



Full wwPDB EM Validation Report ⓘ

Nov 13, 2024 – 10:34 AM JST

PDB ID : 8XQW
EMDB ID : EMD-38589
Title : Cryo-EM structure of the Ycf2-FtsHi motor complex from *Chlamydomonas reinhardtii* in AMPPNP bound state
Authors : Liang, K.; Zhan, X.; Wu, J.; Yan, Z.
Deposited on : 2024-01-10
Resolution : 2.90 Å(reported)
Based on initial model : .

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:

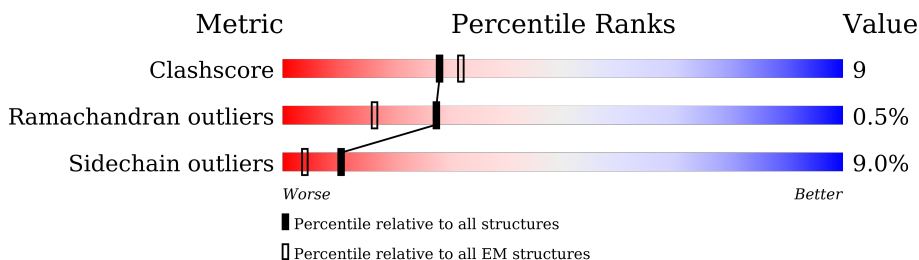
EMDB validation analysis : 0.0.1.dev113
Mogul : 1.8.5 (274361), CSD as541be (2020)
MolProbity : 4.02b-467
buster-report : 1.1.7 (2018)
Percentile statistics : 20231227.v01 (using entries in the PDB archive December 27th 2023)
MapQ : 1.9.13
Ideal geometry (proteins) : Engh & Huber (2001)
Ideal geometry (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 2.90 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	65% (green), 17% (yellow), 16% (grey), 0% (orange), 0% (red)
2	B	1112	49% (green), 16% (yellow), 32% (grey), 0% (orange), 0% (red)
2	C	1112	44% (green), 16% (yellow), 38% (grey), 0% (orange), 0% (red)
3	D	2971	36% (green), 13% (yellow), 48% (grey), 0% (orange), 0% (red)
4	E	982	20% (red), 71% (green), 16% (yellow), 12% (grey), 0% (orange)
5	F	1024	12% (red), 51% (green), 16% (yellow), 32% (grey), 0% (orange)
6	G	495	56% (green), 19% (yellow), 20% (grey), 0% (orange), 0% (red)
7	H	555	59% (green), 13% (yellow), 27% (grey), 0% (orange), 0% (red)

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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	V	86	
21	U	156	

2 Entry composition

There are 30 unique types of molecules in this entry. The entry contains 73643 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	6229	3888	1143	1184	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
			2040	1317	352	367	4		

- 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		

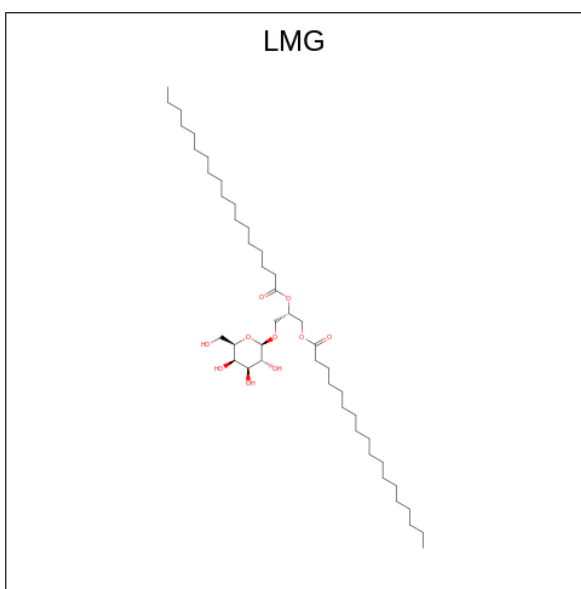
- Molecule 20 is a protein called UNK.

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

- Molecule 21 is a protein called UNK.

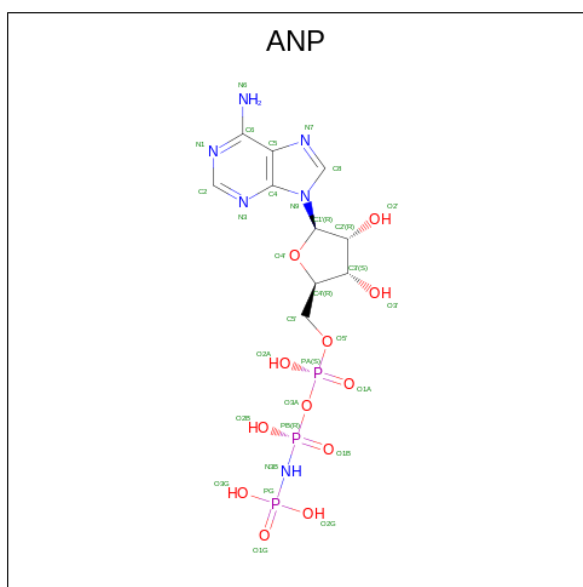
Mol	Chain	Residues	Atoms				AltConf	Trace
			Total	C	N	O		
21	U	36	188	115	36	37	1	0

- 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 PHOSPHOAMINOPHOSPHONIC ACID-ADENYLATE ESTER (three-letter code: ANP) (formula: $C_{10}H_{17}N_6O_{12}P_3$).

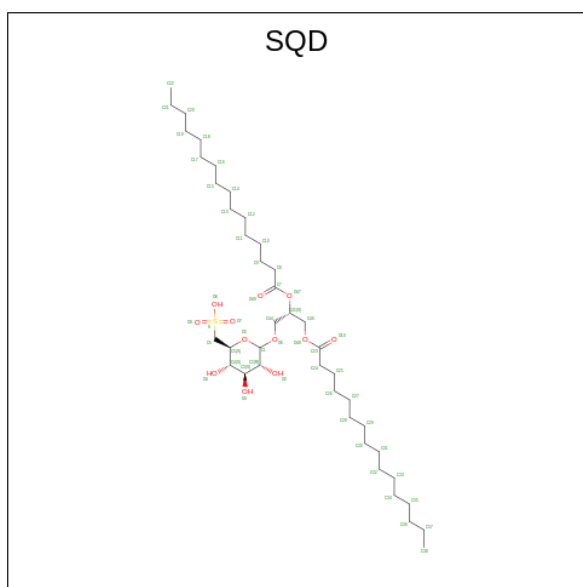


Mol	Chain	Residues	Atoms					AltConf
			Total	C	N	O	P	
23	A	1	Total	C	N	O	P	0
			31	10	6	12	3	
23	C	1	Total	C	N	O	P	0
			31	10	6	12	3	
23	E	1	Total	C	N	O	P	0
			31	10	6	12	3	
23	F	1	Total	C	N	O	P	0
			31	10	6	12	3	

- Molecule 24 is MAGNESIUM ION (three-letter code: MG) (formula: Mg).

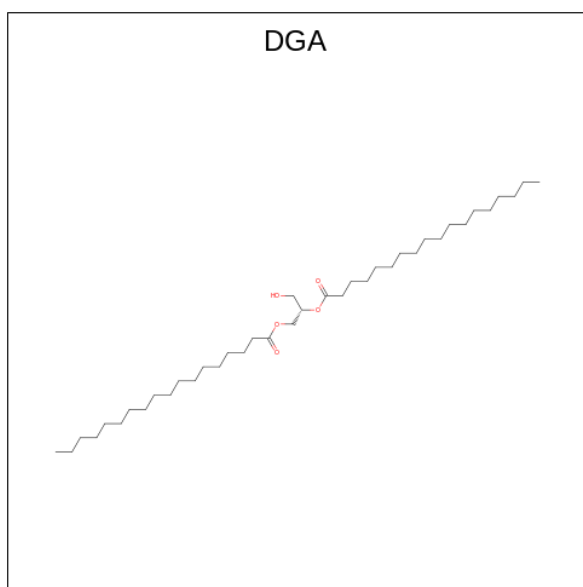
Mol	Chain	Residues	Atoms		AltConf
			Total	Mg	
24	A	1	Total	Mg	0
			1	1	

- Molecule 25 is 1,2-DI-O-ACYL-3-O-[6-DEOXY-6-SULFO-ALPHA-D-GLUCOPYRANOSYL]-SN-GLYCEROL (three-letter code: SQD) (formula: C₄₁H₇₈O₁₂S).



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

- Molecule 26 is DIACYL GLYCEROL (three-letter code: DGA) (formula: $C_{39}H_{76}O_5$).



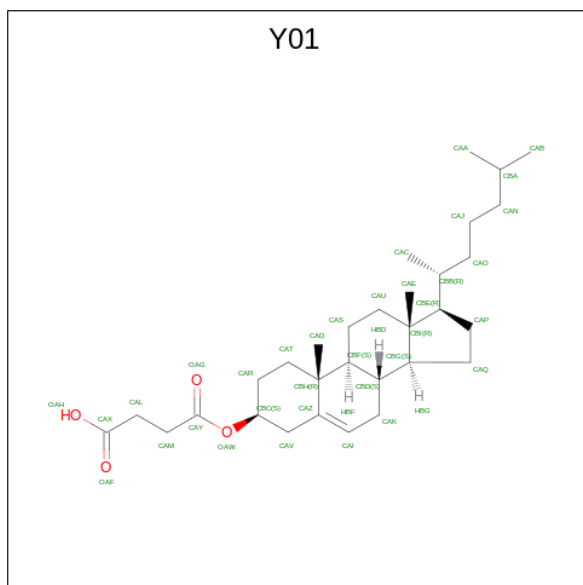
Mol	Chain	Residues	Atoms			AltConf
			Total	C	O	
26	D	1	34	29	5	0

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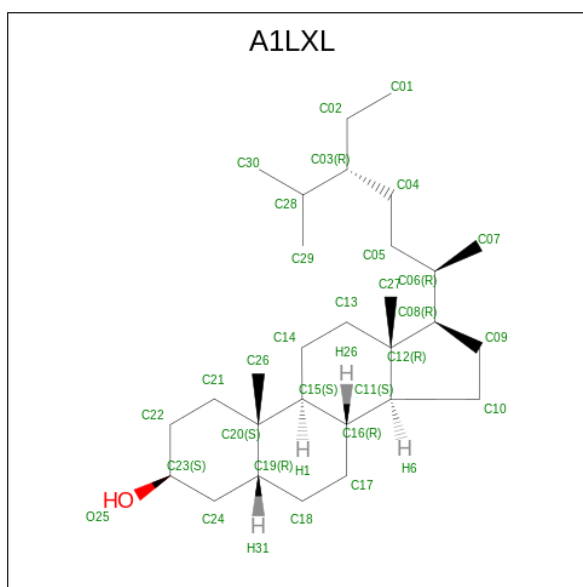
Mol	Chain	Residues	Atoms			AltConf
			Total	C	O	
26	O	1	39	34	5	0

- Molecule 27 is CHOLESTEROL HEMISUCCINATE (three-letter code: Y01) (formula: $C_{31}H_{50}O_4$).



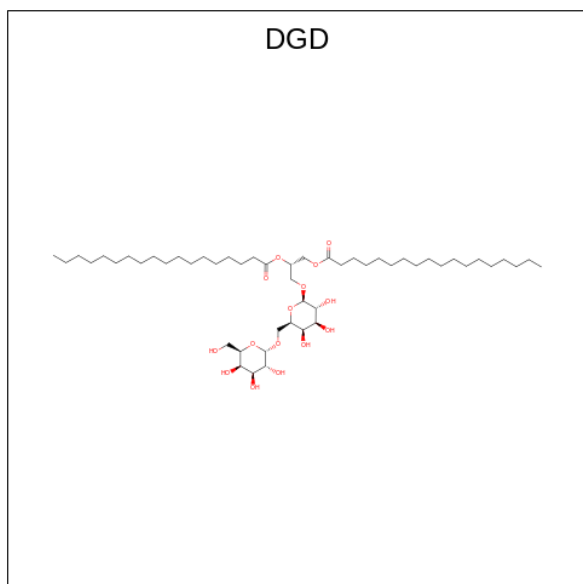
Mol	Chain	Residues	Atoms			AltConf
			Total	C	O	
27	D	1	35	31	4	0
27	M	1	35	31	4	0

- Molecule 28 is Beta-Sitosterol (three-letter code: A1LXL) (formula: $C_{29}H_{52}O$).



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

- Molecule 29 is DIGALACTOSYL DIACYL GLYCEROL (DGD) (three-letter code: DGD) (formula: $C_{51}H_{96}O_{15}$).



Mol	Chain	Residues	Atoms			AltConf
29	I	1	Total	C	O	0
			40	25	15	

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Mol	Chain	Residues	Atoms			AltConf
			Total	C	O	
29	L	1	41	26	15	0

- Molecule 30 is ZINC ION (three-letter code: ZN) (formula: Zn).

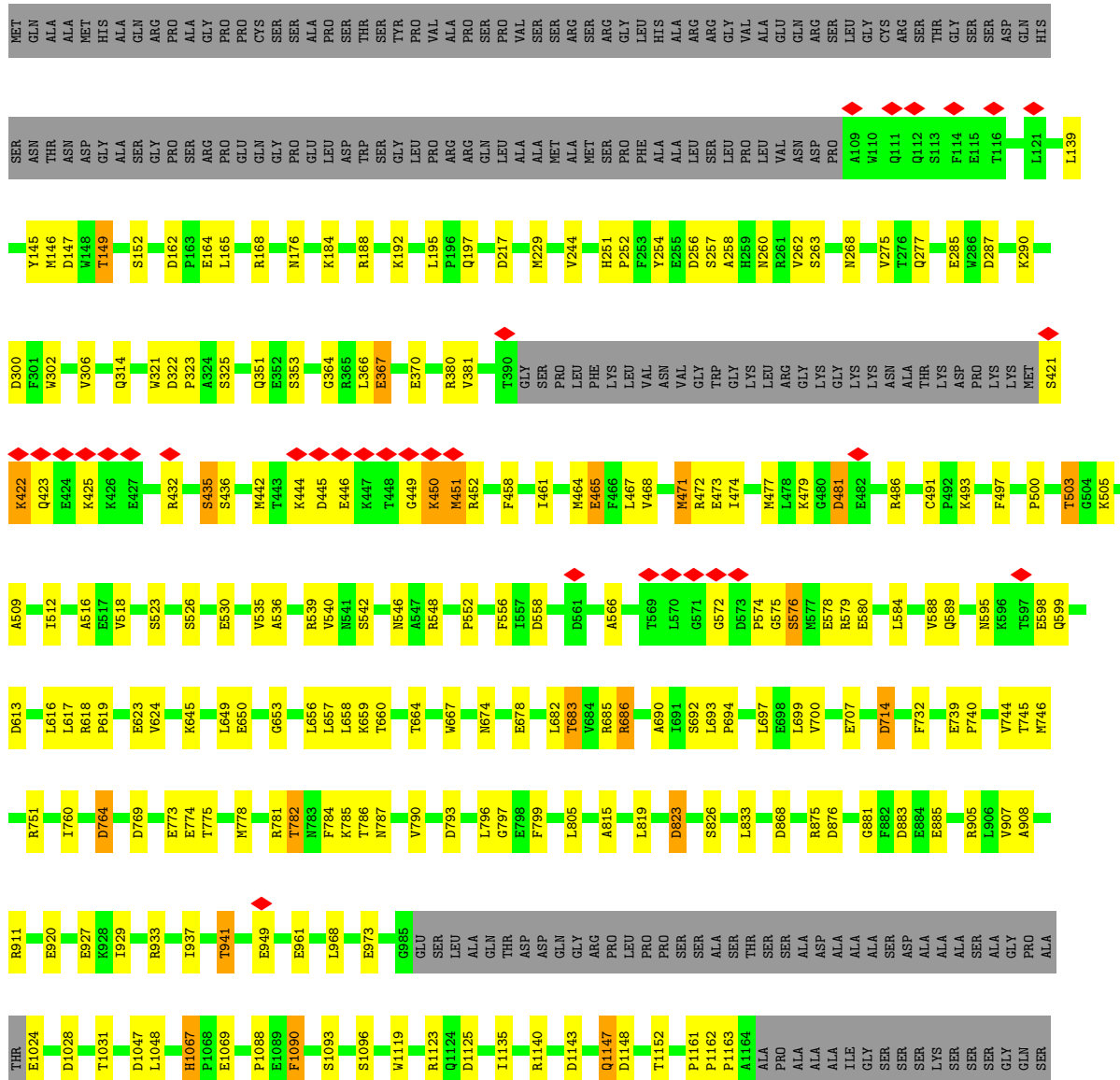
Mol	Chain	Residues	Atoms		AltConf
			Total	Zn	
30	R	2	2	2	0

3 Residue-property plots [i](#)

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

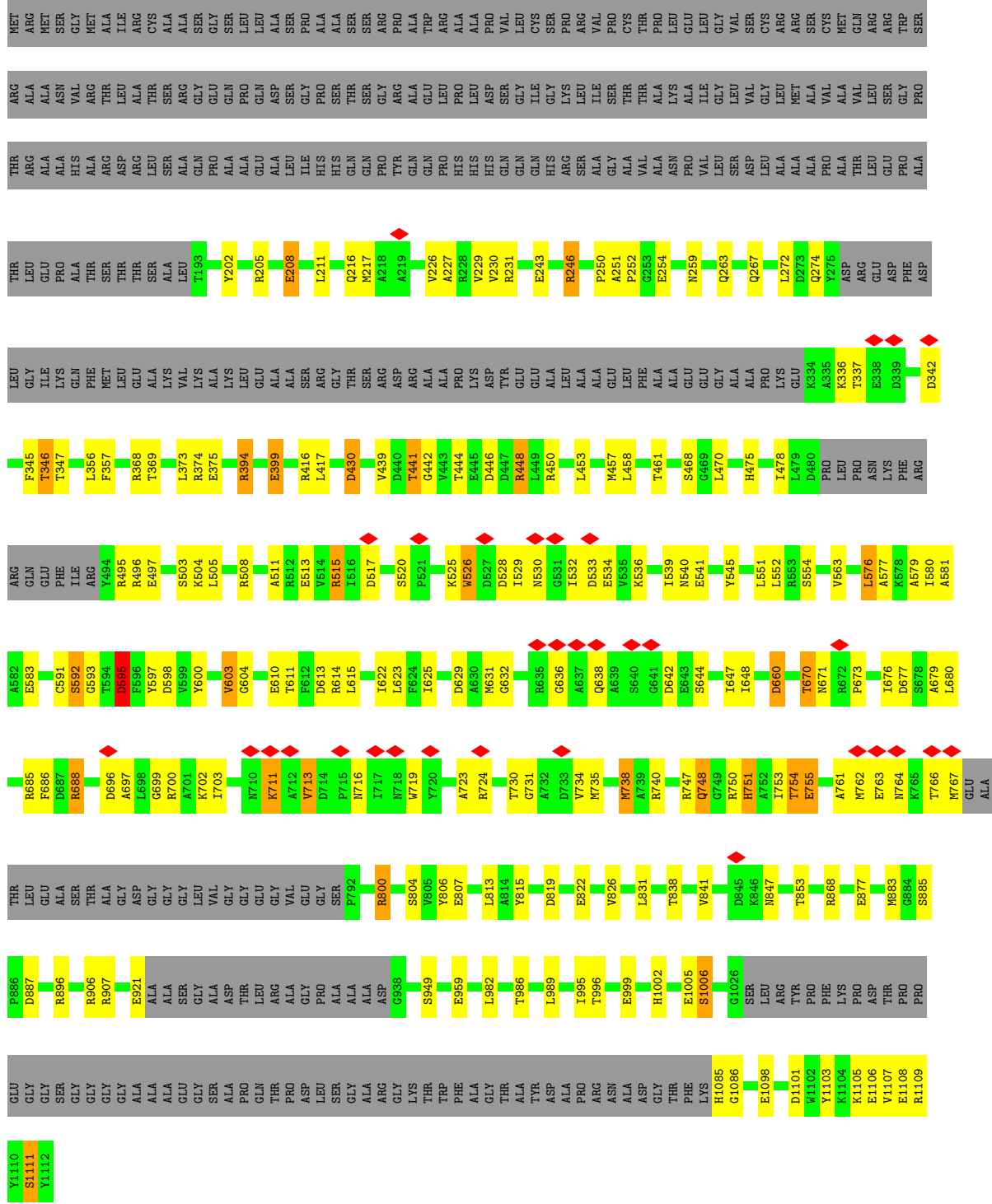
• Molecule 1: Fhl1

Chain A:

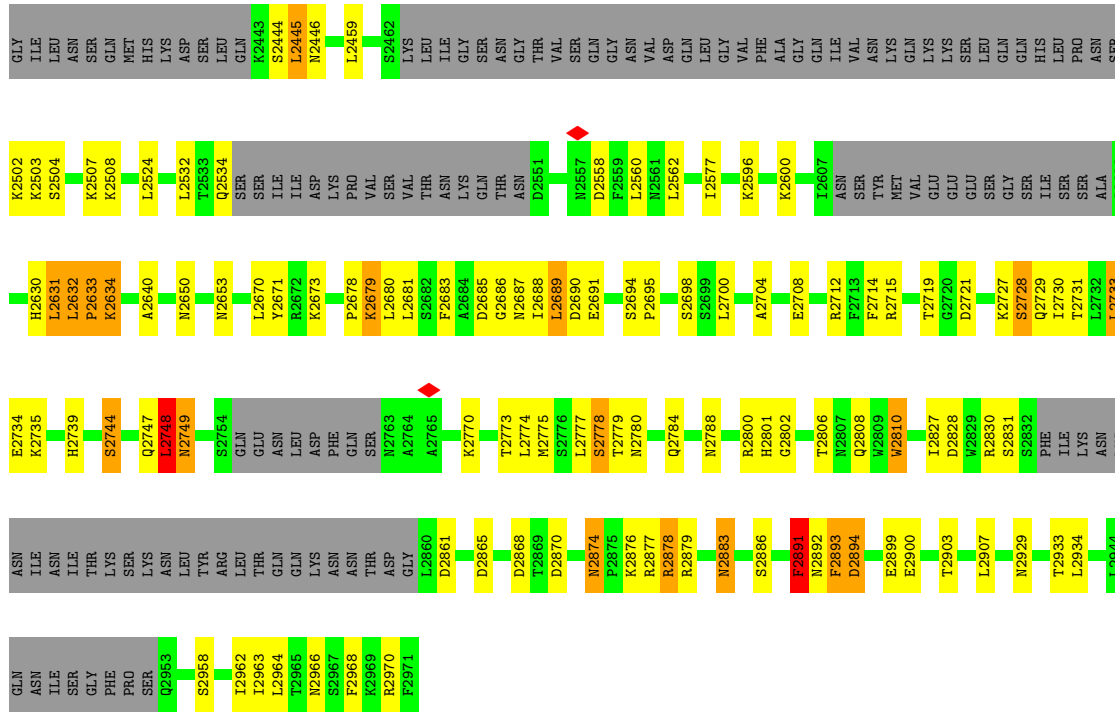


SER

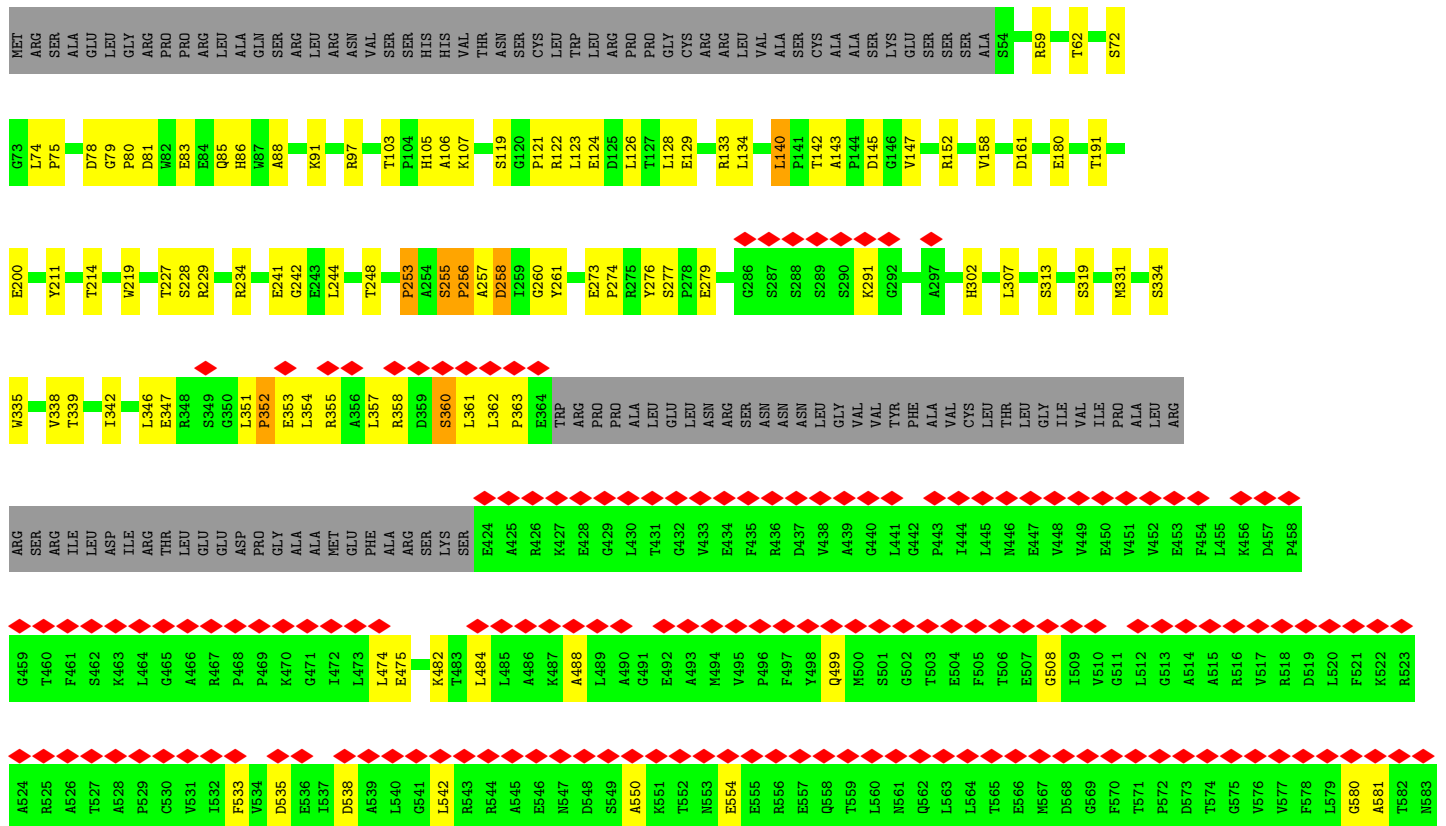
Molecule 2: Fhl3

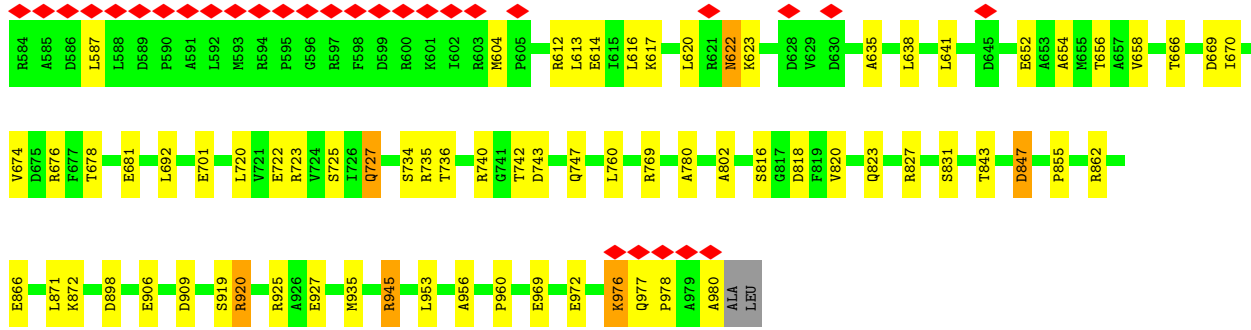


Molecule 2: Fhl3

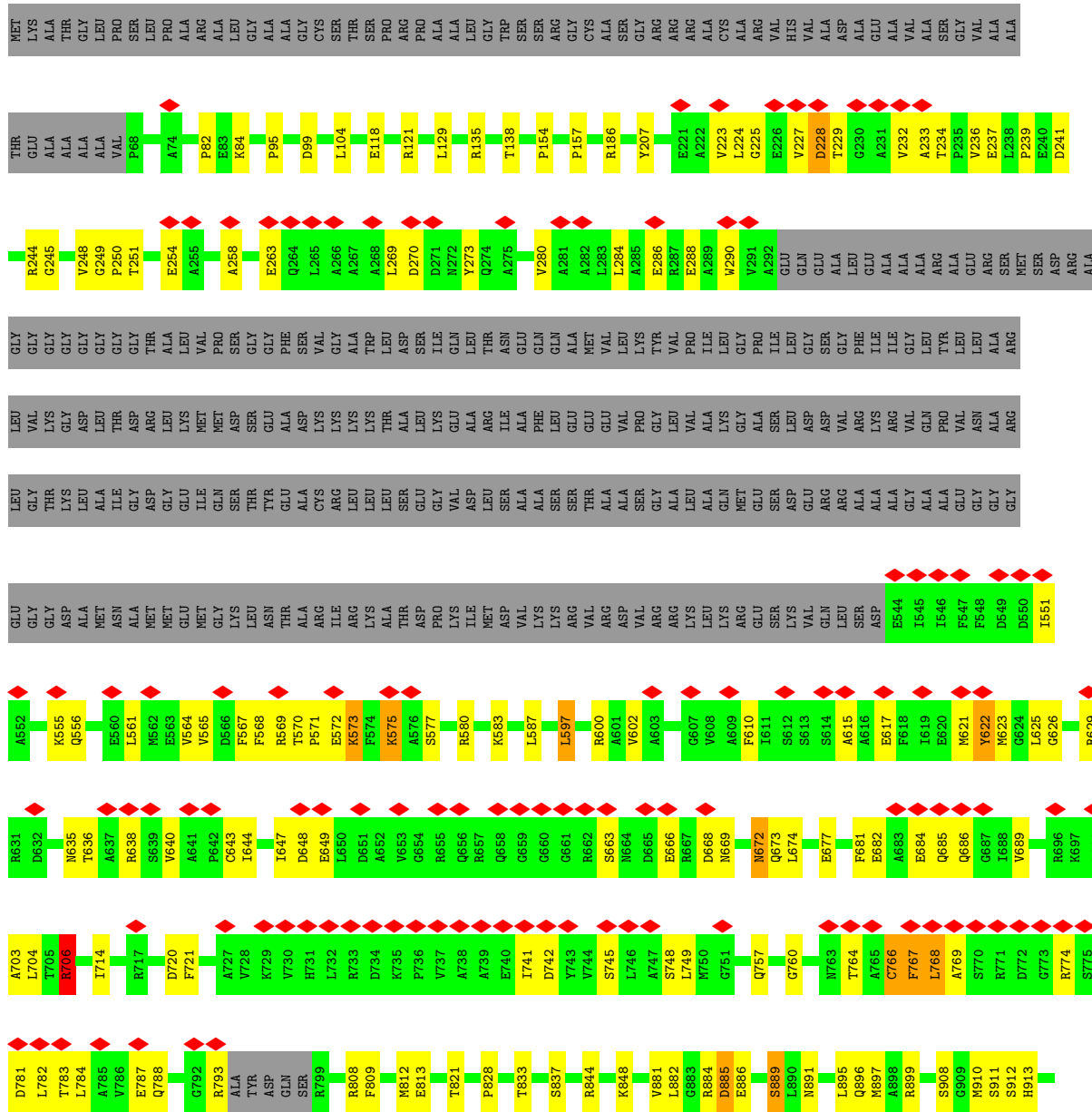


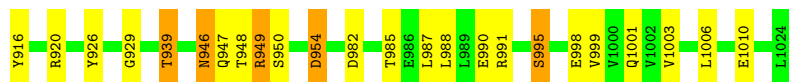
● Molecule 4: Ctap1



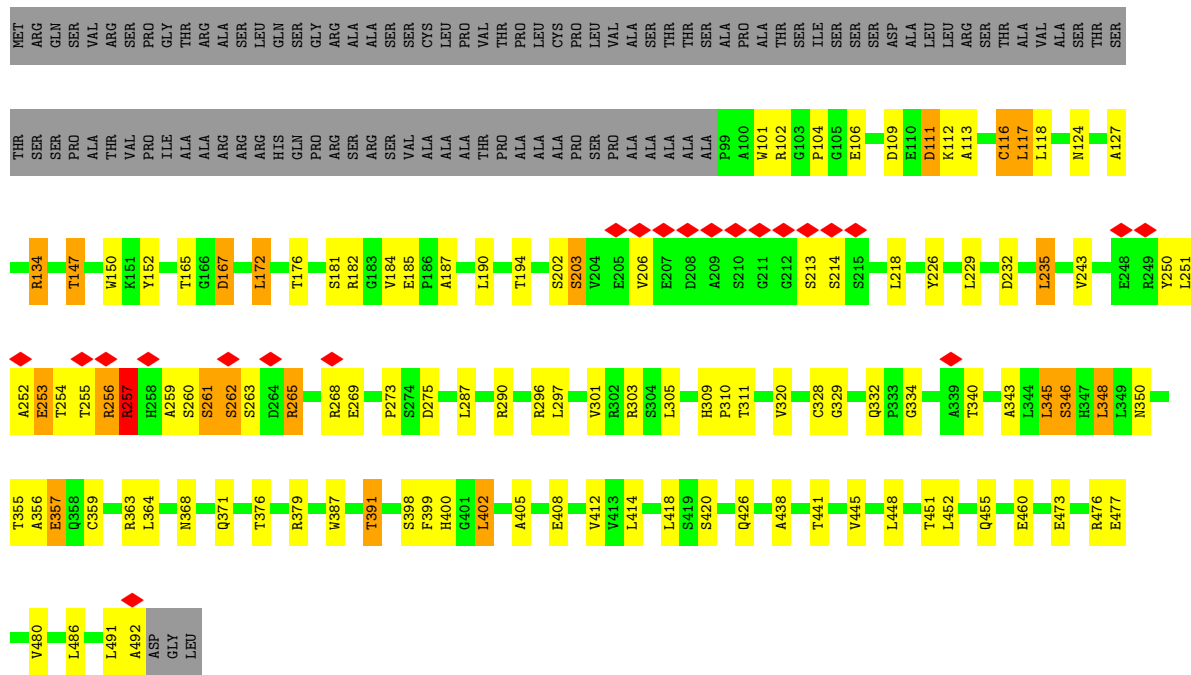


• Molecule 5: Ctap6

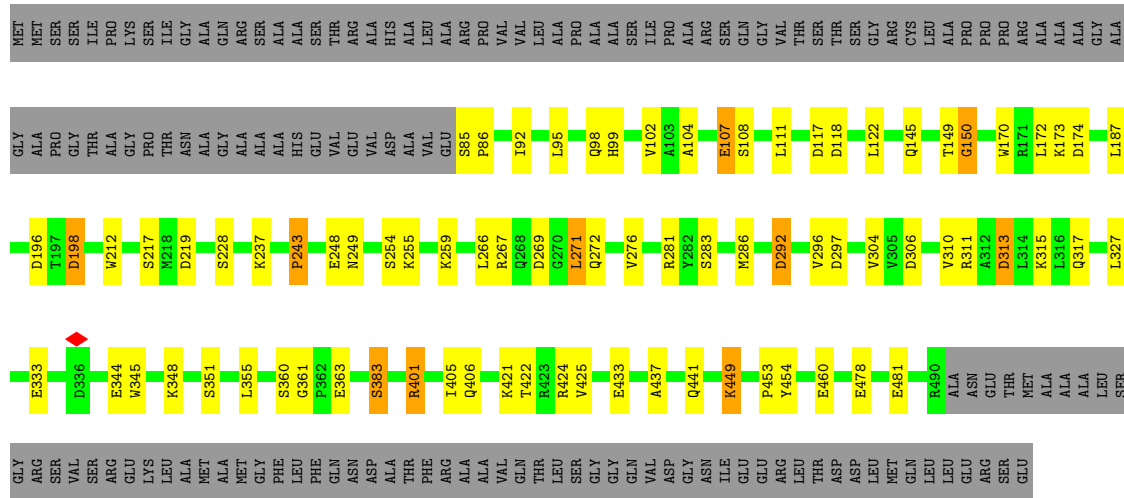




• Molecule 6: ARHL

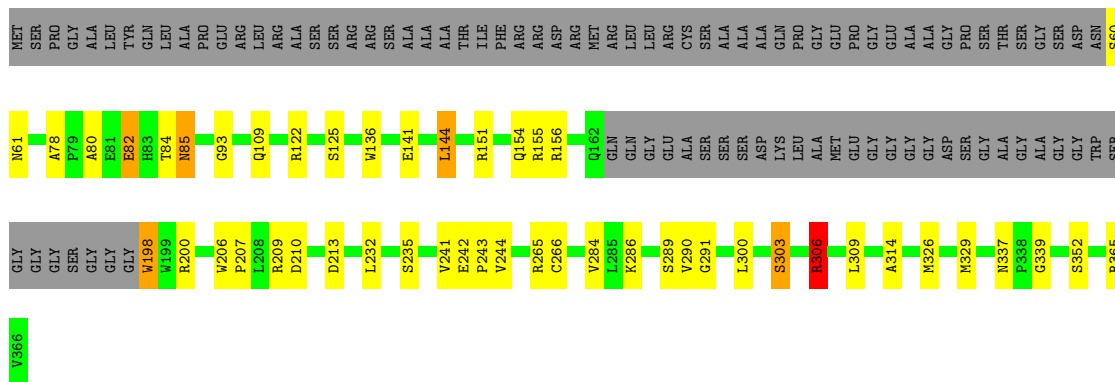


• Molecule 7: PcyA

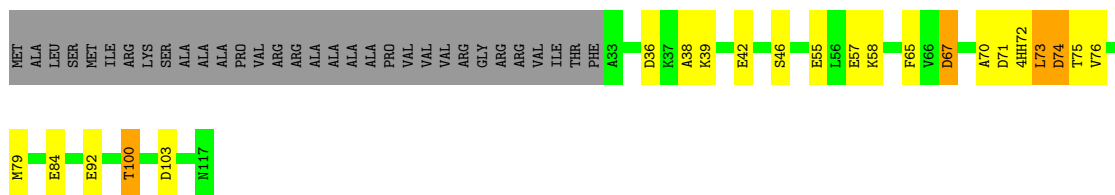


• Molecule 8: CrTam39

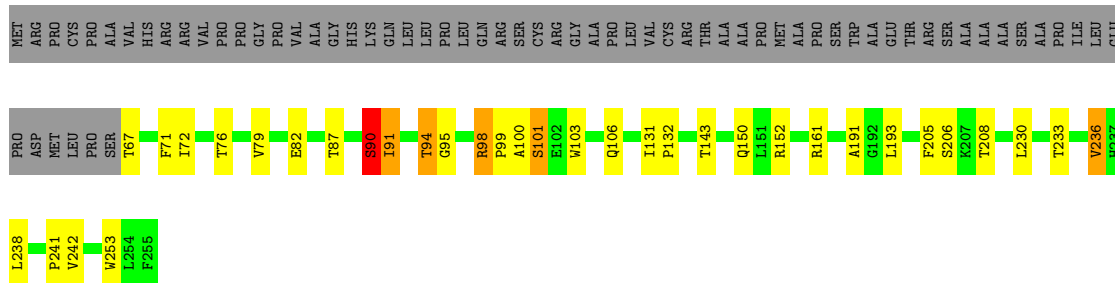




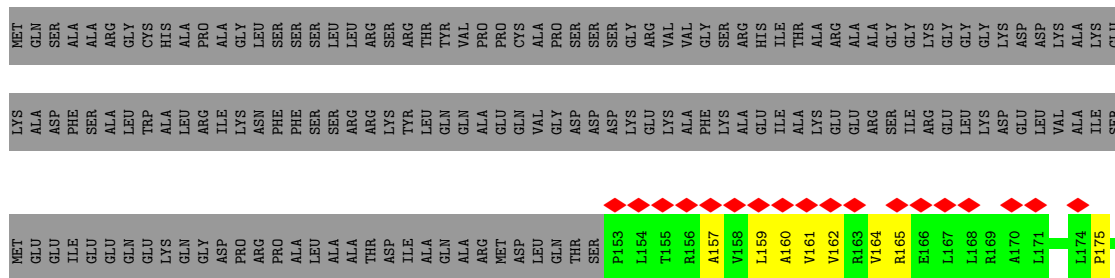
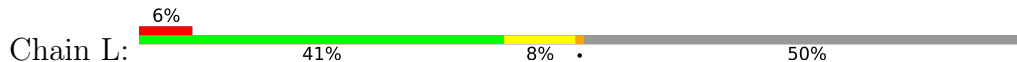
• Molecule 9: ACP



