



Full wwPDB EM Validation Report ⓘ

Dec 10, 2025 – 05:29 pm GMT

PDB ID : 8Q1B / pdb_00008q1b
EMDB ID : EMD-18062
Title : III2-IV1 respiratory supercomplex from *S. pombe*
Authors : Moe, A.; Brzezinski, P.
Deposited on : 2023-07-31
Resolution : 3.40 Å (reported)

This is a Full wwPDB EM Validation Report for a publicly released PDB entry.

We welcome your comments at validation@mail.wwpdb.org

A user guide is available at

<https://www.wwpdb.org/validation/2017/EMValidationReportHelp>

with specific help available everywhere you see the ⓘ symbol.

The types of validation reports are described at

<http://www.wwpdb.org/validation/2017/FAQs#types>.

The following versions of software and data (see [references ⓘ](#)) were used in the production of this report:

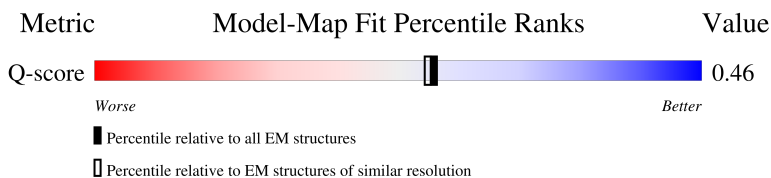
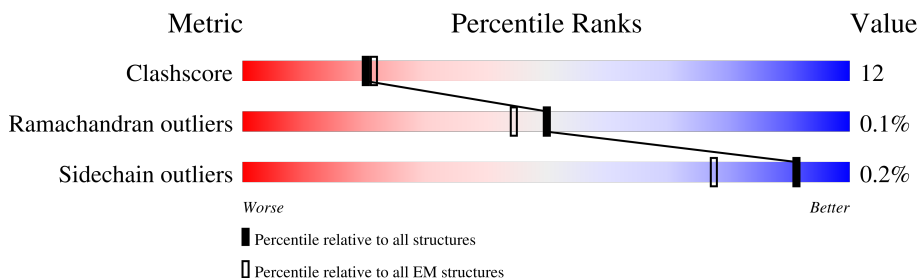
EMDB validation analysis : 0.0.1.dev129
Mogul : 1.8.4, CSD as541be (2020)
MolProbity : 4-5-2 with Phenix2.0
buster-report : 1.1.7 (2018)
Percentile statistics : 20231227.v01 (using entries in the PDB archive December 27th 2023)
EM percentile statistics : 202505.v01 (Using data in the EMDB archive up until May 2025)
MapQ : 1.9.13
Ideal geometry (proteins) : Engh & Huber (2001)
Ideal geometry (DNA, RNA) : Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP) : 2.47

1 Overall quality at a glance

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

The reported resolution of this entry is 3.40 Å.

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



Metric	Whole archive (#Entries)	EM structures (#Entries)	Similar EM resolution (#Entries, resolution range(Å))
Clashscore	210492	15764	-
Ramachandran outliers	207382	16835	-
Sidechain outliers	206894	16415	-
Q-score	-	25397	14717 (2.90 - 3.90)

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	457	
1	L	457	
2	B	426	
2	M	426	

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Mol	Chain	Length	Quality of chain
3	C	387	
3	N	387	
4	D	307	
4	O	307	
5	E	228	
5	P	228	
6	F	214	
6	Q	214	
7	G	137	
7	R	137	
8	H	92	
8	S	92	
9	I	67	
9	T	67	
10	J	79	
10	U	79	
11	a	538	
12	b	248	
13	c	269	
14	d	159	
15	e	228	
16	f	140	
17	g	59	
18	h	66	
19	i	58	

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Mol	Chain	Length	Quality of chain
20	j	86	79% 81% 6% 13%
21	k	130	53% 55% 12% 32%
22	l	242	22% 23% 5% 71%
23	m	26	100% 100%

The following table lists non-polymeric compounds, carbohydrate monomers and non-standard residues in protein, DNA, RNA chains that are outliers for geometric or electron-density-fit criteria:

Mol	Type	Chain	Res	Chirality	Geometry	Clashes	Electron density
31	FES	E	301	-	-	X	-
31	FES	P	301	-	-	X	-

2 Entry composition

There are 36 unique types of molecules in this entry. The entry contains 48686 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 Probable mitochondrial-processing peptidase subunit beta.

Mol	Chain	Residues	Atoms					AltConf	Trace
1	A	443	Total	C	N	O	S	0	0
			3449	2151	618	671	9		
1	L	443	Total	C	N	O	S	0	0
			3449	2151	618	671	9		

- Molecule 2 is a protein called Cytochrome b-c1 complex subunit 2, mitochondrial.

Mol	Chain	Residues	Atoms					AltConf	Trace
2	B	406	Total	C	N	O	S	0	0
			3044	1943	500	596	5		
2	M	406	Total	C	N	O	S	0	0
			3043	1943	500	595	5		

- Molecule 3 is a protein called Cytochrome b.

Mol	Chain	Residues	Atoms					AltConf	Trace
3	C	387	Total	C	N	O	S	0	0
			3101	2101	473	510	17		
3	N	387	Total	C	N	O	S	0	0
			3101	2101	473	510	17		

- Molecule 4 is a protein called Cytochrome c1, heme protein, mitochondrial.

Mol	Chain	Residues	Atoms					AltConf	Trace
4	D	245	Total	C	N	O	S	0	0
			1943	1241	336	357	9		
4	O	245	Total	C	N	O	S	0	0
			1943	1241	336	357	9		

- Molecule 5 is a protein called Cytochrome b-c1 complex subunit Rieske, mitochondrial.

Mol	Chain	Residues	Atoms					AltConf	Trace
5	E	182	Total	C	N	O	S	0	0
			1384	871	240	264	9		
5	P	182	Total	C	N	O	S	0	0
			1384	871	240	264	9		

- Molecule 6 is a protein called Cytochrome b-c1 complex subunit 6.

Mol	Chain	Residues	Atoms					AltConf	Trace
6	F	66	Total	C	N	O	S	0	0
			536	334	90	104	8		
6	Q	66	Total	C	N	O	S	0	0
			536	334	90	104	8		

- Molecule 7 is a protein called Cytochrome b-c1 complex subunit 7.

Mol	Chain	Residues	Atoms					AltConf	Trace
7	G	122	Total	C	N	O	S	0	0
			1021	657	176	184	4		
7	R	122	Total	C	N	O	S	0	0
			1021	657	176	184	4		

- Molecule 8 is a protein called Cytochrome b-c1 complex subunit 8.

Mol	Chain	Residues	Atoms					AltConf	Trace
8	H	87	Total	C	N	O	S	0	0
			697	454	124	115	4		
8	S	87	Total	C	N	O	S	0	0
			698	455	124	115	4		

- Molecule 9 is a protein called Cytochrome b-c1 complex subunit 9.

Mol	Chain	Residues	Atoms					AltConf	Trace
9	I	60	Total	C	N	O	S	0	0
			497	328	82	86	1		
9	T	60	Total	C	N	O	S	0	0
			497	328	82	86	1		

- Molecule 10 is a protein called Cytochrome b-c1 complex subunit 10.

Mol	Chain	Residues	Atoms					AltConf	Trace
10	J	77	Total	C	N	O	S	0	0
			629	421	102	103	3		

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Mol	Chain	Residues	Atoms					AltConf	Trace
10	U	77	Total	C	N	O	S	0	0
			629	421	102	103	3		

- Molecule 11 is a protein called Cytochrome c oxidase subunit 1.

Mol	Chain	Residues	Atoms					AltConf	Trace
11	a	537	Total	C	N	O	S	0	0
			4212	2827	652	711	22		

There is a discrepancy between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
a	400	TYR	-	insertion	UNP P07657

- Molecule 12 is a protein called Cytochrome c oxidase subunit 2.

Mol	Chain	Residues	Atoms					AltConf	Trace
12	b	238	Total	C	N	O	S	0	0
			1902	1242	297	354	9		

- Molecule 13 is a protein called Cytochrome c oxidase subunit 3.

Mol	Chain	Residues	Atoms					AltConf	Trace
13	c	268	Total	C	N	O	S	0	0
			2156	1452	332	365	7		

- Molecule 14 is a protein called Cytochrome c oxidase subunit 4, mitochondrial.

Mol	Chain	Residues	Atoms					AltConf	Trace
14	d	121	Total	C	N	O	S	0	0
			922	573	160	182	7		

- Molecule 15 is a protein called Cytochrome c oxidase polypeptide 5, mitochondrial.

Mol	Chain	Residues	Atoms					AltConf	Trace
15	e	145	Total	C	N	O	S	0	0
			1146	728	202	212	4		

There are 42 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
e	187	GLU	-	expression tag	UNP O74988
e	188	ASN	-	expression tag	UNP O74988
e	189	LEU	-	expression tag	UNP O74988
e	190	TYR	-	expression tag	UNP O74988
e	191	PHE	-	expression tag	UNP O74988
e	192	GLN	-	expression tag	UNP O74988
e	193	GLY	-	expression tag	UNP O74988
e	194	GLY	-	expression tag	UNP O74988
e	195	GLY	-	expression tag	UNP O74988
e	196	GLY	-	expression tag	UNP O74988
e	197	GLY	-	expression tag	UNP O74988
e	198	GLY	-	expression tag	UNP O74988
e	199	SER	-	expression tag	UNP O74988
e	200	ALA	-	expression tag	UNP O74988
e	201	TRP	-	expression tag	UNP O74988
e	202	SER	-	expression tag	UNP O74988
e	203	HIS	-	expression tag	UNP O74988
e	204	PRO	-	expression tag	UNP O74988
e	205	GLN	-	expression tag	UNP O74988
e	206	PHE	-	expression tag	UNP O74988
e	207	GLU	-	expression tag	UNP O74988
e	208	LYS	-	expression tag	UNP O74988
e	209	GLY	-	expression tag	UNP O74988
e	210	GLY	-	expression tag	UNP O74988
e	211	GLY	-	expression tag	UNP O74988
e	212	SER	-	expression tag	UNP O74988
e	213	GLY	-	expression tag	UNP O74988
e	214	GLY	-	expression tag	UNP O74988
e	215	GLY	-	expression tag	UNP O74988
e	216	SER	-	expression tag	UNP O74988
e	217	GLY	-	expression tag	UNP O74988
e	218	GLY	-	expression tag	UNP O74988
e	219	SER	-	expression tag	UNP O74988
e	220	ALA	-	expression tag	UNP O74988
e	221	TRP	-	expression tag	UNP O74988
e	222	SER	-	expression tag	UNP O74988
e	223	HIS	-	expression tag	UNP O74988
e	224	PRO	-	expression tag	UNP O74988
e	225	GLN	-	expression tag	UNP O74988
e	226	PHE	-	expression tag	UNP O74988
e	227	GLU	-	expression tag	UNP O74988
e	228	LYS	-	expression tag	UNP O74988

- Molecule 16 is a protein called Cytochrome c oxidase subunit 6, mitochondrial.

Mol	Chain	Residues	Atoms					AltConf	Trace
16	f	100	Total	C	N	O	S	0	0
			813	520	137	154	2		

- Molecule 17 is a protein called Cytochrome c oxidase subunit 7.

Mol	Chain	Residues	Atoms					AltConf	Trace
17	g	57	Total	C	N	O	S	0	0
			457	301	78	77	1		

- Molecule 18 is a protein called Cytochrome c oxidase polypeptide VIII, mitochondrial.

Mol	Chain	Residues	Atoms					AltConf	Trace
18	h	45	Total	C	N	O	S	0	0
			363	249	57	57			

- Molecule 19 is a protein called Cytochrome c oxidase subunit 9, mitochondrial.

Mol	Chain	Residues	Atoms					AltConf	Trace
19	i	55	Total	C	N	O	S	0	0
			445	292	77	73	3		

- Molecule 20 is a protein called Cytochrome c oxidase subunit 12, mitochondrial.

Mol	Chain	Residues	Atoms					AltConf	Trace
20	j	75	Total	C	N	O	S	0	0
			636	411	107	113	5		

- Molecule 21 is a protein called Cytochrome c oxidase subunit 13, mitochondrial.

Mol	Chain	Residues	Atoms					AltConf	Trace
21	k	88	Total	C	N	O	S	0	0
			741	480	124	136	1		

- Molecule 22 is a protein called Respiratory supercomplex factor 2 homolog C1565.01.

Mol	Chain	Residues	Atoms					AltConf	Trace
22	l	69	Total	C	N	O	S	0	0
			550	356	95	97	2		

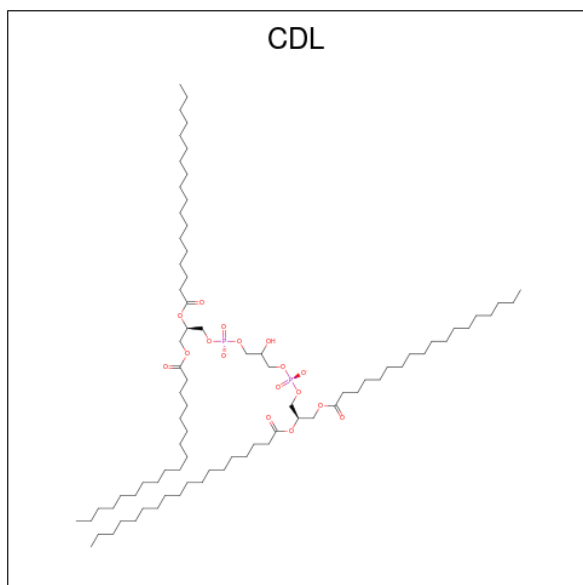
- Molecule 23 is a protein called Unknown polypeptide.

Mol	Chain	Residues	Atoms				AltConf	Trace
23	m	26	Total	C	N	O	0	0
			130	78	26	26		

- Molecule 24 is ZINC ION (CCD ID: ZN) (formula: Zn).

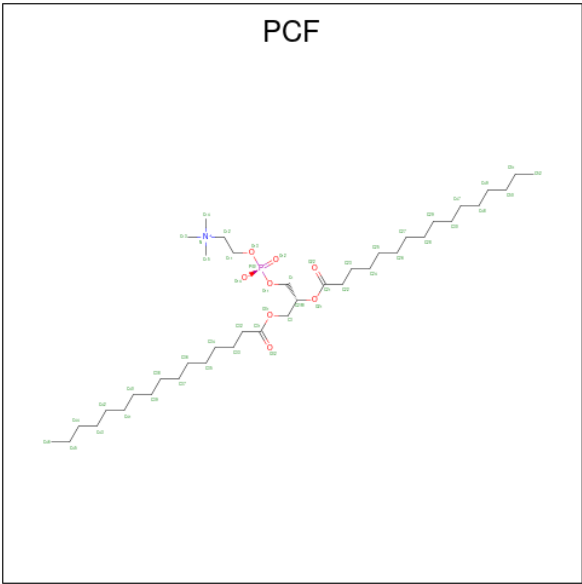
Mol	Chain	Residues	Atoms		AltConf
24	A	1	Total	Zn	0
			1	1	
24	L	1	Total	Zn	0
			1	1	
24	d	1	Total	Zn	0
			1	1	

- Molecule 25 is CARDIOLIPIN (CCD ID: CDL) (formula: C₈₁H₁₅₆O₁₇P₂).



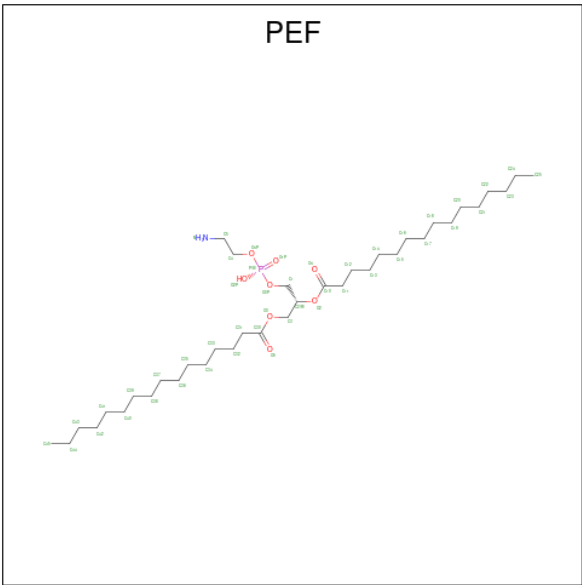
Mol	Chain	Residues	Atoms				AltConf
25	A	1	Total	C	O	P	0
			57	38	17	2	
25	H	1	Total	C	O	P	0
			79	60	17	2	
25	H	1	Total	C	O	P	0
			78	59	17	2	
25	L	1	Total	C	O	P	0
			57	38	17	2	
25	S	1	Total	C	O	P	0
			77	58	17	2	
25	S	1	Total	C	O	P	0
			73	54	17	2	

- Molecule 26 is 1,2-DIACYL-SN-GLYCERO-3-PHOSHOCHOLINE (CCD ID: PCF) (formula: C₄₀H₈₀NO₈P).



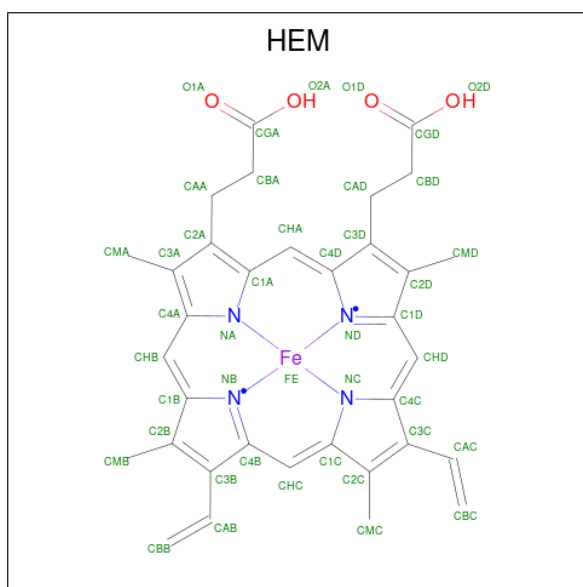
Mol	Chain	Residues	Atoms					AltConf
26	A	1	Total	C	N	O	P	0
			50	40	1	8	1	
26	A	1	Total	C	N	O	P	0
			50	40	1	8	1	
26	L	1	Total	C	N	O	P	0
			50	40	1	8	1	
26	T	1	Total	C	N	O	P	0
			50	40	1	8	1	

- Molecule 27 is DI-PALMITOYL-3-SN-PHOSPHATIDYLETHANOLAMINE (CCD ID: PEF) (formula: C₃₇H₇₄NO₈P).



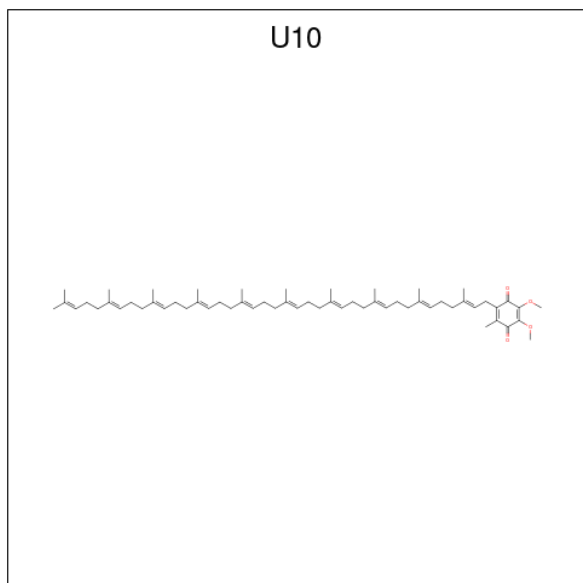
Mol	Chain	Residues	Atoms					AltConf
27	A	1	Total	C	N	O	P	0
			47	37	1	8	1	
27	D	1	Total	C	N	O	P	0
			47	37	1	8	1	
27	J	1	Total	C	N	O	P	0
			47	37	1	8	1	
27	N	1	Total	C	N	O	P	0
			47	37	1	8	1	
27	N	1	Total	C	N	O	P	0
			47	37	1	8	1	
27	O	1	Total	C	N	O	P	0
			47	37	1	8	1	
27	a	1	Total	C	N	O	P	0
			47	37	1	8	1	
27	b	1	Total	C	N	O	P	0
			47	37	1	8	1	
27	c	1	Total	C	N	O	P	0
			47	37	1	8	1	
27	k	1	Total	C	N	O	P	0
			47	37	1	8	1	

- Molecule 28 is PROTOPORPHYRIN IX CONTAINING FE (CCD ID: HEM) (formula: C₃₄H₃₂FeN₄O₄).



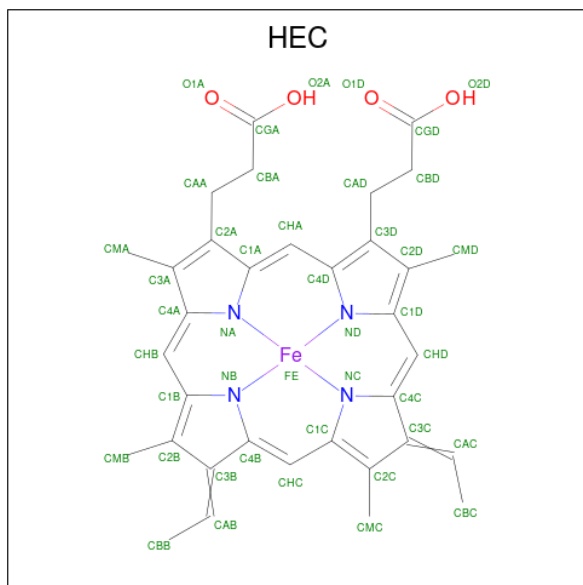
Mol	Chain	Residues	Atoms					AltConf
28	C	1	Total 43	C 34	Fe 1	N 4	O 4	0
28	C	1	Total 43	C 34	Fe 1	N 4	O 4	0
28	N	1	Total 43	C 34	Fe 1	N 4	O 4	0
28	N	1	Total 43	C 34	Fe 1	N 4	O 4	0

- Molecule 29 is UBIQUINONE-10 (CCD ID: U10) (formula: $C_{59}H_{90}O_4$).



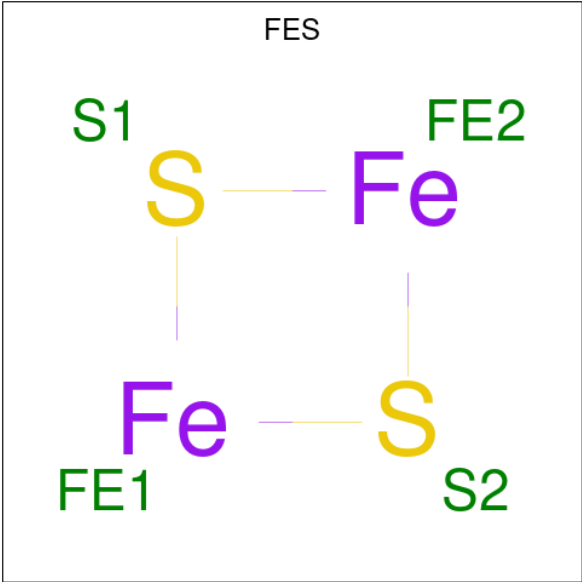
Mol	Chain	Residues	Atoms			AltConf
29	C	1	Total	C	O	0
			63	59	4	
29	N	1	Total	C	O	0
			63	59	4	

- Molecule 30 is HEME C (CCD ID: HEC) (formula: $C_{34}H_{34}FeN_4O_4$).



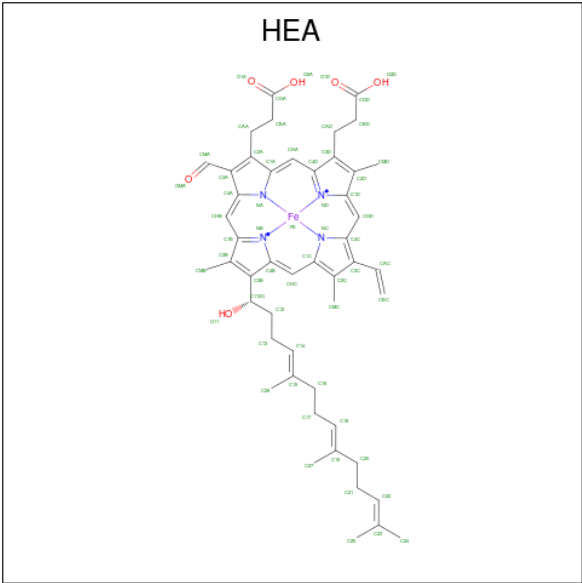
Mol	Chain	Residues	Atoms					AltConf
30	D	1	Total	C	Fe	N	O	0
			43	34	1	4	4	
30	O	1	Total	C	Fe	N	O	0
			43	34	1	4	4	

- Molecule 31 is FE2/S2 (INORGANIC) CLUSTER (CCD ID: FES) (formula: Fe_2S_2).



Mol	Chain	Residues	Atoms			AltConf
31	E	1	Total	Fe	S	0
			4	2	2	
31	P	1	Total	Fe	S	0
			4	2	2	

- Molecule 32 is HEME-A (CCD ID: HEA) (formula: C₄₉H₅₆FeN₄O₆).



Mol	Chain	Residues	Atoms					AltConf
32	a	1	Total 60	C 49	Fe 1	N 4	O 6	0
32	a	1	Total 60	C 49	Fe 1	N 4	O 6	0

- Molecule 33 is COPPER (II) ION (CCD ID: CU) (formula: Cu).

Mol	Chain	Residues	Atoms		AltConf
33	a	1	Total	Cu	0
			1	1	

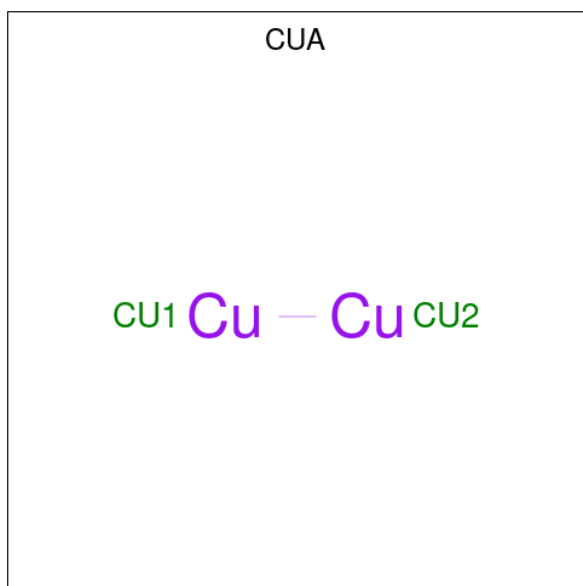
- Molecule 34 is CALCIUM ION (CCD ID: CA) (formula: Ca).

Mol	Chain	Residues	Atoms		AltConf
34	a	1	Total	Ca	0
			1	1	

- Molecule 35 is MAGNESIUM ION (CCD ID: MG) (formula: Mg).

Mol	Chain	Residues	Atoms		AltConf
35	b	1	Total	Mg	0
			1	1	

- Molecule 36 is DINUCLEAR COPPER ION (CCD ID: CUA) (formula: Cu₂).

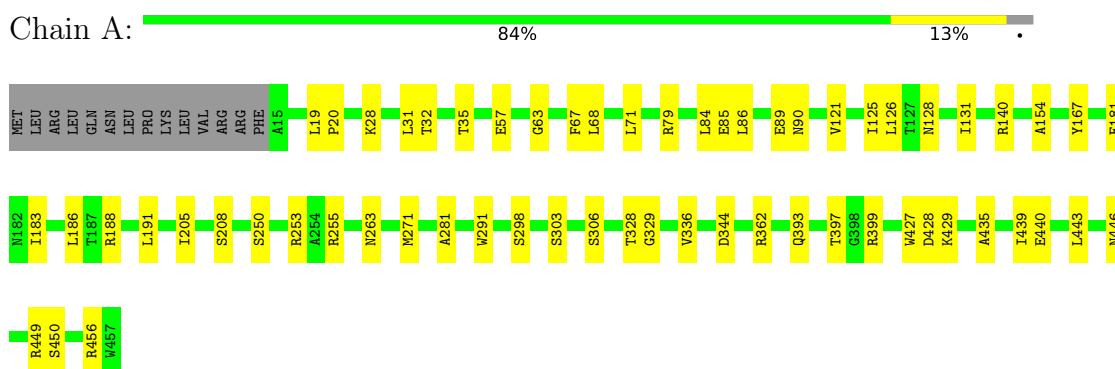


Mol	Chain	Residues	Atoms		AltConf
36	b	1	Total	Cu	0
			2	2	

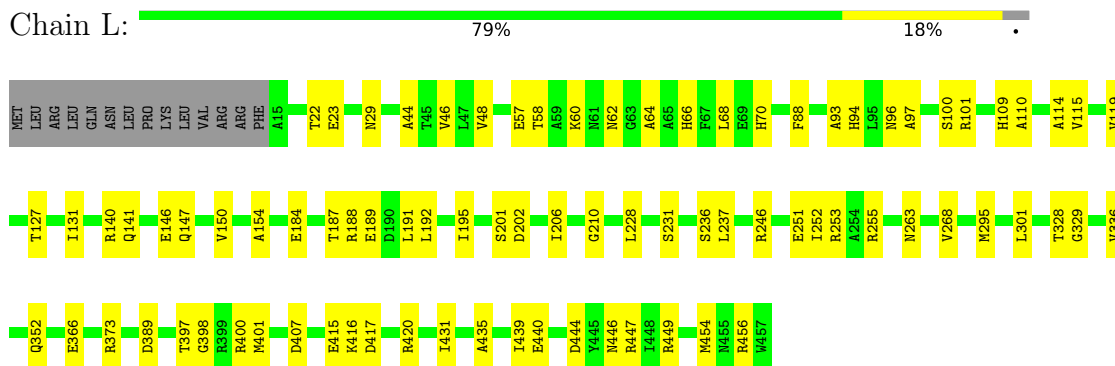
3 Residue-property plots

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

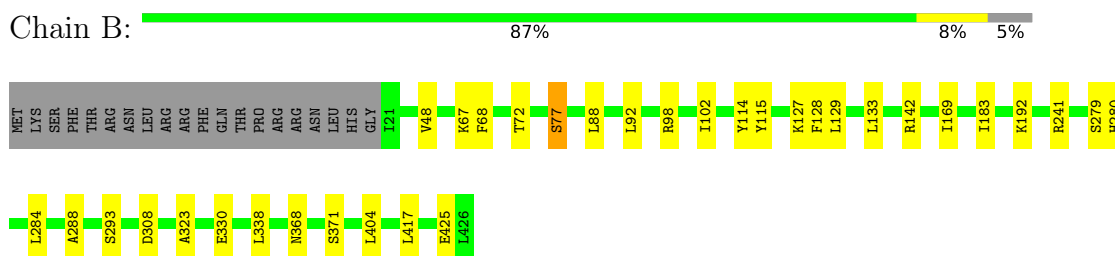
- Molecule 1: Probable mitochondrial-processing peptidase subunit beta



- Molecule 1: Probable mitochondrial-processing peptidase subunit beta

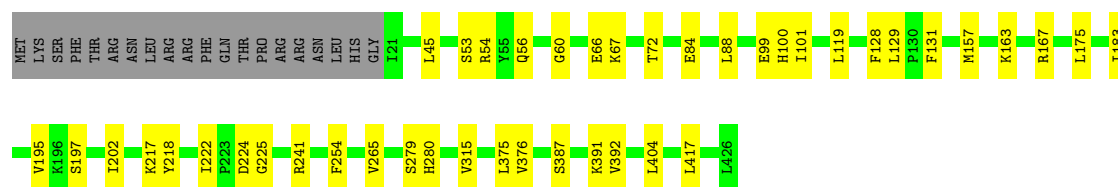


- Molecule 2: Cytochrome b-c1 complex subunit 2, mitochondrial



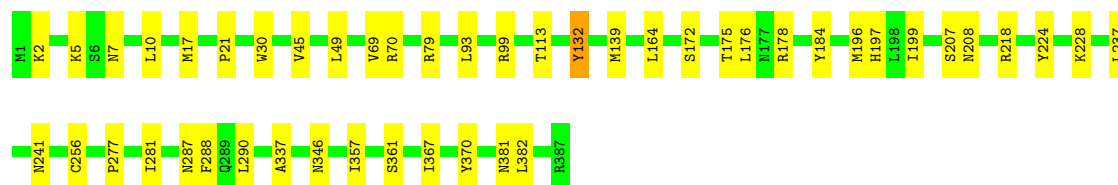
- Molecule 2: Cytochrome b-c1 complex subunit 2, mitochondrial

Chain M:  85% 10% 5%



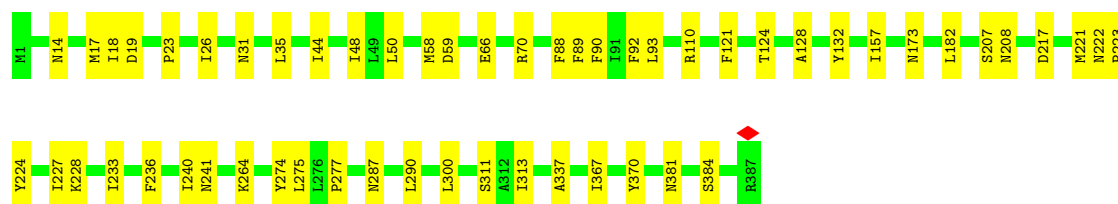
• Molecule 3: Cytochrome b

Chain C:  88% 12%



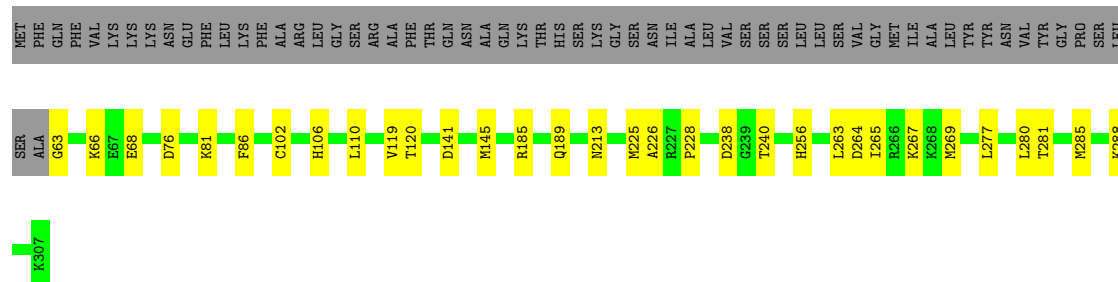
• Molecule 3: Cytochrome b

Chain N:  86% 14%



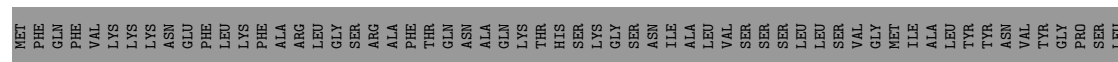
• Molecule 4: Cytochrome c1, heme protein, mitochondrial

Chain D:  69% 10% 20%



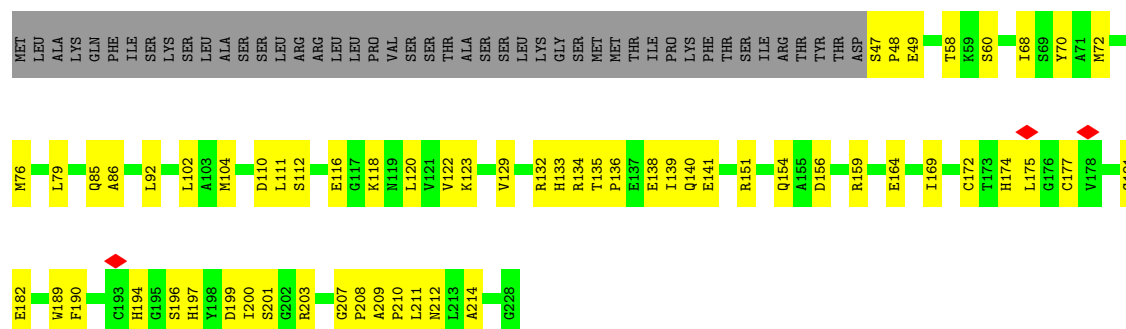
• Molecule 4: Cytochrome c1, heme protein, mitochondrial

Chain O:  72% 7% 20%

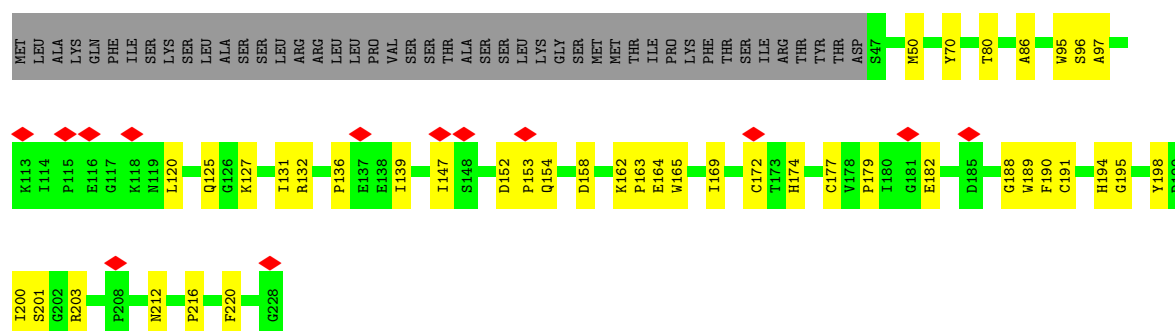




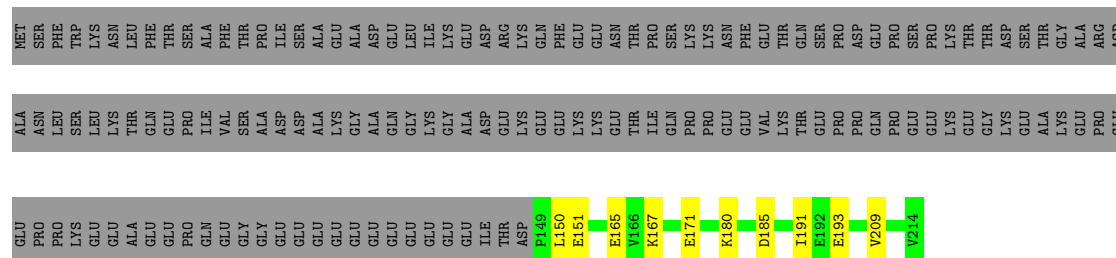
- Molecule 5: Cytochrome b-c1 complex subunit Rieske, mitochondrial



- Molecule 5: Cytochrome b-c1 complex subunit Rieske, mitochondrial

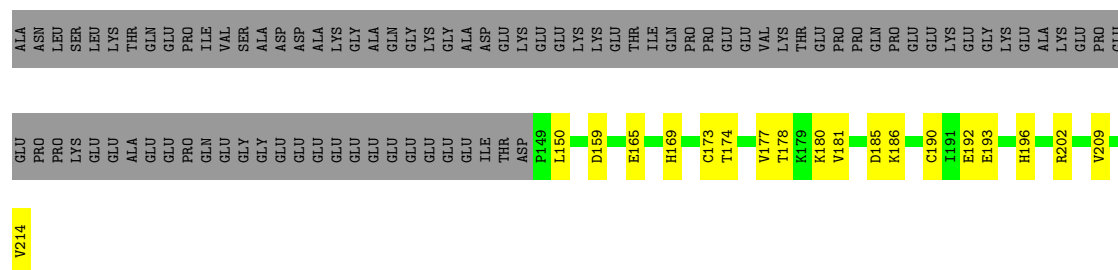


- Molecule 6: Cytochrome b-c1 complex subunit 6



- Molecule 6: Cytochrome b-c1 complex subunit 6





- Molecule 7: Cytochrome b-c1 complex subunit 7

Chain G: 71% 18% 11%



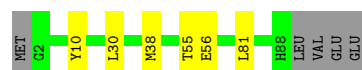
- Molecule 7: Cytochrome b-c1 complex subunit 7

Chain R: 79% 9% 11%



- Molecule 8: Cytochrome b-c1 complex subunit 8

Chain H: 88% 7% 5%



- Molecule 8: Cytochrome b-c1 complex subunit 8

Chain S: 79% 15% 5%



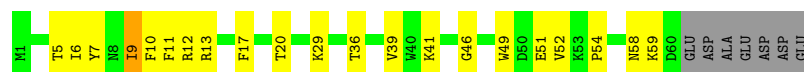
- Molecule 9: Cytochrome b-c1 complex subunit 9

Chain I: 75% 15% 10%



- Molecule 9: Cytochrome b-c1 complex subunit 9

Chain T: 58% 30% 10%



- Molecule 10: Cytochrome b-c1 complex subunit 10

Chain J:  85% 13%



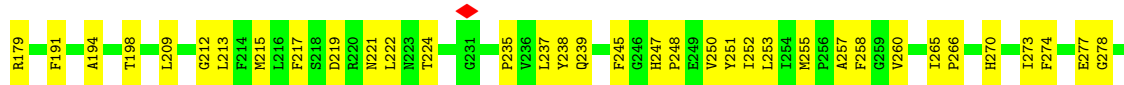
- Molecule 10: Cytochrome b-c1 complex subunit 10

Chain U:  77% 20%



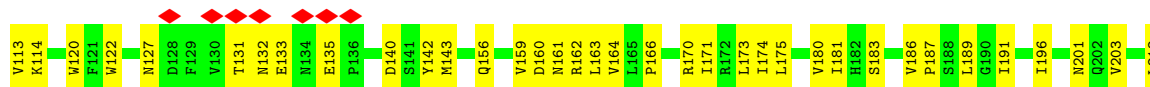
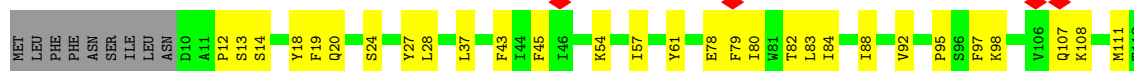
- Molecule 11: Cytochrome c oxidase subunit 1

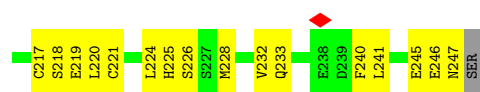
Chain a:  63% 36%



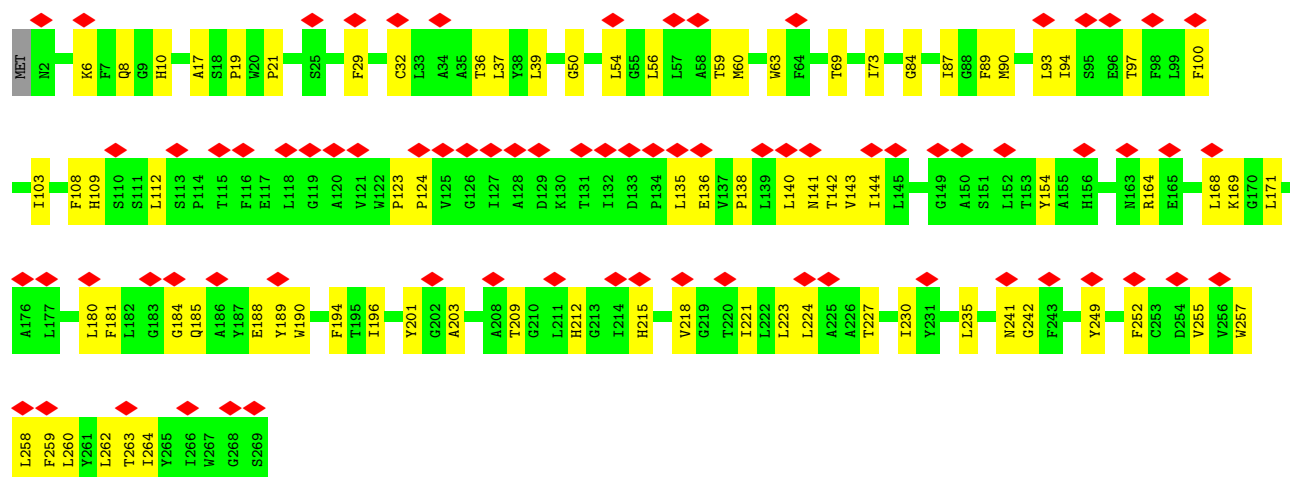
- Molecule 12: Cytochrome c oxidase subunit 2

