



Full wwPDB X-ray Structure Validation Report ⓘ

Aug 8, 2023 – 02:04 PM EDT

PDB ID : 1PPJ
Title : Bovine cytochrome bc1 complex with stigmatellin and antimycin
Authors : Huang, L.S.; Cobessi, D.; Tung, E.Y.; Berry, E.A.
Deposited on : 2003-06-16
Resolution : 2.10 Å(reported)

This is a Full wwPDB X-ray Structure 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/XrayValidationReportHelp>

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:

MolProbity : 4.02b-467
Mogul : 1.8.5 (274361), CSD as541be (2020)
Xtriage (Phenix) : 1.13
EDS : 2.35
buster-report : 1.1.7 (2018)
Percentile statistics : 20191225.v01 (using entries in the PDB archive December 25th 2019)
Refmac : 5.8.0158
CCP4 : 7.0.044 (Gargrove)
Ideal geometry (proteins) : Engh & Huber (2001)
Ideal geometry (DNA, RNA) : Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP) : 2.35

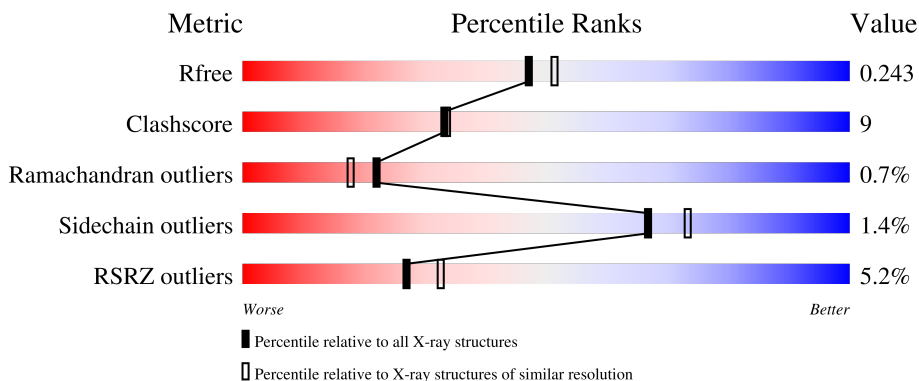
1 Overall quality at a glance i

The following experimental techniques were used to determine the structure:

X-RAY DIFFRACTION

The reported resolution of this entry is 2.10 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.



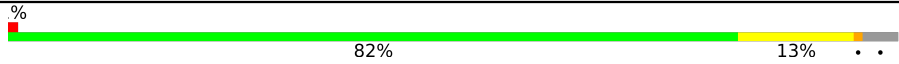








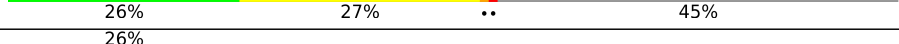
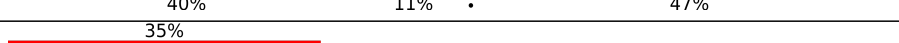
Metric	Whole archive (#Entries)	Similar resolution (#Entries, resolution range(Å))
R_{free}	130704	5197 (2.10-2.10)
Clashscore	141614	5710 (2.10-2.10)
Ramachandran outliers	138981	5647 (2.10-2.10)
Sidechain outliers	138945	5648 (2.10-2.10)
RSRZ outliers	127900	5083 (2.10-2.10)

The table below summarises the geometric issues observed across the polymeric chains and their fit to the electron density. The red, orange, yellow and green segments of the lower 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 electron density. The numeric value is given above the bar.

Mol	Chain	Length	Quality of chain
1	A	446	<div style="display: flex; align-items: center;"> <div style="width: 2%; height: 10px; background-color: red; margin-right: 5px;"></div> <div style="width: 82%; height: 10px; background-color: green; margin-right: 5px;"></div> <div style="width: 16%; height: 10px; background-color: yellow; margin-right: 5px;"></div> <div style="width: 2%; height: 10px; background-color: grey; margin-right: 5px;"></div> </div> <p style="margin-left: 20px;">2% 82% 16% ..</p>
1	N	446	<div style="display: flex; align-items: center;"> <div style="width: 5%; height: 10px; background-color: red; margin-right: 5px;"></div> <div style="width: 80%; height: 10px; background-color: green; margin-right: 5px;"></div> <div style="width: 18%; height: 10px; background-color: yellow; margin-right: 5px;"></div> <div style="width: 2%; height: 10px; background-color: grey; margin-right: 5px;"></div> </div> <p style="margin-left: 20px;">5% 80% 18% ..</p>
2	B	439	<div style="display: flex; align-items: center;"> <div style="width: 2%; height: 10px; background-color: red; margin-right: 5px;"></div> <div style="width: 80%; height: 10px; background-color: green; margin-right: 5px;"></div> <div style="width: 16%; height: 10px; background-color: yellow; margin-right: 5px;"></div> <div style="width: 2%; height: 10px; background-color: grey; margin-right: 5px;"></div> </div> <p style="margin-left: 20px;">2% 80% 16% .</p>
2	O	439	<div style="display: flex; align-items: center;"> <div style="width: 3%; height: 10px; background-color: red; margin-right: 5px;"></div> <div style="width: 84%; height: 10px; background-color: green; margin-right: 5px;"></div> <div style="width: 13%; height: 10px; background-color: yellow; margin-right: 5px;"></div> <div style="width: 2%; height: 10px; background-color: grey; margin-right: 5px;"></div> </div> <p style="margin-left: 20px;">3% 84% 13% .</p>
3	C	379	<div style="display: flex; align-items: center;"> <div style="width: 0%; height: 10px; background-color: red; margin-right: 5px;"></div> <div style="width: 84%; height: 10px; background-color: green; margin-right: 5px;"></div> <div style="width: 11%; height: 10px; background-color: yellow; margin-right: 5px;"></div> <div style="width: 2%; height: 10px; background-color: grey; margin-right: 5px;"></div> </div> <p style="margin-left: 20px;">% 84% 11% ..</p>

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Mol	Chain	Length	Quality of chain
3	P	379	
4	D	241	
4	Q	241	
5	E	196	
5	R	196	
6	F	110	
6	S	110	
7	G	81	
7	T	81	
8	H	78	
8	U	78	
9	I	78	
9	V	78	
10	J	62	
10	W	62	

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
11	JZR	C	4002	-	-	-	X
11	JZR	D	4003	-	-	-	X
11	JZR	F	3011	-	-	-	X
11	JZR	F	4001	-	-	-	X
11	JZR	S	2011	-	-	-	X
13	AZI	A	4011	-	-	-	X
13	AZI	O	4010	-	-	-	X
14	GOL	B	2009	-	-	-	X
14	GOL	C	4006	-	-	-	X
14	GOL	O	3009	-	-	-	X
18	ANY	P	3002	X	-	-	-

2 Entry composition

There are 22 unique types of molecules in this entry. The entry contains 33549 atoms, of which 0 are hydrogens and 0 are deuteriums.

