3	19:T:103:LEU:HG	2.00	0.43
6:G:128:ALA:HA	6:G:439:PRO:HG3	2.01	0.43
7:H:95:LEU:HD22	12:M:298:GLN:HE22	1.83	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
7:H:198:ASP:OD2	7:H:254:SER:OG	2.36	0.43
11:L:277:TYR:O	11:L:281:TYR:HB3	2.18	0.43
16:Q:109:PRO:HG3	16:Q:163:ARG:HH21	1.82	0.43
16:Q:191:PRO:HB3	16:Q:216:VAL:HG13	2.00	0.43
3:D:2174:SER:HB2	3:D:2895:LYS:HE3	1.99	0.43
3:D:2249:LYS:NZ	3:D:2249:LYS:HB3	2.32	0.43
3:D:2747:GLN:O	3:D:2751:THR:OG1	2.22	0.43
4:E:93:MET:HE1	5:F:95:PRO:HD2	1.98	0.43
6:G:254:THR:O	6:G:255:THR:C	2.57	0.43
12:M:330:LEU:HD12	12:M:330:LEU:HA	1.84	0.43
15:P:104:GLU:HA	15:P:107:GLU:HG2	2.00	0.43
15:P:455:VAL:HG22	15:P:471:LEU:HD12	1.99	0.43
15:P:486:SER:O	15:P:490:GLY:HA3	2.18	0.43
17:R:425:GLU:H	17:R:425:GLU:CD	2.22	0.43
1:A:260:ASN:OD1	17:R:413:ASP:HB3	2.18	0.43
1:A:479:LYS:HD2	1:A:479:LYS:HA	1.60	0.43
1:A:655:ARG:O	1:A:659:LYS:HG2	2.18	0.43
2:B:625:ILE:HD13	2:B:628:PHE:HD1	1.83	0.43
3:D:954:LYS:NZ	3:D:959:GLU:O	2.46	0.43
12:M:261:THR:O	12:M:536:ARG:NH2	2.52	0.43
15:P:313:LEU:HD21	15:P:435:ARG:HA	2.01	0.43
1:A:168:ARG:HA	1:A:168:ARG:HD3	1.85	0.43
2:B:241:PHE:HE1	15:P:176:LEU:HD21	1.84	0.43
2:B:799:LEU:O	2:B:803:VAL:HG23	2.19	0.43
2:B:906:ARG:HB3	3:D:2641:LYS:HE2	2.01	0.43
2:C:445:GLU:OE1	2:C:448:ARG:NH1	2.42	0.43
2:C:515:ARG:NH1	2:C:515:ARG:HA	2.34	0.43
2:C:606:ARG:HA	2:C:606:ARG:HD2	1.78	0.43
3:D:1992:ILE:HD11	3:D:2339:CYS:HB2	2.00	0.43
5:F:129:LEU:HA	5:F:199:SER:O	2.19	0.43
16:Q:218:VAL:HG12	16:Q:238:LEU:HD23	2.00	0.43
1:A:243:SER:HB2	1:A:245:LEU:HG	2.00	0.43
2:B:526:TRP:HB2	2:B:583:GLU:HG3	2.00	0.43
2:C:478:ILE:O	2:C:481:PRO:HD3	2.18	0.43
3:D:1415:GLN:HE21	17:R:38:GLU:CD	2.21	0.43
4:E:554:GLU:O	4:E:558:GLN:CB	2.67	0.43
5:F:137:VAL:HA	5:F:156:PRO:HG2	2.00	0.43
16:Q:115:ASN:OD1	16:Q:115:ASN:N	2.52	0.43
17:R:193:ASP:OD1	17:R:193:ASP:N	2.51	0.43
1:A:477:MET:HA	1:A:481:ASP:HB3	2.00	0.43
2:C:378:TYR:CE2	2:C:423:PRO:HD2	2.54	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:C:755:GLU:HG2	6:G:258:HIS:CD2	2.54	0.43
3:D:2129:GLU:OE1	4:E:731:ARG:NH1	2.48	0.43
3:D:2693:PRO:HB2	3:D:2698:SER:HB3	2.01	0.43
6:G:371:GLN:NE2	6:G:418:LEU:O	2.50	0.43
7:H:280:PRO:O	7:H:409:GLN:NE2	2.51	0.43
8:I:213:ASP:O	22:I:402:LMG:O3	2.34	0.43
10:K:101:SER:OG	10:K:104:TYR:O	2.20	0.43
15:P:116:THR:O	15:P:119:ASP:HB2	2.19	0.43
15:P:413:LEU:HD23	15:P:413:LEU:HA	1.79	0.43
17:R:317:SER:O	17:R:318:PHE:HB3	2.18	0.43
1:A:235:GLU:HG2	1:A:292:ARG:HG2	2.00	0.43
2:B:535:VAL:HG11	2:B:692:MET:HG3	2.01	0.43
2:B:847:ASN:OD1	2:B:847:ASN:N	2.47	0.43
2:C:893:LEU:O	2:C:897:GLU:HG2	2.18	0.43
3:D:1294:LYS:HA	3:D:1294:LYS:HD3	1.86	0.43
3:D:1696:LEU:HD12	3:D:1696:LEU:HA	1.82	0.43
4:E:666:THR:HG22	4:E:667:ALA:N	2.34	0.43
4:E:907:LEU:HD23	4:E:907:LEU:HA	1.67	0.43
5:F:132:GLN:OE1	5:F:158:PRO:HG2	2.19	0.43
6:G:172:LEU:O	6:G:176:THR:HG23	2.18	0.43
17:R:290:ASP:HB3	17:R:330:ARG:HH21	1.83	0.43
18:S:97:ARG:O	18:S:101:THR:HG23	2.19	0.43
1:A:248:PRO:HB2	17:R:418:VAL:HG23	2.00	0.43
1:A:487:VAL:HG12	2:B:711:LYS:NZ	2.33	0.43
1:A:908:ALA:O	1:A:911:ARG:NH2	2.52	0.43
3:D:1760:GLN:NE2	14:O:468:THR:H	2.16	0.43
3:D:2678:PRO:HG2	3:D:2891:PHE:CZ	2.54	0.43
4:E:828:LYS:HD2	4:E:829:VAL:O	2.18	0.43
6:G:275:ASP:OD1	6:G:309:HIS:NE2	2.48	0.43
7:H:187:LEU:CD2	7:H:276:VAL:HG21	2.48	0.43
7:H:474:GLU:O	7:H:474:GLU:HG2	2.18	0.43
15:P:169:ASN:O	15:P:171:PRO:HD3	2.18	0.43
16:Q:337:ALA:HA	16:Q:341:LEU:HD22	2.01	0.43
17:R:230:TRP:O	17:R:234:GLN:NE2	2.40	0.43
3:D:1179:GLN:HA	3:D:1182:TRP:HD1	1.82	0.43
4:E:823:GLN:HG3	4:E:825:ARG:HH12	1.84	0.43
8:I:235:SER:HB3	8:I:244:VAL:HB	2.01	0.43
9:J:59:VAL:HG23	9:J:59:VAL:O	2.18	0.43
15:P:238:ARG:HB3	15:P:252:VAL:HG22	2.01	0.43
18:S:76:LYS:O	18:S:76:LYS:HD3	2.19	0.43
19:T:16:GLU:OE1	19:T:21:GLN:HG2	2.17	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:B:644:SER:O	2:B:648:ILE:HG13	2.20	0.42
2:B:733:ASP:OD1	2:B:733:ASP:N	2.52	0.42
2:C:510:PRO:HD3	2:C:607:ARG:HB3	2.01	0.42
2:C:545:TYR:HB2	2:C:552:LEU:HD11	2.01	0.42
3:D:2096:ARG:HA	3:D:2325:ASP:HB3	1.99	0.42
3:D:2263:GLN:O	3:D:2266:THR:HG22	2.19	0.42
3:D:2632:LEU:C	3:D:2634:LYS:N	2.73	0.42
5:F:69:ALA:O	19:T:113:LEU:HD21	2.20	0.42
6:G:257:ARG:HB3	6:G:268:ARG:NH2	2.34	0.42
12:M:287:PHE:HA	12:M:288:PRO:HD3	1.92	0.42
12:M:304:LEU:HD23	12:M:304:LEU:HA	1.83	0.42
15:P:108:GLU:HA	15:P:111:LYS:HB2	2.01	0.42
1:A:178:PRO:HB3	18:S:28:VAL:HG11	2.01	0.42
2:B:600:TYR:OH	2:B:607:ARG:NH1	2.52	0.42
2:B:1004:LEU:HD23	2:B:1004:LEU:HA	1.86	0.42
3:D:739:LYS:HB2	3:D:739:LYS:HE3	1.76	0.42
3:D:824:PHE:HB2	4:E:60:PHE:CZ	2.54	0.42
3:D:1447:LYS:HB3	3:D:1447:LYS:HE3	1.82	0.42
5:F:655:ARG:H	5:F:655:ARG:HG2	1.67	0.42
5:F:976:ARG:NH1	5:F:1011:ASP:OD1	2.52	0.42
15:P:152:LEU:HD13	15:P:156:SER:HB3	2.00	0.42
16:Q:328:GLU:HA	16:Q:331:MET:HG2	2.01	0.42
3:D:1776:TRP:O	3:D:1780:ALA:HB3	2.20	0.42
3:D:1804:GLN:O	3:D:1808:ILE:HG12	2.20	0.42
3:D:1805:ASN:OD1	3:D:1805:ASN:N	2.50	0.42
3:D:2243:LYS:HB2	3:D:2243:LYS:HE2	1.69	0.42
5:F:109:GLN:N	5:F:109:GLN:OE1	2.52	0.42
15:P:262:HIS:CD2	15:P:264:PRO:HD2	2.54	0.42
15:P:505:VAL:O	15:P:509:PRO:HD3	2.19	0.42
16:Q:113:VAL:HG21	16:Q:145:ILE:CD1	2.49	0.42
18:S:46:THR:HG21	18:S:49:ASP:HB2	2.00	0.42
18:S:89:ASP:O	18:S:93:ASN:ND2	2.52	0.42
19:T:61:SER:O	19:T:64:GLU:HB3	2.19	0.42
1:A:429:GLN:O	1:A:433:LEU:HB2	2.20	0.42
1:A:1090:PHE:CE1	2:B:986:THR:HG21	2.54	0.42
2:C:376:LEU:HG	2:C:418:CYS:HB3	2.01	0.42
3:D:1220:ILE:HD12	3:D:1224:SER:OG	2.18	0.42
5:F:575:LYS:HE3	5:F:575:LYS:HB2	1.89	0.42
5:F:865:ARG:HH11	5:F:865:ARG:HG3	1.84	0.42
16:Q:292:LEU:HA	16:Q:295:ARG:HB2	2.02	0.42
17:R:53:LEU:O	17:R:321:ASN:HB3	2.19	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
17:R:432:LEU:HD23	17:R:432:LEU:HA	1.89	0.42
19:T:80:ASP:O	19:T:84:THR:HG22	2.19	0.42
2:B:705:GLN:HG2	2:B:719:TRP:CZ2	2.54	0.42
2:B:1087:TRP:HA	2:B:1087:TRP:HE3	1.84	0.42
2:C:606:ARG:NH1	2:C:609:ARG:HB2	2.34	0.42
3:D:1126:ASN:HD21	3:D:1128:ARG:HB3	1.83	0.42
3:D:1699:ILE:HD13	3:D:1699:ILE:HA	1.88	0.42
3:D:2257:THR:O	3:D:2257:THR:OG1	2.36	0.42
3:D:2592:LEU:HA	3:D:2592:LEU:HD12	1.81	0.42
4:E:439:ALA:HB1	4:E:614:GLU:CB	2.49	0.42
4:E:639:PRO:HD2	4:E:828:LYS:HD3	2.02	0.42
4:E:920:ARG:NH1	4:E:925:ARG:HG2	2.34	0.42
5:F:82:PRO:HD2	13:N:36:GLU:OE1	2.19	0.42
5:F:205:PRO:HB3	5:F:211:LEU:HD12	2.01	0.42
6:G:265:ARG:HE	6:G:265:ARG:N	2.18	0.42
8:I:107:GLU:O	8:I:111:VAL:HG23	2.19	0.42
13:N:35:LYS:HE2	13:N:35:LYS:HB3	1.74	0.42
15:P:293:LEU:HD11	15:P:486:SER:HA	2.01	0.42
15:P:513:PHE:HB3	15:P:524:HIS:CD2	2.55	0.42
16:Q:112:THR:HG23	16:Q:162:LEU:HD11	2.00	0.42
16:Q:311:GLU:O	16:Q:315:ARG:HD2	2.20	0.42
16:Q:338:GLY:H	16:Q:341:LEU:HB2	1.84	0.42
17:R:351:ASP:HB2	17:R:354:ARG:NH1	2.25	0.42
1:A:786:THR:HG23	1:A:787:ASN:H	1.85	0.42
3:D:1228:ILE:CG2	17:R:271:ASP:HB3	2.49	0.42
3:D:2264:LEU:HD12	3:D:2264:LEU:HA	1.72	0.42
3:D:2654:LEU:O	3:D:2658:THR:HG23	2.19	0.42
4:E:976:LYS:HD2	4:E:976:LYS:HA	1.78	0.42
7:H:172:LEU:HD23	7:H:172:LEU:HA	1.80	0.42
12:M:385:ALA:HB3	12:M:386:PRO:HD3	2.00	0.42
16:Q:228:THR:OG1	16:Q:231:MET:O	2.34	0.42
16:Q:241:GLU:HG2	16:Q:242:ASP:H	1.85	0.42
17:R:184:ALA:O	17:R:188:ARG:HG3	2.20	0.42
17:R:319:PHE:HA	17:R:320:PRO:HD3	1.79	0.42
1:A:168:ARG:HG3	1:A:184:LYS:HG3	2.02	0.42
1:A:1088:PRO:C	1:A:1090:PHE:H	2.23	0.42
2:B:604:GLY:O	2:B:608:VAL:HG22	2.19	0.42
2:C:1033:LYS:HE3	2:C:1033:LYS:HB3	1.85	0.42
3:D:2306:VAL:HG23	3:D:2306:VAL:O	2.19	0.42
4:E:528:ALA:HB1	4:E:574:THR:O	2.20	0.42
4:E:920:ARG:HE	4:E:928:LEU:HD12	1.84	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
5:F:565:VAL:O	5:F:569:ARG:HG2	2.20	0.42
5:F:808:ARG:HH22	5:F:886:GLU:HB3	1.84	0.42
6:G:206:VAL:HG21	6:G:213:SER:HA	2.02	0.42
6:G:247:ALA:O	6:G:251:LEU:HG	2.20	0.42
15:P:190:ASP:N	15:P:191:PRO:HD3	2.34	0.42
16:Q:295:ARG:O	16:Q:298:LYS:HB3	2.20	0.42
1:A:476:ARG:HA	1:A:476:ARG:HD3	1.77	0.42
1:A:1039:LEU:HA	1:A:1039:LEU:HD12	1.86	0.42
2:C:364:LYS:HA	8:I:240:TYR:CD1	2.55	0.42
2:C:955:VAL:O	2:C:959:GLU:HG3	2.19	0.42
5:F:208:MET:HE2	5:F:211:LEU:HG	2.01	0.42
5:F:881:VAL:HG12	5:F:882:LEU:HD23	2.02	0.42
6:G:265:ARG:H	6:G:265:ARG:HG2	1.55	0.42
15:P:558:GLY:O	16:Q:203:TYR:OH	2.36	0.42
16:Q:332:ARG:O	16:Q:336:SER:OG	2.37	0.42
17:R:126:SEP:O1P	17:R:397:ARG:NH2	2.42	0.42
17:R:130:GLU:O	17:R:134:GLU:HG3	2.20	0.42
20:U:66:UNK:O	20:U:70:UNK:N	2.53	0.42
1:A:523:SER:HB2	1:A:527:GLU:OE2	2.20	0.42
1:A:524:VAL:HG23	1:A:526:SER:H	1.85	0.42
2:B:938:GLY:N	3:D:2722:LYS:HZ2	2.18	0.42
2:C:389:HIS:HB3	2:C:411:ALA:HB2	2.02	0.42
2:C:546:LEU:HG	2:C:622:ILE:HD11	2.00	0.42
3:D:267:TYR:O	3:D:271:GLN:HG3	2.19	0.42
3:D:2445:LEU:HD23	3:D:2445:LEU:HA	1.79	0.42
4:E:692:LEU:HD23	4:E:692:LEU:HA	1.82	0.42
6:G:116:CYS:SG	6:G:117:LEU:N	2.93	0.42
6:G:142:ARG:HG3	6:G:146:VAL:HG22	2.01	0.42
7:H:477:ASP:OD1	7:H:477:ASP:N	2.50	0.42
12:M:633:VAL:O	12:M:636:GLU:HG3	2.19	0.42
13:N:40:LYS:HE3	13:N:40:LYS:HB3	1.63	0.42
15:P:311:LEU:HB2	15:P:437:TRP:HB3	2.02	0.42
15:P:555:LEU:HD23	15:P:555:LEU:HA	1.83	0.42
18:S:90:ALA:HA	18:S:93:ASN:ND2	2.34	0.42
2:B:496:ARG:HG2	2:B:496:ARG:HH21	1.85	0.42
2:C:683:PRO:HB3	4:E:651:ASN:ND2	2.35	0.42
3:D:953:ALA:HA	3:D:956:GLN:CD	2.40	0.42
3:D:1170:ASN:OD1	17:R:226:GLY:HA3	2.20	0.42
4:E:140:LEU:HG	4:E:141:PRO:HD2	2.02	0.42
4:E:250:GLN:HB3	17:R:349:VAL:HG22	2.02	0.42
4:E:351:LEU:C	4:E:353:GLU:N	2.73	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
6:G:193:LEU:HB3	6:G:231:MET:SD	2.60	0.42
17:R:223:ALA:HB3	17:R:228:ASN:HD21	1.84	0.42
2:B:201:ALA:O	2:B:205:ARG:HG3	2.20	0.41
2:C:496:ARG:NH2	13:N:136:LEU:HD23	2.35	0.41
2:C:533:ASP:HB3	2:C:534:GLU:OE2	2.19	0.41
3:D:546:PRO:HD2	15:P:228:TRP:CE3	2.54	0.41
3:D:1245:PHE:HD2	17:R:221:PRO:HG2	1.85	0.41
3:D:2132:GLN:HG2	4:E:731:ARG:O	2.19	0.41
5:F:135:ARG:HB2	5:F:159:LEU:HG	2.02	0.41
7:H:158:ALA:HB3	7:H:193:GLU:HG3	2.00	0.41
8:I:206:TRP:CG	8:I:207:PRO:HD3	2.55	0.41
8:I:350:ARG:NH1	8:I:366:VAL:HG21	2.35	0.41
15:P:613:ALA:O	15:P:617:ARG:HG3	2.20	0.41
17:R:442:MET:HG2	17:R:445:ARG:HD2	2.02	0.41
2:C:415:GLU:HG3	8:I:299:ARG:HA	2.02	0.41
2:C:767:MET:HG3	2:C:830:PRO:HG2	2.03	0.41
2:C:856:GLU:O	2:C:860:ARG:HG3	2.20	0.41
2:C:872:LYS:HB2	2:C:872:LYS:HE3	1.72	0.41
3:D:1392:GLN:O	3:D:1396:MET:HG3	2.20	0.41
3:D:1671:PHE:O	3:D:1674:ILE:HG12	2.20	0.41
3:D:1917:ILE:HG12	3:D:1921:PHE:HE2	1.85	0.41
3:D:2827:ILE:O	3:D:2828:ASP:HB3	2.20	0.41
4:E:77:ILE:HD12	5:F:102:TYR:CE1	2.55	0.41
5:F:84:LYS:HE2	5:F:84:LYS:HB2	1.94	0.41
5:F:599:ALA:O	5:F:602:VAL:HG12	2.20	0.41
5:F:896:GLN:NE2	5:F:899:ARG:HH21	2.18	0.41
7:H:186:ARG:HD2	7:H:186:ARG:HA	1.83	0.41
8:I:232:LEU:HA	8:I:244:VAL:HG23	2.03	0.41
15:P:147:ARG:HA	15:P:147:ARG:HD3	1.80	0.41
15:P:431:ASP:OD2	15:P:436:ASN:HB2	2.20	0.41
15:P:557:ALA:CB	16:Q:328:GLU:HB3	2.48	0.41
15:P:564:LYS:HA	15:P:564:LYS:HD3	1.77	0.41
1:A:481:ASP:C	1:A:483:ALA:H	2.22	0.41
2:B:515:ARG:HH11	2:B:515:ARG:HA	1.86	0.41
2:B:848:VAL:HB	3:D:2218:GLN:HB3	2.02	0.41
2:B:1103:TYR:O	2:B:1107:VAL:HG23	2.21	0.41
2:C:759:TYR:HE2	6:G:258:HIS:CD2	2.39	0.41
3:D:569:LEU:O	3:D:573:LEU:HD12	2.20	0.41
3:D:637:ASN:OD1	3:D:637:ASN:N	2.52	0.41
3:D:2275:ARG:HB2	3:D:2275:ARG:NH1	2.35	0.41
3:D:2647:ASP:OD1	3:D:2647:ASP:N	2.51	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
3:D:2923:LEU:O	3:D:2927:VAL:HG23	2.20	0.41
7:H:286:MET:HE1	7:H:383:SER:HB2	2.02	0.41
12:M:280:PHE:HD1	12:M:603:ALA:HB2	1.84	0.41
12:M:408:LEU:HD12	12:M:408:LEU:HA	1.87	0.41
16:Q:186:HIS:HB3	16:Q:188:ARG:NH1	2.32	0.41
17:R:123:ASP:N	17:R:123:ASP:OD1	2.53	0.41
1:A:254:TYR:OH	1:A:287:ASP:OD2	2.30	0.41
2:B:210:TYR:HA	2:B:213:GLU:OE1	2.21	0.41
3:D:757:LYS:HD3	3:D:757:LYS:HA	1.87	0.41
3:D:825:ILE:HG13	3:D:826:GLN:N	2.35	0.41
3:D:2140:HIS:CD2	3:D:2144:HIS:ND1	2.88	0.41
4:E:248:THR:O	4:E:248:THR:OG1	2.33	0.41
5:F:632:ASP:O	5:F:636:THR:HG23	2.21	0.41
18:S:79:ASN:OD1	18:S:79:ASN:N	2.53	0.41
1:A:610:GLN:HG2	1:A:611:GLU:HG2	2.03	0.41
1:A:1067:HIS:ND1	1:A:1069:GLU:OE1	2.51	0.41
2:B:199:TYR:CZ	2:B:203:LEU:HD11	2.56	0.41
2:B:479:LEU:HD11	17:R:31:GLN:HG3	2.01	0.41
2:B:529:ILE:H	2:B:529:ILE:HG13	1.67	0.41
2:C:464:PHE:O	2:C:467:ILE:HG13	2.21	0.41
2:C:1077:ARG:NH2	2:C:1081:GLY:O	2.54	0.41
3:D:1163:ASP:OD1	3:D:1163:ASP:N	2.54	0.41
3:D:2262:GLU:H	3:D:2262:GLU:HG3	1.62	0.41
22:I:402:LMG:H292	10:K:221:LEU:HD21	2.01	0.41
12:M:409:TRP:H	12:M:416:HIS:HE1	1.68	0.41
15:P:390:GLN:HE22	15:P:395:ALA:HA	1.84	0.41
15:P:393:LYS:HA	15:P:393:LYS:HD2	1.71	0.41
17:R:224:SER:HB3	17:R:227:GLU:HG3	2.02	0.41
2:B:473:MET:HE3	2:B:474:ILE:HG23	2.02	0.41
2:B:852:LEU:HD11	3:D:2218:GLN:HE21	1.85	0.41
2:C:423:PRO:HA	2:C:424:PRO:HD3	1.92	0.41
2:C:671:ASN:OD1	2:C:671:ASN:N	2.50	0.41
2:C:730:THR:O	2:C:734:VAL:HG13	2.20	0.41
3:D:784:HIS:HE1	17:R:60:ARG:CZ	2.33	0.41
6:G:278:ALA:HB2	6:G:309:HIS:CG	2.56	0.41
7:H:144:LEU:HD23	7:H:144:LEU:HA	1.93	0.41
8:I:220:THR:OG1	8:I:321:TYR:OH	2.22	0.41
15:P:311:LEU:O	15:P:437:TRP:N	2.43	0.41
15:P:332:ALA:HB1	15:P:333:PRO:HD2	2.01	0.41
17:R:359:LEU:HD13	17:R:360:PRO:HD2	2.02	0.41
1:A:527:GLU:HA	5:F:631:ARG:HH21	1.85	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:543:LEU:HA	1:A:546:ASN:HD21	1.85	0.41
1:A:697:LEU:O	1:A:701:GLU:HG3	2.20	0.41
2:C:381:LEU:HD22	2:C:420:VAL:HG11	2.01	0.41
2:C:615:LEU:HD12	2:C:615:LEU:HA	1.80	0.41
2:C:860:ARG:O	2:C:864:HIS:HD2	2.03	0.41
3:D:986:THR:O	3:D:990:LYS:HG3	2.21	0.41
3:D:2359:LYS:HD2	3:D:2359:LYS:HA	1.78	0.41
4:E:196:ASP:HA	4:E:197:PRO:HD3	1.93	0.41
4:E:872:LYS:HB2	4:E:935:MET:SD	2.60	0.41
8:I:219:TRP:CE2	22:K:301:LMG:H131	2.56	0.41
9:J:65:PHE:O	9:J:70:ALA:HB3	2.20	0.41
12:M:556:ARG:HG2	12:M:603:ALA:O	2.20	0.41
12:M:592:LEU:HD23	12:M:592:LEU:HA	1.93	0.41
15:P:555:LEU:HD11	16:Q:343:ALA:HB1	2.01	0.41
15:P:679:SER:HA	15:P:682:PHE:HD2	1.84	0.41
1:A:145:TYR:CZ	2:B:394:ARG:HD2	2.55	0.41
1:A:424:GLU:O	1:A:428:SER:HB2	2.20	0.41
2:B:202:TYR:HA	2:B:205:ARG:NH2	2.36	0.41
2:B:265:ALA:O	2:B:268:VAL:HG12	2.21	0.41
2:C:374:ARG:NH1	2:C:376:LEU:HD21	2.33	0.41
2:C:524:ILE:HG13	2:C:578:LYS:CB	2.51	0.41
3:D:888:LEU:HD13	3:D:888:LEU:HA	1.90	0.41
3:D:957:ARG:HB2	3:D:959:GLU:OE1	2.21	0.41
3:D:1135:ASN:OD1	3:D:1162:ARG:NH1	2.54	0.41
5:F:265:LEU:HD11	19:T:83:LYS:HA	2.03	0.41
5:F:913:HIS:HB3	5:F:916:TYR:HB2	2.02	0.41
7:H:135:ARG:HE	7:H:135:ARG:HB3	1.73	0.41
11:L:242:VAL:O	11:L:242:VAL:HG12	2.21	0.41
15:P:83:GLY:C	15:P:117:TRP:HB2	2.41	0.41
15:P:280:ARG:HE	15:P:280:ARG:HB2	1.77	0.41
1:A:444:LYS:HA	1:A:451:MET:CB	2.46	0.41
1:A:516:ALA:O	1:A:518:VAL:HG13	2.20	0.41
1:A:1088:PRO:O	1:A:1090:PHE:N	2.52	0.41
2:B:199:TYR:CE2	2:B:203:LEU:HD11	2.55	0.41
2:B:360:ALA:HB3	3:D:1311:THR:HA	2.03	0.41
2:B:551:LEU:HD11	7:H:483:GLU:HG3	2.03	0.41
2:C:609:ARG:HE	2:C:654:GLN:NE2	2.18	0.41
2:C:826:VAL:HB	2:C:995:ILE:HG22	2.03	0.41
3:D:637:ASN:HD22	15:P:473:HIS:CG	2.39	0.41
3:D:1225:LYS:HB3	3:D:1225:LYS:HE2	1.75	0.41
3:D:1297:ILE:HA	3:D:1300:VAL:HG22	2.02	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
3:D:2254:LEU:HA	3:D:2255:PRO:HD3	1.81	0.41
3:D:2879:ARG:HB3	3:D:2890:TRP:HB3	2.03	0.41
4:E:83:GLU:OE1	4:E:83:GLU:N	2.53	0.41
9:J:47:ILE:HD13	9:J:47:ILE:HA	1.91	0.41
11:L:233:LEU:HD23	11:L:233:LEU:HA	1.91	0.41
12:M:401:HIS:HA	12:M:411:ASP:OD1	2.20	0.41
12:M:631:GLU:OE2	12:M:631:GLU:N	2.49	0.41
15:P:317:ALA:HB2	15:P:413:LEU:HD12	2.02	0.41
15:P:368:ALA:O	15:P:371:GLU:HG3	2.20	0.41
15:P:502:ALA:HA	15:P:505:VAL:HG12	2.03	0.41
16:Q:219:PHE:HB3	16:Q:243:LEU:HD13	2.01	0.41
17:R:195:LYS:HB2	19:T:27:TYR:CE1	2.36	0.41
1:A:778:MET:HG2	1:A:784:PHE:CE2	2.55	0.41
1:A:846:ASN:O	3:D:2726:ARG:HG2	2.21	0.41
22:A:1201:LMG:H331	22:A:1201:LMG:H302	1.25	0.41
2:B:367:TRP:CD1	2:B:368:ARG:HG2	2.56	0.41
2:B:532:ILE:O	2:B:536:LYS:HB2	2.21	0.41
2:B:893:LEU:HA	2:B:893:LEU:HD12	1.82	0.41
3:D:1172:THR:O	3:D:1172:THR:HG22	2.21	0.41
7:H:344:GLU:H	7:H:344:GLU:CD	2.24	0.41
12:M:629:PRO:O	12:M:633:VAL:HG23	2.20	0.41
15:P:152:LEU:HD12	15:P:152:LEU:H	1.85	0.41
1:A:257:SER:HA	18:S:111:LEU:HD12	2.02	0.40
1:A:798:GLU:HG3	3:D:2787:THR:OG1	2.20	0.40
2:B:474:ILE:HG13	2:B:475:HIS:N	2.35	0.40
2:B:507:PHE:CE1	2:B:600:TYR:HE2	2.39	0.40
2:C:656:ASP:N	2:C:656:ASP:OD1	2.53	0.40
3:D:938:GLU:H	3:D:938:GLU:HG2	1.50	0.40
3:D:2070:LEU:HA	3:D:2070:LEU:HD23	1.70	0.40
3:D:2237:LEU:HA	3:D:2240:LYS:HB3	2.03	0.40
6:G:134:ARG:HH22	6:G:400:HIS:HB3	1.87	0.40
7:H:85:SER:N	7:H:86:PRO:HD2	2.36	0.40
8:I:304:ALA:HA	8:I:305:PRO:HD3	1.94	0.40
10:K:132:PRO:C	10:K:134:ALA:H	2.24	0.40
17:R:154:TYR:HB2	17:R:206:HIS:CE1	2.56	0.40
1:A:257:SER:OG	18:S:112:GLU:OE1	2.39	0.40
2:C:787:GLY:HA2	2:C:793:ASP:OD1	2.21	0.40
3:D:454:TYR:O	3:D:458:ASN:ND2	2.50	0.40
3:D:554:ASP:OD2	15:P:353:VAL:HB	2.22	0.40
3:D:572:LYS:HE2	3:D:572:LYS:HB3	1.89	0.40
3:D:1437:ILE:O	3:D:1441:LEU:HG	2.21	0.40