Chain b:  5% 63% 33%

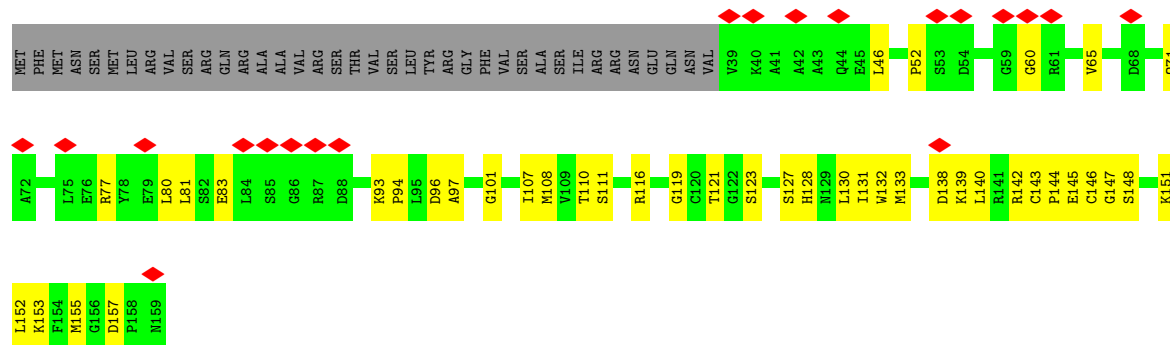




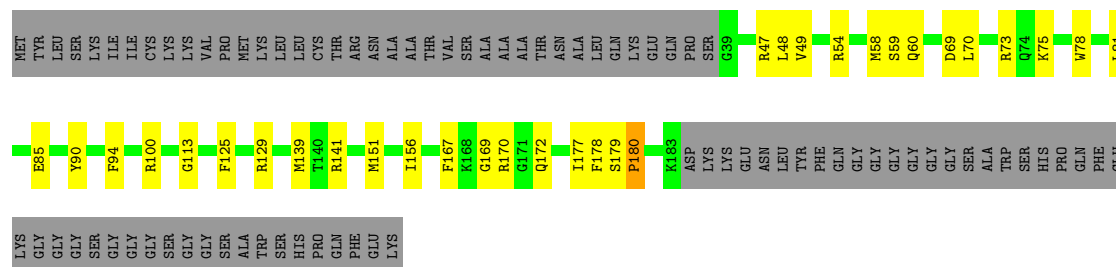
• Molecule 13: Cytochrome c oxidase subunit 3



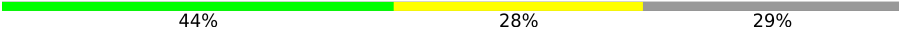
• Molecule 14: Cytochrome c oxidase subunit 4, mitochondrial

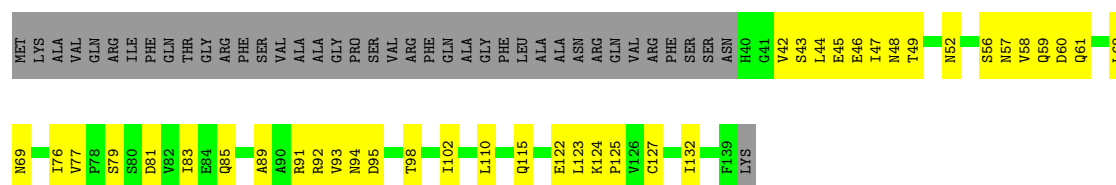


• Molecule 15: Cytochrome c oxidase polypeptide 5, mitochondrial



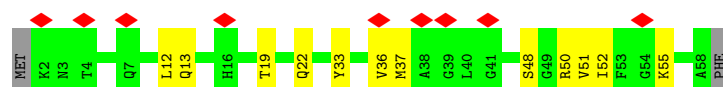
• Molecule 16: Cytochrome c oxidase subunit 6, mitochondrial

Chain f: 



• Molecule 17: Cytochrome c oxidase subunit 7

Chain g: 



• Molecule 18: Cytochrome c oxidase polypeptide VIII, mitochondrial

Chain h: 



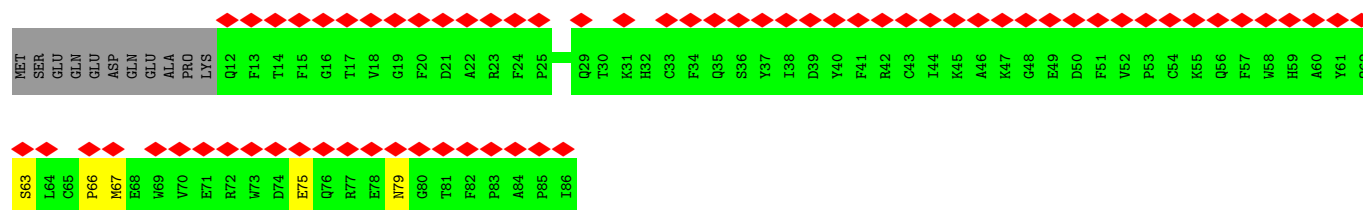
• Molecule 19: Cytochrome c oxidase subunit 9, mitochondrial

Chain i: 



• Molecule 20: Cytochrome c oxidase subunit 12, mitochondrial

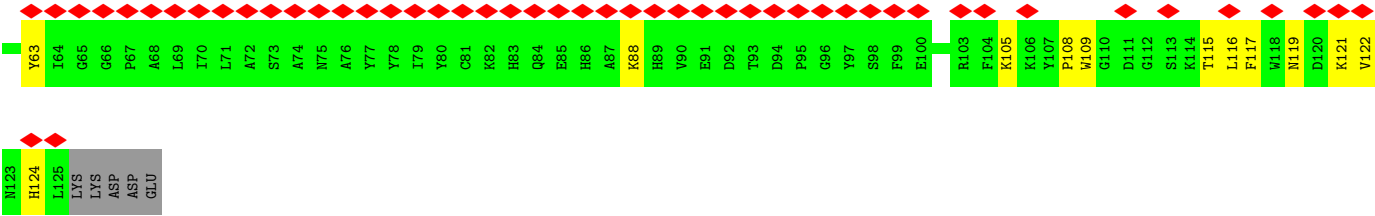
Chain j: 



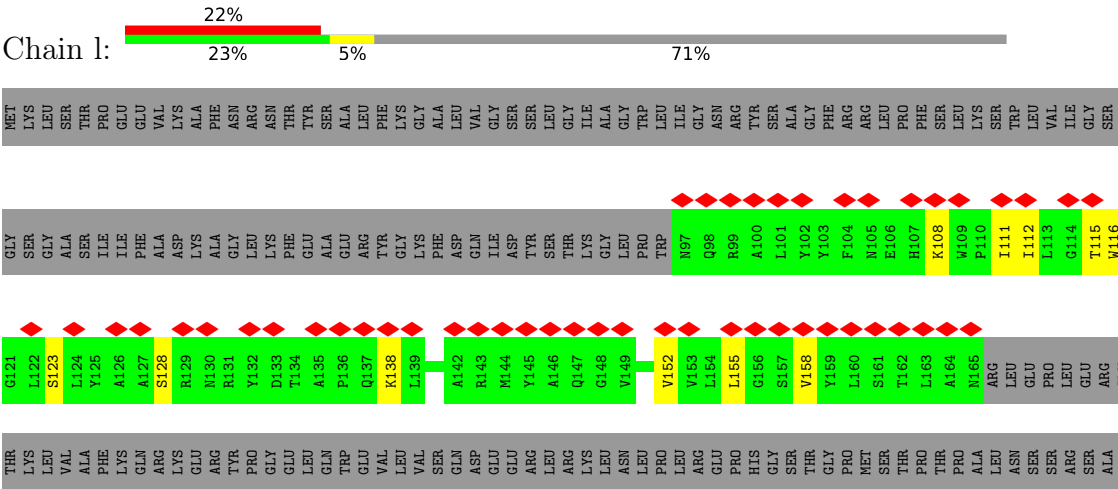
• Molecule 21: Cytochrome c oxidase subunit 13, mitochondrial

Chain k: 

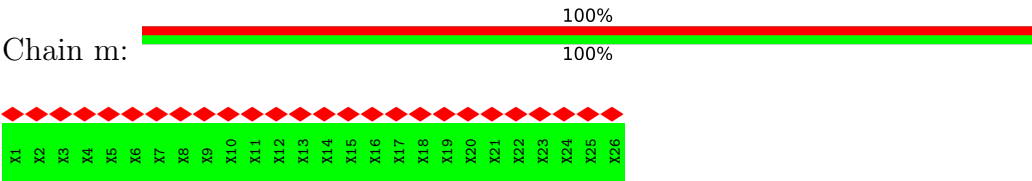




• Molecule 22: Respiratory supercomplex factor 2 homolog C1565.01



• Molecule 23: Unknown polypeptide



4 Experimental information

Property	Value	Source
EM reconstruction method	SINGLE PARTICLE	Depositor
Imposed symmetry	POINT, Not provided	
Number of particles used	125752	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 ($e^-/\text{\AA}^2$)	41.0	Depositor
Minimum defocus (nm)	600	Depositor
Maximum defocus (nm)	2000	Depositor
Magnification	105000	Depositor
Image detector	GATAN K3 BIOQUANTUM (6k x 4k)	Depositor
Maximum map value	0.727	Depositor
Minimum map value	-0.342	Depositor
Average map value	0.001	Depositor
Map value standard deviation	0.022	Depositor
Recommended contour level	0.08	Depositor
Map size (Å)	433.3568, 433.3568, 433.3568	wwPDB
Map dimensions	512, 512, 512	wwPDB
Map angles (°)	90.0, 90.0, 90.0	wwPDB
Pixel spacing (Å)	0.8464, 0.8464, 0.8464	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: PEF, ZN, PCF, CUA, HEC, HEA, MG, CU, FES, CA, U10, HEM, CDL

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	0.08	0/3510	0.25	0/4759
1	L	0.14	0/3510	0.25	0/4759
2	B	0.08	0/3104	0.23	0/4212
2	M	0.08	0/3103	0.24	0/4212
3	C	0.16	0/3204	0.32	0/4378
3	N	0.11	0/3204	0.29	0/4378
4	D	0.10	0/2002	0.26	0/2721
4	O	0.10	0/2002	0.25	0/2721
5	E	0.15	0/1418	0.35	0/1925
5	P	0.16	0/1418	0.31	0/1925
6	F	0.17	0/547	0.40	0/731
6	Q	0.26	0/547	0.45	0/731
7	G	0.26	0/1042	0.37	0/1402
7	R	0.19	0/1042	0.30	0/1402
8	H	0.09	0/719	0.27	0/963
8	S	0.10	0/722	0.30	0/971
9	I	0.11	0/512	0.25	0/691
9	T	0.27	0/512	0.39	0/691
10	J	0.19	0/653	0.41	0/888
10	U	0.11	0/653	0.29	0/888
11	a	0.16	0/4353	0.35	0/5950
12	b	0.16	0/1953	0.34	0/2668
13	c	0.11	0/2237	0.30	0/3057
14	d	0.13	0/940	0.38	0/1270
15	e	0.44	1/1173 (0.1%)	0.34	0/1580
16	f	0.22	0/828	0.39	0/1119
17	g	0.09	0/469	0.23	0/633
18	h	0.28	0/377	0.50	0/514
19	i	0.11	0/458	0.27	0/618
20	j	0.11	0/660	0.28	0/893
21	k	0.08	0/767	0.25	0/1039
22	l	0.11	0/563	0.32	0/767

Mol	Chain	Bond lengths		Bond angles	
		RMSZ	# Z >5	RMSZ	# Z >5
All	All	0.15	1/48202 (0.0%)	0.30	0/65456

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
7	G	0	1

All (1) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
15	e	180	PRO	N-CD	14.53	1.68	1.47

There are no bond angle outliers.

There are no chirality outliers.

All (1) planarity outliers are listed below:

Mol	Chain	Res	Type	Group
7	G	112	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	3449	0	3416	54	0
1	L	3449	0	3416	63	0
2	B	3044	0	3091	23	0
2	M	3043	0	3091	25	0
3	C	3101	0	3146	39	0
3	N	3101	0	3147	71	0
4	D	1943	0	1877	48	0
4	O	1943	0	1877	27	0
5	E	1384	0	1349	45	0
5	P	1384	0	1349	53	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
6	F	536	0	507	7	0
6	Q	536	0	507	16	0
7	G	1021	0	1059	19	0
7	R	1021	0	1059	20	0
8	H	697	0	676	6	0
8	S	698	0	679	25	0
9	I	497	0	483	9	0
9	T	497	0	483	27	0
10	J	629	0	630	25	0
10	U	629	0	630	25	0
11	a	4212	0	4233	248	0
12	b	1902	0	1872	88	0
13	c	2156	0	2101	112	0
14	d	922	0	907	70	0
15	e	1146	0	1140	33	0
16	f	813	0	805	29	0
17	g	457	0	467	8	0
18	h	363	0	379	18	0
19	i	445	0	444	8	0
20	j	636	0	575	4	0
21	k	741	0	689	31	0
22	l	550	0	554	9	0
23	m	130	0	29	0	0
24	A	1	0	0	0	0
24	L	1	0	0	0	0
24	d	1	0	0	0	0
25	A	57	0	58	5	0
25	H	157	0	208	9	0
25	L	57	0	58	5	0
25	S	150	0	191	6	0
26	A	100	0	160	11	0
26	L	50	0	80	3	0
26	T	50	0	80	3	0
27	A	47	0	73	7	0
27	D	47	0	73	2	0
27	J	47	0	73	6	0
27	N	94	0	146	7	0
27	O	47	0	73	1	0
27	a	47	0	73	2	0
27	b	47	0	73	3	0
27	c	47	0	73	3	0
27	k	47	0	73	12	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
28	C	86	0	60	7	0
28	N	86	0	60	6	0
29	C	63	0	90	7	0
29	N	63	0	90	5	0
30	D	43	0	32	6	0
30	O	43	0	32	3	0
31	E	4	0	0	4	0
31	P	4	0	0	2	0
32	a	120	0	108	10	0
33	a	1	0	0	0	0
34	a	1	0	0	0	0
35	b	1	0	0	0	0
36	b	2	0	0	0	0
All	All	48686	0	48704	1170	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 12.

All (1170) close contacts within the same asymmetric unit are listed below, sorted by their clash magnitude.

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
11:a:13:PHE:CE1	13:c:19:PRO:HB3	1.26	1.67
21:k:109:TRP:CH2	27:k:201:PEF:H112	1.39	1.57
11:a:13:PHE:HE1	13:c:19:PRO:CB	1.18	1.51
1:L:252:ILE:CD1	8:S:28:TYR:HE1	1.25	1.50
5:P:162:LYS:HD2	5:P:165:TRP:CH2	1.47	1.50
21:k:109:TRP:CE2	21:k:116:LEU:HD21	1.48	1.44
15:e:180:PRO:CD	15:e:180:PRO:N	1.68	1.44
3:N:89:PHE:CE2	3:N:124:THR:HG21	1.55	1.41
11:a:381:VAL:HA	11:a:384:PHE:CE2	1.54	1.40
11:a:420:GLN:NE2	11:a:474:LEU:HB3	1.10	1.38
1:L:252:ILE:CD1	8:S:28:TYR:CE1	2.03	1.38
11:a:515:GLN:O	14:d:132:TRP:CZ3	1.83	1.32
11:a:515:GLN:O	14:d:132:TRP:HZ3	1.04	1.29
4:D:86:PHE:CE2	4:D:263:LEU:HB3	1.68	1.28
3:N:92:PHE:CE2	3:N:236:PHE:CE1	2.23	1.27
11:a:516:SER:HA	14:d:132:TRP:CZ3	1.68	1.26
3:N:92:PHE:CZ	3:N:236:PHE:CD1	2.28	1.22
7:R:111:GLU:CG	7:R:115:PHE:HE2	1.53	1.22
5:P:50:MET:HE1	8:S:28:TYR:CZ	1.75	1.21
3:N:92:PHE:HE2	3:N:236:PHE:CE1	1.59	1.18

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
11:a:420:GLN:NE2	11:a:474:LEU:CB	2.05	1.18
21:k:109:TRP:CH2	27:k:201:PEF:C11	2.27	1.17
13:c:97:THR:CG2	13:c:252:PHE:CZ	2.29	1.17
1:L:252:ILE:HD11	8:S:28:TYR:CE1	1.73	1.16
13:c:255:VAL:CG1	13:c:259:PHE:HE2	1.55	1.16
3:C:70:ARG:NH2	4:D:110:LEU:HD13	1.58	1.15
21:k:109:TRP:CD2	21:k:116:LEU:HD21	1.81	1.15
3:N:89:PHE:HE2	3:N:124:THR:CG2	1.60	1.14
12:b:79:PHE:CE2	12:b:83:LEU:HD11	1.81	1.14
11:a:13:PHE:CZ	13:c:19:PRO:HB3	1.83	1.14
11:a:380:VAL:O	11:a:384:PHE:CD2	2.01	1.13
3:N:92:PHE:HZ	3:N:236:PHE:CD1	1.65	1.13
13:c:97:THR:HG23	13:c:252:PHE:CZ	1.83	1.12
11:a:13:PHE:HE1	13:c:19:PRO:CA	1.63	1.11
3:N:227:ILE:HD12	4:O:291:LYS:HD3	1.17	1.10
12:b:79:PHE:CZ	12:b:83:LEU:HD11	1.87	1.10
4:D:189:GLN:NE2	4:D:256:HIS:CD2	2.19	1.09
1:L:252:ILE:HD13	8:S:28:TYR:CE1	1.77	1.09
11:a:13:PHE:CE1	13:c:19:PRO:CB	2.04	1.09
11:a:381:VAL:HA	11:a:384:PHE:CZ	1.86	1.09
13:c:97:THR:CG2	13:c:252:PHE:HZ	1.65	1.09
5:P:162:LYS:CD	5:P:165:TRP:HH2	1.64	1.08
11:a:323:GLY:O	11:a:327:PHE:CD2	2.06	1.08
13:c:255:VAL:HG12	13:c:259:PHE:HE2	1.10	1.08
3:C:70:ARG:HH22	4:D:110:LEU:HD13	0.91	1.08
4:D:189:GLN:HE21	4:D:256:HIS:CG	1.72	1.07
13:c:108:PHE:CE2	13:c:112:LEU:CD2	2.38	1.07
21:k:109:TRP:CZ2	21:k:116:LEU:HD21	1.87	1.07
1:A:67:PHE:HZ	1:A:183:ILE:HG12	1.19	1.07
11:a:440:LEU:CD1	12:b:19:PHE:CE1	2.37	1.07
3:N:88:PHE:HD2	3:N:236:PHE:CE1	1.73	1.06
3:N:89:PHE:CE2	3:N:124:THR:CG2	2.36	1.06
11:a:440:LEU:HD12	12:b:19:PHE:CE1	1.91	1.06
11:a:381:VAL:CA	11:a:384:PHE:CE2	2.39	1.05
9:T:10:PHE:HD1	9:T:20:THR:OG1	1.39	1.04
13:c:56:LEU:HD11	13:c:60:MET:CE	1.85	1.04
13:c:194:PHE:CZ	13:c:201:TYR:CE2	2.45	1.04
1:A:67:PHE:CZ	1:A:183:ILE:HG12	1.93	1.04
5:E:194:HIS:HB2	31:E:301:FES:S2	1.97	1.04
13:c:194:PHE:CZ	13:c:201:TYR:HE2	1.76	1.04
10:U:54:LYS:O	10:U:59:GLN:HG2	1.57	1.04

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
5:P:162:LYS:CD	5:P:165:TRP:CH2	2.39	1.03
7:R:111:GLU:CG	7:R:115:PHE:CE2	2.43	1.02
21:k:109:TRP:CE2	21:k:116:LEU:CD2	2.43	1.02
11:a:323:GLY:O	11:a:327:PHE:HD2	1.38	1.02
21:k:109:TRP:CD2	21:k:116:LEU:CD2	2.43	1.01
1:L:252:ILE:HD11	8:S:28:TYR:HE1	0.85	1.01
7:R:111:GLU:HG2	7:R:115:PHE:HE2	1.22	1.01
14:d:110:THR:HG23	14:d:155:MET:HE1	1.41	1.00
13:c:255:VAL:HG12	13:c:259:PHE:CE2	1.95	1.00
1:L:263:ASN:OD1	1:L:336:VAL:HG22	1.60	1.00
18:h:33:TYR:OH	18:h:44:TYR:CE2	2.16	0.98
7:R:111:GLU:HG3	7:R:115:PHE:CE2	1.97	0.98
13:c:56:LEU:HD11	13:c:60:MET:HE1	1.45	0.98
4:D:189:GLN:HE21	4:D:256:HIS:CD2	1.78	0.98
4:D:86:PHE:CZ	4:D:263:LEU:HB3	1.99	0.98
3:N:222:ASN:OD1	3:N:223:PRO:HA	1.62	0.98
13:c:255:VAL:CG1	13:c:259:PHE:CE2	2.45	0.98
5:P:165:TRP:CZ2	5:P:220:PHE:CZ	2.52	0.97
1:A:63:GLY:O	1:A:67:PHE:CD2	2.16	0.97
18:h:33:TYR:OH	18:h:44:TYR:HE2	1.47	0.96
3:N:92:PHE:HE2	3:N:236:PHE:HE1	0.97	0.96
13:c:100:PHE:CZ	13:c:260:LEU:HD21	2.00	0.96
13:c:56:LEU:CD1	13:c:60:MET:CE	2.43	0.96
4:D:86:PHE:HE2	4:D:263:LEU:HB3	1.20	0.95
21:k:109:TRP:HH2	27:k:201:PEF:C11	1.71	0.95
3:N:227:ILE:CD1	4:O:291:LYS:HD3	1.97	0.95
5:P:165:TRP:HZ2	5:P:220:PHE:CZ	1.85	0.95
3:N:92:PHE:HZ	3:N:236:PHE:HD1	1.02	0.94
12:b:107:GLN:HB2	12:b:170:ARG:CZ	1.98	0.94
5:P:162:LYS:HB2	5:P:165:TRP:CZ2	2.01	0.94
11:a:420:GLN:HE21	11:a:474:LEU:HB3	1.12	0.94
11:a:440:LEU:HD12	12:b:19:PHE:HE1	1.32	0.94
10:J:5:PHE:CD2	10:J:8:LYS:HB2	2.02	0.94
11:a:13:PHE:CE1	13:c:19:PRO:CA	2.44	0.93
11:a:516:SER:CA	14:d:132:TRP:CZ3	2.52	0.93
11:a:440:LEU:HD11	12:b:19:PHE:CZ	2.03	0.92
13:c:97:THR:CG2	13:c:252:PHE:CE1	2.52	0.92
13:c:97:THR:HG22	13:c:252:PHE:CZ	2.04	0.92
3:C:70:ARG:HH22	4:D:110:LEU:CD1	1.80	0.92
5:P:177:CYS:HB2	31:P:301:FES:S2	2.08	0.92
4:D:86:PHE:CZ	4:D:263:LEU:CB	2.53	0.92

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
4:D:86:PHE:CZ	4:D:263:LEU:HD23	2.04	0.92
11:a:380:VAL:O	11:a:384:PHE:HD2	1.51	0.91
11:a:338:ILE:HG23	11:a:345:MET:HE2	1.52	0.91
1:L:252:ILE:HG12	8:S:28:TYR:CD1	2.05	0.91
14:d:110:THR:HG23	14:d:155:MET:CE	2.00	0.90
9:I:18:TYR:O	9:I:22:PHE:CD2	2.25	0.90
21:k:109:TRP:HH2	27:k:201:PEF:H112	1.15	0.90
3:N:88:PHE:CD2	3:N:236:PHE:CE1	2.59	0.89
3:N:227:ILE:HD12	4:O:291:LYS:CD	2.01	0.89
10:U:59:GLN:OE1	10:U:68:PHE:HB3	1.72	0.89
1:L:94:HIS:HB2	1:L:109:HIS:CE1	2.08	0.88
3:N:128:ALA:HB1	3:N:274:TYR:OH	1.74	0.88
3:N:88:PHE:HD2	3:N:236:PHE:HE1	1.19	0.87
12:b:140:ASP:CG	12:b:142:TYR:CE2	2.46	0.87
1:A:63:GLY:O	1:A:67:PHE:HD2	1.53	0.87
16:f:68:LEU:HD11	16:f:102:ILE:HD11	1.55	0.87
4:D:86:PHE:HD2	4:D:264:ASP:OD1	1.57	0.86
21:k:109:TRP:CZ2	27:k:201:PEF:H112	2.10	0.86
1:A:271:MET:CE	1:A:281:ALA:HB2	2.07	0.85
11:a:515:GLN:C	14:d:132:TRP:CZ3	2.54	0.85
15:e:177:ILE:O	15:e:180:PRO:HD3	1.75	0.85
12:b:108:LYS:O	12:b:170:ARG:NH2	2.08	0.85
11:a:515:GLN:C	14:d:132:TRP:HZ3	1.83	0.85
9:I:18:TYR:O	9:I:22:PHE:HD2	1.58	0.85
3:N:274:TYR:CE1	3:N:275:LEU:HD21	2.12	0.85
21:k:109:TRP:HH2	27:k:201:PEF:C12	1.88	0.85
11:a:420:GLN:HE22	11:a:474:LEU:CB	1.74	0.85
13:c:215:HIS:ND1	13:c:249:TYR:OH	2.09	0.85
11:a:115:ALA:HB2	11:a:159:LEU:HD11	1.58	0.85
4:D:86:PHE:CD2	4:D:264:ASP:OD1	2.30	0.84
11:a:536:LYS:HD2	14:d:130:LEU:HD21	1.59	0.84
10:J:5:PHE:CZ	10:J:7:ASN:HB2	2.12	0.84
5:P:50:MET:HE1	8:S:28:TYR:CE1	2.12	0.84
10:U:59:GLN:OE1	10:U:68:PHE:O	1.97	0.83
4:D:225:MET:SD	30:D:401:HEC:NA	2.51	0.83
11:a:479:MET:HE2	11:a:483:PHE:HZ	1.43	0.83
13:c:108:PHE:CE2	13:c:112:LEU:HD22	2.14	0.83
11:a:479:MET:HE2	11:a:483:PHE:CZ	2.14	0.83
11:a:534:PRO:HA	14:d:116:ARG:HH12	1.44	0.83
13:c:255:VAL:O	13:c:259:PHE:CD2	2.31	0.83
7:R:111:GLU:O	7:R:115:PHE:CD2	2.32	0.82

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
5:P:50:MET:HE1	8:S:28:TYR:OH	1.79	0.82
3:N:92:PHE:CZ	3:N:236:PHE:CE1	2.62	0.82
9:T:11:PHE:CE1	9:T:17:PHE:CE1	2.68	0.82
13:c:56:LEU:HG	13:c:60:MET:HE3	1.62	0.82
12:b:166:PRO:HD3	12:b:240:PHE:CE1	2.15	0.81
13:c:194:PHE:HZ	13:c:201:TYR:CE2	1.93	0.81
7:R:111:GLU:HG2	7:R:115:PHE:CE2	2.10	0.81
13:c:194:PHE:HZ	13:c:201:TYR:HE2	1.24	0.81
11:a:440:LEU:HD11	12:b:19:PHE:CE1	2.13	0.81
11:a:536:LYS:CD	14:d:119:GLY:HA3	2.10	0.81
5:P:162:LYS:HB2	5:P:165:TRP:CH2	2.16	0.80
11:a:536:LYS:HZ1	14:d:132:TRP:CD1	2.00	0.80
11:a:310:TYR:CD2	11:a:311:PHE:CD1	2.70	0.80
12:b:131:THR:HG22	12:b:132:ASN:H	1.46	0.80
1:A:456:ARG:NH1	25:A:502:CDL:OB4	2.15	0.80
9:T:10:PHE:CD1	9:T:20:THR:OG1	2.22	0.80
11:a:310:TYR:CE2	11:a:311:PHE:HE1	1.97	0.80
1:A:67:PHE:HZ	1:A:183:ILE:CG1	1.93	0.80
4:D:86:PHE:CZ	4:D:263:LEU:CD2	2.65	0.80
10:J:5:PHE:CD2	10:J:8:LYS:N	2.49	0.80
11:a:310:TYR:HD2	11:a:311:PHE:CD1	2.00	0.80
12:b:143:MET:HE1	12:b:156:GLN:HA	1.64	0.80
4:D:213:ASN:ND2	4:D:226:ALA:HA	1.98	0.79
1:L:252:ILE:CG1	8:S:28:TYR:CE1	2.65	0.79
12:b:140:ASP:CG	12:b:142:TYR:HE2	1.91	0.79
4:D:86:PHE:CE2	4:D:263:LEU:CB	2.59	0.79
5:E:140:GLN:NE2	5:E:141:GLU:OE1	2.16	0.79
4:O:287:TYR:CE2	4:O:291:LYS:HD2	2.18	0.79
13:c:136:GLU:HG3	13:c:138:PRO:HD2	1.63	0.79
5:P:165:TRP:CZ2	5:P:220:PHE:CE1	2.71	0.78
11:a:381:VAL:HG22	11:a:384:PHE:HZ	1.48	0.78
11:a:388:LEU:HD13	32:a:601:HEA:HAC	1.65	0.78
11:a:420:GLN:OE1	11:a:471:SER:CA	2.32	0.78
13:c:255:VAL:O	13:c:259:PHE:HD2	1.67	0.78
15:e:167:PHE:HZ	15:e:170:ARG:O	1.66	0.77
9:T:11:PHE:CE1	9:T:17:PHE:HE1	2.02	0.77
11:a:358:GLY:N	11:a:386:TYR:HE2	1.83	0.77
28:N:402:HEM:HHC	28:N:402:HEM:HBB2	1.67	0.77
3:N:89:PHE:HE2	3:N:124:THR:HG21	0.69	0.77
5:P:165:TRP:CE2	5:P:220:PHE:CE1	2.72	0.77
3:N:92:PHE:CE2	3:N:236:PHE:HE1	1.82	0.77

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
11:a:479:MET:HG3	11:a:483:PHE:CE2	2.21	0.77
13:c:108:PHE:CZ	13:c:112:LEU:HD22	2.20	0.77
11:a:535:THR:HG23	14:d:116:ARG:HH22	1.50	0.76
12:b:108:LYS:C	12:b:170:ARG:NH2	2.42	0.76
11:a:310:TYR:HE2	11:a:311:PHE:HE1	1.33	0.76
13:c:97:THR:HG23	13:c:252:PHE:HZ	1.24	0.76
11:a:310:TYR:CE2	11:a:311:PHE:CE1	2.74	0.75
6:Q:193:GLU:OE1	6:Q:193:GLU:N	2.20	0.75
3:C:381:ASN:HB2	7:G:24:SER:HB2	1.67	0.75
11:a:235:PRO:HG2	12:b:196:ILE:HD11	1.67	0.75
11:a:420:GLN:HE22	11:a:474:LEU:HB3	0.94	0.75
12:b:79:PHE:CE2	12:b:83:LEU:CD1	2.66	0.75
13:c:56:LEU:CD1	13:c:60:MET:HE2	2.14	0.75
1:A:303:SER:OG	1:A:306:SER:OG	2.05	0.75
1:A:435:ALA:HB1	1:A:439:ILE:HG21	1.69	0.75
4:D:86:PHE:HZ	4:D:263:LEU:CB	2.00	0.74
11:a:345:MET:HE3	11:a:349:ILE:HD11	1.67	0.74
13:c:100:PHE:HZ	13:c:260:LEU:HD21	1.48	0.74
13:c:108:PHE:CD2	13:c:112:LEU:HD23	2.22	0.74
13:c:108:PHE:CE2	13:c:112:LEU:HD23	2.22	0.74
11:a:420:GLN:CD	11:a:471:SER:O	2.30	0.74
13:c:141:ASN:HD22	13:c:185:GLN:NE2	1.86	0.74
7:R:111:GLU:O	7:R:115:PHE:HD2	1.69	0.73
1:A:271:MET:HE1	1:A:281:ALA:HB2	1.70	0.73
11:a:310:TYR:CD2	11:a:311:PHE:HD1	2.07	0.73
21:k:109:TRP:CE3	21:k:116:LEU:CD2	2.71	0.73
13:c:255:VAL:HG13	13:c:259:PHE:CE2	2.23	0.73
5:P:162:LYS:CB	5:P:165:TRP:CH2	2.72	0.73
13:c:97:THR:HG22	13:c:252:PHE:HZ	1.45	0.73
11:a:532:THR:HG21	14:d:116:ARG:HD3	1.71	0.72
11:a:393:LEU:HD21	32:a:601:HEA:H171	1.72	0.72
5:P:165:TRP:NE1	5:P:220:PHE:CE1	2.57	0.72
13:c:141:ASN:HD22	13:c:185:GLN:HE21	1.35	0.72
13:c:100:PHE:HZ	13:c:260:LEU:CD2	2.02	0.72
10:U:59:GLN:OE1	10:U:68:PHE:CB	2.38	0.71
5:P:179:PRO:HG3	5:P:191:CYS:SG	2.29	0.71
11:a:420:GLN:OE1	11:a:471:SER:O	2.08	0.71
15:e:179:SER:C	15:e:180:PRO:CD	2.62	0.71
3:N:227:ILE:CD1	4:O:291:LYS:CD	2.64	0.71
21:k:59:LYS:O	21:k:63:TYR:HB2	1.91	0.70
13:c:100:PHE:CE1	13:c:103:ILE:HD11	2.25	0.70

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
11:a:354:LEU:HA	11:a:386:TYR:OH	1.91	0.70
12:b:162:ARG:HH12	12:b:233:GLN:HG2	1.56	0.70
2:B:88:LEU:HD21	10:J:5:PHE:HZ	1.57	0.70
11:a:274:PHE:HE2	12:b:78:GLU:OE2	1.74	0.70
11:a:13:PHE:CE1	13:c:19:PRO:HA	2.26	0.70
27:A:504:PEF:H351	26:A:505:PCF:H232	1.73	0.69
11:a:536:LYS:CD	14:d:130:LEU:HD21	2.21	0.69
1:A:154:ALA:HB1	1:A:263:ASN:HD22	1.55	0.69
10:U:76:ASP:OD1	10:U:77:LYS:N	2.25	0.69
13:c:100:PHE:CE1	13:c:260:LEU:HD21	2.27	0.69
3:N:274:TYR:CE1	3:N:275:LEU:CD2	2.76	0.69
11:a:381:VAL:HG22	11:a:384:PHE:CZ	2.27	0.69
1:A:79:ARG:NH2	1:A:121:VAL:HG22	2.08	0.69
10:U:76:ASP:CG	10:U:77:LYS:H	2.01	0.69
12:b:127:ASN:ND2	20:j:67:MET:SD	2.64	0.69
16:f:91:ARG:NH2	16:f:94:ASN:OD1	2.26	0.69
21:k:109:TRP:CZ2	21:k:116:LEU:CD2	2.74	0.69
11:a:310:TYR:CD2	11:a:311:PHE:CE1	2.81	0.68
13:c:154:TYR:HB2	21:k:57:TRP:HB3	1.76	0.68
3:N:274:TYR:HE1	3:N:275:LEU:HD21	1.55	0.68
10:J:5:PHE:CE2	10:J:7:ASN:HB2	2.28	0.67
1:L:154:ALA:HB1	1:L:263:ASN:HD22	1.58	0.67
4:O:304:ARG:HH21	7:R:61:MET:HE3	1.60	0.67
11:a:37:VAL:HG22	18:h:52:PHE:CE1	2.30	0.67
12:b:108:LYS:C	12:b:170:ARG:HH22	2.03	0.67
5:E:129:VAL:HG12	5:E:169:ILE:HA	1.74	0.67
3:N:274:TYR:CD1	3:N:275:LEU:CD2	2.77	0.67
11:a:5:TRP:NE1	11:a:9:ASN:HD21	1.91	0.67
3:N:88:PHE:CD2	3:N:236:PHE:HE1	2.05	0.67
11:a:247:HIS:CG	11:a:296:HIS:HE1	2.13	0.67
3:N:35:LEU:HD13	3:N:92:PHE:CE1	2.30	0.66
10:U:59:GLN:HE22	10:U:69:LYS:CG	2.09	0.66
11:a:43:ARG:NH2	32:a:601:HEA:OMA	2.28	0.66
11:a:57:ASN:OD1	11:a:59:GLN:HG2	1.95	0.66
2:B:88:LEU:HD21	10:J:5:PHE:CZ	2.29	0.66
6:F:193:GLU:N	6:F:193:GLU:OE1	2.28	0.66
11:a:532:THR:HG21	14:d:116:ARG:CD	2.26	0.66
13:c:36:THR:HA	13:c:39:LEU:HD12	1.76	0.66
10:J:5:PHE:CE2	10:J:8:LYS:N	2.62	0.66
2:M:128:PHE:HB3	2:M:183:ILE:HD11	1.78	0.66
11:a:357:ILE:HB	11:a:386:TYR:OH	1.95	0.66

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
11:a:534:PRO:HA	14:d:116:ARG:NH1	2.10	0.66
13:c:56:LEU:HD11	13:c:60:MET:HE2	1.75	0.66
3:N:92:PHE:CZ	3:N:236:PHE:HD1	1.88	0.66
11:a:536:LYS:HD3	14:d:119:GLY:HA3	1.78	0.66
13:c:194:PHE:CE2	13:c:201:TYR:HE2	2.13	0.66
4:D:86:PHE:HZ	4:D:263:LEU:HB2	1.59	0.66
11:a:209:LEU:HD12	11:a:245:PHE:CD2	2.30	0.66
2:B:128:PHE:HB3	2:B:183:ILE:HD11	1.79	0.65
5:P:162:LYS:HD2	5:P:165:TRP:HH2	0.74	0.65
13:c:108:PHE:CD2	13:c:112:LEU:CD2	2.79	0.65
12:b:12:PRO:O	15:e:172:GLN:NE2	2.29	0.65
12:b:18:TYR:CE1	19:i:36:TYR:CE1	2.84	0.65
4:D:63:GLY:N	4:D:68:GLU:OE2	2.29	0.65
11:a:345:MET:HE3	11:a:349:ILE:CD1	2.26	0.65
11:a:420:GLN:OE1	11:a:471:SER:HA	1.97	0.65
16:f:52:ASN:ND2	16:f:81:ASP:OD2	2.29	0.65
11:a:447:ILE:HG22	12:b:226:SER:HB3	1.79	0.65
11:a:29:LEU:HD11	11:a:476:MET:HE1	1.77	0.65
1:A:255:ARG:NH2	1:A:440:GLU:OE1	2.29	0.65
10:J:55:THR:HA	10:J:59:GLN:NE2	2.11	0.65
9:T:11:PHE:CD1	9:T:17:PHE:CE1	2.85	0.65
16:f:52:ASN:O	16:f:85:GLN:NE2	2.22	0.65
4:D:225:MET:SD	30:D:401:HEC:FE	1.89	0.65
13:c:196:ILE:HG13	13:c:203:ALA:HA	1.79	0.65
11:a:420:GLN:HE21	11:a:474:LEU:CB	1.87	0.64
15:e:73:ARG:NH1	15:e:85:GLU:OE2	2.29	0.64
1:A:140:ARG:NH2	1:A:186:LEU:O	2.31	0.64
10:J:5:PHE:HD2	10:J:8:LYS:HB2	1.60	0.64
8:S:52:ARG:NH2	25:S:102:CDL:OA4	2.30	0.64
11:a:536:LYS:CE	14:d:130:LEU:HD21	2.27	0.64
13:c:108:PHE:CZ	13:c:112:LEU:CD2	2.80	0.64
11:a:194:ALA:O	11:a:198:THR:HG23	1.97	0.64
10:U:70:ASP:OD1	10:U:71:LYS:N	2.31	0.64
15:e:49:VAL:O	15:e:54:ARG:NH2	2.29	0.64
2:M:45:LEU:HD23	2:M:119:LEU:HD12	1.80	0.64
1:L:252:ILE:HG12	8:S:28:TYR:CE1	2.31	0.64
6:Q:165:GLU:OE1	6:Q:165:GLU:N	2.25	0.64
11:a:48:ALA:HB3	11:a:52:GLN:HE22	1.62	0.64
5:E:49:GLU:OE2	5:E:49:GLU:N	2.30	0.64
14:d:142:ARG:NH1	16:f:60:ASP:OD2	2.31	0.64
28:C:401:HEM:HBC2	28:C:401:HEM:HMC1	1.79	0.63

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
11:a:536:LYS:HE3	14:d:132:TRP:CD1	2.33	0.63
5:E:85:GLN:HE22	10:J:49:GLN:HG3	1.62	0.63
11:a:358:GLY:N	11:a:386:TYR:CE2	2.64	0.63
11:a:420:GLN:OE1	11:a:471:SER:C	2.41	0.63
5:E:194:HIS:CB	31:E:301:FES:S2	2.75	0.63
5:E:174:HIS:HB2	5:E:209:ALA:HA	1.80	0.63
4:O:185:ARG:NH2	30:O:401:HEC:O1A	2.31	0.63
1:A:263:ASN:OD1	1:A:336:VAL:HG22	1.97	0.63
11:a:5:TRP:CD1	11:a:9:ASN:ND2	2.66	0.63
13:c:73:ILE:HD11	17:g:13:GLN:HG3	1.80	0.63
1:A:253:ARG:NH2	1:A:443:LEU:O	2.28	0.63
10:J:5:PHE:CE2	10:J:8:LYS:HB2	2.32	0.63
5:E:196:SER:HB3	5:E:208:PRO:HD2	1.79	0.62
7:R:67:VAL:HG11	8:S:22:GLN:HG2	1.81	0.62
13:c:37:LEU:HD11	17:g:51:VAL:HG21	1.80	0.62
13:c:194:PHE:CE2	13:c:201:TYR:CE2	2.86	0.62
27:J:101:PEF:H453	3:N:157:ILE:HD11	1.81	0.62
1:L:389:ASP:OD2	1:L:400:ARG:NH1	2.33	0.62
1:A:131:ILE:O	1:A:188:ARG:NH1	2.30	0.62
5:P:165:TRP:CE2	5:P:220:PHE:CZ	2.87	0.62
11:a:118:LEU:HB3	13:c:29:PHE:HE1	1.63	0.62
1:A:291:TRP:NE1	1:A:298:SER:OG	2.33	0.62
12:b:111:MET:HE2	12:b:171:ILE:HG12	1.80	0.62
3:C:237:LEU:O	3:C:241:ASN:ND2	2.28	0.62
1:L:68:LEU:HD11	1:L:195:ILE:HD11	1.80	0.62
13:c:84:GLY:HA2	13:c:87:ILE:HD12	1.81	0.62
1:L:23:GLU:N	1:L:23:GLU:OE1	2.32	0.62
5:P:165:TRP:NE1	5:P:220:PHE:HE1	1.97	0.61
5:P:179:PRO:HB2	5:P:189:TRP:HB3	1.82	0.61
10:J:5:PHE:HE2	10:J:8:LYS:HG3	1.66	0.61
14:d:121:THR:O	14:d:127:SER:OG	2.19	0.61
3:N:222:ASN:OD1	3:N:223:PRO:CA	2.44	0.61
11:a:255:MET:HA	11:a:258:PHE:HD2	1.66	0.61
11:a:535:THR:HG23	14:d:116:ARG:NH2	2.16	0.61
1:A:67:PHE:CZ	1:A:183:ILE:HA	2.35	0.61
6:Q:177:VAL:O	6:Q:181:VAL:HG22	2.01	0.61
11:a:420:GLN:NE2	11:a:471:SER:O	2.34	0.61
13:c:194:PHE:CZ	13:c:201:TYR:CD2	2.87	0.61
1:L:435:ALA:HB1	1:L:439:ILE:HG21	1.81	0.61
11:a:113:PRO:O	11:a:117:MET:HG2	2.01	0.61
11:a:310:TYR:HD2	11:a:311:PHE:HD1	1.42	0.61