In the tables below, the ZeroOcc column contains the number of atoms modelled with zero occupancy, 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 Ubiquinol-cytochrome C reductase complex core protein I, mitochondrial.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
1	A	442	Total 3396	C 2117	N 601	O 658	S 20	0	0	1
1	N	442	Total 3396	C 2117	N 601	O 658	S 20	10	0	1

- Molecule 2 is a protein called Ubiquinol-cytochrome C reductase complex core protein 2, mitochondrial.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
2	B	424	Total 3178	C 1997	N 562	O 612	S 7	0	0	1
2	O	424	Total 3156	C 1984	N 558	O 607	S 7	0	0	1

- Molecule 3 is a protein called Cytochrome b.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
3	C	365	Total 2892	C 1940	N 450	O 485	S 17	0	0	0
3	P	365	Total 2891	C 1940	N 449	O 485	S 17	0	0	0

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

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
4	D	241	Total 1919	C 1225	N 330	O 349	S 15	0	0	0
4	Q	241	Total 1919	C 1225	N 330	O 349	S 15	0	0	0

- Molecule 5 is a protein called Ubiquinol-cytochrome C reductase iron-sulfur subunit, mitochondrial.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
5	E	196	Total	C	N	O	S	0	0	0
			1510	954	263	285	8			
5	R	196	Total	C	N	O	S	0	0	0
			1517	956	263	290	8			

- Molecule 6 is a protein called Ubiquinol-cytochrome C reductase complex 14 kDa protein.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
6	F	99	Total	C	N	O	S	0	0	0
			861	545	155	159	2			
6	S	99	Total	C	N	O	S	0	0	0
			861	545	155	159	2			

- Molecule 7 is a protein called Ubiquinol-cytochrome C reductase complex ubiquinone-binding protein QP-C.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
7	G	75	Total	C	N	O	S	0	0	2
			621	406	117	97	1			
7	T	76	Total	C	N	O	S	0	0	2
			626	409	118	98	1			

- Molecule 8 is a protein called Ubiquinol-cytochrome C reductase complex 11 kDa protein.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
8	H	66	Total	C	N	O	S	0	0	0
			539	327	98	109	5			
8	U	66	Total	C	N	O	S	0	0	0
			539	327	98	109	5			

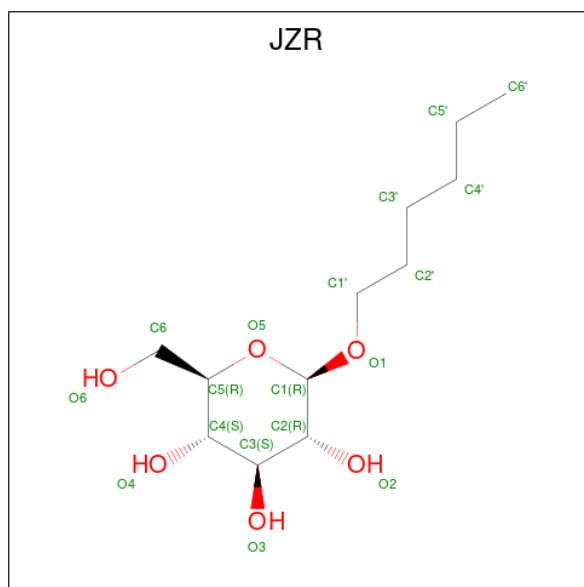
- Molecule 9 is a protein called Ubiquinol-cytochrome C reductase iron-sulfur subunit, mitochondrial.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
9	I	43	Total	C	N	O	S	0	0	0
			285	175	53	56	1			
9	V	43	Total	C	N	O	S	0	0	0
			285	175	53	56	1			

- Molecule 10 is a protein called Ubiquinol-cytochrome C reductase complex 7.2 kDa protein.

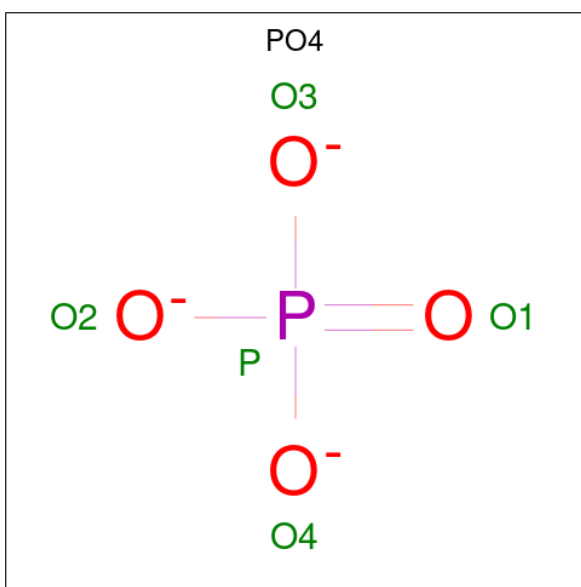
Mol	Chain	Residues	Atoms				ZeroOcc	AltConf	Trace
10	J	33	Total	C	N	O	0	0	1
			284	185	50	49			
10	W	62	Total	C	N	O	0	0	1
			506	332	88	86			

- Molecule 11 is hexyl beta-D-glucopyranoside (three-letter code: JZR) (formula: C₁₂H₂₄O₆).