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
3:D:1664:LEU:HD21	17:R:4:PHE:CE1	2.56	0.40
9:J:93:GLU:HG3	9:J:93:GLU:H	1.60	0.40
11:L:264:LEU:HD12	11:L:265:PRO:HD2	2.04	0.40
15:P:242:THR:HG22	15:P:250:ASP:CG	2.42	0.40
15:P:265:LEU:O	15:P:269:LEU:HD12	2.22	0.40
17:R:223:ALA:HB1	17:R:227:GLU:OE1	2.21	0.40
1:A:744:VAL:HG13	1:A:757:VAL:HG22	2.03	0.40
1:A:1045:VAL:O	1:A:1049:ILE:HG12	2.21	0.40
2:C:897:GLU:HG2	2:C:897:GLU:H	1.68	0.40
3:D:449:LEU:H	3:D:449:LEU:HD12	1.86	0.40
3:D:1249:SER:OG	3:D:1250:LYS:N	2.53	0.40
3:D:1249:SER:OG	3:D:1251:ARG:N	2.55	0.40
4:E:958:PRO:HD3	5:F:949:ARG:NH1	2.36	0.40
9:J:67:ASP:OD1	9:J:67:ASP:N	2.33	0.40
10:K:131:ILE:HA	10:K:132:PRO:HD3	1.79	0.40
15:P:202:SER:O	15:P:204:LEU:N	2.54	0.40
15:P:279:PRO:O	15:P:283:VAL:HG12	2.22	0.40
15:P:405:LEU:O	28:P:702:A1LXL:C21	2.69	0.40
15:P:579:ALA:HA	15:P:582:ARG:HG2	2.02	0.40
16:Q:275:GLN:O	16:Q:279:GLN:NE2	2.54	0.40
1:A:842:TYR:OH	3:D:2788:ASN:HB2	2.21	0.40
1:A:875:ARG:H	3:D:2185:ASN:HD21	1.69	0.40
2:C:389:HIS:O	2:C:407:THR:HG22	2.20	0.40
2:C:535:VAL:O	2:C:539:ILE:HG23	2.21	0.40
3:D:2695:PRO:HD3	3:D:2700:LEU:O	2.22	0.40
3:D:2962:ILE:HG12	3:D:2962:ILE:H	1.72	0.40
4:E:90:LEU:HA	4:E:90:LEU:HD23	1.84	0.40
5:F:746:LEU:O	5:F:750:MET:HG2	2.21	0.40
7:H:320:TYR:O	7:H:324:MET:HG3	2.21	0.40
11:L:153:PRO:HA	11:L:156:ARG:HE	1.85	0.40
15:P:143:VAL:HA	15:P:146:GLU:OE2	2.21	0.40
15:P:143:VAL:HG22	15:P:148:MET:HE1	2.02	0.40
16:Q:236:LEU:HD13	16:Q:236:LEU:HA	1.96	0.40
2:B:607:ARG:O	2:B:611:THR:HG22	2.22	0.40
2:C:377:SER:OG	2:C:378:TYR:N	2.53	0.40
2:C:536:LYS:HB3	2:C:537:LYS:HZ2	1.86	0.40
3:D:2349:LEU:HD23	3:D:2349:LEU:HA	1.87	0.40
4:E:190:TRP:CH2	17:R:357:GLN:HB2	2.56	0.40
5:F:735:LYS:HD2	5:F:766:CYS:HB2	2.04	0.40
6:G:238:THR:OG1	6:G:239:ASP:N	2.54	0.40
7:H:104:ALA:O	7:H:107:GLU:HG3	2.22	0.40

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
11:L:167:LEU:HD13	11:L:171:LEU:HD11	2.03	0.40
11:L:300:MET:N	11:L:300:MET:SD	2.94	0.40
15:P:84:TRP:CG	15:P:100:LEU:HD12	2.57	0.40
15:P:506:LEU:C	15:P:509:PRO:HD2	2.41	0.40
16:Q:166:MET:HA	16:Q:169:VAL:HG12	2.03	0.40

There are no symmetry-related clashes.

5.3 Torsion angles [i](#)

5.3.1 Protein backbone [i](#)

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

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

Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
1	A	982/1182 (83%)	912 (93%)	70 (7%)	0	100	100
2	B	736/1112 (66%)	683 (93%)	51 (7%)	2 (0%)	37	67
2	C	682/1112 (61%)	622 (91%)	58 (8%)	2 (0%)	37	67
3	D	1471/2971 (50%)	1341 (91%)	116 (8%)	14 (1%)	13	39
4	E	864/982 (88%)	798 (92%)	64 (7%)	2 (0%)	44	73
5	F	695/1024 (68%)	646 (93%)	48 (7%)	1 (0%)	48	77
6	G	392/495 (79%)	359 (92%)	30 (8%)	3 (1%)	16	44
7	H	404/555 (73%)	384 (95%)	19 (5%)	1 (0%)	44	73
8	I	268/366 (73%)	243 (91%)	25 (9%)	0	100	100
9	J	82/117 (70%)	78 (95%)	4 (5%)	0	100	100
10	K	187/255 (73%)	167 (89%)	17 (9%)	3 (2%)	8	27
11	L	149/303 (49%)	135 (91%)	14 (9%)	0	100	100
12	M	388/682 (57%)	357 (92%)	31 (8%)	0	100	100
13	N	113/137 (82%)	107 (95%)	6 (5%)	0	100	100
14	O	312/471 (66%)	288 (92%)	24 (8%)	0	100	100
15	P	613/691 (89%)	558 (91%)	53 (9%)	2 (0%)	37	67

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
16	Q	260/365 (71%)	245 (94%)	15 (6%)	0	100	100
17	R	393/462 (85%)	356 (91%)	35 (9%)	2 (0%)	25	56
18	S	112/324 (35%)	101 (90%)	11 (10%)	0	100	100
19	T	106/299 (36%)	95 (90%)	10 (9%)	1 (1%)	14	42
20	U	6/156 (4%)	5 (83%)	1 (17%)	0	100	100
All	All	9215/14061 (66%)	8480 (92%)	702 (8%)	33 (0%)	32	61

All (33) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
3	D	971	PRO
3	D	2777	LEU
3	D	2801	HIS
3	D	2891	PHE
3	D	60	ASN
3	D	964	LYS
3	D	1329	TRP
3	D	1364	ASN
6	G	251	LEU
6	G	260	SER
6	G	261	SER
10	K	90	SER
15	P	71	GLU
2	C	779	GLY
3	D	2251	VAL
17	R	333	TRP
2	B	449	LEU
3	D	965	LYS
3	D	1326	HIS
4	E	605	PRO
10	K	241	PRO
19	T	40	PRO
2	C	424	PRO
3	D	2153	TYR
2	B	250	PRO
4	E	352	PRO
3	D	2250	ILE
7	H	150	GLY
3	D	2633	PRO
15	P	203	GLY

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Mol	Chain	Res	Type
5	F	154	PRO
10	K	91	ILE
17	R	387	VAL

5.3.2 Protein sidechains [i](#)

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

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

Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
1	A	774/936 (83%)	728 (94%)	46 (6%)	16	44
2	B	599/858 (70%)	544 (91%)	55 (9%)	7	24
2	C	548/858 (64%)	512 (93%)	36 (7%)	14	39
3	D	1443/2762 (52%)	1328 (92%)	115 (8%)	10	30
4	E	536/774 (69%)	491 (92%)	45 (8%)	9	28
5	F	542/773 (70%)	499 (92%)	43 (8%)	10	30
6	G	283/358 (79%)	259 (92%)	24 (8%)	8	27
7	H	346/451 (77%)	313 (90%)	33 (10%)	7	22
8	I	204/263 (78%)	194 (95%)	10 (5%)	21	52
9	J	64/87 (74%)	54 (84%)	10 (16%)	2	7
10	K	163/215 (76%)	147 (90%)	16 (10%)	6	21
11	L	124/243 (51%)	120 (97%)	4 (3%)	34	68
12	M	298/492 (61%)	273 (92%)	25 (8%)	9	28
13	N	92/107 (86%)	84 (91%)	8 (9%)	8	26
14	O	37/340 (11%)	35 (95%)	2 (5%)	18	48
15	P	431/485 (89%)	388 (90%)	43 (10%)	6	20
16	Q	218/296 (74%)	196 (90%)	22 (10%)	6	20
17	R	312/345 (90%)	288 (92%)	24 (8%)	10	31
18	S	97/226 (43%)	88 (91%)	9 (9%)	7	23
19	T	83/198 (42%)	73 (88%)	10 (12%)	4	14
20	U	1/7 (14%)	1 (100%)	0	100	100

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Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
All	All	7195/11074 (65%)	6615 (92%)	580 (8%)	12	29

All (580) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	128	GLN
1	A	137	LYS
1	A	173	VAL
1	A	176	ASN
1	A	250	THR
1	A	254	TYR
1	A	300	ASP
1	A	308	GLN
1	A	314	GLN
1	A	320	VAL
1	A	367	GLU
1	A	374	CYS
1	A	382	LEU
1	A	428	SER
1	A	432	ARG
1	A	446	GLU
1	A	522	SER
1	A	530	GLU
1	A	561	ASP
1	A	568	SER
1	A	569	THR
1	A	576	SER
1	A	595	ASN
1	A	607	ASN
1	A	613	ASP
1	A	617	LEU
1	A	682	LEU
1	A	708	GLN
1	A	714	ASP
1	A	732	PHE
1	A	738	LEU
1	A	751	ARG
1	A	775	THR
1	A	798	GLU
1	A	826	SER
1	A	833	LEU
1	A	855	SER

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Mol	Chain	Res	Type
1	A	949	GLU
1	A	978	VAL
1	A	1024	GLU
1	A	1040	MET
1	A	1067	HIS
1	A	1090	PHE
1	A	1104	SER
1	A	1131	SER
1	A	1136	LEU
2	B	204	ARG
2	B	211	LEU
2	B	221	GLU
2	B	243	GLU
2	B	268	VAL
2	B	336	LYS
2	B	339	ASP
2	B	340	MET
2	B	368	ARG
2	B	373	LEU
2	B	394	ARG
2	B	419	LYS
2	B	430	ASP
2	B	446	ASP
2	B	448	ARG
2	B	450	ARG
2	B	458	LEU
2	B	468	SER
2	B	470	LEU
2	B	512	ARG
2	B	533	ASP
2	B	538	GLU
2	B	571	THR
2	B	586	VAL
2	B	588	MET
2	B	590	THR
2	B	595	ASP
2	B	600	TYR
2	B	629	ASP
2	B	631	MET
2	B	642	ASP
2	B	644	SER
2	B	672	ARG

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Mol	Chain	Res	Type
2	B	688	ARG
2	B	696	ASP
2	B	707	HIS
2	B	719	TRP
2	B	720	TYR
2	B	721	GLU
2	B	730	THR
2	B	735	MET
2	B	751	HIS
2	B	762	MET
2	B	792	PRO
2	B	813	LEU
2	B	849	ASN
2	B	881	THR
2	B	885	SER
2	B	901	SER
2	B	965	ASP
2	B	1006	SER
2	B	1012	PHE
2	B	1085	HIS
2	B	1087	TRP
2	B	1111	SER
2	C	370	GLN
2	C	378	TYR
2	C	403	VAL
2	C	406	THR
2	C	407	THR
2	C	416	ARG
2	C	431	HIS
2	C	435	ASN
2	C	440	ASP
2	C	462	VAL
2	C	465	MET
2	C	480	ASP
2	C	490	GLU
2	C	495	ARG
2	C	500	HIS
2	C	517	ASP
2	C	548	ASN
2	C	551	LEU
2	C	574	THR
2	C	587	ARG