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
19:i:16:THR:O	19:i:20:VAL:HG23	2.01	0.61
6:F:167:LYS:NZ	6:F:171:GLU:OE2	2.33	0.60
11:a:77:ILE:HG22	11:a:253:LEU:HD11	1.82	0.60
13:c:56:LEU:CG	13:c:60:MET:HE3	2.31	0.60
1:A:67:PHE:CE1	1:A:183:ILE:HG23	2.36	0.60
1:L:417:ASP:OD1	1:L:420:ARG:NH2	2.33	0.60
11:a:260:VAL:HG21	11:a:399:ALA:HB2	1.83	0.60
21:k:109:TRP:CD2	21:k:116:LEU:HD22	2.35	0.60
10:U:59:GLN:NE2	10:U:69:LYS:HG3	2.17	0.60
10:J:5:PHE:CD2	10:J:8:LYS:CB	2.82	0.60
11:a:517:ILE:HG21	11:a:530:PHE:HZ	1.66	0.60
21:k:109:TRP:CH2	21:k:116:LEU:HD21	2.36	0.60
4:D:81:LYS:O	4:D:267:LYS:NZ	2.33	0.60
10:U:59:GLN:NE2	10:U:69:LYS:CG	2.65	0.60
10:U:59:GLN:HE22	10:U:69:LYS:HG3	1.67	0.60
6:F:165:GLU:OE2	6:F:165:GLU:N	2.30	0.60
3:N:221:MET:HE1	29:N:403:U10:H3M3	1.84	0.60
11:a:5:TRP:CD1	11:a:9:ASN:HD21	2.20	0.60
11:a:219:ASP:OD1	11:a:224:THR:OG1	2.20	0.60
16:f:42:VAL:HG11	16:f:47:ILE:HD13	1.83	0.60
28:C:402:HEM:HBC2	28:C:402:HEM:HMC2	1.83	0.60
4:D:213:ASN:HD21	4:D:226:ALA:HA	1.67	0.60
1:L:58:THR:OG1	1:L:60:LYS:NZ	2.35	0.60
3:N:90:PHE:CE2	3:N:274:TYR:CD1	2.90	0.59
9:T:5:THR:O	9:T:9:ILE:HG13	2.02	0.59
9:T:10:PHE:HD1	9:T:20:THR:HG1	0.73	0.59
28:N:401:HEM:HMC1	28:N:401:HEM:HBC2	1.84	0.59
15:e:75:LYS:HA	16:f:94:ASN:HD21	1.67	0.59
7:G:115:PHE:HA	7:G:118:LEU:HG	1.83	0.59
16:f:61:GLN:NE2	16:f:95:ASP:OD2	2.35	0.59
1:L:94:HIS:CB	1:L:109:HIS:CE1	2.84	0.59
3:N:90:PHE:CZ	3:N:274:TYR:CE1	2.90	0.59
10:U:52:LYS:O	10:U:56:THR:OG1	2.15	0.59
14:d:157:ASP:OD1	14:d:157:ASP:N	2.36	0.59
5:P:70:TYR:CB	9:T:11:PHE:CD2	2.85	0.59
1:A:63:GLY:O	1:A:67:PHE:CE2	2.55	0.59
3:C:287:ASN:OD1	3:C:288:PHE:N	2.35	0.59
3:C:69:VAL:HG12	3:C:70:ARG:HG3	1.85	0.59
3:N:17:MET:HE1	26:T:101:PCF:H441	1.85	0.59
12:b:166:PRO:HD3	12:b:240:PHE:CD1	2.38	0.59
1:L:252:ILE:CG1	8:S:28:TYR:CD1	2.79	0.59

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
5:P:70:TYR:HB3	9:T:11:PHE:CE2	2.38	0.59
11:a:176:ILE:O	11:a:179:ARG:NH1	2.36	0.58
11:a:274:PHE:CE2	12:b:78:GLU:OE2	2.55	0.58
15:e:177:ILE:O	15:e:180:PRO:CD	2.51	0.58
11:a:247:HIS:ND1	11:a:296:HIS:HE1	1.96	0.58
25:H:101:CDL:H742	25:H:102:CDL:H111	1.85	0.58
1:L:131:ILE:O	1:L:188:ARG:NH1	2.34	0.58
1:L:446:ASN:ND2	3:N:224:TYR:OH	2.33	0.58
11:a:365:LEU:HD22	11:a:380:VAL:HG12	1.85	0.58
11:a:536:LYS:CE	14:d:132:TRP:CD1	2.86	0.58
1:A:399:ARG:HE	15:e:54:ARG:HE	1.49	0.58
7:G:120:VAL:HG21	1:L:366:GLU:HG3	1.85	0.58
1:L:251:GLU:OE1	1:L:253:ARG:NH1	2.36	0.58
11:a:536:LYS:NZ	14:d:132:TRP:CD1	2.71	0.58
1:L:252:ILE:HD13	8:S:28:TYR:CZ	2.32	0.58
11:a:47:SER:OG	15:e:129:ARG:NH1	2.37	0.58
11:a:122:SER:HB2	11:a:152:LEU:HB2	1.86	0.58
11:a:135:VAL:O	11:a:238:TYR:OH	2.17	0.58
5:P:162:LYS:HD2	5:P:165:TRP:CZ3	2.27	0.58
12:b:113:VAL:HG23	12:b:171:ILE:HG21	1.84	0.58
2:B:72:THR:HG23	2:B:77:SER:HA	1.85	0.58
4:O:285:MET:HB3	25:S:102:CDL:H512	1.85	0.58
11:a:516:SER:HA	14:d:132:TRP:CH2	2.35	0.58
13:c:97:THR:CG2	13:c:252:PHE:HE1	2.14	0.58
12:b:18:TYR:CZ	19:i:36:TYR:CE1	2.92	0.57
3:C:381:ASN:ND2	7:G:25:ASN:OD1	2.37	0.57
6:Q:174:THR:O	6:Q:178:THR:OG1	2.19	0.57
11:a:381:VAL:N	11:a:384:PHE:CE2	2.72	0.57
6:F:180:LYS:NZ	6:F:185:ASP:OD2	2.38	0.57
7:G:118:LEU:HD11	10:U:4:PHE:CE2	2.40	0.57
21:k:88:LYS:HE3	21:k:121:LYS:HB3	1.86	0.57
1:A:344:ASP:OD1	1:A:344:ASP:N	2.36	0.57
11:a:515:GLN:C	14:d:132:TRP:CE3	2.82	0.57
28:N:402:HEM:HBC2	28:N:402:HEM:HMC1	1.85	0.57
4:O:304:ARG:NH2	7:R:61:MET:CE	2.68	0.57
5:P:165:TRP:NE1	5:P:220:PHE:CZ	2.73	0.57
3:N:88:PHE:O	3:N:92:PHE:HD2	1.87	0.57
10:U:59:GLN:CD	10:U:68:PHE:O	2.47	0.57
28:C:401:HEM:HBB2	28:C:401:HEM:HMB2	1.87	0.57
11:a:420:GLN:OE1	11:a:471:SER:OG	2.20	0.57
5:P:201:SER:OG	5:P:203:ARG:NH2	2.36	0.57

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
11:a:364:ILE:HD13	12:b:37:LEU:HD22	1.85	0.57
13:c:56:LEU:CG	13:c:60:MET:CE	2.82	0.57
13:c:257:TRP:HA	13:c:260:LEU:HD12	1.86	0.57
11:a:385:HIS:CE1	32:a:601:HEA:NA	2.72	0.57
4:D:189:GLN:NE2	4:D:256:HIS:CG	2.51	0.56
3:N:217:ASP:OD2	4:O:298:ARG:NH2	2.38	0.56
5:P:70:TYR:HB3	9:T:11:PHE:CD2	2.40	0.56
12:b:108:LYS:N	12:b:170:ARG:NH2	2.53	0.56
4:D:238:ASP:OD1	4:D:240:THR:OG1	2.21	0.56
11:a:380:VAL:C	11:a:384:PHE:CD2	2.83	0.56
3:C:164:LEU:HD23	29:N:403:U10:H452	1.86	0.56
5:E:58:THR:HG23	5:E:60:SER:H	1.71	0.56
1:L:187:THR:HG23	1:L:189:GLU:H	1.70	0.56
28:N:401:HEM:HMB2	28:N:401:HEM:HBB2	1.87	0.56
4:O:304:ARG:HH21	7:R:61:MET:CE	2.18	0.56
11:a:265:ILE:HD12	11:a:333:LEU:HD21	1.87	0.56
11:a:476:MET:HE2	11:a:476:MET:HA	1.86	0.56
21:k:117:PHE:HB2	27:k:201:PEF:H51	1.87	0.56
1:A:181:GLU:OE1	1:A:181:GLU:N	2.36	0.56
9:T:11:PHE:CD1	9:T:17:PHE:CD1	2.94	0.56
4:D:281:THR:O	4:D:285:MET:HG3	2.05	0.56
11:a:406:LYS:NZ	11:a:518:GLU:O	2.37	0.56
1:L:140:ARG:HD3	1:L:184:GLU:HA	1.88	0.56
11:a:310:TYR:HE2	11:a:311:PHE:CE1	2.17	0.56
28:C:402:HEM:HBB2	28:C:402:HEM:HMB2	1.86	0.56
11:a:5:TRP:NE1	11:a:9:ASN:ND2	2.54	0.56
15:e:151:MET:HB2	15:e:156:ILE:HD12	1.88	0.56
5:E:68:ILE:O	5:E:72:MET:HG2	2.06	0.56
5:E:138:GLU:HB3	5:E:200:ILE:HG12	1.88	0.56
1:A:167:TYR:HH	1:A:328:THR:HG1	1.54	0.56
1:A:154:ALA:HB1	1:A:263:ASN:ND2	2.21	0.56
12:b:191:ILE:HD11	12:b:203:VAL:HB	1.88	0.56
1:A:362:ARG:HH21	7:R:119:ILE:HD11	1.71	0.55
10:J:5:PHE:HD2	10:J:8:LYS:N	2.03	0.55
11:a:154:ILE:HG12	11:a:213:LEU:HD11	1.86	0.55
11:a:420:GLN:OE1	11:a:471:SER:CB	2.55	0.55
11:a:380:VAL:C	11:a:384:PHE:CE2	2.84	0.55
27:A:504:PEF:N	26:A:505:PCF:O14	2.40	0.55
3:C:113:THR:HG22	3:C:197:HIS:CE1	2.41	0.55
8:H:56:GLU:N	8:H:56:GLU:OE2	2.38	0.55
11:a:538:ILE:HB	14:d:94:PRO:HB2	1.88	0.55

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
13:c:97:THR:HG21	13:c:252:PHE:HE1	1.72	0.55
15:e:54:ARG:HG2	15:e:58:MET:HE2	1.89	0.55
7:R:75:GLN:NE2	7:R:79:GLU:OE2	2.40	0.55
9:T:11:PHE:CD1	9:T:17:PHE:HE1	2.23	0.55
11:a:250:VAL:HB	32:a:602:HEA:CAC	2.35	0.55
12:b:140:ASP:O	12:b:161:ASN:ND2	2.39	0.55
18:h:56:PHE:O	18:h:59:VAL:HG12	2.06	0.55
11:a:99:VAL:HG21	11:a:105:ASN:HD22	1.72	0.55
11:a:536:LYS:CE	14:d:132:TRP:NE1	2.69	0.55
12:b:43:PHE:HZ	19:i:22:MET:HE1	1.72	0.55
12:b:246:GLU:OE1	12:b:247:ASN:ND2	2.39	0.55
14:d:111:SER:OG	14:d:153:LYS:O	2.23	0.55
5:E:172:CYS:HB3	5:E:177:CYS:H	1.70	0.55
11:a:313:ALA:HB2	12:b:97:PHE:HZ	1.72	0.55
2:B:425:GLU:OE2	2:M:167:ARG:NH2	2.40	0.55
4:D:189:GLN:HE22	4:D:256:HIS:CD2	2.16	0.55
5:E:159:ARG:HH12	5:E:203:ARG:HG2	1.70	0.55
16:f:45:GLU:O	16:f:49:THR:HG23	2.07	0.55
3:C:30:TRP:HA	3:C:99:ARG:NH1	2.22	0.55
11:a:13:PHE:HB3	13:c:17:ALA:HA	1.89	0.55
11:a:357:ILE:HD11	12:b:45:PHE:HE1	1.72	0.55
13:c:56:LEU:HD12	13:c:60:MET:HE2	1.88	0.55
13:c:260:LEU:O	13:c:264:ILE:HG22	2.06	0.55
4:D:86:PHE:CE1	4:D:263:LEU:HD23	2.41	0.55
14:d:107:ILE:H	14:d:107:ILE:HD12	1.72	0.55
4:D:76:ASP:OD1	4:D:76:ASP:N	2.39	0.54
5:P:70:TYR:HB2	9:T:11:PHE:CD2	2.43	0.54
12:b:80:ILE:HG21	27:b:302:PEF:H381	1.89	0.54
12:b:107:GLN:HB2	12:b:170:ARG:NE	2.22	0.54
9:I:58:ASN:N	9:I:58:ASN:OD1	2.38	0.54
10:J:5:PHE:CE2	10:J:8:LYS:HG3	2.42	0.54
1:L:236:SER:OG	1:L:237:LEU:N	2.41	0.54
6:Q:192:GLU:O	6:Q:196:HIS:ND1	2.27	0.54
11:a:38:PHE:CE1	18:h:55:PRO:HB3	2.43	0.54
14:d:143:CYS:CB	14:d:146:CYS:SG	2.94	0.54
2:B:192:LYS:O	2:B:192:LYS:HG2	2.07	0.54
11:a:312:SER:O	11:a:315:THR:OG1	2.25	0.54
1:L:373:ARG:NH1	1:L:407:ASP:OD2	2.41	0.54
1:L:449:ARG:HG2	27:N:404:PEF:HN1	1.72	0.54
14:d:128:HIS:CD2	14:d:145:GLU:HG3	2.42	0.54
7:G:109:ARG:O	7:G:113:GLU:HG3	2.07	0.54

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
11:a:535:THR:HB	14:d:94:PRO:HA	1.90	0.54
16:f:79:SER:OG	16:f:81:ASP:OD1	2.25	0.54
4:D:189:GLN:NE2	4:D:256:HIS:NE2	2.53	0.54
10:J:14:GLN:NE2	7:R:119:ILE:HB	2.23	0.54
6:Q:165:GLU:O	6:Q:169:HIS:ND1	2.36	0.54
12:b:108:LYS:N	12:b:108:LYS:HD2	2.22	0.54
16:f:76:ILE:HA	19:i:7:THR:HG22	1.90	0.54
1:L:44:ALA:HA	1:L:210:GLY:HA3	1.89	0.54
11:a:221:ASN:HA	21:k:105:LYS:HD2	1.89	0.54
6:Q:150:LEU:HD13	6:Q:209:VAL:HG11	1.89	0.54
8:S:66:ILE:O	8:S:70:ILE:HG23	2.08	0.54
5:E:151:ARG:NH1	5:E:207:GLY:O	2.41	0.54
6:F:151:GLU:OE1	6:F:151:GLU:N	2.27	0.54
9:I:26:PHE:HB2	10:J:45:VAL:HG22	1.89	0.54
11:a:515:GLN:O	14:d:132:TRP:CE3	2.54	0.54
1:L:328:THR:OG1	1:L:329:GLY:N	2.41	0.53
11:a:33:ILE:HD13	18:h:51:ILE:HG23	1.90	0.53
1:L:268:VAL:HG12	1:L:431:ILE:HG22	1.90	0.53
3:N:128:ALA:CB	3:N:274:TYR:OH	2.54	0.53
11:a:536:LYS:HD2	14:d:119:GLY:HA3	1.89	0.53
12:b:88:ILE:O	12:b:92:VAL:HG12	2.08	0.53
12:b:107:GLN:HB2	12:b:170:ARG:NH2	2.23	0.53
13:c:97:THR:HG21	13:c:252:PHE:CE1	2.41	0.53
1:L:141:GLN:OE1	1:L:141:GLN:N	2.36	0.53
4:O:228:PRO:HB2	30:O:401:HEC:HBB2	1.90	0.53
12:b:220:LEU:HA	12:b:225:HIS:CG	2.42	0.53
16:f:124:LYS:HB3	16:f:125:PRO:HD3	1.90	0.53
4:D:225:MET:SD	30:D:401:HEC:NB	2.82	0.53
12:b:228:MET:HG3	12:b:228:MET:O	2.08	0.53
1:L:202:ASP:OD2	1:L:231:SER:N	2.41	0.53
11:a:159:LEU:HA	11:a:162:ILE:HG12	1.90	0.53
12:b:160:ASP:OD1	12:b:160:ASP:N	2.41	0.53
11:a:78:ILE:HG12	11:a:253:LEU:HD13	1.91	0.53
13:c:262:LEU:HD13	22:l:116:TRP:HH2	1.74	0.53
14:d:101:GLY:HA3	14:d:148:SER:HA	1.89	0.53
11:a:440:LEU:O	12:b:19:PHE:CD1	2.62	0.53
16:f:98:THR:O	16:f:102:ILE:HG12	2.08	0.53
22:l:120:MET:HE3	22:l:120:MET:O	2.09	0.53
3:C:139:MET:SD	3:C:256:CYS:SG	2.90	0.53
3:N:277:PRO:HG3	3:N:337:ALA:HB2	1.91	0.53
5:P:169:ILE:HG13	5:P:216:PRO:HD3	1.90	0.53

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
15:e:151:MET:HE2	15:e:172:GLN:HG3	1.91	0.53
3:C:79:ARG:NH1	28:C:401:HEM:O2A	2.43	0.52
10:J:5:PHE:CE2	10:J:8:LYS:CB	2.92	0.52
21:k:116:LEU:HB2	27:k:201:PEF:H11	1.89	0.52
8:S:58:LEU:HA	8:S:61:ALA:HB3	1.91	0.52
1:L:57:GLU:OE2	1:L:64:ALA:N	2.43	0.52
2:M:88:LEU:HG	10:U:5:PHE:HZ	1.74	0.52
6:Q:190:CYS:HB2	6:Q:193:GLU:CD	2.34	0.52
11:a:247:HIS:CE1	11:a:296:HIS:CE1	2.94	0.52
12:b:114:LYS:NZ	20:j:63:SER:O	2.42	0.52
21:k:109:TRP:CE3	21:k:116:LEU:HD21	2.36	0.52
2:B:48:VAL:HG22	2:B:102:ILE:HG12	1.89	0.52
11:a:4:TRP:O	11:a:8:VAL:HG23	2.09	0.52
8:S:56:GLU:HG2	25:S:101:CDL:HA61	1.90	0.52
11:a:5:TRP:O	11:a:9:ASN:ND2	2.42	0.52
11:a:380:VAL:O	11:a:384:PHE:CE2	2.58	0.52
16:f:43:SER:OG	16:f:44:LEU:N	2.43	0.52
1:A:328:THR:OG1	1:A:329:GLY:N	2.43	0.52
26:A:505:PCF:H291	26:A:505:PCF:H391	1.92	0.52
3:C:184:TYR:CZ	28:C:401:HEM:HBC1	2.44	0.52
3:C:367:ILE:HA	3:C:370:TYR:CE2	2.45	0.52
1:L:255:ARG:NH2	1:L:440:GLU:OE2	2.43	0.52
3:N:110:ARG:HH21	3:N:207:SER:HB2	1.75	0.52
5:P:154:GLN:HG3	5:P:158:ASP:HB3	1.92	0.52
11:a:266:PRO:HD3	11:a:273:ILE:HD11	1.91	0.52
14:d:110:THR:CG2	14:d:155:MET:HE1	2.28	0.52
16:f:44:LEU:HD11	19:i:7:THR:HG21	1.91	0.52
2:B:368:ASN:OD1	2:B:371:SER:OG	2.22	0.52
4:D:66:LYS:HG3	6:F:191:ILE:HD12	1.90	0.52
4:O:224:ALA:HB3	30:O:401:HEC:HBD2	1.91	0.52
5:P:70:TYR:CB	9:T:11:PHE:CE2	2.93	0.52
13:c:90:MET:O	13:c:94:ILE:HG12	2.09	0.52
17:g:12:LEU:HD21	17:g:22:GLN:HB3	1.91	0.52
3:N:132:TYR:HA	28:N:401:HEM:HAD2	1.91	0.52
12:b:95:PRO:HA	12:b:98:LYS:HZ3	1.74	0.52
13:c:215:HIS:HD1	13:c:249:TYR:HH	1.38	0.52
3:C:357:ILE:O	3:C:361:SER:OG	2.25	0.52
15:e:47:ARG:NH2	15:e:69:ASP:OD2	2.41	0.52
11:a:501:ASP:O	15:e:100:ARG:NH2	2.43	0.51
12:b:13:SER:OG	12:b:14:SER:N	2.42	0.51
4:D:288:LYS:NZ	25:H:102:CDL:OB4	2.43	0.51

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:L:46:VAL:HG11	1:L:119:VAL:HG22	1.92	0.51
3:N:384:SER:O	3:N:384:SER:OG	2.26	0.51
1:A:429:LYS:O	1:A:449:ARG:NH1	2.43	0.51
7:G:8:LYS:HA	7:G:11:GLN:HE21	1.75	0.51
4:O:81:LYS:O	4:O:267:LYS:NZ	2.43	0.51
17:g:50:ARG:NH1	17:g:55:LYS:O	2.41	0.51
9:I:18:TYR:HB3	9:I:22:PHE:HE2	1.76	0.51
17:g:19:THR:HA	17:g:22:GLN:HG3	1.91	0.51
2:M:60:GLY:HA3	2:M:175:LEU:HD12	1.92	0.51
11:a:38:PHE:O	11:a:42:ILE:HG23	2.10	0.51
11:a:536:LYS:HZ1	14:d:132:TRP:HD1	1.54	0.51
12:b:181:ILE:HD12	12:b:181:ILE:H	1.75	0.51
4:D:145:MET:HE3	4:D:145:MET:HA	1.93	0.51
4:D:225:MET:SD	30:D:401:HEC:ND	2.84	0.51
5:E:154:GLN:OE1	5:E:212:ASN:ND2	2.43	0.51
11:a:154:ILE:HG21	11:a:217:PHE:HB2	1.92	0.51
13:c:255:VAL:O	13:c:258:LEU:HG	2.11	0.51
1:A:85:GLU:O	1:A:89:GLU:HG3	2.11	0.51
25:A:502:CDL:H541	26:A:503:PCF:H482	1.92	0.51
1:L:96:ASN:OD1	1:L:97:ALA:N	2.43	0.51
3:N:367:ILE:HA	3:N:370:TYR:CE2	2.45	0.51
1:A:450:SER:HB3	27:A:504:PEF:H51	1.93	0.51
11:a:127:GLU:OE2	11:a:145:HIS:ND1	2.37	0.51
13:c:212:HIS:NE2	13:c:257:TRP:HB2	2.26	0.51
13:c:259:PHE:O	13:c:263:THR:HG22	2.11	0.51
2:M:54:ARG:NH1	2:M:99:GLU:OE2	2.44	0.50
11:a:140:SER:HA	11:a:145:HIS:CD2	2.46	0.50
11:a:247:HIS:CD2	11:a:293:VAL:O	2.64	0.50
21:k:109:TRP:CZ3	21:k:116:LEU:CD2	2.95	0.50
11:a:502:ASP:OD1	11:a:503:ASN:N	2.44	0.50
12:b:164:VAL:HG22	12:b:233:GLN:HE21	1.76	0.50
14:d:123:SER:HB3	14:d:127:SER:HB3	1.94	0.50
1:L:22:THR:HG21	1:L:400:ARG:HE	1.75	0.50
10:U:59:GLN:OE1	10:U:68:PHE:C	2.54	0.50
1:A:57:GLU:OE1	1:A:63:GLY:N	2.37	0.50
5:P:147:ILE:HB	5:P:153:PRO:HB3	1.92	0.50
10:U:76:ASP:CG	10:U:77:LYS:N	2.70	0.50
9:I:12:ARG:HG3	9:I:13:ARG:HD2	1.92	0.50
25:L:502:CDL:H112	25:L:502:CDL:H711	1.93	0.50
2:M:387:SER:O	2:M:391:LYS:NZ	2.44	0.50
11:a:480:TYR:O	11:a:484:THR:HG22	2.11	0.50

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
12:b:221:CYS:H	12:b:225:HIS:HB2	1.76	0.50
1:L:127:THR:HG22	1:L:228:LEU:HD21	1.92	0.50
3:N:14:ASN:HA	3:N:18:ILE:HG12	1.94	0.50
11:a:122:SER:OG	11:a:149:ALA:O	2.23	0.50
20:j:66:PRO:O	20:j:67:MET:HG2	2.12	0.50
3:N:88:PHE:O	3:N:92:PHE:CD2	2.65	0.50
4:O:197:THR:HG23	6:Q:202:ARG:HH12	1.76	0.50
11:a:26:LEU:O	11:a:30:VAL:HG22	2.12	0.50
32:a:601:HEA:HMA	32:a:601:HEA:HBA2	1.92	0.50
3:C:178:ARG:NH2	5:P:95:TRP:O	2.40	0.50
1:L:295:MET:HE1	1:L:301:LEU:HD11	1.94	0.50
12:b:159:VAL:HG23	12:b:162:ARG:HG2	1.94	0.50
25:A:502:CDL:H512	25:A:502:CDL:H712	1.94	0.49
5:E:190:PHE:HD1	5:E:197:HIS:HD1	1.60	0.49
10:J:20:ILE:HG22	10:J:20:ILE:O	2.12	0.49
11:a:173:ALA:HA	11:a:176:ILE:HG22	1.93	0.49
11:a:536:LYS:HD3	14:d:119:GLY:CA	2.41	0.49
1:A:31:LEU:HD12	1:A:32:THR:H	1.77	0.49
1:A:67:PHE:HE1	1:A:183:ILE:HG23	1.75	0.49
29:C:403:U10:H402	5:E:92:LEU:HD11	1.93	0.49
11:a:101:TYR:HB2	11:a:104:VAL:HG12	1.94	0.49
3:C:30:TRP:HA	3:C:99:ARG:HH12	1.77	0.49
5:E:174:HIS:CD2	5:E:208:PRO:HB2	2.47	0.49
25:L:502:CDL:H511	26:L:503:PCF:H321	1.94	0.49
11:a:296:HIS:HA	11:a:299:PHE:CE1	2.47	0.49
5:E:194:HIS:CG	31:E:301:FES:S2	2.90	0.49
10:U:5:PHE:HE1	10:U:7:ASN:HB2	1.77	0.49
11:a:34:ILE:HD11	18:h:54:ILE:HB	1.93	0.49
12:b:175:LEU:HB3	12:b:201:ASN:HB2	1.93	0.49
14:d:111:SER:HB3	14:d:152:LEU:HD11	1.92	0.49
16:f:89:ALA:O	16:f:93:VAL:HG23	2.12	0.49
18:h:50:VAL:O	18:h:54:ILE:HG13	2.11	0.49
5:E:110:ASP:OD1	5:E:112:SER:OG	2.28	0.49
5:P:177:CYS:CB	31:P:301:FES:S2	2.92	0.49
11:a:118:LEU:HD11	11:a:156:SER:HB2	1.95	0.49
14:d:143:CYS:HB3	14:d:146:CYS:SG	2.51	0.49
5:E:164:GLU:OE1	5:E:164:GLU:N	2.45	0.49
1:L:447:ARG:NH1	3:N:19:ASP:OD1	2.43	0.49
11:a:91:PRO:HA	11:a:94:ILE:HG12	1.93	0.49
2:M:279:SER:OG	2:M:280:HIS:N	2.45	0.49
12:b:79:PHE:O	12:b:83:LEU:HG	2.13	0.49

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:128:ASN:N	1:A:128:ASN:OD1	2.46	0.49
3:N:311:SER:OG	3:N:313:ILE:O	2.28	0.49
11:a:516:SER:N	14:d:132:TRP:CZ3	2.81	0.49
2:B:67:LYS:HA	2:B:67:LYS:HD3	1.62	0.49
5:E:156:ASP:OD1	5:E:201:SER:OG	2.27	0.49
11:a:390:MET:HE1	11:a:428:VAL:HB	1.95	0.49
12:b:107:GLN:C	12:b:170:ARG:NH2	2.71	0.49
27:k:201:PEF:H172	27:k:201:PEF:H431	1.93	0.49
2:B:279:SER:OG	2:B:280:HIS:N	2.46	0.48
7:G:47:GLU:O	8:H:10:TYR:OH	2.25	0.48
1:L:100:SER:OG	1:L:101:ARG:N	2.46	0.48
11:a:155:LEU:HD21	13:c:32:CYS:HB3	1.95	0.48
12:b:183:SER:N	12:b:217:CYS:SG	2.83	0.48
21:k:109:TRP:CH2	21:k:116:LEU:CD2	2.96	0.48
5:P:162:LYS:CG	5:P:165:TRP:CH2	2.96	0.48
12:b:173:LEU:N	12:b:203:VAL:O	2.46	0.48
4:D:213:ASN:HD22	4:D:226:ALA:HA	1.77	0.48
10:J:5:PHE:HD2	10:J:8:LYS:H	1.58	0.48
10:U:5:PHE:CE1	10:U:7:ASN:HB2	2.49	0.48
12:b:79:PHE:O	12:b:82:THR:OG1	2.25	0.48
13:c:108:PHE:CE2	13:c:112:LEU:HD21	2.39	0.48
3:C:132:TYR:CD1	3:C:132:TYR:C	2.91	0.48
5:E:104:MET:HE2	5:E:104:MET:HA	1.96	0.48
1:L:188:ARG:HG3	1:L:192:LEU:HD23	1.94	0.48
5:P:172:CYS:HB2	5:P:177:CYS:H	1.79	0.48
25:S:101:CDL:H541	25:S:101:CDL:H311	1.96	0.48
11:a:423:ILE:HG22	11:a:471:SER:HB2	1.96	0.48
7:G:46:GLU:OE1	7:G:52:GLN:NE2	2.47	0.48
5:P:132:ARG:HE	5:P:200:ILE:HD11	1.77	0.48
5:E:134:ARG:NH1	5:E:156:ASP:OD2	2.40	0.48
1:L:66:HIS:NE2	1:L:70:HIS:CD2	2.82	0.48
27:O:402:PEF:H431	27:O:402:PEF:H253	1.96	0.48
5:P:139:ILE:HG12	5:P:163:PRO:HB2	1.96	0.48
13:c:94:ILE:O	13:c:97:THR:OG1	2.24	0.48
3:C:207:SER:OG	3:C:208:ASN:N	2.44	0.48
9:T:12:ARG:O	9:T:12:ARG:HD3	2.14	0.48
11:a:33:ILE:O	11:a:37:VAL:HG23	2.13	0.48
11:a:452:GLU:HB3	15:e:139:MET:HE1	1.94	0.48
3:N:274:TYR:CD1	3:N:275:LEU:HD23	2.48	0.48
12:b:131:THR:HG22	12:b:132:ASN:N	2.23	0.48
27:J:101:PEF:H431	27:J:101:PEF:H401	1.67	0.48

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:L:29:ASN:O	1:L:201:SER:OG	2.23	0.48
15:e:47:ARG:HB3	15:e:48:LEU:HD12	1.95	0.48
25:H:102:CDL:H802	25:H:102:CDL:H771	1.64	0.47
11:a:479:MET:CG	11:a:483:PHE:CE2	2.93	0.47
11:a:516:SER:CA	14:d:132:TRP:CE3	2.97	0.47
3:N:274:TYR:CE1	3:N:275:LEU:HG	2.49	0.47
3:N:274:TYR:CD1	3:N:275:LEU:HD21	2.46	0.47
11:a:124:LEU:HD21	18:h:58:VAL:HG22	1.95	0.47
11:a:481:ASP:O	11:a:485:SER:HB2	2.14	0.47
13:c:184:GLY:O	13:c:188:GLU:HG2	2.14	0.47
3:C:2:LYS:HG3	3:C:5:LYS:HG3	1.95	0.47
5:E:116:GLU:HA	5:E:133:HIS:HB3	1.97	0.47
5:E:181:GLY:HA2	5:E:189:TRP:HA	1.97	0.47
13:c:100:PHE:CZ	13:c:260:LEU:CD2	2.77	0.47
13:c:135:LEU:HD21	22:l:158:VAL:HG21	1.96	0.47
13:c:241:ASN:N	27:c:301:PEF:O2P	2.47	0.47
17:g:48:SER:O	17:g:52:ILE:HG22	2.15	0.47
22:l:128:SER:HA	22:l:138:LYS:HD2	1.95	0.47
9:T:54:PRO:HA	9:T:58:ASN:HB2	1.96	0.47
11:a:155:LEU:HD11	13:c:32:CYS:SG	2.55	0.47
25:H:102:CDL:H782	25:H:102:CDL:H752	1.55	0.47
12:b:120:TRP:CE2	12:b:224:LEU:HB2	2.50	0.47
13:c:215:HIS:CG	13:c:249:TYR:HH	2.29	0.47
11:a:400:TYR:OH	11:a:482:GLN:NE2	2.45	0.47
27:b:302:PEF:H142	27:b:302:PEF:H111	1.53	0.47
15:e:75:LYS:HA	16:f:94:ASN:ND2	2.28	0.47
5:E:86:ALA:HB2	9:I:29:LYS:NZ	2.29	0.47
5:E:177:CYS:HB3	31:E:301:FES:S1	2.55	0.47
5:E:199:ASP:OD1	5:E:203:ARG:N	2.47	0.47
25:H:101:CDL:H152	25:H:101:CDL:H122	1.48	0.47
2:M:195:VAL:HB	2:M:225:GLY:H	1.78	0.47
11:a:103:ARG:HB3	13:c:63:TRP:HZ2	1.79	0.47
11:a:114:PRO:HB2	13:c:29:PHE:CD1	2.50	0.47
11:a:248:PRO:O	11:a:252:ILE:HG23	2.15	0.47
11:a:440:LEU:O	12:b:19:PHE:HD1	1.97	0.47
11:a:536:LYS:NZ	14:d:132:TRP:NE1	2.63	0.47
13:c:97:THR:HG22	13:c:252:PHE:CE1	2.39	0.47
14:d:80:LEU:O	14:d:83:GLU:HG3	2.14	0.47
14:d:139:LYS:HE3	14:d:139:LYS:HA	1.97	0.47
3:C:346:ASN:OD1	3:C:346:ASN:N	2.47	0.47
1:L:48:VAL:HG22	1:L:206:ILE:HG22	1.96	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:L:110:ALA:HB1	1:L:114:ALA:HB3	1.97	0.47
3:N:89:PHE:CE2	3:N:93:LEU:HD22	2.50	0.47
11:a:171:LEU:O	11:a:175:MET:HG2	2.15	0.47
5:P:50:MET:CE	8:S:28:TYR:CE1	2.92	0.47
5:P:174:HIS:HE1	5:P:194:HIS:CG	2.33	0.47
9:T:12:ARG:HG3	9:T:13:ARG:HG3	1.97	0.47
11:a:212:GLY:O	11:a:215:MET:HG3	2.15	0.47
2:B:68:PHE:HZ	2:B:133:LEU:HB2	1.79	0.47
7:G:120:VAL:HG12	7:G:122:LYS:HG2	1.97	0.47
11:a:403:TRP:O	11:a:407:MET:HG2	2.15	0.47
12:b:20:GLN:NE2	12:b:187:PRO:HB2	2.30	0.47
3:C:45:VAL:HG11	27:D:402:PEF:H232	1.96	0.46
5:P:86:ALA:HB2	9:T:29:LYS:HE2	1.97	0.46
16:f:43:SER:HB3	16:f:46:GLU:CD	2.39	0.46
1:A:67:PHE:HZ	1:A:183:ILE:CB	2.29	0.46
25:H:102:CDL:H312	25:H:102:CDL:H341	1.75	0.46
3:N:274:TYR:CE1	3:N:275:LEU:CG	2.98	0.46
11:a:8:VAL:HG12	11:a:12:ILE:HB	1.97	0.46
11:a:466:VAL:HG21	15:e:125:PHE:HB2	1.97	0.46
11:a:532:THR:CG2	14:d:116:ARG:CD	2.93	0.46
13:c:140:LEU:O	13:c:143:VAL:HG12	2.15	0.46
16:f:122:GLU:HG3	16:f:123:LEU:HD23	1.96	0.46
21:k:88:LYS:O	21:k:124:HIS:NE2	2.47	0.46
1:A:67:PHE:HZ	1:A:183:ILE:HA	1.78	0.46
3:C:21:PRO:HB2	3:C:218:ARG:HD2	1.97	0.46
29:C:403:U10:H72	29:C:403:U10:H1M3	1.66	0.46
3:N:223:PRO:HB3	27:N:404:PEF:H11	1.96	0.46
4:O:302:TYR:HB2	7:R:68:TYR:CE1	2.51	0.46
14:d:46:LEU:HD23	14:d:46:LEU:HA	1.80	0.46
19:i:11:LYS:HA	19:i:14:ILE:HG22	1.97	0.46
5:P:96:SER:OG	5:P:97:ALA:N	2.49	0.46
8:S:13:TRP:CD1	8:S:14:TRP:H	2.34	0.46
10:U:59:GLN:NE2	10:U:69:LYS:HG2	2.30	0.46
15:e:167:PHE:CZ	15:e:169:GLY:O	2.68	0.46
22:l:152:VAL:O	22:l:155:LEU:HG	2.16	0.46
27:J:101:PEF:H311	27:J:101:PEF:H341	1.64	0.46
3:N:207:SER:OG	3:N:208:ASN:N	2.49	0.46
5:P:172:CYS:HB2	5:P:177:CYS:N	2.30	0.46
5:P:189:TRP:O	5:P:198:TYR:N	2.46	0.46
5:P:190:PHE:HE1	5:P:195:GLY:HA2	1.80	0.46
10:U:54:LYS:O	10:U:59:GLN:CG	2.47	0.46