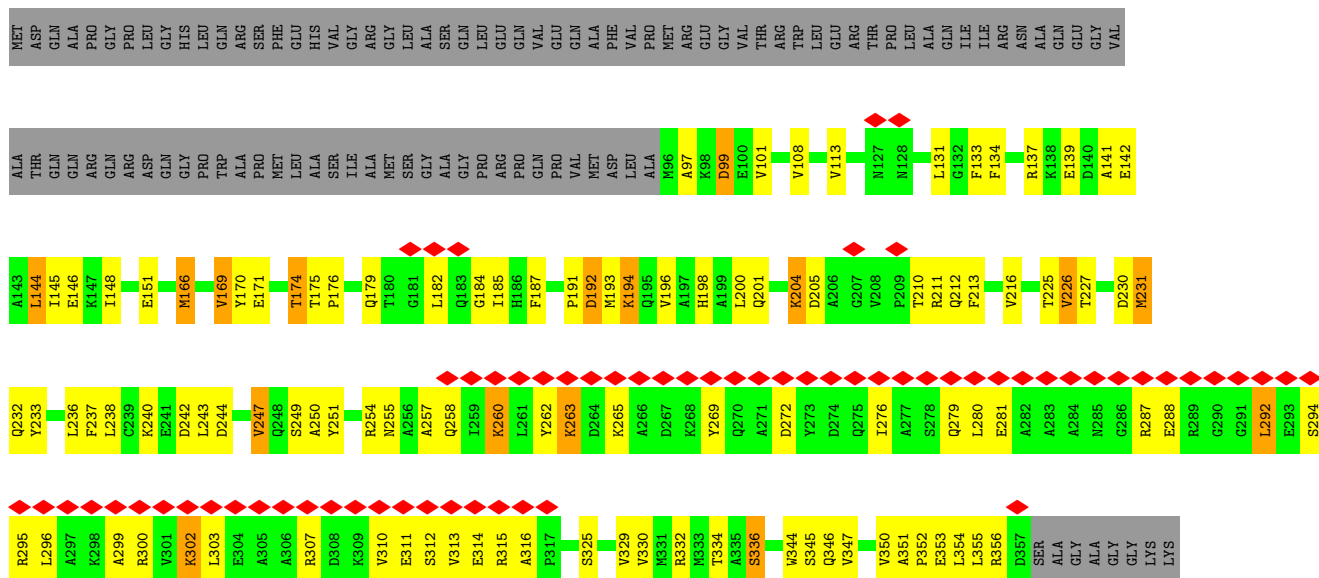
• Molecule 10: CrTam29



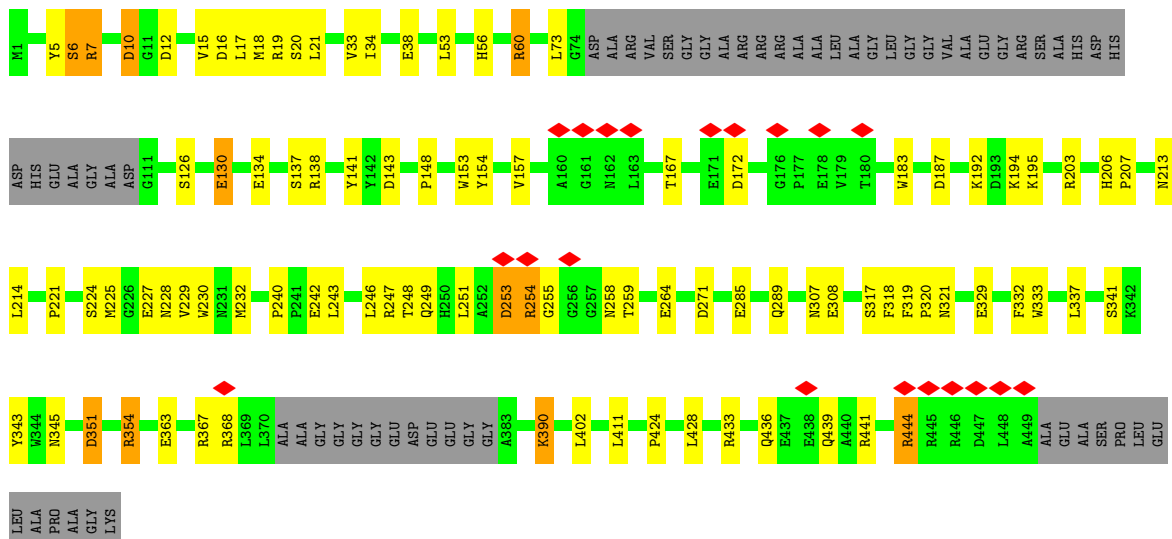
• Molecule 11: CrTam34



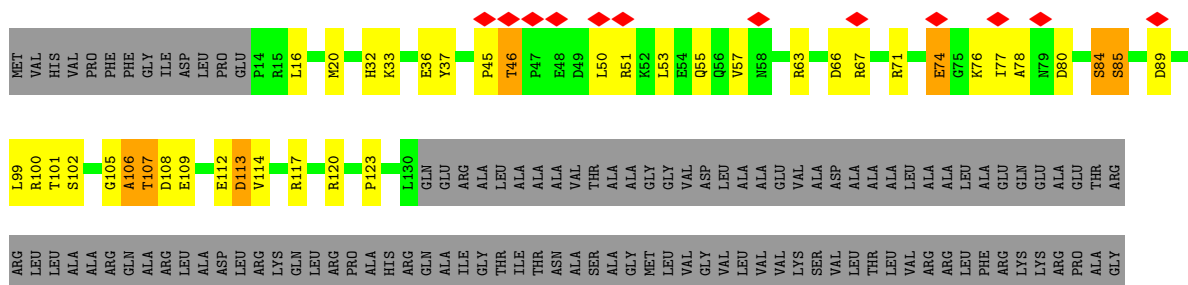
• Molecule 12: FADL



• 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	172550	Depositor
Resolution determination method	FSC 0.143 CUT-OFF	Depositor
CTF correction method	PHASE FLIPPING AND AMPLITUDE CORRECTION	Depositor
Microscope	FEI TITAN KRIOS	Depositor
Voltage (kV)	300	Depositor
Electron dose ($e^-/\text{\AA}^2$)	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	4.162	Depositor
Minimum map value	-1.990	Depositor
Average map value	0.005	Depositor
Map value standard deviation	0.131	Depositor
Recommended contour level	0.45	Depositor
Map size (\AA)	391.32, 391.32, 391.32	wwPDB
Map dimensions	360, 360, 360	wwPDB
Map angles ($^\circ$)	90.0, 90.0, 90.0	wwPDB
Pixel spacing (\AA)	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: 4HH, LMG, DGA, SEP, MG, TPO, A1LXL, ZN, SQD, Y01, DGD, ANP

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	0.45	0/7792	0.50	1/10575 (0.0%)
2	B	0.46	0/5925	0.50	0/8024
2	C	0.45	0/5432	0.53	0/7359
3	D	0.46	0/12978	0.53	3/17507 (0.0%)
4	E	0.44	0/6360	0.49	1/8671 (0.0%)
5	F	0.42	0/5432	0.49	0/7366
6	G	0.37	0/2999	0.51	0/4087
7	H	0.53	0/3324	0.49	1/4515 (0.0%)
8	I	0.57	0/2177	0.53	0/2958
9	J	0.41	0/625	0.53	0/839
10	K	0.61	0/1627	0.55	1/2223 (0.0%)
11	L	0.55	0/1303	0.50	0/1786
12	M	0.46	0/3103	0.52	1/4258 (0.0%)
13	N	0.53	1/945 (0.1%)	0.54	0/1280
14	O	0.35	0/2084	0.50	0/2874
15	P	0.31	0/4601	0.53	1/6273 (0.0%)
16	Q	0.29	0/2115	0.48	0/2857
17	R	0.43	0/3224	0.51	0/4379
18	S	0.30	0/936	0.44	0/1267
19	T	0.29	0/862	0.48	0/1164
21	U	0.29	0/45	0.50	0/58
All	All	0.44	1/73889 (0.0%)	0.51	9/100320 (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
1	A	0	2
2	B	0	3

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Mol	Chain	#Chirality outliers	#Planarity outliers
2	C	0	2
3	D	0	3
5	F	0	1
6	G	0	3
8	I	0	1
13	N	0	2
17	R	0	1
All	All	0	18

All (1) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
13	N	91	GLU	C-O	-5.78	1.12	1.23

All (9) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
15	P	347	PRO	N-CA-CB	-12.11	88.77	103.30
3	D	2891	PHE	CA-CB-CG	-8.34	93.88	113.90
3	D	2891	PHE	CB-CA-C	6.21	122.81	110.40
4	E	253	PRO	N-CA-CB	-5.88	96.13	102.60
1	A	1163	PRO	N-CA-CB	5.69	110.13	103.30
3	D	2891	PHE	N-CA-CB	5.62	120.71	110.60
12	M	287	PHE	N-CA-CB	-5.47	100.76	110.60
10	K	99	PRO	N-CA-CB	-5.19	96.89	102.60
7	H	243	PRO	N-CA-CB	-5.13	96.96	102.60

There are no chirality outliers.

All (18) planarity outliers are listed below:

Mol	Chain	Res	Type	Group
1	A	685	ARG	Sidechain
1	A	686	ARG	Sidechain
2	B	448	ARG	Sidechain
2	B	450	ARG	Sidechain
2	B	496	ARG	Sidechain
2	C	448	ARG	Sidechain
2	C	450	ARG	Sidechain
3	D	966	ARG	Sidechain
3	D	968	ARG	Sidechain
3	D	972	ARG	Sidechain

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Mol	Chain	Res	Type	Group
5	F	706	ARG	Sidechain
6	G	256	ARG	Sidechain
6	G	257	ARG	Sidechain
6	G	265	ARG	Sidechain
8	I	306	ARG	Sidechain
13	N	130	ARG	Sidechain
13	N	49	ARG	Sidechain
17	R	7	ARG	Sidechain

5.2 Too-close contacts [i](#)

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

Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
1	A	7627	0	7581	125	0
2	B	5844	0	5785	127	0
2	C	5324	0	5301	126	0
3	D	12719	0	13028	293	0
4	E	6229	0	5674	121	0
5	F	5333	0	5318	103	0
6	G	2931	0	2867	67	0
7	H	3246	0	3152	49	0
8	I	2119	0	2069	27	0
9	J	651	0	658	17	0
10	K	1567	0	1558	14	0
11	L	1254	0	1246	16	0
12	M	3000	0	2945	48	0
13	N	921	0	917	11	0
14	O	2040	0	1739	39	0
15	P	4510	0	4451	135	0
16	Q	2078	0	2090	75	0
17	R	3160	0	2999	71	0
18	S	951	0	923	25	0
19	T	868	0	824	41	0
20	V	340	0	76	0	0
21	U	188	0	62	0	0
22	A	46	0	61	3	0
22	C	25	0	31	0	0
22	I	32	0	33	1	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
22	K	41	0	52	0	0
22	M	48	0	66	2	0
23	A	31	0	13	1	0
23	C	31	0	13	1	0
23	E	31	0	13	2	0
23	F	31	0	13	0	0
24	A	1	0	0	0	0
25	A	46	0	54	0	0
25	I	49	0	64	3	0
25	K	45	0	52	0	0
26	D	34	0	50	1	0
26	O	39	0	63	3	0
27	D	35	0	49	0	0
27	M	35	0	49	1	0
28	D	30	0	0	4	0
28	P	30	0	0	7	0
29	I	40	0	38	0	0
29	L	41	0	40	0	0
30	R	2	0	0	0	0
All	All	73643	0	72017	1364	0

The all-atom clashscore is defined as the number of clashes found per 1000 atoms (including hydrogen atoms). The all-atom clashscore for this structure is 9.

All (1364) 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)
15:P:68:ARG:NH2	15:P:347:PRO:HB3	1.24	1.43
14:O:201:ALA:HB2	14:O:311:GLY:HA3	1.30	1.14
15:P:68:ARG:HH21	15:P:347:PRO:CB	1.62	1.12
15:P:68:ARG:NH2	15:P:347:PRO:CB	2.20	1.01
5:F:926:TYR:O	5:F:939:THR:HG23	1.60	1.00
15:P:68:ARG:HD2	15:P:347:PRO:HB2	1.37	1.00
15:P:320:TRP:CE3	28:P:701:A1LXL:C07	2.44	0.99
15:P:305:LEU:HD21	28:P:701:A1LXL:C29	1.96	0.95
15:P:68:ARG:HD2	15:P:347:PRO:CB	1.97	0.93
15:P:324:LEU:HD22	28:P:701:A1LXL:C01	2.10	0.82
28:D:3003:A1LXL:C01	15:P:443:VAL:HG21	2.11	0.81
11:L:297:VAL:HG23	11:L:298:PRO:HD3	1.64	0.78
2:C:821:GLU:HG2	2:C:842:GLU:HB3	1.68	0.75
2:C:595:ASP:O	2:C:607:ARG:NH2	2.20	0.75

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:471:MET:HA	1:A:474:ILE:HG22	1.68	0.74
10:K:161:ARG:NH1	11:L:202:GLU:OE1	2.21	0.74
2:B:906:ARG:NH1	2:C:1094:SER:OG	2.21	0.74
4:E:612:ARG:NH1	4:E:635:ALA:O	2.20	0.74
3:D:1954:THR:OG1	8:I:365:ARG:NH2	2.21	0.74
15:P:388:ARG:NH1	15:P:389:VAL:O	2.20	0.74
5:F:622:TYR:HB3	5:F:625:LEU:HD23	1.69	0.74
2:B:713:VAL:HA	2:B:753:ILE:HG23	1.71	0.73
17:R:5:TYR:HA	17:R:19:ARG:HE	1.53	0.73
1:A:268:ASN:ND2	1:A:277:GLN:O	2.21	0.73
3:D:2827:ILE:HG13	3:D:2828:ASP:H	1.52	0.73
5:F:587:LEU:HG	5:F:714:ILE:HD11	1.69	0.72
17:R:224:SER:O	17:R:228:ASN:ND2	2.20	0.72
17:R:254:ARG:HH11	19:T:59:PRO:HB3	1.53	0.72
2:B:369:THR:O	2:B:373:LEU:HB2	1.89	0.72
6:G:364:LEU:O	6:G:368:ASN:ND2	2.22	0.72
12:M:462:TRP:O	12:M:464:GLY:N	2.23	0.72
15:P:151:THR:H	15:P:351:ASN:HD21	1.35	0.72
14:O:318:GLY:HA2	14:O:321:LEU:HD12	1.72	0.72
3:D:2679:LYS:O	3:D:2681:LEU:N	2.22	0.72
4:E:727:GLN:O	4:E:735:ARG:NH2	2.22	0.71
17:R:411:LEU:HD13	17:R:428:LEU:HD11	1.72	0.71
6:G:263:SER:HA	6:G:268:ARG:HD3	1.72	0.71
15:P:320:TRP:CZ3	28:P:701:A1LXL:C07	2.73	0.71
2:C:559:ARG:NH2	2:C:659:GLU:OE1	2.24	0.71
15:P:128:GLN:HA	15:P:132:ARG:HG2	1.72	0.71
1:A:911:ARG:NH1	1:A:949:GLU:OE1	2.23	0.71
12:M:361:HIS:HD2	12:M:394:TRP:HE1	1.38	0.70
3:D:965:LYS:NZ	18:S:85:SEP:O3P	2.24	0.70
14:O:201:ALA:CB	14:O:311:GLY:HA3	2.15	0.70
2:B:610:GLU:OE1	13:N:113:ARG:NH1	2.25	0.70
4:E:241:GLU:HB2	4:E:261:TYR:CZ	2.27	0.70
7:H:266:LEU:HD23	7:H:272:GLN:HG2	1.72	0.70
6:G:346:SER:O	6:G:350:ASN:ND2	2.23	0.70
5:F:643:CYS:SG	5:F:644:ILE:N	2.64	0.70
2:B:267:GLN:OE1	3:D:1251:ARG:NH1	2.23	0.69
2:C:822:GLU:HG3	2:C:841:VAL:HG13	1.72	0.69
17:R:341:SER:O	17:R:345:ASN:ND2	2.25	0.69
18:S:100:ARG:NH2	18:S:107:TPO:O2P	2.25	0.69
14:O:142:TRP:CZ2	14:O:309:ALA:HA	2.26	0.69
1:A:548:ARG:NH2	1:A:589:GLN:OE1	2.26	0.69

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
5:F:622:TYR:HD1	5:F:623:MET:H	1.41	0.69
4:E:346:LEU:O	4:E:351:LEU:N	2.26	0.69
14:O:142:TRP:HZ2	14:O:309:ALA:HA	1.58	0.69
2:C:645:ALA:O	2:C:649:ASN:ND2	2.25	0.69
2:B:346:TPO:O1P	3:D:899:LYS:NZ	2.26	0.69
2:B:615:LEU:HD11	2:B:623:LEU:HB2	1.73	0.69
3:D:904:LYS:NZ	18:S:106:ALA:O	2.26	0.69
2:B:679:ALA:O	2:B:685:ARG:NH1	2.26	0.68
3:D:1262:ASN:O	3:D:1266:ASN:HB2	1.94	0.68
3:D:2250:ILE:HG13	3:D:2715:ARG:HD3	1.74	0.68
7:H:149:THR:OG1	7:H:150:GLY:N	2.27	0.68
1:A:422:LYS:HA	1:A:425:LYS:HE2	1.75	0.68
15:P:68:ARG:CZ	15:P:347:PRO:HB3	2.20	0.68
1:A:566:ALA:HA	1:A:613:ASP:HB2	1.76	0.67
2:C:546:LEU:HD12	2:C:586:VAL:HG21	1.76	0.67
4:E:484:LEU:O	4:E:488:ALA:N	2.27	0.67
3:D:2366:ASN:HB2	3:D:2369:LYS:HG3	1.76	0.67
15:P:320:TRP:HE3	28:P:701:A1LXL:C07	2.04	0.67
2:C:565:LEU:HD12	2:C:669:ALA:HB2	1.75	0.67
3:D:1946:ARG:NH1	3:D:1952:PHE:O	2.26	0.67
16:Q:353:GLU:OE1	16:Q:356:ARG:NH1	2.24	0.67
15:P:239:ARG:NH2	15:P:250:ASP:OD2	2.27	0.67
15:P:547:LEU:HB2	16:Q:250:ALA:HB1	1.77	0.67
3:D:1696:LEU:HD23	13:N:83:LEU:HD21	1.75	0.67
5:F:668:ASP:O	5:F:672:ASN:ND2	2.28	0.67
16:Q:108:VAL:HG13	16:Q:166:MET:HE3	1.77	0.67
7:H:212:TRP:O	7:H:249:ASN:ND2	2.28	0.66
2:C:787:GLY:HA2	2:C:793:ASP:OD1	1.96	0.66
1:A:322:ASP:OD1	2:B:231:ARG:NH2	2.24	0.66
6:G:405:ALA:HB3	6:G:408:GLU:HG3	1.77	0.66
1:A:905:ARG:NH1	1:A:961:GLU:OE1	2.28	0.66
1:A:782:THR:O	1:A:793:ASP:N	2.29	0.66
2:B:740:ARG:HD3	2:B:764:ASN:HD21	1.61	0.66
3:D:881:LEU:HD11	3:D:986:THR:HG23	1.77	0.66
2:C:430:ASP:OD1	2:C:430:ASP:N	2.17	0.66
15:P:107:GLU:O	15:P:111:LYS:HB2	1.95	0.66
12:M:332:TYR:HD1	12:M:333:MET:HG3	1.60	0.66
15:P:427:THR:HG1	15:P:469:TYR:HH	1.44	0.66
2:B:345:PHE:O	3:D:952:LYS:NZ	2.29	0.66
15:P:305:LEU:CD2	28:P:701:A1LXL:C29	2.72	0.65
6:G:263:SER:HB3	6:G:268:ARG:HG2	1.77	0.65

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:147:ASP:OD2	2:B:394:ARG:NH2	2.22	0.65
1:A:576:SER:O	1:A:580:GLU:HG3	1.96	0.65
2:C:640:SER:HB3	3:D:2063:PHE:HE1	1.62	0.65
5:F:572:GLU:HB2	5:F:573:LYS:HE2	1.79	0.65
14:O:426:VAL:HG23	14:O:431:PHE:HB2	1.77	0.65
1:A:421:SER:OG	1:A:422:LYS:N	2.24	0.65
2:B:740:ARG:NH2	2:B:764:ASN:OD1	2.30	0.65
3:D:2874:ASN:HD22	3:D:2874:ASN:H	1.45	0.65
5:F:615:ALA:HB3	5:F:649:GLU:HB3	1.77	0.65
5:F:82:PRO:O	5:F:84:LYS:NZ	2.30	0.65
2:B:457:MET:HB2	26:O:3101:DGA:HA92	1.78	0.64
4:E:59:ARG:HH22	19:T:122:GLN:HE22	1.43	0.64
5:F:991:ARG:NH1	5:F:998:GLU:OE1	2.30	0.64
17:R:15:VAL:HA	17:R:18:MET:HE2	1.80	0.64
17:R:224:SER:HB2	17:R:227:GLU:HG3	1.78	0.64
17:R:213:ASN:OD1	17:R:214:LEU:N	2.31	0.64
3:D:1325:PHE:O	3:D:1327:ASN:N	2.30	0.64
11:L:242:VAL:HG13	11:L:248:TRP:HB3	1.79	0.64
16:Q:192:ASP:OD1	16:Q:192:ASP:N	2.31	0.64
18:S:101:THR:HG22	18:S:106:ALA:HA	1.78	0.64
2:B:541:GLU:OE1	2:B:688:ARG:NH1	2.30	0.64
2:C:1062:ALA:HA	2:C:1065:LYS:HE3	1.80	0.64
3:D:2031:ASP:N	3:D:2031:ASP:OD1	2.31	0.64
1:A:164:GLU:OE1	1:A:188:ARG:NH2	2.29	0.64
3:D:2744:SER:O	3:D:2747:GLN:HG3	1.97	0.64
5:F:225:GLY:N	5:F:236:VAL:O	2.22	0.64
16:Q:200:LEU:HD21	16:Q:213:PHE:HB2	1.80	0.63
14:O:323:THR:HG1	14:O:382:PHE:HE1	1.43	0.63
13:N:121:GLN:O	13:N:124:TYR:HB3	1.98	0.63
2:C:652:LEU:O	2:C:656:ASP:N	2.31	0.63
2:B:526:TRP:HE1	2:B:536:LYS:HZ3	1.45	0.63
3:D:1126:ASN:HD22	3:D:1128:ARG:H	1.46	0.63
2:C:779:GLY:HA2	3:D:2562:LEU:HD23	1.81	0.63
4:E:273:GLU:OE2	5:F:186:ARG:NH1	2.30	0.63
4:E:80:PRO:HG2	4:E:85:GLN:HG2	1.81	0.62
7:H:198:ASP:OD1	7:H:198:ASP:N	2.30	0.62
15:P:602:ALA:HB1	15:P:605:ALA:HB3	1.81	0.62
18:S:63:ARG:NH2	18:S:107:TPO:O3P	2.28	0.62
4:E:474:LEU:N	4:E:580:GLY:O	2.30	0.62
7:H:313:ASP:HB2	7:H:315:LYS:HG2	1.81	0.62
15:P:345:LEU:C	15:P:347:PRO:HD2	2.19	0.62

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
8:I:241:VAL:HB	12:M:498:SER:HB2	1.81	0.62
16:Q:166:MET:HA	16:Q:169:VAL:HG13	1.81	0.62
5:F:913:HIS:HB3	5:F:916:TYR:HB2	1.82	0.62
6:G:124:ASN:ND2	6:G:167:ASP:OD1	2.32	0.62
2:B:259:ASN:HB3	2:B:263:GLN:HB2	1.82	0.62
2:C:733:ASP:OD1	3:D:2330:ARG:NH2	2.32	0.62
16:Q:312:SER:HA	16:Q:315:ARG:HB2	1.82	0.62
19:T:33:GLU:OE2	19:T:36:ARG:NH1	2.30	0.62
1:A:1067:HIS:ND1	1:A:1069:GLU:OE1	2.32	0.62
2:C:819:ASP:OD1	6:G:134:ARG:NH1	2.32	0.62
3:D:2800:ARG:O	3:D:2802:GLY:N	2.33	0.62
4:E:78:ASP:OD1	4:E:79:GLY:N	2.33	0.62
16:Q:191:PRO:HB3	16:Q:216:VAL:HG13	1.82	0.62
15:P:533:VAL:HG21	16:Q:345:SER:HB3	1.81	0.62
3:D:2152:ASP:O	3:D:2154:SER:N	2.32	0.61
3:D:2366:ASN:ND2	3:D:2366:ASN:O	2.32	0.61
6:G:273:PRO:HB3	6:G:310:PRO:HD2	1.81	0.61
15:P:455:VAL:HG23	15:P:471:LEU:HB2	1.81	0.61
3:D:977:ARG:HD3	17:R:153:TRP:CG	2.34	0.61
3:D:2504:SER:OG	3:D:2508:LYS:NZ	2.33	0.61
5:F:571:PRO:HB2	5:F:575:LYS:HE2	1.83	0.61
19:T:88:SER:OG	19:T:89:GLU:N	2.33	0.61
6:G:371:GLN:NE2	6:G:418:LEU:O	2.33	0.61
3:D:1363:ILE:HG21	17:R:317:SER:HB2	1.83	0.61
15:P:331:GLN:HE22	15:P:479:ALA:HA	1.65	0.61
12:M:556:ARG:NH1	12:M:602:GLU:OE2	2.31	0.61
1:A:650:GLU:HG2	1:A:690:ALA:HB3	1.83	0.61
2:B:629:ASP:N	2:B:629:ASP:OD1	2.32	0.61
3:D:1162:ARG:HG3	17:R:230:TRP:CE2	2.36	0.61
14:O:296:PRO:HG2	15:P:286:PRO:HA	1.83	0.60
2:C:793:ASP:HB2	2:C:794:PRO:HD3	1.83	0.60
3:D:2650:ASN:HB3	3:D:2653:ASN:HD22	1.66	0.60
5:F:555:LYS:H	5:F:555:LYS:HD2	1.66	0.60
6:G:206:VAL:HG21	6:G:214:SER:HB2	1.83	0.60
2:B:536:LYS:O	2:B:540:ASN:ND2	2.35	0.60
5:F:685:GLN:HG2	5:F:686:GLN:H	1.67	0.60
3:D:957:ARG:HB2	3:D:959:GLU:HG3	1.84	0.60
3:D:1360:SER:N	3:D:1361:GLU:OE1	2.35	0.60
15:P:322:GLY:O	15:P:326:ASN:ND2	2.34	0.60
17:R:441:ARG:HH11	17:R:444:ARG:HH11	1.49	0.60
1:A:542:SER:O	1:A:546:ASN:ND2	2.33	0.60

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:B:883:MET:HG3	3:D:2784:GLN:HG3	1.83	0.60
4:E:722:GLU:OE1	4:E:723:ARG:NH1	2.34	0.60
15:P:68:ARG:CD	15:P:347:PRO:CB	2.76	0.60
1:A:512:ILE:O	1:A:516:ALA:HB2	2.01	0.60
3:D:2892:ASN:O	3:D:2893:PHE:C	2.39	0.60
4:E:847:ASP:OD1	4:E:847:ASP:N	2.34	0.60
12:M:614:VAL:O	12:M:618:GLN:NE2	2.24	0.60
2:B:475:HIS:HB3	17:R:34:ILE:HG21	1.84	0.60
2:B:807:GLU:OE2	2:B:838:THR:OG1	2.20	0.60
3:D:2966:ASN:ND2	7:H:460:GLU:OE2	2.35	0.60
2:B:254:GLU:OE1	18:S:120:ARG:NE	2.35	0.60
3:D:1769:GLN:O	3:D:1773:THR:HG23	2.02	0.60
3:D:2097:ARG:NH2	3:D:2294:ASP:OD2	2.34	0.60
12:M:266:LEU:HD13	12:M:270:GLN:HB3	1.83	0.60
1:A:530:GLU:HG3	1:A:535:VAL:HG21	1.82	0.59
2:C:1080:ASP:OD1	2:C:1080:ASP:N	2.34	0.59
15:P:345:LEU:O	15:P:347:PRO:HD2	2.02	0.59
2:B:274:GLN:O	3:D:1258:GLN:NE2	2.34	0.59
16:Q:312:SER:O	16:Q:316:ALA:N	2.35	0.59
16:Q:336:SER:HG	16:Q:344:TRP:HD1	1.49	0.59
5:F:644:ILE:HD13	5:F:689:VAL:HB	1.85	0.59
2:B:526:TRP:CH2	2:B:539:ILE:HD11	2.37	0.59
4:E:482:LYS:NZ	23:E:1001:ANP:O1G	2.30	0.59
15:P:514:THR:O	15:P:524:HIS:NE2	2.30	0.59
15:P:557:ALA:HB3	16:Q:325:SER:H	1.68	0.59
3:D:2747:GLN:O	3:D:2748:LEU:C	2.39	0.59
10:K:71:PHE:HB2	10:K:72:ILE:HG12	1.85	0.59
17:R:12:ASP:HB3	17:R:15:VAL:HG12	1.84	0.59
17:R:240:PRO:HD2	17:R:243:LEU:HD12	1.83	0.59
12:M:453:ALA:HB1	22:M:801:LMG:H112	1.85	0.59
15:P:334:LEU:H	15:P:390:GLN:HE21	1.51	0.59
16:Q:276:ILE:HD11	16:Q:295:ARG:HD2	1.85	0.59
3:D:1179:GLN:HA	3:D:1182:TRP:HD1	1.68	0.59
5:F:701:ASP:OD1	5:F:702:ALA:N	2.36	0.59
2:C:374:ARG:HH12	2:C:376:LEU:HD21	1.68	0.58
3:D:2770:LYS:HA	3:D:2773:THR:HG22	1.85	0.58
1:A:162:ASP:OD2	1:A:188:ARG:NH1	2.36	0.58
3:D:549:SER:OG	3:D:572:LYS:NZ	2.36	0.58
3:D:2777:LEU:O	3:D:2779:THR:N	2.36	0.58
4:E:351:LEU:O	4:E:354:LEU:HG	2.02	0.58
4:E:977:GLN:HA	4:E:980:ALA:HB3	1.84	0.58

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
5:F:745:SER:O	5:F:749:LEU:HB2	2.04	0.58
1:A:530:GLU:HG2	1:A:539:ARG:NH2	2.19	0.58
5:F:234:THR:HG23	19:T:99:ARG:HG3	1.84	0.58
5:F:638:ARG:NH2	5:F:677:GLU:OE1	2.31	0.58
14:O:374:ILE:H	14:O:374:ILE:HD12	1.69	0.58
4:E:242:GLY:H	4:E:260:GLY:HA3	1.68	0.58
5:F:121:ARG:NH2	17:R:363:GLU:OE1	2.35	0.58
5:F:251:THR:OG1	5:F:254:GLU:OE1	2.20	0.58
5:F:666:GLU:O	5:F:669:ASN:HB3	2.03	0.58
2:B:996:THR:OG1	2:B:999:GLU:OE2	2.20	0.58
3:D:555:HIS:NE2	15:P:450:GLU:OE2	2.37	0.58
1:A:656:LEU:O	1:A:660:THR:HG22	2.04	0.58
5:F:280:VAL:HG11	19:T:72:LEU:HD22	1.86	0.58
15:P:262:HIS:HD2	15:P:265:LEU:H	1.51	0.58
3:D:911:TRP:CE2	3:D:921:LYS:HB2	2.39	0.58
14:O:263:GLY:O	14:O:267:THR:OG1	2.20	0.58
15:P:533:VAL:HG12	16:Q:231:MET:HE1	1.86	0.58
2:C:393:VAL:HG13	2:C:403:VAL:HG13	1.85	0.57
6:G:101:TRP:CZ2	6:G:104:PRO:HD2	2.39	0.57
1:A:364:GLY:O	1:A:367:GLU:HG3	2.04	0.57
3:D:1810:ASN:OD1	3:D:1811:ILE:N	2.37	0.57
7:H:311:ARG:NH2	7:H:317:GLN:HE22	2.02	0.57
1:A:881:GLY:O	1:A:885:GLU:HG3	2.04	0.57
2:C:646:SER:HA	2:C:649:ASN:HD21	1.70	0.57
2:C:655:MET:HA	2:C:658:PHE:HB2	1.85	0.57
3:D:450:ILE:H	3:D:450:ILE:HD12	1.69	0.57
4:E:86:HIS:HD2	4:E:161:ASP:HB3	1.69	0.57
4:E:960:PRO:HB3	5:F:954:ASP:OD1	2.05	0.57
6:G:477:GLU:HA	6:G:480:VAL:HG12	1.85	0.57
3:D:467:THR:O	3:D:471:THR:HG23	2.04	0.57
12:M:287:PHE:HZ	12:M:296:PHE:HZ	1.52	0.57
15:P:557:ALA:HB2	16:Q:329:VAL:HG23	1.86	0.57
17:R:424:PRO:O	17:R:433:ARG:NH2	2.37	0.57
19:T:73:GLU:O	19:T:77:ARG:HG3	2.05	0.57
2:B:503:SER:OG	2:B:504:LYS:NZ	2.36	0.57
2:C:707:HIS:CE1	2:C:735:MET:HB3	2.40	0.57
3:D:1241:ASN:ND2	17:R:143:ASP:OD1	2.37	0.57
15:P:57:ASP:OD2	15:P:60:ARG:NH2	2.37	0.57
3:D:551:PHE:HB3	3:D:635:TYR:CZ	2.39	0.57
3:D:2891:PHE:O	3:D:2892:ASN:HB2	2.03	0.57
23:E:1001:ANP:O1B	23:E:1001:ANP:O3G	2.22	0.57

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
17:R:16:ASP:OD1	17:R:17:LEU:N	2.37	0.57
1:A:572:GLY:HA2	2:B:638:GLN:HE22	1.69	0.57
3:D:1261:ARG:NE	18:S:84:SEP:O1P	2.33	0.57
4:E:920:ARG:O	4:E:925:ARG:NH1	2.38	0.57
16:Q:244:ASP:HA	16:Q:247:VAL:HG12	1.86	0.57
2:C:482:LEU:HB2	2:C:488:ARG:NH2	2.20	0.57
4:E:638:LEU:HB3	4:E:641:LEU:HD13	1.86	0.57
5:F:284:LEU:O	5:F:288:GLU:HG2	2.05	0.57
4:E:83:GLU:OE1	4:E:83:GLU:N	2.33	0.57
16:Q:262:TYR:CZ	16:Q:307:ARG:HB2	2.39	0.57
2:B:251:ALA:HB3	2:B:254:GLU:HG2	1.85	0.56
3:D:2865:ASP:OD1	3:D:2865:ASP:N	2.35	0.56
4:E:362:LEU:HB3	4:E:363:PRO:HD3	1.86	0.56
4:E:743:ASP:OD1	4:E:747:GLN:NE2	2.38	0.56
14:O:315:LEU:O	14:O:318:GLY:N	2.37	0.56
15:P:569:LEU:O	15:P:573:MET:HG2	2.04	0.56
16:Q:262:TYR:OH	16:Q:307:ARG:HB2	2.04	0.56
16:Q:311:GLU:O	16:Q:315:ARG:N	2.37	0.56
15:P:68:ARG:HH21	15:P:347:PRO:HB3	0.75	0.56
2:C:587:ARG:HH21	2:C:589:PHE:HZ	1.54	0.56
3:D:1386:SER:O	3:D:1386:SER:OG	2.21	0.56
5:F:995:SER:N	5:F:998:GLU:OE2	2.24	0.56
15:P:151:THR:OG1	15:P:157:LYS:NZ	2.35	0.56
2:B:513:GLU:OE1	2:B:515:ARG:NH1	2.39	0.56
3:D:2097:ARG:HH22	3:D:2297:THR:HG23	1.71	0.56
4:E:872:LYS:HD2	4:E:935:MET:HB3	1.88	0.56
9:J:84:GLU:OE1	10:K:98:ARG:NH1	2.38	0.56
12:M:552:THR:HG21	12:M:572:LEU:HD13	1.86	0.56
17:R:307:ASN:OD1	17:R:307:ASN:N	2.38	0.56
19:T:117:GLU:O	19:T:121:THR:HG22	2.06	0.56
2:B:579:ALA:O	2:B:583:GLU:HG2	2.06	0.56
3:D:1781:ASP:OD1	3:D:1781:ASP:N	2.39	0.56
4:E:62:THR:HG22	4:E:147:VAL:HG12	1.88	0.56
4:E:81:ASP:OD1	5:F:207:TYR:OH	2.23	0.56
17:R:253:ASP:N	17:R:253:ASP:OD1	2.35	0.56
1:A:875:ARG:HB3	3:D:2185:ASN:HD21	1.71	0.56
2:C:511:ALA:O	2:C:614:ARG:NH1	2.38	0.56
3:D:2735:LYS:O	3:D:2739:HIS:HD2	1.89	0.56
9:J:71:ASP:O	9:J:72:4HH:C	2.53	0.56
3:D:2296:ILE:O	3:D:2300:LEU:HB2	2.06	0.55
12:M:538:GLU:OE2	12:M:539:GLY:N	2.37	0.55

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
3:D:1414:SER:HB2	3:D:1763:THR:HG23	1.88	0.55
3:D:2878:ARG:NH1	4:E:855:PRO:O	2.39	0.55
3:D:2970:ARG:NH2	7:H:196:ASP:O	2.38	0.55
4:E:129:GLU:HG2	4:E:152:ARG:HG2	1.87	0.55
4:E:277:SER:OG	4:E:279:GLU:OE2	2.22	0.55
12:M:607:LEU:O	12:M:611:THR:HG23	2.05	0.55
15:P:217:SER:OG	15:P:217:SER:O	2.21	0.55
3:D:1308:ASN:HB2	3:D:1316:VAL:HG21	1.87	0.55
3:D:2182:GLU:OE1	3:D:2687:ASN:ND2	2.39	0.55
6:G:124:ASN:HD21	6:G:165:THR:HG1	1.55	0.55
1:A:477:MET:HA	1:A:481:ASP:HB3	1.87	0.55
3:D:2298:ASP:HA	3:D:2301:VAL:HG12	1.89	0.55
1:A:146:MET:O	1:A:149:THR:OG1	2.24	0.55
5:F:635:ASN:HA	5:F:638:ARG:HD2	1.88	0.55
2:B:545:TYR:HB2	2:B:552:LEU:HD22	1.89	0.55
2:B:806:TYR:OH	2:B:887:ASP:OD2	2.22	0.55
3:D:961:ARG:HG2	3:D:962:ARG:CZ	2.37	0.55
16:Q:193:MET:HA	16:Q:196:VAL:HB	1.89	0.55
16:Q:254:ARG:O	16:Q:258:GLN:HG2	2.06	0.55
1:A:481:ASP:OD1	1:A:481:ASP:N	2.37	0.55
1:A:1047:ASP:OD1	1:A:1048:LEU:N	2.40	0.55
2:B:526:TRP:HB2	2:B:583:GLU:HG3	1.89	0.55
3:D:1364:ASN:ND2	17:R:317:SER:OG	2.40	0.55
2:B:826:VAL:HG22	2:B:838:THR:HG23	1.89	0.55
3:D:1130:ILE:HD13	17:R:246:LEU:HD13	1.89	0.55
5:F:237:GLU:OE2	5:F:249:GLY:N	2.33	0.55
12:M:409:TRP:H	12:M:416:HIS:HE1	1.55	0.55
2:B:754:THR:OG1	2:B:755:GLU:N	2.38	0.54
2:C:872:LYS:HD3	2:C:877:GLU:HG3	1.90	0.54
23:C:1202:ANP:O1A	23:C:1202:ANP:N3B	2.39	0.54
3:D:1670:ASP:HB3	3:D:1673:THR:HG22	1.89	0.54
2:B:1106:GLU:OE2	2:B:1109:ARG:NH1	2.40	0.54
3:D:753:THR:OG1	3:D:754:LEU:N	2.40	0.54
4:E:128:LEU:HD21	5:F:104:LEU:HD21	1.89	0.54
6:G:328:CYS:HB3	6:G:452:LEU:HB2	1.89	0.54
16:Q:99:ASP:OD1	16:Q:99:ASP:N	2.40	0.54
2:C:843:ASP:OD1	2:C:843:ASP:N	2.38	0.54
3:D:632:TYR:O	3:D:636:LYS:HB2	2.07	0.54
5:F:828:PRO:HG2	5:F:848:LYS:HD2	1.89	0.54
1:A:617:LEU:HD12	3:D:2236:VAL:HG11	1.90	0.54
2:B:208:GLU:HA	2:B:211:LEU:HG	1.90	0.54