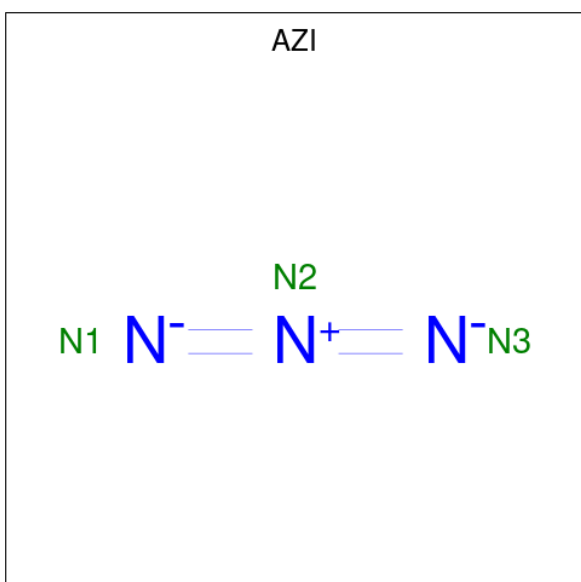
Mol	Chain	Residues	Atoms			ZeroOcc	AltConf
11	A	1	Total	C	O	0	0
			18	12	6		
11	C	1	Total	C	O	0	0
			18	12	6		
11	C	1	Total	C	O	0	0
			18	12	6		
11	D	1	Total	C	O	0	0
			18	12	6		
11	F	1	Total	C	O	0	0
			18	12	6		
11	F	1	Total	C	O	0	0
			18	12	6		
11	P	1	Total	C	O	0	0
			18	12	6		
11	R	1	Total	C	O	0	0
			18	12	6		
11	S	1	Total	C	O	0	0
			18	12	6		

- Molecule 12 is PHOSPHATE ION (three-letter code: PO4) (formula: O₄P).



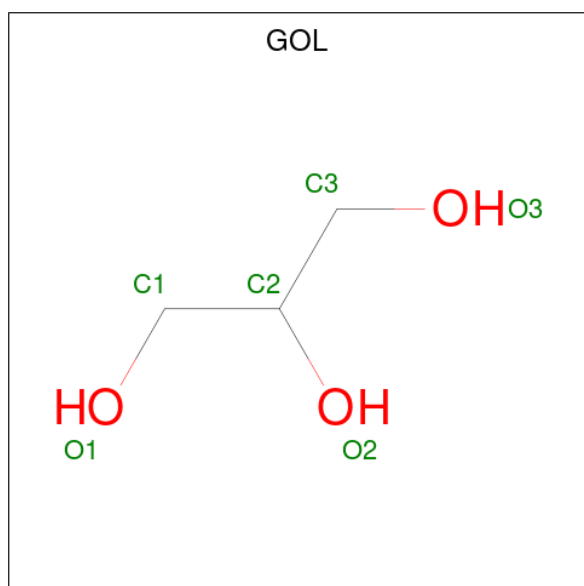
Mol	Chain	Residues	Atoms			ZeroOcc	AltConf
12	A	1	Total	O	P	0	0
			5	4	1		
12	C	1	Total	O	P	0	0
			5	4	1		
12	F	1	Total	O	P	0	0
			5	4	1		
12	P	1	Total	O	P	0	0
			5	4	1		
12	S	1	Total	O	P	0	0
			5	4	1		

- Molecule 13 is AZIDE ION (three-letter code: AZI) (formula: N₃).



Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
13	A	1	Total N 3 3	0	0
13	C	1	Total N 3 3	0	0
13	G	1	Total N 3 3	0	0
13	O	1	Total N 3 3	0	0
13	P	1	Total N 3 3	0	0

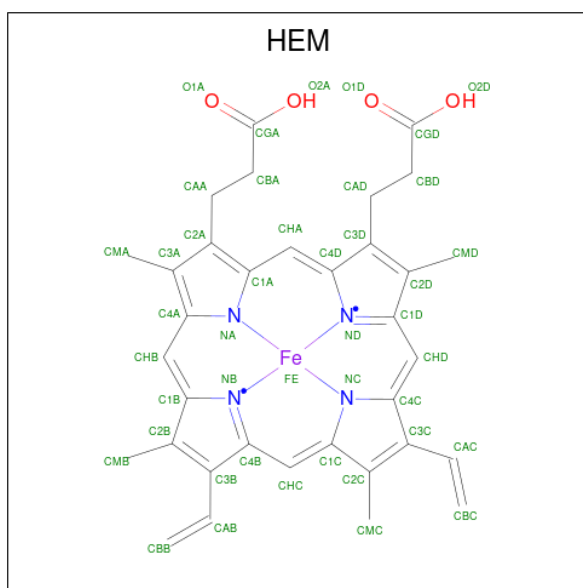
- Molecule 14 is GLYCEROL (three-letter code: GOL) (formula: C₃H₈O₃).



Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
14	B	1	Total C O 6 3 3	0	0
14	C	1	Total C O 6 3 3	0	0
14	C	1	Total C O 6 3 3	0	0
14	O	1	Total C O 6 3 3	0	0
14	P	1	Total C O 6 3 3	0	0
14	R	1	Total C O 6 3 3	0	0

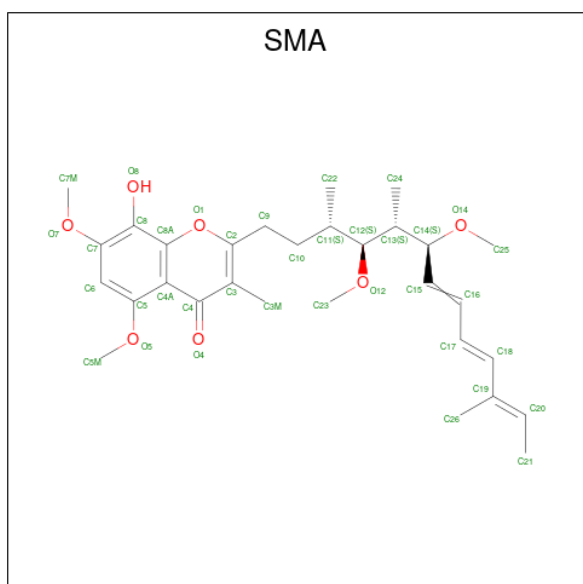
- Molecule 15 is PROTOPORPHYRIN IX CONTAINING FE (three-letter code: HEM) (for-

mula: C₃₄H₃₂FeN₄O₄).