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Mol	Chain	Res	Type
2	C	598	ASP
2	C	612	PHE
2	C	655	MET
2	C	671	ASN
2	C	716	ASN
2	C	754	THR
2	C	774	SER
2	C	791	SER
2	C	827	SER
2	C	842	GLU
2	C	883	MET
2	C	980	ARG
2	C	1009	VAL
2	C	1058	ASP
2	C	1080	ASP
2	C	1095	VAL
3	D	38	ASN
3	D	62	LYS
3	D	64	MET
3	D	318	SER
3	D	325	GLN
3	D	333	SER
3	D	350	LEU
3	D	356	SER
3	D	448	ASP
3	D	455	CYS
3	D	457	ASN
3	D	469	LEU
3	D	471	THR
3	D	554	ASP
3	D	574	ASN
3	D	620	ASN
3	D	635	TYR
3	D	637	ASN
3	D	793	LEU
3	D	811	ASN
3	D	887	PHE
3	D	905	THR
3	D	909	HIS
3	D	938	GLU
3	D	951	ARG
3	D	988	ARG

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Mol	Chain	Res	Type
3	D	1133	LYS
3	D	1163	ASP
3	D	1185	LEU
3	D	1248	TYR
3	D	1249	SER
3	D	1259	LYS
3	D	1290	ASN
3	D	1312	SER
3	D	1314	LEU
3	D	1331	THR
3	D	1334	ASN
3	D	1372	ASN
3	D	1387	GLU
3	D	1398	SER
3	D	1409	SER
3	D	1412	SER
3	D	1445	LEU
3	D	1447	LYS
3	D	1448	ASN
3	D	1729	LYS
3	D	1730	MET
3	D	1746	ARG
3	D	1763	THR
3	D	1770	GLU
3	D	1773	THR
3	D	1776	TRP
3	D	1788	ASP
3	D	1809	GLU
3	D	1814	ASP
3	D	1815	PHE
3	D	1946	ARG
3	D	1959	HIS
3	D	2024	THR
3	D	2031	ASP
3	D	2033	ASN
3	D	2089	ASP
3	D	2129	GLU
3	D	2150	LYS
3	D	2153	TYR
3	D	2165	ASP
3	D	2183	ASN
3	D	2185	ASN

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Mol	Chain	Res	Type
3	D	2191	LYS
3	D	2212	ASN
3	D	2235	SER
3	D	2239	LEU
3	D	2240	LYS
3	D	2258	SER
3	D	2262	GLU
3	D	2287	SER
3	D	2289	LEU
3	D	2299	LEU
3	D	2320	ILE
3	D	2337	THR
3	D	2345	THR
3	D	2364	THR
3	D	2365	SER
3	D	2366	ASN
3	D	2404	ARG
3	D	2445	LEU
3	D	2446	ASN
3	D	2524	LEU
3	D	2532	LEU
3	D	2558	ASP
3	D	2560	LEU
3	D	2594	SER
3	D	2600	LYS
3	D	2606	SER
3	D	2673	LYS
3	D	2676	ILE
3	D	2679	LYS
3	D	2687	ASN
3	D	2698	SER
3	D	2714	PHE
3	D	2731	THR
3	D	2771	LEU
3	D	2780	ASN
3	D	2808	GLN
3	D	2810	TRP
3	D	2861	ASP
3	D	2863	LEU
3	D	2865	ASP
3	D	2868	ASP
3	D	2874	ASN

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Mol	Chain	Res	Type
3	D	2883	ASN
3	D	2891	PHE
3	D	2898	SER
3	D	2919	LYS
3	D	2941	ASN
4	E	56	THR
4	E	65	LYS
4	E	72	SER
4	E	81	ASP
4	E	103	THR
4	E	140	LEU
4	E	164	GLN
4	E	165	GLU
4	E	177	SER
4	E	202	TRP
4	E	210	ASP
4	E	216	VAL
4	E	229	ARG
4	E	243	GLU
4	E	262	SER
4	E	313	SER
4	E	319	SER
4	E	338	VAL
4	E	346	LEU
4	E	364	GLU
4	E	609	THR
4	E	625	VAL
4	E	642	VAL
4	E	645	ASP
4	E	651	ASN
4	E	664	GLN
4	E	682	VAL
4	E	685	SER
4	E	692	LEU
4	E	712	ARG
4	E	725	SER
4	E	776	THR
4	E	808	THR
4	E	818	ASP
4	E	856	SER
4	E	864	THR
4	E	897	SER

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Mol	Chain	Res	Type
4	E	901	GLU
4	E	909	ASP
4	E	918	THR
4	E	923	ASP
4	E	945	ARG
4	E	972	GLU
4	E	974	GLN
4	E	976	LYS
5	F	90	ARG
5	F	97	LEU
5	F	99	ASP
5	F	112	SER
5	F	232	VAL
5	F	236	VAL
5	F	241	ASP
5	F	550	ASP
5	F	554	ASN
5	F	567	PHE
5	F	568	PHE
5	F	586	LEU
5	F	597	LEU
5	F	612	SER
5	F	617	GLU
5	F	620	GLU
5	F	631	ARG
5	F	681	PHE
5	F	706	ARG
5	F	711	ASP
5	F	713	SER
5	F	726	GLU
5	F	730	VAL
5	F	748	SER
5	F	766	CYS
5	F	767	PHE
5	F	793	ARG
5	F	812	MET
5	F	833	THR
5	F	837	SER
5	F	838	THR
5	F	844	ARG
5	F	884	ARG
5	F	907	ASN

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Mol	Chain	Res	Type
5	F	930	SER
5	F	946	ASN
5	F	947	GLN
5	F	948	THR
5	F	949	ARG
5	F	950	SER
5	F	1001	GLN
5	F	1014	ARG
5	F	1023	LEU
6	G	109	ASP
6	G	116	CYS
6	G	117	LEU
6	G	126	LEU
6	G	172	LEU
6	G	177	SER
6	G	215	SER
6	G	227	ASP
6	G	228	ARG
6	G	231	MET
6	G	239	ASP
6	G	253	GLU
6	G	257	ARG
6	G	262	SER
6	G	264	ASP
6	G	265	ARG
6	G	267	ASP
6	G	276	LEU
6	G	298	LEU
6	G	398	SER
6	G	402	LEU
6	G	420	SER
6	G	443	GLN
6	G	490	GLU
7	H	85	SER
7	H	101	ASP
7	H	114	GLN
7	H	117	ASP
7	H	132	GLU
7	H	147	GLU
7	H	149	THR
7	H	169	SER
7	H	175	ASP

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Mol	Chain	Res	Type
7	H	198	ASP
7	H	246	GLN
7	H	281	ARG
7	H	283	SER
7	H	292	ASP
7	H	301	THR
7	H	307	CYS
7	H	308	CYS
7	H	311	ARG
7	H	314	LEU
7	H	315	LYS
7	H	348	LYS
7	H	351	SER
7	H	383	SER
7	H	384	LEU
7	H	401	ARG
7	H	413	CYS
7	H	414	ASP
7	H	433	GLU
7	H	436	GLU
7	H	449	LYS
7	H	467	ASP
7	H	468	GLU
7	H	489	GLU
8	I	61	ASN
8	I	84	THR
8	I	125	SER
8	I	127	GLN
8	I	198	TRP
8	I	209	ARG
8	I	232	LEU
8	I	244	VAL
8	I	289	SER
8	I	303	SER
9	J	36	ASP
9	J	46	SER
9	J	50	THR
9	J	67	ASP
9	J	73	LEU
9	J	74	ASP
9	J	88	ILE
9	J	91	GLU

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Mol	Chain	Res	Type
9	J	93	GLU
9	J	117	ASN
10	K	67	THR
10	K	87	THR
10	K	94	THR
10	K	96	THR
10	K	98	ARG
10	K	143	THR
10	K	150	GLN
10	K	152	ARG
10	K	169	ARG
10	K	198	SER
10	K	205	PHE
10	K	223	GLU
10	K	238	LEU
10	K	242	VAL
10	K	244	LYS
10	K	253	TRP
11	L	192	SER
11	L	263	ARG
11	L	292	LEU
11	L	296	VAL
12	M	262	SER
12	M	266	LEU
12	M	287	PHE
12	M	292	HIS
12	M	294	SER
12	M	310	ARG
12	M	335	SER
12	M	339	VAL
12	M	363	CYS
12	M	384	MET
12	M	390	SER
12	M	405	THR
12	M	418	LEU
12	M	419	THR
12	M	423	LEU
12	M	429	ARG
12	M	463	ASP
12	M	498	SER
12	M	516	PHE
12	M	536	ARG

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Mol	Chain	Res	Type
12	M	559	ARG
12	M	567	ASN
12	M	621	ASP
12	M	630	MET
12	M	636	GLU
13	N	37	ASP
13	N	48	THR
13	N	49	ARG
13	N	80	SER
13	N	108	GLN
13	N	126	ASP
13	N	130	ARG
13	N	134	VAL
14	O	434	SER
14	O	469	ARG
15	P	65	LEU
15	P	68	ARG
15	P	87	THR
15	P	101	SER
15	P	109	VAL
15	P	116	THR
15	P	122	GLN
15	P	133	GLU
15	P	141	GLN
15	P	146	GLU
15	P	162	ASP
15	P	189	GLU
15	P	205	ASP
15	P	216	MET
15	P	217	SER
15	P	246	LEU
15	P	302	THR
15	P	310	ASP
15	P	313	LEU
15	P	324	LEU
15	P	330	ARG
15	P	336	LEU
15	P	344	HIS
15	P	347	PRO
15	P	371	GLU
15	P	390	GLN
15	P	398	SER

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Mol	Chain	Res	Type
15	P	404	GLN
15	P	408	SER
15	P	413	LEU
15	P	424	LEU
15	P	472	THR
15	P	485	MET
15	P	498	LEU
15	P	519	GLU
15	P	521	ASP
15	P	564	LYS
15	P	568	GLU
15	P	593	THR
15	P	628	VAL
15	P	655	GLN
15	P	677	THR
15	P	682	PHE
16	Q	99	ASP
16	Q	101	VAL
16	Q	112	THR
16	Q	115	ASN
16	Q	133	PHE
16	Q	140	ASP
16	Q	142	GLU
16	Q	152	ASN
16	Q	166	MET
16	Q	203	TYR
16	Q	224	LEU
16	Q	243	LEU
16	Q	244	ASP
16	Q	249	SER
16	Q	260	LYS
16	Q	268	LYS
16	Q	287	ARG
16	Q	300	ARG
16	Q	307	ARG
16	Q	312	SER
16	Q	315	ARG
16	Q	325	SER
17	R	10	ASP
17	R	17	LEU
17	R	33	VAL
17	R	44	ASP

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Mol	Chain	Res	Type
17	R	69	CYS
17	R	114	ARG
17	R	123	ASP
17	R	137	SER
17	R	149	LEU
17	R	152	GLU
17	R	173	ASP
17	R	187	ASP
17	R	238	SER
17	R	251	LEU
17	R	268	SER
17	R	335	ASP
17	R	342	LYS
17	R	359	LEU
17	R	367	ARG
17	R	390	LYS
17	R	395	THR
17	R	402	LEU
17	R	428	LEU
17	R	444	ARG
18	S	40	ASP
18	S	48	GLU
18	S	52	LYS
18	S	55	GLN
18	S	79	ASN
18	S	87	LEU
18	S	102	SER
18	S	122	GLU
18	S	130	LEU
19	T	31	SER
19	T	33	GLU
19	T	49	VAL
19	T	65	CYS
19	T	77	ARG
19	T	78	ASP
19	T	80	ASP
19	T	88	SER
19	T	90	GLN
19	T	91	GLU

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (149) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	134	ASN
1	A	138	GLN
1	A	176	ASN
1	A	238	HIS
1	A	247	HIS
1	A	308	GLN
1	A	314	GLN
1	A	327	GLN
1	A	335	GLN
1	A	340	GLN
1	A	541	ASN
1	A	546	ASN
1	A	665	GLN
1	A	687	ASN
1	A	771	HIS
1	A	801	HIS
1	A	909	GLN
2	B	257	ASN
2	B	259	ASN
2	B	274	GLN
2	B	506	ASN
2	B	530	ASN
2	B	661	ASN
2	B	751	HIS
2	B	764	ASN
2	B	832	ASN
2	B	892	ASN
2	C	389	HIS
2	C	456	GLN
2	C	638	GLN
2	C	710	ASN
2	C	718	ASN
2	C	832	ASN
2	C	864	HIS
2	C	944	HIS
2	C	952	GLN
3	D	42	ASN
3	D	65	GLN
3	D	271	GLN
3	D	461	ASN
3	D	473	ASN
3	D	574	ASN
3	D	615	ASN

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Mol	Chain	Res	Type
3	D	621	HIS
3	D	630	ASN
3	D	638	ASN
3	D	735	GLN
3	D	782	ASN
3	D	784	HIS
3	D	818	ASN
3	D	909	HIS
3	D	1126	ASN
3	D	1226	ASN
3	D	1290	ASN
3	D	1308	ASN
3	D	1364	ASN
3	D	1448	ASN
3	D	1760	GLN
3	D	1915	ASN
3	D	1956	GLN
3	D	1976	HIS
3	D	1994	GLN
3	D	2091	HIS
3	D	2140	HIS
3	D	2183	ASN
3	D	2185	ASN
3	D	2218	GLN
3	D	2248	ASN
3	D	2263	GLN
3	D	2344	HIS
3	D	2374	ASN
3	D	2416	ASN
3	D	2446	ASN
3	D	2557	ASN
3	D	2572	ASN
3	D	2628	GLN
3	D	2653	ASN
3	D	2729	GLN
3	D	2763	ASN
3	D	2769	GLN
3	D	2780	ASN
3	D	2874	ASN
3	D	2941	ASN
4	E	130	HIS
4	E	164	GLN

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Mol	Chain	Res	Type
4	E	205	GLN
4	E	263	HIS
4	E	270	GLN
4	E	619	HIS
4	E	633	GLN
4	E	964	GLN
5	F	152	GLN
5	F	177	GLN
5	F	779	GLN
5	F	867	GLN
5	F	893	HIS
5	F	896	GLN
5	F	907	ASN
5	F	913	HIS
5	F	938	GLN
5	F	947	GLN
5	F	1001	GLN
5	F	1017	GLN
6	G	157	GLN
6	G	258	HIS
6	G	386	GLN
6	G	400	HIS
7	H	114	GLN
7	H	145	GLN
7	H	246	GLN
7	H	249	ASN
7	H	406	GLN
7	H	415	ASN
8	I	61	ASN
8	I	355	GLN
9	J	117	ASN
10	K	106	GLN
11	L	191	ASN
11	L	193	GLN
11	L	293	GLN
12	M	270	GLN
12	M	400	HIS
12	M	404	HIS
12	M	416	HIS
12	M	517	HIS
12	M	567	ASN
13	N	56	GLN

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Mol	Chain	Res	Type
13	N	60	ASN
13	N	108	GLN
15	P	141	GLN
15	P	268	GLN
15	P	367	HIS
15	P	403	GLN
15	P	448	GLN
15	P	517	ASN
16	Q	152	ASN
16	Q	168	ASN
16	Q	195	GLN
16	Q	253	GLN
16	Q	255	ASN
16	Q	270	GLN
16	Q	279	GLN
17	R	191	HIS
17	R	228	ASN
17	R	249	GLN
17	R	321	ASN
18	S	32	HIS
18	S	39	HIS
19	T	122	GLN

5.3.3 RNA ⓘ

There are no RNA molecules in this entry.

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

11 non-standard protein/DNA/RNA residues are modelled in this entry.

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

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	# Z > 2	Counts	RMSZ	# Z > 2
18	SEP	S	85	18	8,9,10	1.54	1 (12%)	8,12,14	1.41	1 (12%)

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	# Z > 2	Counts	RMSZ	# Z > 2
19	SEP	T	28	19	8,9,10	1.55	1 (12%)	8,12,14	1.49	2 (25%)
18	TPO	S	107	18	8,10,11	1.57	1 (12%)	10,14,16	1.73	1 (10%)
2	TPO	B	347	2	8,10,11	1.08	0	10,14,16	2.02	1 (10%)
17	TPO	R	167	17	8,10,11	1.04	0	10,14,16	2.04	1 (10%)
19	SEP	T	18	19	8,9,10	1.54	1 (12%)	8,12,14	1.76	2 (25%)
2	TPO	B	337	2	8,10,11	1.60	1 (12%)	10,14,16	1.64	2 (20%)
17	SEP	R	126	17	8,9,10	1.52	1 (12%)	8,12,14	1.35	1 (12%)
18	SEP	S	84	18	8,9,10	1.56	1 (12%)	8,12,14	1.68	2 (25%)
9	4HH	J	72	9	21,26,27	0.38	0	27,35,37	0.59	0
2	TPO	B	346	2	8,10,11	1.58	1 (12%)	10,14,16	1.73	1 (10%)

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

Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
18	SEP	S	85	18	-	2/5/8/10	-
19	SEP	T	28	19	-	1/5/8/10	-
18	TPO	S	107	18	-	1/9/11/13	-
2	TPO	B	347	2	-	4/9/11/13	-
17	TPO	R	167	17	-	2/9/11/13	-
19	SEP	T	18	19	-	0/5/8/10	-
2	TPO	B	337	2	-	3/9/11/13	-
17	SEP	R	126	17	-	0/5/8/10	-
18	SEP	S	84	18	-	1/5/8/10	-
9	4HH	J	72	9	-	5/32/35/37	-
2	TPO	B	346	2	-	3/9/11/13	-

All (8) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
18	S	84	SEP	P-O1P	3.39	1.61	1.50
2	B	337	TPO	P-O1P	3.37	1.61	1.50
2	B	346	TPO	P-O1P	3.37	1.61	1.50
19	T	18	SEP	P-O1P	3.36	1.61	1.50
19	T	28	SEP	P-O1P	3.36	1.61	1.50
18	S	85	SEP	P-O1P	3.36	1.61	1.50
18	S	107	TPO	P-O1P	3.33	1.61	1.50

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
17	R	126	SEP	P-O1P	3.32	1.61	1.50

All (14) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
17	R	167	TPO	P-OG1-CB	-5.94	105.28	123.21
2	B	347	TPO	P-OG1-CB	-5.79	105.72	123.21
2	B	346	TPO	P-OG1-CB	-5.00	108.09	123.21
18	S	107	TPO	P-OG1-CB	-4.97	108.21	123.21
2	B	337	TPO	P-OG1-CB	-4.19	110.55	123.21
19	T	18	SEP	OG-CB-CA	3.31	111.36	108.14
18	S	84	SEP	P-OG-CB	-3.12	109.69	118.30
19	T	18	SEP	P-OG-CB	-3.12	109.70	118.30
18	S	85	SEP	P-OG-CB	-2.99	110.05	118.30
18	S	84	SEP	OG-CB-CA	2.96	111.03	108.14
17	R	126	SEP	P-OG-CB	-2.93	110.24	118.30
19	T	28	SEP	P-OG-CB	-2.60	111.13	118.30
19	T	28	SEP	OG-CB-CA	2.53	110.61	108.14
2	B	337	TPO	CG2-CB-CA	-2.19	108.83	113.16

There are no chirality outliers.

All (22) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
17	R	167	TPO	CB-OG1-P-O1P
18	S	84	SEP	N-CA-CB-OG
18	S	85	SEP	N-CA-CB-OG
18	S	107	TPO	O-C-CA-CB
2	B	337	TPO	C-CA-CB-CG2
2	B	346	TPO	N-CA-CB-OG1
2	B	346	TPO	C-CA-CB-CG2
2	B	347	TPO	N-CA-CB-OG1
2	B	347	TPO	O-C-CA-CB
2	B	347	TPO	CB-OG1-P-O1P
19	T	28	SEP	CA-CB-OG-P
9	J	72	4HH	CP-CQ-NR-CS
9	J	72	4HH	OR-CQ-NR-CS
2	B	346	TPO	CB-OG1-P-O3P
2	B	347	TPO	C-CA-CB-CG2
18	S	85	SEP	CB-OG-P-O1P
9	J	72	4HH	CB-OG-P-O3P
9	J	72	4HH	CL2-CK-CM-OM

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Mol	Chain	Res	Type	Atoms
17	R	167	TPO	CB-OG1-P-O2P
2	B	337	TPO	CB-OG1-P-O2P
9	J	72	4HH	CB-OG-P-O2P
2	B	337	TPO	O-C-CA-CB

There are no ring outliers.

4 monomers are involved in 6 short contacts:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
17	R	167	TPO	2	0
17	R	126	SEP	1	0
9	J	72	4HH	1	0
2	B	346	TPO	2	0

5.5 Carbohydrates [i](#)

There are no oligosaccharides in this entry.