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
7:H:421:LYS:O	7:H:424:ARG:HG3	2.07	0.54
1:A:509:ALA:O	1:A:512:ILE:HG13	2.08	0.54
1:A:823:ASP:OD1	1:A:823:ASP:N	2.40	0.54
3:D:2874:ASN:HD22	3:D:2874:ASN:N	2.04	0.54
15:P:172:GLU:HG2	15:P:173:LEU:N	2.23	0.54
16:Q:279:GLN:CD	16:Q:292:LEU:HG	2.28	0.54
2:B:697:ALA:HB1	2:B:724:ARG:HE	1.72	0.54
3:D:1811:ILE:HD12	3:D:1812:SER:N	2.23	0.54
4:E:538:ASP:O	4:E:542:LEU:N	2.40	0.54
4:E:666:THR:OG1	4:E:669:ASP:OD1	2.26	0.54
2:C:634:ALA:O	2:C:638:GLN:NE2	2.35	0.54
6:G:106:GLU:OE2	6:G:332:GLN:HB3	2.08	0.54
15:P:616:ALA:O	15:P:620:ARG:HG2	2.08	0.54
19:T:106:THR:N	19:T:109:GLU:OE2	2.39	0.54
3:D:2178:LEU:O	3:D:2877:ARG:NH1	2.37	0.54
8:I:265:ARG:HH11	10:K:79:VAL:HG23	1.73	0.54
12:M:441:ALA:HA	12:M:444:VAL:HG12	1.88	0.54
2:C:524:ILE:HG12	2:C:575:LEU:HD22	1.89	0.53
2:C:622:ILE:HG23	2:C:665:VAL:HG23	1.89	0.53
6:G:355:THR:HG22	6:G:356:ALA:H	1.73	0.53
9:J:72:4HH:C	9:J:74:ASP:H	2.21	0.53
4:E:354:LEU:HD13	4:E:355:ARG:HH21	1.73	0.53
18:S:16:LEU:O	18:S:20:MET:HG3	2.08	0.53
2:C:429:LEU:HB2	4:E:256:PRO:HG3	1.90	0.53
3:D:736:ASN:O	28:D:3003:A1LXL:C26	2.56	0.53
2:B:508:ARG:HD2	3:D:1776:TRP:CD1	2.44	0.53
12:M:444:VAL:HA	12:M:449:ILE:HD11	1.89	0.53
16:Q:198:HIS:O	16:Q:201:GLN:HG3	2.08	0.53
2:B:642:ASP:OD1	2:B:642:ASP:N	2.41	0.53
4:E:214:THR:O	4:E:214:THR:OG1	2.26	0.53
14:O:323:THR:OG1	14:O:382:PHE:HE1	1.91	0.53
15:P:633:LEU:HD11	15:P:644:LEU:HD13	1.90	0.53
2:C:821:GLU:OE2	2:C:860:ARG:NH2	2.42	0.53
3:D:2269:ARG:NH1	3:D:2272:TYR:OH	2.41	0.53
8:I:198:TRP:HE1	8:I:200:ARG:HE	1.55	0.53
15:P:368:ALA:HB2	15:P:608:LEU:HD11	1.90	0.53
2:C:515:ARG:HH12	2:C:588:MET:H	1.56	0.53
2:C:525:LYS:N	2:C:528:ASP:OD2	2.37	0.53
4:E:200:GLU:OE2	4:E:200:GLU:N	2.38	0.53
5:F:269:LEU:HD11	19:T:82:LEU:HD12	1.89	0.53
5:F:926:TYR:O	5:F:939:THR:CG2	2.45	0.53

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
12:M:440:ALA:O	12:M:443:LEU:HD23	2.07	0.53
16:Q:237:PHE:HA	16:Q:350:VAL:HG22	1.90	0.53
2:B:511:ALA:HB2	2:B:611:THR:HG23	1.91	0.53
6:G:113:ALA:HB1	6:G:486:LEU:HD23	1.91	0.53
14:O:142:TRP:HH2	14:O:313:ARG:HG3	1.74	0.53
4:E:358:ARG:HD3	4:E:361:LEU:HD12	1.91	0.53
2:B:216:GLN:HG2	2:B:217:MET:H	1.73	0.53
3:D:554:ASP:OD2	15:P:353:VAL:HG12	2.08	0.53
3:D:1243:ASN:HA	3:D:1325:PHE:HD2	1.73	0.53
15:P:334:LEU:O	15:P:390:GLN:N	2.37	0.53
3:D:2694:SER:HB3	3:D:2695:PRO:HD2	1.90	0.52
17:R:130:GLU:N	17:R:130:GLU:OE1	2.42	0.52
2:B:533:ASP:O	2:B:536:LYS:HB3	2.10	0.52
5:F:234:THR:OG1	19:T:99:ARG:NH1	2.42	0.52
5:F:911:SER:OG	5:F:912:SER:N	2.42	0.52
6:G:387:TRP:O	6:G:391:THR:OG1	2.26	0.52
12:M:270:GLN:HA	12:M:273:VAL:HG12	1.90	0.52
17:R:195:LYS:HB2	19:T:27:TYR:HE2	1.73	0.52
6:G:134:ARG:HH21	6:G:400:HIS:HB3	1.75	0.52
12:M:632:GLU:HA	12:M:635:ASP:OD2	2.09	0.52
1:A:746:MET:HB3	1:A:927:GLU:HB3	1.90	0.52
2:C:997:GLY:O	6:G:261:SER:HB2	2.08	0.52
3:D:983:ASN:O	3:D:987:GLU:HG2	2.10	0.52
3:D:2160:ASN:O	3:D:2164:THR:HG23	2.10	0.52
6:G:134:ARG:NH2	6:G:400:HIS:HB3	2.25	0.52
15:P:262:HIS:CD2	15:P:265:LEU:H	2.27	0.52
2:B:525:LYS:N	2:B:528:ASP:OD2	2.42	0.52
3:D:2344:HIS:ND1	3:D:2345:THR:HG23	2.25	0.52
3:D:2958:SER:O	3:D:2962:ILE:HG12	2.10	0.52
4:E:106:ALA:HB1	19:T:116:ARG:HB2	1.90	0.52
4:E:740:ARG:NH2	4:E:831:SER:HA	2.24	0.52
9:J:72:4HH:C	9:J:74:ASP:N	2.71	0.52
14:O:267:THR:O	14:O:270:ILE:HG13	2.09	0.52
17:R:225:MET:O	17:R:229:VAL:HG22	2.10	0.52
1:A:285:GLU:OE1	1:A:290:LYS:NZ	2.42	0.52
3:D:563:LYS:HD2	3:D:564:THR:N	2.23	0.52
4:E:335:TRP:O	4:E:339:THR:HG23	2.10	0.52
9:J:72:4HH:O	9:J:74:ASP:N	2.43	0.52
12:M:338:PRO:HG2	12:M:340:TRP:CD1	2.45	0.52
16:Q:225:THR:OG1	16:Q:233:TYR:O	2.21	0.52
16:Q:230:ASP:O	17:R:354:ARG:NH1	2.38	0.52

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
17:R:53:LEU:O	17:R:321:ASN:HB3	2.08	0.52
19:T:27:TYR:HB3	19:T:31:SER:HB2	1.91	0.52
1:A:458:PHE:HA	1:A:461:ILE:HD11	1.91	0.52
2:C:552:LEU:HA	2:C:555:ARG:HB2	1.92	0.52
2:C:698:LEU:O	2:C:702:LYS:HG2	2.10	0.52
3:D:973:PRO:HB3	3:D:975:TRP:NE1	2.25	0.52
3:D:2065:ILE:HD12	3:D:2066:GLY:N	2.24	0.52
6:G:190:LEU:O	6:G:194:THR:HG22	2.10	0.52
6:G:269:GLU:OE1	6:G:402:LEU:HB3	2.10	0.52
16:Q:276:ILE:HG21	16:Q:296:LEU:HD13	1.90	0.52
2:C:614:ARG:HA	2:C:617:ASN:HD21	1.74	0.52
8:I:82:GLU:OE1	8:I:82:GLU:N	2.42	0.52
12:M:289:PRO:HB3	12:M:546:ARG:HH21	1.74	0.52
14:O:142:TRP:CH2	14:O:313:ARG:HG3	2.45	0.52
18:S:46:THR:O	18:S:50:LEU:HD23	2.10	0.52
2:B:526:TRP:HE1	2:B:536:LYS:NZ	2.07	0.52
16:Q:269:TYR:HA	16:Q:272:ASP:HB2	1.92	0.52
18:S:113:ASP:OD1	18:S:113:ASP:N	2.42	0.52
1:A:574:PRO:O	1:A:578:GLU:HG2	2.10	0.52
3:D:1182:TRP:HE3	3:D:1230:LEU:HD22	1.75	0.52
5:F:245:GLY:HA3	19:T:114:LYS:HD3	1.92	0.52
7:H:173:LYS:O	7:H:174:ASP:HB2	2.09	0.52
2:C:373:LEU:HD23	2:C:417:LEU:HB3	1.91	0.51
2:C:586:VAL:HB	2:C:621:ALA:HA	1.92	0.51
3:D:271:GLN:NE2	12:M:471:HIS:H	2.08	0.51
5:F:808:ARG:HH22	5:F:886:GLU:HB3	1.74	0.51
7:H:437:ALA:O	7:H:441:GLN:HG2	2.10	0.51
1:A:530:GLU:HG2	1:A:539:ARG:HH22	1.75	0.51
2:C:896:ARG:HH11	2:C:944:HIS:HD2	1.58	0.51
4:E:126:LEU:HD22	4:E:158:VAL:HG11	1.92	0.51
6:G:359:CYS:SG	6:G:363:ARG:NH1	2.78	0.51
11:L:175:PRO:O	11:L:179:VAL:HG23	2.10	0.51
2:B:533:ASP:HA	2:B:536:LYS:HB3	1.93	0.51
2:C:621:ALA:O	2:C:664:ILE:HA	2.11	0.51
3:D:988:ARG:NH1	17:R:141:TYR:HB2	2.26	0.51
15:P:68:ARG:CD	15:P:347:PRO:HB2	2.25	0.51
5:F:617:GLU:O	5:F:629:ARG:NH1	2.44	0.51
15:P:84:TRP:HE1	15:P:100:LEU:HB2	1.75	0.51
16:Q:182:LEU:HD12	16:Q:185:ILE:HB	1.91	0.51
3:D:1761:PRO:HD3	14:O:471:ALA:HB3	1.93	0.51
8:I:155:ARG:HH21	8:I:156:ARG:HH12	1.59	0.51

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:493:LYS:N	1:A:623:GLU:OE1	2.38	0.51
2:B:1002:HIS:O	2:B:1006:SER:OG	2.28	0.51
15:P:140:ALA:HA	15:P:143:VAL:HG12	1.92	0.51
6:G:275:ASP:OD1	6:G:309:HIS:NE2	2.35	0.51
6:G:441:THR:O	6:G:445:VAL:HG23	2.11	0.51
7:H:254:SER:OG	7:H:255:LYS:N	2.43	0.51
12:M:462:TRP:HB2	27:M:802:Y01:HAD2	1.91	0.51
2:B:563:VAL:HG13	2:B:688:ARG:HB2	1.92	0.51
2:C:571:THR:HB	2:C:573:LYS:HE3	1.93	0.51
4:E:652:GLU:O	4:E:656:THR:HG23	2.11	0.51
8:I:235:SER:HB3	8:I:244:VAL:HB	1.93	0.51
9:J:38:ALA:O	9:J:42:GLU:HG2	2.11	0.51
15:P:547:LEU:HD13	16:Q:254:ARG:HD3	1.92	0.51
3:D:810:LEU:O	3:D:814:LEU:HG	2.11	0.51
5:F:232:VAL:O	19:T:99:ARG:NH2	2.39	0.51
12:M:419:THR:OG1	12:M:422:GLU:OE1	2.29	0.51
16:Q:242:ASP:HB3	16:Q:355:LEU:HD23	1.92	0.51
16:Q:257:ALA:HA	16:Q:260:LYS:NZ	2.26	0.51
2:B:713:VAL:HA	2:B:753:ILE:CG2	2.39	0.51
5:F:741:ILE:HD11	5:F:778:ASN:HA	1.93	0.51
5:F:946:ASN:OD1	5:F:946:ASN:N	2.41	0.51
9:J:55:GLU:H	9:J:58:LYS:NZ	2.09	0.51
11:L:160:ALA:O	11:L:164:VAL:HG23	2.11	0.51
15:P:278:ASP:O	15:P:282:VAL:HG23	2.11	0.51
15:P:615:GLU:OE1	15:P:618:ARG:NH1	2.44	0.51
19:T:42:LYS:HG2	19:T:48:GLU:HG3	1.92	0.51
3:D:65:GLN:HB3	7:H:454:TYR:HE1	1.75	0.50
3:D:2632:LEU:O	3:D:2634:LYS:N	2.44	0.50
12:M:309:ALA:O	12:M:313:VAL:HG22	2.10	0.50
18:S:114:VAL:HG22	18:S:117:ARG:HH21	1.76	0.50
2:C:458:LEU:O	2:C:461:THR:HG22	2.10	0.50
3:D:1418:CYS:SG	3:D:1762:ASP:HB2	2.52	0.50
4:E:274:PRO:HD3	5:F:121:ARG:NH2	2.26	0.50
6:G:473:GLU:OE1	6:G:476:ARG:NH2	2.44	0.50
15:P:70:ASP:O	15:P:72:ALA:N	2.44	0.50
18:S:71:ARG:HH21	18:S:77:ILE:HA	1.75	0.50
1:A:176:ASN:HB2	18:S:32:HIS:CD2	2.47	0.50
4:E:499:GLN:HA	4:E:533:PHE:O	2.11	0.50
4:E:670:ILE:O	4:E:674:VAL:HG23	2.12	0.50
8:I:337:ASN:HB3	8:I:339:GLY:H	1.76	0.50
1:A:256:ASP:OD1	1:A:257:SER:N	2.44	0.50

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:786:THR:HG23	1:A:787:ASN:H	1.76	0.50
3:D:1361:GLU:O	3:D:1365:SER:OG	2.26	0.50
7:H:122:LEU:HD12	7:H:327:LEU:HD21	1.93	0.50
1:A:740:PRO:HD2	1:A:760:ILE:HD11	1.93	0.50
2:B:598:ASP:HB2	2:B:600:TYR:CE1	2.46	0.50
2:B:699:GLY:O	2:B:703:ILE:HG13	2.11	0.50
2:C:641:GLY:O	2:C:645:ALA:CB	2.60	0.50
2:C:691:TYR:HB2	4:E:681:GLU:HG3	1.93	0.50
4:E:74:LEU:O	5:F:244:ARG:NH2	2.37	0.50
12:M:264:ASP:HA	12:M:286:ASP:OD1	2.11	0.50
12:M:353:TYR:OH	12:M:383:LEU:O	2.21	0.50
15:P:680:ASP:OD1	15:P:680:ASP:N	2.45	0.50
1:A:692:SER:OG	1:A:694:PRO:HD2	2.12	0.50
4:E:976:LYS:HE3	4:E:977:GLN:HE21	1.76	0.50
5:F:635:ASN:OD1	5:F:636:THR:N	2.45	0.50
3:D:2892:ASN:O	3:D:2894:ASP:N	2.44	0.50
4:E:342:ILE:O	4:E:346:LEU:HG	2.12	0.50
6:G:150:TRP:NE1	6:G:152:TYR:O	2.45	0.50
15:P:393:LYS:HG3	15:P:394:GLU:H	1.77	0.50
2:B:441:THR:HG22	2:B:442:GLY:H	1.77	0.50
2:B:751:HIS:CD2	2:B:751:HIS:H	2.30	0.50
15:P:333:PRO:HA	15:P:390:GLN:HE21	1.76	0.50
16:Q:201:GLN:HA	16:Q:204:LYS:HG2	1.93	0.50
16:Q:204:LYS:NZ	16:Q:205:ASP:OD1	2.38	0.50
18:S:109:GLU:HB2	18:S:113:ASP:HB2	1.93	0.50
2:C:652:LEU:O	2:C:655:MET:HE3	2.12	0.50
2:C:774:SER:O	3:D:2168:LEU:HD21	2.12	0.50
15:P:121:LYS:O	15:P:125:SER:OG	2.24	0.50
16:Q:113:VAL:HG21	16:Q:145:ILE:HG22	1.94	0.50
3:D:2124:ARG:HE	4:E:823:GLN:HE21	1.60	0.49
14:O:150:VAL:HG22	14:O:315:LEU:HG	1.94	0.49
3:D:449:LEU:O	3:D:453:LYS:HG2	2.12	0.49
3:D:750:PRO:HG3	15:P:215:HIS:CE1	2.47	0.49
14:O:295:TRP:O	14:O:297:GLY:N	2.46	0.49
15:P:338:LYS:HE2	15:P:388:ARG:HB2	1.94	0.49
3:D:1127:LEU:HD12	19:T:47:ALA:HB1	1.93	0.49
3:D:2059:VAL:HG21	3:D:2293:LEU:HD12	1.94	0.49
3:D:1947:TRP:HB2	13:N:108:GLN:HE22	1.77	0.49
4:E:622:ASN:OD1	4:E:622:ASN:N	2.44	0.49
18:S:74:GLU:O	18:S:76:LYS:N	2.42	0.49
1:A:300:ASP:OD1	1:A:300:ASP:N	2.37	0.49

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:556:PHE:HE2	1:A:558:ASP:HB2	1.76	0.49
2:B:231:ARG:NH1	15:P:190:ASP:HA	2.27	0.49
3:D:901:PHE:HD1	3:D:941:LEU:HD13	1.77	0.49
3:D:1369:LYS:HE3	3:D:1373:ASN:ND2	2.26	0.49
4:E:701:GLU:OE2	4:E:736:THR:OG1	2.25	0.49
15:P:71:GLU:HA	15:P:74:VAL:HG23	1.95	0.49
15:P:657:GLY:O	15:P:686:ARG:NH2	2.45	0.49
2:B:517:ASP:HB3	2:B:520:SER:HB2	1.95	0.49
2:C:598:ASP:N	2:C:643:GLU:OE2	2.36	0.49
4:E:88:ALA:HA	4:E:91:LYS:HE2	1.94	0.49
4:E:124:GLU:N	4:E:124:GLU:OE1	2.44	0.49
11:L:217:ARG:NH2	13:N:96:ASP:OD1	2.44	0.49
1:A:254:TYR:OH	1:A:287:ASP:OD2	2.21	0.49
1:A:692:SER:OG	1:A:693:LEU:N	2.45	0.49
2:B:632:GLY:O	2:B:676:ILE:HA	2.12	0.49
12:M:313:VAL:HA	12:M:316:VAL:HG12	1.94	0.49
12:M:632:GLU:OE2	12:M:633:VAL:HG23	2.12	0.49
15:P:68:ARG:H	15:P:348:THR:HG23	1.78	0.49
19:T:17:ASP:N	19:T:17:ASP:OD1	2.46	0.49
1:A:714:ASP:N	1:A:714:ASP:OD1	2.45	0.49
2:B:1103:TYR:O	2:B:1107:VAL:HG13	2.12	0.49
6:G:398:SER:OG	6:G:399:PHE:N	2.44	0.49
12:M:361:HIS:CD2	12:M:394:TRP:HE1	2.23	0.49
1:A:321:TRP:HD1	15:P:185:VAL:HG23	1.78	0.49
2:C:525:LYS:HD3	2:C:527:ASP:H	1.77	0.49
2:C:635:ARG:HH22	2:C:645:ALA:HB1	1.77	0.49
3:D:2631:LEU:O	3:D:2632:LEU:C	2.50	0.49
11:L:246:LEU:HD13	11:L:284:VAL:HG11	1.95	0.49
16:Q:139:GLU:OE1	16:Q:139:GLU:N	2.30	0.49
1:A:575:GLY:HA3	1:A:579:ARG:HH21	1.78	0.49
2:B:227:ALA:HA	2:B:230:VAL:HG12	1.95	0.49
2:B:593:GLY:HA2	2:B:631:MET:SD	2.53	0.49
3:D:1249:SER:OG	3:D:1250:LYS:N	2.45	0.49
4:E:276:TYR:CE1	4:E:302:HIS:HB3	2.48	0.49
15:P:256:GLU:OE2	15:P:306:ARG:NH1	2.46	0.49
15:P:293:LEU:HD12	15:P:485:MET:HG3	1.94	0.49
15:P:678:SER:HA	15:P:681:ILE:HG22	1.95	0.49
17:R:258:ASN:N	17:R:258:ASN:OD1	2.46	0.49
1:A:258:ALA:O	1:A:260:ASN:N	2.44	0.48
2:C:1058:ASP:OD1	2:C:1058:ASP:N	2.46	0.48
3:D:1918:LYS:N	3:D:1919:PRO:HD2	2.28	0.48

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
3:D:2810:TRP:CZ2	5:F:897:MET:HE1	2.48	0.48
3:D:2883:ASN:O	3:D:2883:ASN:ND2	2.42	0.48
6:G:287:LEU:O	6:G:290:ARG:NH1	2.43	0.48
7:H:478:GLU:O	7:H:481:GLU:HG3	2.13	0.48
12:M:273:VAL:O	12:M:277:GLU:HB2	2.13	0.48
15:P:393:LYS:NZ	15:P:397:ALA:H	2.11	0.48
16:Q:263:LYS:HD3	16:Q:263:LYS:HA	1.52	0.48
2:B:580:ILE:HG13	2:B:581:ALA:N	2.29	0.48
2:C:597:TYR:OH	2:C:630:ALA:O	2.21	0.48
3:D:2249:LYS:HB3	3:D:2249:LYS:HE2	1.68	0.48
4:E:105:HIS:ND1	4:E:107:LYS:HG2	2.28	0.48
6:G:147:THR:O	6:G:147:THR:OG1	2.26	0.48
8:I:60:SER:OG	8:I:61:ASN:N	2.45	0.48
15:P:565:LEU:HD11	15:P:640:ALA:HA	1.95	0.48
16:Q:137:ARG:HH12	16:Q:194:LYS:HE3	1.77	0.48
1:A:195:LEU:O	1:A:197:GLN:HG3	2.13	0.48
1:A:479:LYS:HD3	1:A:518:VAL:HG11	1.95	0.48
3:D:1811:ILE:O	3:D:1815:PHE:HB2	2.12	0.48
5:F:949:ARG:O	5:F:949:ARG:HG2	2.12	0.48
14:O:447:PHE:O	14:O:451:THR:HG23	2.12	0.48
1:A:693:LEU:HB3	1:A:694:PRO:HD3	1.95	0.48
2:C:602:GLY:HA3	4:E:508:GLY:H	1.78	0.48
15:P:61:PRO:HB3	15:P:156:SER:HB2	1.96	0.48
2:C:475:HIS:HA	2:C:479:LEU:HG	1.94	0.48
2:C:488:ARG:NH1	13:N:132:GLU:OE1	2.47	0.48
3:D:1750:LEU:HA	3:D:1753:THR:HG22	1.94	0.48
3:D:2275:ARG:NH1	5:F:929:GLY:O	2.46	0.48
14:O:135:SER:CB	14:O:308:SER:HB3	2.43	0.48
15:P:419:PRO:HA	15:P:422:TRP:CE2	2.48	0.48
17:R:253:ASP:OD2	17:R:254:ARG:NH2	2.46	0.48
1:A:435:SER:OG	1:A:436:SER:N	2.46	0.48
2:B:272:LEU:HD22	17:R:148:PRO:HB2	1.95	0.48
3:D:67:PHE:HB3	7:H:453:PRO:HB2	1.96	0.48
3:D:2177:ASN:OD1	3:D:2892:ASN:ND2	2.46	0.48
4:E:475:GLU:O	4:E:604:MET:HG2	2.13	0.48
10:K:230:LEU:HD21	10:K:236:VAL:HG23	1.95	0.48
12:M:454:SER:O	12:M:457:HIS:HB3	2.14	0.48
15:P:219:GLN:O	15:P:223:GLU:HG2	2.13	0.48
1:A:658:LEU:HD21	3:D:2749:ASN:HD22	1.77	0.48
1:A:744:VAL:HB	1:A:929:ILE:HG22	1.94	0.48
1:A:1028:ASP:OD1	1:A:1028:ASP:N	2.46	0.48

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:B:730:THR:O	2:B:734:VAL:HG23	2.13	0.48
2:C:700:ARG:O	2:C:704:MET:HG2	2.13	0.48
3:D:336:LEU:HD11	26:O:3101:DGA:HBH1	1.95	0.48
17:R:436:GLN:O	17:R:439:GLN:HG3	2.14	0.48
1:A:556:PHE:CE2	1:A:558:ASP:HB2	2.49	0.48
2:B:532:ILE:O	2:B:536:LYS:N	2.43	0.48
2:B:822:GLU:O	2:B:841:VAL:HG12	2.14	0.48
3:D:62:LYS:O	3:D:62:LYS:HG2	2.13	0.48
3:D:907:LYS:NZ	18:S:108:ASP:O	2.47	0.48
3:D:1762:ASP:OD1	3:D:1762:ASP:N	2.41	0.48
6:G:320:VAL:HG13	6:G:348:LEU:HD21	1.95	0.48
1:A:782:THR:HB	1:A:793:ASP:HA	1.96	0.48
2:B:877:GLU:OE1	2:B:877:GLU:N	2.41	0.48
2:C:822:GLU:HA	6:G:262:SER:HB3	1.96	0.48
3:D:318:SER:O	3:D:318:SER:OG	2.32	0.48
5:F:232:VAL:HB	19:T:99:ARG:HH12	1.79	0.48
5:F:551:ILE:HD12	5:F:597:LEU:HD12	1.95	0.48
15:P:612:GLU:HA	15:P:615:GLU:HB2	1.96	0.48
15:P:684:LEU:O	15:P:687:THR:OG1	2.29	0.48
16:Q:144:LEU:O	16:Q:148:ILE:HG12	2.14	0.48
19:T:91:GLU:O	19:T:95:ILE:HG12	2.14	0.48
1:A:442:MET:SD	1:A:442:MET:N	2.87	0.48
3:D:2733:LEU:HD23	3:D:2733:LEU:HA	1.66	0.48
4:E:616:LEU:O	4:E:620:LEU:HG	2.13	0.48
5:F:227:VAL:HG12	5:F:236:VAL:HB	1.95	0.48
5:F:720:ASP:OD1	5:F:721:PHE:N	2.38	0.48
15:P:185:VAL:HG13	15:P:196:LEU:HD12	1.95	0.48
2:B:647:ILE:HG13	2:B:648:ILE:N	2.28	0.47
2:C:477:TRP:CD2	2:C:478:ILE:HG23	2.49	0.47
3:D:2870:ASP:OD1	3:D:2870:ASP:N	2.44	0.47
5:F:569:ARG:HG3	5:F:570:THR:HG23	1.96	0.47
11:L:292:LEU:HD22	11:L:296:VAL:HG11	1.95	0.47
14:O:268:THR:HA	14:O:271:VAL:HG12	1.95	0.47
16:Q:257:ALA:HA	16:Q:260:LYS:HD3	1.96	0.47
2:B:644:SER:HA	2:B:647:ILE:HG12	1.95	0.47
3:D:1227:GLN:NE2	3:D:1334:ASN:O	2.47	0.47
3:D:2065:ILE:HA	3:D:2068:LYS:HE2	1.96	0.47
3:D:2934:LEU:HD11	3:D:2963:ILE:HD12	1.96	0.47
4:E:307:LEU:HD11	5:F:118:GLU:HG3	1.96	0.47
5:F:565:VAL:HG23	5:F:602:VAL:HG23	1.96	0.47
8:I:78:ALA:O	8:I:80:ALA:N	2.45	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
15:P:288:TYR:OH	15:P:503:ARG:O	2.29	0.47
16:Q:171:GLU:O	16:Q:175:THR:HG23	2.14	0.47
2:B:711:LYS:HD2	2:B:711:LYS:HA	1.66	0.47
4:E:145:ASP:N	4:E:145:ASP:OD1	2.47	0.47
3:D:271:GLN:HE22	12:M:470:PHE:HB3	1.78	0.47
3:D:1137:ASN:HD21	3:D:1162:ARG:HD2	1.79	0.47
3:D:2016:ASN:HD21	3:D:2306:VAL:HG23	1.79	0.47
4:E:121:PRO:O	4:E:122:ARG:NH1	2.47	0.47
12:M:580:LEU:HD12	12:M:581:PRO:HD2	1.96	0.47
15:P:147:ARG:HA	15:P:147:ARG:HD3	1.68	0.47
2:B:226:VAL:HA	2:B:229:VAL:HG12	1.96	0.47
2:C:774:SER:OG	2:C:775:THR:N	2.47	0.47
3:D:334:TYR:O	3:D:338:PRO:HD2	2.14	0.47
3:D:348:THR:HG23	3:D:1374:LYS:HB3	1.96	0.47
3:D:554:ASP:OD1	15:P:355:TRP:HB3	2.14	0.47
16:Q:260:LYS:HA	16:Q:263:LYS:HB2	1.96	0.47
19:T:109:GLU:O	19:T:113:LEU:HD12	2.14	0.47
3:D:1779:TRP:CE3	3:D:1779:TRP:HA	2.49	0.47
3:D:2679:LYS:HA	3:D:2679:LYS:HD3	1.60	0.47
6:G:340:THR:HG23	6:G:343:ALA:H	1.78	0.47
11:L:157:ALA:O	11:L:161:VAL:HG23	2.15	0.47
11:L:259:TRP:NE1	14:O:466:GLU:OE2	2.42	0.47
3:D:570:GLN:O	3:D:573:LEU:HD23	2.15	0.47
3:D:735:GLN:NE2	3:D:737:ILE:O	2.47	0.47
3:D:2126:GLU:OE1	4:E:831:SER:N	2.43	0.47
15:P:288:TYR:HE1	15:P:503:ARG:HB3	1.80	0.47
2:C:407:THR:HG22	2:C:408:ARG:H	1.80	0.47
2:C:1033:LYS:HE3	2:C:1033:LYS:HB3	1.69	0.47
3:D:2883:ASN:HA	3:D:2886:SER:O	2.14	0.47
4:E:211:TYR:HH	4:E:219:TRP:HZ3	1.59	0.47
15:P:239:ARG:HH21	15:P:250:ASP:HB2	1.79	0.47
16:Q:182:LEU:HG	16:Q:184:GLY:H	1.79	0.47
2:B:600:TYR:HE2	2:B:603:VAL:HG11	1.79	0.47
2:B:677:ASP:OD1	2:B:679:ALA:N	2.34	0.47
2:C:919:THR:HG22	2:C:920:SER:H	1.80	0.47
3:D:2336:GLU:H	3:D:2336:GLU:CD	2.18	0.47
5:F:239:PRO:HB2	5:F:241:ASP:OD1	2.14	0.47
7:H:422:THR:HA	7:H:425:VAL:HG22	1.97	0.47
15:P:351:ASN:ND2	15:P:351:ASN:H	2.12	0.47
17:R:390:LYS:HB3	17:R:390:LYS:HE2	1.38	0.47
1:A:165:LEU:HB3	22:A:1201:LMG:H132	1.97	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:C:370:GLN:O	2:C:372:VAL:HG13	2.15	0.47
2:C:902:MET:HG2	4:E:780:ALA:HB2	1.97	0.47
3:D:1127:LEU:HD11	17:R:247:ARG:HB2	1.96	0.47
3:D:2022:PRO:HG2	3:D:2342:ASN:HB2	1.96	0.47
17:R:192:LYS:HB3	17:R:195:LYS:HE3	1.96	0.47
1:A:323:PRO:HG2	15:P:188:PRO:HG3	1.96	0.46
2:B:576:LEU:HD23	2:B:576:LEU:H	1.80	0.46
3:D:1243:ASN:HA	3:D:1325:PHE:CD2	2.50	0.46
4:E:241:GLU:OE2	4:E:244:LEU:HD13	2.15	0.46
9:J:100:THR:HG23	9:J:103:ASP:OD2	2.15	0.46
1:A:785:LYS:HD3	1:A:790:VAL:HG13	1.96	0.46
2:B:497:GLU:HG3	17:R:21:LEU:HD11	1.97	0.46
3:D:914:ASP:OD2	3:D:920:ARG:NE	2.47	0.46
3:D:1418:CYS:SG	3:D:1763:THR:OG1	2.73	0.46
11:L:244:ASN:N	11:L:244:ASN:OD1	2.48	0.46
15:P:89:ASP:OD1	15:P:89:ASP:N	2.47	0.46
16:Q:330:VAL:O	16:Q:334:THR:HG23	2.15	0.46
19:T:118:TYR:OH	19:T:122:GLN:NE2	2.45	0.46
2:C:445:GLU:HG3	2:C:449:LEU:HG	1.96	0.46
3:D:1172:THR:O	3:D:1178:ASN:HB2	2.15	0.46
7:H:237:LYS:HE3	7:H:237:LYS:HB3	1.71	0.46
12:M:287:PHE:HZ	12:M:296:PHE:CZ	2.32	0.46
12:M:637:ILE:HD12	12:M:637:ILE:HA	1.82	0.46
14:O:273:SER:HB2	14:O:324:ALA:HB2	1.96	0.46
15:P:135:LEU:O	15:P:139:VAL:HG13	2.15	0.46
15:P:154:ASP:OD1	15:P:155:GLY:N	2.49	0.46
2:C:381:LEU:HD22	2:C:420:VAL:HG11	1.97	0.46
4:E:140:LEU:HG	4:E:143:ALA:HB3	1.97	0.46
4:E:654:ALA:O	4:E:658:VAL:HG13	2.15	0.46
6:G:116:CYS:SG	6:G:117:LEU:N	2.88	0.46
8:I:151:ARG:O	8:I:154:GLN:HG3	2.16	0.46
15:P:302:THR:HG23	15:P:446:THR:HB	1.97	0.46
15:P:393:LYS:HZ3	15:P:397:ALA:H	1.63	0.46
16:Q:254:ARG:NH1	16:Q:255:ASN:OD1	2.48	0.46
1:A:933:ARG:O	1:A:937:ILE:HG13	2.16	0.46
2:C:397:GLY:H	3:D:1374:LYS:NZ	2.13	0.46
2:C:614:ARG:HA	2:C:617:ASN:ND2	2.31	0.46
2:C:872:LYS:HB2	2:C:872:LYS:HE3	1.56	0.46
3:D:960:THR:HG22	3:D:961:ARG:H	1.81	0.46
3:D:1239:LYS:HD2	3:D:1239:LYS:HA	1.75	0.46
3:D:2596:LYS:HD2	7:H:174:ASP:OD1	2.15	0.46

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
4:E:613:LEU:O	4:E:617:LYS:HG2	2.15	0.46
14:O:266:LEU:O	14:O:270:ILE:HG23	2.16	0.46
15:P:351:ASN:O	15:P:352:GLY:C	2.53	0.46
18:S:53:LEU:O	18:S:57:VAL:HG22	2.15	0.46
1:A:471:MET:HB2	1:A:471:MET:HE2	1.59	0.46
1:A:474:ILE:HD11	1:A:491:CYS:HB2	1.98	0.46
2:C:619:ALA:HB1	2:C:662:ARG:HB2	1.97	0.46
3:D:1990:ASN:OD1	3:D:1993:LEU:HD13	2.16	0.46
17:R:251:LEU:HD12	17:R:251:LEU:O	2.15	0.46
19:T:88:SER:O	19:T:92:ARG:NH2	2.48	0.46
1:A:486:ARG:HD2	2:B:751:HIS:HB3	1.97	0.46
1:A:552:PRO:HB3	1:A:599:GLN:HB2	1.96	0.46
3:D:2049:ILE:HD12	3:D:2077:ILE:HD12	1.98	0.46
3:D:2134:VAL:O	3:D:2138:THR:HG23	2.16	0.46
5:F:809:PHE:O	5:F:813:GLU:HG2	2.15	0.46
7:H:117:ASP:OD1	7:H:118:ASP:N	2.49	0.46
8:I:206:TRP:CG	8:I:207:PRO:HD3	2.51	0.46
8:I:286:LYS:NZ	8:I:291:GLY:O	2.49	0.46
15:P:202:SER:O	15:P:205:ASP:N	2.47	0.46
1:A:584:LEU:O	1:A:588:VAL:HG12	2.16	0.46
2:B:252:PRO:O	2:B:374:ARG:NE	2.42	0.46
2:B:536:LYS:CE	2:B:540:ASN:HD21	2.29	0.46
2:B:949:SER:OG	3:D:2899:GLU:OE1	2.33	0.46
2:C:391:ALA:HB2	2:C:408:ARG:HB3	1.98	0.46
3:D:469:LEU:HD21	16:Q:332:ARG:HG2	1.97	0.46
3:D:750:PRO:CD	15:P:217:SER:HA	2.45	0.46
3:D:1805:ASN:OD1	3:D:1805:ASN:N	2.49	0.46
15:P:169:ASN:O	15:P:171:PRO:HD3	2.16	0.46
2:C:380:GLN:H	2:C:380:GLN:CD	2.16	0.46
4:E:119:SER:O	4:E:119:SER:OG	2.30	0.46
4:E:652:GLU:HG3	4:E:676:ARG:HD2	1.98	0.46
7:H:433:GLU:OE1	7:H:433:GLU:N	2.44	0.46
15:P:262:HIS:CD2	15:P:264:PRO:HD2	2.51	0.46
1:A:165:LEU:HD23	1:A:165:LEU:HA	1.70	0.46
1:A:351:GLN:NE2	22:A:1201:LMG:O2	2.49	0.46
1:A:760:ILE:HB	1:A:764:ASP:HB2	1.98	0.46
3:D:455:CYS:SG	15:P:526:LEU:HG	2.56	0.46
6:G:226:TYR:HE2	6:G:309:HIS:CE1	2.34	0.46
8:I:306:ARG:HE	8:I:306:ARG:HB3	1.45	0.46
11:L:238:TRP:NE1	11:L:253:PRO:HG3	2.31	0.46
17:R:368:ARG:O	17:R:368:ARG:NH2	2.49	0.46