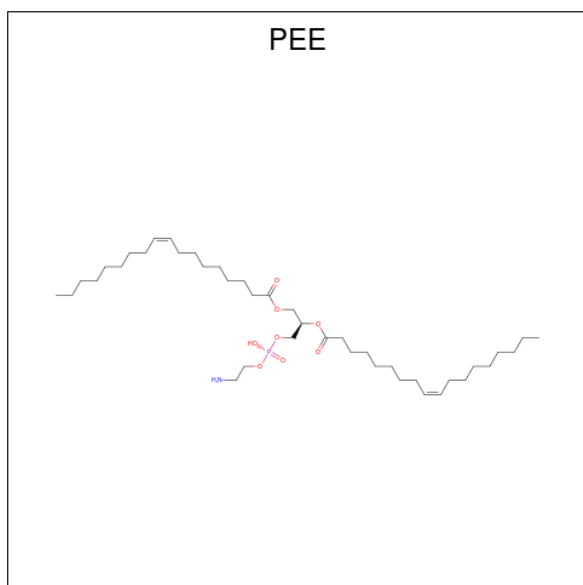
Mol	Chain	Residues	Atoms				ZeroOcc	AltConf	
15	C	1	Total	C	Fe	N	O	0	0
			43	34	1	4	4		
15	C	1	Total	C	Fe	N	O	0	0
			43	34	1	4	4		
15	P	1	Total	C	Fe	N	O	0	0
			43	34	1	4	4		
15	P	1	Total	C	Fe	N	O	0	0
			43	34	1	4	4		

- Molecule 16 is STIGMATELLIN A (three-letter code: SMA) (formula: C₃₀H₄₂O₇).



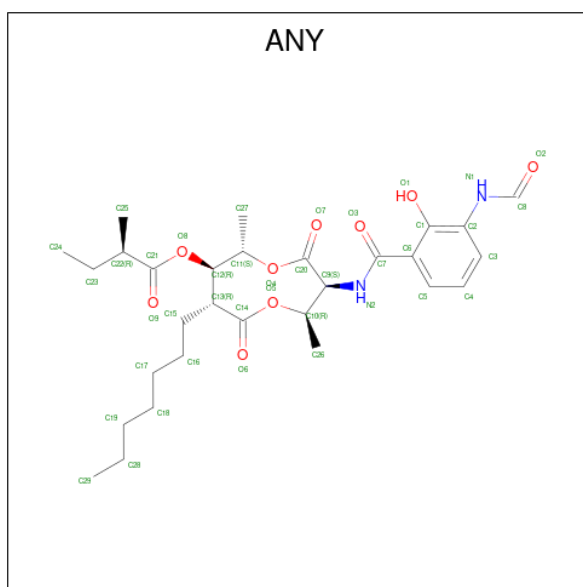
Mol	Chain	Residues	Atoms			ZeroOcc	AltConf
16	C	1	Total	C	O	0	0
			37	30	7		
16	P	1	Total	C	O	0	0
			37	30	7		

- Molecule 17 is 1,2-dioleoyl-sn-glycero-3-phosphoethanolamine (three-letter code: PEE) (formula: $C_{41}H_{78}NO_8P$).



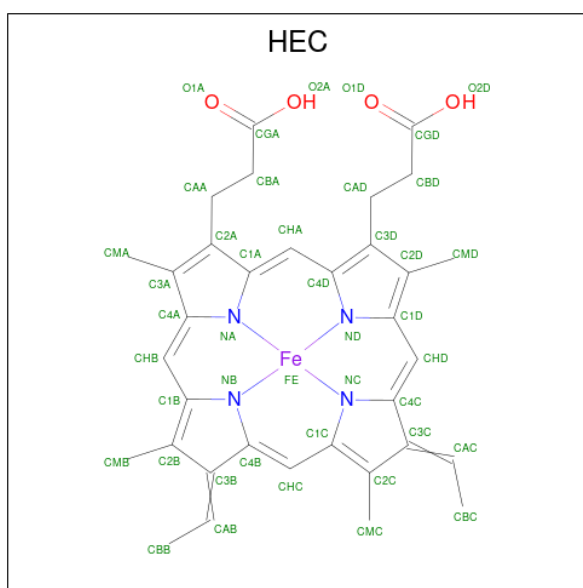
Mol	Chain	Residues	Atoms					ZeroOcc	AltConf
17	C	1	Total	C	N	O	P	0	0
			49	39	1	8	1		
17	D	1	Total	C	N	O	P	0	0
			26	16	1	8	1		
17	P	1	Total	C	N	O	P	0	0
			49	39	1	8	1		
17	Q	1	Total	C	N	O	P	0	0
			51	41	1	8	1		

- Molecule 18 is 2-METHYL-BUTYRIC ACID 3-(3-FORMYLAMINO-2-HYDROXY-BENZOYLAMINO)-8-HEPTYL-2,6-DIMETHYL-4,9-DIOXO-[1,5]DIOXONAN-7-YL ESTER (three-letter code: ANY) (formula: $C_{29}H_{42}N_2O_9$).



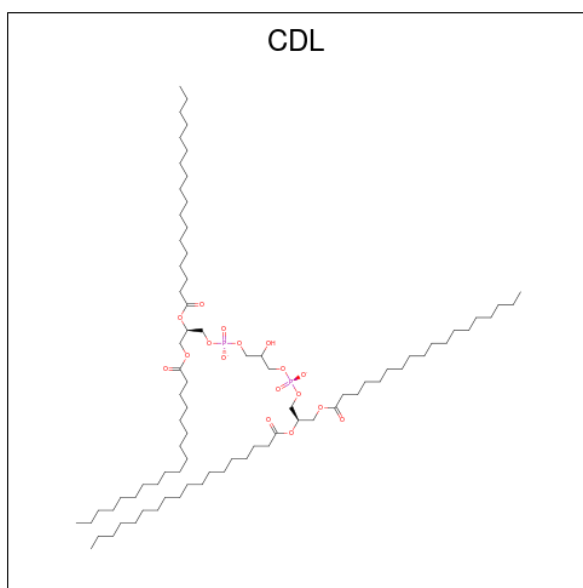
Mol	Chain	Residues	Atoms				ZeroOcc	AltConf
18	C	1	Total	C	N	O	0	0
			37	26	2	9		
18	P	1	Total	C	N	O	0	0
			37	26	2	9		

- Molecule 19 is HEME C (three-letter code: HEC) (formula: $C_{34}H_{34}FeN_4O_4$).