5.6 Ligand geometry [i](#)

Of 19 ligands modelled in this entry, 3 are monoatomic - leaving 16 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
28	A1LXL	P	701	-	33,33,33	4.56	14 (42%)	51,51,51	2.28	13 (25%)
25	DGA	L	3001	-	33,33,43	1.21	3 (9%)	35,35,45	1.72	3 (8%)
26	Y01	D	3102	-	38,38,38	0.46	0	57,57,57	0.62	0
27	DGD	I	403	-	41,41,67	1.21	4 (9%)	55,55,81	1.44	7 (12%)
28	A1LXL	P	702	-	33,33,33	4.63	15 (45%)	51,51,51	2.17	16 (31%)
22	LMG	I	402	-	32,32,55	0.99	2 (6%)	40,40,63	1.30	6 (15%)
22	LMG	A	1201	-	46,46,55	0.85	2 (4%)	54,54,63	1.34	8 (14%)
26	Y01	M	802	-	38,38,38	0.46	0	57,57,57	0.62	0

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	# Z > 2	Counts	RMSZ	# Z > 2
24	SQD	B	1201	-	45,46,54	1.08	6 (13%)	54,57,65	1.71	12 (22%)
24	SQD	K	302	-	44,45,54	1.09	6 (13%)	53,56,65	1.73	10 (18%)
22	LMG	C	1201	-	24,24,55	0.71	0	26,26,63	1.07	1 (3%)
25	DGA	D	3101	-	38,38,43	1.13	3 (7%)	40,40,45	1.68	3 (7%)
24	SQD	I	401	-	48,49,54	1.03	5 (10%)	57,60,65	1.62	11 (19%)
27	DGD	N	201	-	42,42,67	1.11	3 (7%)	56,56,81	1.38	6 (10%)
22	LMG	K	301	-	41,41,55	0.82	0	49,49,63	1.27	5 (10%)
22	LMG	M	801	-	48,48,55	0.84	2 (4%)	56,56,63	1.40	7 (12%)

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
28	A1LXL	P	701	-	-	10/15/73/73	0/4/4/4
25	DGA	L	3001	-	-	22/35/35/45	-
26	Y01	D	3102	-	-	6/19/77/77	0/4/4/4
27	DGD	I	403	-	-	12/29/69/95	0/2/2/2
28	A1LXL	P	702	-	-	6/15/73/73	0/4/4/4
22	LMG	I	402	-	-	13/27/47/70	0/1/1/1
22	LMG	A	1201	-	-	15/41/61/70	0/1/1/1
26	Y01	M	802	-	-	4/19/77/77	0/4/4/4
24	SQD	B	1201	-	-	17/41/61/69	0/1/1/1
24	SQD	K	302	-	-	20/40/60/69	0/1/1/1
22	LMG	C	1201	-	-	11/26/26/70	-
25	DGA	D	3101	-	-	28/40/40/45	-
24	SQD	I	401	-	-	21/44/64/69	0/1/1/1
27	DGD	N	201	-	-	11/30/70/95	0/2/2/2
22	LMG	K	301	-	-	14/36/56/70	0/1/1/1
22	LMG	M	801	-	-	21/43/63/70	0/1/1/1

All (65) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
28	P	702	A1LXL	C18-C19	15.17	1.66	1.33
28	P	701	A1LXL	C18-C19	14.13	1.64	1.33

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
28	P	702	A1LXL	C06-C08	-10.39	1.36	1.54
28	P	701	A1LXL	C06-C08	-8.93	1.38	1.54
28	P	701	A1LXL	C09-C08	8.66	1.72	1.54
28	P	701	A1LXL	C17-C16	8.65	1.67	1.53
28	P	702	A1LXL	C17-C16	8.44	1.67	1.53
28	P	702	A1LXL	C09-C08	8.22	1.71	1.54
28	P	701	A1LXL	C13-C12	-8.01	1.39	1.54
28	P	701	A1LXL	C12-C08	7.24	1.68	1.55
28	P	702	A1LXL	C13-C12	-7.22	1.41	1.54
28	P	702	A1LXL	C12-C08	6.60	1.67	1.55
28	P	702	A1LXL	C13-C14	6.26	1.66	1.53
28	P	701	A1LXL	C13-C14	6.18	1.66	1.53
28	P	701	A1LXL	C20-C15	5.34	1.65	1.56
28	P	702	A1LXL	C20-C15	4.71	1.63	1.56
28	P	701	A1LXL	C05-C06	4.43	1.65	1.54
28	P	702	A1LXL	C05-C06	4.42	1.65	1.54
28	P	701	A1LXL	C10-C11	3.83	1.62	1.54
25	L	3001	DGA	OG2-CB1	3.43	1.44	1.34
25	D	3101	DGA	OG2-CB1	3.41	1.43	1.34
25	L	3001	DGA	OG1-CA1	3.38	1.43	1.33
28	P	702	A1LXL	C10-C11	3.34	1.61	1.54
25	D	3101	DGA	OG1-CA1	3.20	1.42	1.33
28	P	701	A1LXL	C07-C06	3.15	1.60	1.53
28	P	702	A1LXL	C07-C06	3.14	1.60	1.53
24	I	401	SQD	O48-C23	3.13	1.42	1.33
24	K	302	SQD	O48-C23	2.99	1.42	1.33
24	I	401	SQD	O47-C7	2.94	1.42	1.34
27	I	403	DGD	O2G-C2G	-2.90	1.39	1.46
27	N	201	DGD	O2G-C2G	-2.83	1.39	1.46
24	B	1201	SQD	O48-C23	2.82	1.41	1.33
22	M	801	LMG	O8-C9	-2.69	1.39	1.45
24	K	302	SQD	O47-C7	2.57	1.41	1.34
24	B	1201	SQD	O47-C7	2.55	1.41	1.34
24	K	302	SQD	O2-C2	-2.52	1.37	1.43
27	N	201	DGD	O1G-C1G	-2.37	1.39	1.45
22	A	1201	LMG	O7-C8	-2.37	1.40	1.46
28	P	701	A1LXL	C22-C23	-2.36	1.46	1.51
24	B	1201	SQD	O2-C2	-2.33	1.37	1.43
24	B	1201	SQD	O3-C3	-2.30	1.37	1.43
22	A	1201	LMG	O4-C4	-2.27	1.37	1.43
28	P	702	A1LXL	C24-C19	2.27	1.56	1.51
24	B	1201	SQD	O4-C4	-2.27	1.37	1.43

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
24	I	401	SQD	O2-C2	-2.24	1.37	1.43
27	I	403	DGD	O1G-C1G	-2.24	1.40	1.45
28	P	702	A1LXL	C10-C09	2.23	1.60	1.54
27	I	403	DGD	O3G-C3G	-2.22	1.39	1.43
25	L	3001	DGA	OG2-CG2	-2.22	1.41	1.46
24	K	302	SQD	O4-C4	-2.18	1.37	1.43
27	I	403	DGD	O6D-C5D	-2.18	1.39	1.44
24	K	302	SQD	O3-C3	-2.17	1.37	1.43
22	M	801	LMG	O7-C8	-2.17	1.41	1.46
28	P	701	A1LXL	C24-C19	2.16	1.56	1.51
24	I	401	SQD	O3-C3	-2.14	1.37	1.43
24	I	401	SQD	O4-C4	-2.13	1.38	1.43
22	I	402	LMG	O8-C9	-2.12	1.40	1.45
22	I	402	LMG	O7-C8	-2.12	1.41	1.46
24	K	302	SQD	O47-C45	-2.11	1.41	1.46
24	B	1201	SQD	O47-C45	-2.11	1.41	1.46
25	D	3101	DGA	OG2-CG2	-2.08	1.41	1.46
28	P	701	A1LXL	C10-C09	2.06	1.59	1.54
28	P	702	A1LXL	C12-C11	2.05	1.58	1.55
28	P	702	A1LXL	C22-C23	-2.03	1.46	1.51
27	N	201	DGD	O6D-C5D	-2.00	1.39	1.44

All (108) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
28	P	701	A1LXL	C17-C18-C19	-7.67	110.91	125.06
25	L	3001	DGA	CDB-CCB-CBB	-6.75	80.14	114.42
25	D	3101	DGA	CDB-CCB-CBB	-6.65	80.64	114.42
28	P	701	A1LXL	C27-C12-C13	-5.80	101.42	110.59
28	P	701	A1LXL	C20-C19-C18	-5.73	114.14	122.90
28	P	702	A1LXL	C13-C12-C08	5.19	124.34	116.57
28	P	702	A1LXL	C17-C18-C19	-5.15	115.56	125.06
25	D	3101	DGA	OG2-CB1-CB2	5.00	122.28	111.50
28	P	702	A1LXL	C27-C12-C13	-4.98	102.73	110.59
27	I	403	DGD	O3G-C3G-C2G	-4.40	100.28	110.90
24	B	1201	SQD	O6-C1-C2	4.37	115.12	108.30
24	B	1201	SQD	O7-S-C6	4.32	112.08	106.94
24	I	401	SQD	O7-S-C6	4.22	111.96	106.94
27	N	201	DGD	O3G-C3G-C2G	-4.18	100.81	110.90
25	L	3001	DGA	OG2-CB1-CB2	4.09	120.31	111.50
24	B	1201	SQD	O8-S-C6	4.02	112.14	105.74
24	K	302	SQD	O9-S-O7	-4.00	100.09	113.95

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
24	K	302	SQD	O6-C1-C2	3.98	114.51	108.30
24	B	1201	SQD	O9-S-O7	-3.97	100.21	113.95
28	P	701	A1LXL	C13-C12-C08	3.91	122.42	116.57
24	I	401	SQD	O9-S-O7	-3.78	100.88	113.95
24	K	302	SQD	O47-C7-C8	3.74	119.55	111.50
24	K	302	SQD	O7-S-C6	3.69	111.32	106.94
24	K	302	SQD	C3-C4-C5	3.63	116.71	110.24
28	P	701	A1LXL	C13-C12-C11	3.60	112.86	107.27
24	I	401	SQD	O9-S-C6	3.57	111.18	106.94
24	B	1201	SQD	O47-C7-C8	3.56	119.17	111.50
28	P	701	A1LXL	C17-C16-C15	3.54	114.01	109.71
24	I	401	SQD	O5-C5-C4	3.53	116.10	109.69
24	K	302	SQD	O5-C5-C4	3.52	116.09	109.69
24	I	401	SQD	O6-C1-C2	3.49	113.75	108.30
28	P	702	A1LXL	C24-C19-C20	-3.47	111.81	116.42
27	I	403	DGD	O6D-C1D-O3G	-3.39	101.95	109.97
28	P	701	A1LXL	C07-C06-C08	3.29	117.96	112.92
24	I	401	SQD	O47-C7-C8	3.29	118.58	111.50
28	P	702	A1LXL	C20-C15-C16	-3.24	107.88	112.73
28	P	702	A1LXL	C20-C19-C18	-3.22	117.97	122.90
24	K	302	SQD	O8-S-C6	3.18	110.81	105.74
28	P	702	A1LXL	C22-C23-C24	3.18	114.67	110.31
24	B	1201	SQD	O9-S-C6	3.17	110.71	106.94
27	N	201	DGD	O6D-C1D-O3G	-3.15	102.52	109.97
28	P	701	A1LXL	C24-C19-C20	-3.13	112.26	116.42
28	P	702	A1LXL	C26-C20-C15	-2.99	108.12	111.68
24	K	302	SQD	C4-C3-C2	2.99	116.04	110.82
28	P	701	A1LXL	C21-C20-C19	2.98	114.22	108.75
28	P	702	A1LXL	C13-C12-C11	2.97	111.88	107.27
28	P	702	A1LXL	C16-C17-C18	-2.90	108.56	112.73
27	I	403	DGD	C4E-C3E-C2E	-2.84	105.87	110.82
28	P	702	A1LXL	C07-C06-C08	-2.78	108.67	112.92
28	P	701	A1LXL	C17-C16-C11	-2.77	106.89	110.91
22	M	801	LMG	O1-C7-C8	-2.76	104.23	110.90
24	I	401	SQD	O8-S-C6	2.75	110.12	105.74
25	D	3101	DGA	OG1-CA1-CA2	2.73	120.49	111.91
28	P	702	A1LXL	C21-C22-C23	2.71	113.94	110.47
27	N	201	DGD	O5D-C6D-C5D	-2.70	104.05	109.05
27	I	403	DGD	C1D-C2D-C3D	-2.70	104.38	110.00
24	K	302	SQD	O9-S-C6	2.70	110.14	106.94
22	I	402	LMG	O6-C1-O1	-2.62	103.76	109.97
28	P	702	A1LXL	C04-C03-C28	-2.61	106.11	112.36

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
24	I	401	SQD	O48-C23-C24	2.60	120.08	111.91
25	L	3001	DGA	OG1-CA1-CA2	2.60	120.07	111.91
22	I	402	LMG	O3-C3-C2	-2.60	104.34	110.35
27	N	201	DGD	C3G-C2G-C1G	-2.60	105.64	111.79
24	B	1201	SQD	O5-C5-C4	2.60	114.41	109.69
22	K	301	LMG	O6-C1-O1	-2.56	103.91	109.97
24	I	401	SQD	C3-C4-C5	2.56	114.81	110.24
22	M	801	LMG	C1-C2-C3	-2.55	104.69	110.00
22	A	1201	LMG	O3-C3-C2	-2.55	104.46	110.35
22	M	801	LMG	C38-C37-C36	-2.54	101.55	114.42
28	P	702	A1LXL	C17-C16-C11	2.53	114.58	110.91
22	A	1201	LMG	O2-C2-C1	-2.52	103.93	110.05
24	K	302	SQD	O48-C23-C24	2.52	119.80	111.91
22	M	801	LMG	C40-C39-C38	-2.44	102.02	114.42
22	A	1201	LMG	C1-C2-C3	-2.42	104.96	110.00
27	I	403	DGD	C3G-C2G-C1G	-2.40	106.10	111.79
22	A	1201	LMG	O6-C1-O1	-2.38	104.33	109.97
22	K	301	LMG	C1-C2-C3	-2.37	105.07	110.00
22	A	1201	LMG	C38-C37-C36	-2.35	102.48	114.42
27	N	201	DGD	O6E-C1E-O5D	-2.35	104.40	109.97
28	P	702	A1LXL	C27-C12-C08	-2.35	107.34	111.71
27	I	403	DGD	O6E-C1E-O5D	-2.33	104.46	109.97
22	C	1201	LMG	O1-C7-C8	-2.28	105.74	111.78
24	I	401	SQD	C4-C3-C2	2.27	114.79	110.82
22	A	1201	LMG	O7-C10-O9	-2.27	118.22	123.70
24	B	1201	SQD	O48-C23-O10	-2.27	117.87	123.59
24	I	401	SQD	C44-O6-C1	2.26	118.16	113.74
22	I	402	LMG	O2-C2-C1	-2.25	104.58	110.05
28	P	702	A1LXL	C10-C11-C12	2.25	106.55	103.84
24	B	1201	SQD	O47-C7-O49	-2.23	118.32	123.70
24	B	1201	SQD	C4-C3-C2	2.21	114.69	110.82
22	I	402	LMG	O1-C1-C2	-2.18	104.91	108.30
27	I	403	DGD	O2D-C2D-C1D	-2.16	104.79	110.05
24	B	1201	SQD	C3-C4-C5	2.16	114.09	110.24
22	A	1201	LMG	O1-C1-C2	-2.16	104.93	108.30
22	M	801	LMG	O3-C3-C2	-2.14	105.41	110.35
22	I	402	LMG	O1-C7-C8	-2.12	105.79	110.90
22	K	301	LMG	O1-C7-C8	-2.12	105.79	110.90
28	P	701	A1LXL	C14-C13-C12	2.11	116.40	112.78
24	B	1201	SQD	O48-C23-C24	2.10	118.50	111.91
27	N	201	DGD	C3D-C4D-C5D	-2.08	106.52	110.24
22	A	1201	LMG	O8-C28-O10	-2.08	118.34	123.59

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
22	K	301	LMG	O3-C3-C2	-2.08	105.54	110.35
28	P	701	A1LXL	C04-C05-C06	-2.07	109.93	115.34
22	I	402	LMG	C1-C2-C3	-2.06	105.71	110.00
22	K	301	LMG	O2-C2-C1	-2.04	105.09	110.05
22	M	801	LMG	O1-C1-C2	-2.03	105.13	108.30
28	P	701	A1LXL	C14-C15-C16	-2.02	108.85	111.75
22	M	801	LMG	O6-C1-O1	-2.02	105.19	109.97

There are no chirality outliers.

All (231) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
22	C	1201	LMG	O1-C7-C8-O7
22	I	402	LMG	O6-C1-O1-C7
22	M	801	LMG	C2-C1-O1-C7
22	M	801	LMG	O6-C1-O1-C7
24	B	1201	SQD	O47-C45-C46-O48
24	I	401	SQD	C8-C7-O47-C45
24	I	401	SQD	C5-C6-S-O7
24	I	401	SQD	C5-C6-S-O8
24	I	401	SQD	C5-C6-S-O9
24	K	302	SQD	O49-C7-O47-C45
24	K	302	SQD	C8-C7-O47-C45
24	K	302	SQD	C5-C6-S-O7
24	K	302	SQD	C5-C6-S-O8
25	D	3101	DGA	CB2-CB1-OG2-CG2
25	D	3101	DGA	CG1-CG2-CG3-OXT
25	D	3101	DGA	OG2-CG2-CG3-OXT
25	L	3001	DGA	CB2-CB1-OG2-CG2
25	L	3001	DGA	CG1-CG2-CG3-OXT
25	L	3001	DGA	OG2-CG2-CG3-OXT
28	P	701	A1LXL	C28-C03-C04-C05
28	P	701	A1LXL	C03-C04-C05-C06
28	P	702	A1LXL	C02-C03-C04-C05
28	P	702	A1LXL	C03-C04-C05-C06
24	B	1201	SQD	O10-C23-O48-C46
24	I	401	SQD	O49-C7-O47-C45
25	D	3101	DGA	OB1-CB1-OG2-CG2
25	L	3001	DGA	OB1-CB1-OG2-CG2
22	A	1201	LMG	O10-C28-O8-C9
22	A	1201	LMG	C29-C28-O8-C9
24	B	1201	SQD	C24-C23-O48-C46

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Mol	Chain	Res	Type	Atoms
22	I	402	LMG	O6-C5-C6-O5
22	A	1201	LMG	C11-C10-O7-C8
22	A	1201	LMG	C30-C31-C32-C33
22	K	301	LMG	O6-C5-C6-O5
22	I	402	LMG	C4-C5-C6-O5
27	I	403	DGD	O6D-C1D-O3G-C3G
27	N	201	DGD	O6D-C1D-O3G-C3G
25	D	3101	DGA	CA2-CA1-OG1-CG1
22	I	402	LMG	O1-C7-C8-O7
22	K	301	LMG	C4-C5-C6-O5
28	P	701	A1LXL	C05-C06-C08-C12
27	I	403	DGD	O1A-C1A-O1G-C1G
24	I	401	SQD	C10-C11-C12-C13
25	D	3101	DGA	OA1-CA1-OG1-CG1
25	D	3101	DGA	CB1-CB2-CB3-CB4
25	L	3001	DGA	CB1-CB2-CB3-CB4
27	I	403	DGD	O6E-C5E-C6E-O5E
28	P	701	A1LXL	C05-C06-C08-C09
24	K	302	SQD	O5-C1-O6-C44
28	P	701	A1LXL	C04-C05-C06-C08
22	I	402	LMG	C11-C10-O7-C8
25	L	3001	DGA	CA2-CA1-OG1-CG1
27	I	403	DGD	C2A-C1A-O1G-C1G
22	M	801	LMG	O9-C10-O7-C8
22	A	1201	LMG	C19-C20-C21-C22
22	M	801	LMG	C29-C28-O8-C9
24	K	302	SQD	C11-C12-C13-C14
25	D	3101	DGA	CB5-CB6-CB7-CB8
25	L	3001	DGA	CB3-CB4-CB5-CB6
22	C	1201	LMG	O9-C10-O7-C8
22	I	402	LMG	C10-C11-C12-C13
24	I	401	SQD	C9-C10-C11-C12
24	K	302	SQD	C26-C27-C28-C29
25	L	3001	DGA	CA6-CA7-CA8-CA9
22	I	402	LMG	C28-C29-C30-C31
27	I	403	DGD	C2D-C1D-O3G-C3G
27	N	201	DGD	C2D-C1D-O3G-C3G
22	A	1201	LMG	C18-C19-C20-C21
25	L	3001	DGA	CA2-CA3-CA4-CA5
25	L	3001	DGA	OA1-CA1-OG1-CG1
22	A	1201	LMG	O6-C5-C6-O5
24	I	401	SQD	C12-C13-C14-C15

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Mol	Chain	Res	Type	Atoms
25	L	3001	DGA	CB2-CB3-CB4-CB5
22	M	801	LMG	C13-C14-C15-C16
25	D	3101	DGA	CBB-CCB-CDB-CEB
22	C	1201	LMG	C31-C32-C33-C34
28	P	701	A1LXL	C07-C06-C08-C09
22	C	1201	LMG	C30-C31-C32-C33
25	L	3001	DGA	CA4-CA5-CA6-CA7
22	A	1201	LMG	C31-C32-C33-C34
22	K	301	LMG	C18-C19-C20-C21
25	D	3101	DGA	CA9-CAA-CBA-CCA
25	D	3101	DGA	CAB-CBB-CCB-CDB
25	L	3001	DGA	CB9-CAB-CBB-CCB
25	D	3101	DGA	CB6-CB7-CB8-CB9
22	A	1201	LMG	C32-C33-C34-C35
22	M	801	LMG	C18-C19-C20-C21
24	I	401	SQD	C11-C12-C13-C14
28	P	701	A1LXL	C01-C02-C03-C04
22	C	1201	LMG	C13-C14-C15-C16
22	M	801	LMG	C11-C12-C13-C14
25	L	3001	DGA	CA5-CA6-CA7-CA8
22	A	1201	LMG	C29-C30-C31-C32
22	C	1201	LMG	C32-C33-C34-C35
24	K	302	SQD	C9-C10-C11-C12
25	D	3101	DGA	CA7-CA8-CA9-CAA
25	L	3001	DGA	CA7-CA8-CA9-CAA
22	M	801	LMG	C11-C10-O7-C8
22	I	402	LMG	C11-C12-C13-C14
27	I	403	DGD	C1A-C2A-C3A-C4A
22	K	301	LMG	C16-C17-C18-C19
22	K	301	LMG	C13-C14-C15-C16
24	I	401	SQD	C27-C28-C29-C30
24	I	401	SQD	C32-C33-C34-C35
22	M	801	LMG	C12-C13-C14-C15
26	D	3102	Y01	CAM-CAY-OAW-CBC
24	B	1201	SQD	C11-C10-C9-C8
22	C	1201	LMG	C28-C29-C30-C31
22	M	801	LMG	C10-C11-C12-C13
25	D	3101	DGA	CB4-CB5-CB6-CB7
24	K	302	SQD	C25-C26-C27-C28
22	I	402	LMG	O9-C10-O7-C8
24	K	302	SQD	C7-C8-C9-C10
24	B	1201	SQD	C12-C13-C14-C15