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:380:ARG:NH1	2:B:478:ILE:O	2.46	0.45
2:B:243:GLU:OE2	18:S:123:PRO:HG3	2.16	0.45
2:C:856:GLU:OE2	2:C:860:ARG:NH1	2.50	0.45
3:D:1443:ASN:O	3:D:1446:GLN:HG3	2.16	0.45
3:D:2073:VAL:O	3:D:2077:ILE:HG12	2.16	0.45
5:F:673:GLN:O	5:F:677:GLU:HG2	2.16	0.45
8:I:303:SER:O	8:I:303:SER:OG	2.28	0.45
17:R:253:ASP:O	17:R:255:GLY:N	2.50	0.45
17:R:351:ASP:N	17:R:351:ASP:OD1	2.49	0.45
1:A:536:ALA:O	1:A:540:VAL:HG22	2.15	0.45
1:A:660:THR:O	1:A:664:THR:OG1	2.23	0.45
2:B:613:ASP:OD1	2:B:614:ARG:N	2.50	0.45
2:B:815:TYR:OH	2:B:1005:GLU:OE1	2.23	0.45
3:D:2507:LYS:HB3	3:D:2507:LYS:HE3	1.66	0.45
15:P:419:PRO:HA	15:P:422:TRP:CD2	2.51	0.45
19:T:87:PRO:O	19:T:92:ARG:NH2	2.37	0.45
1:A:473:GLU:OE2	2:B:747:ARG:NE	2.46	0.45
3:D:963:GLN:O	3:D:964:LYS:HE2	2.16	0.45
4:E:248:THR:O	4:E:248:THR:OG1	2.32	0.45
1:A:229:MET:HB3	1:A:302:TRP:HE1	1.81	0.45
2:B:202:TYR:HA	2:B:205:ARG:NH2	2.31	0.45
2:B:243:GLU:OE2	2:B:246:ARG:HD2	2.16	0.45
4:E:134:LEU:HB2	4:E:147:VAL:HG23	1.99	0.45
12:M:293:PRO:HG3	12:M:548:ALA:HB3	1.98	0.45
17:R:154:TYR:HB2	17:R:206:HIS:CE1	2.52	0.45
17:R:337:LEU:HD23	17:R:337:LEU:HA	1.76	0.45
2:B:591:CYS:SG	2:B:592:SER:N	2.89	0.45
2:B:670:THR:OG1	2:B:671:ASN:N	2.50	0.45
2:B:700:ARG:HG3	2:B:723:ALA:HB1	1.97	0.45
2:C:381:LEU:HD22	2:C:420:VAL:HG21	1.96	0.45
2:C:382:TRP:CE2	2:C:431:HIS:HD2	2.34	0.45
2:C:478:ILE:HG13	2:C:479:LEU:N	2.32	0.45
3:D:51:THR:O	3:D:55:GLU:HG3	2.15	0.45
3:D:1915:ASN:ND2	3:D:1918:LYS:HD2	2.31	0.45
4:E:242:GLY:N	4:E:260:GLY:HA3	2.30	0.45
11:L:159:LEU:O	11:L:162:VAL:HG12	2.16	0.45
15:P:506:LEU:O	15:P:509:PRO:HD2	2.17	0.45
15:P:544:ALA:O	16:Q:226:VAL:HA	2.17	0.45
16:Q:251:TYR:OH	16:Q:313:VAL:O	2.34	0.45
16:Q:276:ILE:HD13	16:Q:276:ILE:HA	1.82	0.45
19:T:16:GLU:OE1	19:T:20:GLU:HB3	2.17	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:B:461:THR:HG22	26:O:3101:DGA:HB21	1.99	0.45
2:B:528:ASP:OD1	2:B:529:ILE:N	2.49	0.45
3:D:2274:VAL:HG13	3:D:2708:GLU:HG3	1.99	0.45
4:E:81:ASP:O	4:E:85:GLN:HG3	2.16	0.45
4:E:347:GLU:HA	4:E:351:LEU:HG	1.97	0.45
9:J:55:GLU:H	9:J:58:LYS:HZ3	1.64	0.45
10:K:238:LEU:HD23	10:K:238:LEU:HA	1.77	0.45
12:M:543:ASP:HB3	12:M:546:ARG:HB3	1.98	0.45
16:Q:288:GLU:O	16:Q:292:LEU:HD22	2.16	0.45
18:S:112:GLU:OE1	18:S:112:GLU:N	2.41	0.45
3:D:2122:SER:OG	3:D:2123:GLN:N	2.50	0.45
3:D:2678:PRO:HG3	3:D:2891:PHE:CE1	2.51	0.45
5:F:229:THR:OG1	5:F:232:VAL:HG22	2.16	0.45
7:H:421:LYS:O	7:H:425:VAL:HG13	2.17	0.45
15:P:315:GLU:OE1	15:P:315:GLU:N	2.50	0.45
18:S:45:PRO:HB2	18:S:50:LEU:HD21	1.98	0.45
1:A:764:ASP:N	1:A:764:ASP:OD1	2.49	0.45
2:B:800:ARG:O	2:B:804:SER:OG	2.25	0.45
2:C:455:VAL:HG22	3:D:1368:ILE:HD12	1.98	0.45
3:D:822:LYS:HB2	3:D:822:LYS:HE3	1.65	0.45
3:D:1790:TYR:OH	3:D:1817:ASN:ND2	2.49	0.45
3:D:2019:LEU:HD23	3:D:2338:ILE:HB	1.98	0.45
4:E:674:VAL:O	4:E:678:THR:HG23	2.17	0.45
6:G:250:TYR:C	6:G:252:ALA:H	2.18	0.45
15:P:361:ARG:HB3	15:P:362:PRO:HD3	1.99	0.45
15:P:393:LYS:HA	15:P:393:LYS:HD2	1.75	0.45
1:A:785:LYS:HD3	1:A:790:VAL:CG1	2.47	0.45
2:B:430:ASP:N	2:B:430:ASP:OD1	2.50	0.45
3:D:63:LYS:HB3	3:D:64:MET:HE3	1.99	0.45
3:D:993:LEU:HD23	3:D:993:LEU:HA	1.83	0.45
4:E:351:LEU:C	4:E:353:GLU:N	2.70	0.45
4:E:701:GLU:OE1	4:E:734:SER:OG	2.31	0.45
5:F:742:ASP:OD1	5:F:742:ASP:N	2.50	0.45
15:P:613:ALA:O	15:P:617:ARG:HG3	2.17	0.45
17:R:138:ARG:NH1	17:R:243:LEU:HD11	2.32	0.45
17:R:246:LEU:HA	17:R:249:GLN:HG3	1.99	0.45
17:R:441:ARG:HA	17:R:444:ARG:NE	2.32	0.45
1:A:595:ASN:HB2	1:A:598:GLU:HG3	1.99	0.45
2:C:431:HIS:CE1	2:C:435:ASN:HD21	2.35	0.45
2:C:530:ASN:O	2:C:532:ILE:HG23	2.17	0.45
4:E:255:SER:O	4:E:257:ALA:N	2.50	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
7:H:406:GLN:HE21	7:H:406:GLN:HB3	1.54	0.45
14:O:388:LEU:HD23	14:O:388:LEU:HA	1.79	0.45
19:T:110:LEU:HD12	19:T:111:THR:N	2.32	0.45
1:A:450:LYS:NZ	1:A:452:ARG:HG2	2.32	0.44
1:A:500:PRO:HD2	1:A:503:THR:HG21	2.00	0.44
2:C:513:GLU:HB3	2:C:589:PHE:CD2	2.52	0.44
3:D:782:ASN:OD1	3:D:783:GLY:N	2.50	0.44
3:D:2129:GLU:OE1	3:D:2129:GLU:N	2.50	0.44
5:F:704:LEU:HD23	5:F:704:LEU:HA	1.78	0.44
7:H:292:ASP:HB2	7:H:304:VAL:HG13	1.97	0.44
18:S:33:LYS:HA	18:S:33:LYS:HD3	1.57	0.44
2:C:812:LEU:HD23	2:C:975:LEU:HD23	1.99	0.44
3:D:1922:GLU:O	3:D:1926:SER:HB3	2.17	0.44
4:E:550:ALA:O	4:E:554:GLU:N	2.43	0.44
4:E:802:ALA:HB2	4:E:866:GLU:HG3	1.98	0.44
5:F:273:TYR:CZ	19:T:76:LYS:HE3	2.51	0.44
6:G:202:SER:OG	6:G:203:SER:N	2.51	0.44
6:G:420:SER:HB3	6:G:426:GLN:HE21	1.82	0.44
7:H:311:ARG:HH22	7:H:317:GLN:HE22	1.65	0.44
2:B:508:ARG:HD2	3:D:1776:TRP:HD1	1.83	0.44
3:D:2137:LEU:HD23	3:D:2137:LEU:HA	1.77	0.44
3:D:2359:LYS:HA	3:D:2359:LYS:HD2	1.81	0.44
5:F:600:ARG:HG2	5:F:610:PHE:CE2	2.52	0.44
7:H:172:LEU:HD13	7:H:266:LEU:HD12	1.98	0.44
14:O:298:THR:HG22	14:O:299:ALA:H	1.83	0.44
15:P:639:ASP:OD1	15:P:639:ASP:N	2.50	0.44
16:Q:236:LEU:HD13	16:Q:347:VAL:HG13	1.99	0.44
1:A:1143:ASP:OD1	1:A:1161:PRO:HD3	2.17	0.44
2:C:770:THR:OG1	2:C:771:LEU:N	2.51	0.44
2:C:968:GLU:OE2	3:D:2673:LYS:NZ	2.49	0.44
3:D:2903:THR:O	3:D:2907:LEU:HG	2.17	0.44
4:E:953:LEU:HD12	4:E:953:LEU:HA	1.86	0.44
6:G:106:GLU:OE2	6:G:334:GLY:N	2.51	0.44
6:G:185:GLU:OE2	6:G:187:ALA:N	2.51	0.44
6:G:251:LEU:C	6:G:253:GLU:H	2.21	0.44
6:G:253:GLU:H	6:G:253:GLU:HG3	1.66	0.44
6:G:345:LEU:HD12	6:G:345:LEU:HA	1.81	0.44
10:K:101:SER:O	10:K:103:TRP:N	2.50	0.44
15:P:255:TRP:CE3	15:P:305:LEU:HB3	2.51	0.44
15:P:328:LEU:HD23	15:P:403:GLN:HG3	1.99	0.44
16:Q:254:ARG:HB3	16:Q:254:ARG:HH11	1.82	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
18:S:77:ILE:HG23	18:S:78:ALA:N	2.32	0.44
2:B:1105:LYS:O	2:B:1108:GLU:HG3	2.18	0.44
2:C:398:PRO:N	3:D:1374:LYS:HE2	2.32	0.44
2:C:807:GLU:OE2	2:C:838:THR:OG1	2.36	0.44
3:D:1424:LEU:HD23	3:D:1424:LEU:HA	1.77	0.44
3:D:2124:ARG:NE	4:E:823:GLN:HE21	2.15	0.44
3:D:2259:LEU:HD12	3:D:2264:LEU:HD12	2.00	0.44
4:E:128:LEU:HD11	5:F:104:LEU:HD11	1.99	0.44
7:H:99:HIS:O	7:H:102:VAL:HG12	2.18	0.44
7:H:187:LEU:HD12	7:H:276:VAL:HG21	1.99	0.44
8:I:213:ASP:OD1	8:I:213:ASP:N	2.47	0.44
1:A:659:LYS:HB3	1:A:659:LYS:HE3	1.76	0.44
6:G:118:LEU:HD12	6:G:118:LEU:HA	1.85	0.44
7:H:306:ASP:N	7:H:306:ASP:OD1	2.50	0.44
7:H:401:ARG:O	7:H:405:ILE:HG12	2.16	0.44
7:H:449:LYS:H	7:H:449:LYS:HD3	1.82	0.44
8:I:242:GLU:N	8:I:243:PRO:HD2	2.32	0.44
12:M:266:LEU:CD1	12:M:270:GLN:HB3	2.48	0.44
15:P:202:SER:O	15:P:204:LEU:N	2.50	0.44
3:D:1915:ASN:HD21	3:D:1918:LYS:HD2	1.82	0.44
3:D:2255:PRO:C	3:D:2257:THR:H	2.21	0.44
4:E:331:MET:SD	13:N:66:GLU:HB3	2.58	0.44
5:F:232:VAL:HB	19:T:99:ARG:NH1	2.33	0.44
5:F:896:GLN:HE21	5:F:899:ARG:HH21	1.66	0.44
5:F:982:ASP:HA	5:F:985:THR:HG22	1.99	0.44
6:G:111:ASP:OD1	6:G:111:ASP:N	2.50	0.44
7:H:267:ARG:NH2	7:H:269:ASP:OD2	2.39	0.44
7:H:344:GLU:H	7:H:344:GLU:CD	2.21	0.44
16:Q:145:ILE:HG13	16:Q:146:GLU:N	2.33	0.44
16:Q:276:ILE:O	16:Q:280:LEU:HG	2.18	0.44
1:A:422:LYS:HG3	1:A:423:GLN:NE2	2.32	0.44
1:A:1088:PRO:C	1:A:1090:PHE:H	2.21	0.44
2:B:530:ASN:ND2	2:B:702:LYS:HE3	2.33	0.44
3:D:2929:ASN:O	3:D:2933:THR:HG22	2.18	0.44
4:E:351:LEU:N	4:E:352:PRO:HD2	2.32	0.44
4:E:969:GLU:O	4:E:972:GLU:HG3	2.17	0.44
5:F:889:SER:O	5:F:889:SER:OG	2.31	0.44
12:M:451:LEU:O	12:M:521:SER:OG	2.34	0.44
13:N:53:LYS:HB3	13:N:53:LYS:HE2	1.49	0.44
2:C:681:ILE:HD12	2:C:681:ILE:HA	1.82	0.44
3:D:2116:LYS:HD3	4:E:820:VAL:HG11	1.99	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
3:D:2220:THR:O	3:D:2220:THR:OG1	2.32	0.44
6:G:408:GLU:O	6:G:412:VAL:HG12	2.17	0.44
15:P:683:SER:O	15:P:687:THR:HG23	2.17	0.44
17:R:56:HIS:CE1	17:R:321:ASN:HB2	2.53	0.44
1:A:244:VAL:HG12	1:A:244:VAL:O	2.18	0.43
1:A:868:ASP:OD1	1:A:868:ASP:N	2.38	0.43
2:C:456:GLN:HE22	2:C:459:ARG:HH21	1.66	0.43
3:D:2212:ASN:OD1	3:D:2212:ASN:N	2.49	0.43
5:F:1010:GLU:N	5:F:1010:GLU:OE1	2.51	0.43
7:H:271:LEU:HD12	7:H:296:VAL:HG22	1.99	0.43
7:H:286:MET:HE1	7:H:383:SER:HB2	1.99	0.43
25:I:401:SQD:H272	25:I:401:SQD:H301	1.89	0.43
9:J:92:GLU:HB3	10:K:208:THR:HG23	2.00	0.43
1:A:1119:TRP:CE2	3:D:2640:ALA:HB3	2.53	0.43
1:A:1125:ASP:N	1:A:1125:ASP:OD1	2.51	0.43
2:C:590:THR:HG23	2:C:624:PHE:HD2	1.83	0.43
2:C:645:ALA:O	2:C:648:ILE:HG13	2.18	0.43
3:D:735:GLN:HE21	3:D:735:GLN:HB3	1.68	0.43
3:D:2704:ALA:O	3:D:2708:GLU:HG2	2.18	0.43
5:F:228:ASP:HA	5:F:233:ALA:HA	2.01	0.43
10:K:191:ALA:HB2	10:K:205:PHE:HB3	2.00	0.43
14:O:418:PHE:O	14:O:422:VAL:HG12	2.18	0.43
16:Q:230:ASP:OD1	16:Q:230:ASP:N	2.51	0.43
17:R:203:ARG:NH2	19:T:41:LYS:HA	2.32	0.43
1:A:656:LEU:HD23	1:A:657:LEU:HD23	2.01	0.43
1:A:778:MET:HG2	1:A:784:PHE:CE2	2.53	0.43
2:C:998:LYS:H	6:G:259:ALA:HA	1.84	0.43
3:D:2685:ASP:O	3:D:2878:ARG:HG2	2.18	0.43
3:D:2876:LYS:HE3	5:F:947:GLN:HB3	2.00	0.43
5:F:999:VAL:O	5:F:1003:VAL:HG13	2.17	0.43
6:G:172:LEU:O	6:G:176:THR:HG22	2.19	0.43
15:P:74:VAL:O	15:P:78:LEU:HG	2.17	0.43
15:P:570:ARG:O	15:P:574:GLU:HG2	2.18	0.43
16:Q:210:THR:HG22	16:Q:212:GLN:H	1.82	0.43
1:A:366:LEU:HD23	1:A:366:LEU:HA	1.83	0.43
2:C:1084:LYS:HD2	2:C:1084:LYS:HA	1.79	0.43
3:D:1303:LYS:HD3	3:D:1303:LYS:HA	1.80	0.43
3:D:1785:THR:HA	3:D:1788:ASP:OD2	2.18	0.43
3:D:2502:LYS:HB2	3:D:2503:LYS:NZ	2.33	0.43
3:D:2689:LEU:HD12	3:D:2689:LEU:HA	1.74	0.43
6:G:109:ASP:OD1	6:G:290:ARG:NH2	2.51	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
14:O:423:TYR:HA	14:O:426:VAL:HG12	2.00	0.43
16:Q:176:PRO:O	16:Q:179:GLN:HB3	2.18	0.43
1:A:815:ALA:HA	1:A:907:VAL:HG11	2.00	0.43
2:B:673:PRO:HA	2:B:676:ILE:CD1	2.49	0.43
3:D:793:LEU:O	3:D:795:THR:N	2.49	0.43
3:D:937:GLU:HG3	17:R:183:TRP:CE2	2.53	0.43
3:D:1242:ILE:HB	17:R:221:PRO:HB3	2.01	0.43
3:D:2632:LEU:HD13	3:D:2632:LEU:HA	1.82	0.43
5:F:766:CYS:SG	5:F:767:PHE:N	2.92	0.43
6:G:112:LYS:NZ	6:G:329:GLY:O	2.49	0.43
6:G:229:LEU:HA	6:G:232:ASP:OD2	2.19	0.43
15:P:370:ALA:O	15:P:373:GLU:HG3	2.18	0.43
17:R:60:ARG:HD3	17:R:308:GLU:HG3	2.00	0.43
17:R:317:SER:O	17:R:318:PHE:HB3	2.18	0.43
17:R:319:PHE:HA	17:R:320:PRO:HD3	1.87	0.43
1:A:1123:ARG:NH1	1:A:1135:ILE:O	2.52	0.43
22:A:1201:LMG:H302	22:A:1201:LMG:H331	1.25	0.43
2:B:735:MET:O	2:B:738:MET:HG3	2.19	0.43
3:D:547:LEU:HA	3:D:634:GLN:HE22	1.84	0.43
3:D:793:LEU:O	3:D:795:THR:HG22	2.19	0.43
3:D:1779:TRP:O	3:D:1783:LEU:HD23	2.18	0.43
3:D:2404:ARG:HA	3:D:2404:ARG:NH1	2.33	0.43
3:D:2600:LYS:HE3	3:D:2600:LYS:HB3	1.83	0.43
6:G:254:THR:O	6:G:255:THR:C	2.57	0.43
25:I:401:SQD:H111	22:I:402:LMG:H132	2.01	0.43
15:P:324:LEU:HB2	28:P:701:A1LXL:C01	2.48	0.43
15:P:557:ALA:HB3	16:Q:325:SER:N	2.32	0.43
2:C:580:ILE:O	2:C:584:GLY:N	2.51	0.43
2:C:766:THR:O	2:C:770:THR:HG23	2.18	0.43
3:D:2251:VAL:HG11	3:D:2712:ARG:HH21	1.83	0.43
3:D:2252:GLU:HG3	3:D:2253:GLU:N	2.33	0.43
5:F:580:ARG:HE	5:F:580:ARG:HB3	1.65	0.43
5:F:1006:LEU:HD23	5:F:1006:LEU:HA	1.86	0.43
6:G:261:SER:O	6:G:262:SER:C	2.57	0.43
13:N:37:ASP:HB3	13:N:40:LYS:NZ	2.33	0.43
14:O:264:LEU:HD22	14:O:264:LEU:HA	1.91	0.43
17:R:130:GLU:O	17:R:134:GLU:HG3	2.19	0.43
17:R:433:ARG:O	17:R:436:GLN:HG3	2.19	0.43
19:T:107:PRO:HA	19:T:110:LEU:HG	2.00	0.43
1:A:649:LEU:HD23	1:A:653:GLY:HA3	2.01	0.43
2:B:595:ASP:OD1	2:B:595:ASP:N	2.52	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:C:606:ARG:HD2	2:C:606:ARG:HA	1.76	0.43
2:C:606:ARG:O	2:C:606:ARG:NH1	2.48	0.43
3:D:545:SER:OG	15:P:226:LEU:HA	2.19	0.43
3:D:574:ASN:O	3:D:577:PRO:HD2	2.18	0.43
3:D:1401:LEU:HD12	26:D:3001:DGA:HBW2	2.00	0.43
3:D:2255:PRO:O	3:D:2256:TRP:HB2	2.19	0.43
5:F:885:ASP:OD1	5:F:885:ASP:N	2.45	0.43
7:H:297:ASP:N	7:H:297:ASP:OD1	2.52	0.43
7:H:304:VAL:HA	7:H:355:LEU:O	2.19	0.43
2:C:594:THR:HG21	3:D:2298:ASP:OD1	2.18	0.43
3:D:1250:LYS:HG3	3:D:1319:GLU:CD	2.38	0.43
3:D:2070:LEU:HD12	3:D:2070:LEU:HA	1.83	0.43
3:D:2234:PHE:O	3:D:2238:LEU:HD13	2.19	0.43
3:D:2318:THR:OG1	3:D:2319:ASP:N	2.52	0.43
3:D:2695:PRO:HD3	3:D:2700:LEU:O	2.18	0.43
4:E:255:SER:C	4:E:257:ALA:H	2.22	0.43
4:E:291:LYS:HD2	4:E:291:LYS:HA	1.74	0.43
7:H:85:SER:N	7:H:86:PRO:HD2	2.34	0.43
8:I:284:VAL:HG23	8:I:314:ALA:HB3	2.01	0.43
9:J:36:ASP:N	9:J:36:ASP:OD1	2.50	0.43
15:P:143:VAL:O	15:P:147:ARG:HB2	2.19	0.43
17:R:444:ARG:HE	17:R:444:ARG:HB3	1.67	0.43
19:T:69:LYS:HD2	19:T:69:LYS:HA	1.80	0.43
2:B:680:LEU:O	2:B:686:PHE:HB2	2.18	0.43
2:B:831:LEU:HD21	3:D:2770:LYS:HG3	2.01	0.43
2:C:454:LEU:HD23	3:D:1368:ILE:HD13	2.00	0.43
2:C:532:ILE:HB	2:C:535:VAL:CG2	2.48	0.43
2:C:947:ASP:OD1	2:C:947:ASP:N	2.50	0.43
3:D:636:LYS:HB3	3:D:636:LYS:HE3	1.87	0.43
3:D:750:PRO:HD3	15:P:217:SER:HA	2.01	0.43
6:G:182:ARG:HB3	6:G:491:LEU:HB3	2.01	0.43
6:G:194:THR:OG1	6:G:235:LEU:HG	2.18	0.43
10:K:131:ILE:HA	10:K:132:PRO:HD3	1.77	0.43
14:O:261:VAL:HG13	14:O:262:ALA:H	1.83	0.43
14:O:388:LEU:O	14:O:391:TYR:HB3	2.19	0.43
2:C:525:LYS:NZ	2:C:527:ASP:HB3	2.34	0.42
2:C:594:THR:HA	2:C:597:TYR:HD1	1.84	0.42
3:D:2777:LEU:C	3:D:2779:THR:H	2.22	0.42
4:E:760:LEU:HD23	4:E:760:LEU:HA	1.77	0.42
4:E:906:GLU:HA	4:E:909:ASP:OD2	2.19	0.42
5:F:640:VAL:HG12	5:F:640:VAL:O	2.17	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
5:F:998:GLU:H	5:F:998:GLU:HG3	1.51	0.42
9:J:73:LEU:HA	9:J:73:LEU:HD23	1.80	0.42
12:M:416:HIS:HD2	12:M:417:PRO:O	2.02	0.42
15:P:187:ASP:OD1	15:P:189:GLU:HG3	2.19	0.42
1:A:446:GLU:HA	1:A:449:GLY:H	1.83	0.42
3:D:2016:ASN:HB3	3:D:2334:LEU:HD23	1.99	0.42
4:E:347:GLU:HA	4:E:351:LEU:CG	2.49	0.42
5:F:760:GLY:O	5:F:764:THR:HG23	2.18	0.42
11:L:287:ASP:OD1	11:L:288:ALA:N	2.52	0.42
14:O:312:LEU:O	14:O:315:LEU:HB3	2.19	0.42
16:Q:141:ALA:O	16:Q:145:ILE:HG23	2.18	0.42
2:B:762:MET:O	2:B:766:THR:OG1	2.37	0.42
2:B:831:LEU:HD11	3:D:2770:LYS:HG3	2.01	0.42
2:C:660:ASP:O	2:C:662:ARG:NE	2.49	0.42
2:C:813:LEU:HD13	2:C:813:LEU:HA	1.80	0.42
2:C:992:ARG:NH1	2:C:999:GLU:OE1	2.52	0.42
5:F:908:SER:OG	5:F:910:MET:SD	2.77	0.42
5:F:987:LEU:O	5:F:990:GLU:HG3	2.19	0.42
7:H:95:LEU:HD23	7:H:95:LEU:HA	1.89	0.42
25:I:401:SQD:H91	25:I:401:SQD:H122	1.64	0.42
15:P:495:ASP:OD1	15:P:497:GLU:HG2	2.19	0.42
16:Q:170:TYR:O	16:Q:174:THR:HG22	2.19	0.42
17:R:195:LYS:HB2	19:T:27:TYR:CE2	2.52	0.42
17:R:203:ARG:NH2	19:T:40:PRO:O	2.52	0.42
17:R:248:THR:HG21	17:R:259:THR:HG22	2.01	0.42
3:D:1773:THR:O	3:D:1777:ASP:HB2	2.19	0.42
4:E:244:LEU:HG	17:R:343:TYR:CE1	2.55	0.42
8:I:136:TRP:CG	10:K:71:PHE:HZ	2.36	0.42
9:J:39:LYS:HE2	9:J:39:LYS:HB3	1.84	0.42
13:N:118:ASP:N	17:R:10:ASP:O	2.48	0.42
1:A:645:LYS:HE3	1:A:645:LYS:HB2	1.68	0.42
2:B:1098:GLU:N	2:B:1098:GLU:OE1	2.52	0.42
3:D:1328:SER:O	3:D:1330:TRP:N	2.50	0.42
3:D:2024:THR:O	3:D:2024:THR:OG1	2.38	0.42
7:H:345:TRP:O	7:H:348:LYS:NZ	2.39	0.42
15:P:156:SER:OG	15:P:157:LYS:N	2.52	0.42
16:Q:351:ALA:HB3	16:Q:354:LEU:HB2	2.01	0.42
1:A:805:LEU:HD23	1:A:805:LEU:HA	1.85	0.42
2:B:399:GLU:HB2	17:R:332:PHE:HA	2.02	0.42
3:D:1293:SER:HA	3:D:1296:ILE:HG12	2.01	0.42
3:D:2027:ASN:N	3:D:2027:ASN:OD1	2.52	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
28:D:3003:A1LXL:C27	15:P:471:LEU:HB3	2.50	0.42
7:H:170:TRP:CZ3	7:H:248:GLU:HG2	2.54	0.42
12:M:628:ARG:HB3	12:M:632:GLU:OE2	2.20	0.42
16:Q:299:ALA:O	16:Q:302:LYS:HG3	2.19	0.42
17:R:73:LEU:HD23	17:R:73:LEU:HA	1.87	0.42
1:A:682:LEU:O	1:A:683:THR:C	2.58	0.42
2:B:505:LEU:HD13	3:D:1783:LEU:HD11	2.02	0.42
2:C:703:ILE:O	2:C:706:VAL:HG22	2.19	0.42
3:D:338:PRO:HD3	3:D:1401:LEU:HD13	2.02	0.42
3:D:903:LYS:HG3	3:D:904:LYS:H	1.84	0.42
3:D:1703:LEU:HD23	3:D:1703:LEU:HA	1.89	0.42
3:D:1787:ALA:O	3:D:1791:ASN:N	2.50	0.42
3:D:2022:PRO:CG	3:D:2342:ASN:HB2	2.50	0.42
3:D:2670:LEU:O	3:D:2671:TYR:HB2	2.20	0.42
9:J:75:THR:O	9:J:79:MET:HG2	2.20	0.42
15:P:624:ALA:O	15:P:628:VAL:HG12	2.20	0.42
16:Q:310:VAL:HA	16:Q:313:VAL:HG12	2.01	0.42
16:Q:311:GLU:HA	16:Q:314:GLU:HB2	2.01	0.42
17:R:289:GLN:H	17:R:289:GLN:HG3	1.55	0.42
2:C:732:ALA:O	2:C:735:MET:HG3	2.20	0.42
4:E:977:GLN:N	4:E:978:PRO:HD2	2.35	0.42
14:O:146:LEU:O	14:O:150:VAL:HG23	2.20	0.42
4:E:360:SER:O	4:E:363:PRO:HD2	2.20	0.42
4:E:956:ALA:O	5:F:949:ARG:NH1	2.53	0.42
4:E:976:LYS:NZ	4:E:977:GLN:HG3	2.35	0.42
5:F:561:LEU:HA	5:F:564:VAL:HG12	2.02	0.42
5:F:768:LEU:HD22	5:F:768:LEU:HA	1.94	0.42
12:M:368:PHE:CD2	12:M:369:ILE:HG13	2.55	0.42
2:B:696:ASP:O	2:B:700:ARG:HG2	2.20	0.42
2:B:995:ILE:HG23	2:B:999:GLU:HB2	2.01	0.42
3:D:2298:ASP:O	3:D:2302:ILE:HG23	2.20	0.42
4:E:123:LEU:HA	4:E:126:LEU:HD12	2.01	0.42
9:J:67:ASP:OD1	9:J:67:ASP:N	2.37	0.42
16:Q:97:ALA:O	16:Q:101:VAL:HG23	2.19	0.42
16:Q:175:THR:HB	16:Q:176:PRO:HD2	2.01	0.42
16:Q:262:TYR:CE2	16:Q:307:ARG:HD3	2.54	0.42
17:R:251:LEU:HD13	19:T:57:ALA:HB2	2.00	0.42
19:T:107:PRO:O	19:T:110:LEU:HG	2.20	0.42
2:C:601:SER:O	4:E:508:GLY:HA3	2.19	0.41
2:C:610:GLU:HA	2:C:613:ASP:OD2	2.20	0.41
3:D:2124:ARG:O	4:E:827:ARG:NH2	2.53	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
3:D:2232:SER:O	3:D:2236:VAL:HG12	2.18	0.41
3:D:2774:LEU:HD23	3:D:2774:LEU:HA	1.78	0.41
4:E:72:SER:HB3	4:E:133:ARG:HH21	1.85	0.41
4:E:927:GLU:OE1	6:G:379:ARG:NH1	2.49	0.41
7:H:92:ILE:HB	12:M:288:PRO:HG3	2.02	0.41
9:J:55:GLU:HB2	9:J:57:GLU:OE1	2.20	0.41
9:J:65:PHE:O	9:J:70:ALA:HB3	2.19	0.41
10:K:90:SER:HB2	10:K:91:ILE:H	1.63	0.41
16:Q:238:LEU:HB2	16:Q:352:PRO:HG3	2.01	0.41
1:A:624:VAL:HG13	3:D:2231:THR:HG21	2.01	0.41
2:B:598:ASP:N	2:B:598:ASP:OD1	2.52	0.41
3:D:1165:TRP:CE2	3:D:1185:LEU:HD21	2.55	0.41
3:D:1415:GLN:NE2	17:R:38:GLU:OE2	2.51	0.41
3:D:2502:LYS:HB2	3:D:2503:LYS:HZ1	1.85	0.41
4:E:62:THR:O	4:E:62:THR:OG1	2.36	0.41
4:E:945:ARG:HA	4:E:945:ARG:HD2	1.76	0.41
5:F:812:MET:HG3	5:F:813:GLU:N	2.35	0.41
7:H:360:SER:OG	7:H:361:GLY:N	2.53	0.41
15:P:355:TRP:CG	15:P:356:PRO:HD3	2.55	0.41
2:B:748:GLN:NE2	2:B:750:ARG:HD3	2.35	0.41
2:C:368:ARG:HD2	8:I:290:VAL:O	2.20	0.41
3:D:752:LYS:HZ2	15:P:530:PHE:HE2	1.68	0.41
5:F:258:ALA:HA	19:T:87:PRO:HG2	2.01	0.41
11:L:162:VAL:HA	11:L:165:ARG:HG2	2.02	0.41
12:M:626:THR:OG1	12:M:627:TYR:N	2.52	0.41
1:A:778:MET:HG2	1:A:784:PHE:CZ	2.55	0.41
2:C:370:GLN:H	8:I:290:VAL:HG13	1.84	0.41
3:D:1232:ARG:HD3	17:R:271:ASP:OD1	2.21	0.41
3:D:1679:VAL:O	3:D:1683:ILE:HG12	2.20	0.41
3:D:2183:ASN:HD22	3:D:2184:HIS:H	1.67	0.41
3:D:2686:GLY:O	3:D:2687:ASN:ND2	2.54	0.41
3:D:2727:LYS:HG3	3:D:2728:SER:O	2.19	0.41
3:D:2827:ILE:HG22	5:F:757:GLN:HE22	1.85	0.41
5:F:570:THR:O	5:F:572:GLU:HG3	2.19	0.41
5:F:821:THR:HG21	5:F:1003:VAL:HG21	2.02	0.41
6:G:357:GLU:OE2	6:G:357:GLU:N	2.54	0.41
15:P:218:GLY:O	15:P:221:ALA:N	2.53	0.41
15:P:418:SER:O	15:P:418:SER:OG	2.39	0.41
2:B:907:ARG:HB2	2:B:959:GLU:OE2	2.20	0.41
2:C:652:LEU:O	2:C:656:ASP:HB2	2.21	0.41
3:D:2683:PHE:O	3:D:2879:ARG:NH2	2.47	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
4:E:335:TRP:O	4:E:338:VAL:HG22	2.21	0.41
6:G:297:LEU:O	6:G:301:VAL:HG13	2.20	0.41
7:H:104:ALA:O	7:H:107:GLU:HG3	2.21	0.41
8:I:85:ASN:OD1	8:I:85:ASN:N	2.53	0.41
19:T:89:GLU:H	19:T:89:GLU:CD	2.24	0.41
1:A:445:ASP:H	1:A:451:MET:HA	1.84	0.41
2:C:734:VAL:O	2:C:738:MET:HG2	2.20	0.41
3:D:1296:ILE:O	3:D:1300:VAL:HG13	2.21	0.41
3:D:1315:ASN:O	3:D:1316:VAL:HG13	2.20	0.41
3:D:2069:LEU:O	3:D:2073:VAL:HG23	2.20	0.41
4:E:258:ASP:OD1	4:E:258:ASP:N	2.52	0.41
5:F:135:ARG:HD2	5:F:157:PRO:O	2.21	0.41
5:F:881:VAL:HG12	5:F:882:LEU:HD23	2.03	0.41
14:O:142:TRP:CE3	14:O:146:LEU:HG	2.55	0.41
14:O:146:LEU:HD21	14:O:409:LEU:HD21	2.03	0.41
14:O:426:VAL:CG2	14:O:431:PHE:HB2	2.47	0.41
15:P:68:ARG:HB2	15:P:348:THR:HG23	2.03	0.41
15:P:127:LEU:HD23	15:P:131:GLU:HG2	2.03	0.41
1:A:1147:GLN:HE21	1:A:1147:GLN:HB3	1.72	0.41
2:B:246:ARG:HE	2:B:246:ARG:HB2	1.51	0.41
2:B:526:TRP:HB2	2:B:583:GLU:CG	2.50	0.41
3:D:912:HIS:HD1	3:D:914:ASP:HB3	1.85	0.41
3:D:2306:VAL:HG23	3:D:2306:VAL:O	2.20	0.41
4:E:535:ASP:HA	4:E:581:ALA:HB3	2.02	0.41
10:K:106:GLN:HE21	10:K:106:GLN:HB2	1.70	0.41
16:Q:227:THR:HB	16:Q:232:GLN:HG2	2.03	0.41
18:S:66:ASP:OD1	18:S:67:ARG:N	2.54	0.41
2:B:847:ASN:OD1	2:B:847:ASN:N	2.44	0.41
2:C:535:VAL:HG11	2:C:690:ILE:HG13	2.02	0.41
2:C:564:LEU:HA	2:C:668:GLY:O	2.21	0.41
2:C:571:THR:HG21	2:C:692:MET:HB3	2.03	0.41
3:D:2775:MET:HE3	3:D:2775:MET:HB2	1.84	0.41
4:E:180:GLU:OE2	4:E:234:ARG:NH2	2.54	0.41
4:E:720:LEU:HD23	4:E:720:LEU:HA	1.93	0.41
5:F:626:GLY:O	5:F:630:VAL:HG23	2.21	0.41
5:F:703:ALA:O	5:F:706:ARG:HG2	2.21	0.41
5:F:749:LEU:O	5:F:749:LEU:HD23	2.21	0.41
5:F:891:ASN:O	5:F:895:LEU:HG	2.21	0.41
6:G:273:PRO:HB2	6:G:311:THR:HG23	2.01	0.41
7:H:254:SER:O	7:H:281:ARG:NH2	2.43	0.41
16:Q:166:MET:HA	16:Q:169:VAL:CG1	2.49	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
16:Q:194:LYS:HB2	16:Q:194:LYS:HE2	1.85	0.41
1:A:370:GLU:HG2	18:S:16:LEU:HG	2.03	0.41
1:A:473:GLU:OE1	2:B:747:ARG:NH2	2.51	0.41
1:A:575:GLY:CA	1:A:579:ARG:HH21	2.33	0.41
1:A:618:ARG:HG2	1:A:619:PRO:HD2	2.01	0.41
1:A:876:ASP:OD2	2:B:896:ARG:NH2	2.52	0.41
2:B:610:GLU:HA	2:B:613:ASP:OD2	2.20	0.41
2:B:982:LEU:O	2:B:986:THR:HG22	2.21	0.41
2:B:1085:HIS:HB3	2:B:1086:GLY:H	1.55	0.41
2:C:444:THR:O	2:C:445:GLU:C	2.57	0.41
3:D:906:LEU:H	3:D:906:LEU:HG	1.65	0.41
3:D:1337:ASN:H	3:D:1337:ASN:ND2	2.19	0.41
3:D:1804:GLN:O	3:D:1807:LEU:HB2	2.21	0.41
3:D:2421:GLN:OE1	7:H:145:GLN:NE2	2.54	0.41
28:D:3003:A1LXL:C08	15:P:413:LEU:HD11	2.51	0.41
4:E:482:LYS:HG2	4:E:604:MET:SD	2.61	0.41
5:F:236:VAL:HA	5:F:250:PRO:HG2	2.02	0.41
5:F:769:ALA:HA	5:F:774:ARG:NE	2.36	0.41
5:F:947:GLN:O	5:F:948:THR:HG22	2.20	0.41
6:G:127:ALA:HB1	6:G:438:ALA:HB1	2.03	0.41
6:G:184:VAL:HB	6:G:303:ARG:HH21	1.85	0.41
7:H:111:LEU:HD23	7:H:111:LEU:HA	1.66	0.41
7:H:401:ARG:HD3	7:H:401:ARG:HA	1.81	0.41
8:I:144:LEU:HD22	8:I:144:LEU:HA	1.91	0.41
12:M:327:TYR:HD1	12:M:327:TYR:HA	1.79	0.41
14:O:142:TRP:HZ2	14:O:309:ALA:CA	2.30	0.41
14:O:146:LEU:HD22	14:O:146:LEU:HA	1.79	0.41
16:Q:240:LYS:O	16:Q:243:LEU:HB3	2.21	0.41
1:A:797:GLY:C	1:A:799:PHE:H	2.23	0.41
2:B:577:ALA:HA	2:B:580:ILE:HG12	2.03	0.41
2:B:1111:SER:O	2:B:1111:SER:OG	2.32	0.41
3:D:561:THR:HG21	15:P:373:GLU:HG2	2.02	0.41
3:D:1696:LEU:HA	3:D:1696:LEU:HD12	1.83	0.41
3:D:2378:ASN:OD1	3:D:2378:ASN:N	2.53	0.41
3:D:2534:GLN:HE21	8:I:155:ARG:NH1	2.19	0.41
3:D:2688:ILE:CG2	3:D:2691:GLU:HG3	2.51	0.41
4:E:542:LEU:HA	4:E:587:LEU:O	2.21	0.41
4:E:623:LYS:H	4:E:623:LYS:HG2	1.61	0.41
5:F:248:VAL:O	19:T:98:ARG:HD3	2.21	0.41
6:G:301:VAL:O	6:G:305:LEU:HG	2.21	0.41
12:M:609:LEU:HD12	12:M:609:LEU:HA	1.89	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
16:Q:346:GLN:HE21	16:Q:346:GLN:HB2	1.69	0.41
17:R:206:HIS:CG	17:R:207:PRO:HD2	2.56	0.41
1:A:168:ARG:HG3	1:A:184:LYS:HG3	2.02	0.40
1:A:937:ILE:O	1:A:941:THR:HG22	2.22	0.40
2:B:342:ASP:N	2:B:342:ASP:OD1	2.54	0.40
2:B:604:GLY:HA3	2:B:647:ILE:HG22	2.03	0.40
2:B:636:GLY:HA3	3:D:2058:LEU:HD22	2.03	0.40
2:B:761:ALA:HA	2:B:764:ASN:ND2	2.37	0.40
2:C:467:ILE:HG13	2:C:468:SER:N	2.37	0.40
2:C:793:ASP:H	8:I:93:GLY:HA3	1.87	0.40
2:C:1077:ARG:NH2	2:C:1081:GLY:O	2.54	0.40
3:D:35:THR:HG23	3:D:36:LEU:HD22	2.02	0.40
3:D:57:LEU:HD23	3:D:57:LEU:HA	1.83	0.40
3:D:977:ARG:HE	3:D:977:ARG:HB2	1.72	0.40
3:D:2320:ILE:O	3:D:2323:VAL:HG22	2.20	0.40
4:E:351:LEU:HA	4:E:351:LEU:HD23	1.67	0.40
4:E:474:LEU:O	4:E:581:ALA:HA	2.21	0.40
4:E:862:ARG:H	4:E:862:ARG:HG3	1.71	0.40
5:F:95:PRO:O	13:N:34:VAL:HG13	2.21	0.40
6:G:448:LEU:HA	6:G:451:THR:HG22	2.03	0.40
12:M:456:GLY:HA3	22:M:801:LMG:H131	2.02	0.40
12:M:649:GLN:HG3	12:M:650:GLN:N	2.36	0.40
14:O:407:THR:HB	15:P:244:TRP:HH2	1.85	0.40
1:A:505:LYS:H	23:A:1202:ANP:PB	2.43	0.40
2:C:543:ILE:HG12	2:C:580:ILE:HG23	2.03	0.40
3:D:1951:GLN:H	3:D:1951:GLN:HG2	1.61	0.40
3:D:2729:GLN:HG2	3:D:2788:ASN:HD21	1.86	0.40
6:G:296:ARG:NH2	6:G:492:ALA:O	2.54	0.40
15:P:119:ASP:HA	15:P:122:GLN:HE21	1.85	0.40
15:P:224:LEU:HD12	15:P:224:LEU:HA	1.84	0.40
15:P:269:LEU:HB3	15:P:270:LEU:HD12	2.03	0.40
15:P:358:LEU:HD22	15:P:361:ARG:NH1	2.36	0.40
19:T:89:GLU:HG2	19:T:90:GLN:H	1.86	0.40
1:A:192:LYS:HD3	17:R:285:GLU:OE2	2.21	0.40
1:A:444:LYS:HE2	1:A:444:LYS:N	2.37	0.40
1:A:467:LEU:HD23	1:A:497:PHE:HE1	1.87	0.40
1:A:1140:ARG:HD2	1:A:1140:ARG:HA	1.83	0.40
1:A:1161:PRO:HA	1:A:1162:PRO:HD3	1.92	0.40
2:B:660:ASP:OD1	2:B:660:ASP:N	2.54	0.40
2:B:989:LEU:HD23	2:B:989:LEU:HA	1.85	0.40
2:C:680:LEU:HB3	2:C:686:PHE:HD2	1.86	0.40

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:C:873:LEU:HD12	2:C:873:LEU:HA	1.88	0.40
3:D:912:HIS:CE1	3:D:914:ASP:HB3	2.57	0.40
3:D:1170:ASN:HD21	17:R:224:SER:HB3	1.87	0.40
3:D:1694:ILE:N	3:D:1695:PRO:HD2	2.36	0.40
3:D:2191:LYS:N	3:D:2191:LYS:HD2	2.37	0.40
3:D:2444:SER:OG	3:D:2445:LEU:N	2.54	0.40
5:F:682:GLU:C	5:F:684:GLU:H	2.24	0.40
8:I:109:GLN:NE2	8:I:141:GLU:O	2.52	0.40
15:P:245:LEU:HD23	15:P:245:LEU:HA	1.87	0.40
18:S:101:THR:HA	18:S:105:GLY:O	2.21	0.40
19:T:50:ASP:HB2	19:T:53:GLU:HB2	2.03	0.40
1:A:192:LYS:HB2	1:A:192:LYS:HE3	1.86	0.40
1:A:667:TRP:CZ2	1:A:700:VAL:HG23	2.56	0.40
3:D:2124:ARG:HB2	4:E:827:ARG:HH21	1.86	0.40
4:E:871:LEU:HD23	4:E:871:LEU:HA	1.81	0.40
6:G:250:TYR:C	6:G:252:ALA:N	2.75	0.40
7:H:219:ASP:OD2	7:H:228:SER:OG	2.39	0.40
8:I:337:ASN:HD22	8:I:337:ASN:HA	1.62	0.40
11:L:159:LEU:HA	11:L:162:VAL:HG12	2.03	0.40
1:A:251:HIS:HA	1:A:252:PRO:HD3	1.95	0.40
1:A:465:GLU:O	1:A:468:VAL:HG22	2.21	0.40
1:A:908:ALA:O	1:A:911:ARG:NH2	2.54	0.40
1:A:920:GLU:OE1	1:A:933:ARG:NH2	2.50	0.40
2:B:730:THR:HG22	2:B:731:GLY:H	1.87	0.40
2:C:545:TYR:HA	2:C:552:LEU:HD11	2.03	0.40
2:C:620:PRO:HB3	2:C:662:ARG:O	2.22	0.40
3:D:477:PHE:HE2	15:P:647:THR:HG21	1.86	0.40
3:D:880:SER:H	3:D:882:ARG:NH1	2.20	0.40
3:D:910:LYS:HE2	3:D:910:LYS:HB2	1.76	0.40
3:D:912:HIS:ND1	3:D:914:ASP:HB3	2.37	0.40
3:D:1363:ILE:HD12	17:R:56:HIS:HB2	2.02	0.40
3:D:1389:GLU:N	3:D:1389:GLU:OE2	2.55	0.40
3:D:2010:ASN:OD1	3:D:2010:ASN:N	2.55	0.40
4:E:75:PRO:HD3	5:F:245:GLY:HA2	2.02	0.40
4:E:898:ASP:N	4:E:898:ASP:OD1	2.53	0.40
6:G:257:ARG:HB3	6:G:268:ARG:NH2	2.36	0.40
10:K:94:THR:OG1	10:K:95:GLY:N	2.54	0.40
16:Q:134:PHE:HE2	16:Q:187:PHE:HB3	1.87	0.40

There are no symmetry-related clashes.