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:M:197:SER:OG	2:M:224:ASP:OD1	2.27	0.46
2:M:202:ILE:HD12	2:M:375:LEU:HD13	1.98	0.46
3:N:121:PHE:HB2	28:N:402:HEM:HBB1	1.97	0.46
14:d:60:GLY:H	14:d:71:GLN:HE21	1.63	0.46
13:c:224:LEU:O	13:c:227:THR:HG22	2.16	0.46
5:P:136:PRO:HA	5:P:139:ILE:HD12	1.98	0.46
6:Q:190:CYS:O	6:Q:190:CYS:SG	2.73	0.46
11:a:273:ILE:HD13	11:a:332:THR:HG21	1.98	0.46
16:f:58:VAL:H	16:f:92:ARG:HH12	1.61	0.46
18:h:29:THR:HG22	18:h:31:PRO:HD3	1.97	0.46
7:G:39:ARG:HD3	7:G:93:GLU:O	2.16	0.46
2:M:254:PHE:HB3	2:M:404:LEU:HD22	1.98	0.46
3:N:23:PRO:HB2	3:N:26:ILE:HG23	1.98	0.46
11:a:103:ARG:NH1	27:a:605:PEF:O1P	2.36	0.46
12:b:164:VAL:HG22	12:b:233:GLN:NE2	2.30	0.46
13:c:69:THR:O	13:c:73:ILE:HG22	2.16	0.46
13:c:168:LEU:HD21	13:c:230:ILE:HG21	1.97	0.46
29:N:403:U10:H102	27:N:404:PEF:H242	1.98	0.45
11:a:162:ILE:HG22	27:a:605:PEF:H451	1.98	0.45
11:a:443:MET:HG2	11:a:444:PRO:HD2	1.97	0.45
12:b:140:ASP:OD1	12:b:140:ASP:N	2.49	0.45
19:i:9:MET:HE3	19:i:9:MET:HB2	1.88	0.45
3:C:172:SER:H	3:C:175:THR:HG22	1.81	0.45
7:G:116:ASP:OD2	10:U:24:ARG:NH2	2.47	0.45
3:N:240:ILE:HG23	3:N:241:ASN:HD22	1.81	0.45
11:a:72:MET:SD	32:a:601:HEA:C1C	3.05	0.45
11:a:357:ILE:HD11	12:b:45:PHE:CE1	2.51	0.45
13:c:8:GLN:NE2	13:c:10:HIS:O	2.49	0.45
3:C:70:ARG:NH2	4:D:110:LEU:CD1	2.51	0.45
6:F:150:LEU:HG	6:F:209:VAL:HG11	1.98	0.45
11:a:154:ILE:HD13	11:a:217:PHE:HB2	1.97	0.45
18:h:56:PHE:N	18:h:56:PHE:CD1	2.84	0.45
1:A:84:LEU:HD21	1:A:125:ILE:HD11	1.98	0.45
1:A:427:TRP:CD1	1:A:428:ASP:H	2.34	0.45
29:C:403:U10:H151	29:C:403:U10:H171	1.70	0.45
4:D:265:ILE:O	4:D:269:MET:HG3	2.17	0.45
27:J:101:PEF:H381	27:J:101:PEF:H201	1.98	0.45
4:O:286:TRP:HB2	25:S:102:CDL:H551	1.99	0.45
11:a:251:TYR:O	11:a:255:MET:HG3	2.16	0.45
11:a:266:PRO:O	11:a:270:HIS:N	2.49	0.45
12:b:95:PRO:HA	12:b:98:LYS:NZ	2.31	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
13:c:144:ILE:HD13	13:c:180:LEU:HD11	1.99	0.45
29:C:403:U10:H453	3:N:182:LEU:HD13	1.99	0.45
4:D:280:LEU:HD21	5:E:79:LEU:HB2	1.99	0.45
5:E:135:THR:OG1	5:E:138:GLU:OE1	2.23	0.45
10:J:5:PHE:HD2	10:J:8:LYS:CB	2.27	0.45
1:L:88:PHE:HD1	1:L:93:ALA:HB3	1.81	0.45
5:P:120:LEU:HB3	5:P:131:ILE:HG23	1.99	0.45
11:a:209:LEU:HD12	11:a:245:PHE:CG	2.51	0.45
12:b:175:LEU:HD12	12:b:175:LEU:HA	1.84	0.45
13:c:142:THR:HG22	13:c:257:TRP:HE1	1.82	0.45
2:B:293:SER:HB2	2:B:323:ALA:HB1	1.98	0.45
7:G:75:GLN:HA	7:G:78:ILE:HD12	1.98	0.45
11:a:42:ILE:HG13	11:a:43:ARG:N	2.30	0.45
16:f:79:SER:O	16:f:83:ILE:HG22	2.17	0.45
21:k:109:TRP:CZ3	21:k:116:LEU:HD23	2.52	0.45
27:A:504:PEF:H222	29:C:403:U10:H121	1.99	0.45
2:B:241:ARG:HH11	2:B:417:LEU:HD22	1.82	0.45
3:N:59:ASP:OD1	3:N:59:ASP:N	2.48	0.45
14:d:96:ASP:OD1	14:d:97:ALA:N	2.49	0.45
15:e:73:ARG:HD2	15:e:81:LEU:HD22	1.99	0.45
21:k:115:THR:HB	27:k:201:PEF:H12	1.99	0.45
26:A:503:PCF:H232	26:A:503:PCF:H31	1.99	0.45
2:B:98:ARG:HD3	2:B:169:ILE:O	2.17	0.45
2:M:129:LEU:HD13	2:M:131:PHE:CZ	2.51	0.45
2:M:163:LYS:HD2	2:M:163:LYS:HA	1.65	0.45
3:C:132:TYR:HA	28:C:401:HEM:HAA1	1.99	0.45
3:N:90:PHE:CZ	3:N:274:TYR:CD1	3.04	0.45
11:a:37:VAL:CG2	18:h:52:PHE:CD1	3.00	0.45
11:a:517:ILE:HG21	11:a:530:PHE:CZ	2.50	0.45
5:P:50:MET:CE	8:S:28:TYR:OH	2.59	0.45
9:T:41:LYS:HB3	9:T:41:LYS:HE2	1.90	0.45
11:a:426:ILE:O	11:a:430:ILE:HG23	2.17	0.45
13:c:189:TYR:HE1	13:c:209:THR:HG21	1.82	0.45
14:d:108:MET:HE2	14:d:108:MET:HA	1.97	0.45
5:E:47:SER:HB2	5:E:48:PRO:HD3	2.00	0.44
5:P:139:ILE:HD11	5:P:164:GLU:HA	1.98	0.44
11:a:32:GLY:HA3	11:a:76:PHE:CE1	2.52	0.44
11:a:38:PHE:O	11:a:41:ILE:HG22	2.17	0.44
11:a:374:PHE:HE1	12:b:19:PHE:HE1	1.65	0.44
11:a:389:SER:C	11:a:390:MET:HE2	2.42	0.44
12:b:79:PHE:CE1	12:b:83:LEU:HD21	2.53	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
12:b:122:TRP:HE1	12:b:228:MET:HG3	1.83	0.44
1:A:32:THR:HB	1:A:205:ILE:HD12	1.97	0.44
1:A:67:PHE:CZ	1:A:183:ILE:HG23	2.53	0.44
1:A:71:LEU:HD13	1:A:131:ILE:HD12	1.97	0.44
26:A:503:PCF:H132	26:A:503:PCF:H112	1.79	0.44
2:B:404:LEU:HD23	2:B:404:LEU:HA	1.87	0.44
3:C:228:LYS:HG3	4:D:288:LYS:HE3	2.00	0.44
3:C:287:ASN:HB3	3:C:290:LEU:HB2	1.98	0.44
1:L:352:GLN:NE2	1:L:454:MET:HG2	2.31	0.44
4:O:277:LEU:HD23	4:O:277:LEU:HA	1.81	0.44
11:a:52:GLN:HE22	15:e:129:ARG:HH22	1.65	0.44
11:a:381:VAL:N	11:a:384:PHE:HE2	2.15	0.44
12:b:84:ILE:HG21	27:b:302:PEF:H431	1.98	0.44
15:e:178:PHE:C	15:e:180:PRO:HD3	2.42	0.44
1:A:125:ILE:HG22	1:A:126:LEU:HD23	1.98	0.44
26:A:503:PCF:H351	26:A:503:PCF:H382	1.62	0.44
5:E:175:LEU:HB2	5:E:194:HIS:CE1	2.52	0.44
1:L:154:ALA:HB1	1:L:263:ASN:ND2	2.26	0.44
2:M:67:LYS:HD3	2:M:67:LYS:HA	1.71	0.44
6:Q:190:CYS:HB2	6:Q:193:GLU:OE2	2.18	0.44
18:h:51:ILE:HD12	18:h:54:ILE:HD12	1.99	0.44
8:H:38:MET:HB3	8:H:38:MET:HE2	1.79	0.44
27:J:101:PEF:H381	27:J:101:PEF:H171	1.99	0.44
25:S:101:CDL:H511	25:S:101:CDL:HB4	1.85	0.44
13:c:138:PRO:O	13:c:142:THR:HG23	2.17	0.44
27:A:504:PEF:H312	27:A:504:PEF:H31	1.84	0.44
8:H:55:THR:HB	8:H:56:GLU:OE2	2.18	0.44
6:Q:180:LYS:HG2	6:Q:185:ASP:HB3	2.00	0.44
13:c:185:GLN:O	13:c:189:TYR:CD2	2.70	0.44
16:f:127:CYS:HB2	16:f:132:ILE:HB	2.00	0.44
22:l:111:ILE:HG13	22:l:112:ILE:N	2.33	0.44
1:A:35:THR:HB	1:A:208:SER:OG	2.18	0.44
1:A:68:LEU:HD21	1:A:191:LEU:HB3	1.99	0.44
2:B:284:LEU:HD11	2:B:338:LEU:HD13	1.99	0.44
11:a:468:SER:HB3	32:a:601:HEA:H262	1.99	0.44
14:d:110:THR:HG23	14:d:155:MET:HE3	1.95	0.44
1:L:415:GLU:HG2	1:L:416:LYS:N	2.32	0.44
11:a:338:ILE:CG2	11:a:345:MET:HE2	2.36	0.44
12:b:24:SER:HB3	12:b:27:TYR:HB3	1.98	0.44
1:A:456:ARG:N	25:A:502:CDL:OB3	2.51	0.44
25:A:502:CDL:H542	26:A:503:PCF:H271	2.00	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
5:E:136:PRO:HA	5:E:139:ILE:HD12	1.99	0.44
3:N:35:LEU:HD23	3:N:233:ILE:HD13	2.00	0.44
11:a:323:GLY:C	11:a:327:PHE:HD2	2.17	0.44
12:b:186:VAL:HG11	12:b:189:LEU:HD12	1.98	0.44
12:b:241:LEU:O	12:b:245:GLU:HG2	2.18	0.44
10:J:5:PHE:CE2	10:J:7:ASN:C	2.96	0.44
26:L:503:PCF:H351	26:L:503:PCF:H292	1.99	0.44
2:M:53:SER:HA	2:M:56:GLN:HE21	1.83	0.44
11:a:419:ILE:HD13	15:e:113:GLY:HA3	2.00	0.44
18:h:39:LEU:HB3	18:h:40:PRO:HD3	2.00	0.44
1:L:397:THR:OG1	1:L:398:GLY:N	2.51	0.43
4:O:246:GLN:NE2	6:Q:214:VAL:O	2.51	0.43
11:a:381:VAL:CG2	11:a:384:PHE:CZ	3.00	0.43
16:f:44:LEU:HB3	16:f:45:GLU:OE1	2.17	0.43
1:L:147:GLN:O	1:L:150:VAL:HG12	2.18	0.43
11:a:510:LYS:HZ1	14:d:144:PRO:HG3	1.83	0.43
11:a:537:SER:OG	14:d:97:ALA:HB2	2.18	0.43
12:b:54:LYS:HA	12:b:57:ILE:HG22	1.99	0.43
13:c:169:LYS:HA	13:c:169:LYS:HD3	1.72	0.43
15:e:167:PHE:CZ	15:e:170:ARG:O	2.57	0.43
27:k:201:PEF:H141	27:k:201:PEF:H171	1.69	0.43
10:J:11:TYR:HD1	7:R:118:LEU:HD23	1.84	0.43
2:M:72:THR:HG21	2:M:129:LEU:HD12	1.99	0.43
3:N:58:MET:HB3	3:N:173:ASN:OD1	2.19	0.43
27:N:405:PEF:H351	27:N:405:PEF:H382	1.52	0.43
5:P:152:ASP:O	5:P:212:ASN:ND2	2.49	0.43
5:P:174:HIS:CE1	5:P:194:HIS:ND1	2.86	0.43
13:c:190:TRP:HE1	21:k:119:ASN:ND2	2.16	0.43
14:d:140:LEU:HD11	14:d:151:LYS:HD2	1.99	0.43
16:f:110:LEU:HD13	16:f:115:GLN:HB3	1.99	0.43
22:l:119:THR:O	22:l:123:SER:OG	2.30	0.43
3:N:287:ASN:HB3	3:N:290:LEU:HB2	2.00	0.43
11:a:5:TRP:CG	11:a:9:ASN:HD21	2.36	0.43
13:c:141:ASN:ND2	13:c:185:GLN:HE21	2.10	0.43
3:C:176:LEU:HD23	3:C:176:LEU:HA	1.84	0.43
5:E:210:PRO:HG2	5:E:211:LEU:HD23	2.00	0.43
7:G:104:GLU:HG3	7:G:108:GLU:OE2	2.19	0.43
10:U:14:GLN:O	10:U:16:HIS:ND1	2.44	0.43
11:a:222:LEU:HB3	11:a:224:THR:HG23	2.00	0.43
14:d:77:ARG:O	14:d:81:LEU:HG	2.18	0.43
1:A:250:SER:HB3	8:H:30:LEU:HD12	2.00	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
3:C:196:MET:HA	3:C:199:ILE:HG22	1.99	0.43
11:a:24:TYR:HD2	11:a:84:ALA:HA	1.83	0.43
11:a:37:VAL:HG22	18:h:52:PHE:CD1	2.54	0.43
11:a:88:TYR:HD1	11:a:89:LEU:HG	1.82	0.43
27:c:301:PEF:H142	27:c:301:PEF:H112	1.31	0.43
26:A:505:PCF:H292	26:A:505:PCF:H481	1.74	0.43
2:B:68:PHE:HE2	2:B:133:LEU:HD12	1.83	0.43
1:L:57:GLU:OE1	1:L:62:ASN:ND2	2.52	0.43
27:N:405:PEF:H161	27:N:405:PEF:H192	1.77	0.43
9:T:46:GLY:N	9:T:51:GLU:OE1	2.51	0.43
1:A:86:LEU:O	1:A:90:ASN:OD1	2.37	0.43
25:L:502:CDL:H152	25:L:502:CDL:H182	1.60	0.43
3:N:44:ILE:O	3:N:48:ILE:HG12	2.19	0.43
29:N:403:U10:H422	29:N:403:U10:H401	1.73	0.43
12:b:27:TYR:HD2	12:b:28:LEU:HD22	1.84	0.43
12:b:183:SER:HG	12:b:218:SER:H	1.62	0.43
13:c:50:GLY:O	13:c:54:LEU:HG	2.17	0.43
1:A:79:ARG:HH21	1:A:121:VAL:HG22	1.80	0.43
27:A:504:PEF:H372	27:A:504:PEF:H342	1.64	0.43
5:E:120:LEU:HD22	5:E:122:VAL:HG13	2.01	0.43
1:L:44:ALA:HB3	1:L:115:VAL:HG21	2.01	0.43
9:T:7:TYR:HE2	9:T:12:ARG:HH21	1.67	0.43
11:a:273:ILE:HD13	11:a:273:ILE:HA	1.93	0.43
15:e:167:PHE:O	15:e:167:PHE:CD2	2.71	0.43
4:D:119:VAL:HG12	4:D:120:THR:HG23	2.01	0.43
4:D:228:PRO:HB2	30:D:401:HEC:HMC3	2.01	0.43
9:I:8:ASN:OD1	9:I:12:ARG:NH2	2.33	0.43
1:L:191:LEU:O	1:L:195:ILE:HG12	2.19	0.43
2:M:222:ILE:H	2:M:222:ILE:HG13	1.62	0.43
27:N:404:PEF:H221	27:N:404:PEF:H191	1.75	0.43
9:T:12:ARG:HH11	9:T:12:ARG:HG2	1.84	0.43
11:a:108:THR:HG21	11:a:167:GLY:HA3	2.01	0.43
11:a:296:HIS:HD2	32:a:602:HEA:C3A	2.32	0.43
12:b:163:LEU:HD23	12:b:232:VAL:HG22	2.00	0.43
13:c:6:LYS:HD2	14:d:52:PRO:HD3	2.01	0.43
15:e:141:ARG:O	15:e:141:ARG:HD3	2.18	0.43
3:C:277:PRO:O	3:C:281:ILE:HG13	2.19	0.42
12:b:174:ILE:HD13	12:b:174:ILE:HA	1.86	0.42
13:c:242:GLY:HA3	27:c:301:PEF:H122	2.00	0.42
14:d:143:CYS:HB3	14:d:147:GLY:H	1.84	0.42
22:l:112:ILE:HA	22:l:115:THR:HG22	2.01	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
27:D:402:PEF:H453	27:D:402:PEF:H421	1.75	0.42
7:G:115:PHE:H	7:G:115:PHE:HD1	1.68	0.42
1:L:444:ASP:OD1	1:L:444:ASP:N	2.34	0.42
1:L:456:ARG:HA	25:L:502:CDL:H512	2.01	0.42
3:N:224:TYR:CE2	4:O:295:ILE:HG13	2.54	0.42
8:S:81:LEU:HD23	8:S:81:LEU:HA	1.73	0.42
26:T:101:PCF:H222	26:T:101:PCF:H251	1.70	0.42
11:a:247:HIS:HB3	11:a:248:PRO:HD3	2.01	0.42
11:a:536:LYS:NZ	14:d:132:TRP:HE1	2.17	0.42
14:d:77:ARG:O	14:d:80:LEU:HG	2.19	0.42
17:g:33:TYR:CE1	17:g:37:MET:HE3	2.53	0.42
2:B:142:ARG:HA	2:B:142:ARG:HD3	1.83	0.42
2:M:66:GLU:HB2	2:M:101:ILE:HD13	2.01	0.42
27:N:404:PEF:H382	5:P:80:THR:HG21	2.00	0.42
11:a:31:SER:O	11:a:34:ILE:HG22	2.19	0.42
13:c:90:MET:HA	13:c:93:LEU:HG	2.01	0.42
15:e:179:SER:N	15:e:180:PRO:HD3	2.35	0.42
3:C:17:MET:HE2	3:C:17:MET:HB3	1.82	0.42
8:H:81:LEU:HD23	8:H:81:LEU:HA	1.92	0.42
2:M:217:LYS:HG2	2:M:218:TYR:HD1	1.83	0.42
4:O:237:GLU:O	9:T:59:LYS:NZ	2.41	0.42
9:T:36:THR:HA	9:T:39:VAL:HG12	2.02	0.42
11:a:431:VAL:HG12	11:a:432:PHE:CD1	2.54	0.42
29:C:403:U10:H471	29:C:403:U10:H451	1.85	0.42
4:D:185:ARG:NH1	30:D:401:HEC:O1D	2.53	0.42
29:N:403:U10:H3M3	29:N:403:U10:H4M2	2.01	0.42
5:P:182:GLU:N	5:P:188:GLY:O	2.52	0.42
9:T:49:TRP:HA	9:T:52:VAL:HG22	2.00	0.42
11:a:357:ILE:O	11:a:361:THR:HG23	2.19	0.42
1:A:393:GLN:O	1:A:397:THR:OG1	2.38	0.42
4:D:102:CYS:SG	4:D:106:HIS:HB2	2.60	0.42
7:G:118:LEU:HD11	10:U:4:PHE:HE2	1.83	0.42
16:f:56:SER:OG	16:f:57:ASN:ND2	2.48	0.42
4:D:86:PHE:HZ	4:D:263:LEU:CD2	2.26	0.42
5:E:123:LYS:HA	5:E:123:LYS:HD2	1.85	0.42
27:J:101:PEF:H201	27:J:101:PEF:H171	1.81	0.42
6:Q:181:VAL:O	6:Q:186:LYS:NZ	2.52	0.42
7:R:76:LEU:HD11	7:R:83:LEU:HG	2.01	0.42
8:S:38:MET:H	8:S:38:MET:HE2	1.85	0.42
12:b:217:CYS:SG	12:b:218:SER:N	2.92	0.42
21:k:108:PRO:HG2	21:k:109:TRP:CE3	2.54	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:28:LYS:HE2	1:A:28:LYS:HB3	1.85	0.42
27:A:504:PEF:H362	5:E:76:MET:HG2	2.02	0.42
25:H:102:CDL:H211	25:H:102:CDL:H181	1.81	0.42
6:Q:159:ASP:OD1	6:Q:159:ASP:C	2.63	0.42
11:a:72:MET:HG2	32:a:601:HEA:HBC1	2.02	0.42
11:a:354:LEU:O	11:a:386:TYR:CE2	2.72	0.42
11:a:389:SER:O	11:a:393:LEU:HB3	2.20	0.42
12:b:133:GLU:HG2	12:b:135:GLU:H	1.84	0.42
12:b:183:SER:HB3	12:b:219:GLU:HG3	2.02	0.42
3:C:382:LEU:HD23	3:C:382:LEU:HA	1.83	0.42
3:N:31:ASN:HD21	3:N:228:LYS:HG2	1.84	0.42
11:a:3:SER:O	11:a:7:TYR:N	2.44	0.42
18:h:36:LYS:O	18:h:40:PRO:HD2	2.20	0.42
4:D:185:ARG:HA	4:D:185:ARG:HD3	1.68	0.41
1:L:66:HIS:HE1	1:L:146:GLU:OE1	2.02	0.41
26:T:101:PCF:H143	26:T:101:PCF:H111	1.80	0.41
2:B:114:TYR:HB2	10:J:7:ASN:HD21	1.85	0.41
4:O:304:ARG:NH2	7:R:61:MET:HE3	2.30	0.41
11:a:158:GLN:O	11:a:162:ILE:HG23	2.20	0.41
11:a:257:ALA:HA	11:a:260:VAL:HG12	2.01	0.41
11:a:337:ALA:HB1	12:b:61:TYR:HD1	1.84	0.41
11:a:510:LYS:HD2	11:a:510:LYS:HA	1.88	0.41
5:E:70:TYR:HE2	9:I:7:TYR:HE2	1.68	0.41
5:E:169:ILE:HB	5:E:214:ALA:HB3	2.02	0.41
10:J:5:PHE:HD2	10:J:8:LYS:CA	2.32	0.41
2:M:241:ARG:HB3	2:M:417:LEU:HD22	2.03	0.41
3:N:66:GLU:O	3:N:70:ARG:HG2	2.20	0.41
4:O:193:TYR:O	4:O:197:THR:HG22	2.19	0.41
11:a:377:THR:O	11:a:380:VAL:HG22	2.20	0.41
11:a:535:THR:CG2	14:d:116:ARG:HH22	2.28	0.41
14:d:133:MET:HE2	14:d:144:PRO:HD2	2.02	0.41
26:A:505:PCF:H111	26:A:505:PCF:H143	1.77	0.41
7:G:109:ARG:HG2	7:G:113:GLU:OE2	2.20	0.41
25:H:101:CDL:H341	25:H:101:CDL:H612	2.02	0.41
5:P:125:GLN:HB3	5:P:127:LYS:NZ	2.36	0.41
13:c:218:VAL:O	13:c:221:ILE:HG22	2.21	0.41
21:k:119:ASN:OD1	21:k:122:VAL:N	2.42	0.41
1:A:427:TRP:CG	1:A:428:ASP:H	2.39	0.41
2:B:127:LYS:HD3	2:B:129:LEU:HD21	2.01	0.41
3:C:49:LEU:HD23	3:C:49:LEU:HA	1.84	0.41
3:C:277:PRO:HG3	3:C:337:ALA:HB2	2.01	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:M:84:GLU:HB2	10:U:5:PHE:CE2	2.55	0.41
4:O:83:LEU:HD12	4:O:83:LEU:HA	1.90	0.41
11:a:277:GLU:HG3	11:a:278:GLY:N	2.36	0.41
11:a:381:VAL:HG13	11:a:385:HIS:HD1	1.85	0.41
13:c:89:PHE:HZ	13:c:249:TYR:HB2	1.85	0.41
14:d:138:ASP:O	14:d:151:LYS:NZ	2.53	0.41
14:d:144:PRO:HG2	14:d:145:GLU:OE1	2.21	0.41
15:e:78:TRP:HA	15:e:81:LEU:HG	2.01	0.41
11:a:61:TYR:O	11:a:65:ILE:HG22	2.21	0.41
13:c:56:LEU:HA	13:c:59:THR:HG22	2.02	0.41
13:c:164:ARG:HG2	14:d:65:VAL:HG23	2.03	0.41
20:j:75:GLU:O	20:j:79:ASN:ND2	2.53	0.41
29:C:403:U10:H251	29:C:403:U10:H271	1.70	0.41
5:E:118:LYS:HD2	5:E:118:LYS:HA	1.92	0.41
25:H:101:CDL:H332	25:H:101:CDL:H362	1.86	0.41
1:L:246:ARG:NH2	8:S:34:GLN:OE1	2.53	0.41
11:a:107:PHE:HB2	13:c:21:PRO:HB3	2.03	0.41
11:a:237:LEU:HD13	13:c:109:HIS:CG	2.55	0.41
14:d:131:ILE:HD12	14:d:131:ILE:HA	1.94	0.41
21:k:38:ASN:HB3	21:k:39:TRP:H	1.60	0.41
11:a:81:LEU:HD13	11:a:396:LEU:HB2	2.02	0.41
11:a:239:GLN:HB2	11:a:298:LEU:HD21	2.03	0.41
12:b:212:LEU:HG	12:b:233:GLN:HB3	2.02	0.41
18:h:54:ILE:O	18:h:57:ILE:HG22	2.20	0.41
1:A:446:ASN:ND2	3:C:224:TYR:OH	2.53	0.41
7:G:90:LYS:NZ	7:G:93:GLU:OE2	2.40	0.41
3:N:50:LEU:HD12	3:N:50:LEU:HA	1.90	0.41
4:O:93:ARG:O	4:O:97:VAL:HG23	2.21	0.41
11:a:168:SER:O	11:a:172:ILE:HG13	2.21	0.41
11:a:360:LEU:O	11:a:363:VAL:HG12	2.21	0.41
11:a:498:SER:HB2	16:f:69:ASN:HD21	1.85	0.41
5:E:132:ARG:HH22	5:E:182:GLU:HG3	1.85	0.41
1:L:94:HIS:HB2	1:L:109:HIS:NE2	2.34	0.41
12:b:120:TRP:NE1	12:b:224:LEU:HB2	2.36	0.41
13:c:171:LEU:HD21	13:c:223:LEU:HD22	2.03	0.41
15:e:70:LEU:HD23	15:e:70:LEU:HA	1.82	0.41
26:A:505:PCF:H432	26:A:505:PCF:H402	1.87	0.40
2:B:288:ALA:HB1	2:B:330:GLU:HG3	2.03	0.40
6:Q:173:CYS:O	6:Q:174:THR:C	2.64	0.40
8:S:54:MET:HE3	8:S:54:MET:HB3	1.79	0.40
11:a:93:MET:HE1	11:a:191:PHE:CD2	2.55	0.40

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
11:a:138:PRO:HB2	12:b:180:VAL:HG12	2.03	0.40
18:h:33:TYR:CE1	18:h:35:ASN:OD1	2.74	0.40
2:B:308:ASP:OD1	2:B:308:ASP:N	2.54	0.40
3:C:7:ASN:HB3	3:C:10:LEU:HD12	2.03	0.40
3:C:93:LEU:HD12	3:C:93:LEU:HA	1.89	0.40
5:E:102:LEU:HD23	5:E:102:LEU:HA	1.92	0.40
5:E:111:LEU:H	5:E:111:LEU:HD12	1.85	0.40
1:L:401:MET:HE2	1:L:401:MET:HB3	1.92	0.40
11:a:265:ILE:HD13	11:a:265:ILE:HA	1.88	0.40
16:f:59:GLN:OE1	16:f:92:ARG:NH1	2.55	0.40
1:A:19:LEU:HD12	1:A:20:PRO:HD2	2.03	0.40
4:D:141:ASP:O	4:O:164:GLU:HB3	2.21	0.40
25:L:502:CDL:H712	26:L:503:PCF:H291	2.03	0.40
2:M:100:HIS:NE2	2:M:376:VAL:HG21	2.37	0.40
2:M:265:VAL:HG11	2:M:392:VAL:HG11	2.04	0.40
3:N:300:LEU:HD23	3:N:300:LEU:HA	1.86	0.40
3:N:381:ASN:HB2	7:R:24:SER:HB2	2.03	0.40
4:O:274:ILE:HD13	4:O:274:ILE:HA	1.89	0.40
7:R:102:LEU:O	7:R:106:ILE:HG12	2.22	0.40
11:a:323:GLY:C	11:a:327:PHE:CD2	2.92	0.40
13:c:221:ILE:HA	13:c:224:LEU:HG	2.03	0.40
17:g:36:VAL:HG12	17:g:37:MET:HE2	2.03	0.40
4:D:277:LEU:HD23	4:D:277:LEU:HA	1.86	0.40
2:M:157:MET:HE1	2:M:315:VAL:HG21	2.02	0.40
11:a:371:ASP:O	11:a:375:HIS:N	2.52	0.40
11:a:420:GLN:NE2	11:a:475:PHE:N	2.69	0.40
11:a:445:ARG:HE	11:a:446:ARG:HG3	1.87	0.40
15:e:90:TYR:CE1	15:e:94:PHE:HB2	2.57	0.40
16:f:77:VAL:HG11	16:f:110:LEU:HD21	2.02	0.40
2:B:92:LEU:HD21	2:B:115:TYR:HE1	1.87	0.40
5:E:175:LEU:HD13	3:N:264:LYS:HZ1	1.87	0.40
7:G:41:ASP:OD2	7:G:96:HIS:HA	2.21	0.40
9:T:6:ILE:HD13	9:T:6:ILE:HA	1.95	0.40
9:T:11:PHE:HD1	9:T:17:PHE:HD1	1.70	0.40
12:b:120:TRP:CD1	12:b:224:LEU:HB2	2.56	0.40
13:c:89:PHE:CZ	13:c:249:TYR:HB2	2.57	0.40
13:c:123:PRO:HA	13:c:124:PRO:HD3	1.99	0.40
13:c:181:PHE:O	13:c:185:GLN:HG2	2.20	0.40
14:d:93:LYS:HE2	14:d:93:LYS:HB2	1.95	0.40
15:e:59:SER:OG	15:e:60:GLN:N	2.54	0.40
16:f:48:ASN:OD1	16:f:48:ASN:C	2.64	0.40

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
27:k:201:PEF:H361	27:k:201:PEF:H391	1.85	0.40
22:l:108:LYS:O	22:l:112:ILE:HB	2.22	0.40

There are no symmetry-related clashes.

5.3 Torsion angles [i](#)

5.3.1 Protein backbone [i](#)

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

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

Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
1	A	441/457 (96%)	424 (96%)	17 (4%)	0	100	100
1	L	441/457 (96%)	425 (96%)	16 (4%)	0	100	100
2	B	404/426 (95%)	393 (97%)	11 (3%)	0	100	100
2	M	404/426 (95%)	386 (96%)	18 (4%)	0	100	100
3	C	385/387 (100%)	367 (95%)	18 (5%)	0	100	100
3	N	385/387 (100%)	370 (96%)	15 (4%)	0	100	100
4	D	243/307 (79%)	232 (96%)	11 (4%)	0	100	100
4	O	243/307 (79%)	231 (95%)	12 (5%)	0	100	100
5	E	180/228 (79%)	172 (96%)	8 (4%)	0	100	100
5	P	180/228 (79%)	172 (96%)	8 (4%)	0	100	100
6	F	64/214 (30%)	63 (98%)	1 (2%)	0	100	100
6	Q	64/214 (30%)	60 (94%)	4 (6%)	0	100	100
7	G	120/137 (88%)	115 (96%)	3 (2%)	2 (2%)	7	28
7	R	120/137 (88%)	118 (98%)	2 (2%)	0	100	100
8	H	84/92 (91%)	79 (94%)	5 (6%)	0	100	100
8	S	85/92 (92%)	79 (93%)	6 (7%)	0	100	100
9	I	58/67 (87%)	54 (93%)	4 (7%)	0	100	100
9	T	58/67 (87%)	55 (95%)	2 (3%)	1 (2%)	7	28

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
10	J	75/79 (95%)	67 (89%)	8 (11%)	0	100	100
10	U	75/79 (95%)	66 (88%)	9 (12%)	0	100	100
11	a	535/538 (99%)	514 (96%)	21 (4%)	0	100	100
12	b	236/248 (95%)	221 (94%)	15 (6%)	0	100	100
13	c	266/269 (99%)	257 (97%)	9 (3%)	0	100	100
14	d	119/159 (75%)	114 (96%)	5 (4%)	0	100	100
15	e	143/228 (63%)	131 (92%)	12 (8%)	0	100	100
16	f	98/140 (70%)	91 (93%)	7 (7%)	0	100	100
17	g	55/59 (93%)	54 (98%)	1 (2%)	0	100	100
18	h	43/66 (65%)	37 (86%)	6 (14%)	0	100	100
19	i	53/58 (91%)	53 (100%)	0	0	100	100
20	j	73/86 (85%)	69 (94%)	4 (6%)	0	100	100
21	k	86/130 (66%)	81 (94%)	5 (6%)	0	100	100
22	l	67/242 (28%)	64 (96%)	3 (4%)	0	100	100
All	All	5883/7011 (84%)	5614 (95%)	266 (4%)	3 (0%)	50	78

All (3) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
7	G	114	ALA
7	G	113	GLU
9	T	9	ILE

5.3.2 Protein sidechains ⓘ

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

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

Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
1	A	368/382 (96%)	368 (100%)	0	100	100
1	L	368/382 (96%)	368 (100%)	0	100	100
2	B	333/352 (95%)	332 (100%)	1 (0%)	91	95

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Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
2	M	333/352 (95%)	333 (100%)	0	100	100
3	C	335/335 (100%)	334 (100%)	1 (0%)	91	95
3	N	335/335 (100%)	335 (100%)	0	100	100
4	D	206/258 (80%)	206 (100%)	0	100	100
4	O	206/258 (80%)	206 (100%)	0	100	100
5	E	148/190 (78%)	148 (100%)	0	100	100
5	P	148/190 (78%)	148 (100%)	0	100	100
6	F	61/191 (32%)	61 (100%)	0	100	100
6	Q	61/191 (32%)	61 (100%)	0	100	100
7	G	112/123 (91%)	112 (100%)	0	100	100
7	R	112/123 (91%)	111 (99%)	1 (1%)	75	86
8	H	67/73 (92%)	67 (100%)	0	100	100
8	S	68/73 (93%)	68 (100%)	0	100	100
9	I	52/58 (90%)	51 (98%)	1 (2%)	52	71
9	T	52/58 (90%)	52 (100%)	0	100	100
10	J	68/70 (97%)	68 (100%)	0	100	100
10	U	68/70 (97%)	68 (100%)	0	100	100
11	a	452/453 (100%)	449 (99%)	3 (1%)	81	88
12	b	213/223 (96%)	213 (100%)	0	100	100
13	c	226/227 (100%)	225 (100%)	1 (0%)	89	93
14	d	101/135 (75%)	101 (100%)	0	100	100
15	e	119/180 (66%)	119 (100%)	0	100	100
16	f	90/121 (74%)	90 (100%)	0	100	100
17	g	47/49 (96%)	47 (100%)	0	100	100
18	h	41/59 (70%)	41 (100%)	0	100	100
19	i	44/46 (96%)	44 (100%)	0	100	100
20	j	67/77 (87%)	67 (100%)	0	100	100
21	k	76/113 (67%)	76 (100%)	0	100	100
22	l	57/203 (28%)	57 (100%)	0	100	100
All	All	5034/5950 (85%)	5026 (100%)	8 (0%)	91	96

All (8) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
2	B	77	SER
3	C	132	TYR
9	I	5	THR
7	R	118	LEU
11	a	34	ILE
11	a	176	ILE
11	a	178	MET
13	c	235	LEU

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (40) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	62	ASN
1	A	81	GLN
1	A	168	GLN
1	A	263	ASN
1	A	300	HIS
3	C	31	ASN
3	C	202	HIS
4	D	189	GLN
4	D	256	HIS
7	G	11	GLN
7	G	80	ASN
8	H	85	HIS
8	H	88	HIS
1	L	263	ASN
2	M	280	HIS
3	N	7	ASN
3	N	138	GLN
3	N	149	ASN
3	N	247	ASN
3	N	343	HIS
4	O	189	GLN
5	P	89	HIS
5	P	197	HIS
7	R	11	GLN
7	R	25	ASN
7	R	75	GLN
9	T	14	ASN
11	a	9	ASN
11	a	105	ASN
11	a	503	ASN
12	b	247	ASN

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Mol	Chain	Res	Type
13	c	185	GLN
14	d	44	GLN
14	d	48	ASN
15	e	97	HIS
16	f	57	ASN
16	f	115	GLN
16	f	128	ASN
18	h	35	ASN
20	j	12	GLN

5.3.3 RNA [i](#)

There are no RNA molecules in this entry.

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

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

5.5 Carbohydrates [i](#)

There are no oligosaccharides in this entry.

5.6 Ligand geometry [i](#)

Of 39 ligands modelled in this entry, 6 are monoatomic - leaving 33 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	$\# Z > 2$
27	PEF	N	405	-	46,46,46	0.91	4 (8%)	49,51,51	1.12	2 (4%)
27	PEF	c	301	-	46,46,46	0.90	4 (8%)	49,51,51	1.06	2 (4%)
26	PCF	L	503	-	49,49,49	1.10	3 (6%)	55,57,57	1.07	2 (3%)
29	U10	C	403	-	63,63,63	2.71	17 (26%)	76,79,79	1.71	20 (26%)

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	# Z > 2	Counts	RMSZ	# Z > 2
27	PEF	k	201	-	46,46,46	0.91	3 (6%)	49,51,51	1.09	2 (4%)
27	PEF	A	504	-	46,46,46	0.90	4 (8%)	49,51,51	1.13	2 (4%)
28	HEM	N	401	3	41,50,50	1.44	3 (7%)	45,82,82	1.36	7 (15%)
28	HEM	N	402	3	41,50,50	1.45	3 (7%)	45,82,82	1.44	7 (15%)
36	CUA	b	303	12	0,1,1	-	-	-	-	-
26	PCF	A	505	-	49,49,49	1.10	4 (8%)	55,57,57	1.08	2 (3%)
27	PEF	J	101	-	46,46,46	0.91	4 (8%)	49,51,51	1.12	2 (4%)
26	PCF	T	101	-	49,49,49	1.10	4 (8%)	55,57,57	1.05	2 (3%)
25	CDL	A	502	-	56,56,99	0.39	0	62,68,111	0.26	0
31	FES	P	301	5	0,4,4	-	-	-	-	-
32	HEA	a	602	11	57,67,67	1.31	5 (8%)	61,103,103	1.52	13 (21%)
27	PEF	D	402	-	46,46,46	0.90	4 (8%)	49,51,51	1.05	2 (4%)
29	U10	N	403	-	63,63,63	2.70	17 (26%)	76,79,79	1.75	22 (28%)
27	PEF	b	302	-	46,46,46	0.90	4 (8%)	49,51,51	1.07	2 (4%)
25	CDL	S	101	-	76,76,99	0.34	0	82,88,111	0.22	0
27	PEF	a	605	-	46,46,46	0.91	4 (8%)	49,51,51	1.09	2 (4%)
28	HEM	C	402	3	41,50,50	1.44	4 (9%)	45,82,82	1.38	6 (13%)
30	HEC	O	401	4	32,50,50	2.16	3 (9%)	24,82,82	1.50	3 (12%)
31	FES	E	301	5	0,4,4	-	-	-	-	-
28	HEM	C	401	3	41,50,50	1.45	3 (7%)	45,82,82	1.37	6 (13%)
30	HEC	D	401	4	32,50,50	2.20	3 (9%)	24,82,82	1.41	4 (16%)
27	PEF	O	402	-	46,46,46	0.89	4 (8%)	49,51,51	1.12	2 (4%)
25	CDL	S	102	-	72,72,99	0.35	0	78,84,111	0.22	0
25	CDL	H	102	-	77,77,99	0.34	0	83,89,111	0.22	0
25	CDL	L	502	-	56,56,99	0.39	0	62,68,111	0.26	0
25	CDL	H	101	-	78,78,99	0.33	0	84,90,111	0.21	0
26	PCF	A	503	-	49,49,49	1.11	3 (6%)	55,57,57	1.01	2 (3%)
32	HEA	a	601	11	57,67,67	1.29	5 (8%)	61,103,103	1.53	11 (18%)
27	PEF	N	404	-	46,46,46	0.89	4 (8%)	49,51,51	1.13	2 (4%)

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
27	PEF	N	405	-	-	16/50/50/50	-
27	PEF	c	301	-	-	16/50/50/50	-

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Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
26	PCF	L	503	-	-	18/53/53/53	-
29	U10	C	403	-	-	26/63/87/87	0/1/1/1
27	PEF	k	201	-	-	22/50/50/50	-
27	PEF	A	504	-	-	17/50/50/50	-
28	HEM	N	401	3	-	3/12/54/54	-
28	HEM	N	402	3	-	3/12/54/54	-
26	PCF	A	505	-	-	17/53/53/53	-
27	PEF	J	101	-	-	22/50/50/50	-
26	PCF	T	101	-	-	15/53/53/53	-
25	CDL	A	502	-	-	43/67/67/110	-
31	FES	P	301	5	-	-	0/1/1/1
32	HEA	a	602	11	-	7/32/76/76	-
27	PEF	D	402	-	-	25/50/50/50	-
29	U10	N	403	-	-	27/63/87/87	0/1/1/1
27	PEF	b	302	-	-	21/50/50/50	-
25	CDL	S	101	-	-	59/87/87/110	-
27	PEF	a	605	-	-	24/50/50/50	-
28	HEM	C	402	3	-	1/12/54/54	-
30	HEC	O	401	4	-	0/10/54/54	-
31	FES	E	301	5	-	-	0/1/1/1
28	HEM	C	401	3	-	1/12/54/54	-
30	HEC	D	401	4	-	0/10/54/54	-
27	PEF	O	402	-	-	19/50/50/50	-
25	CDL	S	102	-	-	46/83/83/110	-
25	CDL	H	102	-	-	55/88/88/110	-
25	CDL	L	502	-	-	42/67/67/110	-
25	CDL	H	101	-	-	58/89/89/110	-
26	PCF	A	503	-	-	18/53/53/53	-
32	HEA	a	601	11	-	5/32/76/76	-
27	PEF	N	404	-	-	20/50/50/50	-

All (116) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
30	D	401	HEC	C2B-C3B	-6.54	1.33	1.40
30	D	401	HEC	C3C-C2C	-6.19	1.34	1.40
30	O	401	HEC	C3C-C2C	-6.16	1.34	1.40

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
30	O	401	HEC	C2B-C3B	-6.16	1.34	1.40
29	N	403	U10	C13-C14	6.12	1.47	1.33
29	C	403	U10	C38-C39	6.11	1.47	1.33
29	C	403	U10	C18-C19	6.09	1.47	1.33
29	N	403	U10	C33-C34	6.09	1.47	1.33
29	C	403	U10	C13-C14	6.08	1.47	1.33
29	C	403	U10	C43-C44	6.08	1.47	1.33
29	C	403	U10	C23-C24	6.07	1.47	1.33
29	N	403	U10	C38-C39	6.05	1.47	1.33
29	N	403	U10	C18-C19	6.05	1.47	1.33
29	C	403	U10	C28-C29	6.03	1.47	1.33
29	C	403	U10	C33-C34	6.03	1.47	1.33
29	N	403	U10	C28-C29	6.03	1.47	1.33
29	N	403	U10	C23-C24	6.02	1.47	1.33
29	N	403	U10	C43-C44	6.02	1.47	1.33
29	N	403	U10	C48-C49	6.02	1.47	1.33
29	C	403	U10	C48-C49	6.01	1.47	1.33
29	N	403	U10	C8-C9	6.00	1.47	1.33
29	C	403	U10	C8-C9	5.99	1.47	1.33
30	O	401	HEC	C3D-C2D	5.47	1.53	1.37
30	D	401	HEC	C3D-C2D	5.43	1.53	1.37
29	C	403	U10	O3-C3	-5.42	1.23	1.36
29	N	403	U10	O4-C4	-5.40	1.23	1.36
29	C	403	U10	O4-C4	-5.36	1.23	1.36
29	N	403	U10	C53-C54	5.32	1.47	1.32
29	C	403	U10	C53-C54	5.29	1.47	1.32
29	N	403	U10	O3-C3	-5.28	1.24	1.36
32	a	602	HEA	C3C-C2C	-4.26	1.34	1.40
32	a	601	HEA	C3A-CMA	-4.00	1.37	1.46
32	a	601	HEA	C3C-C2C	-3.97	1.34	1.40
32	a	602	HEA	C3A-CMA	-3.93	1.37	1.46
28	C	401	HEM	C3C-C2C	-3.89	1.35	1.40
28	N	401	HEM	C3C-C2C	-3.84	1.35	1.40
28	C	402	HEM	C3C-C2C	-3.81	1.35	1.40
28	C	402	HEM	C3C-CAC	3.78	1.55	1.47
28	N	402	HEM	C3C-C2C	-3.77	1.35	1.40
28	N	402	HEM	C3C-CAC	3.77	1.55	1.47
28	N	401	HEM	C3C-CAC	3.74	1.55	1.47
28	C	401	HEM	C3C-CAC	3.64	1.55	1.47
29	C	403	U10	C3-C2	-3.28	1.39	1.48
26	A	503	PCF	O21-C21	3.23	1.43	1.34
29	N	403	U10	C4-C5	-3.23	1.39	1.48

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
26	L	503	PCF	O21-C21	3.22	1.43	1.34
29	N	403	U10	C3-C2	-3.20	1.39	1.48
29	C	403	U10	C4-C5	-3.19	1.39	1.48
26	A	505	PCF	O21-C21	3.14	1.43	1.34
26	T	101	PCF	O21-C21	3.08	1.43	1.34
26	A	503	PCF	O31-C31	3.03	1.42	1.33
26	L	503	PCF	O31-C31	3.03	1.42	1.33
26	T	101	PCF	O31-C31	3.02	1.42	1.33
28	C	401	HEM	CAB-C3B	3.01	1.55	1.47
28	N	401	HEM	CAB-C3B	2.97	1.55	1.47
28	C	402	HEM	CAB-C3B	2.96	1.55	1.47
26	A	505	PCF	O31-C31	2.95	1.41	1.33
28	N	402	HEM	CAB-C3B	2.89	1.55	1.47
27	k	201	PEF	O3-C30	2.64	1.41	1.33
29	N	403	U10	C6-C5	-2.63	1.39	1.46
27	A	504	PEF	O2-C2	-2.58	1.40	1.46
27	J	101	PEF	O2-C2	-2.57	1.40	1.46
27	a	605	PEF	O2-C2	-2.56	1.40	1.46
27	k	201	PEF	O2-C2	-2.56	1.40	1.46
27	N	405	PEF	O2-C2	-2.56	1.40	1.46
32	a	602	HEA	C1D-C2D	2.56	1.49	1.44
29	C	403	U10	C6-C5	-2.54	1.39	1.46
27	D	402	PEF	O2-C2	-2.54	1.40	1.46
27	O	402	PEF	O2-C2	-2.54	1.40	1.46
27	N	404	PEF	O2-C2	-2.53	1.40	1.46
27	J	101	PEF	O3-C30	2.52	1.40	1.33
32	a	602	HEA	C1C-CHC	-2.51	1.34	1.41
32	a	601	HEA	C1D-C2D	2.51	1.49	1.44
27	N	405	PEF	O3-C30	2.50	1.40	1.33
27	c	301	PEF	O3-C30	2.49	1.40	1.33
27	c	301	PEF	O2-C2	-2.49	1.40	1.46
27	b	302	PEF	O2-C2	-2.48	1.40	1.46
27	a	605	PEF	O3-C30	2.44	1.40	1.33
27	b	302	PEF	O3-C30	2.43	1.40	1.33
27	A	504	PEF	O3-C30	2.42	1.40	1.33
27	O	402	PEF	O3-C30	2.37	1.40	1.33
27	D	402	PEF	O3-C30	2.36	1.40	1.33
29	N	403	U10	C6-C1	2.35	1.39	1.35
27	N	404	PEF	O3-C30	2.34	1.40	1.33
29	C	403	U10	C6-C1	2.30	1.39	1.35
29	C	403	U10	C1-C2	-2.23	1.39	1.47
29	N	403	U10	C1-C2	-2.21	1.39	1.47

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
32	a	602	HEA	CMD-C2D	2.21	1.55	1.50
32	a	601	HEA	C1C-CHC	-2.18	1.34	1.41
27	c	301	PEF	O2-C10	2.17	1.40	1.34
27	k	201	PEF	O2-C10	2.15	1.40	1.34
27	D	402	PEF	O3-C3	-2.15	1.40	1.45
27	N	404	PEF	O3-C3	-2.14	1.40	1.45
32	a	601	HEA	CMD-C2D	2.14	1.55	1.50
27	A	504	PEF	O3-C3	-2.14	1.40	1.45
27	b	302	PEF	O2-C10	2.13	1.40	1.34
27	J	101	PEF	O2-C10	2.13	1.40	1.34
26	L	503	PCF	C22-C21	2.13	1.56	1.50
27	D	402	PEF	O2-C10	2.12	1.40	1.34
27	a	605	PEF	O2-C10	2.11	1.40	1.34
27	N	405	PEF	O2-C10	2.11	1.40	1.34
27	a	605	PEF	O3-C3	-2.11	1.40	1.45
27	N	405	PEF	O3-C3	-2.11	1.40	1.45
27	O	402	PEF	O3-C3	-2.10	1.40	1.45
27	A	504	PEF	O2-C10	2.10	1.40	1.34
27	N	404	PEF	O2-C10	2.09	1.40	1.34
26	A	503	PCF	C22-C21	2.08	1.56	1.50
27	O	402	PEF	O2-C10	2.07	1.40	1.34
26	T	101	PCF	O21-C2	-2.06	1.41	1.46
27	b	302	PEF	O3-C3	-2.06	1.40	1.45
27	c	301	PEF	O3-C3	-2.06	1.40	1.45
26	A	505	PCF	C22-C21	2.06	1.56	1.50
26	A	505	PCF	O21-C2	-2.05	1.41	1.46
26	T	101	PCF	C22-C21	2.05	1.56	1.50
27	J	101	PEF	O3-C3	-2.05	1.40	1.45
28	C	402	HEM	CMB-C2B	2.00	1.55	1.50

All (127) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
26	L	503	PCF	O21-C21-C22	4.20	120.55	111.50
29	N	403	U10	C7-C8-C9	-4.17	119.85	126.79
27	N	404	PEF	O2-C10-C11	4.10	120.33	111.50
32	a	601	HEA	CBA-CAA-C2A	4.07	119.47	112.60
26	A	505	PCF	O21-C21-C22	4.00	120.12	111.50
27	O	402	PEF	O2-C10-C11	4.00	120.11	111.50
27	N	405	PEF	O2-C10-C11	3.99	120.10	111.50
27	J	101	PEF	O2-C10-C11	3.96	120.04	111.50
27	A	504	PEF	O2-C10-C11	3.96	120.03	111.50