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Mol	Chain	Res	Type	Atoms
25	D	3101	DGA	CA2-CA3-CA4-CA5
26	M	802	Y01	CAJ-CAN-CBA-CAB
22	C	1201	LMG	C11-C10-O7-C8
24	B	1201	SQD	C8-C7-O47-C45
27	I	403	DGD	C2B-C1B-O2G-C2G
22	A	1201	LMG	O9-C10-O7-C8
24	I	401	SQD	C34-C35-C36-C37
26	D	3102	Y01	OAG-CAY-OAW-CBC
25	L	3001	DGA	CBB-CAB-CB9-CB8
27	N	201	DGD	C1B-C2B-C3B-C4B
27	N	201	DGD	C4E-C5E-C6E-O5E
22	M	801	LMG	C16-C17-C18-C19
25	L	3001	DGA	CB7-CB8-CB9-CAB
24	K	302	SQD	C44-C45-C46-O48
25	D	3101	DGA	CB9-CAB-CBB-CCB
27	N	201	DGD	O1G-C1G-C2G-C3G
24	B	1201	SQD	C9-C10-C11-C12
24	B	1201	SQD	C28-C29-C30-C31
25	D	3101	DGA	CB2-CB3-CB4-CB5
22	M	801	LMG	C31-C32-C33-C34
24	I	401	SQD	O5-C1-O6-C44
27	I	403	DGD	C1B-C2B-C3B-C4B
24	K	302	SQD	C24-C25-C26-C27
22	A	1201	LMG	C37-C38-C39-C40
26	M	802	Y01	CAJ-CAN-CBA-CAA
27	N	201	DGD	C2A-C3A-C4A-C5A
25	L	3001	DGA	CCB-CDB-CEB-CFB
28	P	701	A1LXL	C04-C05-C06-C07
27	I	403	DGD	C4E-C5E-C6E-O5E
22	A	1201	LMG	C33-C34-C35-C36
25	L	3001	DGA	CB5-CB6-CB7-CB8
22	K	301	LMG	C32-C33-C34-C35
22	M	801	LMG	C28-C29-C30-C31
22	I	402	LMG	C29-C28-O8-C9
24	B	1201	SQD	C44-C45-C46-O48
27	N	201	DGD	C1G-C2G-C3G-O3G
22	K	301	LMG	C11-C12-C13-C14
22	K	301	LMG	C28-C29-C30-C31
24	B	1201	SQD	C14-C15-C16-C17
24	K	302	SQD	C12-C13-C14-C15
24	K	302	SQD	O47-C45-C46-O48
27	N	201	DGD	O1G-C1G-C2G-O2G

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Mol	Chain	Res	Type	Atoms
24	K	302	SQD	C28-C29-C30-C31
22	C	1201	LMG	O1-C7-C8-C9
22	M	801	LMG	C33-C34-C35-C36
25	D	3101	DGA	CEB-CFB-CGB-CHB
22	K	301	LMG	C30-C31-C32-C33
24	I	401	SQD	C26-C27-C28-C29
25	D	3101	DGA	CA5-CA6-CA7-CA8
24	I	401	SQD	C30-C31-C32-C33
27	N	201	DGD	O6E-C5E-C6E-O5E
22	I	402	LMG	O1-C7-C8-C9
22	M	801	LMG	O10-C28-O8-C9
28	P	702	A1LXL	C04-C05-C06-C07
27	N	201	DGD	O2G-C2G-C3G-O3G
22	K	301	LMG	C15-C16-C17-C18
27	I	403	DGD	O1B-C1B-O2G-C2G
24	B	1201	SQD	C5-C6-S-O8
25	L	3001	DGA	CB4-CB5-CB6-CB7
27	I	403	DGD	C3B-C4B-C5B-C6B
26	D	3102	Y01	CAV-CBC-OAW-CAY
25	D	3101	DGA	CA4-CA5-CA6-CA7
24	B	1201	SQD	C5-C6-S-O9
24	K	302	SQD	C5-C6-S-O9
24	I	401	SQD	C7-C8-C9-C10
24	K	302	SQD	C30-C31-C32-C33
22	M	801	LMG	C7-C8-O7-C10
26	D	3102	Y01	CAR-CBC-OAW-CAY
22	I	402	LMG	O7-C8-C9-O8
24	B	1201	SQD	C25-C26-C27-C28
25	D	3101	DGA	CDB-CEB-CFB-CGB
22	M	801	LMG	C30-C31-C32-C33
24	K	302	SQD	C31-C32-C33-C34
24	B	1201	SQD	O6-C44-C45-O47
28	P	702	A1LXL	C01-C02-C03-C04
28	P	702	A1LXL	C28-C03-C04-C05
26	D	3102	Y01	CAM-CAL-CAX-OAF
25	D	3101	DGA	CA3-CA4-CA5-CA6
24	K	302	SQD	C32-C33-C34-C35
28	P	701	A1LXL	C01-C02-C03-C28
22	I	402	LMG	C7-C8-C9-O8
22	M	801	LMG	C32-C33-C34-C35
24	I	401	SQD	C24-C25-C26-C27
24	B	1201	SQD	C10-C11-C12-C13

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Mol	Chain	Res	Type	Atoms
22	K	301	LMG	C31-C32-C33-C34
26	M	802	Y01	CAM-CAL-CAX-OAH
25	D	3101	DGA	CBB-CAB-CB9-CB8
24	I	401	SQD	C11-C10-C9-C8
22	C	1201	LMG	C14-C15-C16-C17
22	C	1201	LMG	C12-C13-C14-C15
25	D	3101	DGA	CB7-CB8-CB9-CAB
24	I	401	SQD	C25-C26-C27-C28
24	B	1201	SQD	O6-C44-C45-C46
26	M	802	Y01	CAM-CAL-CAX-OAF
22	M	801	LMG	C38-C39-C40-C41
26	D	3102	Y01	CAM-CAL-CAX-OAH
22	M	801	LMG	C19-C20-C21-C22
27	N	201	DGD	O2G-C1B-C2B-C3B
25	D	3101	DGA	CA8-CA9-CAA-CBA
22	M	801	LMG	C17-C18-C19-C20
22	A	1201	LMG	C35-C36-C37-C38
28	P	701	A1LXL	C02-C03-C04-C05
22	K	301	LMG	O1-C7-C8-C9
22	K	301	LMG	O7-C8-C9-O8
24	B	1201	SQD	O48-C23-C24-C25
25	D	3101	DGA	OG1-CA1-CA2-CA3
25	L	3001	DGA	OG1-CA1-CA2-CA3
27	I	403	DGD	O2G-C1B-C2B-C3B
28	P	702	A1LXL	C01-C02-C03-C28
25	D	3101	DGA	CA6-CA7-CA8-CA9
24	I	401	SQD	O49-C7-C8-C9
24	K	302	SQD	C10-C11-C12-C13
25	L	3001	DGA	OA1-CA1-CA2-CA3
22	A	1201	LMG	C34-C35-C36-C37
22	K	301	LMG	C20-C21-C22-C23
25	D	3101	DGA	OA1-CA1-CA2-CA3
24	I	401	SQD	O47-C7-C8-C9

There are no ring outliers.

11 monomers are involved in 27 short contacts:

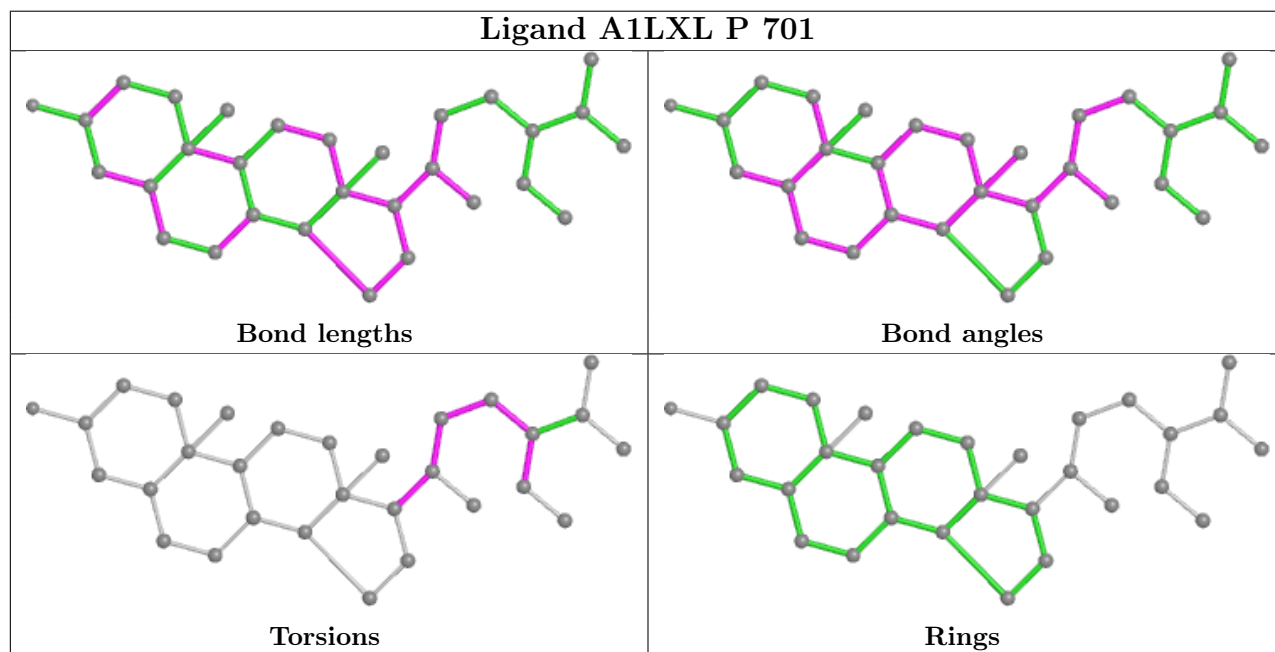
Mol	Chain	Res	Type	Clashes	Symm-Clashes
28	P	701	A1LXL	8	0
25	L	3001	DGA	1	0
27	I	403	DGD	2	0
28	P	702	A1LXL	2	0

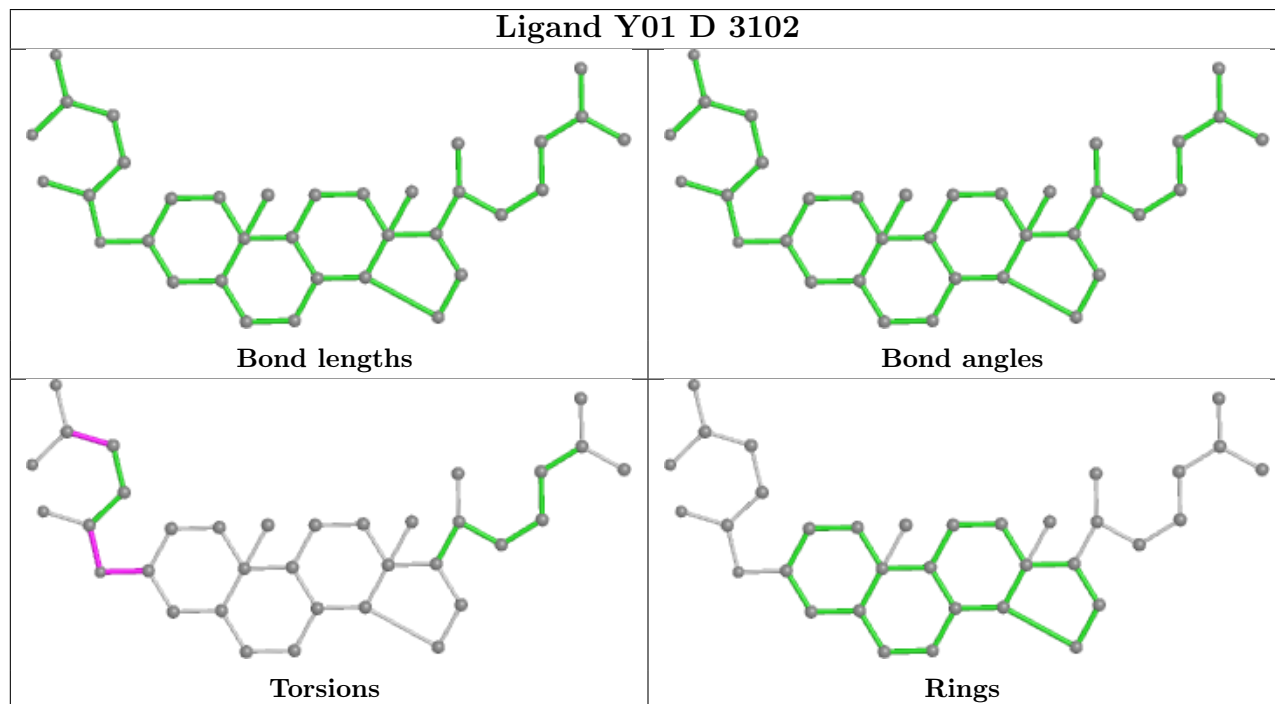
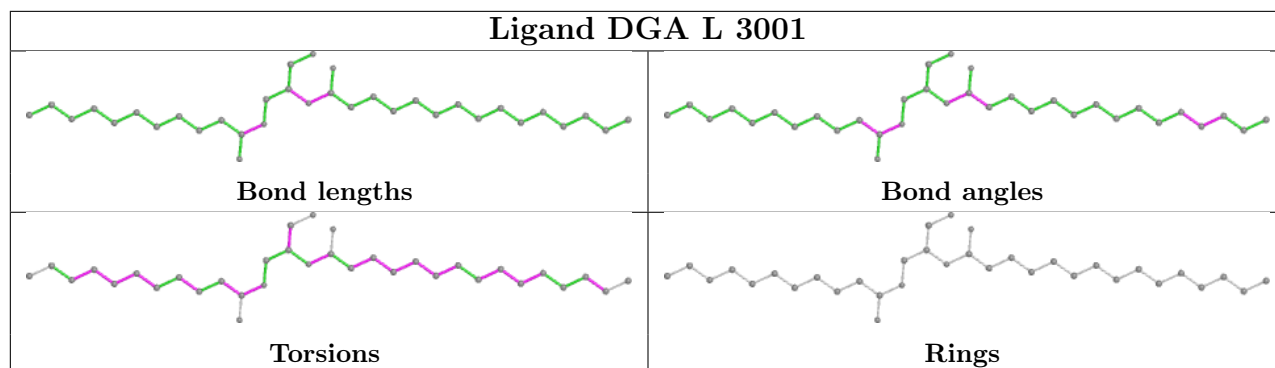
Continued on next page...

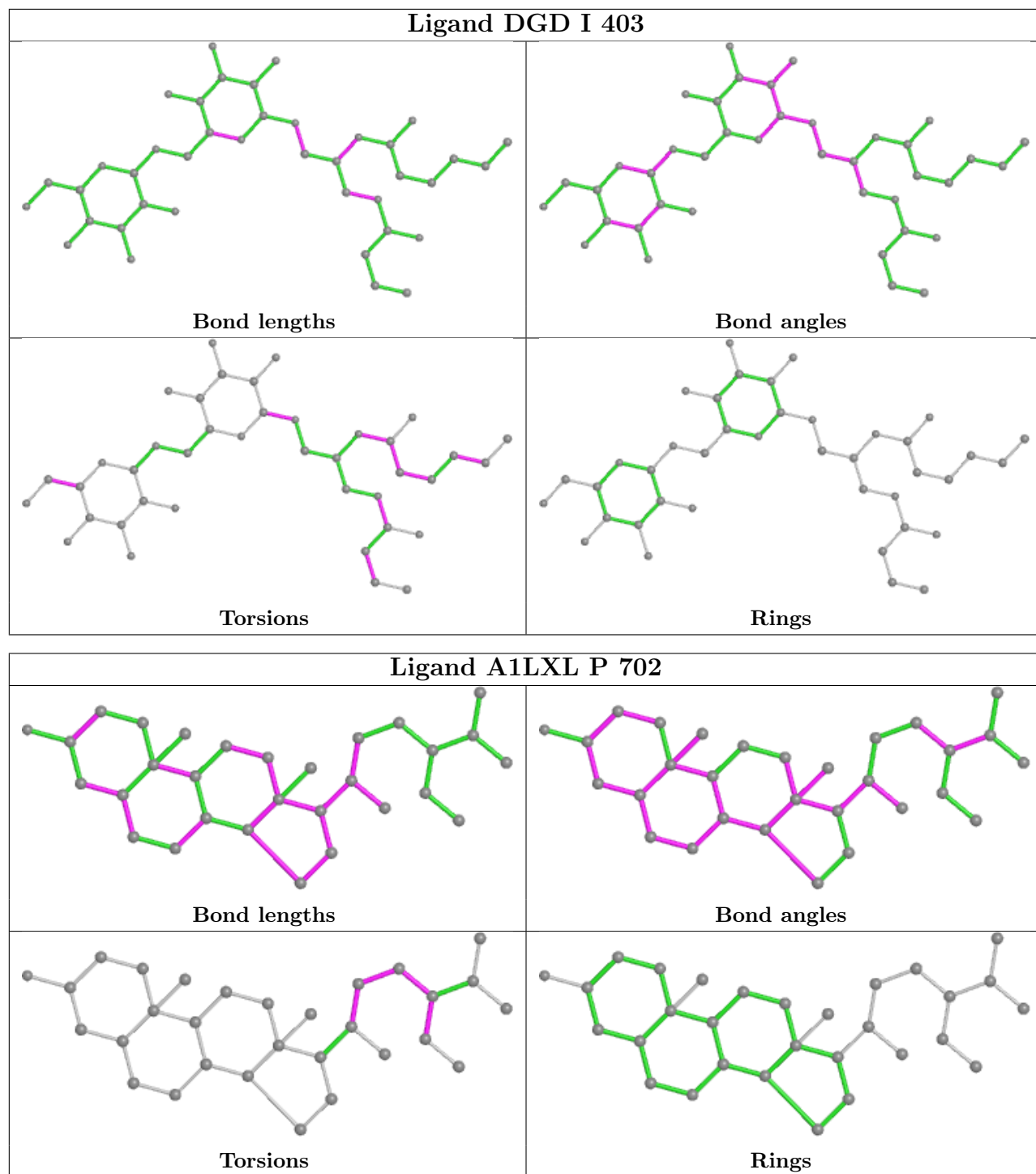
Continued from previous page...