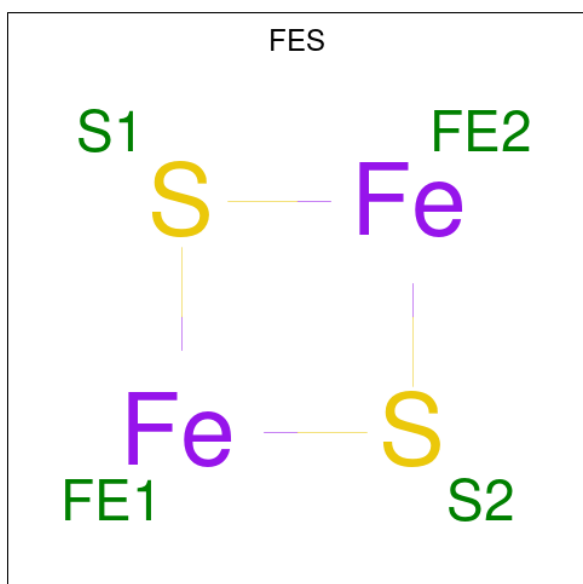
Mol	Chain	Residues	Atoms				ZeroOcc	AltConf	
19	D	1	Total	C	Fe	N	O	0	0
			43	34	1	4	4		
19	Q	1	Total	C	Fe	N	O	0	0
			43	34	1	4	4		

- Molecule 20 is CARDIOLIPIN (three-letter code: CDL) (formula: $C_{81}H_{156}O_{17}P_2$).



Mol	Chain	Residues	Atoms				ZeroOcc	AltConf
			Total	C	O	P		
20	D	1	39	24	13	2	0	0
20	G	1	44	25	17	2	0	0
20	P	1	39	24	13	2	0	0
20	T	1	49	30	17	2	0	0

- Molecule 21 is FE2/S2 (INORGANIC) CLUSTER (three-letter code: FES) (formula: Fe_2S_2).



Mol	Chain	Residues	Atoms			ZeroOcc	AltConf
21	E	1	Total	Fe	S	0	0
			4	2	2		
21	R	1	Total	Fe	S	0	0
			4	2	2		

- Molecule 22 is water.

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
22	A	219	Total	O	0	0
			219	219		
22	B	167	Total	O	0	0
			167	167		
22	C	123	Total	O	0	0
			123	123		
22	D	96	Total	O	0	0
			96	96		
22	E	50	Total	O	0	0
			50	50		
22	F	63	Total	O	0	0
			63	63		
22	G	17	Total	O	0	0
			17	17		
22	H	17	Total	O	0	0
			17	17		
22	I	16	Total	O	0	0
			16	16		
22	J	4	Total	O	0	0
			4	4		
22	N	98	Total	O	0	0
			98	98		
22	O	127	Total	O	0	0
			127	127		
22	P	115	Total	O	0	0
			115	115		
22	Q	89	Total	O	0	0
			89	89		
22	R	63	Total	O	0	0
			63	63		
22	S	63	Total	O	0	0
			63	63		
22	T	20	Total	O	0	0
			20	20		
22	U	6	Total	O	0	0
			6	6		

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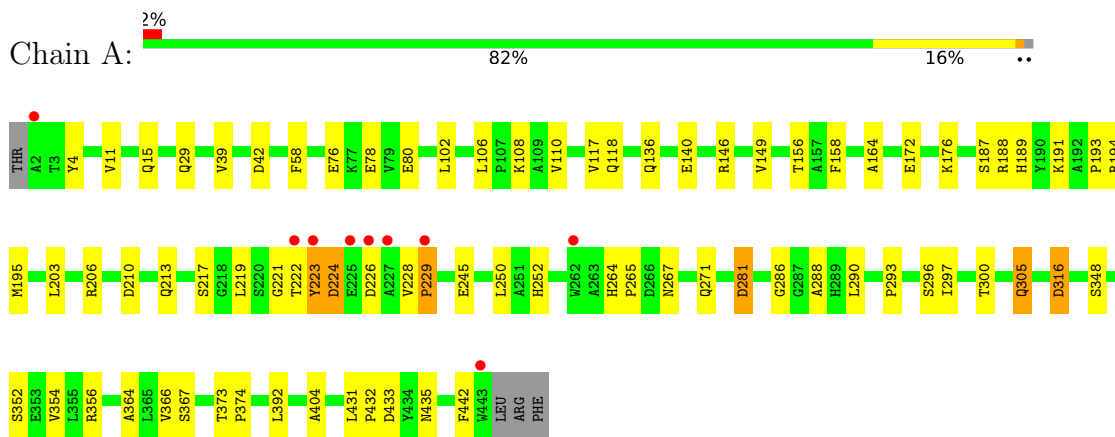
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Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
22	V	8	Total O 8 8	0	0
22	W	9	Total O 9 9	0	0

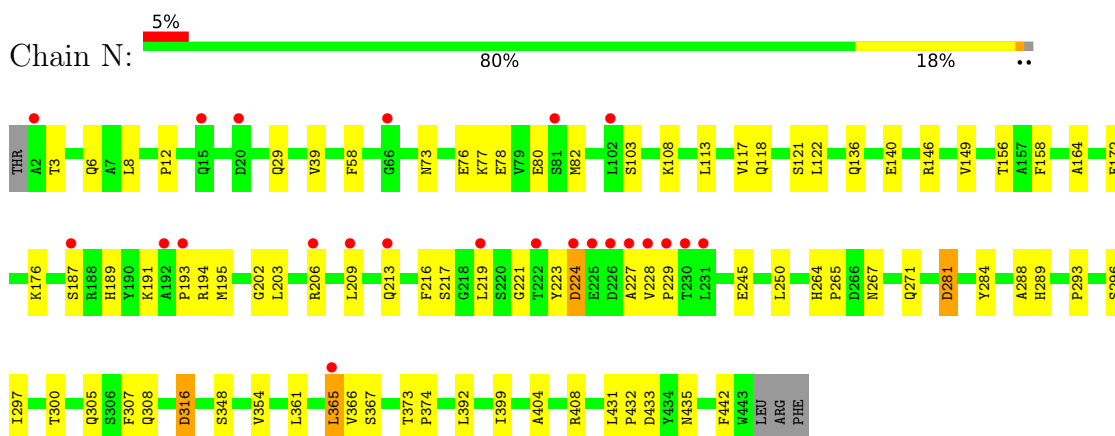
3 Residue-property plots

These plots are drawn for all protein, RNA, DNA and oligosaccharide chains in the entry. The first graphic for a chain summarises the proportions of the various outlier classes displayed in the second graphic. The second graphic shows the sequence view annotated by issues in geometry and electron 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 dot above a residue indicates a poor fit to the electron density ($RSRZ > 2$). 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.