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
26	T	101	PCF	O21-C21-C22	3.95	120.00	111.50
27	b	302	PEF	O2-C10-C11	3.94	119.99	111.50
27	D	402	PEF	O2-C10-C11	3.85	119.79	111.50
27	k	201	PEF	O2-C10-C11	3.81	119.71	111.50
27	a	605	PEF	O2-C10-C11	3.81	119.70	111.50
27	c	301	PEF	O2-C10-C11	3.77	119.63	111.50
26	A	503	PCF	O21-C21-C22	3.65	119.37	111.50
32	a	602	HEA	CMD-C2D-C1D	3.58	130.49	125.04
32	a	602	HEA	C4A-CHB-C1B	3.55	127.25	122.56
32	a	601	HEA	CMD-C2D-C1D	3.52	130.40	125.04
29	C	403	U10	C7-C8-C9	-3.47	121.01	126.79
29	C	403	U10	C10-C9-C11	3.43	121.04	115.27
32	a	601	HEA	C4A-CHB-C1B	3.40	127.05	122.56
29	N	403	U10	C45-C44-C46	3.34	120.89	115.27
29	C	403	U10	C45-C44-C46	3.33	120.87	115.27
29	N	403	U10	C10-C9-C11	3.32	120.86	115.27
29	N	403	U10	C47-C48-C49	-3.18	120.00	127.66
29	N	403	U10	C22-C23-C24	-3.17	120.02	127.66
29	N	403	U10	C20-C19-C21	3.13	120.53	115.27
28	N	402	HEM	C1B-NB-C4B	3.11	108.28	105.07
28	C	402	HEM	CBA-CAA-C2A	-3.08	107.37	112.62
29	C	403	U10	C27-C28-C29	-3.07	120.26	127.66
29	N	403	U10	C40-C39-C41	3.07	120.44	115.27
29	C	403	U10	C17-C18-C19	-3.07	120.27	127.66
27	J	101	PEF	O3-C30-C31	3.07	121.53	111.91
29	C	403	U10	C42-C43-C44	-3.02	120.38	127.66
29	C	403	U10	C25-C24-C26	2.98	120.28	115.27
29	N	403	U10	C27-C28-C29	-2.96	120.54	127.66
27	N	405	PEF	O3-C30-C31	2.95	121.16	111.91
29	N	403	U10	C42-C43-C44	-2.91	120.66	127.66
29	C	403	U10	C20-C19-C21	2.88	120.12	115.27
28	N	402	HEM	C4D-ND-C1D	2.87	108.04	105.07
28	C	402	HEM	C4D-ND-C1D	2.87	108.04	105.07
29	N	403	U10	C12-C13-C14	-2.86	120.77	127.66
29	C	403	U10	C32-C33-C34	-2.86	120.78	127.66
29	C	403	U10	C12-C13-C14	-2.86	120.78	127.66
28	C	401	HEM	C4D-ND-C1D	2.83	108.00	105.07
30	O	401	HEC	CMC-C2C-C1C	-2.82	124.12	128.46
29	C	403	U10	C35-C34-C36	2.82	120.02	115.27
28	C	402	HEM	C1B-NB-C4B	2.82	107.98	105.07
29	C	403	U10	C50-C49-C51	2.81	119.99	115.27
29	C	403	U10	C1M-C1-C6	-2.79	119.85	124.40

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
28	N	401	HEM	C4D-ND-C1D	2.77	107.94	105.07
29	C	403	U10	C15-C14-C16	2.77	119.93	115.27
29	N	403	U10	C25-C24-C26	2.77	119.93	115.27
27	A	504	PEF	O3-C30-C31	2.76	120.56	111.91
28	N	402	HEM	C3B-C2B-C1B	2.74	108.52	106.49
29	C	403	U10	C30-C29-C31	2.73	119.86	115.27
29	N	403	U10	C32-C33-C34	-2.71	121.14	127.66
29	N	403	U10	C35-C34-C36	2.71	119.82	115.27
29	N	403	U10	C30-C29-C31	2.69	119.80	115.27
26	L	503	PCF	O31-C31-C32	2.68	120.32	111.91
27	O	402	PEF	O3-C30-C31	2.67	120.28	111.91
29	C	403	U10	C22-C23-C24	-2.66	121.25	127.66
32	a	602	HEA	CBA-CAA-C2A	2.66	117.09	112.60
26	A	503	PCF	O31-C31-C32	2.65	120.23	111.91
29	C	403	U10	C40-C39-C41	2.65	119.72	115.27
29	N	403	U10	C17-C18-C19	-2.64	121.31	127.66
29	N	403	U10	C50-C49-C51	2.62	119.68	115.27
30	O	401	HEC	CMB-C2B-C1B	-2.61	124.45	128.46
27	a	605	PEF	O3-C30-C31	2.60	120.06	111.91
27	b	302	PEF	O3-C30-C31	2.59	120.03	111.91
29	C	403	U10	C47-C48-C49	-2.58	121.44	127.66
26	A	505	PCF	O31-C31-C32	2.57	119.97	111.91
26	T	101	PCF	O31-C31-C32	2.54	119.87	111.91
28	N	402	HEM	C4B-CHC-C1C	2.53	125.89	122.56
27	k	201	PEF	O3-C30-C31	2.52	119.82	111.91
32	a	602	HEA	CMB-C2B-C3B	-2.51	125.55	130.34
27	N	404	PEF	O3-C30-C31	2.51	119.77	111.91
28	C	401	HEM	C1B-NB-C4B	2.48	107.64	105.07
28	N	401	HEM	C4C-CHD-C1D	2.48	125.83	122.56
27	c	301	PEF	O3-C30-C31	2.48	119.68	111.91
28	N	401	HEM	C1B-NB-C4B	2.45	107.60	105.07
28	C	401	HEM	C4C-CHD-C1D	2.45	125.79	122.56
32	a	601	HEA	C20-C19-C18	-2.42	116.22	121.12
32	a	601	HEA	OMA-CMA-C3A	-2.41	119.65	124.91
29	C	403	U10	C37-C38-C39	-2.40	121.88	127.66
29	N	403	U10	C15-C14-C16	2.40	119.31	115.27
29	C	403	U10	C56-C54-C55	2.40	119.90	114.60
29	N	403	U10	C37-C38-C39	-2.39	121.91	127.66
28	N	401	HEM	CMC-C2C-C3C	2.39	129.15	124.68
27	D	402	PEF	O3-C30-C31	2.38	119.39	111.91
28	C	402	HEM	CMC-C2C-C3C	2.38	129.12	124.68
29	N	403	U10	C1M-C1-C6	-2.36	120.55	124.40

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
32	a	601	HEA	C1D-C2D-C3D	-2.34	104.50	106.96
29	N	403	U10	C56-C54-C55	2.34	119.77	114.60
32	a	602	HEA	C20-C19-C18	-2.34	116.39	121.12
28	C	401	HEM	CMC-C2C-C3C	2.33	129.03	124.68
28	N	401	HEM	C4B-CHC-C1C	2.31	125.61	122.56
32	a	602	HEA	C1D-C2D-C3D	-2.31	104.53	106.96
28	N	401	HEM	CAD-CBD-CGD	-2.27	108.71	113.60
32	a	602	HEA	C4D-CHA-C1A	2.27	125.55	122.56
28	N	402	HEM	CMC-C2C-C3C	2.24	128.86	124.68
32	a	601	HEA	C4D-CHA-C1A	2.23	125.50	122.56
28	C	401	HEM	C4B-CHC-C1C	2.21	125.47	122.56
30	O	401	HEC	C1D-C2D-C3D	-2.21	105.46	107.00
32	a	602	HEA	CMC-C2C-C3C	2.19	128.77	124.68
30	D	401	HEC	CMC-C2C-C1C	-2.18	125.12	128.46
28	N	402	HEM	CHC-C4B-C3B	2.17	127.89	124.57
32	a	601	HEA	CAA-C2A-C3A	2.16	132.19	126.86
32	a	601	HEA	C3C-C4C-NC	2.16	112.00	109.21
30	D	401	HEC	CBA-CAA-C2A	-2.15	108.97	112.60
32	a	601	HEA	O1D-CGD-CBD	-2.15	116.17	123.08
28	C	402	HEM	C4B-CHC-C1C	2.14	125.38	122.56
30	D	401	HEC	C1D-C2D-C3D	-2.13	105.51	107.00
32	a	602	HEA	CMC-C2C-C1C	-2.12	125.20	128.46
28	N	402	HEM	C4C-CHD-C1D	2.11	125.35	122.56
28	C	401	HEM	C3D-C4D-ND	-2.11	107.81	110.17
32	a	602	HEA	C3D-C4D-ND	2.10	112.39	110.36
32	a	602	HEA	C13-C14-C15	-2.08	122.65	127.66
32	a	601	HEA	C26-C15-C14	-2.06	118.40	123.68
29	N	403	U10	O3-C3-C4	-2.06	115.89	123.64
28	C	402	HEM	C3B-C2B-C1B	2.05	108.01	106.49
32	a	602	HEA	OMA-CMA-C3A	-2.03	120.50	124.91
32	a	602	HEA	C26-C15-C14	-2.02	118.49	123.68
28	N	401	HEM	C3B-C2B-C1B	2.02	107.99	106.49
29	N	403	U10	C6-C1-C2	2.01	120.77	119.18
30	D	401	HEC	CBD-CAD-C3D	-2.00	109.20	112.62

There are no chirality outliers.

All (646) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
25	A	502	CDL	CA2-OA2-PA1-OA3
25	A	502	CDL	CA2-OA2-PA1-OA4
25	A	502	CDL	CA2-OA2-PA1-OA5

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Mol	Chain	Res	Type	Atoms
25	A	502	CDL	CB2-OB2-PB2-OB3
25	H	101	CDL	O1-C1-CB2-OB2
25	H	101	CDL	CA2-OA2-PA1-OA4
25	H	101	CDL	CA3-OA5-PA1-OA3
25	H	101	CDL	CA3-OA5-PA1-OA4
25	H	101	CDL	CB2-OB2-PB2-OB3
25	H	101	CDL	CB2-OB2-PB2-OB4
25	H	101	CDL	CB2-OB2-PB2-OB5
25	H	101	CDL	CB3-OB5-PB2-OB2
25	H	102	CDL	CA2-OA2-PA1-OA3
25	H	102	CDL	CA2-OA2-PA1-OA4
25	L	502	CDL	O1-C1-CA2-OA2
25	L	502	CDL	CA2-OA2-PA1-OA3
25	L	502	CDL	CA2-OA2-PA1-OA4
25	L	502	CDL	CA2-OA2-PA1-OA5
25	L	502	CDL	CB3-OB5-PB2-OB2
25	S	101	CDL	O1-C1-CA2-OA2
25	S	101	CDL	CA2-OA2-PA1-OA3
25	S	101	CDL	CA2-OA2-PA1-OA4
25	S	101	CDL	CA2-OA2-PA1-OA5
25	S	101	CDL	CA3-OA5-PA1-OA3
25	S	101	CDL	CB3-OB5-PB2-OB4
25	S	101	CDL	OB7-CB5-OB6-CB4
25	S	101	CDL	C51-CB5-OB6-CB4
25	S	102	CDL	O1-C1-CA2-OA2
25	S	102	CDL	CA2-OA2-PA1-OA3
25	S	102	CDL	CB3-OB5-PB2-OB2
26	A	503	PCF	O13-C11-C12-N
26	A	503	PCF	C22-C21-O21-C2
26	L	503	PCF	C1-O11-P-O14
26	L	503	PCF	O13-C11-C12-N
26	L	503	PCF	O21-C2-C3-O31
26	L	503	PCF	C22-C21-O21-C2
27	A	504	PEF	O4P-C4-C5-N
27	A	504	PEF	C31-C30-O3-C3
27	A	504	PEF	O5-C30-O3-C3
27	D	402	PEF	O4P-C4-C5-N
27	D	402	PEF	C1-O3P-P-O2P
27	D	402	PEF	C4-O4P-P-O1P
27	J	101	PEF	C31-C30-O3-C3
27	J	101	PEF	O5-C30-O3-C3
27	J	101	PEF	C4-O4P-P-O1P

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Mol	Chain	Res	Type	Atoms
27	J	101	PEF	C4-O4P-P-O3P
27	N	404	PEF	C1-O3P-P-O4P
27	N	405	PEF	C31-C30-O3-C3
27	N	405	PEF	O5-C30-O3-C3
27	N	405	PEF	C1-O3P-P-O4P
27	O	402	PEF	C4-O4P-P-O1P
27	a	605	PEF	O2-C2-C3-O3
27	a	605	PEF	O4P-C4-C5-N
27	a	605	PEF	C1-O3P-P-O4P
27	b	302	PEF	O4P-C4-C5-N
27	b	302	PEF	C4-O4P-P-O3P
27	c	301	PEF	C11-C10-O2-C2
27	k	201	PEF	O4P-C4-C5-N
29	C	403	U10	C7-C8-C9-C10
29	C	403	U10	C7-C8-C9-C11
29	C	403	U10	C14-C16-C17-C18
29	C	403	U10	C23-C24-C26-C27
29	C	403	U10	C25-C24-C26-C27
29	C	403	U10	C24-C26-C27-C28
29	C	403	U10	C43-C44-C46-C47
29	C	403	U10	C45-C44-C46-C47
29	C	403	U10	C47-C48-C49-C50
29	C	403	U10	C47-C48-C49-C51
29	N	403	U10	C7-C8-C9-C10
29	N	403	U10	C7-C8-C9-C11
29	N	403	U10	C12-C13-C14-C15
29	N	403	U10	C17-C18-C19-C20
29	N	403	U10	C17-C18-C19-C21
29	N	403	U10	C19-C21-C22-C23
29	N	403	U10	C37-C38-C39-C40
29	N	403	U10	C37-C38-C39-C41
29	N	403	U10	C38-C39-C41-C42
29	N	403	U10	C40-C39-C41-C42
29	N	403	U10	C47-C48-C49-C50
29	N	403	U10	C47-C48-C49-C51
32	a	601	HEA	C1A-C2A-CAA-CBA
32	a	601	HEA	C3A-C2A-CAA-CBA
25	L	502	CDL	OB9-CB7-OB8-CB6
25	A	502	CDL	OB9-CB7-OB8-CB6
25	H	101	CDL	OB9-CB7-OB8-CB6
25	L	502	CDL	OA9-CA7-OA8-CA6
25	S	101	CDL	OB9-CB7-OB8-CB6

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Mol	Chain	Res	Type	Atoms
25	S	102	CDL	OB9-CB7-OB8-CB6
26	A	503	PCF	O22-C21-O21-C2
26	L	503	PCF	O22-C21-O21-C2
27	c	301	PEF	O4-C10-O2-C2
25	A	502	CDL	C71-CB7-OB8-CB6
25	H	101	CDL	C71-CB7-OB8-CB6
25	L	502	CDL	C31-CA7-OA8-CA6
25	L	502	CDL	C71-CB7-OB8-CB6
25	S	101	CDL	C71-CB7-OB8-CB6
25	S	102	CDL	C71-CB7-OB8-CB6
32	a	601	HEA	C21-C22-C23-C24
32	a	601	HEA	C21-C22-C23-C25
32	a	602	HEA	C21-C22-C23-C25
29	C	403	U10	C20-C19-C21-C22
29	N	403	U10	C32-C33-C34-C35
29	N	403	U10	C12-C13-C14-C16
25	H	101	CDL	OA9-CA7-OA8-CA6
25	S	102	CDL	C11-C12-C13-C14
25	A	502	CDL	O1-C1-CA2-OA2
25	H	102	CDL	C71-CB7-OB8-CB6
25	H	101	CDL	C12-C13-C14-C15
25	H	102	CDL	OB9-CB7-OB8-CB6
25	L	502	CDL	C32-C33-C34-C35
25	A	502	CDL	C13-C14-C15-C16
25	H	102	CDL	C77-C78-C79-C80
27	c	301	PEF	C11-C12-C13-C14
25	H	101	CDL	C31-CA7-OA8-CA6
28	N	401	HEM	C3D-CAD-CBD-CGD
29	C	403	U10	C15-C14-C16-C17
29	C	403	U10	C39-C41-C42-C43
29	N	403	U10	C29-C31-C32-C33
25	H	102	CDL	C18-C19-C20-C21
25	A	502	CDL	C51-CB5-OB6-CB4
29	C	403	U10	C12-C13-C14-C15
25	A	502	CDL	CB2-C1-CA2-OA2
25	H	102	CDL	CA2-C1-CB2-OB2
25	L	502	CDL	CA2-C1-CB2-OB2
25	S	101	CDL	C31-C32-C33-C34
25	H	101	CDL	C72-C73-C74-C75
25	L	502	CDL	C12-C13-C14-C15
25	H	102	CDL	C75-C76-C77-C78
25	L	502	CDL	O1-C1-CB2-OB2

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Mol	Chain	Res	Type	Atoms
27	D	402	PEF	O2-C2-C3-O3
27	b	302	PEF	C11-C12-C13-C14
29	C	403	U10	C18-C19-C21-C22
25	A	502	CDL	OB7-CB5-OB6-CB4
25	S	101	CDL	C19-C20-C21-C22
25	A	502	CDL	CB7-C71-C72-C73
32	a	601	HEA	C2A-CAA-CBA-CGA
25	H	101	CDL	CB7-C71-C72-C73
27	b	302	PEF	C10-C11-C12-C13
25	L	502	CDL	C15-C16-C17-C18
25	H	101	CDL	CA5-C11-C12-C13
25	S	101	CDL	CA5-C11-C12-C13
26	L	503	PCF	C21-C22-C23-C24
27	a	605	PEF	C10-C11-C12-C13
27	c	301	PEF	C30-C31-C32-C33
27	k	201	PEF	C30-C31-C32-C33
25	H	102	CDL	C15-C16-C17-C18
28	C	401	HEM	C3D-CAD-CBD-CGD
25	H	101	CDL	C11-CA5-OA6-CA4
29	N	403	U10	C24-C26-C27-C28
25	A	502	CDL	O1-C1-CB2-OB2
25	H	102	CDL	O1-C1-CB2-OB2
25	H	102	CDL	C51-CB5-OB6-CB4
25	S	102	CDL	C78-C79-C80-C81
25	A	502	CDL	CB2-OB2-PB2-OB5
25	A	502	CDL	CB3-OB5-PB2-OB2
25	H	101	CDL	CA2-OA2-PA1-OA5
25	H	101	CDL	CA3-OA5-PA1-OA2
25	H	102	CDL	CA2-OA2-PA1-OA5
25	H	102	CDL	CB2-OB2-PB2-OB5
25	S	101	CDL	CB2-OB2-PB2-OB5
25	S	101	CDL	CB3-OB5-PB2-OB2
26	A	503	PCF	C1-O11-P-O13
26	L	503	PCF	C1-O11-P-O13
27	D	402	PEF	C1-O3P-P-O4P
27	b	302	PEF	C16-C17-C18-C19
25	A	502	CDL	CA2-C1-CB2-OB2
25	H	101	CDL	CA2-C1-CB2-OB2
25	L	502	CDL	CB2-C1-CA2-OA2
25	S	101	CDL	CB2-C1-CA2-OA2
25	S	102	CDL	CB2-C1-CA2-OA2
25	H	101	CDL	OA7-CA5-OA6-CA4

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Mol	Chain	Res	Type	Atoms
25	H	102	CDL	OB7-CB5-OB6-CB4
29	N	403	U10	C45-C44-C46-C47
29	C	403	U10	C52-C53-C54-C55
27	a	605	PEF	C40-C41-C42-C43
25	H	101	CDL	C52-C53-C54-C55
27	O	402	PEF	C12-C13-C14-C15
27	b	302	PEF	C18-C19-C20-C21
27	k	201	PEF	C34-C35-C36-C37
25	H	101	CDL	C20-C21-C22-C23
26	T	101	PCF	C47-C48-C49-C50
27	N	404	PEF	C16-C17-C18-C19
27	b	302	PEF	C31-C32-C33-C34
25	H	102	CDL	C11-C12-C13-C14
25	H	102	CDL	C16-C17-C18-C19
27	O	402	PEF	C31-C32-C33-C34
27	k	201	PEF	C31-C32-C33-C34
25	S	101	CDL	C1-CB2-OB2-PB2
27	N	405	PEF	C37-C38-C39-C40
27	k	201	PEF	C13-C14-C15-C16
25	S	102	CDL	O1-C1-CB2-OB2
25	H	101	CDL	C17-C18-C19-C20
26	T	101	PCF	C25-C26-C27-C28
27	A	504	PEF	C40-C41-C42-C43
27	N	404	PEF	C31-C32-C33-C34
25	H	101	CDL	OB6-CB4-CB6-OB8
25	H	101	CDL	C13-C14-C15-C16
25	H	101	CDL	C71-C72-C73-C74
25	H	102	CDL	C74-C75-C76-C77
27	O	402	PEF	C40-C41-C42-C43
29	C	403	U10	C13-C14-C16-C17
25	H	101	CDL	CB5-C51-C52-C53
25	L	502	CDL	C52-C53-C54-C55
25	S	101	CDL	C12-C13-C14-C15
25	S	101	CDL	C73-C74-C75-C76
25	S	102	CDL	C31-C32-C33-C34
25	S	102	CDL	C57-C58-C59-C60
25	S	102	CDL	C71-C72-C73-C74
27	D	402	PEF	C16-C17-C18-C19
27	c	301	PEF	C12-C13-C14-C15
26	A	505	PCF	C24-C25-C26-C27
27	N	405	PEF	C35-C36-C37-C38
25	S	102	CDL	C11-CA5-OA6-CA4

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Mol	Chain	Res	Type	Atoms
25	H	101	CDL	C23-C24-C25-C26
25	H	102	CDL	C73-C74-C75-C76
27	J	101	PEF	C32-C33-C34-C35
29	N	403	U10	C32-C33-C34-C36
25	H	101	CDL	CA7-C31-C32-C33
27	J	101	PEF	C10-C11-C12-C13
25	H	101	CDL	C57-C58-C59-C60
25	H	101	CDL	C75-C76-C77-C78
26	A	505	PCF	C37-C38-C39-C40
26	T	101	PCF	C30-C47-C48-C49
25	A	502	CDL	C71-C72-C73-C74
25	H	101	CDL	C32-C33-C34-C35
27	b	302	PEF	C39-C40-C41-C42
27	N	405	PEF	O4P-C4-C5-N
25	S	101	CDL	C75-C76-C77-C78
27	N	405	PEF	C11-C12-C13-C14
27	b	302	PEF	C36-C37-C38-C39
25	S	101	CDL	CB7-C71-C72-C73
27	O	402	PEF	C10-C11-C12-C13
25	S	102	CDL	C13-C14-C15-C16
26	T	101	PCF	C23-C24-C25-C26
27	b	302	PEF	C12-C13-C14-C15
25	H	101	CDL	C14-C15-C16-C17
26	A	503	PCF	C26-C27-C28-C29
26	T	101	PCF	C22-C23-C24-C25
25	A	502	CDL	CA3-CA4-CA6-OA8
27	b	302	PEF	C1-C2-C3-O3
25	S	101	CDL	C13-C14-C15-C16
25	H	101	CDL	C51-CB5-OB6-CB4
25	L	502	CDL	C51-CB5-OB6-CB4
25	H	101	CDL	C11-C12-C13-C14
25	S	102	CDL	C32-C33-C34-C35
25	S	102	CDL	C52-C53-C54-C55
27	c	301	PEF	C37-C38-C39-C40
25	H	101	CDL	C19-C20-C21-C22
25	H	101	CDL	C55-C56-C57-C58
25	S	102	CDL	C14-C15-C16-C17
25	S	102	CDL	C51-C52-C53-C54
27	D	402	PEF	C13-C14-C15-C16
27	A	504	PEF	C12-C13-C14-C15
25	L	502	CDL	CB7-C71-C72-C73
25	L	502	CDL	OB7-CB5-OB6-CB4

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Mol	Chain	Res	Type	Atoms
25	S	102	CDL	OA7-CA5-OA6-CA4
25	H	102	CDL	C32-C33-C34-C35
25	S	101	CDL	C17-C18-C19-C20
25	S	101	CDL	C71-C72-C73-C74
27	A	504	PEF	C11-C12-C13-C14
27	J	101	PEF	C39-C40-C41-C42
25	H	101	CDL	C77-C78-C79-C80
27	b	302	PEF	C32-C33-C34-C35
25	S	101	CDL	C80-C81-C82-C83
27	c	301	PEF	C32-C33-C34-C35
25	S	101	CDL	C72-C73-C74-C75
27	O	402	PEF	C34-C35-C36-C37
27	b	302	PEF	C34-C35-C36-C37
25	H	101	CDL	OB7-CB5-OB6-CB4
26	A	505	PCF	C32-C31-O31-C3
25	A	502	CDL	C16-C17-C18-C19
25	H	102	CDL	C20-C21-C22-C23
25	S	102	CDL	C34-C35-C36-C37
27	N	404	PEF	C37-C38-C39-C40
27	b	302	PEF	C35-C36-C37-C38
26	A	505	PCF	C42-C43-C44-C45
25	S	102	CDL	C75-C76-C77-C78
27	J	101	PEF	C38-C39-C40-C41
25	H	102	CDL	C11-CA5-OA6-CA4
25	S	101	CDL	C11-CA5-OA6-CA4
27	k	201	PEF	C12-C13-C14-C15
28	N	402	HEM	C4B-C3B-CAB-CBB
25	H	102	CDL	OA7-CA5-OA6-CA4
26	L	503	PCF	C37-C38-C39-C40
27	N	405	PEF	C13-C14-C15-C16
26	A	505	PCF	O21-C2-C3-O31
27	N	404	PEF	O2-C2-C3-O3
27	b	302	PEF	O2-C2-C3-O3
25	A	502	CDL	C32-C33-C34-C35
25	S	102	CDL	C73-C74-C75-C76
27	a	605	PEF	C14-C15-C16-C17
29	N	403	U10	C43-C44-C46-C47
25	H	102	CDL	C23-C24-C25-C26
27	N	405	PEF	C31-C32-C33-C34
25	H	101	CDL	C15-C16-C17-C18
25	H	102	CDL	C17-C18-C19-C20
25	H	102	CDL	C34-C35-C36-C37

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Mol	Chain	Res	Type	Atoms
25	S	101	CDL	C11-C12-C13-C14
27	k	201	PEF	C18-C19-C20-C21
25	A	502	CDL	C11-C12-C13-C14
27	N	405	PEF	C11-C10-O2-C2
25	S	101	CDL	CA3-OA5-PA1-OA2
25	S	102	CDL	CA2-OA2-PA1-OA5
25	H	101	CDL	C22-C23-C24-C25
25	H	101	CDL	C74-C75-C76-C77
27	c	301	PEF	C35-C36-C37-C38
29	C	403	U10	C52-C53-C54-C56
25	H	102	CDL	C1-CB2-OB2-PB2
25	L	502	CDL	C71-C72-C73-C74
25	S	102	CDL	C55-C56-C57-C58
27	D	402	PEF	C12-C13-C14-C15
29	C	403	U10	C6-C7-C8-C9
25	A	502	CDL	OB5-CB3-CB4-CB6
25	H	102	CDL	OA5-CA3-CA4-CA6
25	L	502	CDL	OB5-CB3-CB4-CB6
25	S	102	CDL	OA5-CA3-CA4-CA6
27	O	402	PEF	O3P-C1-C2-C3
25	S	101	CDL	C32-C33-C34-C35
27	c	301	PEF	C34-C35-C36-C37
26	A	505	PCF	C38-C39-C40-C41
25	A	502	CDL	C12-C13-C14-C15
25	A	502	CDL	C33-C34-C35-C36
27	N	404	PEF	C10-C11-C12-C13
25	H	101	CDL	C33-C34-C35-C36
25	S	101	CDL	C15-C16-C17-C18
25	S	101	CDL	C52-C53-C54-C55
27	k	201	PEF	C35-C36-C37-C38
27	N	404	PEF	C13-C14-C15-C16
25	H	102	CDL	CA5-C11-C12-C13
27	k	201	PEF	C11-C12-C13-C14
25	H	102	CDL	CA3-CA4-CA6-OA8
25	S	101	CDL	CA3-CA4-CA6-OA8
25	S	102	CDL	CA3-CA4-CA6-OA8
32	a	602	HEA	C21-C22-C23-C24
29	C	403	U10	C1-C6-C7-C8
25	L	502	CDL	C33-C34-C35-C36
27	A	504	PEF	C34-C35-C36-C37
25	S	101	CDL	CA7-C31-C32-C33
27	c	301	PEF	C10-C11-C12-C13

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Mol	Chain	Res	Type	Atoms
29	C	403	U10	C9-C11-C12-C13
29	C	403	U10	C29-C31-C32-C33
29	N	403	U10	C49-C51-C52-C53
27	A	504	PEF	C31-C32-C33-C34
27	N	404	PEF	C33-C34-C35-C36
26	A	505	PCF	O32-C31-O31-C3
25	H	101	CDL	C59-C60-C61-C62
27	a	605	PEF	C12-C13-C14-C15
26	A	505	PCF	C26-C27-C28-C29
27	k	201	PEF	C37-C38-C39-C40
25	A	502	CDL	CB6-CB4-OB6-CB5
26	L	503	PCF	C1-C2-O21-C21
25	H	101	CDL	C76-C77-C78-C79
27	A	504	PEF	C32-C33-C34-C35
27	J	101	PEF	C35-C36-C37-C38
27	b	302	PEF	C2-C1-O3P-P
27	O	402	PEF	C37-C38-C39-C40
25	S	101	CDL	OA5-CA3-CA4-OA6
27	a	605	PEF	O3P-C1-C2-O2
25	A	502	CDL	OA6-CA4-CA6-OA8
27	A	504	PEF	O2-C2-C3-O3
25	L	502	CDL	C11-C12-C13-C14
26	A	505	PCF	C43-C44-C45-C46
25	S	101	CDL	OA7-CA5-OA6-CA4
27	J	101	PEF	C33-C34-C35-C36
27	D	402	PEF	C34-C35-C36-C37
27	a	605	PEF	C42-C43-C44-C45
27	J	101	PEF	C37-C38-C39-C40
27	a	605	PEF	C34-C35-C36-C37
25	H	102	CDL	C71-C72-C73-C74
25	H	102	CDL	C21-C22-C23-C24
25	S	101	CDL	OA5-CA3-CA4-CA6
27	J	101	PEF	O3P-C1-C2-C3
27	b	302	PEF	O3P-C1-C2-C3
27	N	405	PEF	C30-C31-C32-C33
27	N	404	PEF	C35-C36-C37-C38
27	a	605	PEF	C37-C38-C39-C40
25	S	102	CDL	C74-C75-C76-C77
25	H	102	CDL	C31-CA7-OA8-CA6
25	S	102	CDL	C59-C60-C61-C62
27	J	101	PEF	C40-C41-C42-C43
27	N	405	PEF	C41-C42-C43-C44

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Mol	Chain	Res	Type	Atoms
25	S	101	CDL	C51-C52-C53-C54
25	S	102	CDL	C17-C18-C19-C20
26	T	101	PCF	C32-C31-O31-C3
27	k	201	PEF	C31-C30-O3-C3
25	H	102	CDL	C12-C13-C14-C15
25	H	101	CDL	CB3-CB4-CB6-OB8
25	L	502	CDL	CA3-CA4-CA6-OA8
26	A	503	PCF	C1-C2-C3-O31
26	L	503	PCF	C1-C2-C3-O31
27	A	504	PEF	C1-C2-C3-O3
27	D	402	PEF	C1-C2-C3-O3
27	N	404	PEF	C1-C2-C3-O3
27	N	405	PEF	C1-C2-C3-O3
29	C	403	U10	C12-C13-C14-C16
26	A	503	PCF	C22-C23-C24-C25
27	J	101	PEF	C12-C13-C14-C15
25	S	101	CDL	C23-C24-C25-C26
25	A	502	CDL	C14-C15-C16-C17
27	a	605	PEF	C13-C14-C15-C16
25	A	502	CDL	CA3-OA5-PA1-OA2
25	S	102	CDL	C72-C73-C74-C75
26	A	503	PCF	C36-C37-C38-C39
27	A	504	PEF	C35-C36-C37-C38
27	N	405	PEF	C34-C35-C36-C37
25	A	502	CDL	OA5-CA3-CA4-OA6
25	H	102	CDL	OA5-CA3-CA4-OA6
25	S	102	CDL	OA5-CA3-CA4-OA6
27	D	402	PEF	O3P-C1-C2-O2
27	O	402	PEF	O3P-C1-C2-O2
25	A	502	CDL	OB6-CB4-CB6-OB8
25	S	102	CDL	OA6-CA4-CA6-OA8
27	N	405	PEF	O2-C2-C3-O3
25	S	101	CDL	C21-C22-C23-C24
25	S	101	CDL	CA2-C1-CB2-OB2
25	S	102	CDL	CA2-C1-CB2-OB2
25	A	502	CDL	C72-C73-C74-C75
27	N	405	PEF	O4-C10-O2-C2
25	H	101	CDL	C56-C57-C58-C59
25	H	102	CDL	C24-C25-C26-C27
25	S	102	CDL	C15-C16-C17-C18
27	D	402	PEF	C20-C21-C22-C23
27	N	404	PEF	C15-C16-C17-C18

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Mol	Chain	Res	Type	Atoms
27	a	605	PEF	C39-C40-C41-C42
25	A	502	CDL	CB4-CB3-OB5-PB2
25	L	502	CDL	CB4-CB3-OB5-PB2
27	a	605	PEF	C2-C1-O3P-P
25	S	101	CDL	C16-C17-C18-C19
26	A	505	PCF	C25-C26-C27-C28
27	a	605	PEF	C18-C19-C20-C21
25	S	101	CDL	C76-C77-C78-C79
25	H	102	CDL	C31-C32-C33-C34
25	L	502	CDL	C31-C32-C33-C34
26	A	503	PCF	C33-C34-C35-C36
27	O	402	PEF	C11-C10-O2-C2
27	D	402	PEF	O3P-C1-C2-C3
27	a	605	PEF	O3P-C1-C2-C3
25	H	102	CDL	C19-C20-C21-C22
25	L	502	CDL	C16-C17-C18-C19
27	D	402	PEF	C38-C39-C40-C41
26	L	503	PCF	C36-C37-C38-C39
27	D	402	PEF	C39-C40-C41-C42
27	b	302	PEF	C20-C21-C22-C23
29	N	403	U10	C5-C4-O4-C4M
25	A	502	CDL	CB3-CB4-CB6-OB8
25	S	102	CDL	C1-CB2-OB2-PB2
27	a	605	PEF	C1-C2-C3-O3
25	S	102	CDL	C16-C17-C18-C19
25	H	102	CDL	C54-C55-C56-C57
25	L	502	CDL	C14-C15-C16-C17
27	k	201	PEF	O5-C30-O3-C3
27	k	201	PEF	C14-C15-C16-C17
25	H	102	CDL	OA6-CA4-CA6-OA8
26	A	503	PCF	O21-C2-C3-O31
29	C	403	U10	C30-C29-C31-C32
29	N	403	U10	C15-C14-C16-C17
29	N	403	U10	C25-C24-C26-C27
25	H	102	CDL	OA9-CA7-OA8-CA6
26	T	101	PCF	O32-C31-O31-C3
29	N	403	U10	C13-C14-C16-C17
27	a	605	PEF	C19-C20-C21-C22
27	O	402	PEF	O4-C10-O2-C2
25	S	101	CDL	C34-C35-C36-C37
27	J	101	PEF	C34-C35-C36-C37
27	O	402	PEF	C11-C12-C13-C14

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Mol	Chain	Res	Type	Atoms
27	D	402	PEF	C4-O4P-P-O3P
27	O	402	PEF	C4-O4P-P-O3P
27	O	402	PEF	C32-C33-C34-C35
25	H	101	CDL	CA4-CA3-OA5-PA1
25	S	102	CDL	C1-CA2-OA2-PA1
29	N	403	U10	C23-C24-C26-C27
26	T	101	PCF	C48-C49-C50-C51
25	A	502	CDL	CB2-OB2-PB2-OB4
25	H	101	CDL	CA2-OA2-PA1-OA3
25	H	101	CDL	CB3-OB5-PB2-OB4
25	H	102	CDL	CB2-OB2-PB2-OB3
25	H	102	CDL	CB2-OB2-PB2-OB4
25	L	502	CDL	CB3-OB5-PB2-OB4
25	S	101	CDL	CA3-OA5-PA1-OA4
25	S	101	CDL	CB2-OB2-PB2-OB3
25	S	101	CDL	CB2-OB2-PB2-OB4
25	S	102	CDL	CA2-OA2-PA1-OA4
25	S	102	CDL	CB3-OB5-PB2-OB4
26	A	503	PCF	C1-O11-P-O12
26	L	503	PCF	C1-O11-P-O12
27	D	402	PEF	C10-C11-C12-C13
25	A	502	CDL	OA5-CA3-CA4-CA6
27	c	301	PEF	O3P-C1-C2-C3
27	k	201	PEF	O3P-C1-C2-C3
25	L	502	CDL	C13-C14-C15-C16
25	S	102	CDL	C12-C13-C14-C15
25	H	102	CDL	C76-C77-C78-C79
27	a	605	PEF	C33-C34-C35-C36
27	b	302	PEF	C40-C41-C42-C43
27	k	201	PEF	C15-C16-C17-C18
25	A	502	CDL	OB5-CB3-CB4-OB6
25	L	502	CDL	OB5-CB3-CB4-OB6
27	J	101	PEF	O3P-C1-C2-O2
27	N	404	PEF	O3P-C1-C2-O2
27	b	302	PEF	O3P-C1-C2-O2
27	c	301	PEF	O3P-C1-C2-O2
28	C	402	HEM	C2A-CAA-CBA-CGA
26	A	505	PCF	O13-C11-C12-N
26	L	503	PCF	C39-C40-C41-C42
26	T	101	PCF	O13-C11-C12-N
25	L	502	CDL	OA6-CA4-CA6-OA8
25	S	101	CDL	OA6-CA4-CA6-OA8

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Mol	Chain	Res	Type	Atoms
27	k	201	PEF	C32-C33-C34-C35
25	S	102	CDL	C53-C54-C55-C56
27	J	101	PEF	C13-C14-C15-C16
29	N	403	U10	C35-C34-C36-C37
29	C	403	U10	C28-C29-C31-C32
25	H	102	CDL	C79-C80-C81-C82
25	L	502	CDL	CB3-CB4-OB6-CB5
26	A	505	PCF	C39-C40-C41-C42
25	S	101	CDL	C54-C55-C56-C57
27	k	201	PEF	O3P-C1-C2-O2
27	O	402	PEF	C18-C19-C20-C21
25	L	502	CDL	OA7-CA5-OA6-CA4
27	a	605	PEF	C11-C12-C13-C14
27	b	302	PEF	C14-C15-C16-C17
25	L	502	CDL	C11-CA5-OA6-CA4
25	H	102	CDL	CB3-OB5-PB2-OB2
27	A	504	PEF	C4-O4P-P-O3P
27	N	404	PEF	C4-O4P-P-O3P
27	a	605	PEF	C4-O4P-P-O3P
27	k	201	PEF	C1-O3P-P-O4P
27	k	201	PEF	C4-O4P-P-O3P
25	H	102	CDL	C52-C53-C54-C55
25	A	502	CDL	CB4-CB6-OB8-CB7
26	A	505	PCF	C40-C41-C42-C43
26	A	505	PCF	C1-C2-C3-O31
29	N	403	U10	C33-C34-C36-C37
25	H	102	CDL	C72-C73-C74-C75
25	H	101	CDL	C16-C17-C18-C19
29	C	403	U10	C5-C4-O4-C4M
25	H	101	CDL	CB4-CB3-OB5-PB2
26	A	503	PCF	C35-C36-C37-C38
27	A	504	PEF	C38-C39-C40-C41
25	L	502	CDL	CA5-C11-C12-C13
27	J	101	PEF	C31-C32-C33-C34
27	k	201	PEF	O3-C30-C31-C32
27	A	504	PEF	C18-C19-C20-C21
27	c	301	PEF	C13-C14-C15-C16
25	S	101	CDL	OB5-CB3-CB4-CB6
27	N	404	PEF	O3P-C1-C2-C3
27	J	101	PEF	C22-C23-C24-C25
25	L	502	CDL	C51-C52-C53-C54
26	L	503	PCF	C33-C34-C35-C36

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Mol	Chain	Res	Type	Atoms
27	O	402	PEF	C36-C37-C38-C39
27	J	101	PEF	C16-C17-C18-C19
25	H	101	CDL	C73-C74-C75-C76
25	S	101	CDL	C55-C56-C57-C58
25	S	102	CDL	CB3-CB4-CB6-OB8
26	A	503	PCF	C27-C28-C29-C30
27	D	402	PEF	C41-C42-C43-C44
25	H	101	CDL	C24-C25-C26-C27
32	a	602	HEA	CAA-CBA-CGA-O1A
32	a	602	HEA	CAA-CBA-CGA-O2A
25	H	101	CDL	C31-C32-C33-C34
27	O	402	PEF	C42-C43-C44-C45
32	a	602	HEA	CAD-CBD-CGD-O1D
26	L	503	PCF	C38-C39-C40-C41
26	T	101	PCF	C21-C22-C23-C24
27	a	605	PEF	C36-C37-C38-C39
32	a	602	HEA	C26-C15-C16-C17
26	T	101	PCF	C36-C37-C38-C39
27	D	402	PEF	C32-C33-C34-C35
27	N	404	PEF	C42-C43-C44-C45
27	N	404	PEF	C18-C19-C20-C21
25	A	502	CDL	C12-C11-CA5-OA6
25	S	101	CDL	C12-C11-CA5-OA6
25	A	502	CDL	C31-C32-C33-C34
25	L	502	CDL	C52-C51-CB5-OB6
25	S	101	CDL	C74-C75-C76-C77
27	D	402	PEF	C11-C12-C13-C14
28	N	402	HEM	CAD-CBD-CGD-O1D
25	H	102	CDL	C32-C31-CA7-OA8
25	H	102	CDL	C52-C51-CB5-OB6
32	a	602	HEA	CAD-CBD-CGD-O2D
25	H	101	CDL	OB5-CB3-CB4-OB6
25	H	102	CDL	C56-C57-C58-C59
27	D	402	PEF	O2-C10-C11-C12
25	H	102	CDL	C72-C71-CB7-OB8
25	S	102	CDL	C72-C71-CB7-OB8
27	D	402	PEF	O3-C30-C31-C32
28	N	402	HEM	CAD-CBD-CGD-O2D
27	N	404	PEF	C39-C40-C41-C42
27	k	201	PEF	C16-C17-C18-C19
25	L	502	CDL	C12-C11-CA5-OA6
25	S	102	CDL	C32-C31-CA7-OA8

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Mol	Chain	Res	Type	Atoms
27	J	101	PEF	O3-C30-C31-C32
25	L	502	CDL	C52-C51-CB5-OB7
26	A	505	PCF	O31-C31-C32-C33
26	L	503	PCF	O31-C31-C32-C33
26	T	101	PCF	O31-C31-C32-C33
25	H	102	CDL	C52-C51-CB5-OB7
27	D	402	PEF	C42-C43-C44-C45
25	H	102	CDL	C55-C56-C57-C58
25	S	101	CDL	OB5-CB3-CB4-OB6
27	O	402	PEF	C35-C36-C37-C38
25	S	101	CDL	C12-C11-CA5-OA7
27	c	301	PEF	C36-C37-C38-C39
25	A	502	CDL	C12-C11-CA5-OA7
26	L	503	PCF	C22-C23-C24-C25
25	S	101	CDL	O1-C1-CB2-OB2
26	A	505	PCF	O32-C31-C32-C33
25	H	102	CDL	C32-C31-CA7-OA9
25	H	102	CDL	C72-C71-CB7-OB9
25	A	502	CDL	CA3-OA5-PA1-OA3
25	L	502	CDL	CB2-OB2-PB2-OB3
26	A	503	PCF	C1-O11-P-O14
26	T	101	PCF	C1-O11-P-O12
27	A	504	PEF	C4-O4P-P-O1P
27	N	404	PEF	C4-O4P-P-O1P
27	O	402	PEF	C1-O3P-P-O1P
27	a	605	PEF	C4-O4P-P-O1P
27	k	201	PEF	C4-O4P-P-O1P
27	D	402	PEF	O4-C10-C11-C12
28	N	401	HEM	CAD-CBD-CGD-O2D
25	S	102	CDL	C72-C71-CB7-OB9
27	D	402	PEF	O5-C30-C31-C32
27	J	101	PEF	O5-C30-C31-C32
26	T	101	PCF	C12-C11-O13-P
27	A	504	PEF	C5-C4-O4P-P
27	a	605	PEF	C5-C4-O4P-P
25	S	102	CDL	C32-C31-CA7-OA9
27	c	301	PEF	O3-C30-C31-C32
28	N	401	HEM	CAD-CBD-CGD-O1D
27	N	404	PEF	O3-C30-C31-C32
25	H	101	CDL	CB2-C1-CA2-OA2
25	L	502	CDL	C12-C11-CA5-OA7
25	A	502	CDL	C32-C31-CA7-OA8

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Mol	Chain	Res	Type	Atoms
25	S	101	CDL	C32-C31-CA7-OA8
26	A	503	PCF	O31-C31-C32-C33
26	A	503	PCF	O21-C21-C22-C23
26	A	503	PCF	C37-C38-C39-C40
26	L	503	PCF	C23-C24-C25-C26
25	S	101	CDL	C14-C15-C16-C17
25	A	502	CDL	C32-C31-CA7-OA9
27	N	404	PEF	O5-C30-C31-C32
26	T	101	PCF	O32-C31-C32-C33
27	c	301	PEF	O5-C30-C31-C32
26	A	503	PCF	C34-C35-C36-C37
26	A	505	PCF	C28-C29-C30-C47
25	S	101	CDL	C32-C31-CA7-OA9

There are no ring outliers.