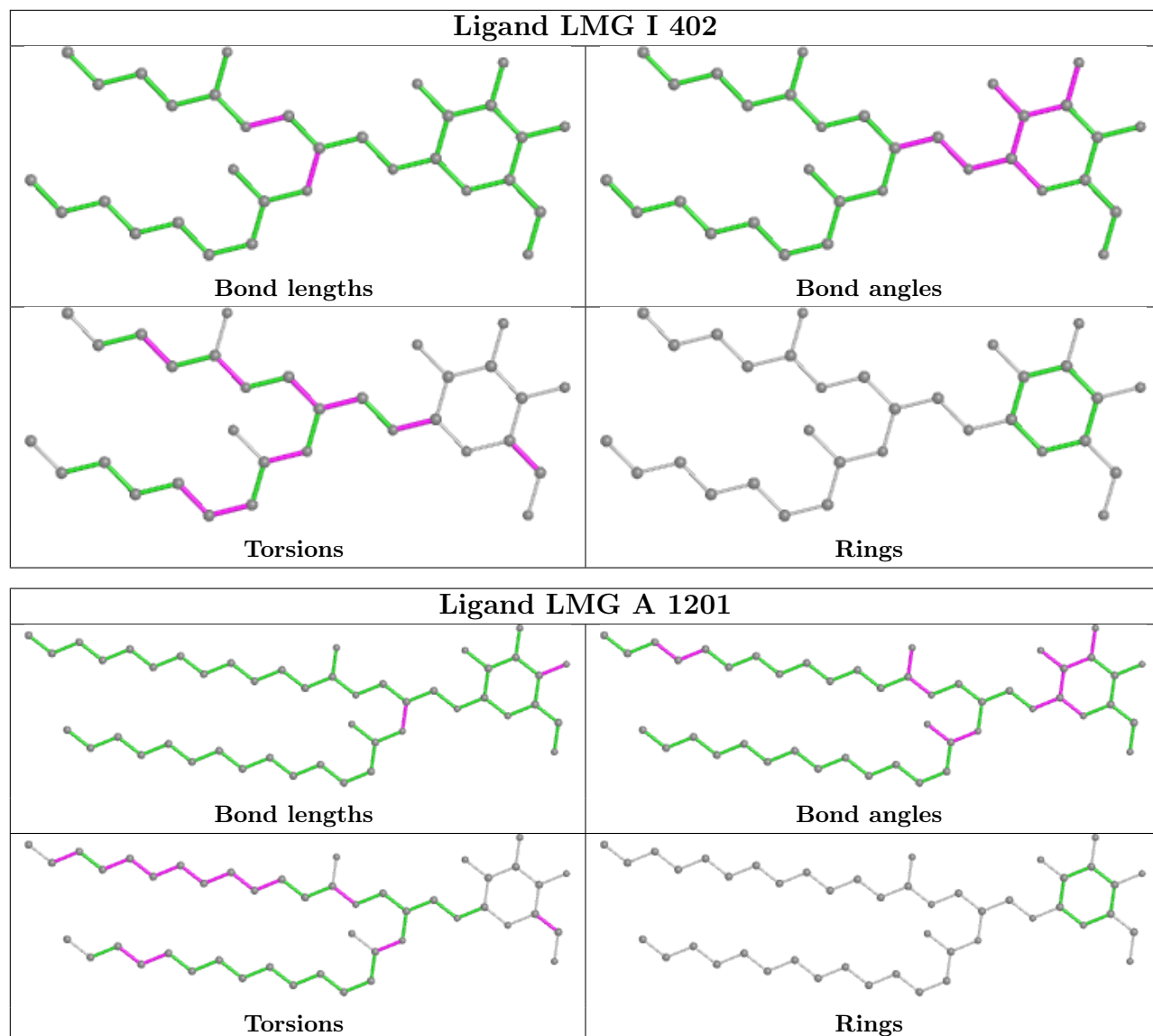
Mol	Chain	Res	Type	Clashes	Symm-Clashes
22	I	402	LMG	2	0
22	A	1201	LMG	3	0
26	M	802	Y01	4	0
25	D	3101	DGA	1	0
24	I	401	SQD	5	0
22	K	301	LMG	1	0
22	M	801	LMG	1	0

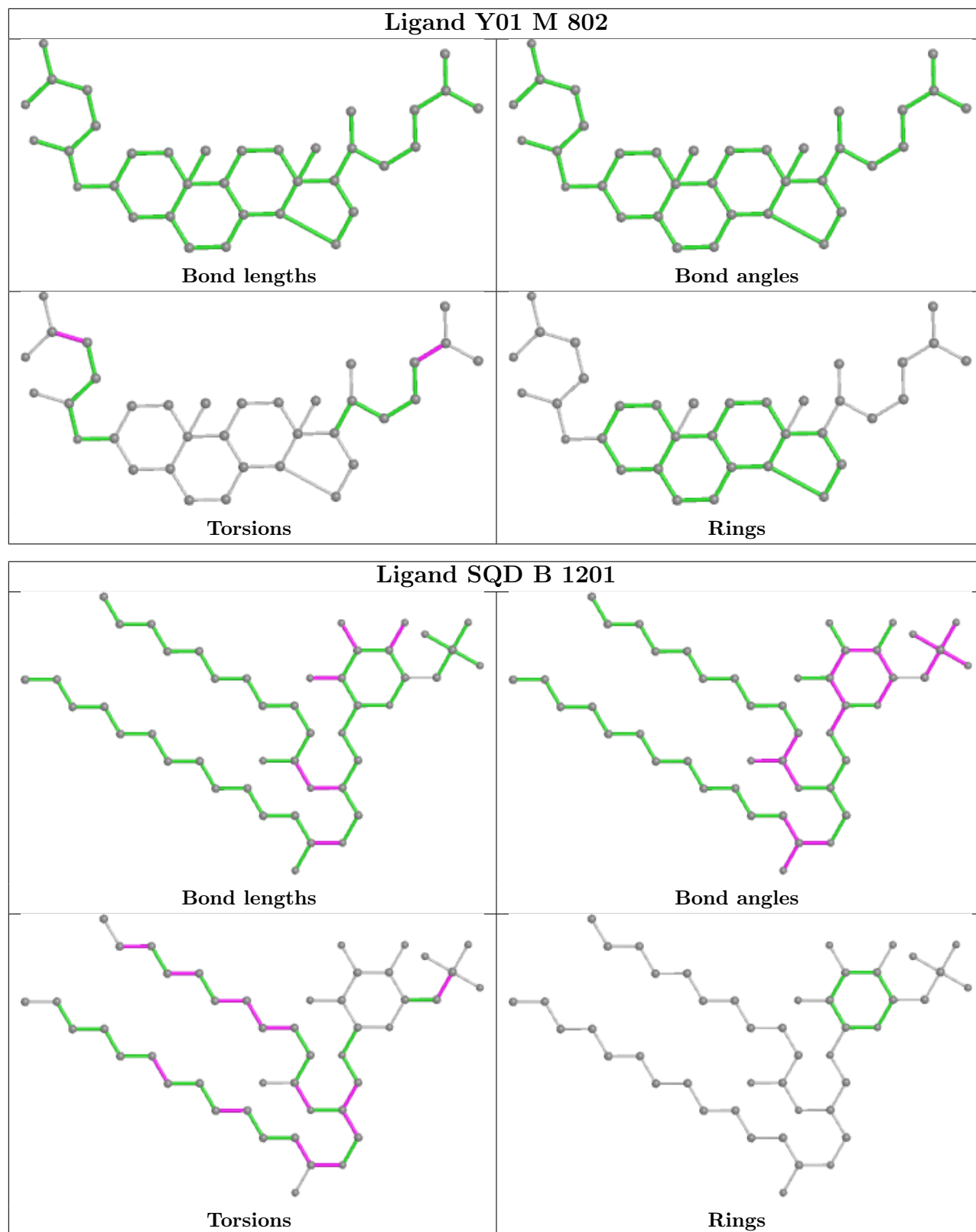
The following is a two-dimensional graphical depiction of Mogul quality analysis of bond lengths, bond angles, torsion angles, and ring geometry for all instances of the Ligand of Interest. In addition, ligands with molecular weight > 250 and outliers as shown on the validation Tables will also be included.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

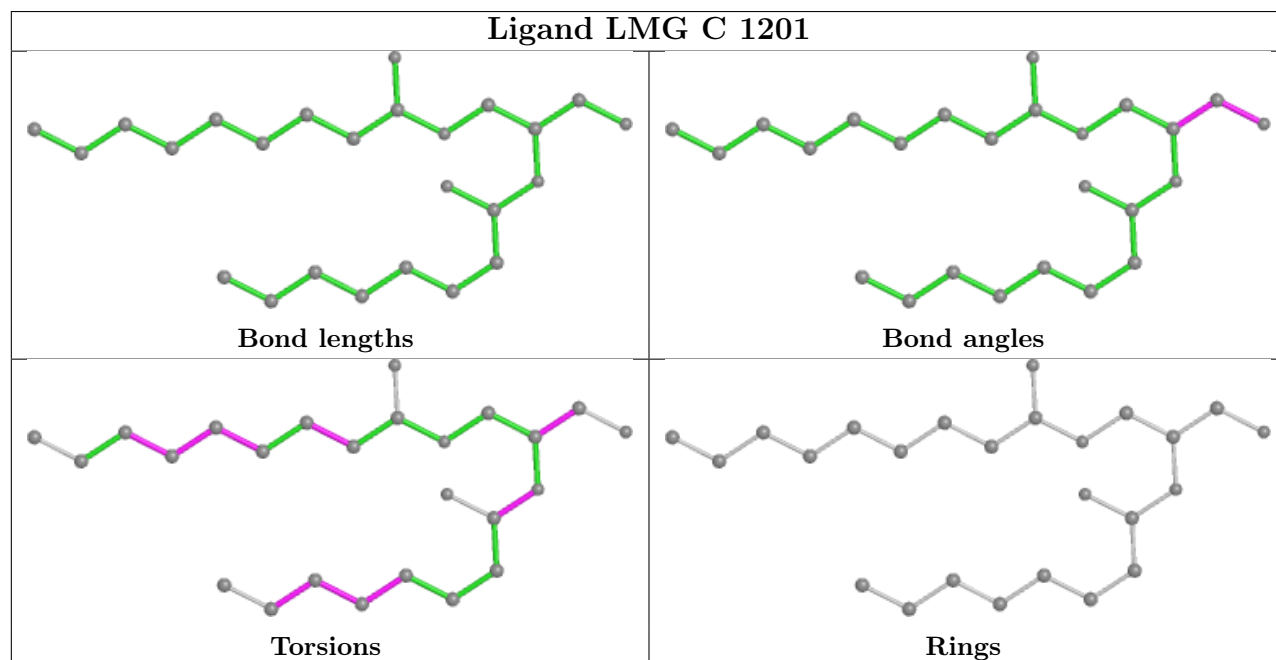
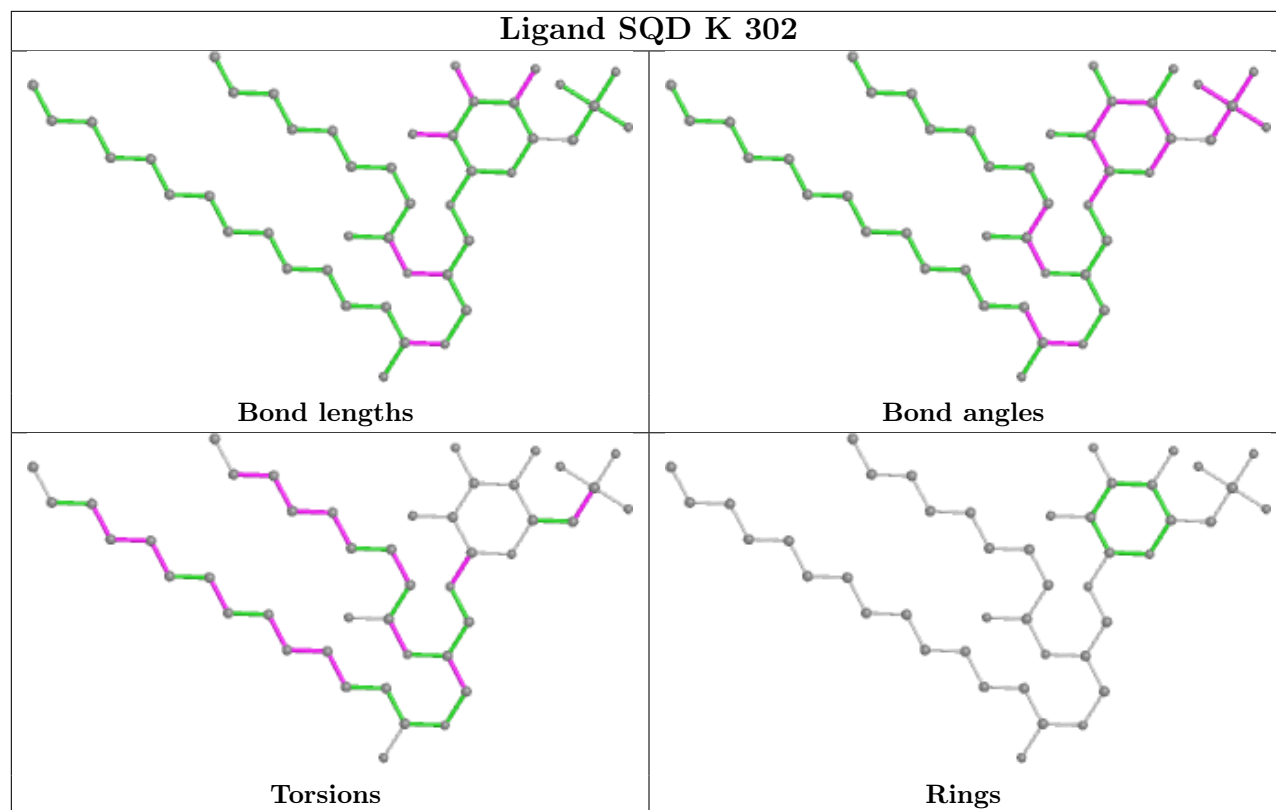


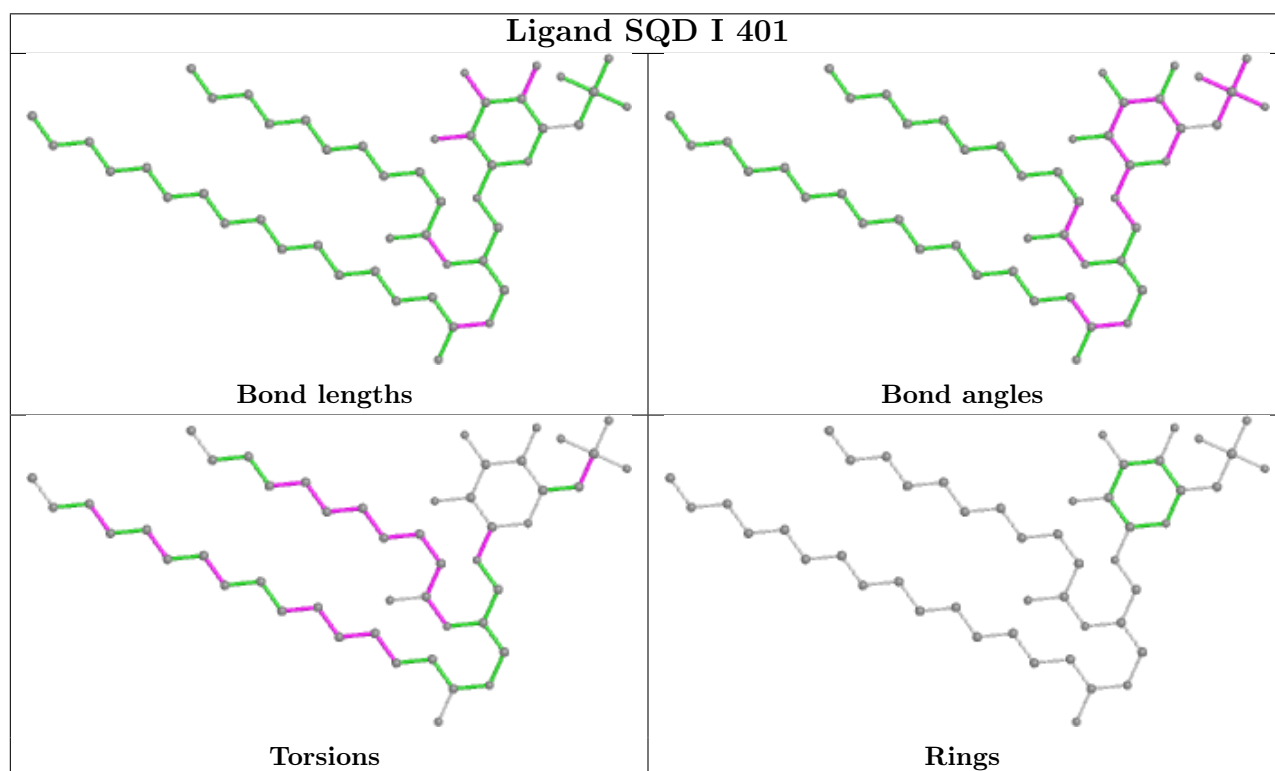
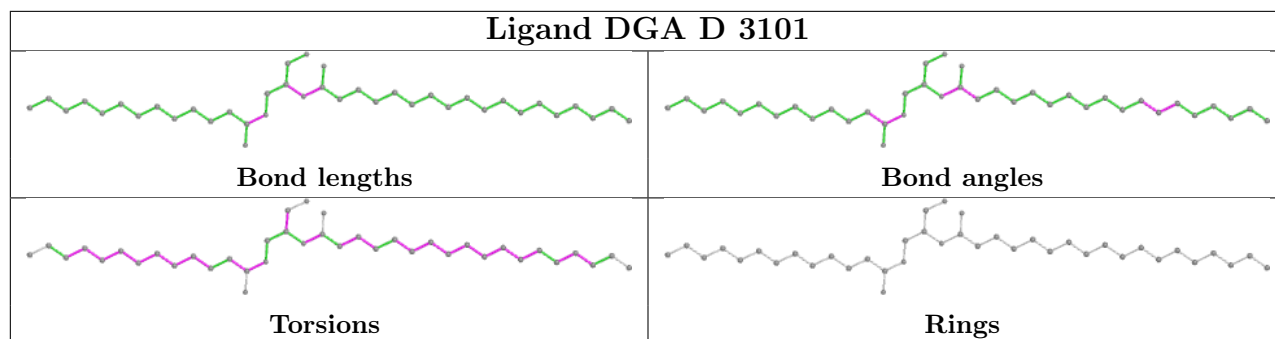


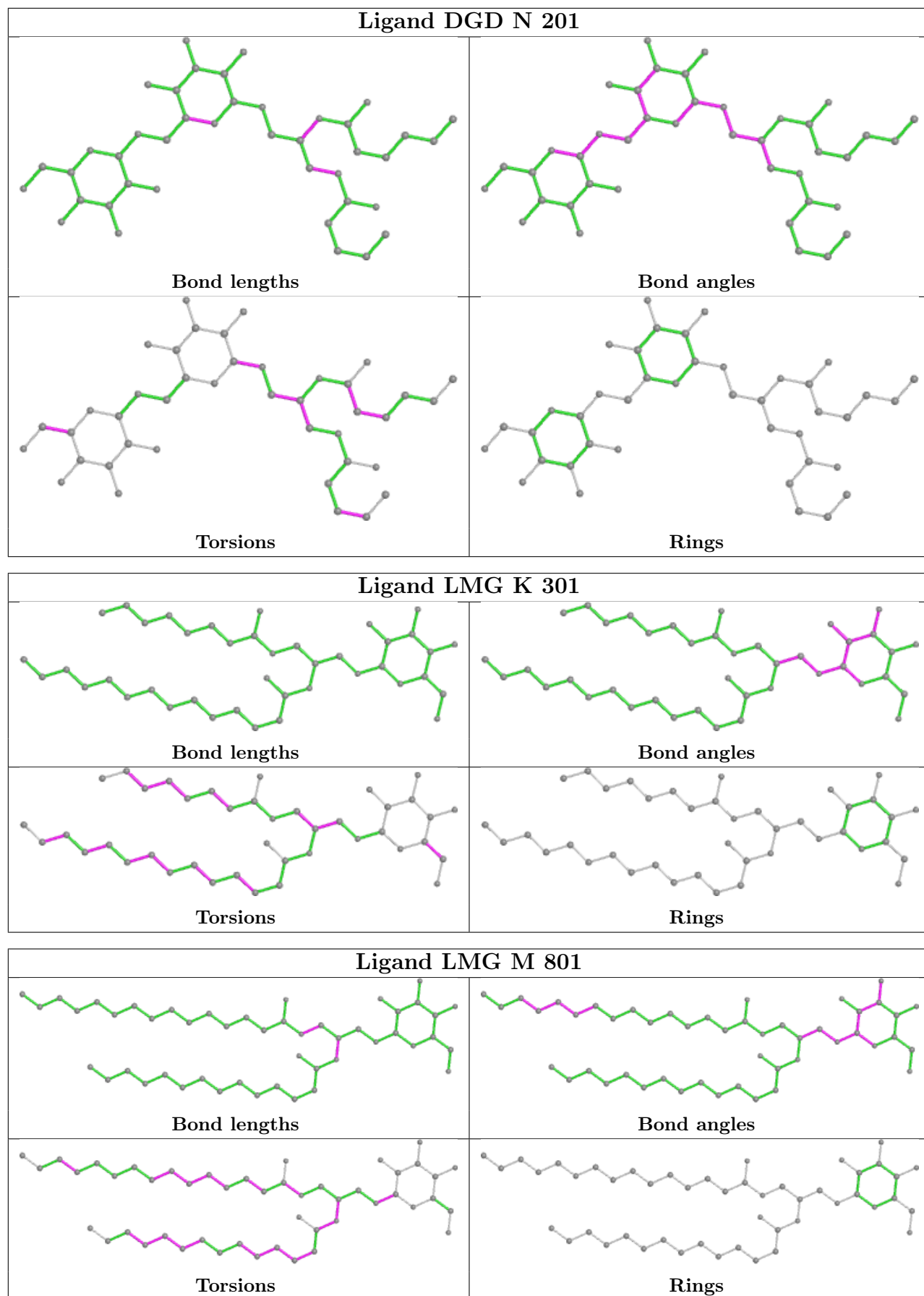












5.7 Other polymers [i](#)

There are no such residues in this entry.

5.8 Polymer linkage issues [i](#)

There are no chain breaks in this entry.

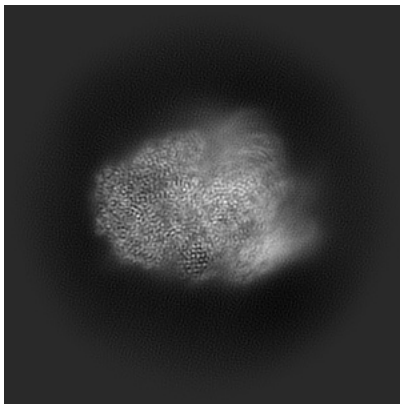
6 Map visualisation [i](#)

This section contains visualisations of the EMDB entry EMD-38590. These allow visual inspection of the internal detail of the map and identification of artifacts.