5.3 Torsion angles

5.3.1 Protein backbone

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

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

Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
1	A	982/1182 (83%)	895 (91%)	87 (9%)	0	100	100
2	B	736/1112 (66%)	670 (91%)	62 (8%)	4 (0%)	25	56
2	C	682/1112 (61%)	620 (91%)	60 (9%)	2 (0%)	37	66
3	D	1471/2971 (50%)	1319 (90%)	135 (9%)	17 (1%)	11	35
4	E	864/982 (88%)	803 (93%)	59 (7%)	2 (0%)	44	73
5	F	695/1024 (68%)	637 (92%)	57 (8%)	1 (0%)	48	77
6	G	392/495 (79%)	360 (92%)	31 (8%)	1 (0%)	37	66
7	H	404/555 (73%)	380 (94%)	23 (6%)	1 (0%)	44	73
8	I	268/366 (73%)	238 (89%)	30 (11%)	0	100	100
9	J	82/117 (70%)	78 (95%)	3 (4%)	1 (1%)	11	35
10	K	187/255 (73%)	165 (88%)	17 (9%)	5 (3%)	4	17
11	L	149/303 (49%)	137 (92%)	12 (8%)	0	100	100
12	M	388/682 (57%)	366 (94%)	21 (5%)	1 (0%)	37	66
13	N	113/137 (82%)	103 (91%)	10 (9%)	0	100	100
14	O	312/471 (66%)	285 (91%)	25 (8%)	2 (1%)	22	52
15	P	613/691 (89%)	544 (89%)	63 (10%)	6 (1%)	13	40
16	Q	260/365 (71%)	251 (96%)	9 (4%)	0	100	100
17	R	393/462 (85%)	349 (89%)	42 (11%)	2 (0%)	25	56
18	S	112/324 (35%)	97 (87%)	14 (12%)	1 (1%)	14	43
19	T	106/299 (36%)	96 (91%)	9 (8%)	1 (1%)	14	43
21	U	6/156 (4%)	5 (83%)	1 (17%)	0	100	100
All	All	9215/14061 (66%)	8398 (91%)	770 (8%)	47 (0%)	27	56

All (47) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
3	D	2680	LEU
3	D	2749	ASN
3	D	2801	HIS
3	D	2891	PHE
3	D	2894	ASP
15	P	347	PRO
3	D	969	PHE
3	D	2631	LEU
3	D	2633	PRO
10	K	90	SER
10	K	100	ALA
2	B	595	ASP
2	C	424	PRO
3	D	1326	HIS
3	D	2153	TYR
3	D	2251	VAL
3	D	2679	LYS
3	D	2778	SER
3	D	2893	PHE
10	K	241	PRO
12	M	285	ALA
15	P	71	GLU
15	P	203	GLY
15	P	352	GLY
19	T	40	PRO
2	B	250	PRO
3	D	2748	LEU
6	G	261	SER
9	J	73	LEU
2	B	444	THR
3	D	2250	ILE
4	E	256	PRO
5	F	154	PRO
15	P	517	ASN
17	R	6	SER
17	R	333	TRP
2	B	453	LEU
7	H	150	GLY
10	K	91	ILE
18	S	106	ALA
14	O	304	VAL
4	E	352	PRO
2	C	779	GLY

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Mol	Chain	Res	Type
3	D	971	PRO
10	K	242	VAL
14	O	296	PRO
15	P	493	PRO

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%)	708 (92%)	66 (8%)	8	27
2	B	599/858 (70%)	543 (91%)	56 (9%)	7	23
2	C	548/858 (64%)	497 (91%)	51 (9%)	7	23
3	D	1443/2762 (52%)	1288 (89%)	155 (11%)	5	17
4	E	540/774 (70%)	509 (94%)	31 (6%)	17	47
5	F	542/773 (70%)	489 (90%)	53 (10%)	6	21
6	G	283/358 (79%)	253 (89%)	30 (11%)	5	18
7	H	346/451 (77%)	328 (95%)	18 (5%)	19	50
8	I	204/263 (78%)	185 (91%)	19 (9%)	7	23
9	J	64/87 (74%)	59 (92%)	5 (8%)	10	31
10	K	163/215 (76%)	147 (90%)	16 (10%)	6	21
11	L	124/243 (51%)	118 (95%)	6 (5%)	21	54
12	M	298/492 (61%)	287 (96%)	11 (4%)	29	64
13	N	92/107 (86%)	83 (90%)	9 (10%)	6	21
14	O	129/340 (38%)	117 (91%)	12 (9%)	7	23
15	P	431/485 (89%)	383 (89%)	48 (11%)	5	16
16	Q	218/296 (74%)	190 (87%)	28 (13%)	3	11
17	R	312/345 (90%)	288 (92%)	24 (8%)	10	31
18	S	97/226 (43%)	86 (89%)	11 (11%)	4	15
19	T	83/198 (42%)	77 (93%)	6 (7%)	12	35

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Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
21	U	1/7 (14%)	1 (100%)	0	100	100
All	All	7291/11074 (66%)	6636 (91%)	655 (9%)	10	25

All (655) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	139	LEU
1	A	145	TYR
1	A	149	THR
1	A	152	SER
1	A	217	ASP
1	A	262	VAL
1	A	263	SER
1	A	275	VAL
1	A	306	VAL
1	A	314	GLN
1	A	325	SER
1	A	353	SER
1	A	367	GLU
1	A	381	VAL
1	A	422	LYS
1	A	432	ARG
1	A	435	SER
1	A	450	LYS
1	A	451	MET
1	A	464	MET
1	A	465	GLU
1	A	471	MET
1	A	472	ARG
1	A	481	ASP
1	A	503	THR
1	A	523	SER
1	A	526	SER
1	A	576	SER
1	A	616	LEU
1	A	674	ASN
1	A	678	GLU
1	A	683	THR
1	A	686	ARG
1	A	697	LEU
1	A	699	LEU
1	A	707	GLU

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Mol	Chain	Res	Type
1	A	714	ASP
1	A	732	PHE
1	A	739	GLU
1	A	745	THR
1	A	751	ARG
1	A	764	ASP
1	A	769	ASP
1	A	773	GLU
1	A	774	GLU
1	A	775	THR
1	A	781	ARG
1	A	782	THR
1	A	796	LEU
1	A	819	LEU
1	A	823	ASP
1	A	826	SER
1	A	833	LEU
1	A	883	ASP
1	A	941	THR
1	A	968	LEU
1	A	973	GLU
1	A	1024	GLU
1	A	1031	THR
1	A	1067	HIS
1	A	1090	PHE
1	A	1093	SER
1	A	1096	SER
1	A	1147	GLN
1	A	1148	ASP
1	A	1152	THR
2	B	208	GLU
2	B	246	ARG
2	B	336	LYS
2	B	356	LEU
2	B	357	PHE
2	B	368	ARG
2	B	375	GLU
2	B	394	ARG
2	B	399	GLU
2	B	416	ARG
2	B	417	LEU
2	B	430	ASP

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Mol	Chain	Res	Type
2	B	439	VAL
2	B	441	THR
2	B	446	ASP
2	B	448	ARG
2	B	458	LEU
2	B	468	SER
2	B	470	LEU
2	B	495	ARG
2	B	515	ARG
2	B	526	TRP
2	B	534	GLU
2	B	551	LEU
2	B	554	SER
2	B	576	LEU
2	B	592	SER
2	B	595	ASP
2	B	597	TYR
2	B	603	VAL
2	B	622	ILE
2	B	625	ILE
2	B	660	ASP
2	B	670	THR
2	B	688	ARG
2	B	711	LYS
2	B	713	VAL
2	B	716	ASN
2	B	719	TRP
2	B	738	MET
2	B	748	GLN
2	B	751	HIS
2	B	754	THR
2	B	755	GLU
2	B	763	GLU
2	B	767	MET
2	B	800	ARG
2	B	813	LEU
2	B	819	ASP
2	B	853	THR
2	B	868	ARG
2	B	885	SER
2	B	921	GLU
2	B	1006	SER

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Mol	Chain	Res	Type
2	B	1101	ASP
2	B	1111	SER
2	C	377	SER
2	C	380	GLN
2	C	406	THR
2	C	407	THR
2	C	408	ARG
2	C	424	PRO
2	C	430	ASP
2	C	431	HIS
2	C	440	ASP
2	C	446	ASP
2	C	474	ILE
2	C	487	ARG
2	C	499	LEU
2	C	522	ASP
2	C	541	GLU
2	C	546	LEU
2	C	548	ASN
2	C	552	LEU
2	C	557	VAL
2	C	583	GLU
2	C	591	CYS
2	C	592	SER
2	C	601	SER
2	C	612	PHE
2	C	623	LEU
2	C	626	ASP
2	C	655	MET
2	C	656	ASP
2	C	658	PHE
2	C	665	VAL
2	C	677	ASP
2	C	680	LEU
2	C	688	ARG
2	C	730	THR
2	C	735	MET
2	C	754	THR
2	C	768	GLU
2	C	774	SER
2	C	813	LEU
2	C	827	SER

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Mol	Chain	Res	Type
2	C	834	LEU
2	C	842	GLU
2	C	845	ASP
2	C	848	VAL
2	C	919	THR
2	C	990	LEU
2	C	998	LYS
2	C	1033	LYS
2	C	1056	THR
2	C	1058	ASP
2	C	1095	VAL
3	D	35	THR
3	D	62	LYS
3	D	273	LEU
3	D	318	SER
3	D	319	LEU
3	D	324	THR
3	D	333	SER
3	D	350	LEU
3	D	447	ASN
3	D	475	PHE
3	D	476	LEU
3	D	549	SER
3	D	554	ASP
3	D	563	LYS
3	D	573	LEU
3	D	574	ASN
3	D	576	SER
3	D	637	ASN
3	D	735	GLN
3	D	745	THR
3	D	753	THR
3	D	784	HIS
3	D	786	SER
3	D	793	LEU
3	D	795	THR
3	D	811	ASN
3	D	887	PHE
3	D	905	THR
3	D	906	LEU
3	D	907	LYS
3	D	909	HIS

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Mol	Chain	Res	Type
3	D	915	THR
3	D	939	SER
3	D	948	GLN
3	D	951	ARG
3	D	952	LYS
3	D	960	THR
3	D	964	LYS
3	D	982	LEU
3	D	988	ARG
3	D	1125	GLN
3	D	1126	ASN
3	D	1128	ARG
3	D	1133	LYS
3	D	1135	ASN
3	D	1160	MET
3	D	1248	TYR
3	D	1249	SER
3	D	1290	ASN
3	D	1314	LEU
3	D	1316	VAL
3	D	1319	GLU
3	D	1328	SER
3	D	1329	TRP
3	D	1333	LEU
3	D	1365	SER
3	D	1369	LYS
3	D	1370	SER
3	D	1375	THR
3	D	1386	SER
3	D	1397	SER
3	D	1411	VAL
3	D	1412	SER
3	D	1431	SER
3	D	1435	ASN
3	D	1678	ASN
3	D	1688	SER
3	D	1730	MET
3	D	1746	ARG
3	D	1763	THR
3	D	1774	LEU
3	D	1775	PHE
3	D	1776	TRP

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Mol	Chain	Res	Type
3	D	1805	ASN
3	D	1815	PHE
3	D	1817	ASN
3	D	1818	LEU
3	D	1944	LEU
3	D	1951	GLN
3	D	1957	SER
3	D	1958	TRP
3	D	1983	HIS
3	D	1984	ILE
3	D	2002	CYS
3	D	2010	ASN
3	D	2023	LYS
3	D	2027	ASN
3	D	2031	ASP
3	D	2046	MET
3	D	2061	ARG
3	D	2075	ASP
3	D	2088	GLU
3	D	2128	HIS
3	D	2143	THR
3	D	2153	TYR
3	D	2165	ASP
3	D	2183	ASN
3	D	2185	ASN
3	D	2187	SER
3	D	2191	LYS
3	D	2212	ASN
3	D	2215	SER
3	D	2221	GLN
3	D	2232	SER
3	D	2234	PHE
3	D	2239	LEU
3	D	2249	LYS
3	D	2283	GLU
3	D	2287	SER
3	D	2290	SER
3	D	2294	ASP
3	D	2300	LEU
3	D	2320	ILE
3	D	2366	ASN
3	D	2445	LEU

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Mol	Chain	Res	Type
3	D	2446	ASN
3	D	2459	LEU
3	D	2524	LEU
3	D	2532	LEU
3	D	2558	ASP
3	D	2560	LEU
3	D	2577	ILE
3	D	2630	HIS
3	D	2632	LEU
3	D	2633	PRO
3	D	2634	LYS
3	D	2689	LEU
3	D	2690	ASP
3	D	2698	SER
3	D	2714	PHE
3	D	2719	THR
3	D	2721	ASP
3	D	2728	SER
3	D	2730	ILE
3	D	2731	THR
3	D	2733	LEU
3	D	2734	GLU
3	D	2744	SER
3	D	2748	LEU
3	D	2778	SER
3	D	2780	ASN
3	D	2806	THR
3	D	2808	GLN
3	D	2810	TRP
3	D	2830	ARG
3	D	2831	SER
3	D	2861	ASP
3	D	2868	ASP
3	D	2874	ASN
3	D	2878	ARG
3	D	2883	ASN
3	D	2891	PHE
3	D	2900	GLU
3	D	2964	LEU
3	D	2968	PHE
4	E	97	ARG
4	E	103	THR

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Mol	Chain	Res	Type
4	E	140	LEU
4	E	142	THR
4	E	191	THR
4	E	227	THR
4	E	228	SER
4	E	229	ARG
4	E	253	PRO
4	E	255	SER
4	E	258	ASP
4	E	313	SER
4	E	319	SER
4	E	334	SER
4	E	357	LEU
4	E	360	SER
4	E	614	GLU
4	E	622	ASN
4	E	692	LEU
4	E	725	SER
4	E	727	GLN
4	E	742	THR
4	E	769	ARG
4	E	816	SER
4	E	818	ASP
4	E	843	THR
4	E	847	ASP
4	E	919	SER
4	E	920	ARG
4	E	945	ARG
4	E	976	LYS
5	F	99	ASP
5	F	129	LEU
5	F	138	THR
5	F	223	VAL
5	F	224	LEU
5	F	228	ASP
5	F	263	GLU
5	F	270	ASP
5	F	286	GLU
5	F	290	TRP
5	F	556	GLN
5	F	567	PHE
5	F	568	PHE

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Mol	Chain	Res	Type
5	F	573	LYS
5	F	575	LYS
5	F	577	SER
5	F	583	LYS
5	F	597	LEU
5	F	621	MET
5	F	622	TYR
5	F	647	ILE
5	F	648	ASP
5	F	663	SER
5	F	672	ASN
5	F	674	LEU
5	F	681	PHE
5	F	706	ARG
5	F	748	SER
5	F	766	CYS
5	F	767	PHE
5	F	768	LEU
5	F	781	ASP
5	F	782	LEU
5	F	783	THR
5	F	784	LEU
5	F	787	GLU
5	F	788	GLN
5	F	793	ARG
5	F	833	THR
5	F	837	SER
5	F	844	ARG
5	F	884	ARG
5	F	885	ASP
5	F	889	SER
5	F	920	ARG
5	F	939	THR
5	F	946	ASN
5	F	949	ARG
5	F	950	SER
5	F	954	ASP
5	F	988	LEU
5	F	995	SER
5	F	1001	GLN
6	G	102	ARG
6	G	111	ASP

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Mol	Chain	Res	Type
6	G	116	CYS
6	G	117	LEU
6	G	134	ARG
6	G	147	THR
6	G	167	ASP
6	G	172	LEU
6	G	181	SER
6	G	203	SER
6	G	213	SER
6	G	218	LEU
6	G	235	LEU
6	G	243	VAL
6	G	253	GLU
6	G	256	ARG
6	G	257	ARG
6	G	260	SER
6	G	262	SER
6	G	265	ARG
6	G	345	LEU
6	G	346	SER
6	G	348	LEU
6	G	357	GLU
6	G	376	THR
6	G	391	THR
6	G	402	LEU
6	G	414	LEU
6	G	455	GLN
6	G	460	GLU
7	H	98	GLN
7	H	107	GLU
7	H	108	SER
7	H	198	ASP
7	H	217	SER
7	H	243	PRO
7	H	259	LYS
7	H	271	LEU
7	H	283	SER
7	H	292	ASP
7	H	310	VAL
7	H	313	ASP
7	H	333	GLU
7	H	351	SER

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Mol	Chain	Res	Type
7	H	363	GLU
7	H	383	SER
7	H	401	ARG
7	H	449	LYS
8	I	82	GLU
8	I	84	THR
8	I	85	ASN
8	I	122	ARG
8	I	125	SER
8	I	144	LEU
8	I	198	TRP
8	I	209	ARG
8	I	210	ASP
8	I	232	LEU
8	I	266	CYS
8	I	289	SER
8	I	300	LEU
8	I	303	SER
8	I	306	ARG
8	I	309	LEU
8	I	326	MET
8	I	329	MET
8	I	352	SER
9	J	46	SER
9	J	67	ASP
9	J	74	ASP
9	J	76	VAL
9	J	100	THR
10	K	67	THR
10	K	76	THR
10	K	82	GLU
10	K	87	THR
10	K	90	SER
10	K	94	THR
10	K	98	ARG
10	K	101	SER
10	K	143	THR
10	K	150	GLN
10	K	152	ARG
10	K	193	LEU
10	K	206	SER
10	K	233	THR

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Mol	Chain	Res	Type
10	K	236	VAL
10	K	253	TRP
11	L	244	ASN
11	L	245	HIS
11	L	263	ARG
11	L	296	VAL
11	L	297	VAL
11	L	302	PHE
12	M	263	LEU
12	M	264	ASP
12	M	282	ARG
12	M	283	VAL
12	M	286	ASP
12	M	327	TYR
12	M	344	LEU
12	M	390	SER
12	M	524	SER
12	M	622	GLU
12	M	640	ASP
13	N	30	GLU
13	N	34	VAL
13	N	36	GLU
13	N	48	THR
13	N	49	ARG
13	N	53	LYS
13	N	80	SER
13	N	130	ARG
13	N	132	GLU
14	O	146	LEU
14	O	264	LEU
14	O	298	THR
14	O	304	VAL
14	O	312	LEU
14	O	315	LEU
14	O	320	LEU
14	O	376	SER
14	O	390	SER
14	O	416	THR
14	O	431	PHE
14	O	434	SER
15	P	65	LEU
15	P	68	ARG

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Mol	Chain	Res	Type
15	P	89	ASP
15	P	104	GLU
15	P	106	GLN
15	P	109	VAL
15	P	128	GLN
15	P	131	GLU
15	P	132	ARG
15	P	148	MET
15	P	156	SER
15	P	159	SER
15	P	189	GLU
15	P	202	SER
15	P	217	SER
15	P	228	TRP
15	P	249	LEU
15	P	321	ARG
15	P	329	GLN
15	P	345	LEU
15	P	347	PRO
15	P	348	THR
15	P	349	ASP
15	P	350	LEU
15	P	351	ASN
15	P	373	GLU
15	P	378	VAL
15	P	388	ARG
15	P	404	GLN
15	P	418	SER
15	P	432	GLU
15	P	442	SER
15	P	465	GLU
15	P	470	LEU
15	P	531	THR
15	P	547	LEU
15	P	564	LYS
15	P	565	LEU
15	P	567	SER
15	P	568	GLU
15	P	577	LEU
15	P	600	SER
15	P	601	ARG
15	P	655	GLN

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Mol	Chain	Res	Type
15	P	678	SER
15	P	680	ASP
15	P	682	PHE
15	P	688	LEU
16	Q	99	ASP
16	Q	131	LEU
16	Q	133	PHE
16	Q	142	GLU
16	Q	144	LEU
16	Q	151	GLU
16	Q	166	MET
16	Q	169	VAL
16	Q	174	THR
16	Q	192	ASP
16	Q	194	LYS
16	Q	204	LYS
16	Q	211	ARG
16	Q	226	VAL
16	Q	231	MET
16	Q	247	VAL
16	Q	249	SER
16	Q	260	LYS
16	Q	263	LYS
16	Q	265	LYS
16	Q	281	GLU
16	Q	287	ARG
16	Q	292	LEU
16	Q	294	SER
16	Q	300	ARG
16	Q	302	LYS
16	Q	303	LEU
16	Q	336	SER
17	R	6	SER
17	R	7	ARG
17	R	10	ASP
17	R	20	SER
17	R	33	VAL
17	R	60	ARG
17	R	130	GLU
17	R	137	SER
17	R	157	VAL
17	R	172	ASP

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Mol	Chain	Res	Type
17	R	187	ASP
17	R	194	LYS
17	R	232	MET
17	R	242	GLU
17	R	253	ASP
17	R	254	ARG
17	R	264	GLU
17	R	329	GLU
17	R	351	ASP
17	R	354	ARG
17	R	367	ARG
17	R	390	LYS
17	R	402	LEU
17	R	444	ARG
18	S	36	GLU
18	S	37	TYR
18	S	46	THR
18	S	51	ARG
18	S	55	GLN
18	S	74	GLU
18	S	80	ASP
18	S	89	ASP
18	S	99	LEU
18	S	102	SER
18	S	113	ASP
19	T	22	GLU
19	T	32	LEU
19	T	75	TYR
19	T	80	ASP
19	T	88	SER
19	T	90	GLN

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (162) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	238	HIS
1	A	247	HIS
1	A	308	GLN
1	A	327	GLN
1	A	351	GLN
1	A	423	GLN
1	A	665	GLN

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Mol	Chain	Res	Type
1	A	783	ASN
1	A	801	HIS
1	A	1147	GLN
2	B	257	ASN
2	B	259	ASN
2	B	274	GLN
2	B	530	ASN
2	B	638	GLN
2	B	748	GLN
2	B	751	HIS
2	B	890	HIS
2	B	892	ASN
2	B	1088	HIS
2	C	431	HIS
2	C	435	ASN
2	C	456	GLN
2	C	617	ASN
2	C	654	GLN
2	C	707	HIS
2	C	879	GLN
2	C	890	HIS
2	C	944	HIS
2	C	952	GLN
3	D	37	GLN
3	D	38	ASN
3	D	44	GLN
3	D	65	GLN
3	D	271	GLN
3	D	325	GLN
3	D	461	ASN
3	D	465	ASN
3	D	574	ASN
3	D	621	HIS
3	D	634	GLN
3	D	637	ASN
3	D	735	GLN
3	D	818	ASN
3	D	819	GLN
3	D	897	HIS
3	D	909	HIS
3	D	1126	ASN
3	D	1135	ASN

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Mol	Chain	Res	Type
3	D	1137	ASN
3	D	1138	ASN
3	D	1226	ASN
3	D	1258	GLN
3	D	1315	ASN
3	D	1326	HIS
3	D	1337	ASN
3	D	1364	ASN
3	D	1678	ASN
3	D	1760	GLN
3	D	1817	ASN
3	D	1915	ASN
3	D	1951	GLN
3	D	1959	HIS
3	D	1961	HIS
3	D	1976	HIS
3	D	1994	GLN
3	D	2016	ASN
3	D	2028	ASN
3	D	2136	GLN
3	D	2140	HIS
3	D	2183	ASN
3	D	2184	HIS
3	D	2185	ASN
3	D	2212	ASN
3	D	2263	GLN
3	D	2416	ASN
3	D	2421	GLN
3	D	2446	ASN
3	D	2531	GLN
3	D	2652	GLN
3	D	2653	ASN
3	D	2687	ASN
3	D	2729	GLN
3	D	2739	HIS
3	D	2749	ASN
3	D	2763	ASN
3	D	2780	ASN
3	D	2785	ASN
3	D	2874	ASN
3	D	2943	ASN
4	E	68	ASN

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Mol	Chain	Res	Type
4	E	86	HIS
4	E	114	GLN
4	E	250	GLN
4	E	270	GLN
4	E	633	GLN
4	E	651	ASN
4	E	679	GLN
4	E	823	GLN
4	E	964	GLN
4	E	977	GLN
5	F	664	ASN
5	F	672	ASN
5	F	695	ASN
5	F	779	GLN
5	F	867	GLN
5	F	892	GLN
5	F	896	GLN
5	F	907	ASN
5	F	913	HIS
5	F	1001	GLN
5	F	1017	GLN
6	G	157	GLN
6	G	258	HIS
6	G	400	HIS
6	G	481	GLN
7	H	98	GLN
7	H	114	GLN
7	H	145	GLN
7	H	210	GLN
7	H	261	HIS
7	H	317	GLN
7	H	406	GLN
8	I	61	ASN
8	I	160	GLN
8	I	337	ASN
8	I	355	GLN
10	K	106	GLN
10	K	150	GLN
11	L	193	GLN
11	L	293	GLN
12	M	270	GLN
12	M	361	HIS

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Mol	Chain	Res	Type
12	M	398	HIS
12	M	400	HIS
12	M	416	HIS
13	N	108	GLN
15	P	123	GLN
15	P	165	GLN
15	P	262	HIS
15	P	267	ASN
15	P	268	GLN
15	P	326	ASN
15	P	331	GLN
15	P	351	ASN
15	P	390	GLN
15	P	403	GLN
16	Q	168	ASN
16	Q	195	GLN
16	Q	220	GLN
16	Q	285	ASN
16	Q	346	GLN
17	R	191	HIS
17	R	234	GLN
17	R	237	ASN
17	R	260	GLN
17	R	443	GLN
18	S	32	HIS
18	S	82	GLN
19	T	21	GLN
19	T	54	GLN
19	T	122	GLN

5.3.3 RNA [i](#)

There are no RNA molecules in this entry.

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

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	1.53	1 (12%)	8,12,14	1.22	1 (12%)
17	TPO	R	167	17	8,10,11	1.57	1 (12%)	10,14,16	2.10	2 (20%)
19	SEP	T	28	19	8,9,10	1.52	1 (12%)	8,12,14	1.64	2 (25%)
2	TPO	B	346	2	8,10,11	1.58	1 (12%)	10,14,16	1.84	1 (10%)
17	SEP	R	126	17	8,9,10	1.52	1 (12%)	8,12,14	1.29	1 (12%)
9	4HH	J	72	9	21,26,27	0.38	0	27,35,37	0.69	0
18	TPO	S	107	18	8,10,11	1.58	1 (12%)	10,14,16	1.90	1 (10%)
2	TPO	B	347	2	8,10,11	1.54	1 (12%)	10,14,16	2.15	2 (20%)
19	SEP	T	18	19	8,9,10	1.53	1 (12%)	8,12,14	1.38	2 (25%)
2	TPO	B	337	2	8,10,11	1.56	1 (12%)	10,14,16	1.83	1 (10%)
18	SEP	S	84	18	8,9,10	1.50	1 (12%)	8,12,14	1.53	2 (25%)

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	-	1/5/8/10	-
17	TPO	R	167	17	-	2/9/11/13	-
19	SEP	T	28	19	-	2/5/8/10	-
2	TPO	B	346	2	-	0/9/11/13	-
17	SEP	R	126	17	-	0/5/8/10	-
9	4HH	J	72	9	-	13/32/35/37	-
18	TPO	S	107	18	-	5/9/11/13	-
2	TPO	B	347	2	-	1/9/11/13	-
19	SEP	T	18	19	-	0/5/8/10	-
2	TPO	B	337	2	-	4/9/11/13	-
18	SEP	S	84	18	-	1/5/8/10	-

All (10) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
18	S	85	SEP	P-O1P	3.38	1.61	1.50
18	S	107	TPO	P-O1P	3.37	1.61	1.50

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
2	B	337	TPO	P-O1P	3.35	1.61	1.50
2	B	346	TPO	P-O1P	3.33	1.61	1.50
19	T	18	SEP	P-O1P	3.33	1.61	1.50
19	T	28	SEP	P-O1P	3.30	1.61	1.50
2	B	347	TPO	P-O1P	3.28	1.61	1.50
17	R	126	SEP	P-O1P	3.28	1.61	1.50
17	R	167	TPO	P-O1P	3.27	1.61	1.50
18	S	84	SEP	P-O1P	3.24	1.61	1.50

All (15) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
2	B	347	TPO	P-OG1-CB	-6.03	104.98	123.21
17	R	167	TPO	P-OG1-CB	-5.88	105.44	123.21
18	S	107	TPO	P-OG1-CB	-5.58	106.34	123.21
2	B	346	TPO	P-OG1-CB	-5.09	107.84	123.21
2	B	337	TPO	P-OG1-CB	-5.07	107.91	123.21
19	T	28	SEP	P-OG-CB	-3.57	108.47	118.30
18	S	84	SEP	P-OG-CB	-2.85	110.44	118.30
18	S	85	SEP	P-OG-CB	-2.70	110.85	118.30
17	R	126	SEP	P-OG-CB	-2.66	110.96	118.30
18	S	84	SEP	OG-CB-CA	2.63	110.71	108.14
19	T	18	SEP	P-OG-CB	-2.49	111.45	118.30
19	T	28	SEP	OG-CB-CA	2.41	110.49	108.14
19	T	18	SEP	OG-CB-CA	2.26	110.34	108.14
2	B	347	TPO	CG2-CB-CA	-2.18	108.86	113.16
17	R	167	TPO	CG2-CB-CA	-2.01	109.20	113.16

There are no chirality outliers.

All (29) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
9	J	72	4HH	N-CA-CB-OG
9	J	72	4HH	CB-OG-P-O1P
9	J	72	4HH	CB-OG-P-O2P
9	J	72	4HH	CB-OG-P-O3P
9	J	72	4HH	NN-CO-CP-CQ
9	J	72	4HH	CP-CQ-NR-CS
9	J	72	4HH	OR-CQ-NR-CS
9	J	72	4HH	NR-CS-CT-SU
18	S	84	SEP	N-CA-CB-OG
18	S	107	TPO	N-CA-CB-CG2

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Mol	Chain	Res	Type	Atoms
18	S	107	TPO	N-CA-CB-OG1
18	S	107	TPO	C-CA-CB-CG2
18	S	107	TPO	O-C-CA-CB
2	B	337	TPO	N-CA-CB-OG1
2	B	337	TPO	C-CA-CB-CG2
9	J	72	4HH	CJ-O3P-P-OG
2	B	337	TPO	N-CA-CB-CG2
19	T	28	SEP	CA-CB-OG-P
9	J	72	4HH	CJ-O3P-P-O1P
9	J	72	4HH	CJ-O3P-P-O2P
18	S	85	SEP	N-CA-CB-OG
19	T	28	SEP	CB-OG-P-O1P
9	J	72	4HH	O3P-CJ-CK-CL2
18	S	107	TPO	CB-OG1-P-O1P
17	R	167	TPO	CB-OG1-P-O3P
9	J	72	4HH	O3P-CJ-CK-CL1
17	R	167	TPO	O-C-CA-CB
2	B	337	TPO	O-C-CA-CB
2	B	347	TPO	O-C-CA-CB

There are no ring outliers.

5 monomers are involved in 9 short contacts:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
18	S	85	SEP	1	0
2	B	346	TPO	1	0
9	J	72	4HH	4	0
18	S	107	TPO	2	0
18	S	84	SEP	1	0

5.5 Carbohydrates [i](#)

There are no oligosaccharides in this entry.

5.6 Ligand geometry [i](#)

Of 23 ligands modelled in this entry, 3 are monoatomic - leaving 20 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
22	LMG	A	1201	-	46,46,55	1.03	4 (8%)	54,54,63	1.40	7 (12%)
25	SQD	K	302	-	44,45,54	1.16	6 (13%)	53,56,65	1.76	10 (18%)
23	ANP	A	1202	24	29,33,33	1.21	5 (17%)	31,52,52	1.17	3 (9%)
28	A1LXL	D	3003	-	33,33,33	3.56	11 (33%)	51,51,51	2.25	17 (33%)
22	LMG	I	402	-	32,32,55	1.17	3 (9%)	40,40,63	1.38	8 (20%)
23	ANP	F	1101	-	29,33,33	1.09	4 (13%)	31,52,52	1.16	2 (6%)
22	LMG	C	1201	-	24,24,55	0.73	0	26,26,63	1.13	1 (3%)
25	SQD	I	401	-	48,49,54	1.08	6 (12%)	57,60,65	1.69	10 (17%)
27	Y01	D	3002	-	38,38,38	0.47	0	57,57,57	0.64	0
27	Y01	M	802	-	38,38,38	0.50	0	57,57,57	0.75	1 (1%)
22	LMG	K	301	-	41,41,55	0.90	4 (9%)	49,49,63	1.44	8 (16%)
26	DGA	O	3101	-	38,38,43	1.10	3 (7%)	40,40,45	1.80	5 (12%)
22	LMG	M	801	-	48,48,55	0.89	3 (6%)	56,56,63	1.45	8 (14%)
29	DGD	I	403	-	41,41,67	1.50	12 (29%)	55,55,81	1.54	9 (16%)
23	ANP	C	1202	-	29,33,33	1.07	4 (13%)	31,52,52	1.12	3 (9%)
28	A1LXL	P	701	-	33,33,33	3.63	11 (33%)	51,51,51	2.45	21 (41%)
29	DGD	L	401	-	42,42,67	1.06	2 (4%)	56,56,81	1.42	8 (14%)
26	DGA	D	3001	-	33,33,43	1.19	3 (9%)	35,35,45	1.70	3 (8%)
23	ANP	E	1001	-	29,33,33	1.07	4 (13%)	31,52,52	1.13	2 (6%)
25	SQD	A	1204	-	45,46,54	1.14	6 (13%)	54,57,65	1.75	11 (20%)

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
22	LMG	A	1201	-	-	19/41/61/70	0/1/1/1
25	SQD	K	302	-	-	17/40/60/69	0/1/1/1
23	ANP	A	1202	24	-	4/14/38/38	0/3/3/3
28	A1LXL	D	3003	-	-	9/15/73/73	0/4/4/4
22	LMG	I	402	-	-	16/27/47/70	0/1/1/1

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Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
23	ANP	F	1101	-	-	5/14/38/38	0/3/3/3
22	LMG	C	1201	-	-	12/26/26/70	-
25	SQD	I	401	-	-	18/44/64/69	0/1/1/1
27	Y01	D	3002	-	-	13/19/77/77	0/4/4/4
27	Y01	M	802	-	-	3/19/77/77	0/4/4/4
22	LMG	K	301	-	-	13/36/56/70	0/1/1/1
26	DGA	O	3101	-	-	25/40/40/45	-
22	LMG	M	801	-	-	23/43/63/70	0/1/1/1
29	DGD	I	403	-	-	12/29/69/95	0/2/2/2
23	ANP	C	1202	-	-	5/14/38/38	0/3/3/3
28	A1LXL	P	701	-	-	10/15/73/73	0/4/4/4
29	DGD	L	401	-	-	11/30/70/95	0/2/2/2
26	DGA	D	3001	-	-	17/35/35/45	-
23	ANP	E	1001	-	-	3/14/38/38	0/3/3/3
25	SQD	A	1204	-	-	19/41/61/69	0/1/1/1

All (91) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
28	P	701	A1LXL	C06-C08	-11.12	1.35	1.54
28	D	3003	A1LXL	C06-C08	-10.56	1.35	1.54
28	D	3003	A1LXL	C17-C16	7.75	1.67	1.53
28	P	701	A1LXL	C17-C16	7.64	1.67	1.53
28	P	701	A1LXL	C09-C08	7.37	1.69	1.54
28	D	3003	A1LXL	C09-C08	7.22	1.69	1.54
28	P	701	A1LXL	C13-C14	6.15	1.66	1.53
28	P	701	A1LXL	C18-C19	5.93	1.67	1.53
28	D	3003	A1LXL	C12-C08	5.80	1.66	1.55
28	D	3003	A1LXL	C13-C12	-5.80	1.43	1.54
28	P	701	A1LXL	C13-C12	-5.71	1.43	1.54
28	D	3003	A1LXL	C13-C14	5.65	1.65	1.53
28	D	3003	A1LXL	C18-C19	5.65	1.67	1.53
28	P	701	A1LXL	C12-C08	5.64	1.65	1.55
28	P	701	A1LXL	C10-C11	3.46	1.61	1.54
28	D	3003	A1LXL	C07-C06	3.40	1.61	1.53
28	D	3003	A1LXL	C10-C11	3.35	1.61	1.54
26	D	3001	DGA	OG2-CB1	3.35	1.43	1.34
28	P	701	A1LXL	C07-C06	3.34	1.61	1.53
26	D	3001	DGA	OG1-CA1	3.34	1.43	1.33