32 monomers are involved in 127 short contacts:

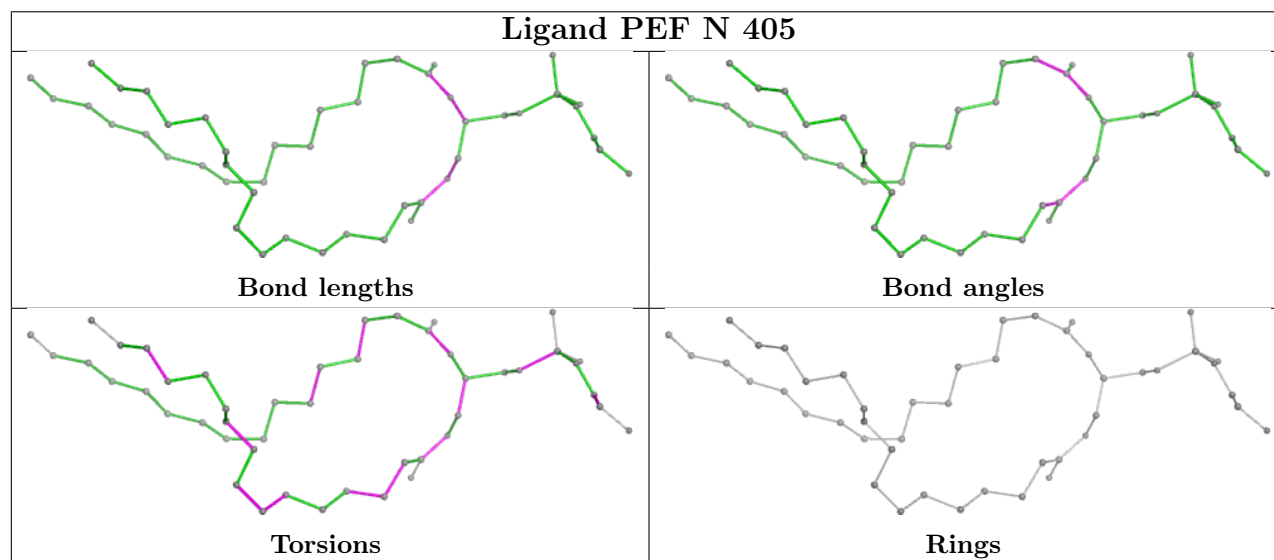
Mol	Chain	Res	Type	Clashes	Symm-Clashes
27	N	405	PEF	2	0
27	c	301	PEF	3	0
26	L	503	PCF	3	0
29	C	403	U10	7	0
27	k	201	PEF	12	0
27	A	504	PEF	7	0
28	N	401	HEM	3	0
28	N	402	HEM	3	0
26	A	505	PCF	6	0
27	J	101	PEF	6	0
26	T	101	PCF	3	0
25	A	502	CDL	5	0
31	P	301	FES	2	0
32	a	602	HEA	2	0
27	D	402	PEF	2	0
29	N	403	U10	5	0
27	b	302	PEF	3	0
25	S	101	CDL	3	0
27	a	605	PEF	2	0
28	C	402	HEM	2	0
30	O	401	HEC	3	0
31	E	301	FES	4	0
28	C	401	HEM	5	0
30	D	401	HEC	6	0

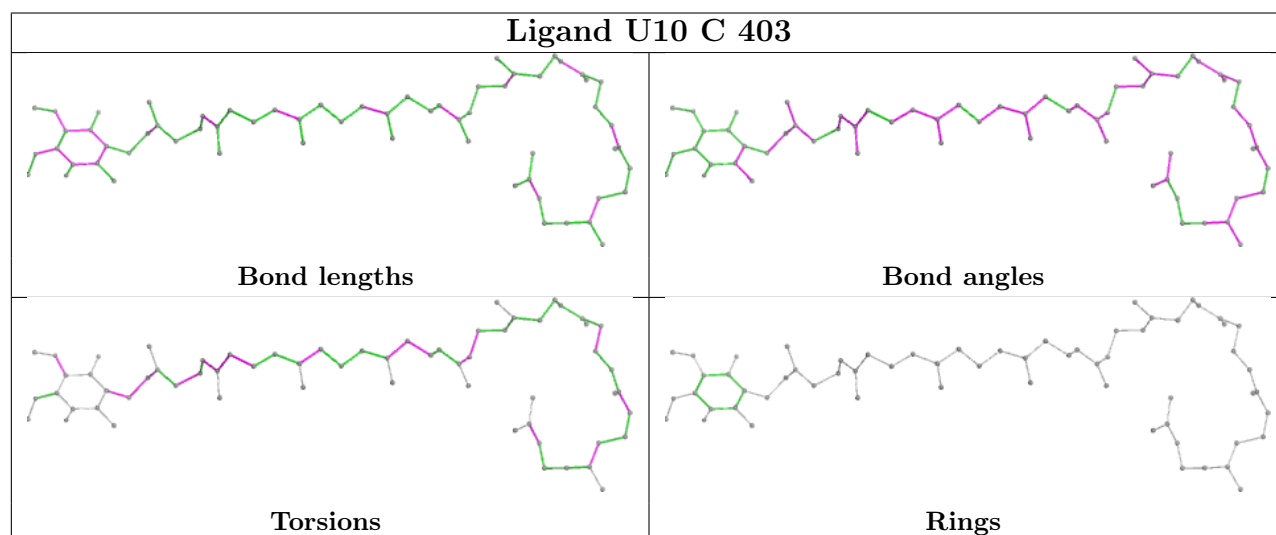
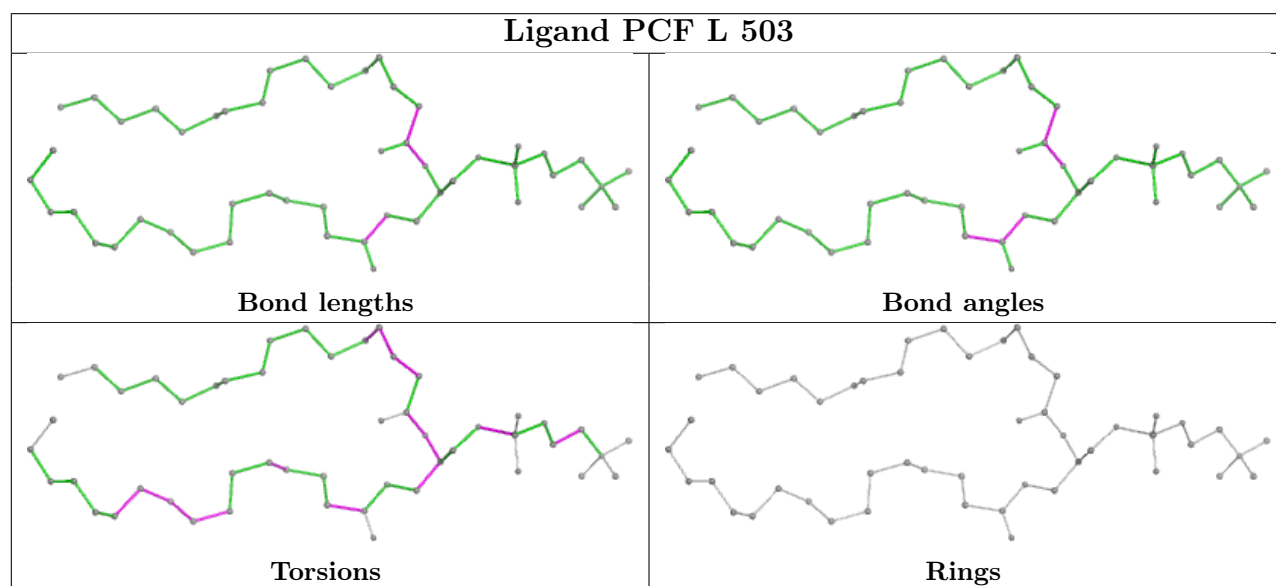
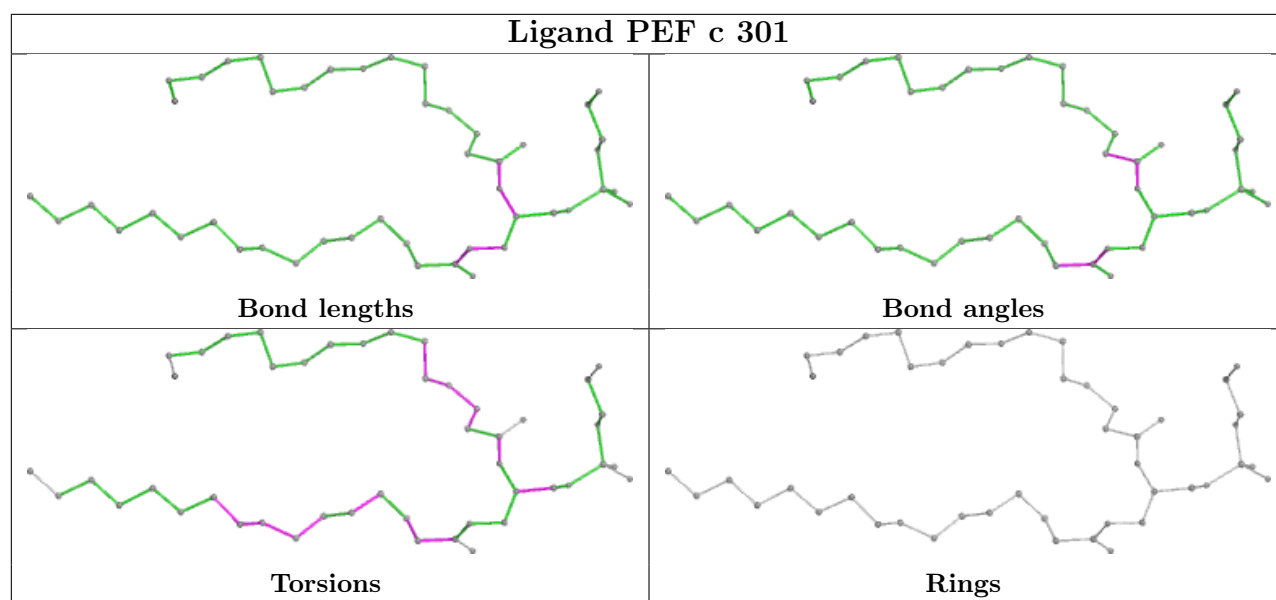
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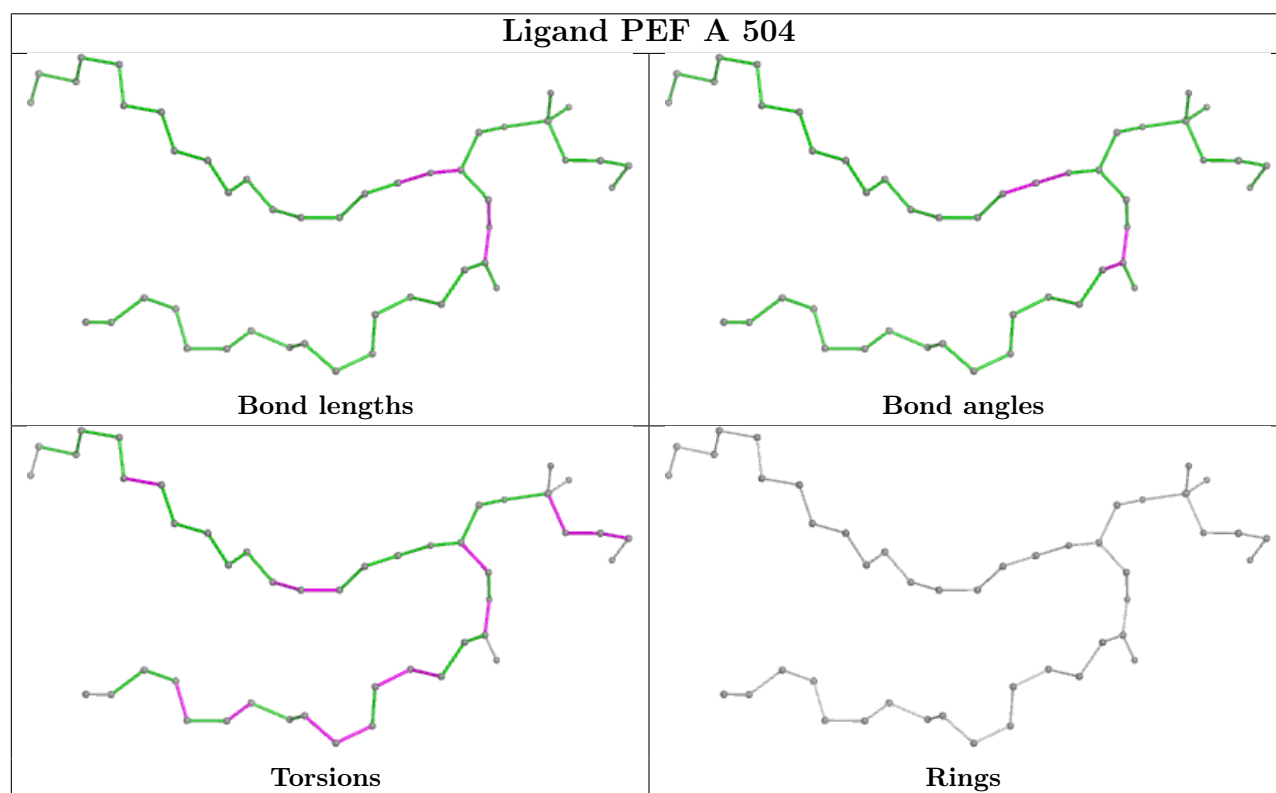
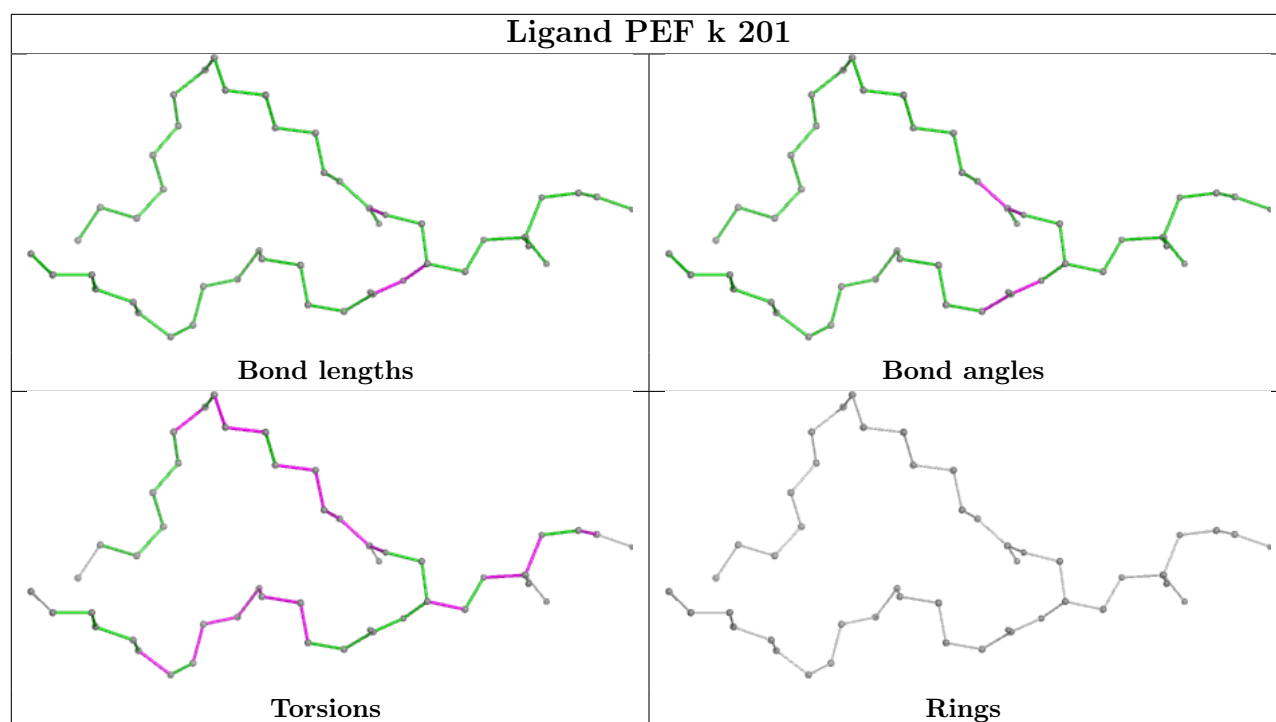
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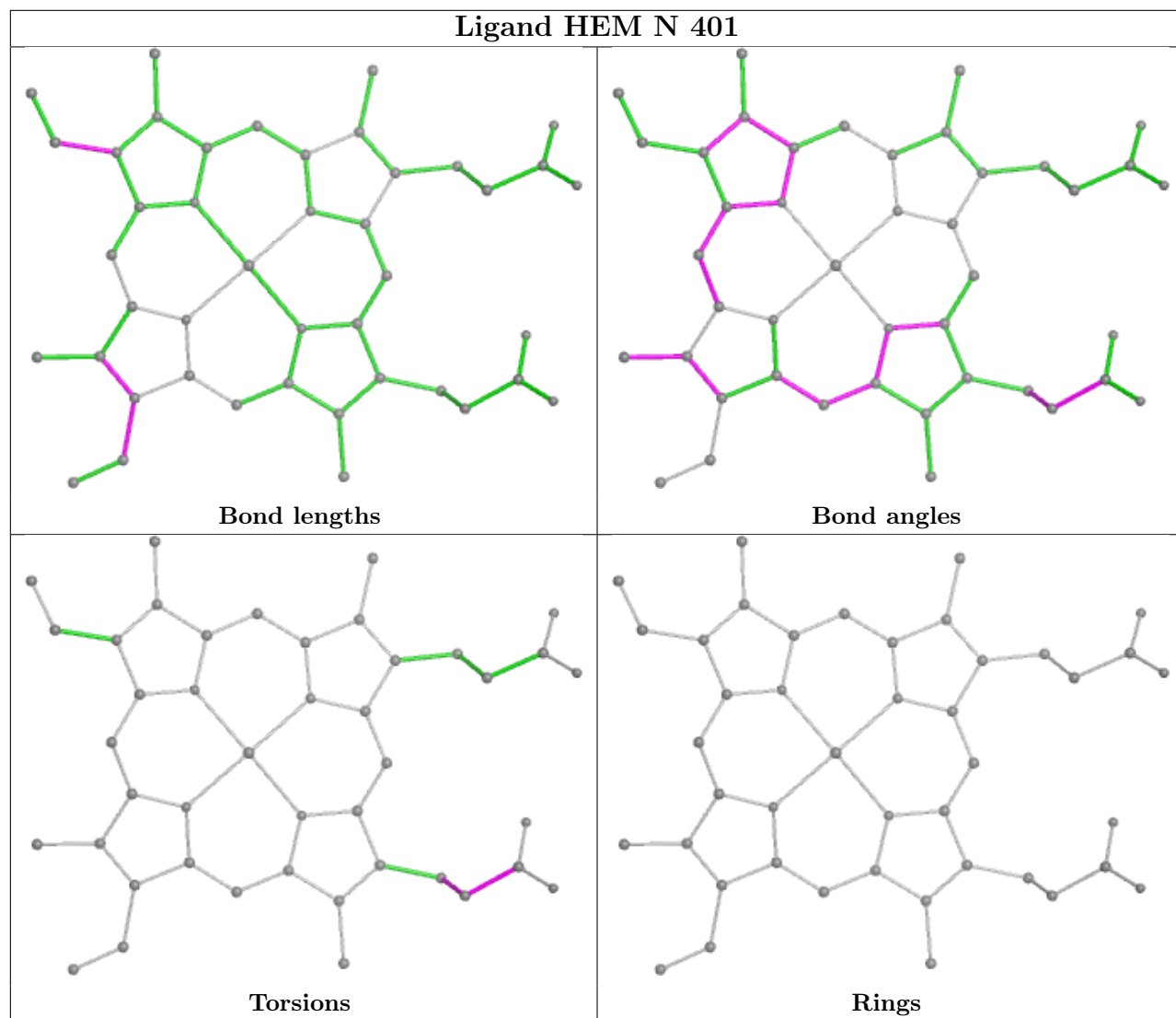
Mol	Chain	Res	Type	Clashes	Symm-Clashes
27	O	402	PEF	1	0
25	S	102	CDL	3	0
25	H	102	CDL	6	0
25	L	502	CDL	5	0
25	H	101	CDL	4	0
26	A	503	PCF	5	0
32	a	601	HEA	8	0
27	N	404	PEF	5	0

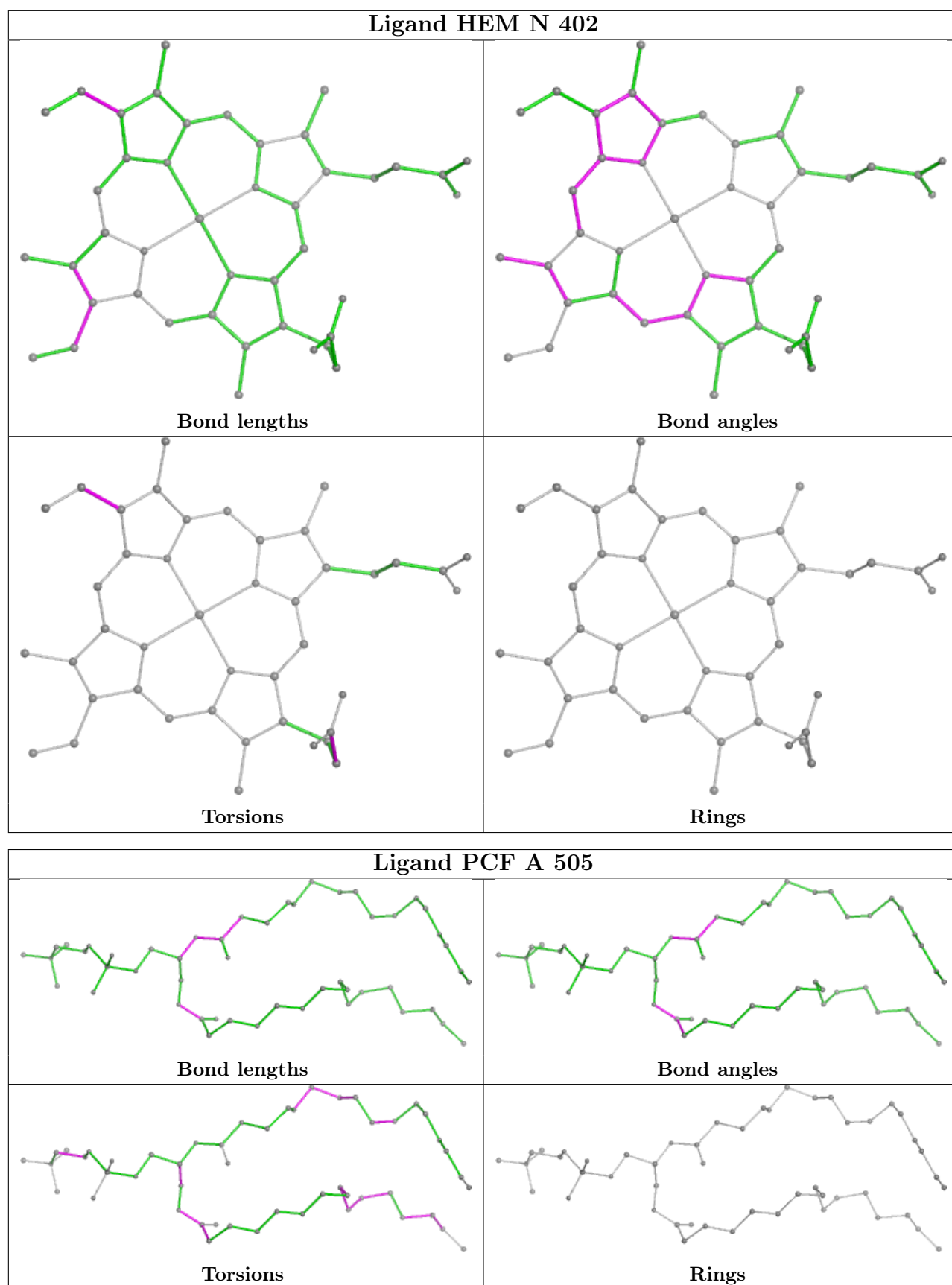
The following is a two-dimensional graphical depiction of Mogul quality analysis of bond lengths, bond angles, torsion angles, and ring geometry for all instances of the Ligand of Interest. In addition, ligands with molecular weight > 250 and outliers as shown on the validation Tables will also be included.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

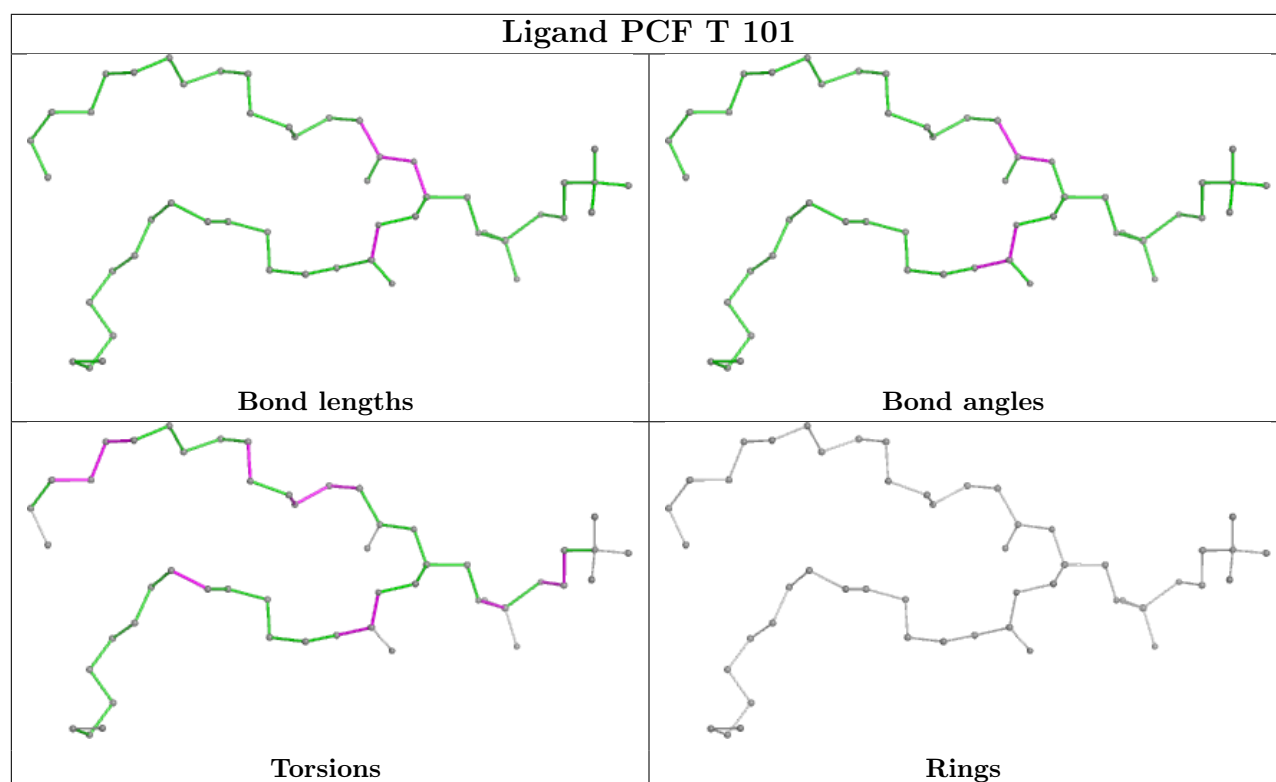
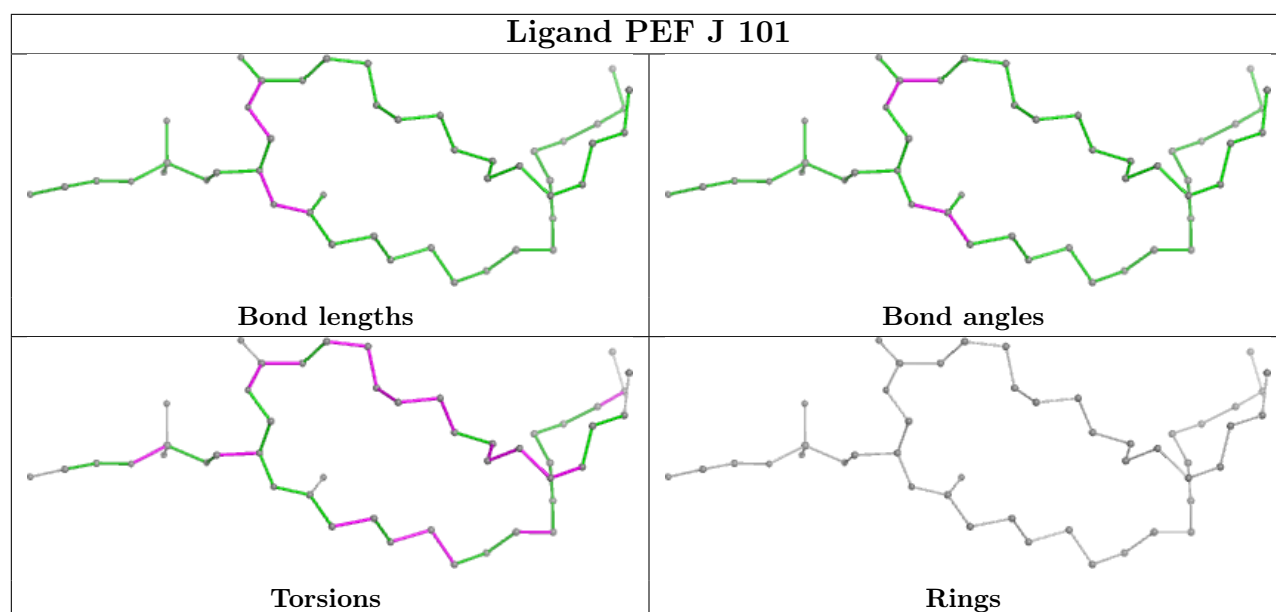


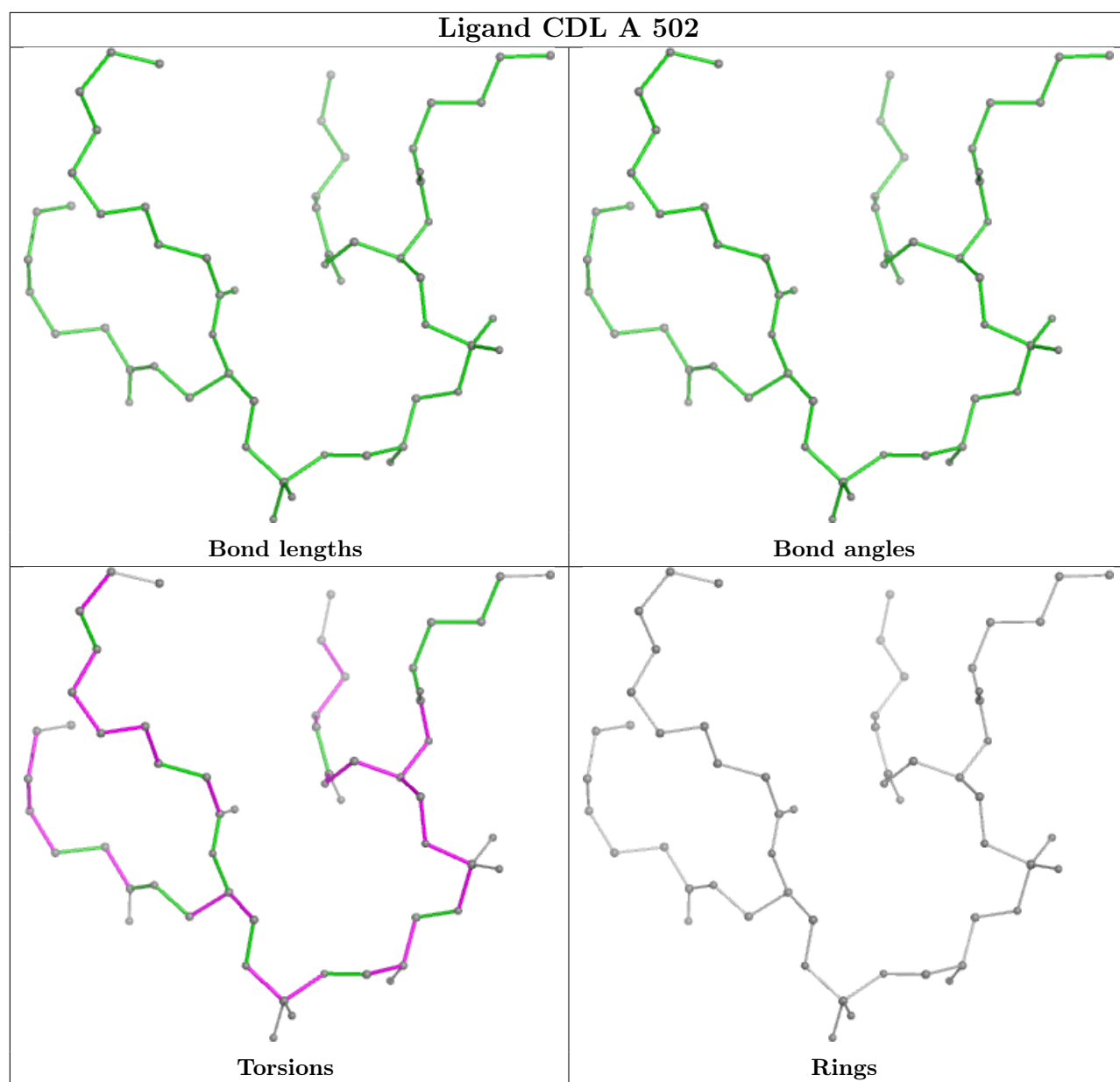


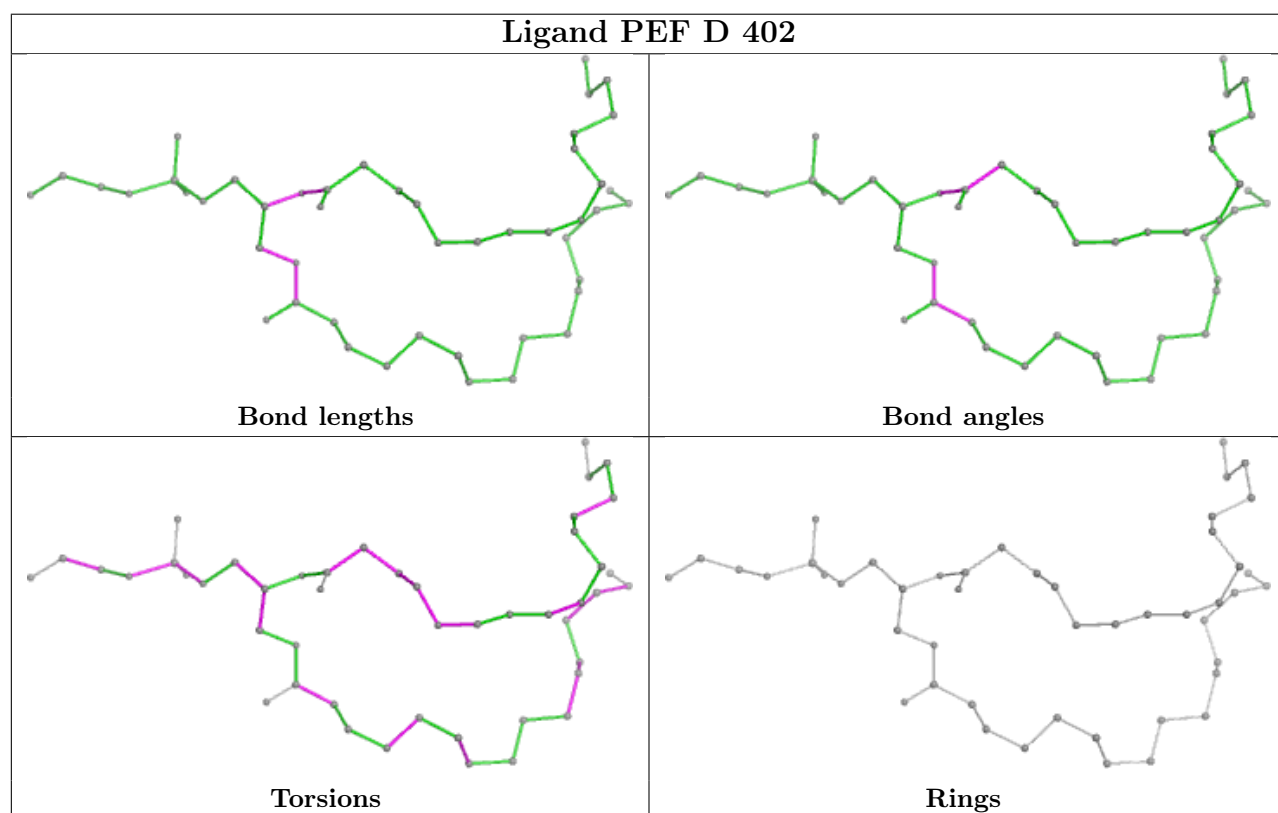
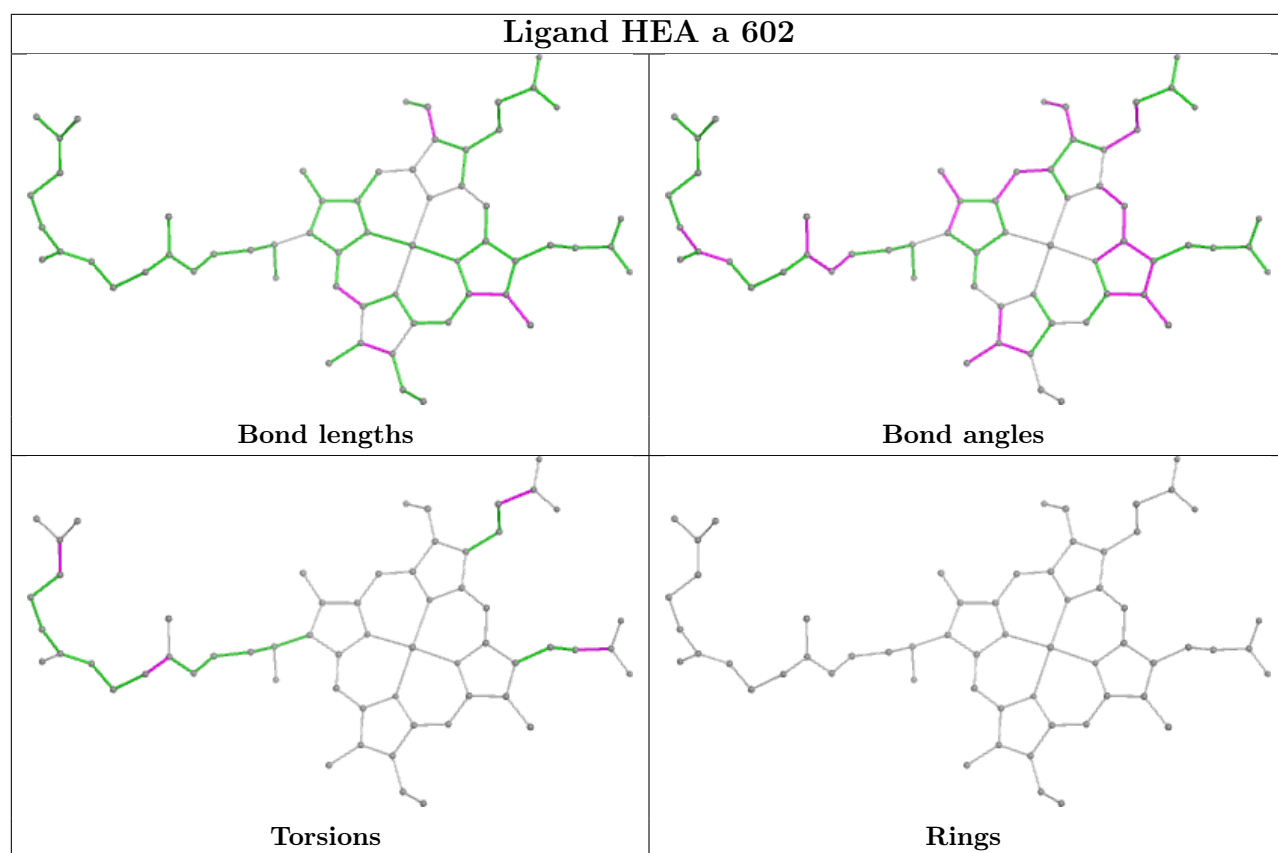