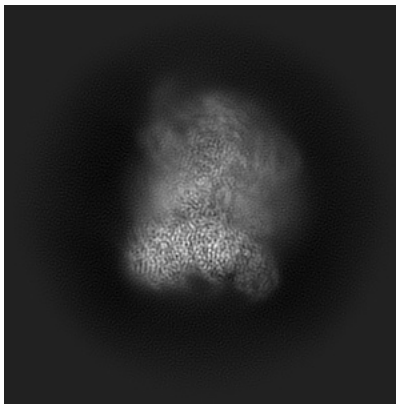
Images derived from a raw map, generated by summing the deposited half-maps, are presented below the corresponding image components of the primary map to allow further visual inspection and comparison with those of the primary map.

6.1 Orthogonal projections [i](#)

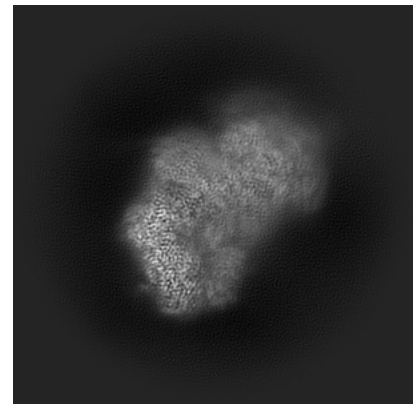
6.1.1 Primary map



X

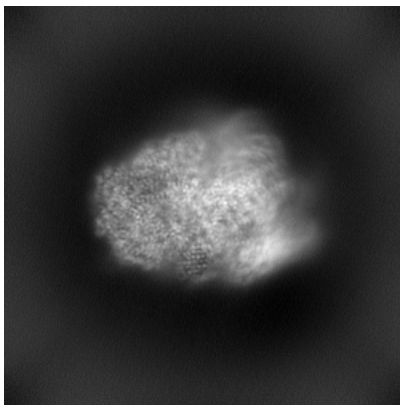


Y

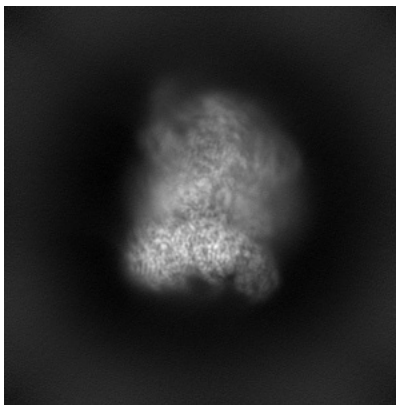


Z

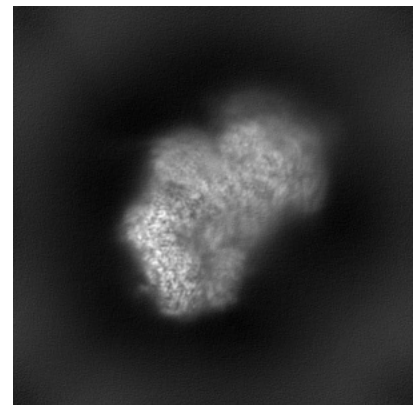
6.1.2 Raw map



X



Y

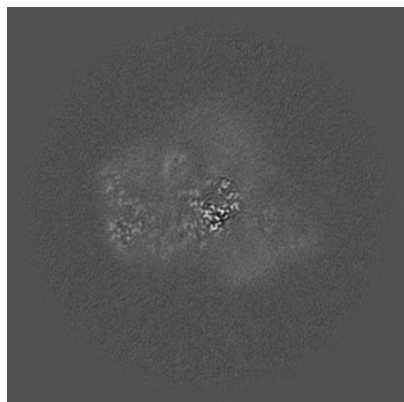


Z

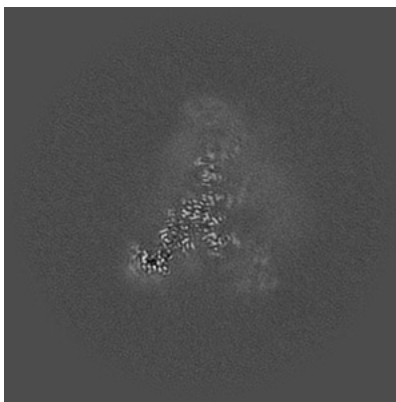
The images above show the map projected in three orthogonal directions.

6.2 Central slices [i](#)

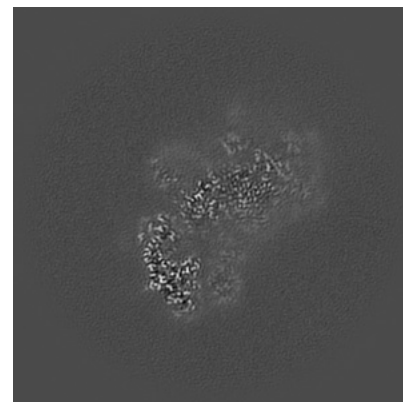
6.2.1 Primary map



X Index: 180

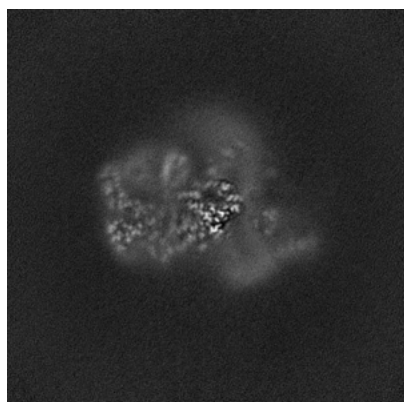


Y Index: 180

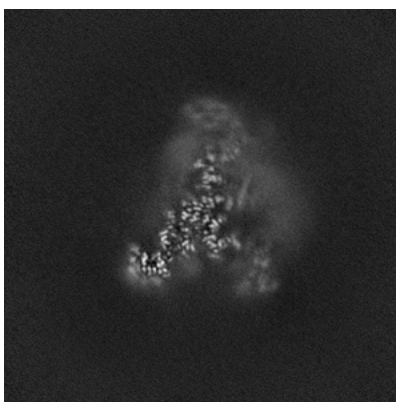


Z Index: 180

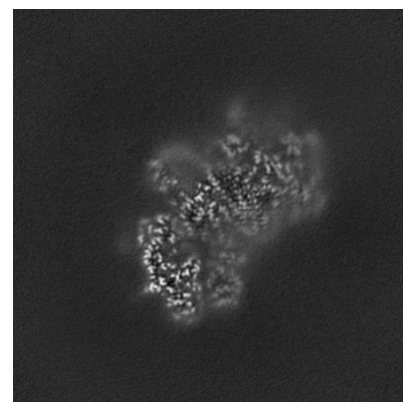
6.2.2 Raw map



X Index: 180



Y Index: 180

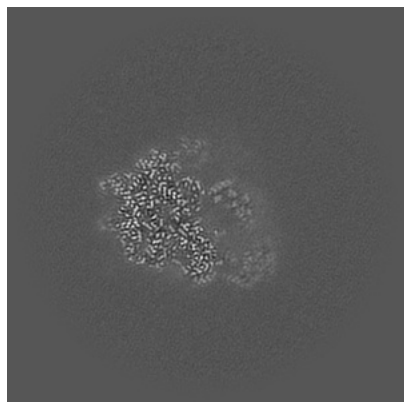


Z Index: 180

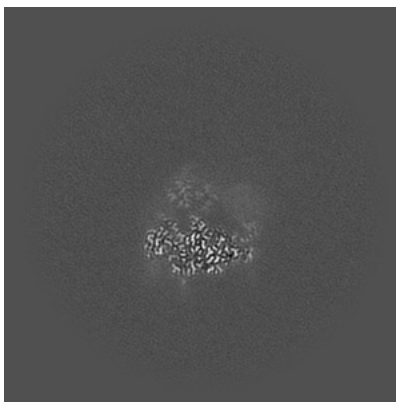
The images above show central slices of the map in three orthogonal directions.

6.3 Largest variance slices [i](#)

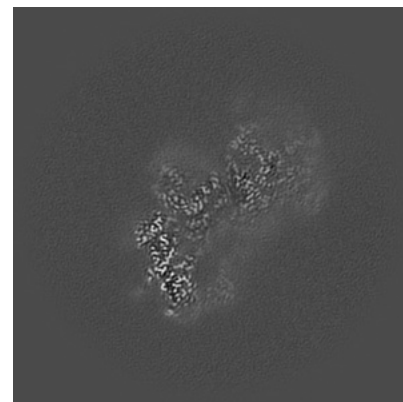
6.3.1 Primary map



X Index: 135

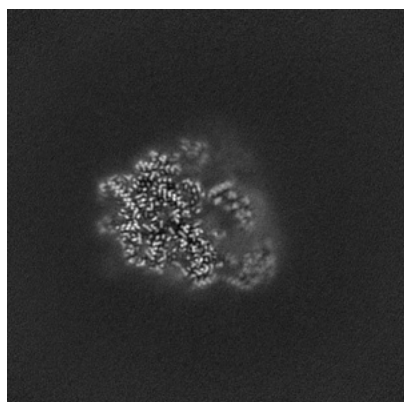


Y Index: 120

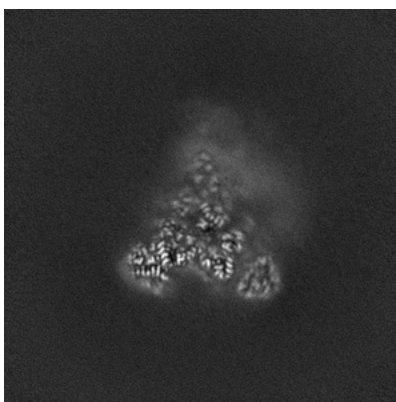


Z Index: 188

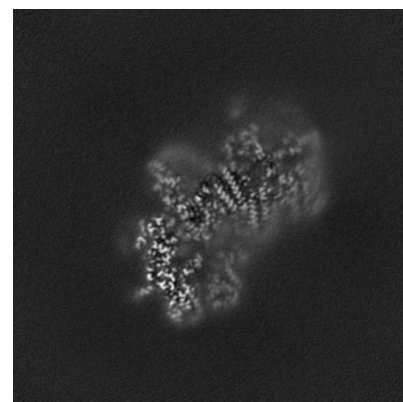
6.3.2 Raw map



X Index: 135



Y Index: 170

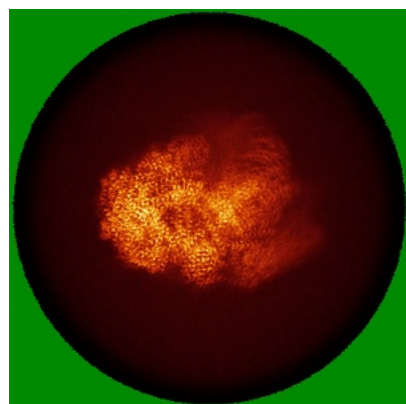


Z Index: 184

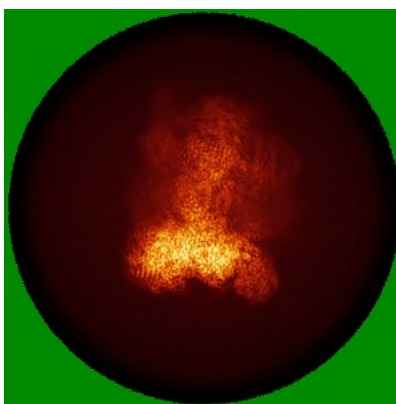
The images above show the largest variance slices of the map in three orthogonal directions.

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

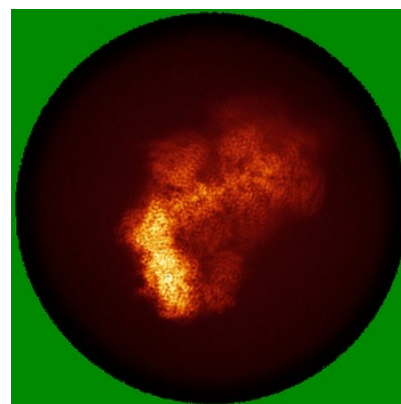
6.4.1 Primary map



X

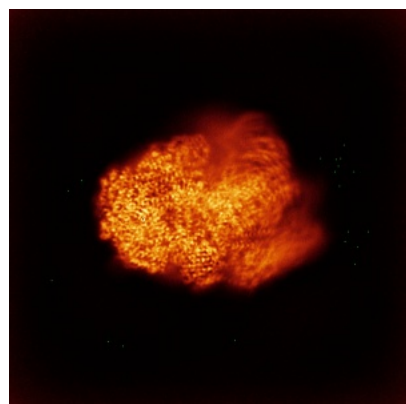


Y

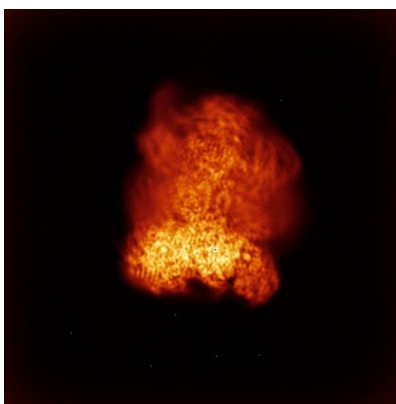


Z

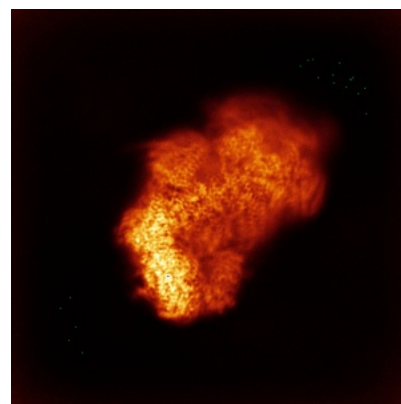
6.4.2 Raw map



X



Y

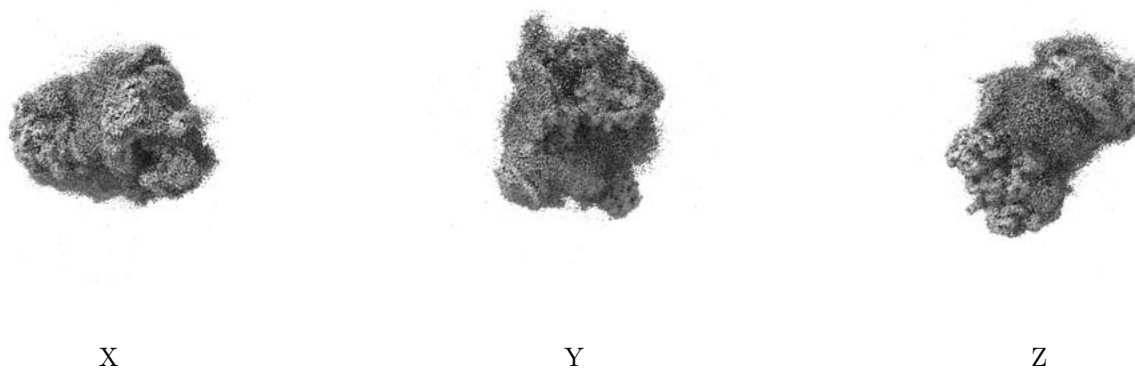


Z

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.

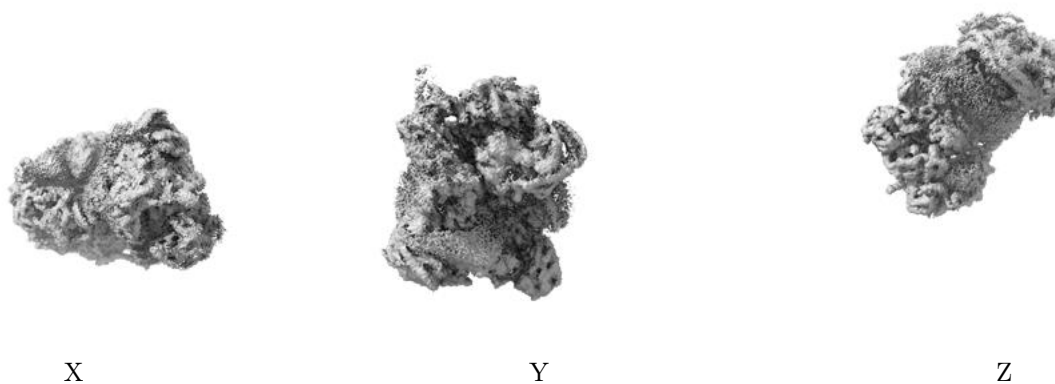
6.5 Orthogonal surface views [i](#)

6.5.1 Primary map



The images above show the 3D surface view of the map at the recommended contour level 0.35. 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.

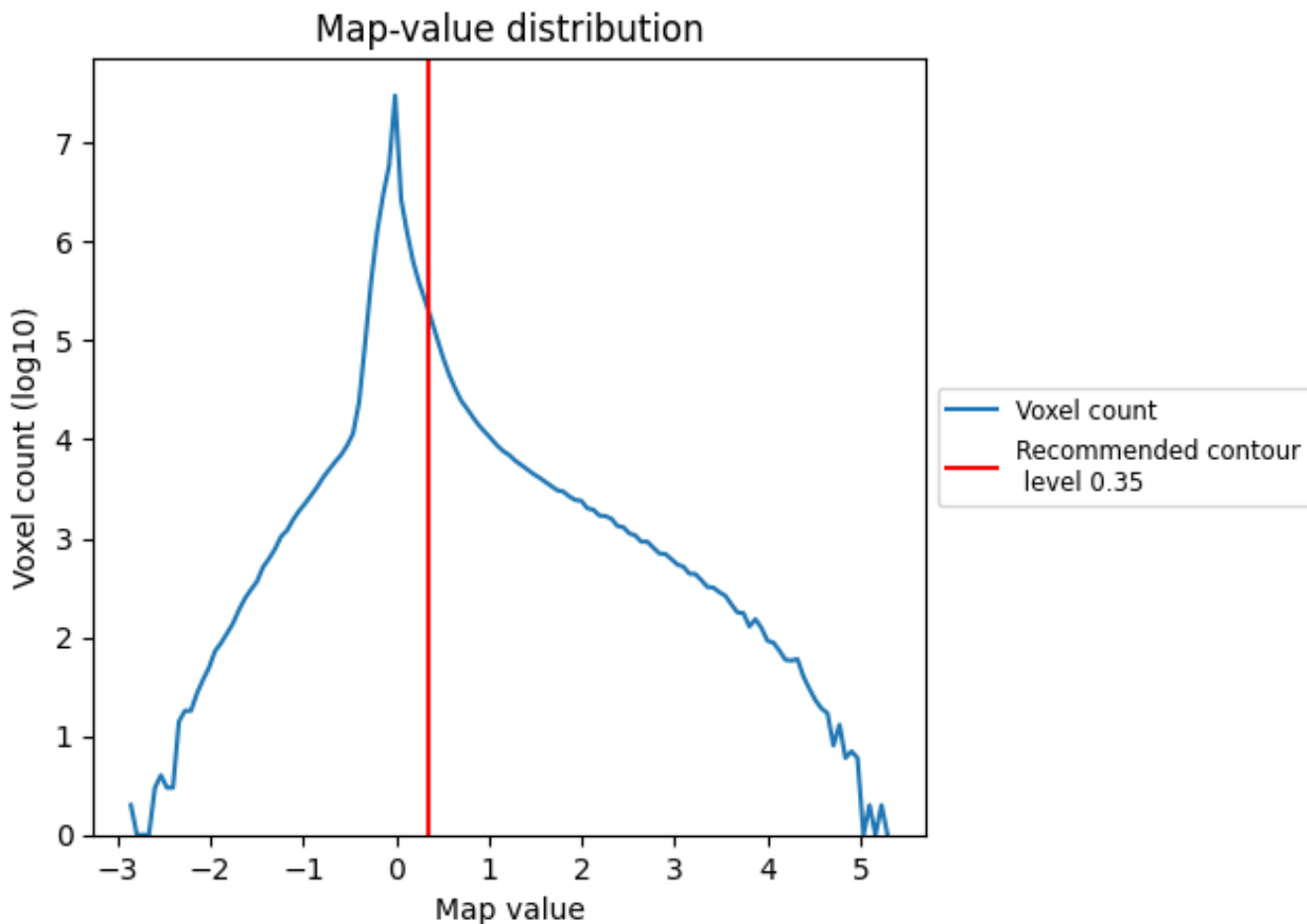
6.6 Mask visualisation [i](#)

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

7 Map analysis [i](#)

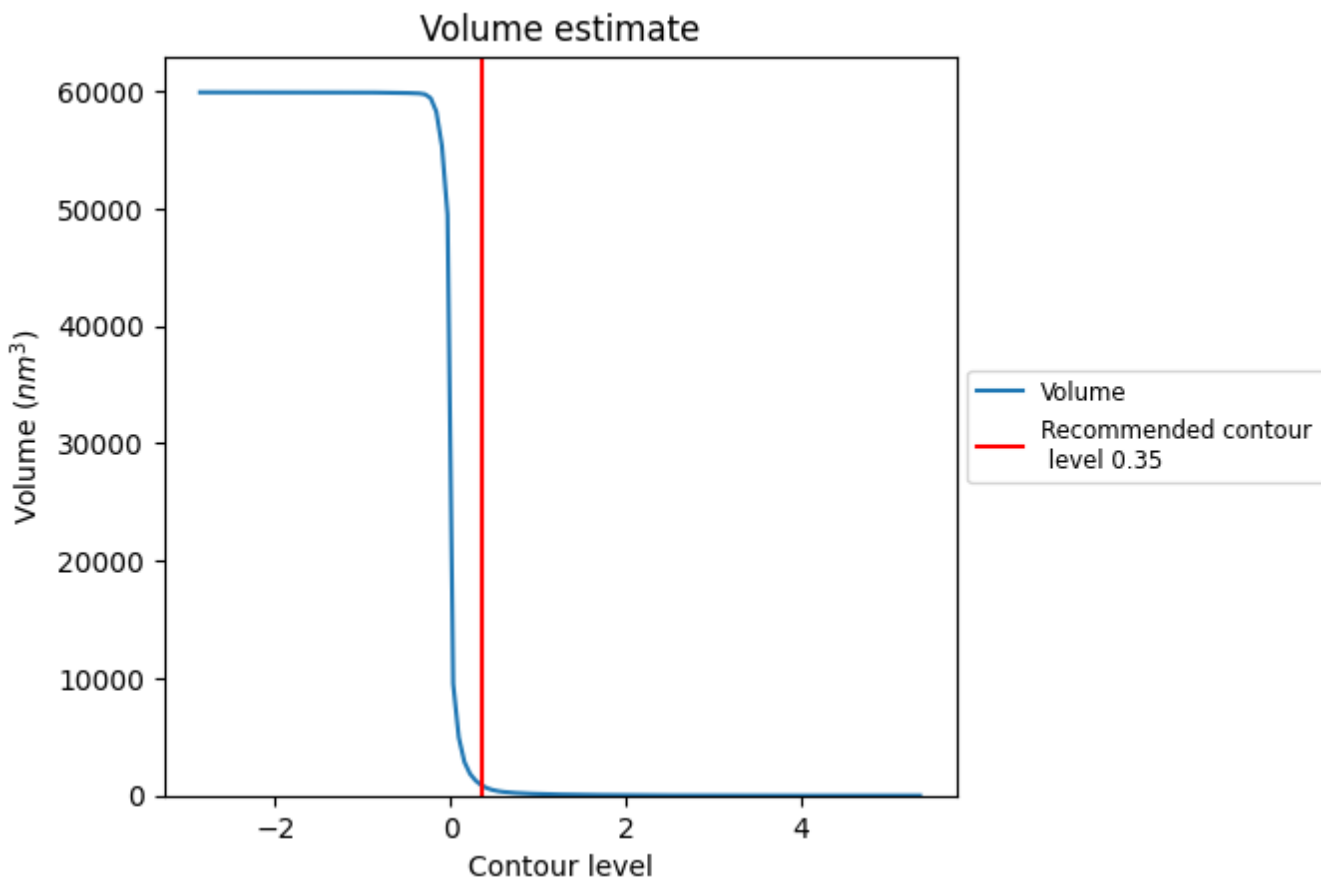
This section contains the results of statistical analysis of the map.