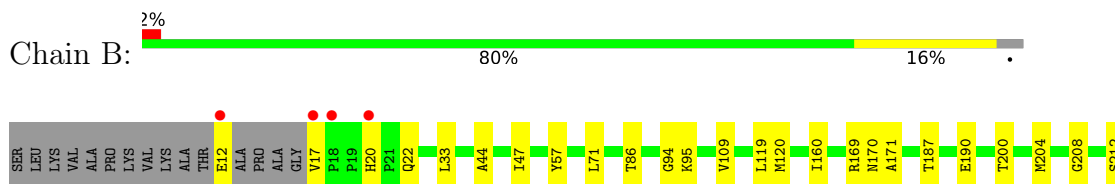
- Molecule 1: Ubiquinol-cytochrome C reductase complex core protein I, mitochondrial

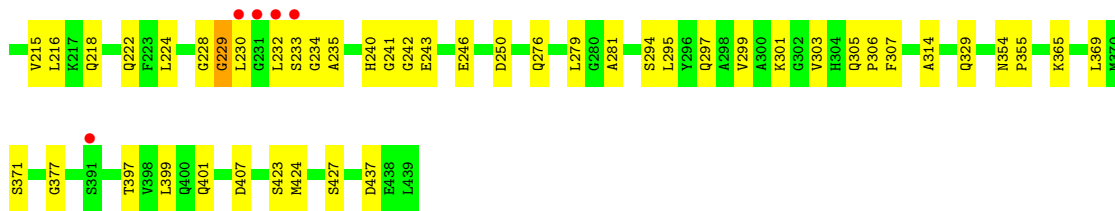


- Molecule 1: Ubiquinol-cytochrome C reductase complex core protein I, mitochondrial

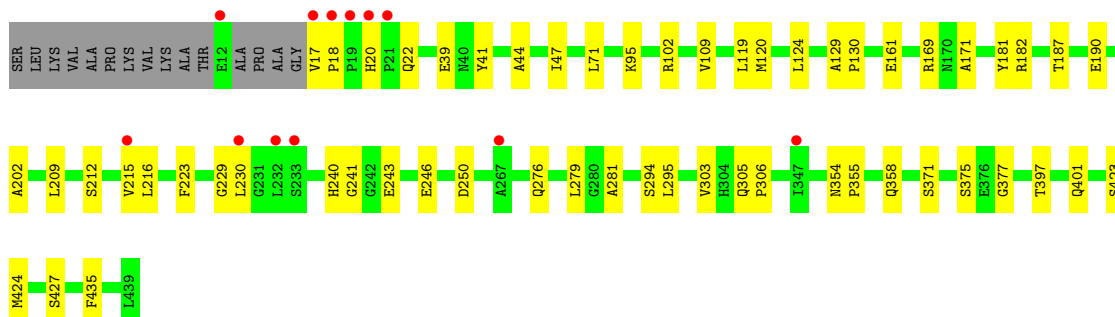
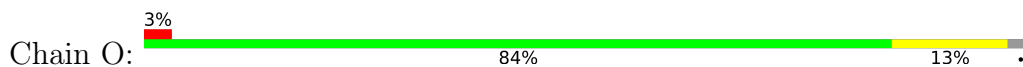


- Molecule 2: Ubiquinol-cytochrome C reductase complex core protein 2, mitochondrial

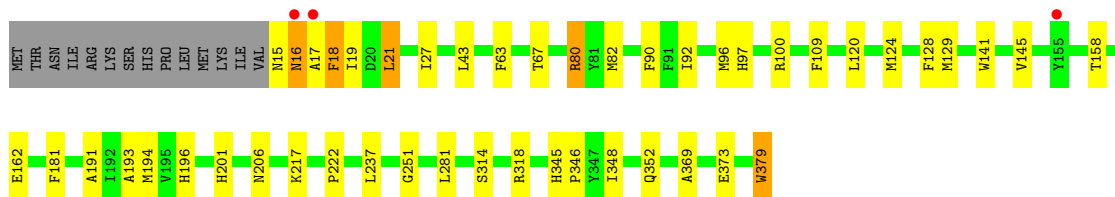
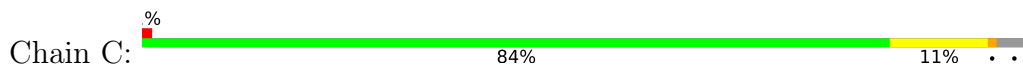




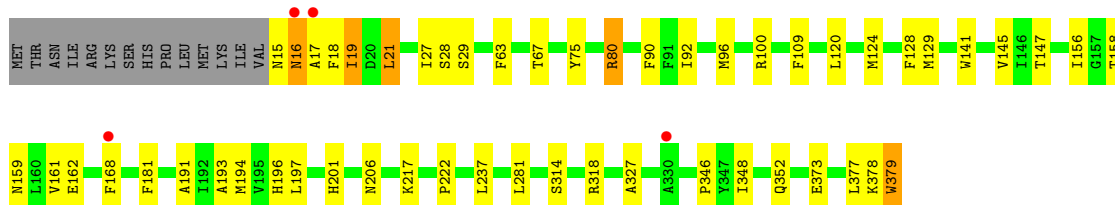
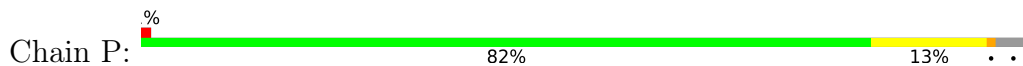
- Molecule 2: Ubiquinol-cytochrome C reductase complex core protein 2, mitochondrial