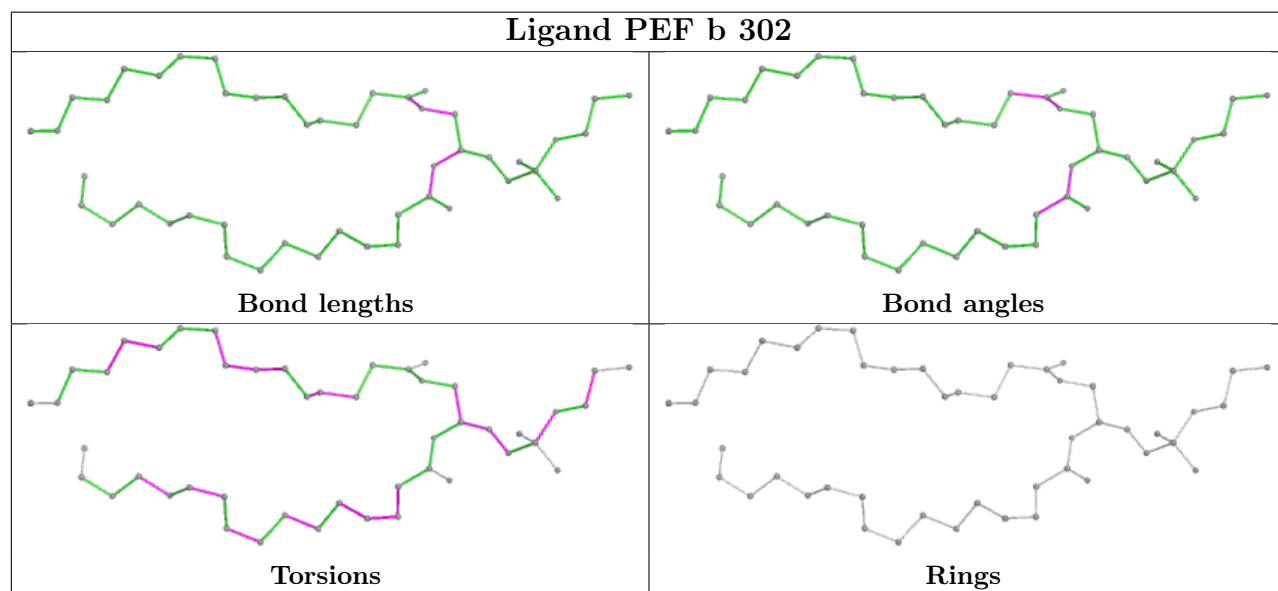
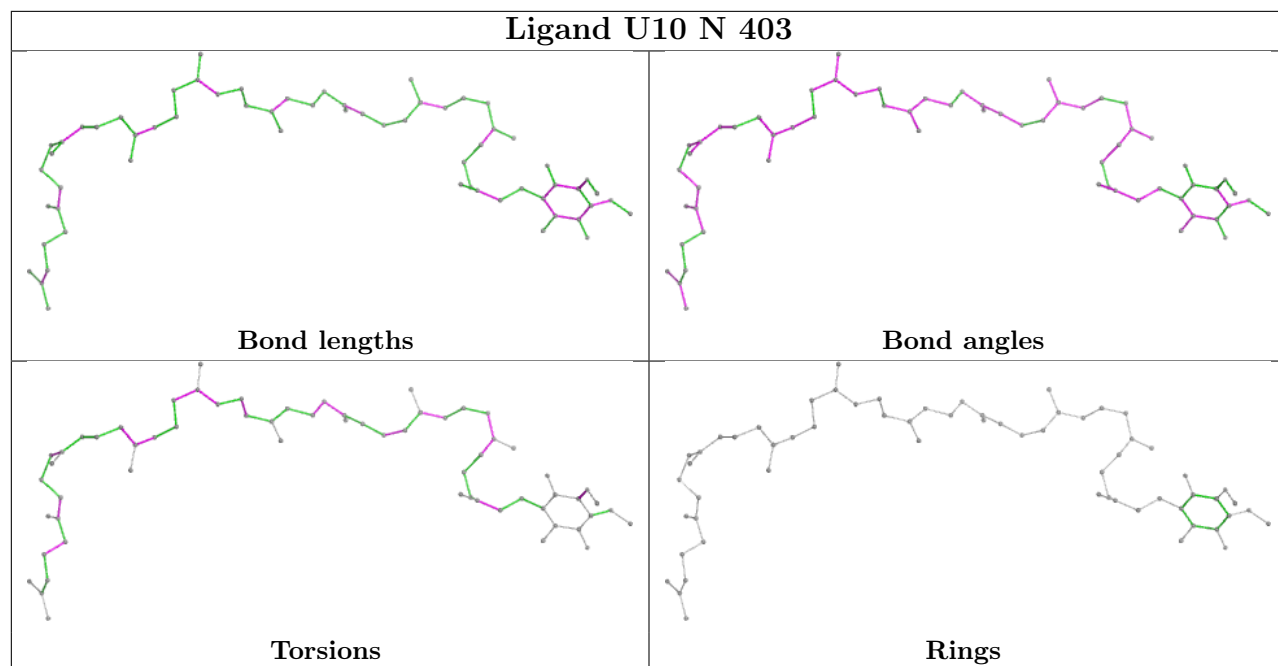


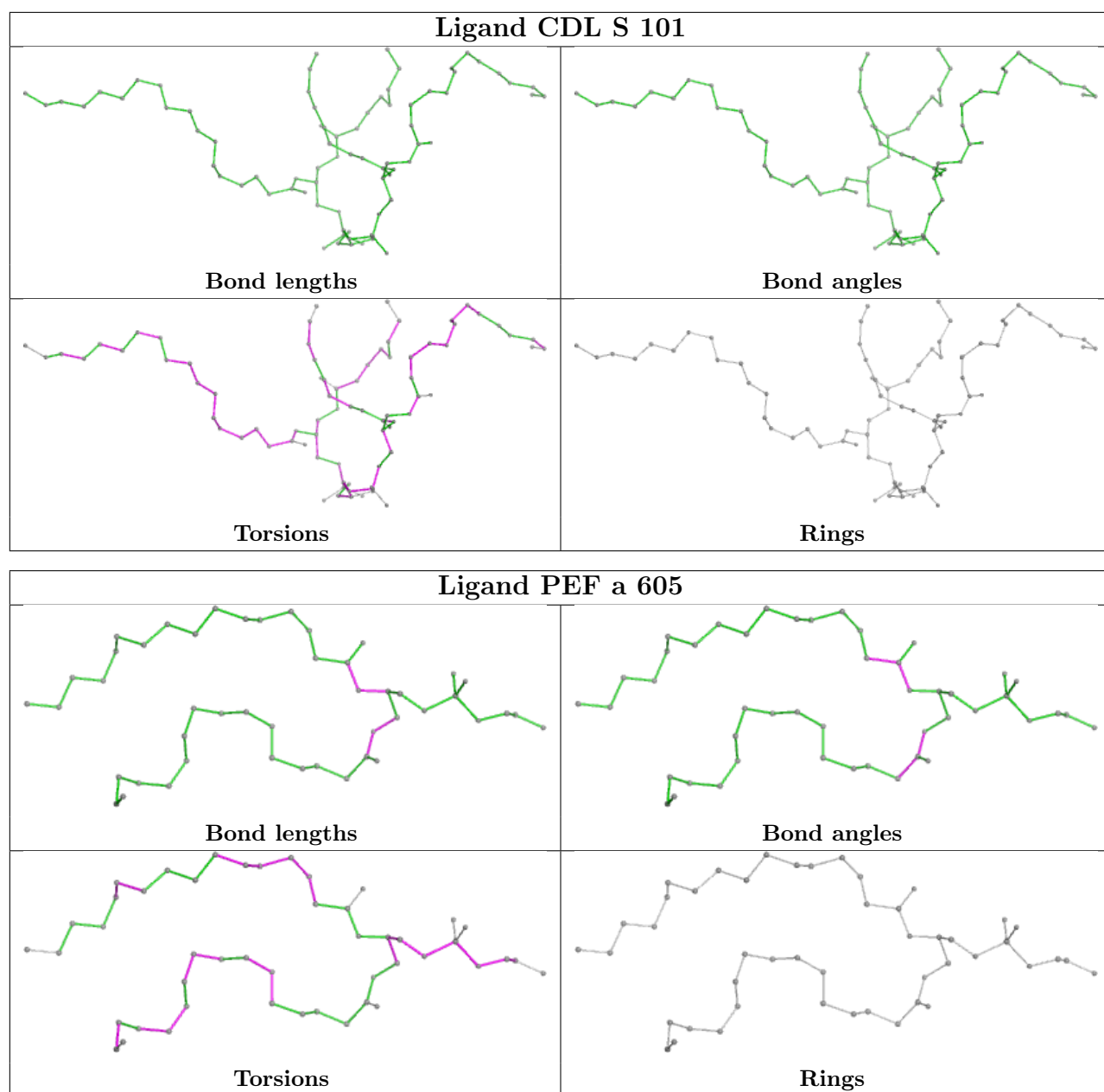


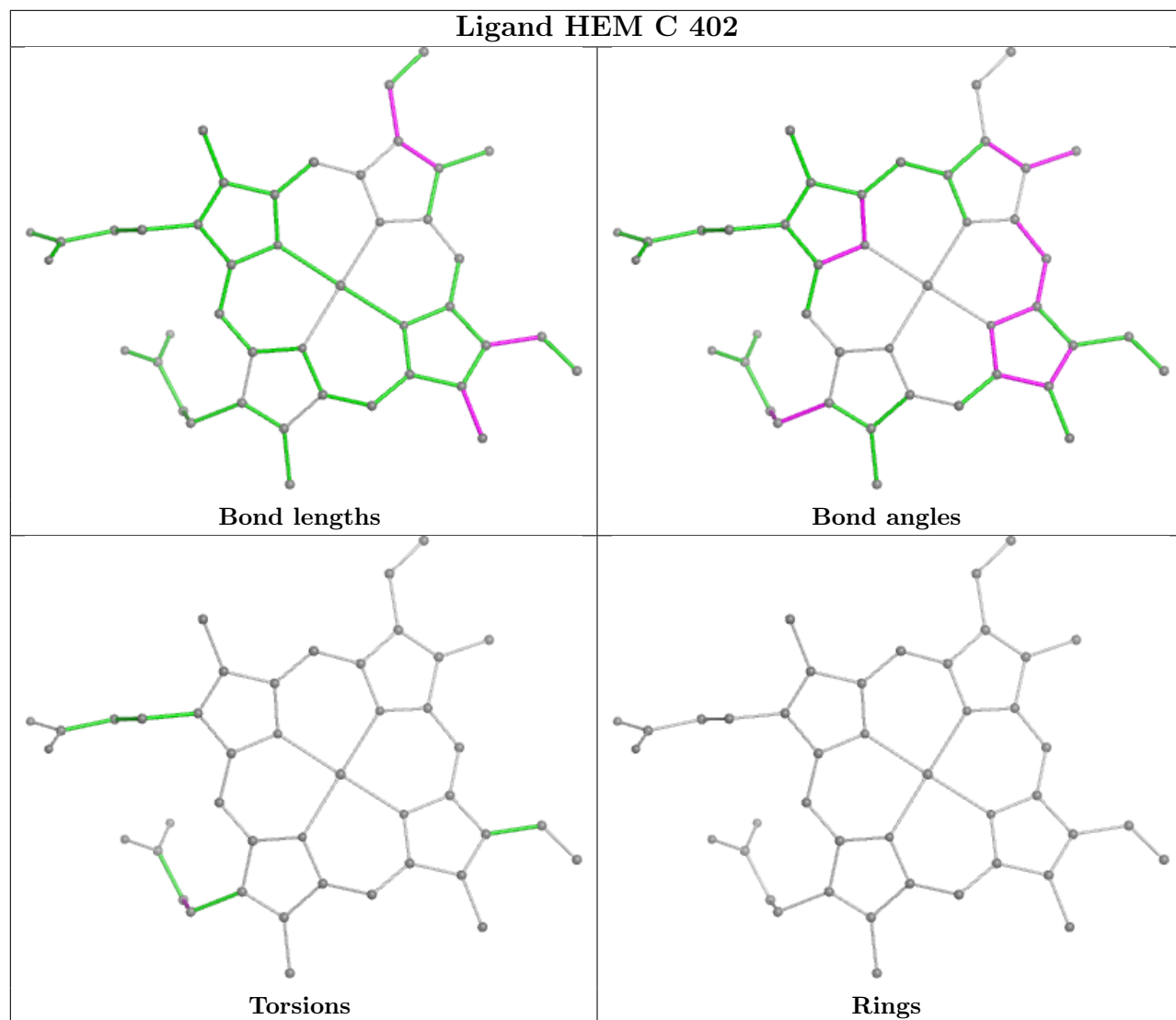


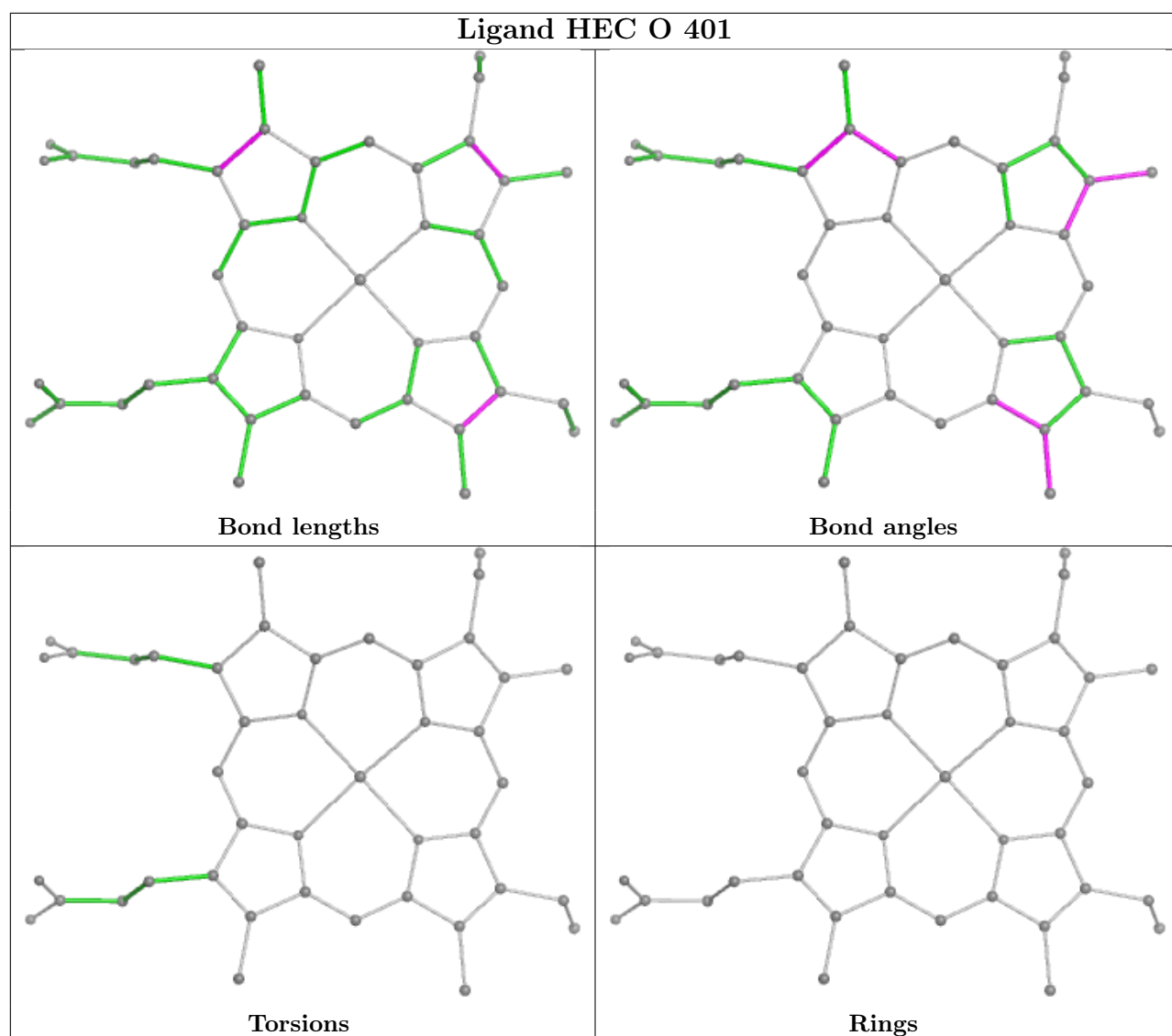


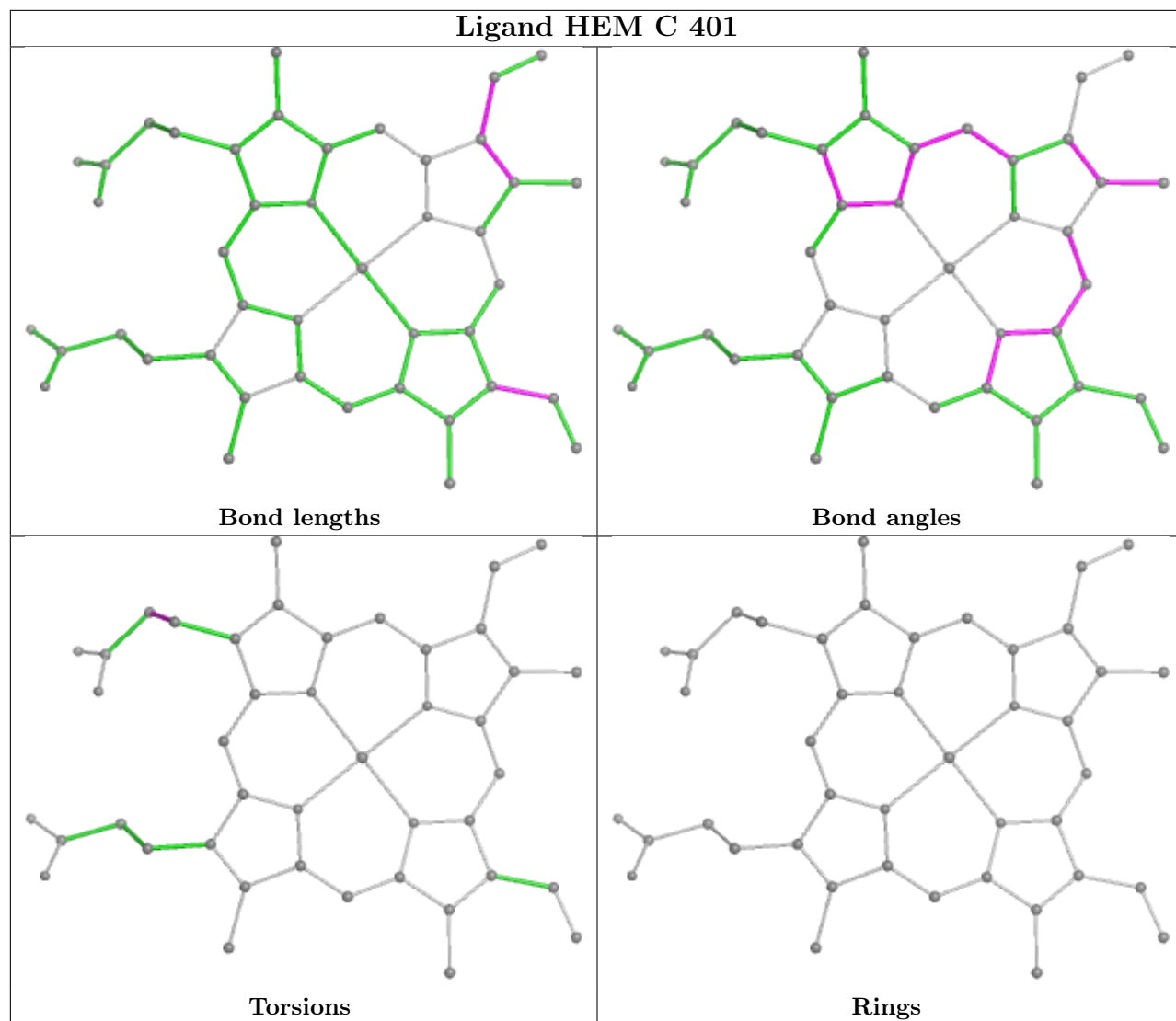


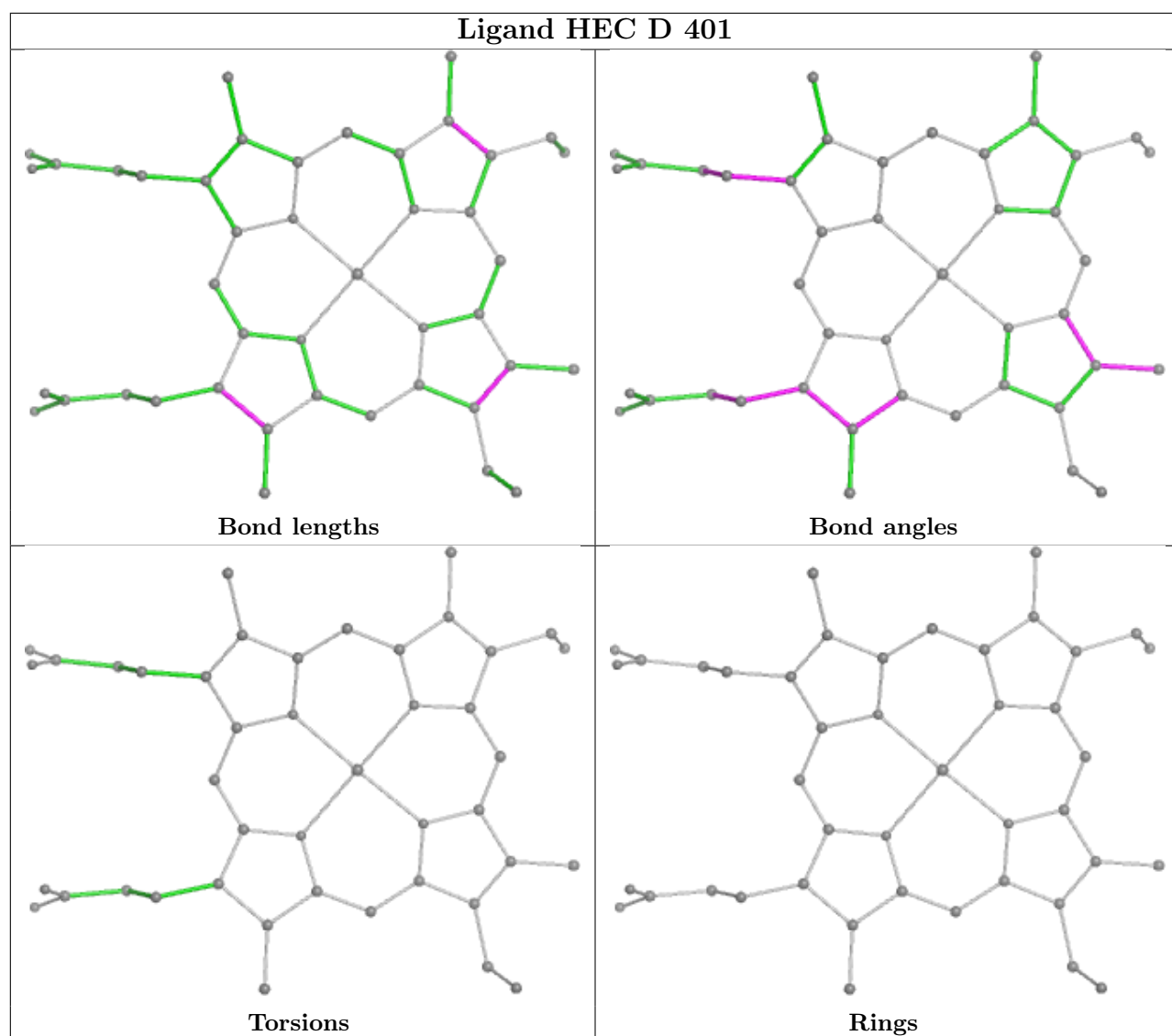


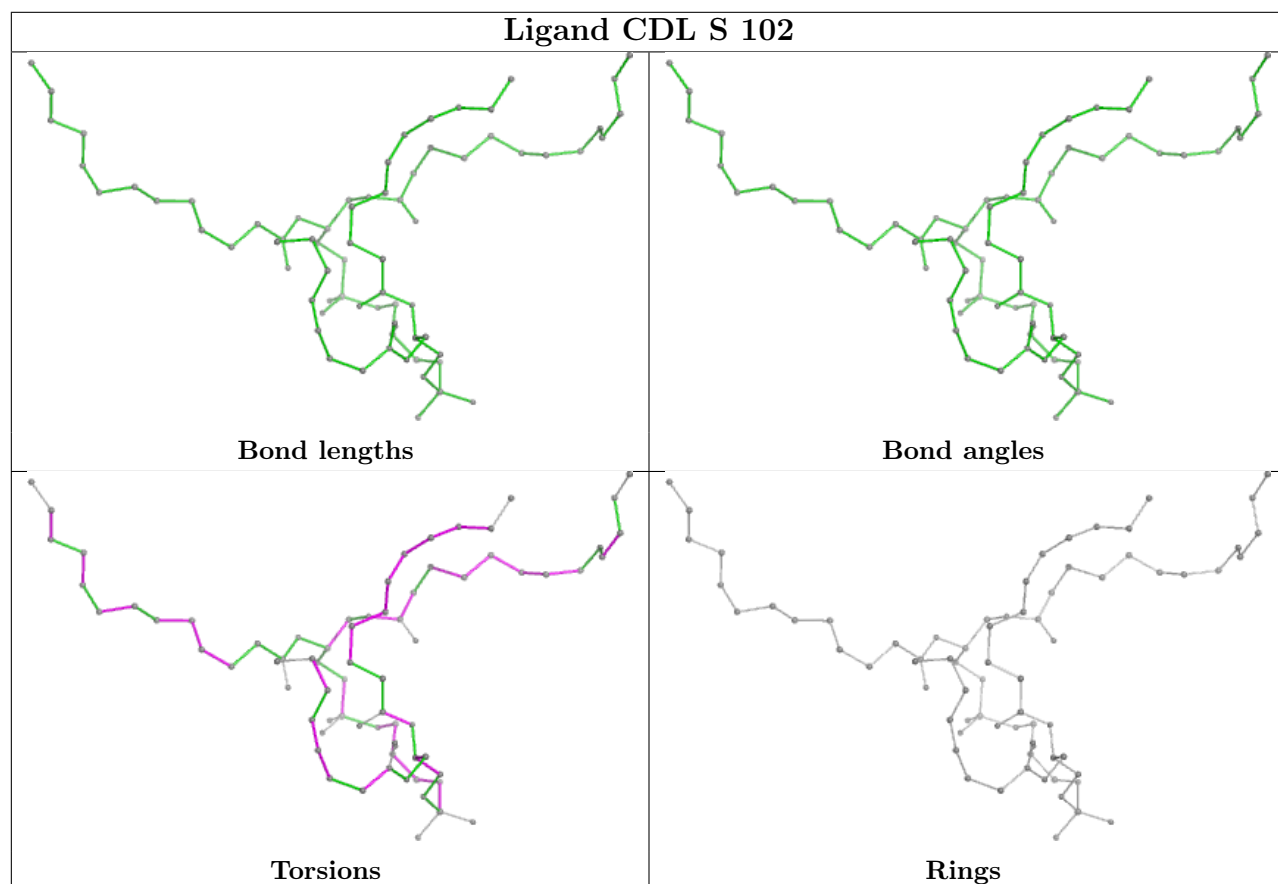
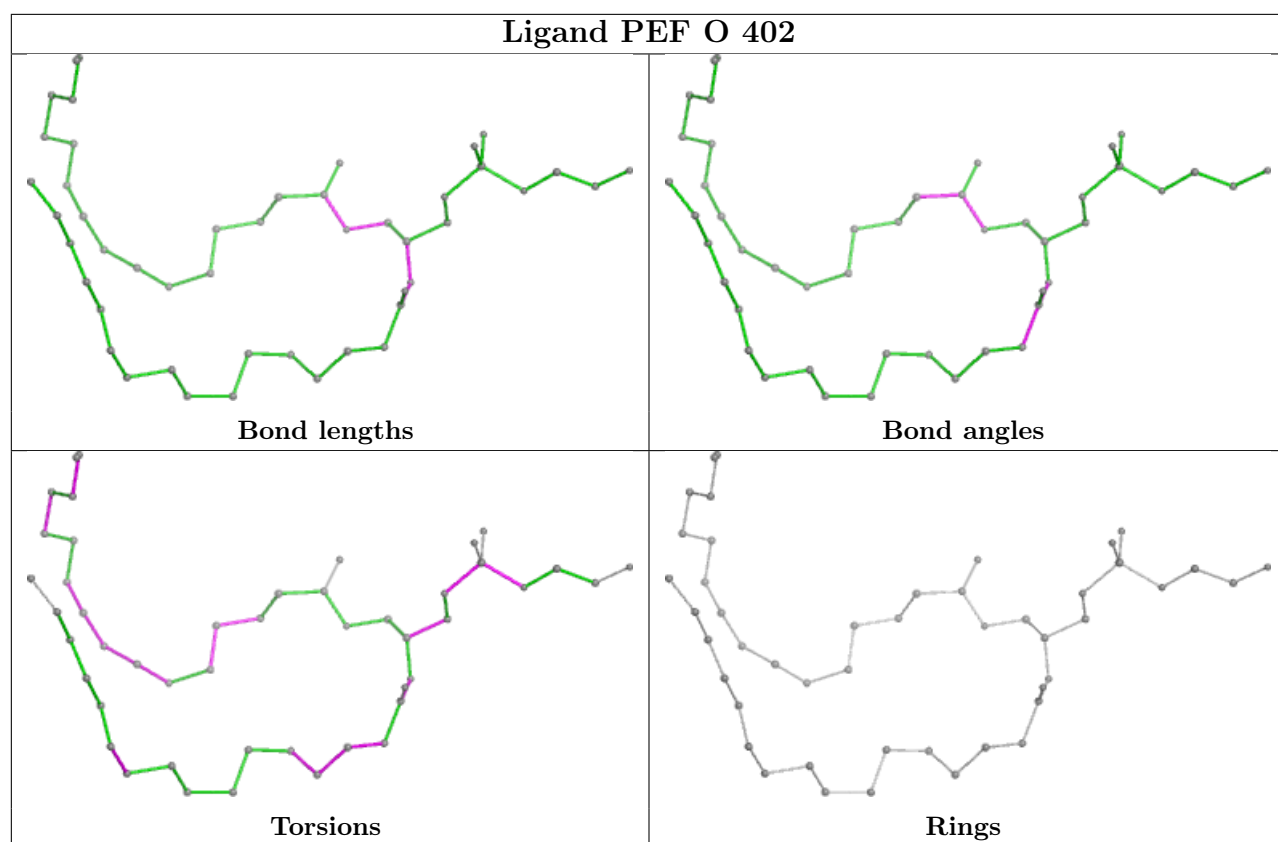


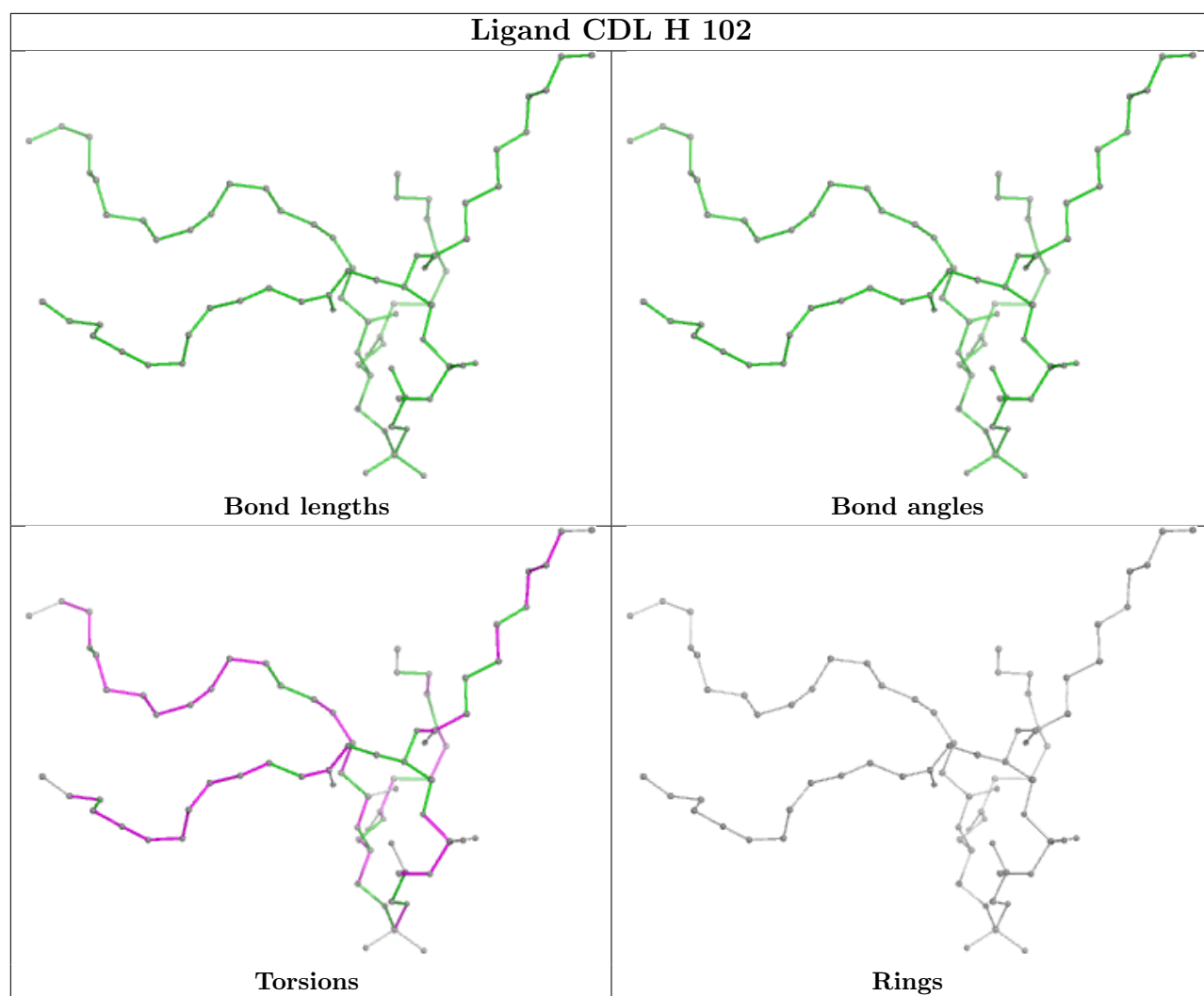


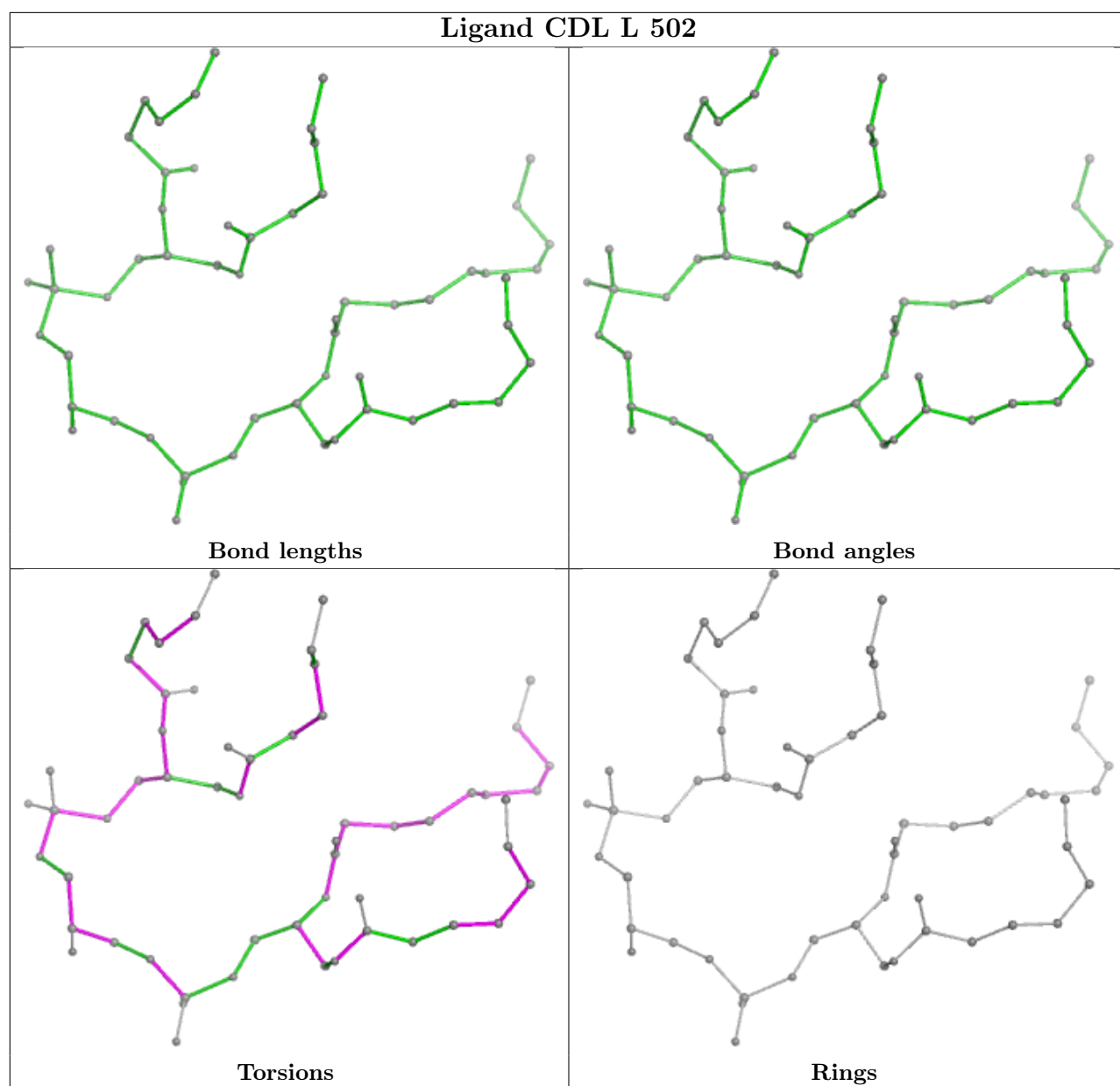


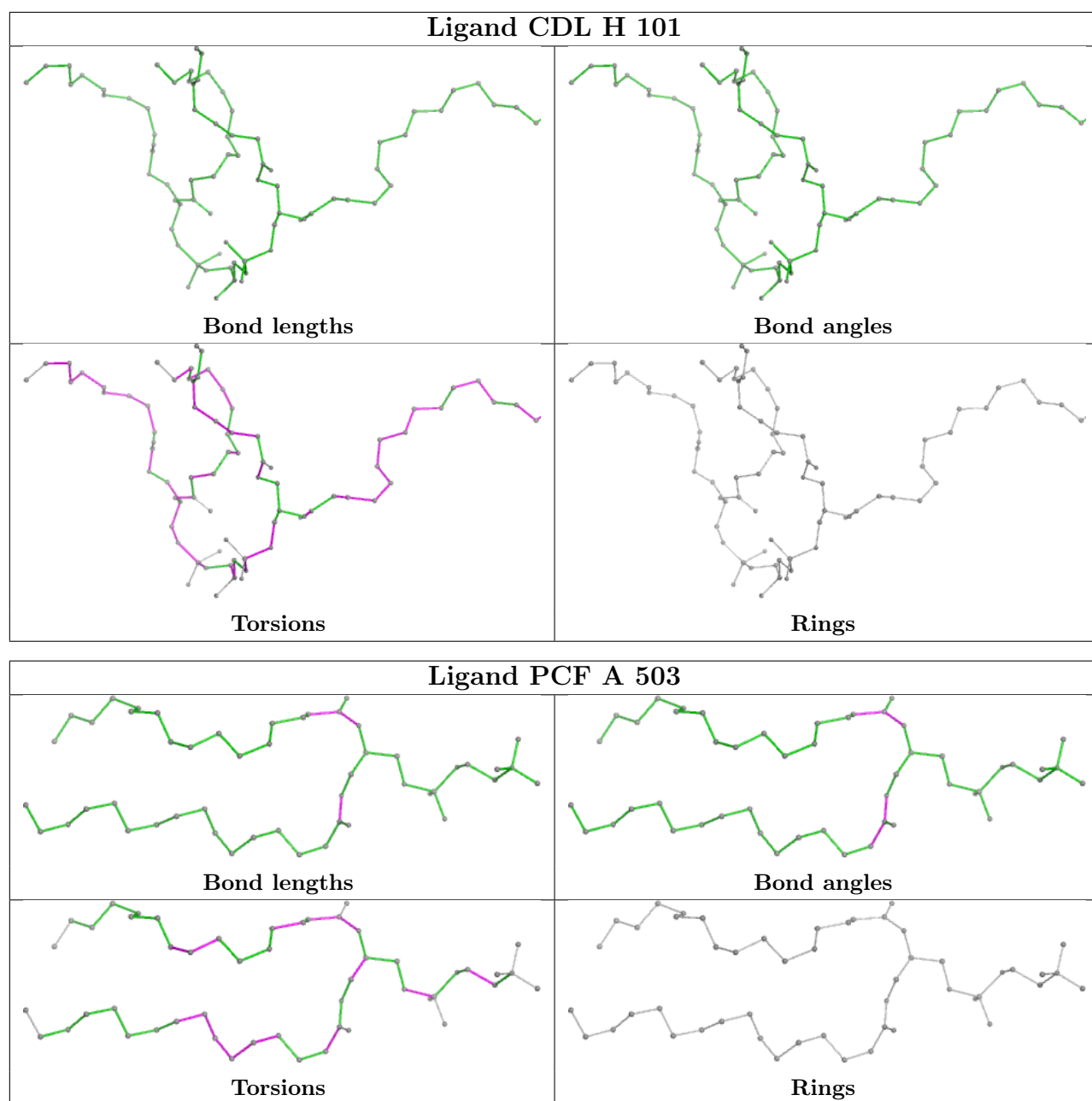


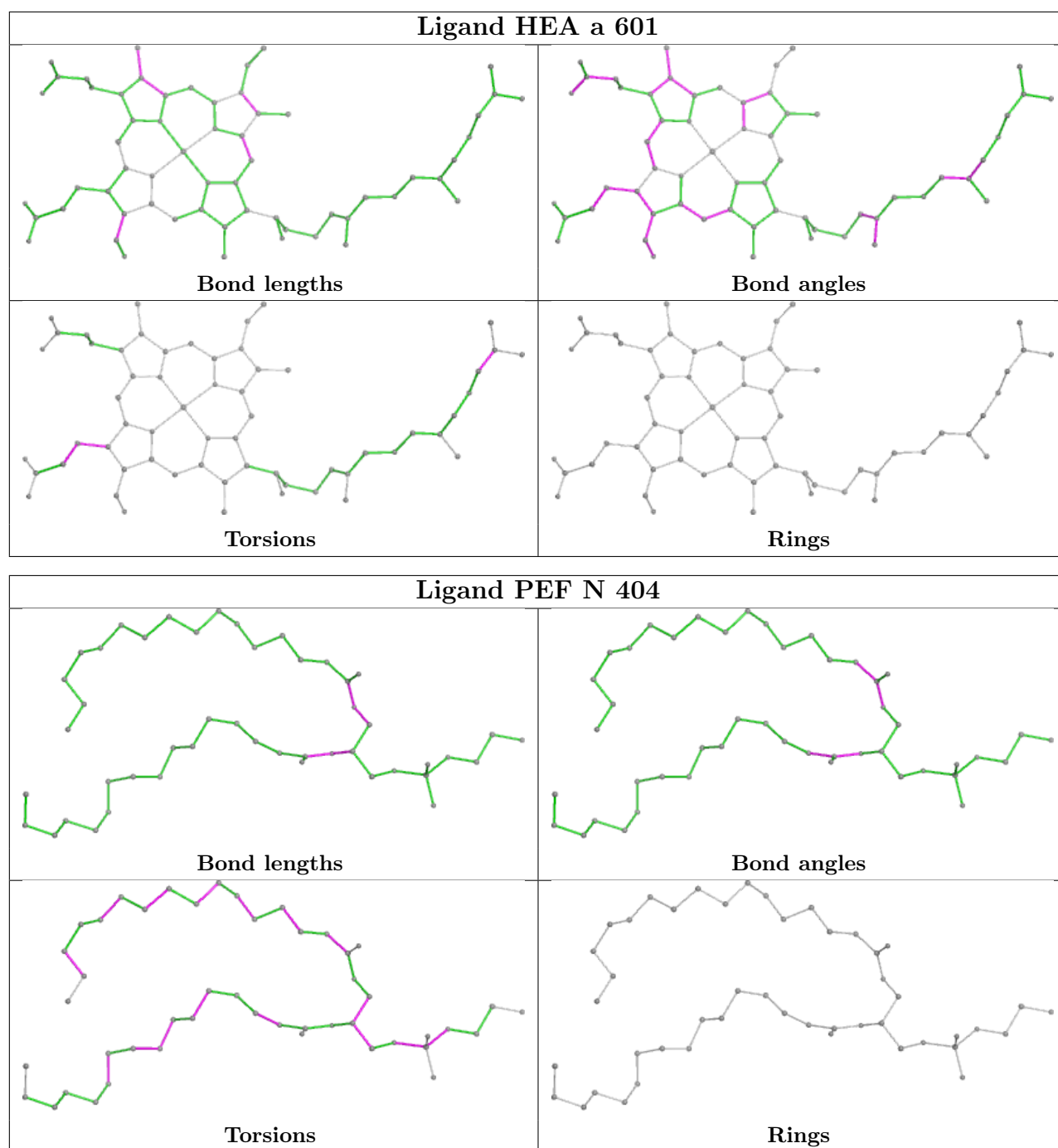












5.7 Other polymers [i](#)

There are no such residues in this entry.

5.8 Polymer linkage issues [i](#)

There are no chain breaks in this entry.

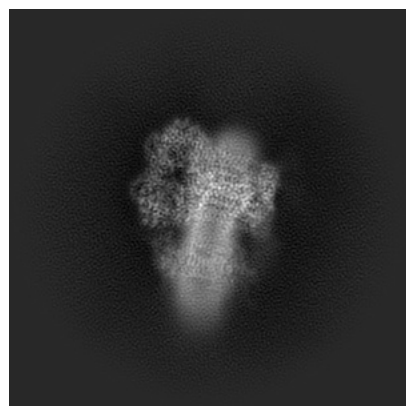
6 Map visualisation [i](#)

This section contains visualisations of the EMDB entry EMD-18062. These allow visual inspection of the internal detail of the map and identification of artifacts.