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
26	O	3101	DGA	OG2-CB1	3.33	1.43	1.34
28	P	701	A1LXL	C20-C15	3.29	1.62	1.56
28	D	3003	A1LXL	C20-C15	3.24	1.62	1.56
29	I	403	DGD	O1G-C1G	-3.14	1.38	1.45
29	I	403	DGD	O2G-C2G	-3.13	1.38	1.46
22	A	1201	LMG	O4-C4	-3.01	1.35	1.43
26	O	3101	DGA	OG1-CA1	3.00	1.42	1.33
25	I	401	SQD	O48-C23	2.91	1.41	1.33
28	D	3003	A1LXL	C05-C06	2.90	1.61	1.54
22	M	801	LMG	O1-C7	-2.90	1.38	1.43
22	I	402	LMG	O7-C8	-2.85	1.39	1.46
22	A	1201	LMG	O6-C5	-2.85	1.37	1.44
23	A	1202	ANP	PG-O1G	2.85	1.50	1.46
25	A	1204	SQD	O48-C23	2.81	1.41	1.33
29	I	403	DGD	O3G-C3G	-2.79	1.38	1.43
25	K	302	SQD	O47-C7	2.75	1.42	1.34
25	K	302	SQD	O48-C23	2.75	1.41	1.33
25	I	401	SQD	O47-C7	2.70	1.41	1.34
25	K	302	SQD	O2-C2	-2.69	1.36	1.43
29	I	403	DGD	O6D-C5D	-2.69	1.37	1.44
23	A	1202	ANP	PB-O1B	2.68	1.50	1.46
25	A	1204	SQD	O2-C2	-2.67	1.36	1.43
22	I	402	LMG	O4-C4	-2.64	1.36	1.43
22	M	801	LMG	O8-C9	-2.63	1.39	1.45
25	K	302	SQD	O4-C4	-2.59	1.36	1.43
29	I	403	DGD	O4D-C4D	-2.58	1.36	1.43
25	I	401	SQD	O2-C2	-2.55	1.37	1.43
25	A	1204	SQD	O47-C7	2.54	1.41	1.34
23	A	1202	ANP	PG-O2G	-2.54	1.49	1.56
29	I	403	DGD	O3G-C1D	-2.53	1.35	1.40
22	A	1201	LMG	O7-C8	-2.50	1.40	1.46
23	F	1101	ANP	PG-N3B	2.50	1.69	1.63
23	E	1001	ANP	PB-O3A	-2.49	1.55	1.59
23	C	1202	ANP	PB-O3A	-2.49	1.55	1.59
23	A	1202	ANP	PG-O3G	-2.48	1.50	1.56
22	A	1201	LMG	O1-C7	-2.47	1.39	1.43
29	I	403	DGD	O2D-C2D	-2.47	1.37	1.43
22	M	801	LMG	O7-C8	-2.42	1.40	1.46
23	F	1101	ANP	PB-O1B	2.39	1.49	1.46
29	I	403	DGD	O5D-C6D	-2.39	1.39	1.43
25	A	1204	SQD	O3-C3	-2.38	1.37	1.43
25	K	302	SQD	O3-C3	-2.37	1.37	1.43

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
23	F	1101	ANP	PG-O1G	2.35	1.49	1.46
29	I	403	DGD	O2E-C2E	-2.35	1.37	1.43
23	E	1001	ANP	PG-O1G	2.33	1.49	1.46
25	I	401	SQD	O3-C3	-2.33	1.37	1.43
25	I	401	SQD	O4-C4	-2.33	1.37	1.43
23	A	1202	ANP	PB-O2B	-2.33	1.50	1.56
25	A	1204	SQD	O4-C4	-2.31	1.37	1.43
23	E	1001	ANP	PG-N3B	2.30	1.69	1.63
22	K	301	LMG	O1-C7	-2.29	1.39	1.43
23	C	1202	ANP	PG-O1G	2.29	1.49	1.46
23	E	1001	ANP	PB-O1B	2.28	1.49	1.46
23	C	1202	ANP	PG-N3B	2.26	1.69	1.63
29	L	401	DGD	O2G-C2G	-2.25	1.41	1.46
25	A	1204	SQD	O47-C45	-2.24	1.41	1.46
23	C	1202	ANP	PB-O1B	2.23	1.49	1.46
25	K	302	SQD	O47-C45	-2.22	1.41	1.46
29	I	403	DGD	O6E-C5E	-2.21	1.39	1.44
22	I	402	LMG	O8-C9	-2.20	1.40	1.45
22	K	301	LMG	O6-C5	-2.20	1.39	1.44
26	D	3001	DGA	OG2-CG2	-2.20	1.41	1.46
23	F	1101	ANP	PB-O3A	-2.17	1.56	1.59
28	P	701	A1LXL	C05-C06	2.13	1.59	1.54
29	I	403	DGD	O4E-C4E	-2.12	1.38	1.43
22	K	301	LMG	O7-C8	-2.12	1.41	1.46
25	I	401	SQD	O47-C45	-2.10	1.41	1.46
29	L	401	DGD	O1G-C1G	-2.08	1.40	1.45
22	K	301	LMG	O8-C9	-2.07	1.40	1.45
26	O	3101	DGA	OG2-CG2	-2.05	1.41	1.46
29	I	403	DGD	O3D-C3D	-2.04	1.38	1.43

All (137) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
26	O	3101	DGA	CDB-CCB-CBB	-6.77	80.05	114.42
26	D	3001	DGA	CDB-CCB-CBB	-6.69	80.47	114.42
28	D	3003	A1LXL	C24-C19-C20	-6.15	106.12	112.66
28	P	701	A1LXL	C12-C11-C16	-5.46	106.30	114.38
26	O	3101	DGA	OG2-CB1-CB2	5.41	123.17	111.50
25	I	401	SQD	O6-C1-C2	5.29	116.56	108.30
25	A	1204	SQD	O6-C1-C2	5.25	116.49	108.30
28	P	701	A1LXL	C27-C12-C11	-5.21	101.99	111.71
28	P	701	A1LXL	C24-C19-C18	5.20	121.25	111.74

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
28	P	701	A1LXL	C04-C05-C06	-5.14	101.91	115.34
28	D	3003	A1LXL	C24-C19-C18	4.87	120.66	111.74
28	D	3003	A1LXL	C27-C12-C11	-4.86	102.64	111.71
28	P	701	A1LXL	C13-C12-C08	4.75	123.68	116.57
25	K	302	SQD	O6-C1-C2	4.64	115.55	108.30
29	I	403	DGD	O3G-C3G-C2G	-4.60	99.81	110.90
28	P	701	A1LXL	C10-C11-C16	4.51	126.51	119.08
28	P	701	A1LXL	C24-C19-C20	-4.49	107.89	112.66
28	D	3003	A1LXL	C12-C08-C06	-4.38	112.63	119.49
29	L	401	DGD	O3G-C3G-C2G	-4.37	100.35	110.90
25	K	302	SQD	O9-S-O7	-4.29	99.10	113.95
25	A	1204	SQD	O8-S-C6	4.18	112.40	105.74
25	K	302	SQD	O47-C7-C8	4.15	120.45	111.50
28	P	701	A1LXL	C12-C08-C06	-4.15	112.99	119.49
23	A	1202	ANP	O2B-PB-O1B	4.14	118.61	109.92
28	D	3003	A1LXL	C13-C12-C08	4.11	122.72	116.57
26	D	3001	DGA	OG2-CB1-CB2	4.07	120.26	111.50
23	E	1001	ANP	PB-O3A-PA	-4.03	118.41	132.62
23	F	1101	ANP	PB-O3A-PA	-3.99	118.58	132.62
25	I	401	SQD	O7-S-C6	3.92	111.60	106.94
25	K	302	SQD	O7-S-C6	3.79	111.44	106.94
25	K	302	SQD	O9-S-C6	3.74	111.39	106.94
25	I	401	SQD	O9-S-O7	-3.73	101.04	113.95
28	P	701	A1LXL	C21-C22-C23	3.67	115.18	110.47
25	A	1204	SQD	O9-S-O7	-3.67	101.25	113.95
25	A	1204	SQD	O9-S-C6	3.66	111.29	106.94
28	D	3003	A1LXL	C13-C12-C11	3.66	112.95	107.27
25	I	401	SQD	O9-S-C6	3.66	111.28	106.94
28	D	3003	A1LXL	C21-C22-C23	3.60	115.09	110.47
23	C	1202	ANP	PB-O3A-PA	-3.55	120.10	132.62
25	A	1204	SQD	O47-C7-C8	3.55	119.15	111.50
22	K	301	LMG	O1-C1-C2	-3.53	102.79	108.30
29	L	401	DGD	O6D-C1D-O3G	-3.52	101.64	109.97
29	I	403	DGD	O6D-C1D-O3G	-3.51	101.65	109.97
25	A	1204	SQD	O7-S-C6	3.47	111.06	106.94
28	D	3003	A1LXL	C08-C12-C11	3.40	104.10	100.07
25	K	302	SQD	C1-C2-C3	-3.38	102.95	110.00
22	K	301	LMG	O6-C1-O1	-3.35	102.03	109.97
25	A	1204	SQD	C1-C2-C3	-3.34	103.05	110.00
28	D	3003	A1LXL	C26-C20-C15	-3.32	106.61	111.18
28	P	701	A1LXL	C18-C17-C16	-3.31	106.69	112.14
28	P	701	A1LXL	C08-C12-C11	3.16	103.81	100.07

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
28	D	3003	A1LXL	C14-C15-C20	-3.11	110.33	113.91
25	I	401	SQD	O47-C7-C8	3.11	118.20	111.50
22	A	1201	LMG	O6-C1-O1	-3.03	102.79	109.97
28	D	3003	A1LXL	C27-C12-C08	-3.00	106.12	111.71
25	I	401	SQD	O5-C5-C4	2.98	115.10	109.69
25	I	401	SQD	C1-C2-C3	-2.93	103.90	110.00
29	I	403	DGD	C1D-C2D-C3D	-2.91	103.94	110.00
25	K	302	SQD	O8-S-C6	2.89	110.34	105.74
25	K	302	SQD	O5-C5-C4	2.88	114.92	109.69
22	I	402	LMG	O3-C3-C2	-2.83	103.80	110.35
22	A	1201	LMG	C1-C2-C3	-2.80	104.17	110.00
28	D	3003	A1LXL	C15-C20-C19	2.78	112.48	108.58
22	M	801	LMG	O1-C7-C8	-2.76	104.24	110.90
25	I	401	SQD	O8-S-C6	2.68	110.02	105.74
28	P	701	A1LXL	C26-C20-C15	-2.68	107.49	111.18
25	I	401	SQD	O48-C23-C24	2.68	120.31	111.91
22	K	301	LMG	O3-C3-C2	-2.66	104.21	110.35
29	L	401	DGD	C3G-C2G-C1G	-2.65	105.52	111.79
28	D	3003	A1LXL	C27-C12-C13	-2.65	106.41	110.59
28	P	701	A1LXL	C27-C12-C13	-2.63	106.43	110.59
26	O	3101	DGA	OG1-CA1-CA2	2.63	120.15	111.91
22	A	1201	LMG	O3-C3-C2	-2.62	104.28	110.35
22	M	801	LMG	C1-C2-C3	-2.62	104.53	110.00
28	P	701	A1LXL	C13-C12-C11	2.62	111.34	107.27
26	D	3001	DGA	OG1-CA1-CA2	2.62	120.12	111.91
28	P	701	A1LXL	C20-C15-C16	-2.59	109.70	112.42
22	K	301	LMG	O1-C7-C8	-2.58	104.67	110.90
28	D	3003	A1LXL	C21-C20-C19	2.58	111.58	107.77
22	I	402	LMG	C1-C2-C3	-2.56	104.66	110.00
28	D	3003	A1LXL	C11-C16-C15	2.56	112.52	109.09
25	A	1204	SQD	O48-C23-O10	-2.54	117.19	123.59
25	A	1204	SQD	O5-C5-C4	2.50	114.24	109.69
26	O	3101	DGA	CB3-CB2-CB1	-2.50	104.52	113.62
28	P	701	A1LXL	C24-C23-C22	2.50	113.54	110.55
29	I	403	DGD	O3E-C3E-C2E	-2.50	104.57	110.35
25	K	302	SQD	O48-C23-C24	2.48	119.69	111.91
22	I	402	LMG	O6-C1-C2	-2.46	105.14	110.35
22	K	301	LMG	O2-C2-C1	-2.45	104.10	110.05
22	M	801	LMG	C40-C39-C38	-2.44	102.04	114.42
29	I	403	DGD	O2D-C2D-C1D	-2.44	104.12	110.05
22	M	801	LMG	O1-C1-C2	-2.43	104.50	108.30
22	M	801	LMG	C38-C37-C36	-2.42	102.13	114.42

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
22	I	402	LMG	O2-C2-C1	-2.42	104.17	110.05
22	M	801	LMG	O3-C3-C2	-2.42	104.76	110.35
22	C	1201	LMG	O1-C7-C8	-2.40	105.41	111.78
22	M	801	LMG	O6-C1-O1	-2.40	104.29	109.97
22	K	301	LMG	O7-C10-O9	-2.39	117.94	123.70
25	I	401	SQD	C3-C4-C5	2.38	114.48	110.24
22	A	1201	LMG	C38-C37-C36	-2.35	102.52	114.42
23	A	1202	ANP	O2G-PG-O1G	-2.33	107.59	113.45
29	L	401	DGD	C3D-C4D-C5D	-2.32	106.09	110.24
22	A	1201	LMG	O2-C2-C1	-2.30	104.46	110.05
27	M	802	Y01	CAP-CAQ-CBG	-2.29	100.60	105.13
26	O	3101	DGA	CG1-CG2-CG3	-2.27	106.48	111.80
23	F	1101	ANP	C5-C6-N6	2.27	123.80	120.35
28	P	701	A1LXL	C18-C19-C20	2.27	116.38	112.31
23	E	1001	ANP	C5-C6-N6	2.26	123.79	120.35
29	I	403	DGD	C3G-C2G-C1G	-2.25	106.46	111.79
28	P	701	A1LXL	C27-C12-C08	-2.25	107.52	111.71
23	C	1202	ANP	C5-C6-N6	2.24	123.76	120.35
22	I	402	LMG	O6-C1-O1	-2.21	104.73	109.97
22	I	402	LMG	O7-C10-O9	-2.21	118.36	123.70
23	A	1202	ANP	C5-C6-N6	2.21	123.71	120.35
29	L	401	DGD	O2D-C2D-C1D	-2.20	104.71	110.05
22	K	301	LMG	C6-C5-C4	-2.19	107.86	113.00
22	A	1201	LMG	C1-O6-C5	-2.18	109.41	113.69
22	I	402	LMG	O8-C28-O10	-2.18	118.10	123.59
25	K	302	SQD	O48-C23-O10	-2.16	118.13	123.59
29	L	401	DGD	O3G-C1D-C2D	-2.12	104.99	108.30
28	D	3003	A1LXL	C04-C03-C28	-2.12	107.30	112.36
29	I	403	DGD	O4D-C4D-C5D	-2.11	104.05	109.30
28	P	701	A1LXL	C07-C06-C05	-2.11	107.06	110.36
22	M	801	LMG	O2-C2-C1	-2.11	104.93	110.05
28	P	701	A1LXL	C04-C03-C28	-2.10	107.32	112.36
22	A	1201	LMG	O1-C7-C8	-2.09	105.85	110.90
29	I	403	DGD	O5D-C6D-C5D	-2.09	105.19	109.05
28	P	701	A1LXL	C09-C08-C06	-2.06	108.96	112.15
29	L	401	DGD	O4D-C4D-C5D	-2.06	104.19	109.30
25	A	1204	SQD	O48-C23-C24	2.05	118.34	111.91
29	L	401	DGD	C4E-C3E-C2E	-2.04	107.25	110.82
28	D	3003	A1LXL	C18-C19-C20	2.04	115.97	112.31
29	I	403	DGD	O6D-C5D-C6D	-2.04	102.55	106.67
22	I	402	LMG	C1-O6-C5	-2.02	109.73	113.69
25	A	1204	SQD	C45-O47-C7	2.01	122.75	117.79

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
22	K	301	LMG	C3-C4-C5	-2.01	106.65	110.24
23	C	1202	ANP	C3'-C2'-C1'	2.00	104.00	100.98

There are no chirality outliers.

All (254) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
22	C	1201	LMG	O1-C7-C8-C9
22	C	1201	LMG	O1-C7-C8-O7
22	I	402	LMG	O6-C1-O1-C7
22	I	402	LMG	C11-C10-O7-C8
22	K	301	LMG	O7-C8-C9-O8
23	A	1202	ANP	PB-N3B-PG-O1G
23	A	1202	ANP	PG-N3B-PB-O1B
23	A	1202	ANP	C5'-O5'-PA-O3A
23	C	1202	ANP	PG-N3B-PB-O1B
23	C	1202	ANP	PG-N3B-PB-O3A
23	C	1202	ANP	C5'-O5'-PA-O1A
23	E	1001	ANP	C5'-O5'-PA-O2A
23	F	1101	ANP	PB-N3B-PG-O1G
23	F	1101	ANP	PA-O3A-PB-O2B
25	I	401	SQD	C5-C6-S-O7
25	I	401	SQD	C5-C6-S-O8
25	I	401	SQD	C5-C6-S-O9
25	K	302	SQD	O49-C7-O47-C45
25	K	302	SQD	C8-C7-O47-C45
25	K	302	SQD	C5-C6-S-O7
26	D	3001	DGA	CB2-CB1-OG2-CG2
26	O	3101	DGA	CG1-CG2-CG3-OXT
26	O	3101	DGA	OG2-CG2-CG3-OXT
28	D	3003	A1LXL	C03-C04-C05-C06
28	P	701	A1LXL	C01-C02-C03-C04
27	D	3002	Y01	CAJ-CAO-CBB-CAC
25	A	1204	SQD	O10-C23-O48-C46
25	I	401	SQD	O49-C7-O47-C45
26	D	3001	DGA	OB1-CB1-OG2-CG2
22	M	801	LMG	C4-C5-C6-O5
28	P	701	A1LXL	C04-C05-C06-C07
22	I	402	LMG	O9-C10-O7-C8
27	D	3002	Y01	OAG-CAY-OAW-CBC
22	A	1201	LMG	O10-C28-O8-C9
22	A	1201	LMG	C4-C5-C6-O5

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Mol	Chain	Res	Type	Atoms
25	A	1204	SQD	C24-C23-O48-C46
27	D	3002	Y01	CAM-CAY-OAW-CBC
22	I	402	LMG	O6-C5-C6-O5
22	M	801	LMG	O6-C5-C6-O5
22	A	1201	LMG	O6-C5-C6-O5
22	M	801	LMG	O10-C28-O8-C9
22	M	801	LMG	O6-C1-O1-C7
26	D	3001	DGA	CA2-CA1-OG1-CG1
22	A	1201	LMG	C29-C28-O8-C9
22	M	801	LMG	C29-C28-O8-C9
26	O	3101	DGA	CA2-CA1-OG1-CG1
28	P	701	A1LXL	C04-C05-C06-C08
29	L	401	DGD	C1B-C2B-C3B-C4B
22	A	1201	LMG	C30-C31-C32-C33
26	O	3101	DGA	CB1-CB2-CB3-CB4
29	I	403	DGD	C1B-C2B-C3B-C4B
26	O	3101	DGA	CA6-CA7-CA8-CA9
22	M	801	LMG	O9-C10-O7-C8
22	C	1201	LMG	C10-C11-C12-C13
26	O	3101	DGA	CA1-CA2-CA3-CA4
29	I	403	DGD	O6D-C1D-O3G-C3G
26	O	3101	DGA	OA1-CA1-OG1-CG1
26	D	3001	DGA	OA1-CA1-OG1-CG1
22	M	801	LMG	C11-C10-O7-C8
28	P	701	A1LXL	C02-C03-C28-C29
22	I	402	LMG	C29-C28-O8-C9
27	D	3002	Y01	CAX-CAL-CAM-CAY
29	L	401	DGD	C2B-C1B-O2G-C2G
22	C	1201	LMG	C13-C14-C15-C16
22	K	301	LMG	C31-C32-C33-C34
25	K	302	SQD	C24-C25-C26-C27
26	O	3101	DGA	CB5-CB6-CB7-CB8
25	K	302	SQD	C11-C10-C9-C8
25	K	302	SQD	C26-C27-C28-C29
22	M	801	LMG	C13-C14-C15-C16
22	C	1201	LMG	C32-C33-C34-C35
25	K	302	SQD	C10-C11-C12-C13
26	D	3001	DGA	CA4-CA5-CA6-CA7
25	I	401	SQD	C30-C31-C32-C33
22	M	801	LMG	C12-C13-C14-C15
22	M	801	LMG	C17-C18-C19-C20
22	M	801	LMG	C33-C34-C35-C36

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Mol	Chain	Res	Type	Atoms
26	D	3001	DGA	CAB-CBB-CCB-CDB
26	O	3101	DGA	CB4-CB5-CB6-CB7
26	O	3101	DGA	CB6-CB7-CB8-CB9
22	K	301	LMG	C18-C19-C20-C21
26	D	3001	DGA	CBB-CCB-CDB-CEB
25	I	401	SQD	C8-C7-O47-C45
22	C	1201	LMG	C28-C29-C30-C31
22	M	801	LMG	C38-C39-C40-C41
22	A	1201	LMG	C32-C33-C34-C35
25	K	302	SQD	C32-C33-C34-C35
22	I	402	LMG	C13-C14-C15-C16
22	K	301	LMG	C15-C16-C17-C18
26	O	3101	DGA	CDB-CEB-CFB-CGB
29	I	403	DGD	O1A-C1A-O1G-C1G
28	D	3003	A1LXL	C01-C02-C03-C04
26	D	3001	DGA	CA2-CA3-CA4-CA5
25	K	302	SQD	C30-C31-C32-C33
26	O	3101	DGA	CB2-CB1-OG2-CG2
25	A	1204	SQD	C13-C14-C15-C16
25	A	1204	SQD	C9-C10-C11-C12
26	O	3101	DGA	OB1-CB1-OG2-CG2
22	K	301	LMG	C16-C17-C18-C19
26	D	3001	DGA	CB2-CB3-CB4-CB5
22	A	1201	LMG	C29-C30-C31-C32
25	I	401	SQD	C11-C12-C13-C14
29	I	403	DGD	C2B-C3B-C4B-C5B
22	A	1201	LMG	C35-C36-C37-C38
22	M	801	LMG	C11-C12-C13-C14
25	I	401	SQD	C9-C10-C11-C12
25	A	1204	SQD	C10-C11-C12-C13
25	K	302	SQD	C7-C8-C9-C10
22	M	801	LMG	C32-C33-C34-C35
22	I	402	LMG	C4-C5-C6-O5
29	I	403	DGD	C2B-C1B-O2G-C2G
26	O	3101	DGA	CAB-CBB-CCB-CDB
22	I	402	LMG	C2-C1-O1-C7
29	I	403	DGD	C2D-C1D-O3G-C3G
25	A	1204	SQD	O47-C45-C46-O48
26	D	3001	DGA	CB6-CB7-CB8-CB9
26	D	3001	DGA	CBB-CAB-CB9-CB8
28	D	3003	A1LXL	C01-C02-C03-C28
28	P	701	A1LXL	C01-C02-C03-C28

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Mol	Chain	Res	Type	Atoms
25	I	401	SQD	C12-C13-C14-C15
22	A	1201	LMG	C33-C34-C35-C36
26	O	3101	DGA	CBB-CCB-CDB-CEB
29	L	401	DGD	O1B-C1B-O2G-C2G
22	C	1201	LMG	C11-C10-O7-C8
22	M	801	LMG	C14-C15-C16-C17
26	D	3001	DGA	CB4-CB5-CB6-CB7
22	M	801	LMG	C37-C38-C39-C40
28	P	701	A1LXL	C04-C03-C28-C29
22	K	301	LMG	C30-C31-C32-C33
25	A	1204	SQD	C8-C7-O47-C45
25	A	1204	SQD	C26-C27-C28-C29
22	K	301	LMG	C7-C8-C9-O8
25	I	401	SQD	C44-C45-C46-O48
29	L	401	DGD	O1G-C1G-C2G-C3G
29	I	403	DGD	C3B-C4B-C5B-C6B
26	O	3101	DGA	CA8-CA9-CAA-CBA
26	D	3001	DGA	CA6-CA7-CA8-CA9
22	A	1201	LMG	C16-C17-C18-C19
22	I	402	LMG	C28-C29-C30-C31
22	A	1201	LMG	C31-C32-C33-C34
22	K	301	LMG	C32-C33-C34-C35
26	D	3001	DGA	CB3-CB4-CB5-CB6
22	A	1201	LMG	O7-C8-C9-O8
25	A	1204	SQD	C25-C26-C27-C28
26	O	3101	DGA	CA5-CA6-CA7-CA8
27	D	3002	Y01	CAO-CAJ-CAN-CBA
22	K	301	LMG	C13-C14-C15-C16
26	O	3101	DGA	CBB-CAB-CB9-CB8
22	K	301	LMG	C17-C18-C19-C20
29	I	403	DGD	C2A-C1A-O1G-C1G
29	I	403	DGD	O6E-C5E-C6E-O5E
22	M	801	LMG	O1-C7-C8-C9
25	A	1204	SQD	C44-C45-C46-O48
25	K	302	SQD	C44-C45-C46-O48
22	C	1201	LMG	C30-C31-C32-C33
25	A	1204	SQD	C12-C13-C14-C15
22	M	801	LMG	C18-C19-C20-C21
28	D	3003	A1LXL	C04-C03-C28-C30
28	P	701	A1LXL	C02-C03-C28-C30
28	P	701	A1LXL	C04-C03-C28-C30
26	D	3001	DGA	CCB-CDB-CEB-CFB

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Mol	Chain	Res	Type	Atoms
22	A	1201	LMG	C19-C20-C21-C22
29	L	401	DGD	O6D-C1D-O3G-C3G
25	K	302	SQD	C25-C26-C27-C28
29	L	401	DGD	O1G-C1A-C2A-C3A
22	C	1201	LMG	C33-C34-C35-C36
23	F	1101	ANP	O4'-C4'-C5'-O5'
25	K	302	SQD	C31-C32-C33-C34
25	K	302	SQD	C12-C13-C14-C15
29	L	401	DGD	C2B-C3B-C4B-C5B
22	C	1201	LMG	C29-C30-C31-C32
22	A	1201	LMG	C7-C8-C9-O8
22	I	402	LMG	O1-C7-C8-C9
25	K	302	SQD	O47-C45-C46-O48
22	M	801	LMG	C35-C36-C37-C38
23	C	1202	ANP	C5'-O5'-PA-O3A
23	E	1001	ANP	C5'-O5'-PA-O3A
22	M	801	LMG	C34-C35-C36-C37
23	F	1101	ANP	C3'-C4'-C5'-O5'
22	A	1201	LMG	C15-C16-C17-C18
25	I	401	SQD	C7-C8-C9-C10
27	D	3002	Y01	CAJ-CAO-CBB-CBE
23	A	1202	ANP	C5'-O5'-PA-O1A
23	C	1202	ANP	C5'-O5'-PA-O2A
23	E	1001	ANP	C5'-O5'-PA-O1A
25	A	1204	SQD	O5-C1-O6-C44
28	D	3003	A1LXL	C02-C03-C28-C29
25	A	1204	SQD	C11-C12-C13-C14
22	M	801	LMG	O1-C7-C8-O7
25	I	401	SQD	O6-C44-C45-O47
25	I	401	SQD	O47-C45-C46-O48
29	L	401	DGD	O1G-C1G-C2G-O2G
26	O	3101	DGA	CB7-CB8-CB9-CAB
26	O	3101	DGA	CA9-CAA-CBA-CCA
22	A	1201	LMG	C37-C38-C39-C40
28	D	3003	A1LXL	C07-C06-C08-C12
22	I	402	LMG	O10-C28-O8-C9
25	I	401	SQD	C10-C11-C12-C13
22	M	801	LMG	C7-C8-O7-C10
28	D	3003	A1LXL	C02-C03-C04-C05
28	P	701	A1LXL	C02-C03-C04-C05
27	D	3002	Y01	CAO-CBB-CBE-CAP
22	K	301	LMG	O6-C1-O1-C7

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Mol	Chain	Res	Type	Atoms
27	D	3002	Y01	CAC-CBB-CBE-CBI
22	A	1201	LMG	C11-C12-C13-C14
26	O	3101	DGA	CB9-CAB-CBB-CCB
26	D	3001	DGA	CA8-CA9-CAA-CBA
25	K	302	SQD	C29-C30-C31-C32
26	O	3101	DGA	CB2-CB3-CB4-CB5
25	I	401	SQD	C25-C26-C27-C28
27	D	3002	Y01	CAO-CBB-CBE-CBI
29	L	401	DGD	C2D-C1D-O3G-C3G
22	I	402	LMG	C7-C8-C9-O8
29	L	401	DGD	C2A-C3A-C4A-C5A
25	A	1204	SQD	C28-C29-C30-C31
27	D	3002	Y01	CAJ-CAN-CBA-CAA
22	K	301	LMG	C20-C21-C22-C23
22	I	402	LMG	O7-C8-C9-O8
25	A	1204	SQD	C30-C31-C32-C33
27	D	3002	Y01	CAM-CAL-CAX-OAH
27	D	3002	Y01	CAC-CBB-CBE-CAP
29	I	403	DGD	C4E-C5E-C6E-O5E
27	M	802	Y01	CAO-CAJ-CAN-CBA
25	I	401	SQD	C27-C28-C29-C30
22	A	1201	LMG	C17-C18-C19-C20
25	I	401	SQD	C34-C35-C36-C37
22	M	801	LMG	C28-C29-C30-C31
26	O	3101	DGA	OG1-CA1-CA2-CA3
25	A	1204	SQD	C14-C15-C16-C17
27	D	3002	Y01	CAM-CAL-CAX-OAF
25	A	1204	SQD	O47-C7-C8-C9
25	A	1204	SQD	O48-C23-C24-C25
22	K	301	LMG	O1-C7-C8-C9
25	I	401	SQD	O6-C44-C45-C46
22	I	402	LMG	O8-C28-C29-C30
25	A	1204	SQD	C24-C25-C26-C27
22	C	1201	LMG	C14-C15-C16-C17
22	I	402	LMG	O1-C7-C8-O7
29	I	403	DGD	O2G-C1B-C2B-C3B
22	I	402	LMG	C11-C12-C13-C14
25	K	302	SQD	C5-C6-S-O8
26	O	3101	DGA	OA1-CA1-CA2-CA3
26	O	3101	DGA	CA3-CA4-CA5-CA6
27	M	802	Y01	CAM-CAL-CAX-OAH
22	C	1201	LMG	O9-C10-O7-C8

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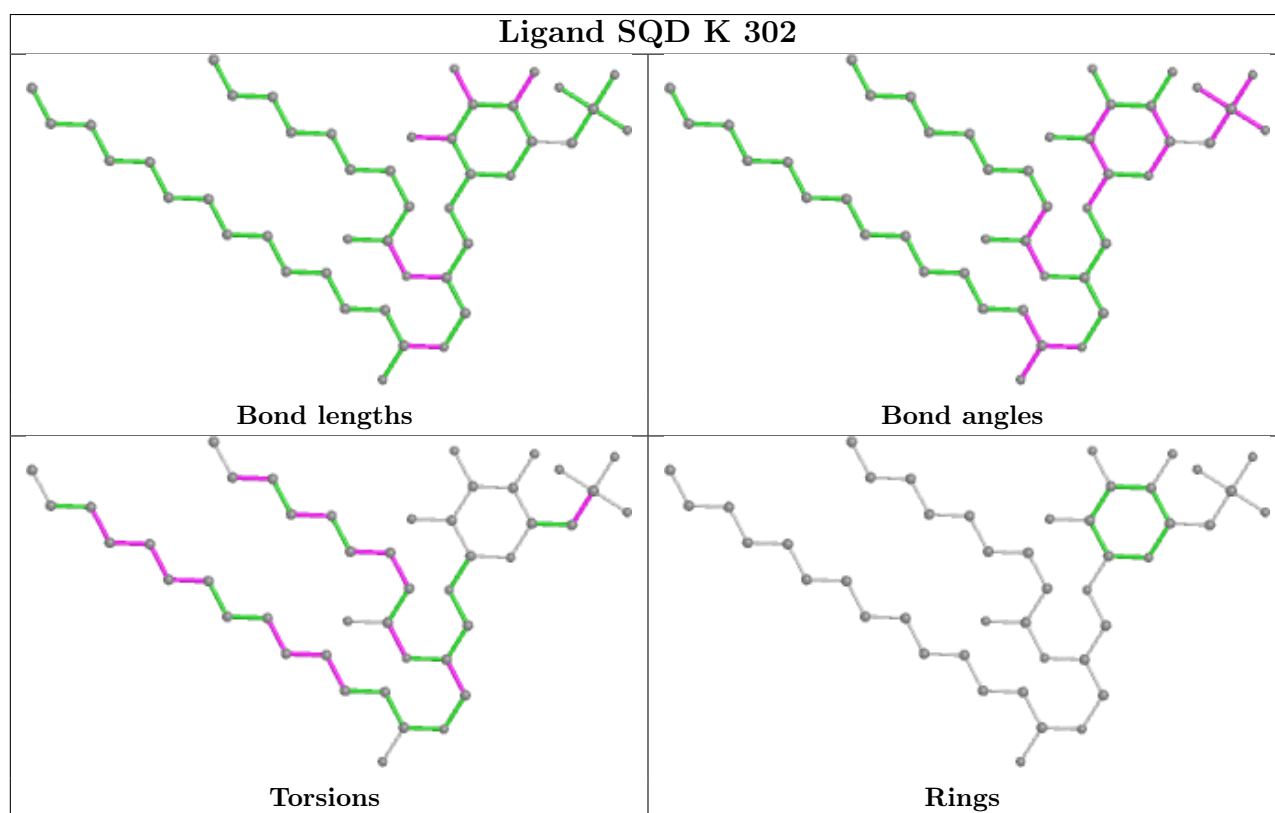
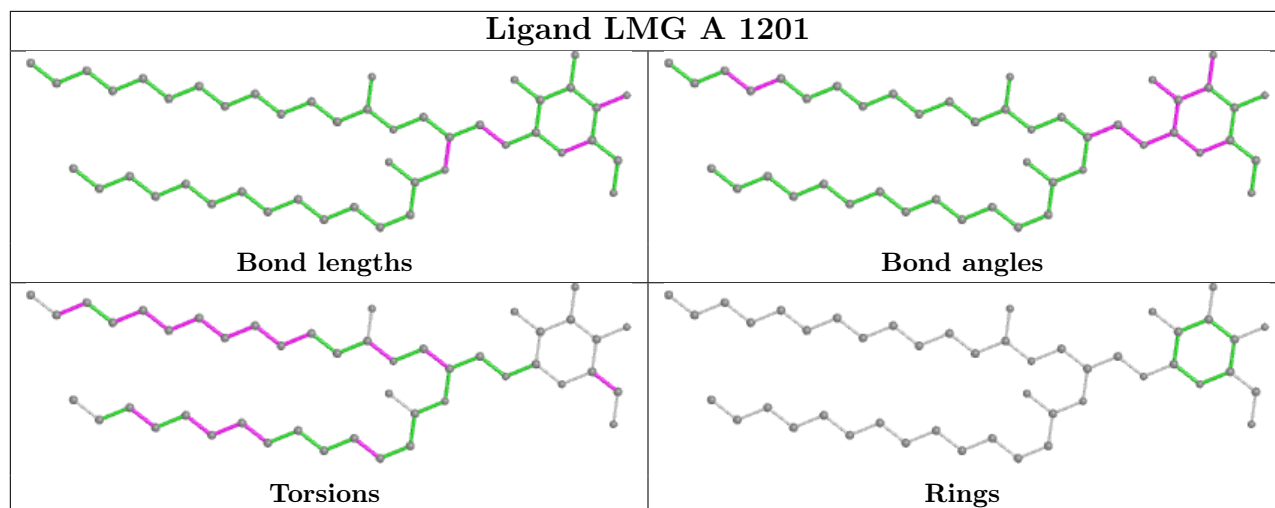
Mol	Chain	Res	Type	Atoms
26	D	3001	DGA	OG1-CA1-CA2-CA3
29	L	401	DGD	O2G-C1B-C2B-C3B
22	A	1201	LMG	C34-C35-C36-C37
23	F	1101	ANP	PG-N3B-PB-O3A
29	I	403	DGD	O1B-C1B-C2B-C3B
27	M	802	Y01	CAJ-CAN-CBA-CAB
28	D	3003	A1LXL	C28-C03-C04-C05
28	P	701	A1LXL	C28-C03-C04-C05
28	D	3003	A1LXL	C05-C06-C08-C12

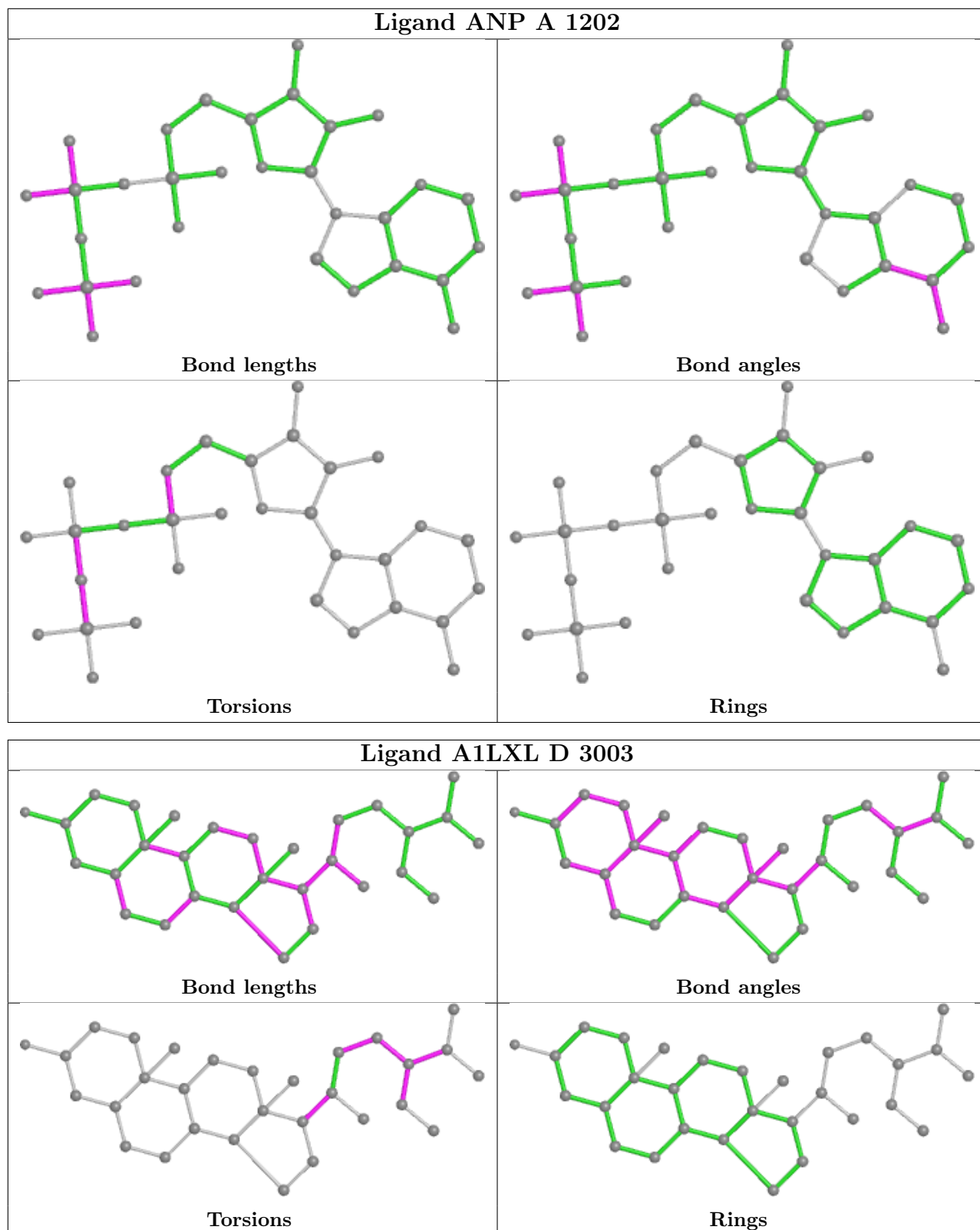
There are no ring outliers.