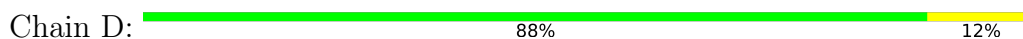
- Molecule 3: Cytochrome b



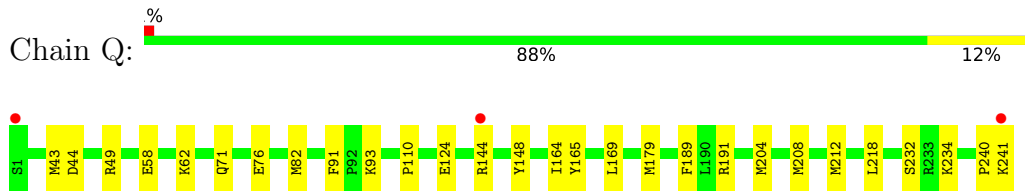
- Molecule 3: Cytochrome b



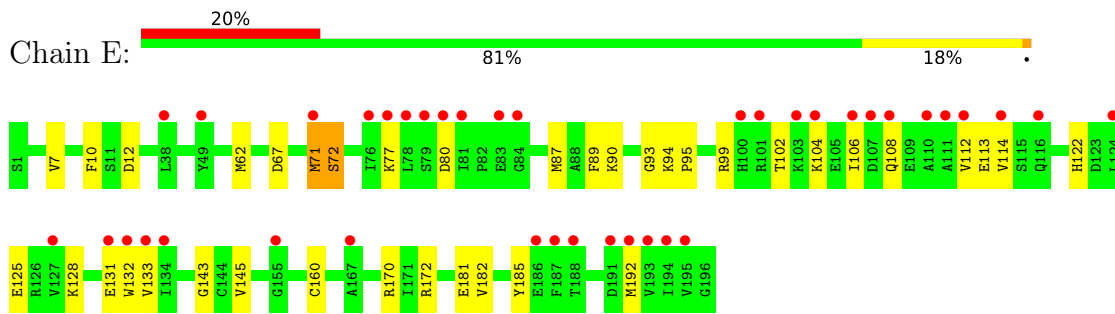
- Molecule 4: Cytochrome c1, heme protein, mitochondrial



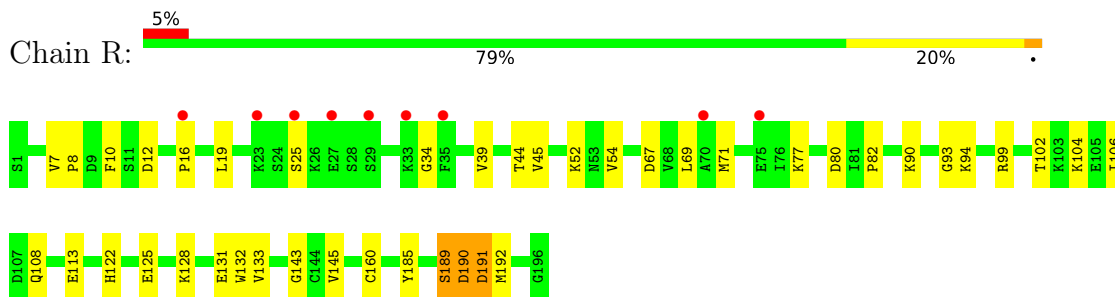
- Molecule 4: Cytochrome c1, heme protein, mitochondrial



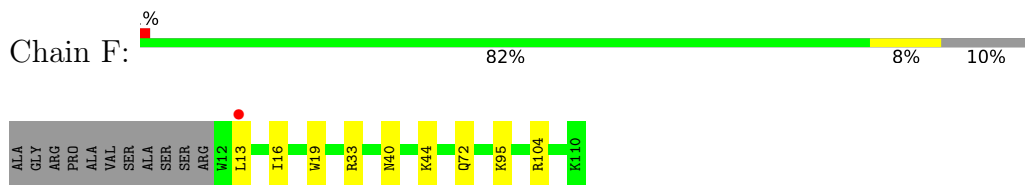
- Molecule 5: Ubiquinol-cytochrome C reductase iron-sulfur subunit, mitochondrial



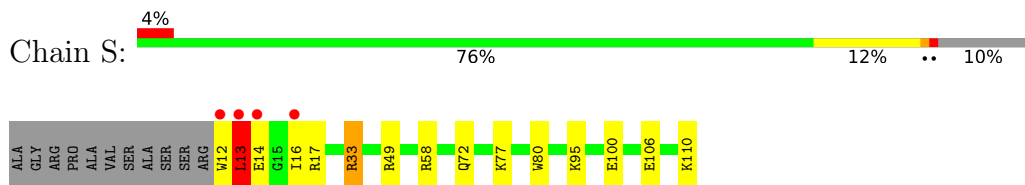
- Molecule 5: Ubiquinol-cytochrome C reductase iron-sulfur subunit, mitochondrial



- Molecule 6: Ubiquinol-cytochrome C reductase complex 14 kDa protein



- Molecule 6: Ubiquinol-cytochrome C reductase complex 14 kDa protein



- Molecule 7: Ubiquinol-cytochrome C reductase complex ubiquinone-binding protein QP-C





- Molecule 7: Ubiquinol-cytochrome C reductase complex ubiquinone-binding protein QP-C



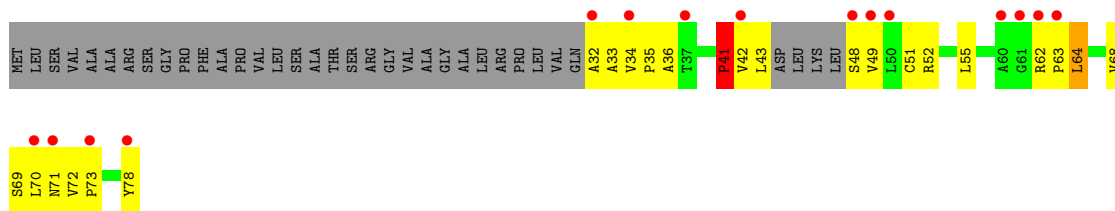
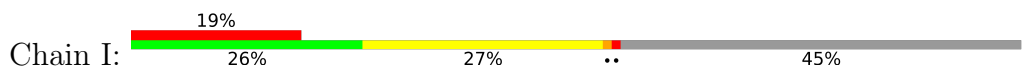
- Molecule 8: Ubiquinol-cytochrome C reductase complex 11 kDa protein