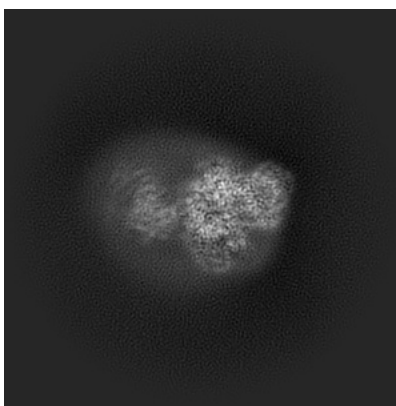
Images derived from a raw map, generated by summing the deposited half-maps, are presented below the corresponding image components of the primary map to allow further visual inspection and comparison with those of the primary map.

6.1 Orthogonal projections [i](#)

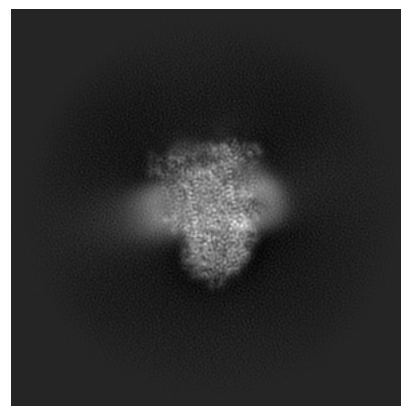
6.1.1 Primary map



X

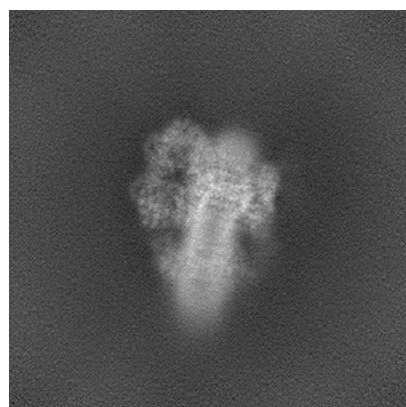


Y

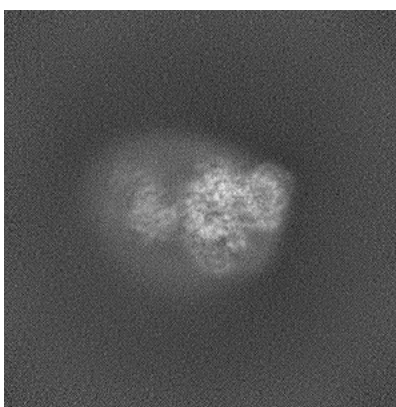


Z

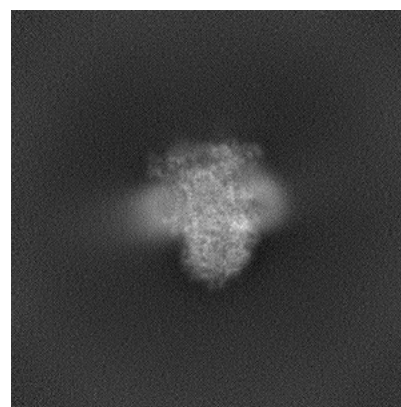
6.1.2 Raw map



X



Y

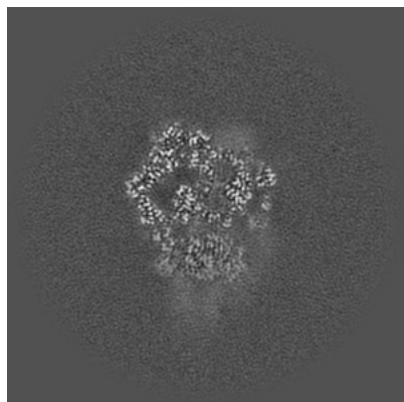


Z

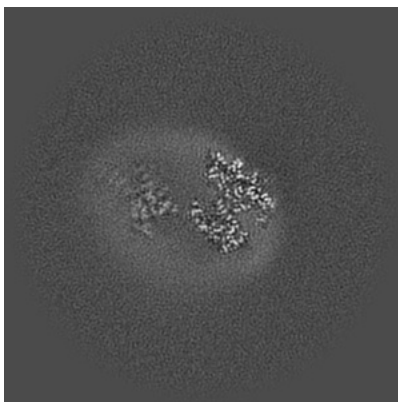
The images above show the map projected in three orthogonal directions.

6.2 Central slices [i](#)

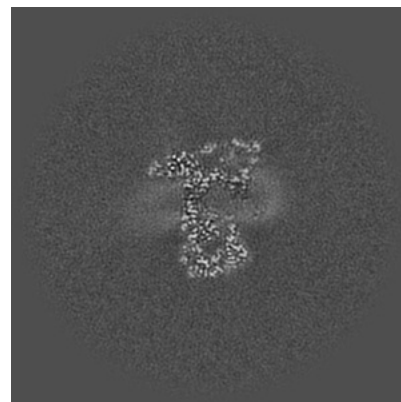
6.2.1 Primary map



X Index: 256

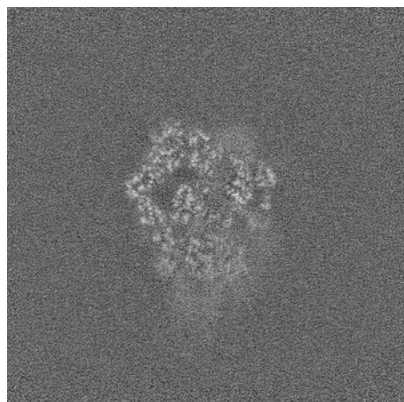


Y Index: 256

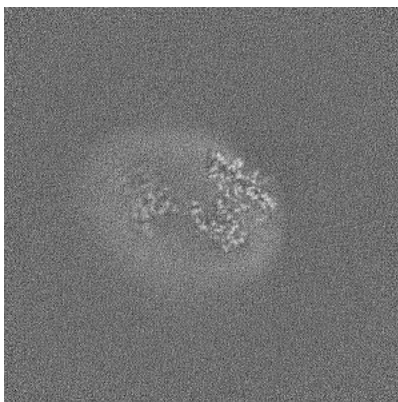


Z Index: 256

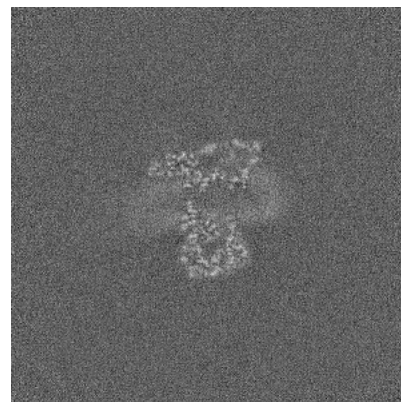
6.2.2 Raw map



X Index: 256



Y Index: 256

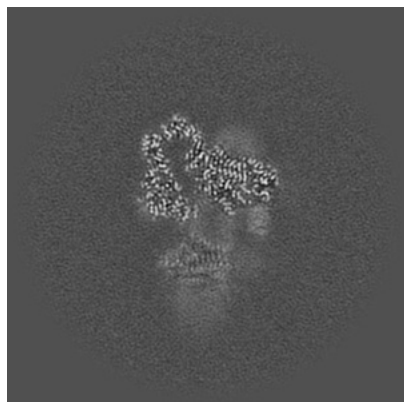


Z Index: 256

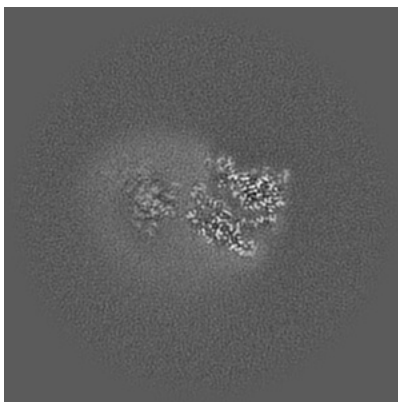
The images above show central slices of the map in three orthogonal directions.

6.3 Largest variance slices [i](#)

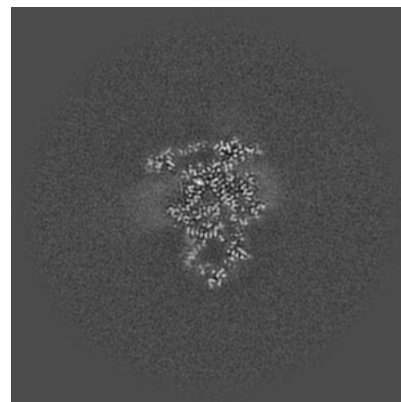
6.3.1 Primary map



X Index: 280

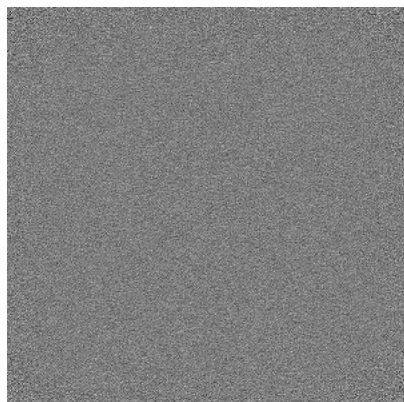


Y Index: 242

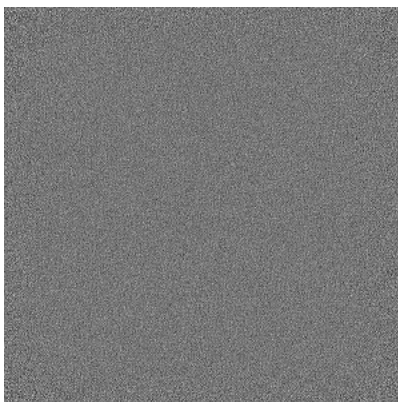


Z Index: 275

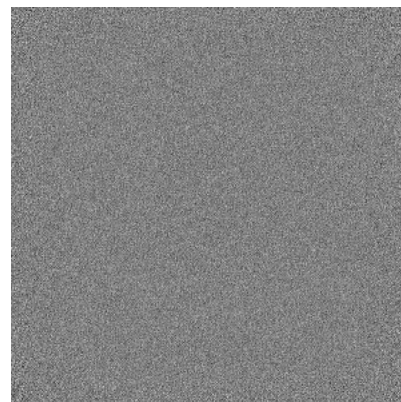
6.3.2 Raw map



X Index: 0



Y Index: 0

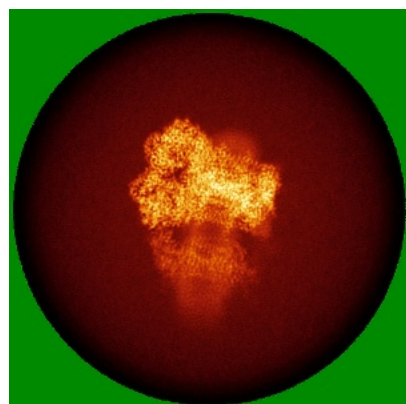


Z Index: 511

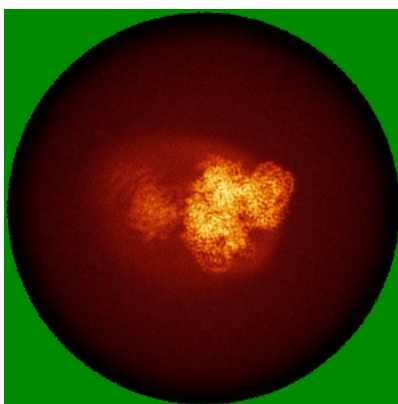
The images above show the largest variance slices of the map in three orthogonal directions.

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

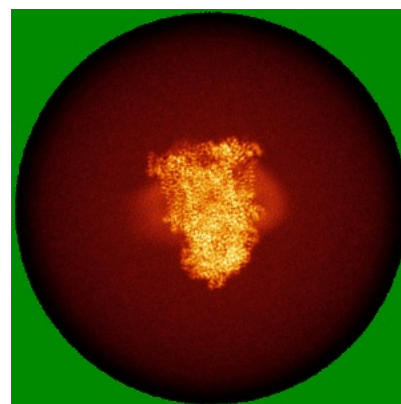
6.4.1 Primary map



X

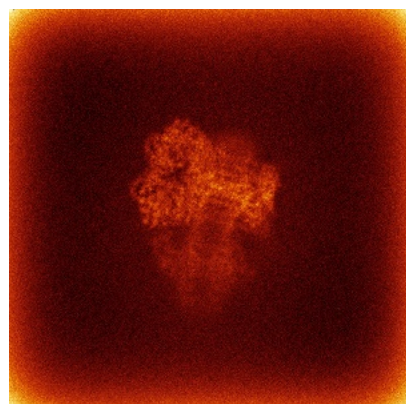


Y

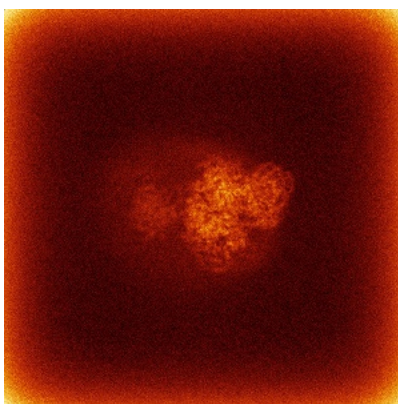


Z

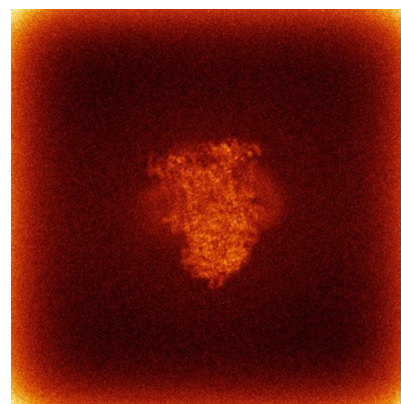
6.4.2 Raw map



X



Y

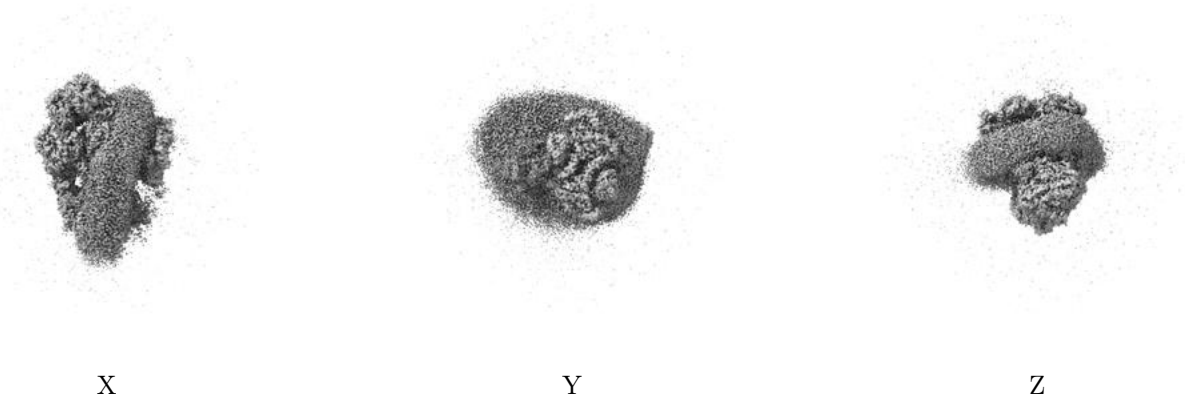


Z

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

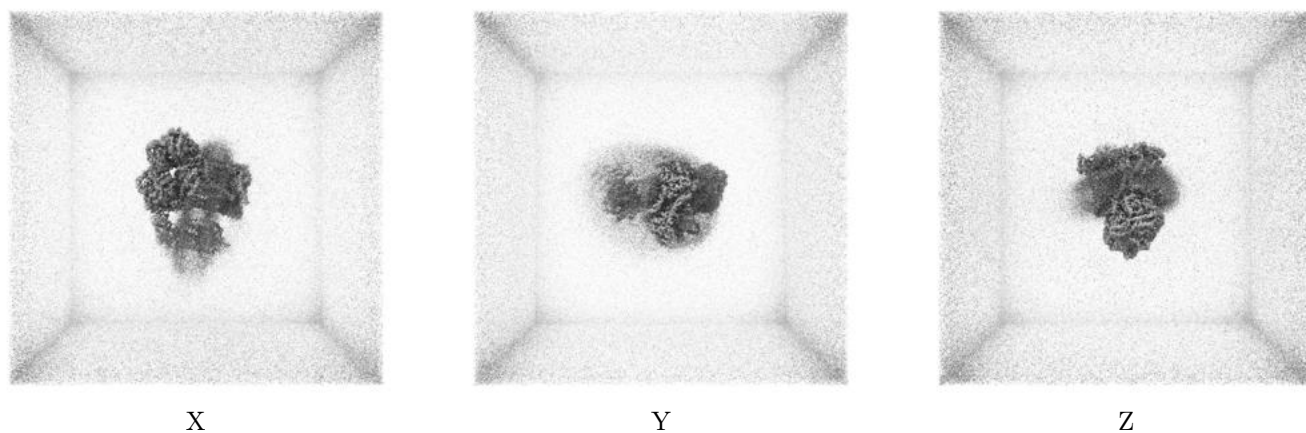
6.5 Orthogonal surface views [i](#)

6.5.1 Primary map



The images above show the 3D surface view of the map at the recommended contour level 0.08. These images, in conjunction with the slice images, may facilitate assessment of whether an appropriate contour level has been provided.

6.5.2 Raw map



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

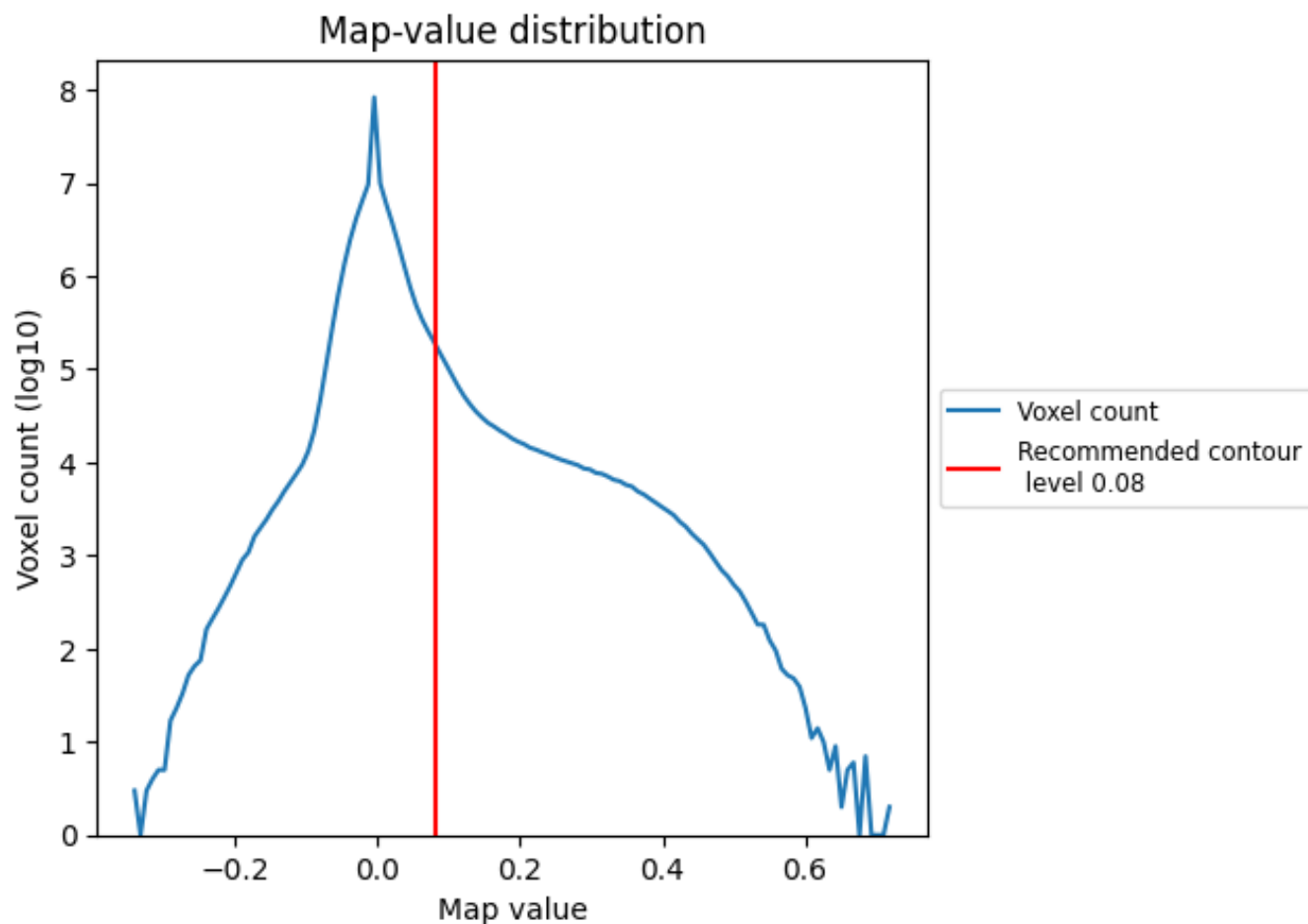
6.6 Mask visualisation [i](#)

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

7 Map analysis [i](#)

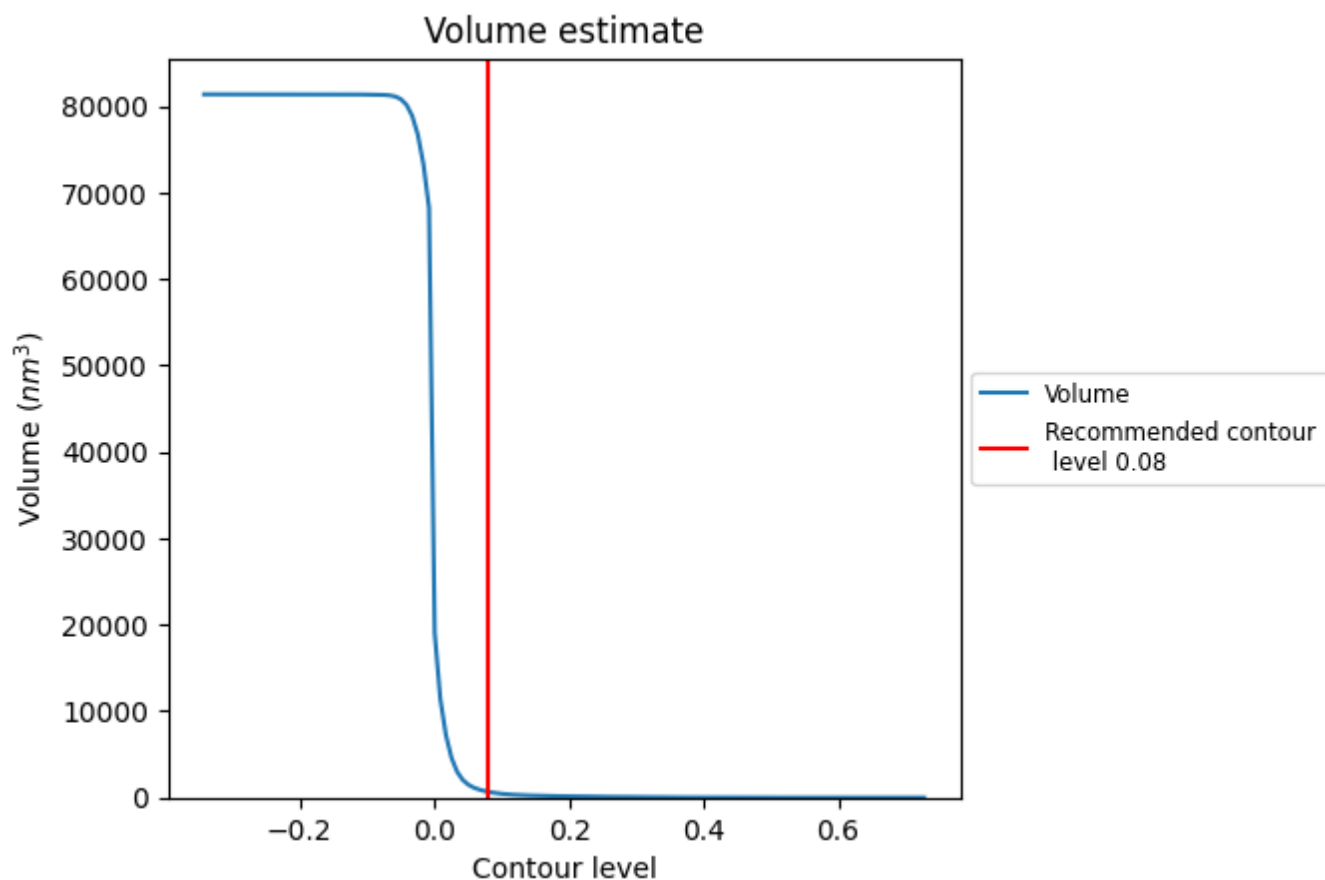
This section contains the results of statistical analysis of the map.

7.1 Map-value distribution [i](#)



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

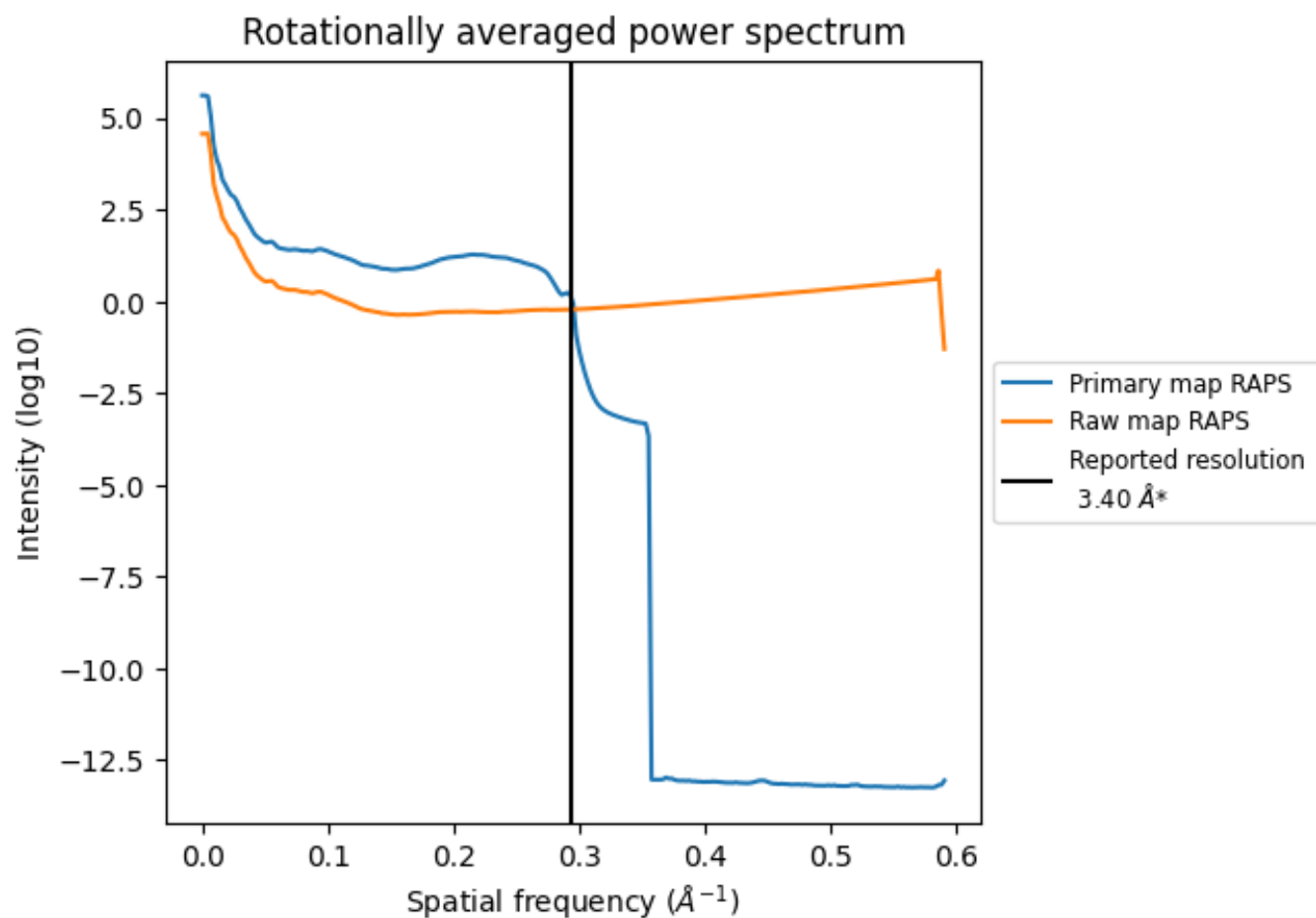
7.2 Volume estimate [i](#)



The volume at the recommended contour level is 667 nm³; this corresponds to an approximate mass of 602 kDa.

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

7.3 Rotationally averaged power spectrum ⓘ

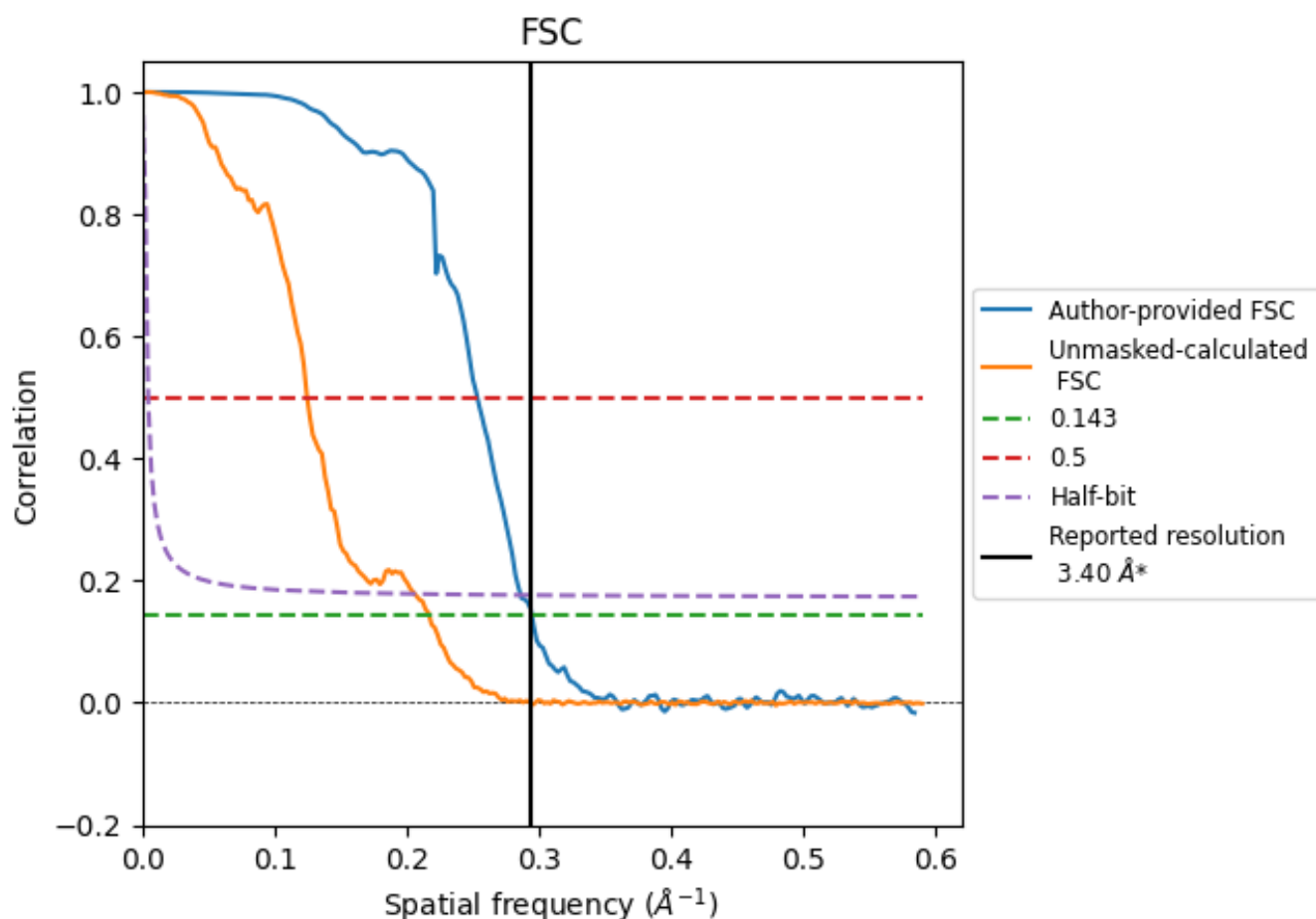


*Reported resolution corresponds to spatial frequency of 0.294 Å⁻¹

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 0.294 $\text{\AA}^{-1}$

8.2 Resolution estimates [i](#)

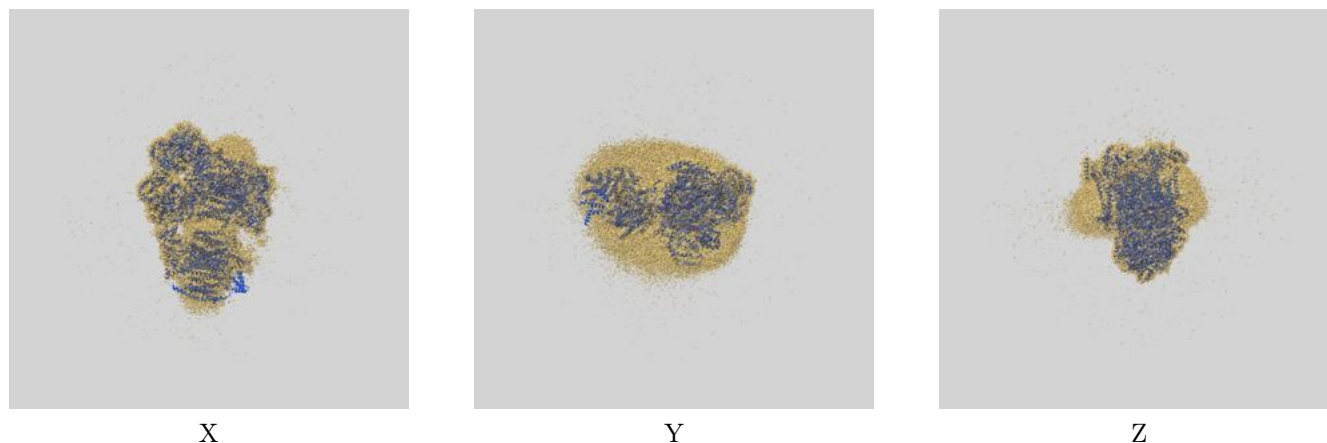
Resolution estimate (Å)	Estimation criterion (FSC cut-off)		
	0.143	0.5	Half-bit
Reported by author	3.40	-	-
Author-provided FSC curve	3.39	3.94	3.49
Unmasked-calculated*	4.60	8.01	4.84

*Resolution estimate based on FSC curve calculated by comparison of deposited half-maps. The value from deposited half-maps intersecting FSC 0.143 CUT-OFF 4.60 differs from the reported value 3.4 by more than 10 %

9 Map-model fit [i](#)

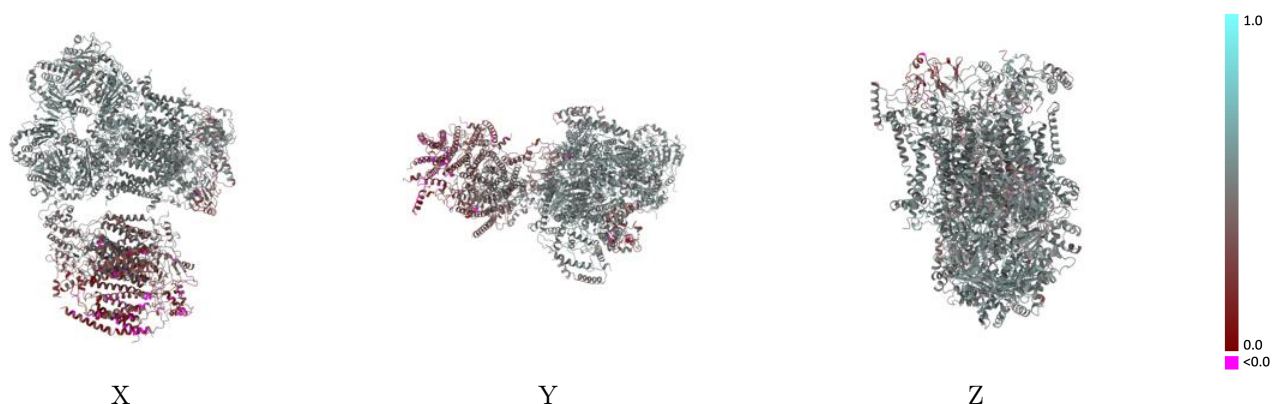
This section contains information regarding the fit between EMDB map EMD-18062 and PDB model 8Q1B. Per-residue inclusion information can be found in section [3](#) on page [17](#).

9.1 Map-model overlay [i](#)



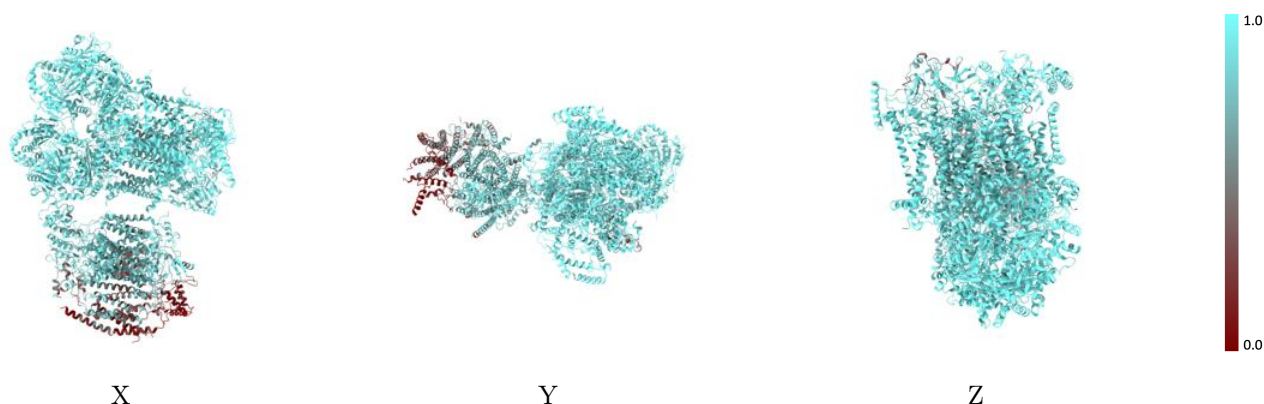
The images above show the 3D surface view of the map at the recommended contour level 0.08 at 50% transparency in yellow overlaid with a ribbon representation of the model coloured in blue. These images allow for the visual assessment of the quality of fit between the atomic model and the map.

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



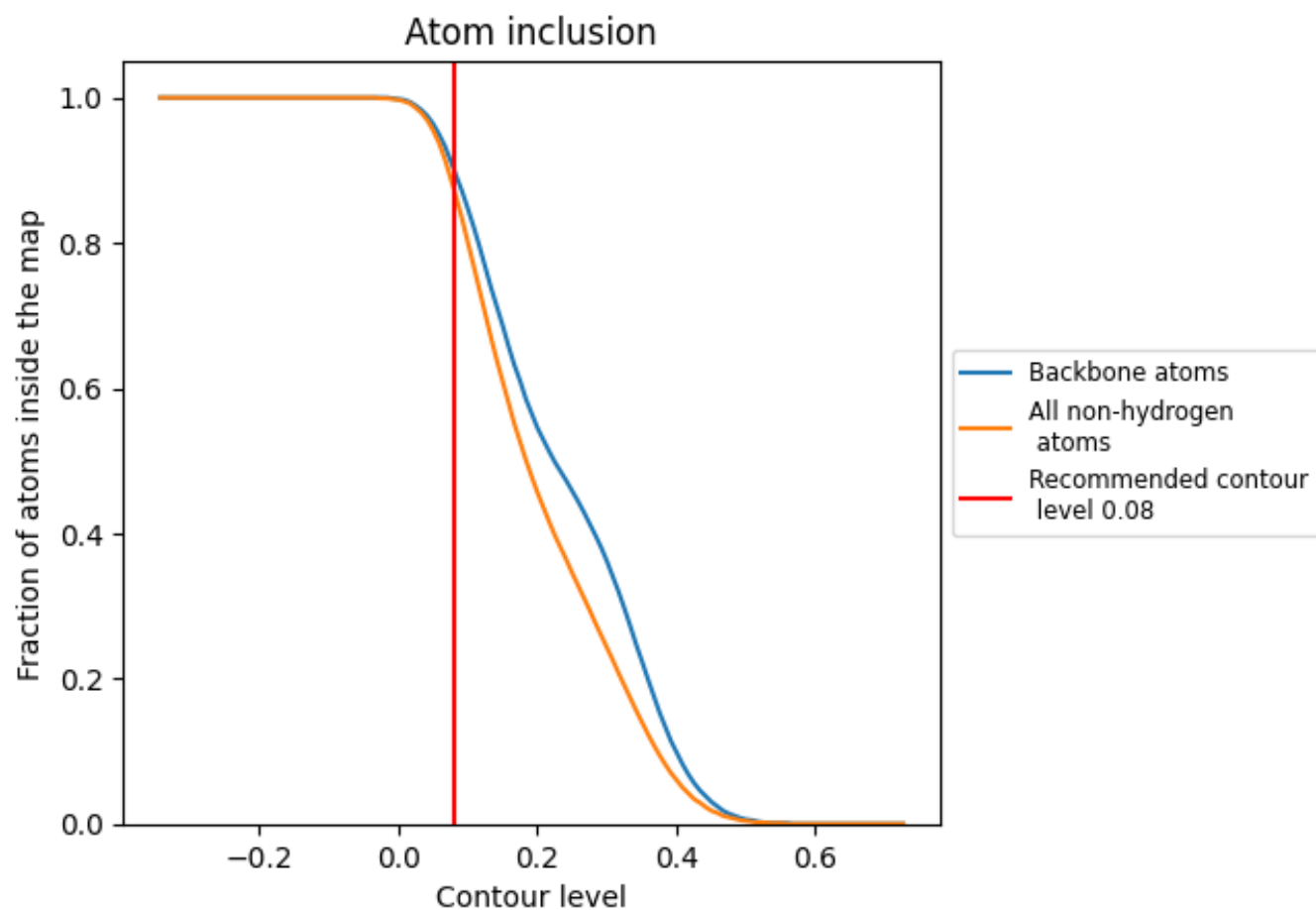
The images above show the model with each residue coloured according to its Q-score. This shows their resolvability in the map with higher Q-score values reflecting better resolvability. Please note: Q-score is calculating the resolvability of atoms, and thus high values are only expected at resolutions 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 (0.08).

9.4 Atom inclusion [i](#)



At the recommended contour level, 90% of all backbone atoms, 88% 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 (0.08) and Q-score for the entire model and for each chain.

Chain	Atom inclusion	Q-score
All	 0.8760	 0.4600
A	 0.9660	 0.5260
B	 0.9830	 0.5310
C	 0.9570	 0.5290
D	 0.9730	 0.5290
E	 0.9000	 0.3990
F	 0.9340	 0.4650
G	 0.9680	 0.5160
H	 0.9700	 0.5360
I	 0.9440	 0.5070
J	 0.9340	 0.5040
L	 0.9670	 0.5230
M	 0.9810	 0.5330
N	 0.9460	 0.5300
O	 0.9720	 0.5360
P	 0.7930	 0.3470
Q	 0.9420	 0.4530
R	 0.9680	 0.5280
S	 0.9800	 0.5400
T	 0.9360	 0.5040
U	 0.9490	 0.4940
a	 0.8450	 0.4010
b	 0.7870	 0.3750
c	 0.5790	 0.2470
d	 0.7080	 0.3410
e	 0.9020	 0.4490
f	 0.8810	 0.3920
g	 0.6650	 0.2740
h	 0.7820	 0.3390
i	 0.7920	 0.3760
j	 0.1370	 0.2290
k	 0.2460	 0.2410
l	 0.2720	 0.1770
m	 0.0230	 0.1830