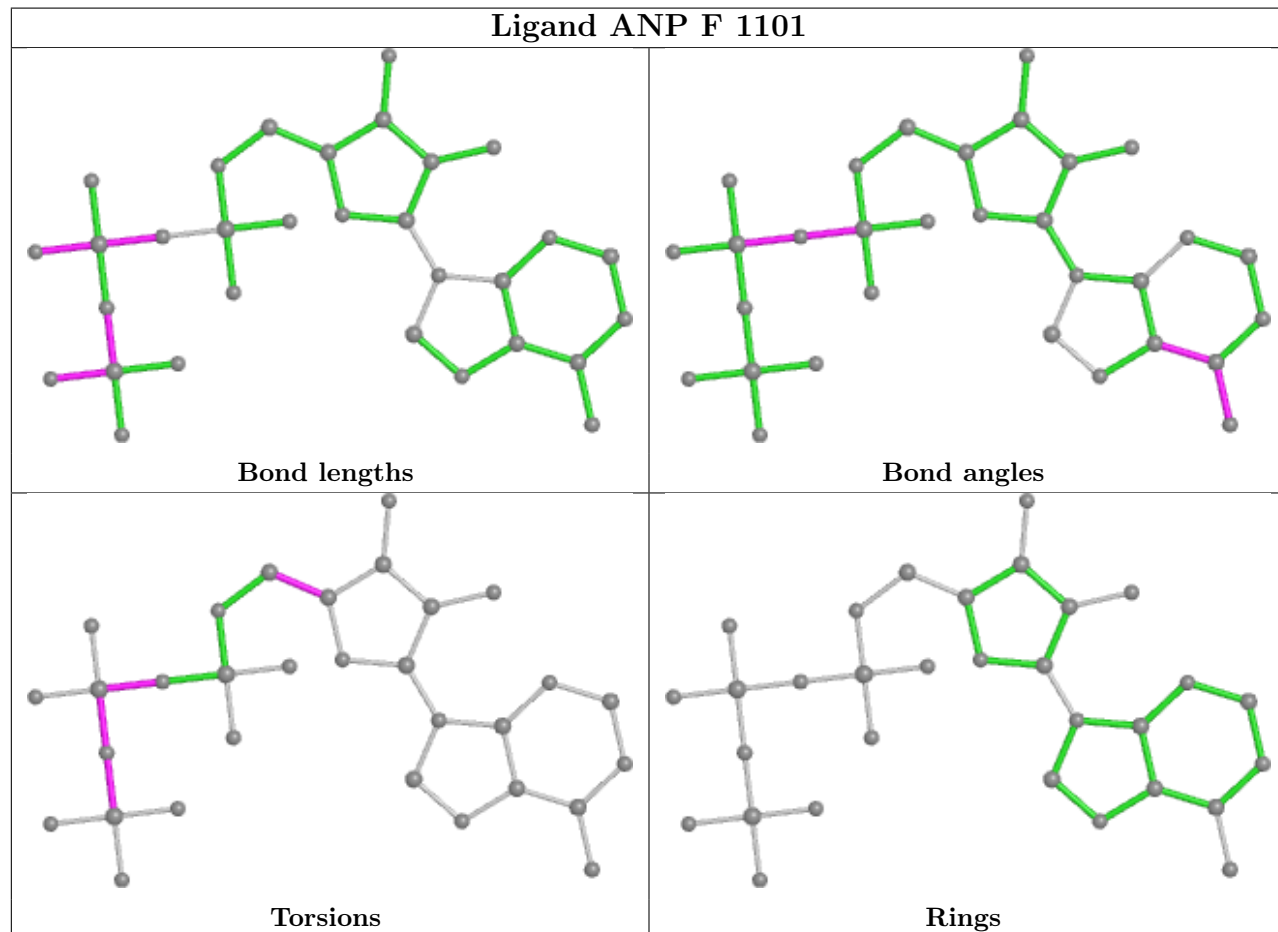
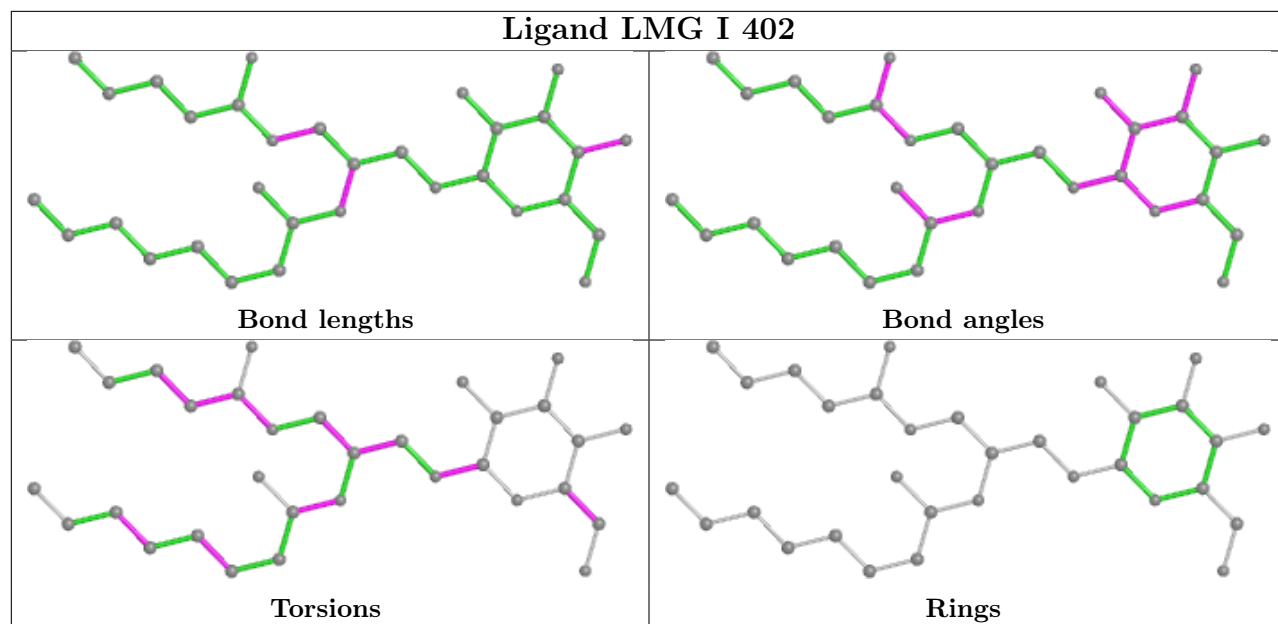
12 monomers are involved in 28 short contacts:

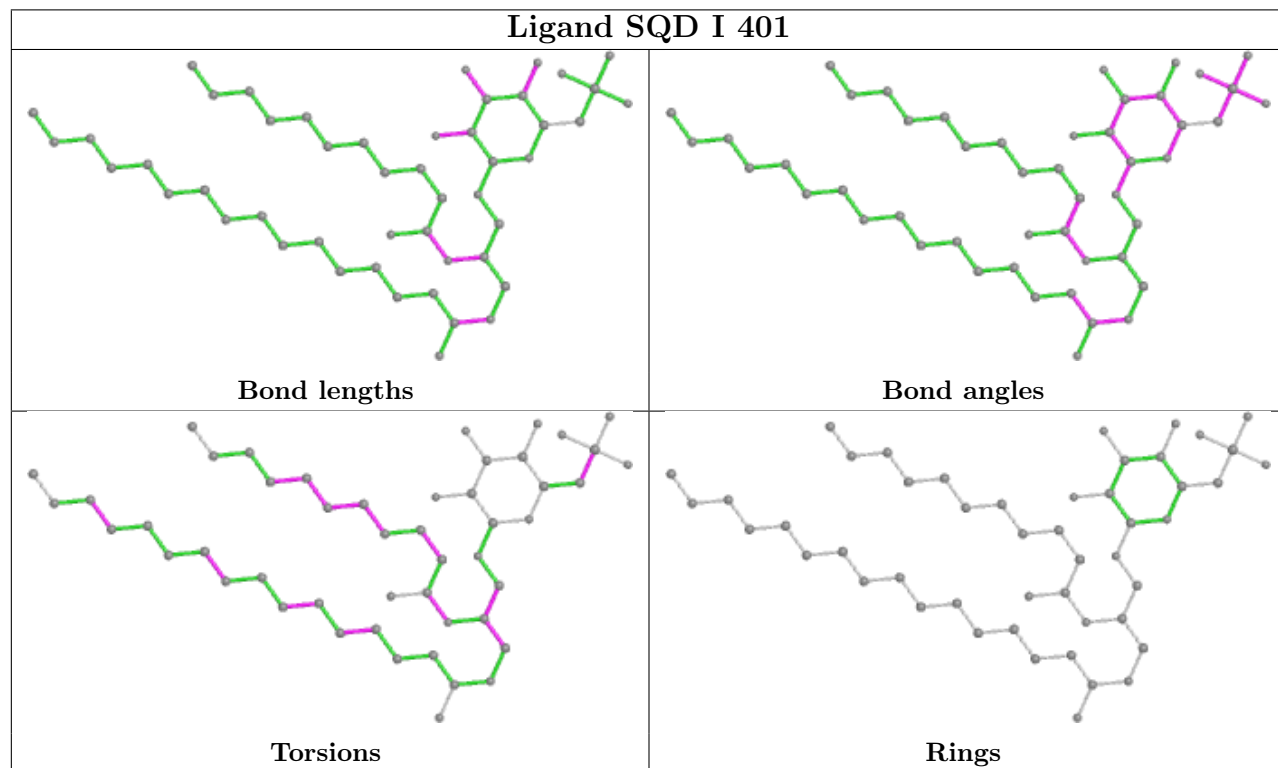
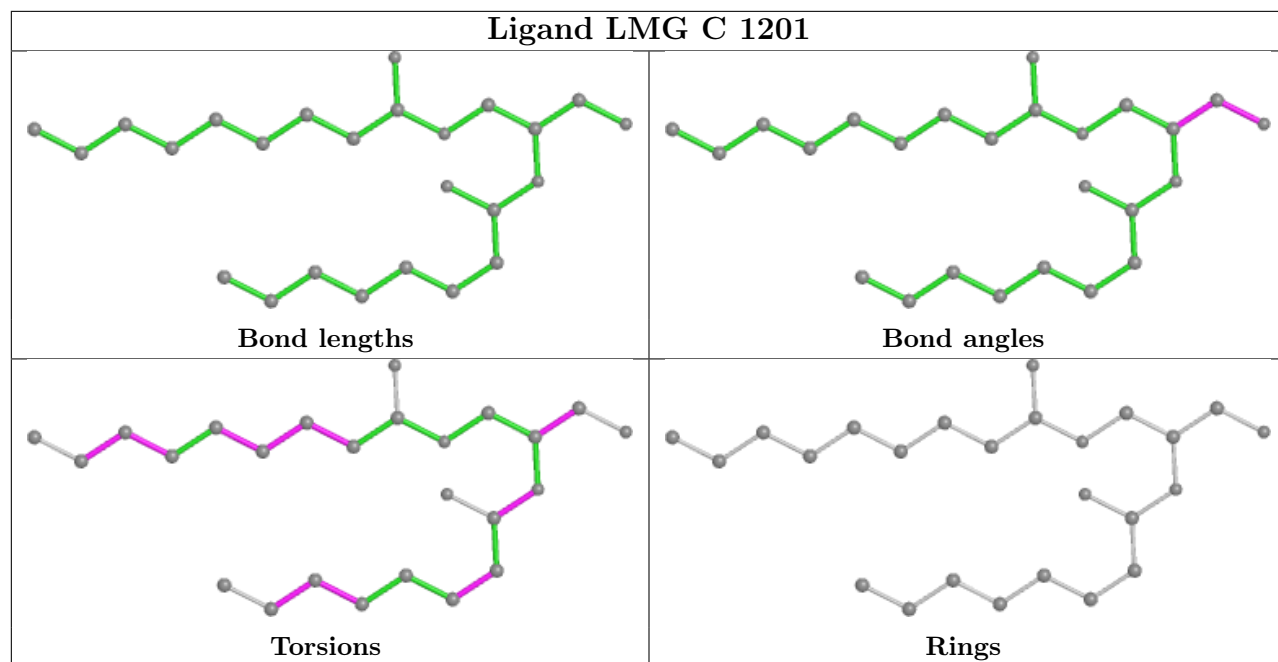
Mol	Chain	Res	Type	Clashes	Symm-Clashes
22	A	1201	LMG	3	0
23	A	1202	ANP	1	0
28	D	3003	A1LXL	4	0
22	I	402	LMG	1	0
25	I	401	SQD	3	0
27	M	802	Y01	1	0
26	O	3101	DGA	3	0
22	M	801	LMG	2	0
23	C	1202	ANP	1	0
28	P	701	A1LXL	7	0
26	D	3001	DGA	1	0
23	E	1001	ANP	2	0

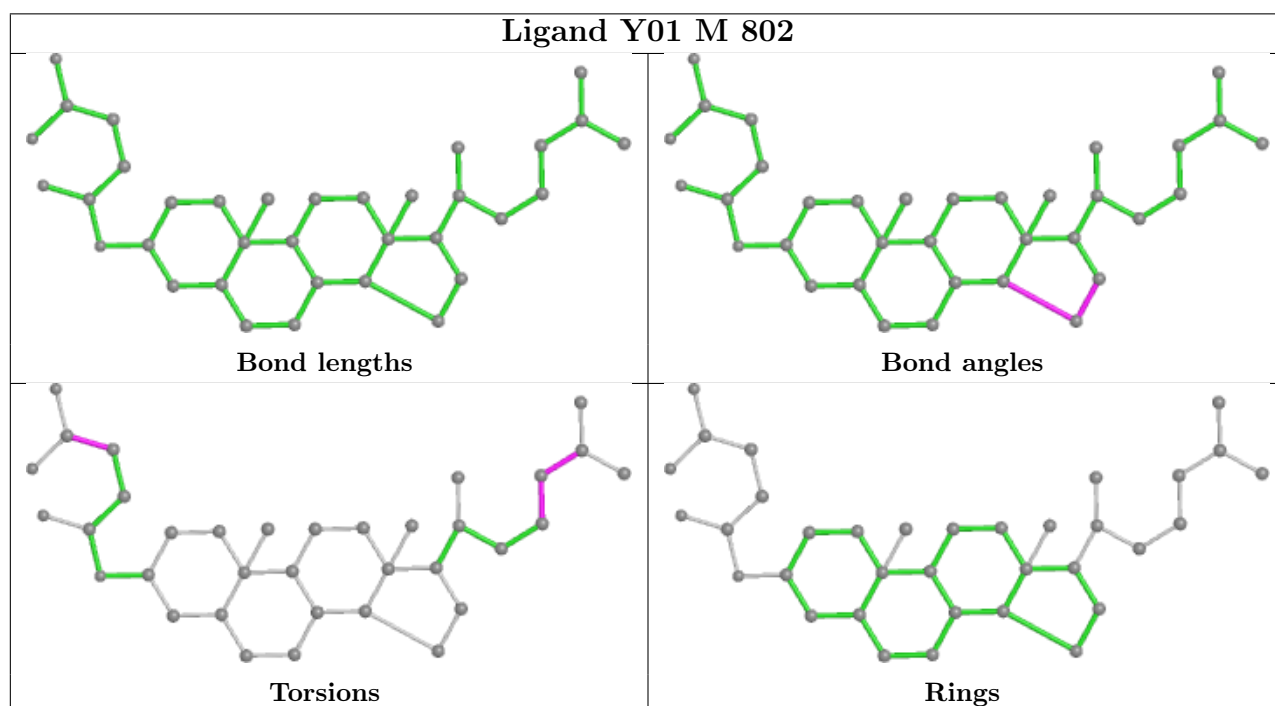
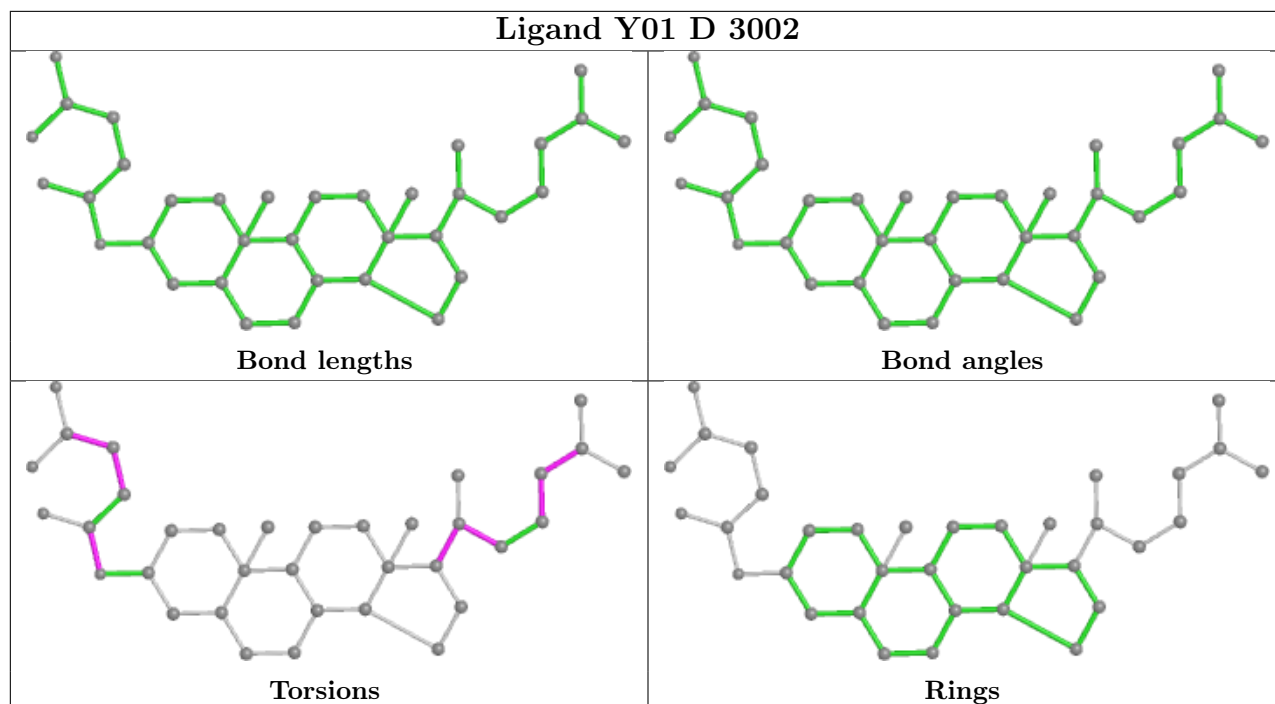
The following is a two-dimensional graphical depiction of Mogul quality analysis of bond lengths, bond angles, torsion angles, and ring geometry for all instances of the Ligand of Interest. In addition, ligands with molecular weight > 250 and outliers as shown on the validation Tables will also be included. For torsion angles, if less than 5% of the Mogul distribution of torsion angles is within 10 degrees of the torsion angle in question, then that torsion angle is considered an outlier. Any bond that is central to one or more torsion angles identified as an outlier by Mogul will be highlighted in the graph. For rings, the root-mean-square deviation (RMSD) between the ring in question and similar rings identified by Mogul is calculated over all ring torsion angles. If the average RMSD is greater than 60 degrees and the minimal RMSD between the ring in question and any Mogul-identified rings is also greater than 60 degrees, then that ring is considered an outlier. The outliers are highlighted in purple. The color gray indicates Mogul did not find sufficient equivalents in the CSD to analyse the geometry.

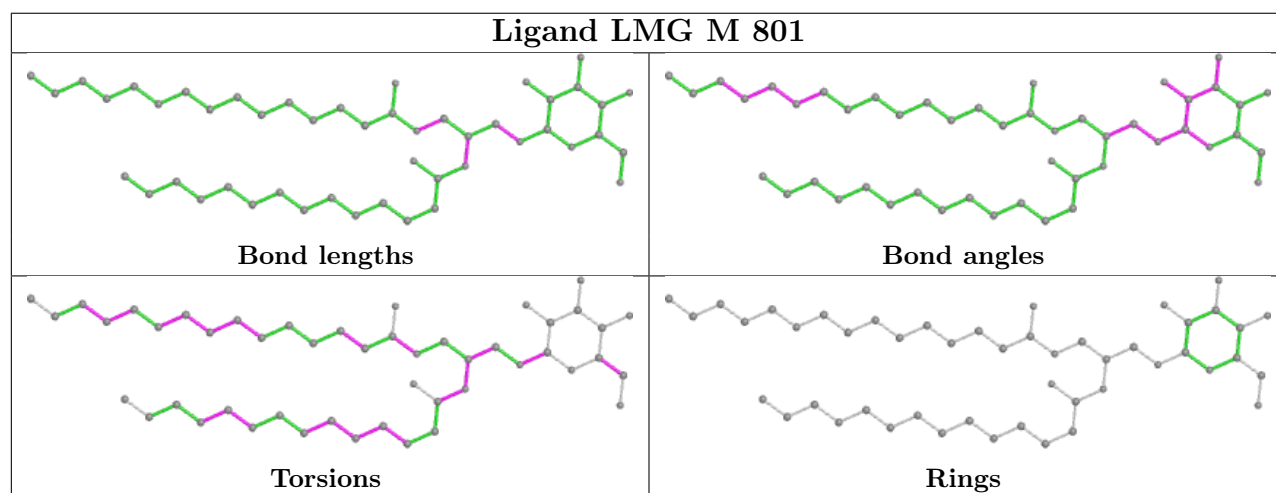
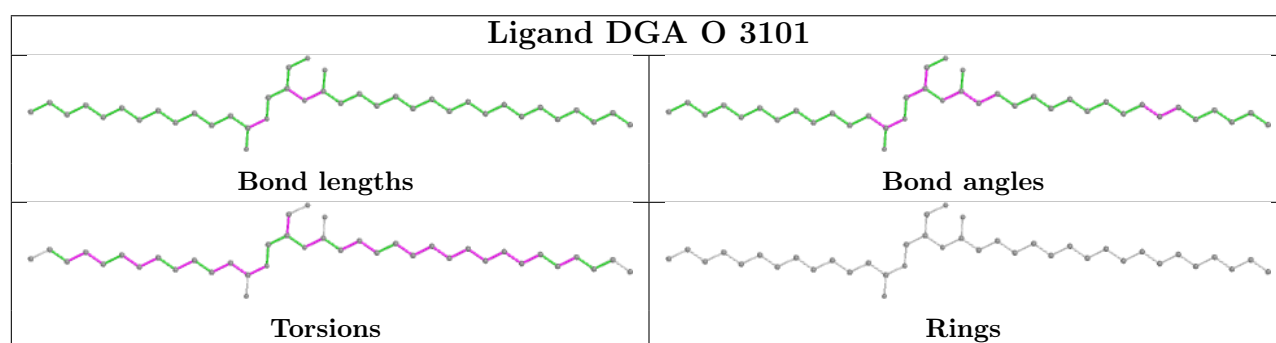
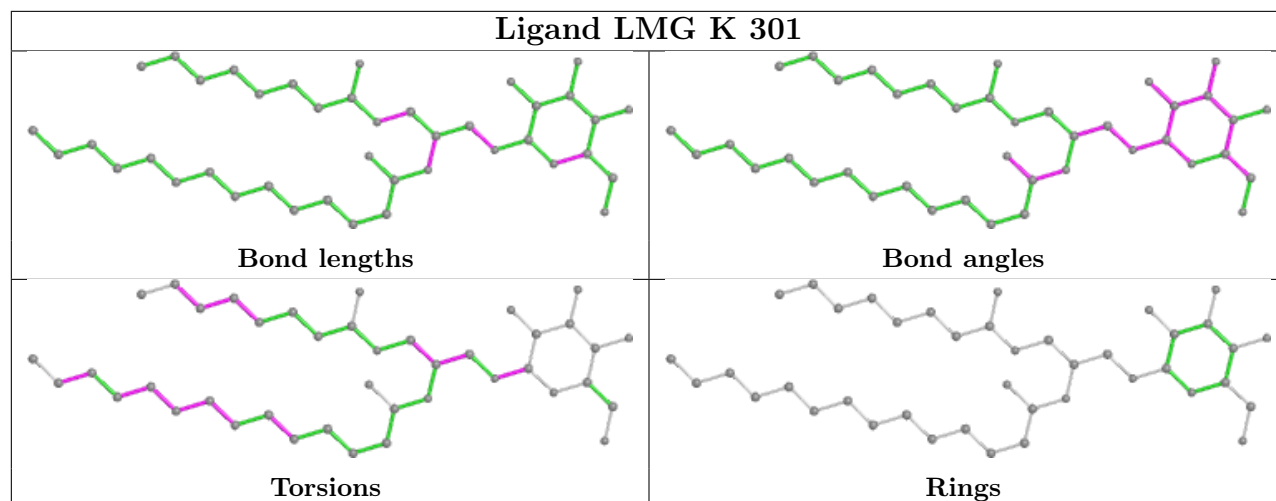


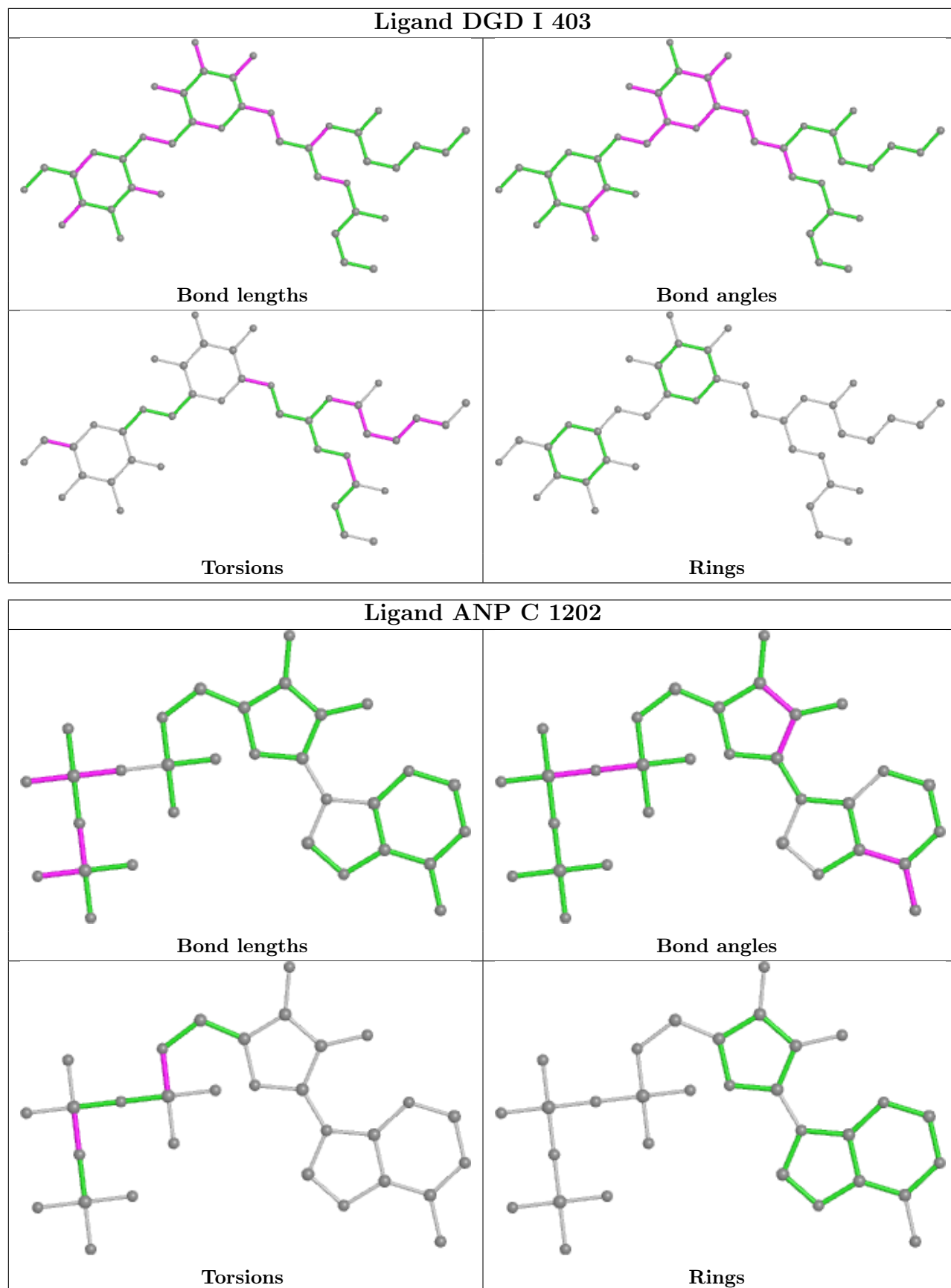


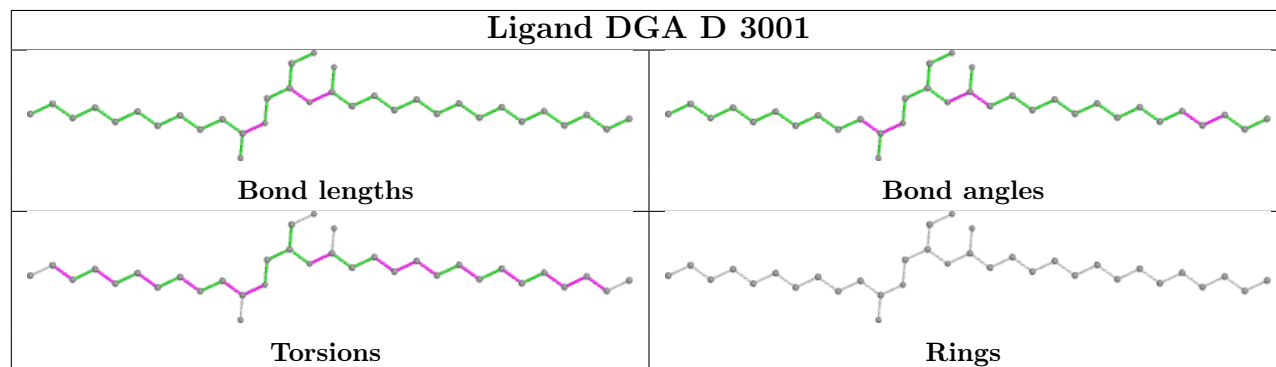
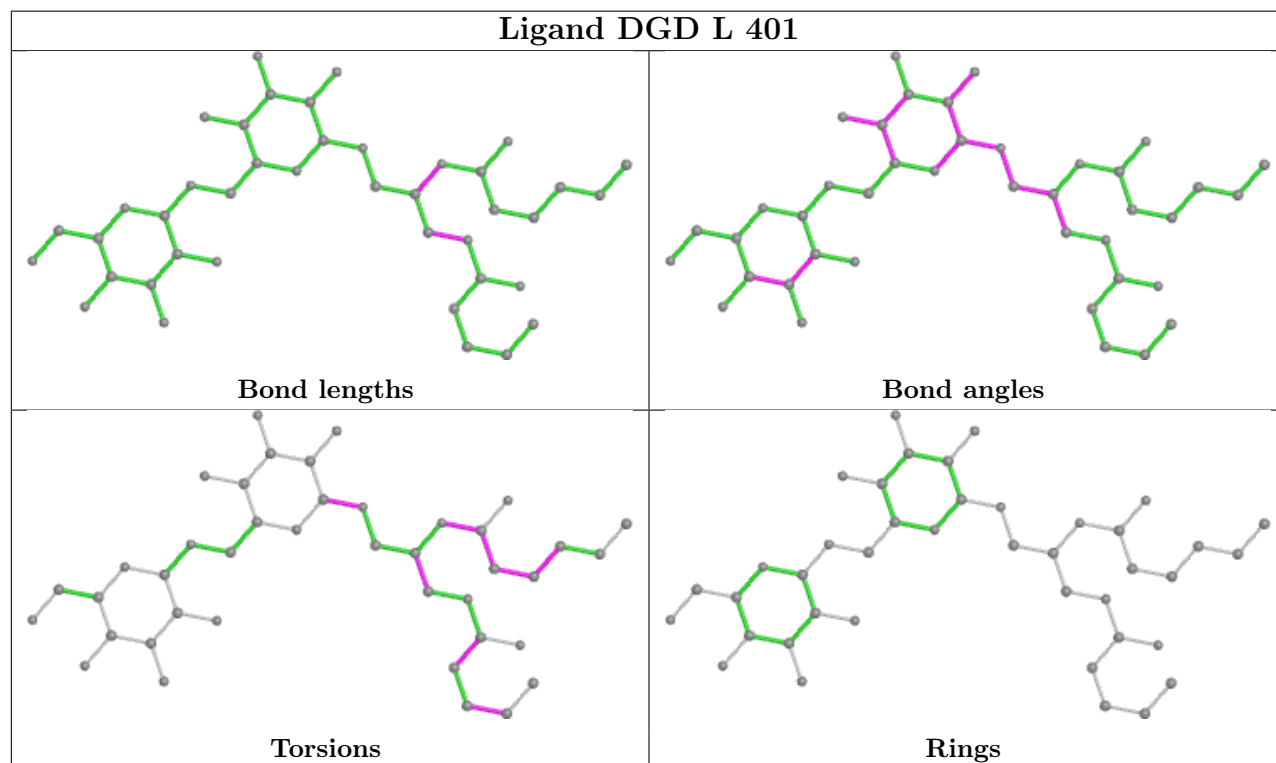
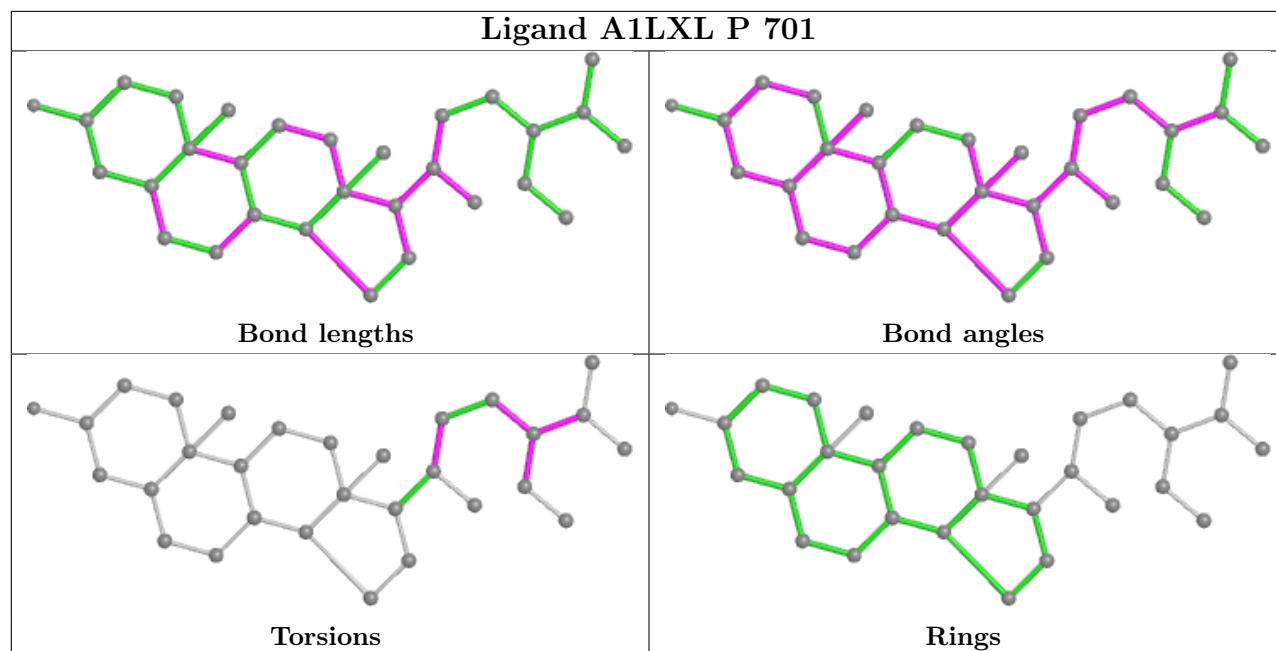


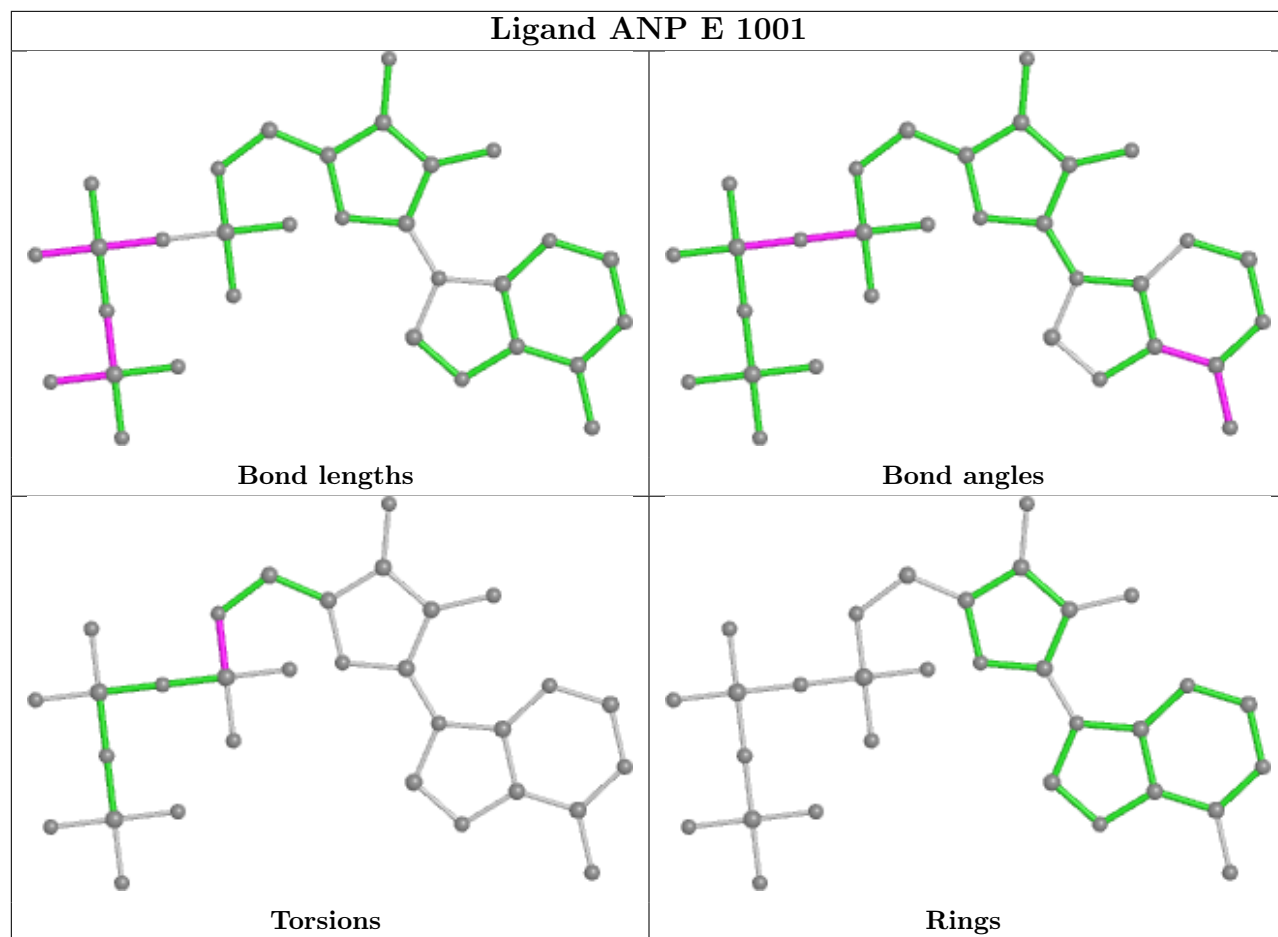


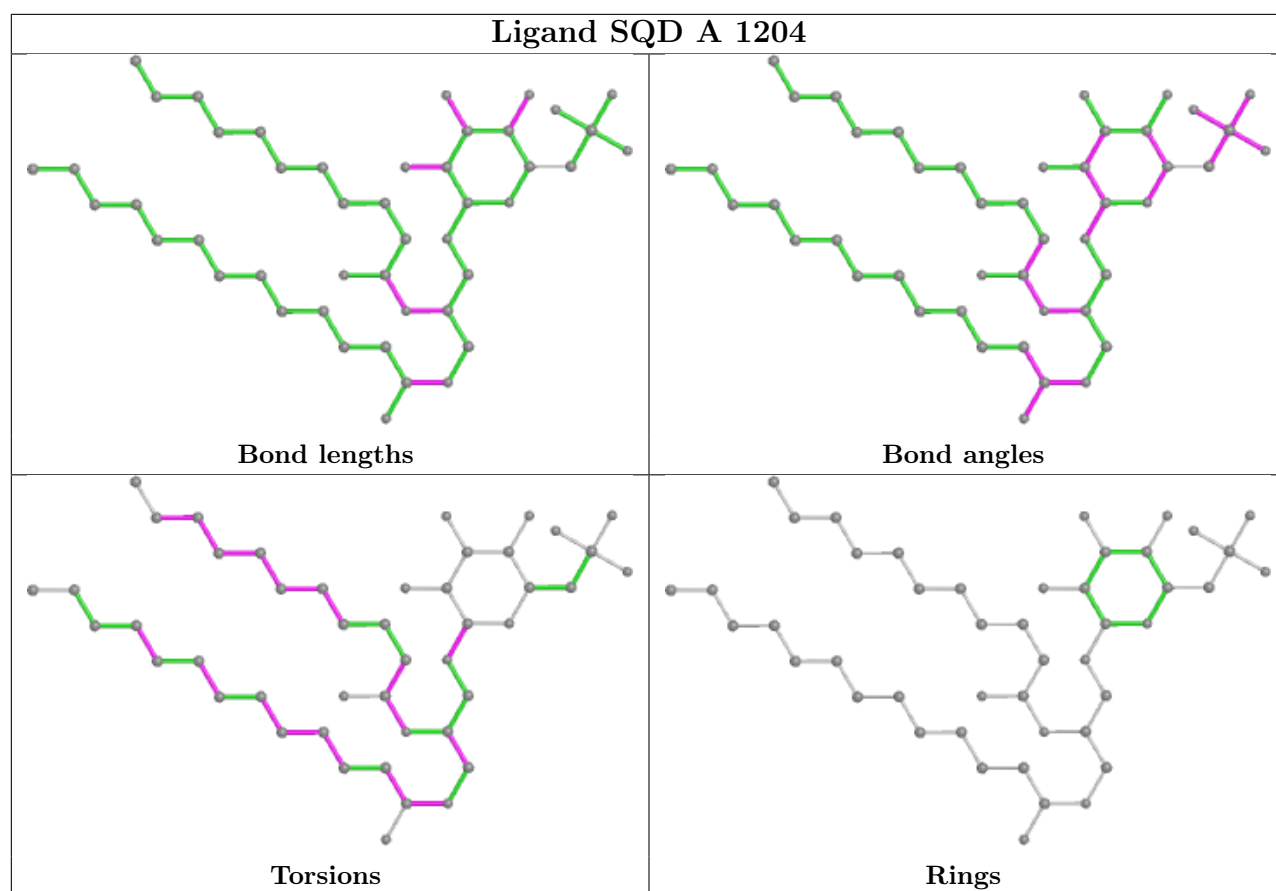












5.7 Other polymers [i](#)

There are no such residues in this entry.