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.

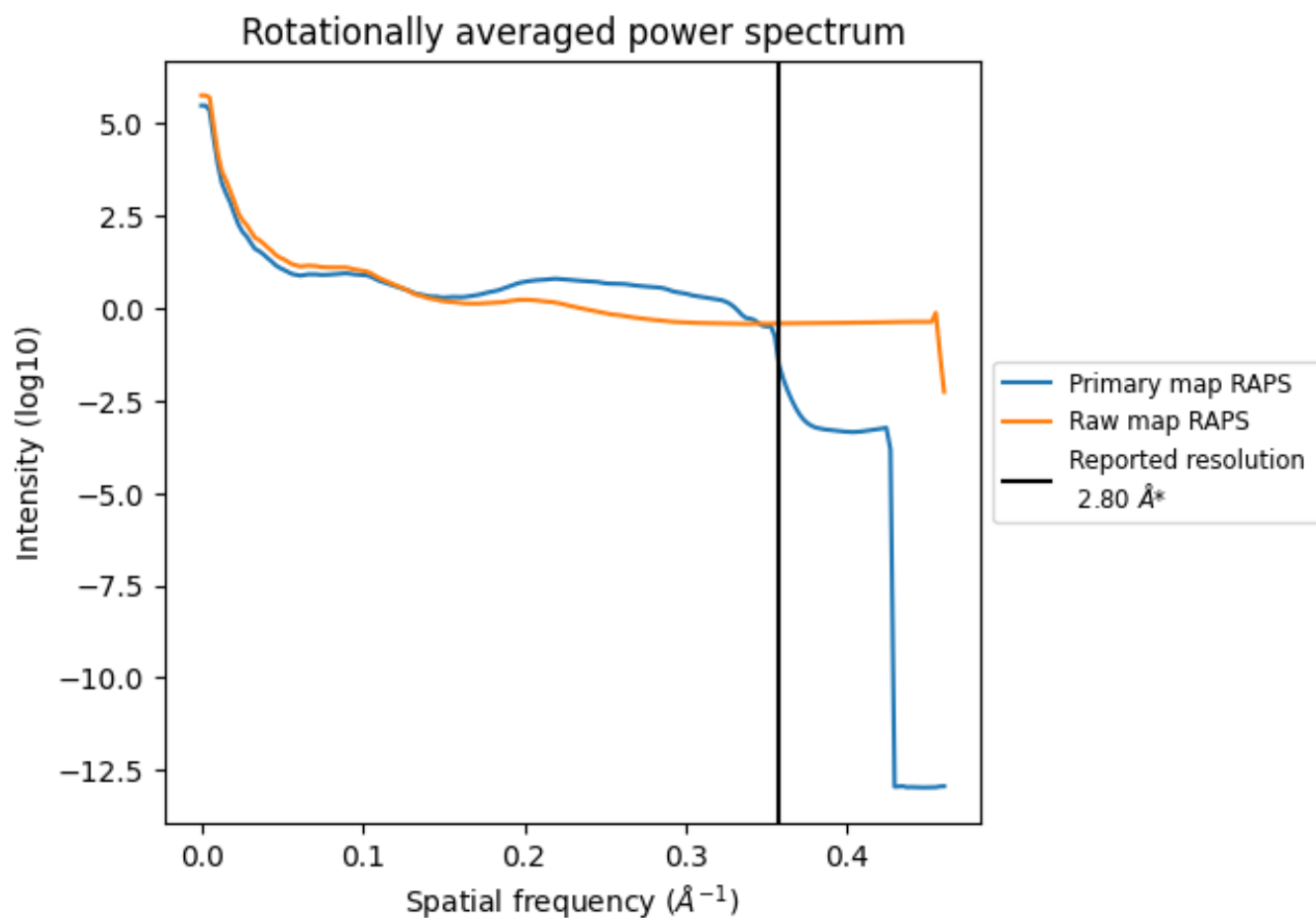
7.2 Volume estimate [i](#)



The volume at the recommended contour level is 901 nm³; this corresponds to an approximate mass of 814 kDa.

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

7.3 Rotationally averaged power spectrum [i](#)

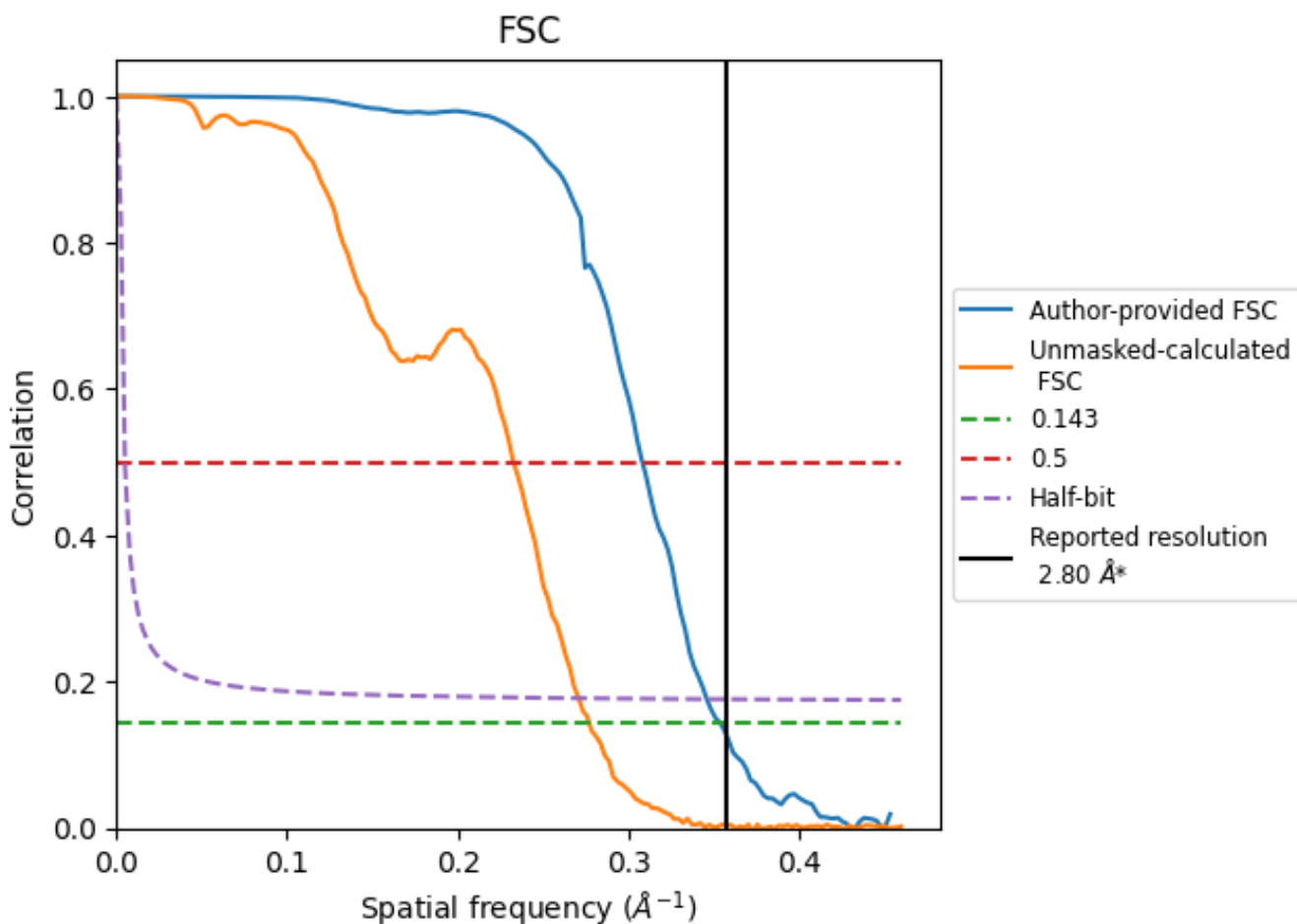


*Reported resolution corresponds to spatial frequency of 0.357 Å⁻¹

8 Fourier-Shell correlation [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 0.357 Å⁻¹

8.2 Resolution estimates [i](#)

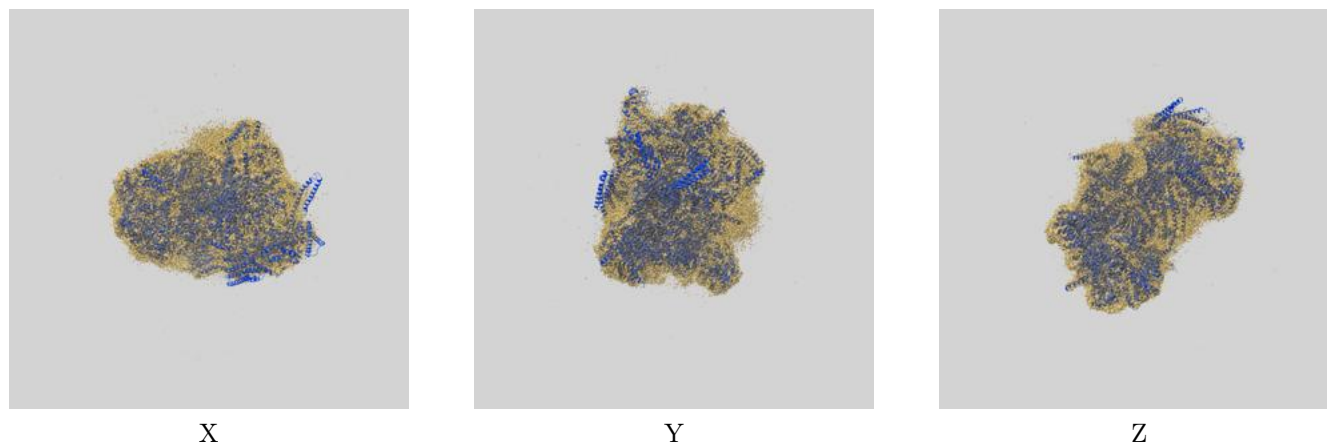
Resolution estimate (Å)	Estimation criterion (FSC cut-off)		
	0.143	0.5	Half-bit
Reported by author	2.80	-	-
Author-provided FSC curve	2.82	3.24	2.89
Unmasked-calculated*	3.61	4.30	3.69

*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 3.61 differs from the reported value 2.8 by more than 10 %

9 Map-model fit [i](#)

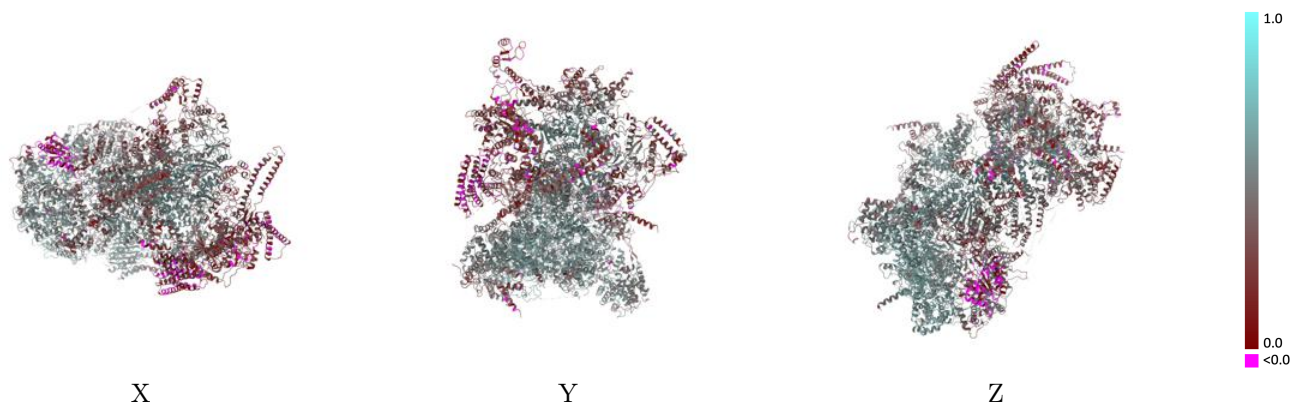
This section contains information regarding the fit between EMDB map EMD-38590 and PDB model 8XQX. Per-residue inclusion information can be found in section [3](#) on page [12](#).

9.1 Map-model overlay [i](#)



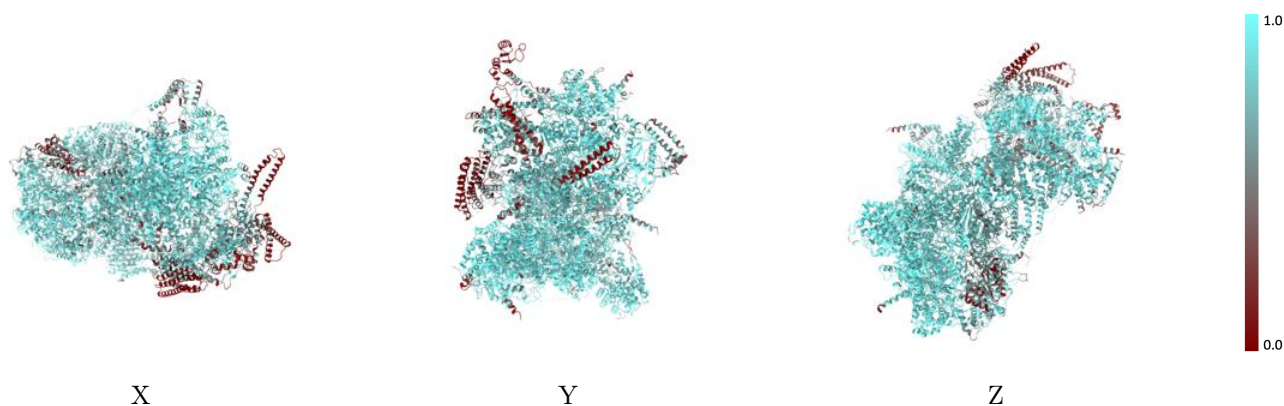
The images above show the 3D surface view of the map at the recommended contour level 0.35 at 50% transparency in yellow overlaid with a ribbon representation of the model coloured in blue. These images allow for the visual assessment of the quality of fit between the atomic model and the map.

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



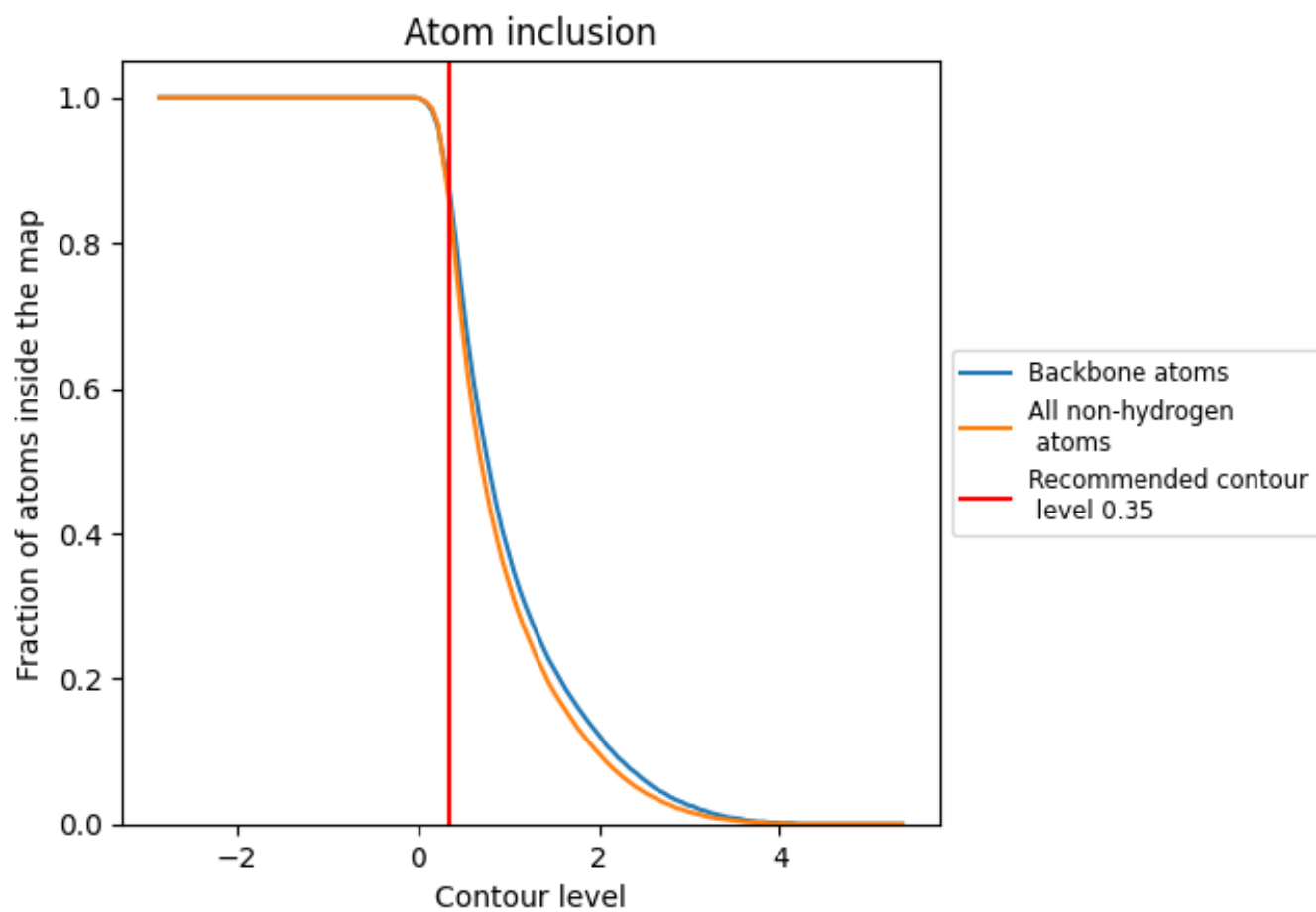
The images above show the model with each residue coloured according to its Q-score. This shows their resolvability in the map with higher Q-score values reflecting better resolvability. Please note: Q-score is calculating the resolvability of atoms, and thus high values are only expected at resolutions 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 (0.35).















































9.4 Atom inclusion [i](#)



At the recommended contour level, 87% of all backbone atoms, 86% 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 (0.35) and Q-score for the entire model and for each chain.

Chain	Atom inclusion	Q-score
All	 0.8560	 0.4600
A	 0.9350	 0.5320
B	 0.8990	 0.4820
C	 0.9030	 0.4870
D	 0.9160	 0.4980
E	 0.8460	 0.4370
F	 0.8860	 0.4840
G	 0.8990	 0.4840
H	 0.9360	 0.5300
I	 0.9650	 0.5610
J	 0.9310	 0.4850
K	 0.9640	 0.5580
L	 0.9000	 0.5080
M	 0.8810	 0.4540
N	 0.8800	 0.4740
O	 0.3620	 0.2090
P	 0.5780	 0.2660
Q	 0.5040	 0.2680
R	 0.9010	 0.4550
S	 0.7480	 0.3570
T	 0.6910	 0.2940
U	 0.6940	 0.2890
V	 0.8380	 0.2160