5.8 Polymer linkage issues [i](#)

There are no chain breaks in this entry.

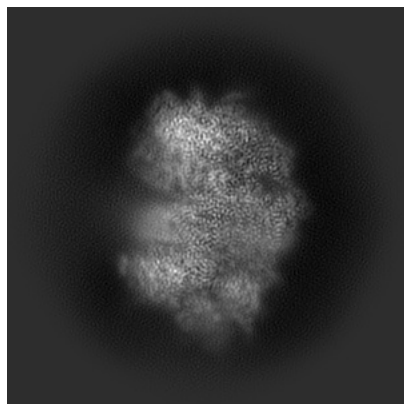
6 Map visualisation [i](#)

This section contains visualisations of the EMDB entry EMD-38589. These allow visual inspection of the internal detail of the map and identification of artifacts.

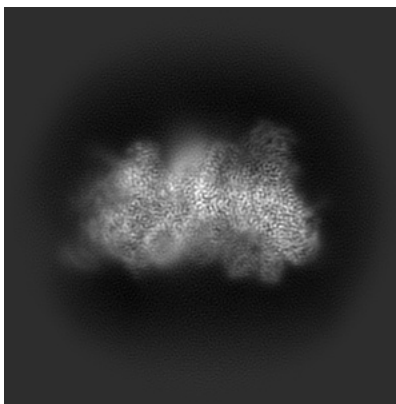
Images derived from a raw map, generated by summing the deposited half-maps, are presented below the corresponding image components of the primary map to allow further visual inspection and comparison with those of the primary map.

6.1 Orthogonal projections [i](#)

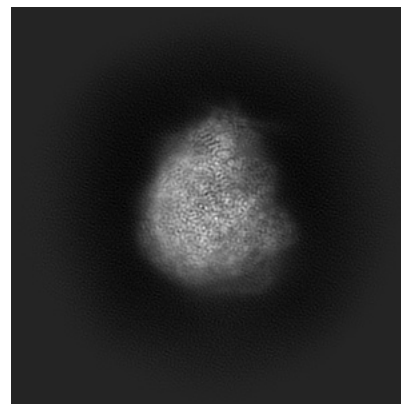
6.1.1 Primary map



X

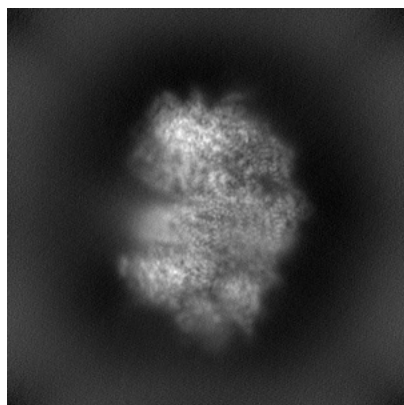


Y

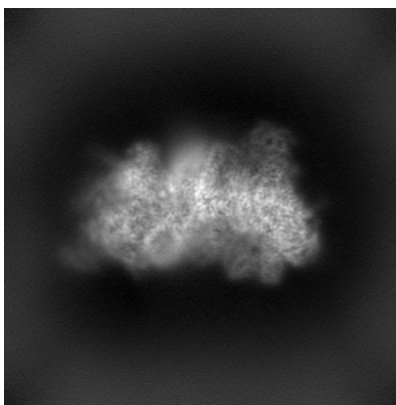


Z

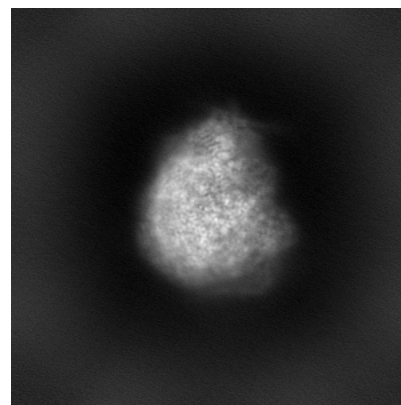
6.1.2 Raw map



X



Y

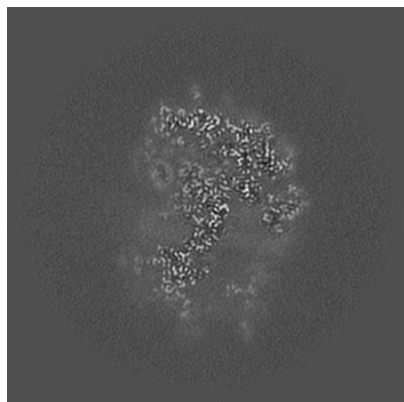


Z

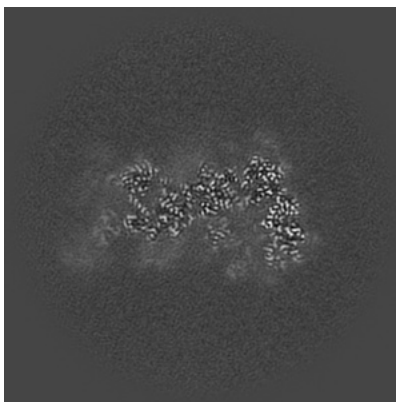
The images above show the map projected in three orthogonal directions.

6.2 Central slices [i](#)

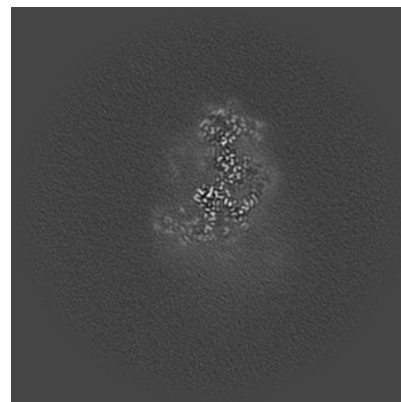
6.2.1 Primary map



X Index: 180

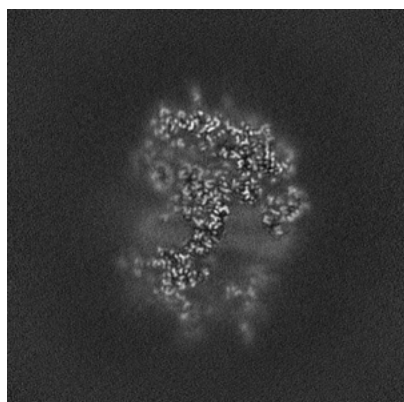


Y Index: 180

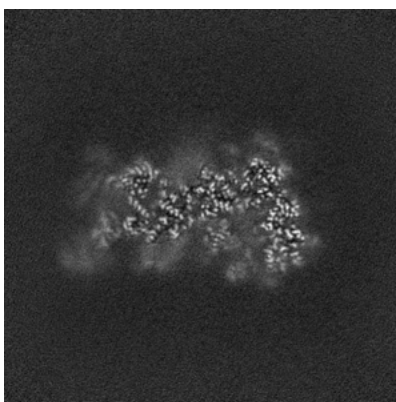


Z Index: 180

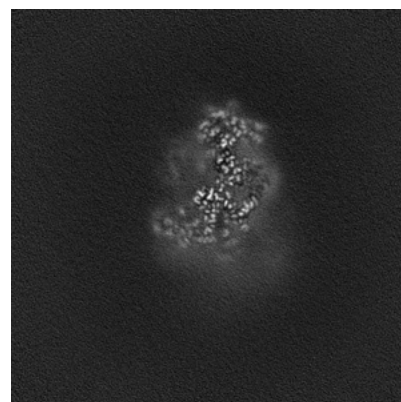
6.2.2 Raw map



X Index: 180



Y Index: 180

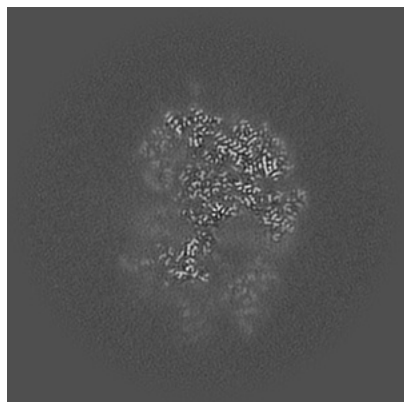


Z Index: 180

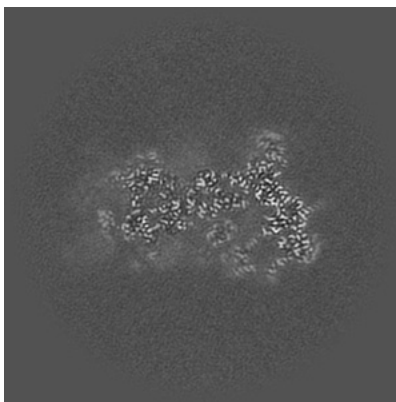
The images above show central slices of the map in three orthogonal directions.

6.3 Largest variance slices [i](#)

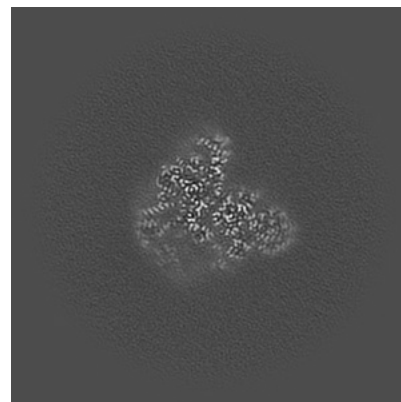
6.3.1 Primary map



X Index: 185

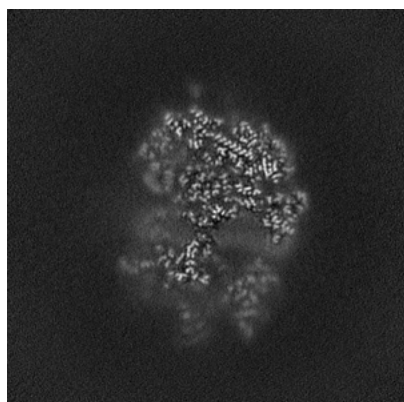


Y Index: 173

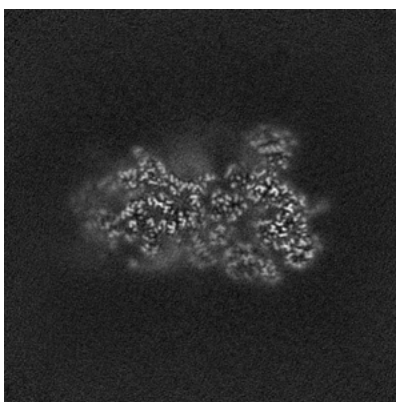


Z Index: 241

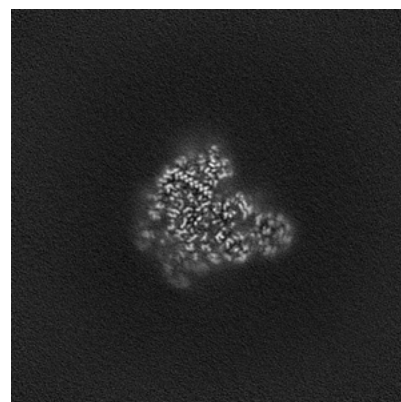
6.3.2 Raw map



X Index: 185



Y Index: 167

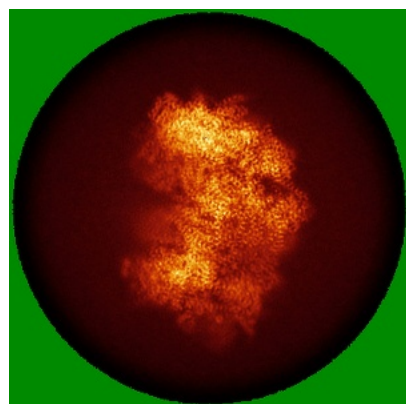


Z Index: 248

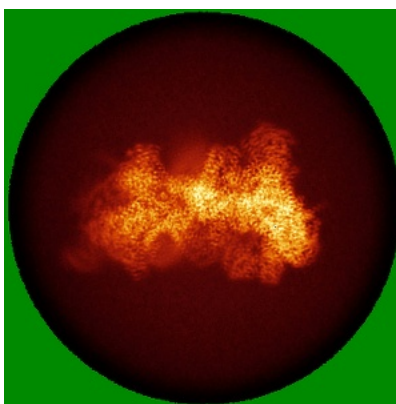
The images above show the largest variance slices of the map in three orthogonal directions.

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

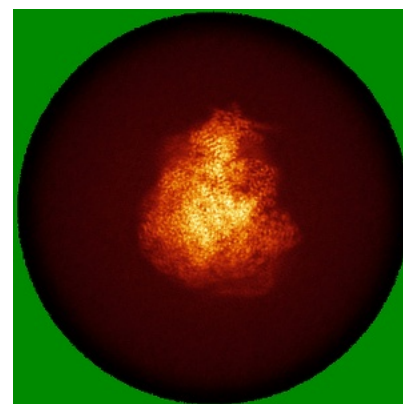
6.4.1 Primary map



X

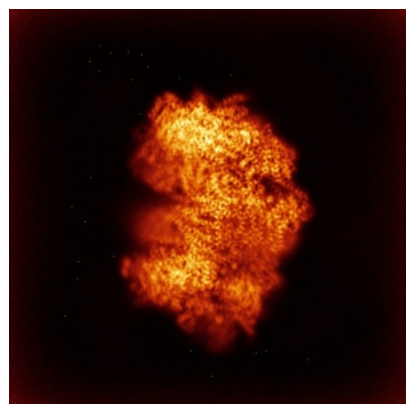


Y

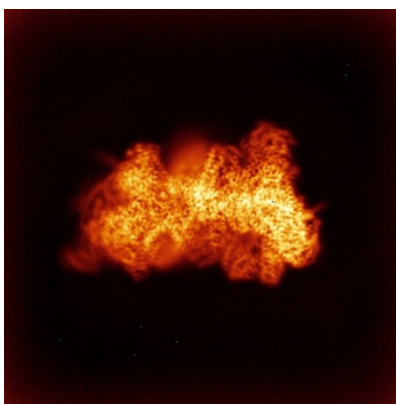


Z

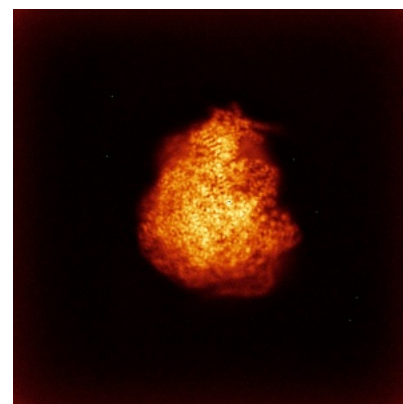
6.4.2 Raw map



X



Y



Z

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

6.5 Orthogonal surface views [i](#)

6.5.1 Primary map



X



Y



Z

The images above show the 3D surface view of the map at the recommended contour level 0.45. These images, in conjunction with the slice images, may facilitate assessment of whether an appropriate contour level has been provided.

6.5.2 Raw map



X



Y



Z

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

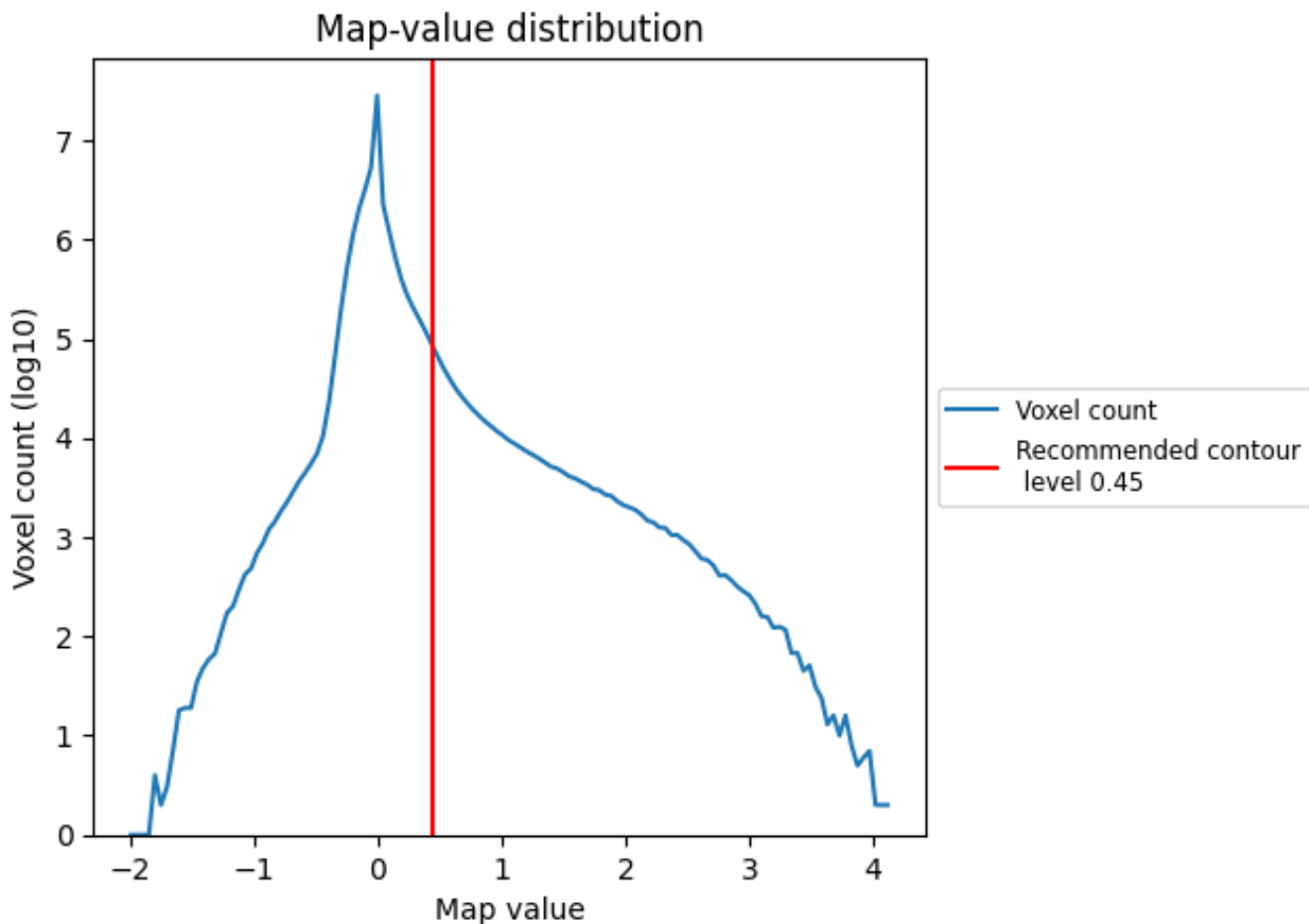
6.6 Mask visualisation [i](#)

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

7 Map analysis [i](#)

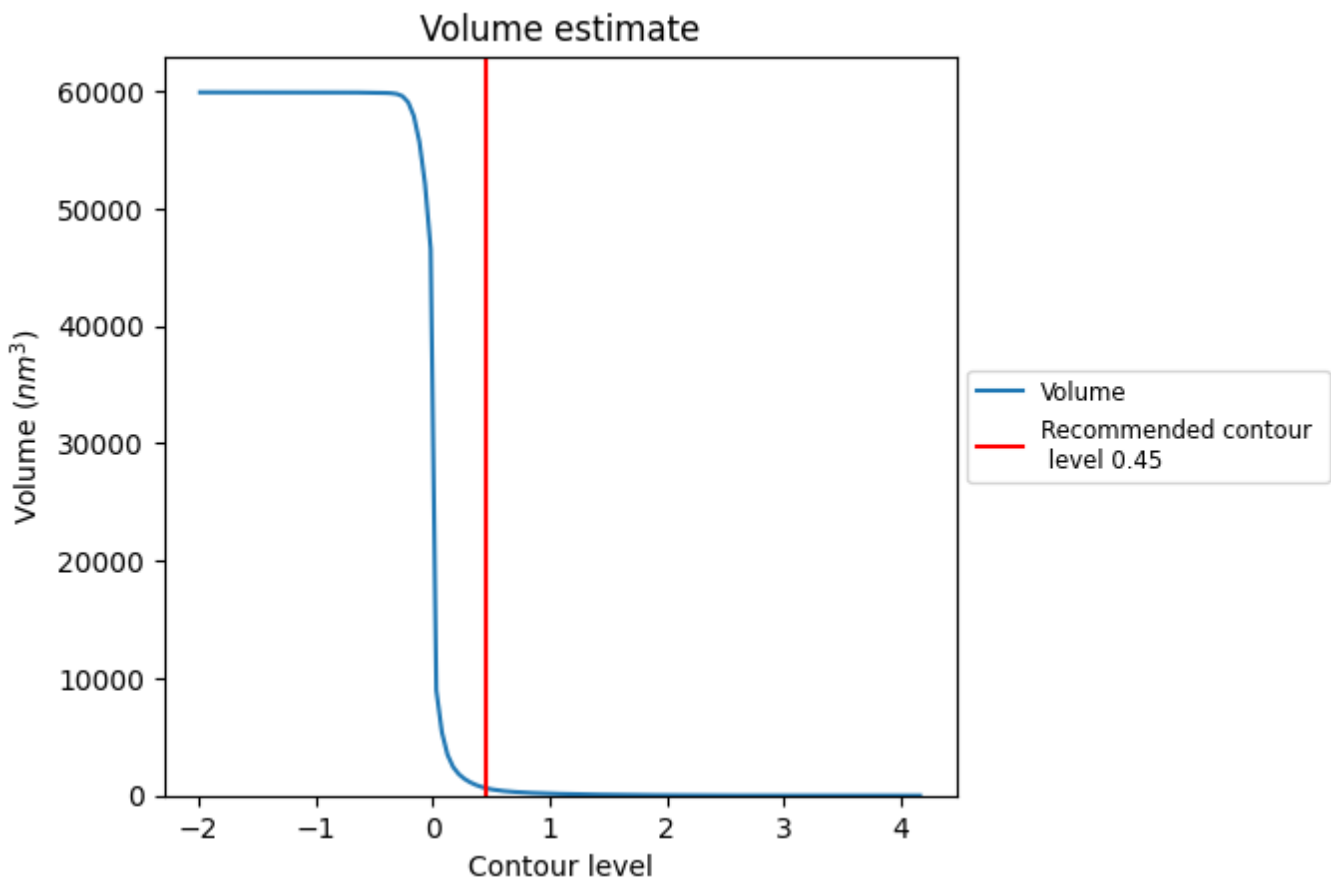
This section contains the results of statistical analysis of the map.

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.

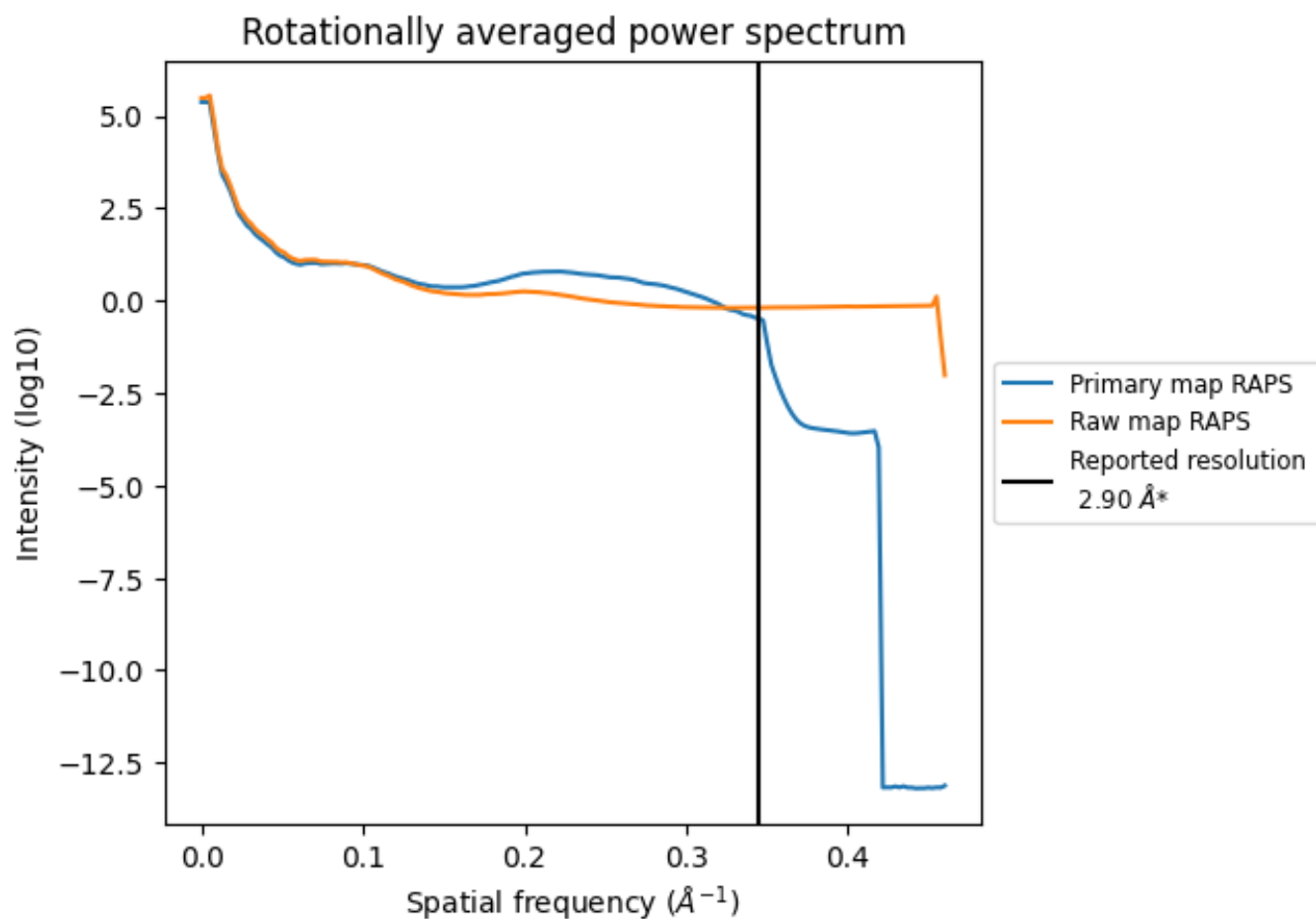
7.2 Volume estimate [i](#)



The volume at the recommended contour level is 643 nm³; this corresponds to an approximate mass of 581 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

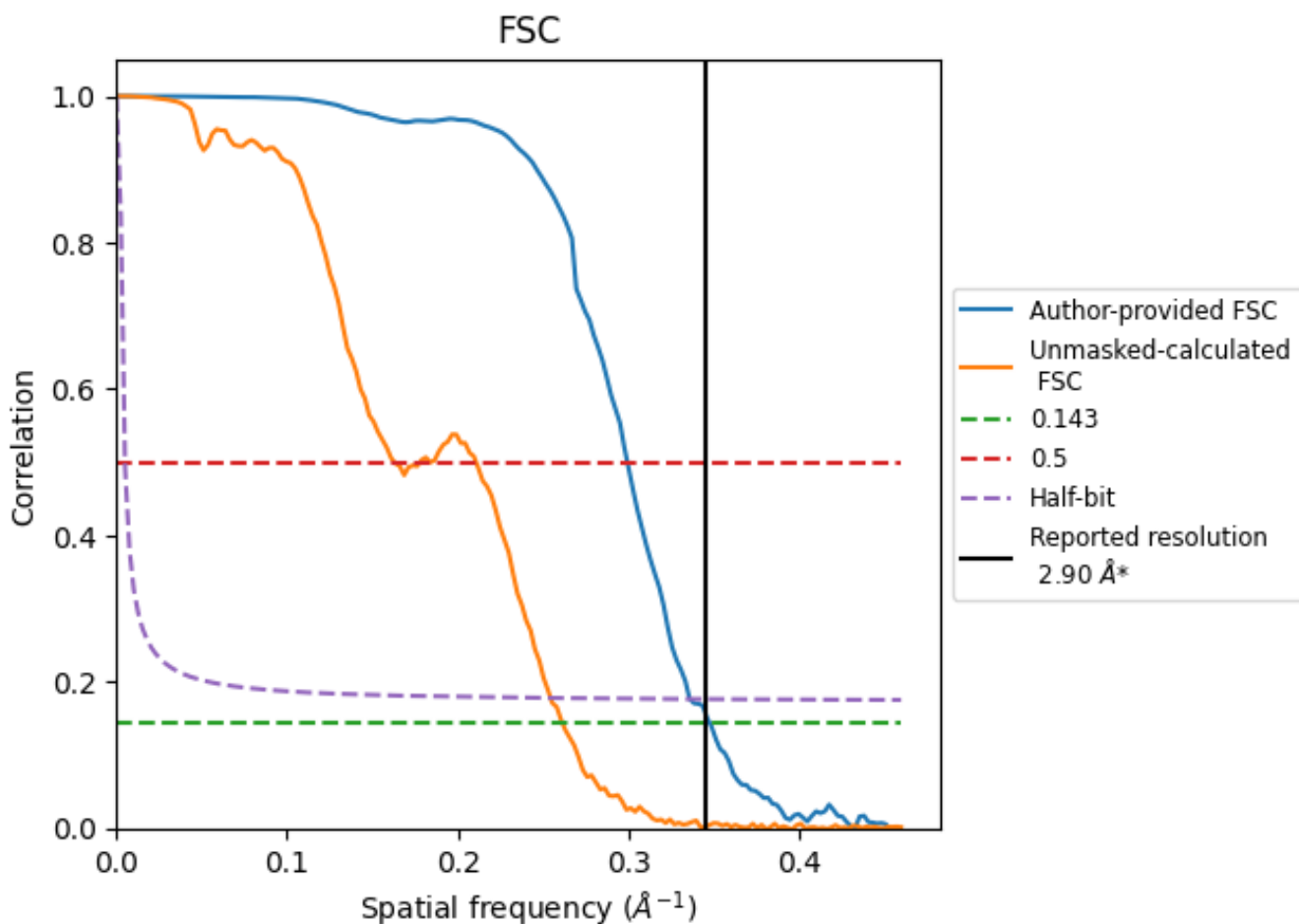


*Reported resolution corresponds to spatial frequency of 0.345 Å⁻¹

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 0.345 Å⁻¹

8.2 Resolution estimates [i](#)

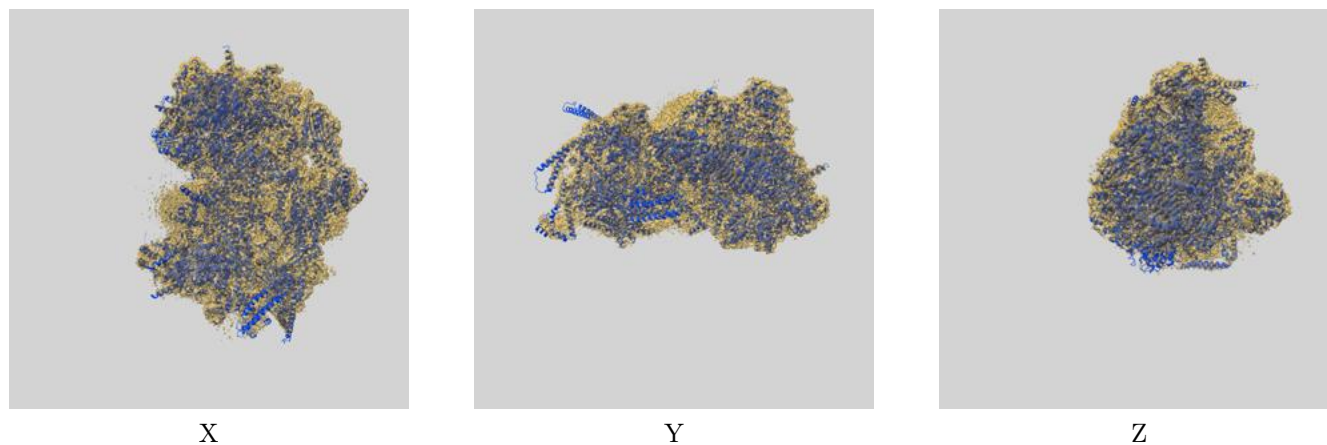
Resolution estimate (Å)	Estimation criterion (FSC cut-off)		
	0.143	0.5	Half-bit
Reported by author	2.90	-	-
Author-provided FSC curve	2.88	3.34	2.97
Unmasked-calculated*	3.83	6.14	3.93

*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 3.83 differs from the reported value 2.9 by more than 10 %

9 Map-model fit [i](#)

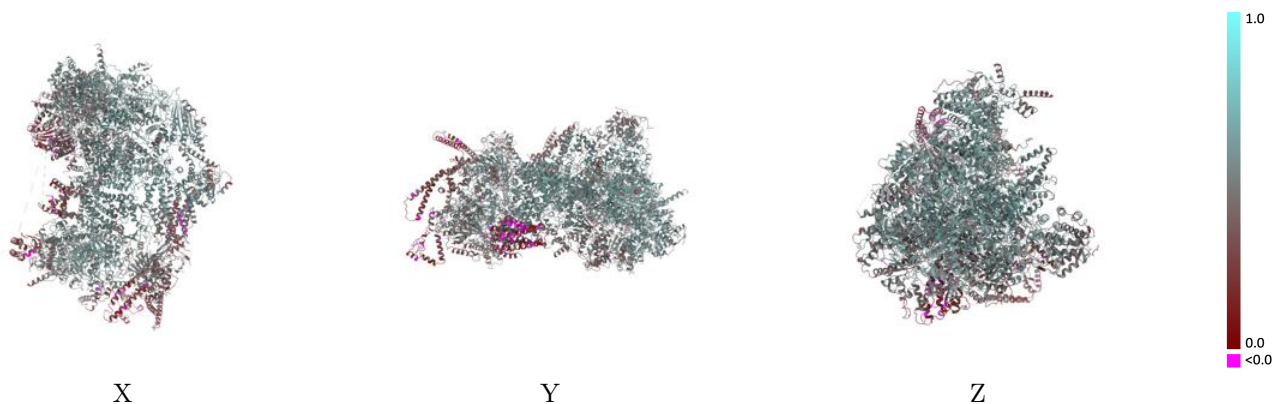
This section contains information regarding the fit between EMDB map EMD-38589 and PDB model 8XQW. Per-residue inclusion information can be found in section 3 on page 13.

9.1 Map-model overlay [i](#)



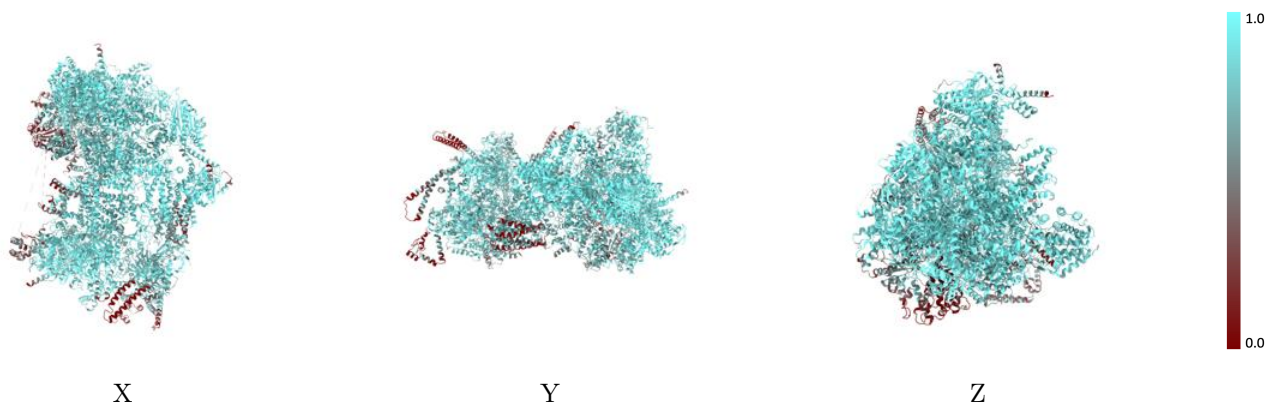
The images above show the 3D surface view of the map at the recommended contour level 0.45 at 50% transparency in yellow overlaid with a ribbon representation of the model coloured in blue. These images allow for the visual assessment of the quality of fit between the atomic model and the map.

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



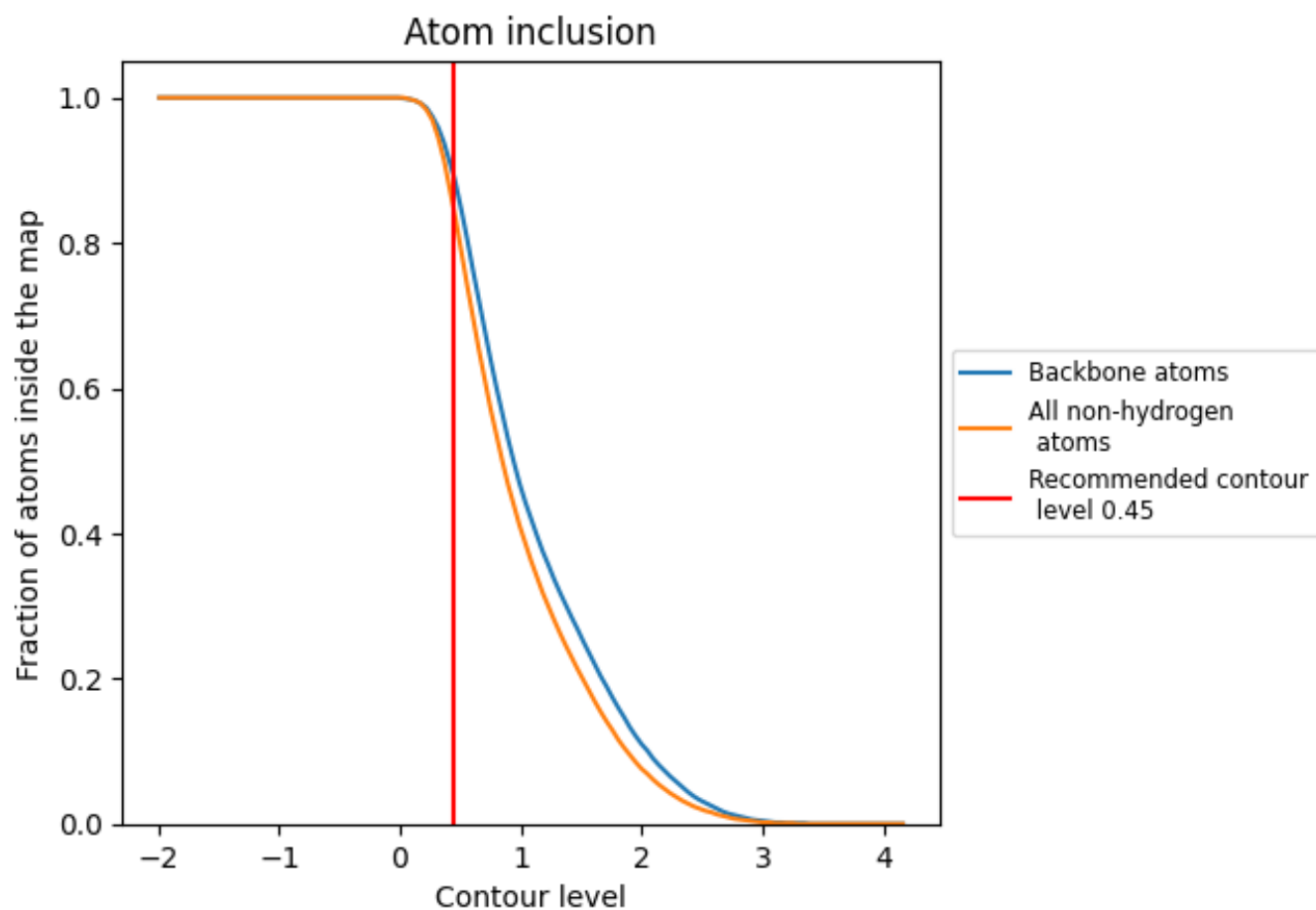
The images above show the model with each residue coloured according to its Q-score. This shows their resolvability in the map with higher Q-score values reflecting better resolvability. Please note: Q-score is calculating the resolvability of atoms, and thus high values are only expected at resolutions 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 (0.45).















































9.4 Atom inclusion [i](#)



At the recommended contour level, 89% of all backbone atoms, 84% 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 (0.45) and Q-score for the entire model and for each chain.

Chain	Atom inclusion	Q-score
All	 0.8430	 0.5020
A	 0.8970	 0.5340
B	 0.8780	 0.5240
C	 0.8810	 0.5130
D	 0.9010	 0.5380
E	 0.7800	 0.4730
F	 0.7390	 0.4900
G	 0.8360	 0.4830
H	 0.9390	 0.5520
I	 0.9530	 0.5790
J	 0.9010	 0.5370
K	 0.9660	 0.5890
L	 0.8560	 0.5360
M	 0.9240	 0.5450
N	 0.8930	 0.5420
O	 0.6210	 0.3320
P	 0.6970	 0.3820
Q	 0.6270	 0.3780
R	 0.8860	 0.5280
S	 0.7510	 0.4620
T	 0.6370	 0.3630
U	 0.9190	 0.4750
V	 0.7530	 0.3300