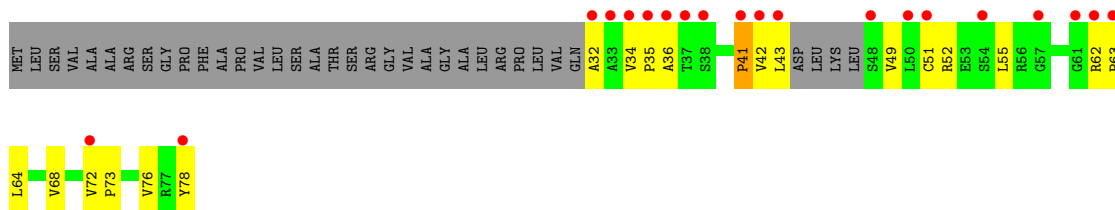
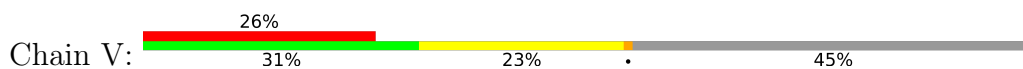
- Molecule 8: Ubiquinol-cytochrome C reductase complex 11 kDa protein



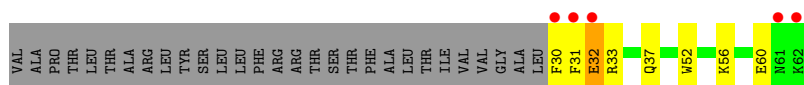
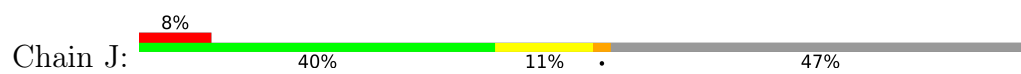
- Molecule 9: Ubiquinol-cytochrome C reductase iron-sulfur subunit, mitochondrial



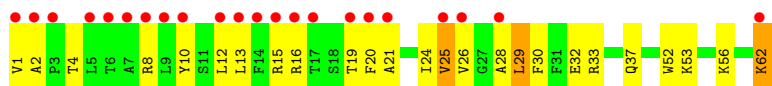
- Molecule 9: Ubiquinol-cytochrome C reductase iron-sulfur subunit, mitochondrial



- Molecule 10: Ubiquinol-cytochrome C reductase complex 7.2 kDa protein



- Molecule 10: Ubiquinol-cytochrome C reductase complex 7.2 kDa protein



4 Data and refinement statistics

Property	Value	Source
Space group	P 21 21 21	Depositor
Cell constants a, b, c, α , β , γ	128.53Å 168.75Å 231.53Å 90.00° 90.00° 90.00°	Depositor
Resolution (Å)	93.53 – 2.10 93.53 – 2.10	Depositor EDS
% Data completeness (in resolution range)	97.7 (93.53-2.10) 97.8 (93.53-2.10)	Depositor EDS
R_{merge}	0.15	Depositor
R_{sym}	(Not available)	Depositor
$\langle I/\sigma(I) \rangle$ ¹	3.03 (at 2.10Å)	Xtrriage
Refinement program	CNS 1.1	Depositor
R, R_{free}	0.224 , 0.260 0.226 , 0.243	Depositor DCC
R_{free} test set	14181 reflections (4.97%)	wwPDB-VP
Wilson B-factor (Å ²)	41.8	Xtrriage
Anisotropy	0.314	Xtrriage
Bulk solvent k_{sol} (e/Å ³), B_{sol} (Å ²)	0.37 , 65.7	EDS
L-test for twinning ²	$\langle L \rangle = 0.51$, $\langle L^2 \rangle = 0.35$	Xtrriage
Estimated twinning fraction	No twinning to report.	Xtrriage
F_o, F_c correlation	0.95	EDS
Total number of atoms	33549	wwPDB-VP
Average B, all atoms (Å ²)	50.0	wwPDB-VP

Xtrriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 1.97% of the height of the origin peak. No significant pseudotranslation is detected.*

¹Intensities estimated from amplitudes.

²Theoretical values of $\langle |L| \rangle$, $\langle L^2 \rangle$ for acentric reflections are 0.5, 0.333 respectively for untwinned datasets, and 0.375, 0.2 for perfectly twinned datasets.

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: PO4, HEM, HEC, FES, PEE, GOL, ANY, SMA, CDL, JZR, AZI

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	0.33	0/3465	0.64	0/4704
1	N	0.30	0/3465	0.63	1/4704 (0.0%)
2	B	0.32	0/3236	0.63	0/4388
2	O	0.31	0/3213	0.62	0/4354
3	C	0.34	0/2986	0.64	1/4089 (0.0%)
3	P	0.33	0/2985	0.64	1/4087 (0.0%)
4	D	0.30	0/1978	0.61	0/2684
4	Q	0.29	0/1978	0.59	0/2684
5	E	0.29	0/1544	0.64	1/2087 (0.0%)
5	R	0.30	0/1551	0.66	1/2097 (0.0%)
6	F	0.32	0/878	0.63	0/1175
6	S	0.30	0/878	0.61	0/1175
7	G	0.31	0/642	0.61	0/869
7	T	0.31	0/647	0.61	0/876
8	H	0.30	0/544	0.56	0/729
8	U	0.27	0/544	0.55	0/729
9	I	0.35	0/286	0.87	2/387 (0.5%)
9	V	0.34	0/286	0.84	1/387 (0.3%)
10	J	0.33	0/292	0.53	0/386
10	W	0.31	0/518	0.55	0/696
All	All	0.31	0/31916	0.63	8/43287 (0.0%)

There are no bond length outliers.

All (8) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
9	I	35	PRO	N-CA-CB	5.84	110.31	103.30
9	I	64	LEU	CA-CB-CG	5.72	128.47	115.30
5	R	143	GLY	N-CA-C	5.70	127.35	113.10
1	N	365	LEU	CA-CB-CG	5.68	128.36	115.30

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
5	E	143	GLY	N-CA-C	5.58	127.06	113.10
9	V	35	PRO	N-CA-CB	5.36	109.73	103.30
3	C	109	PHE	N-CA-C	-5.26	96.79	111.00
3	P	109	PHE	N-CA-C	-5.12	97.17	111.00

There are no chirality outliers.

There are no planarity outliers.

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	3396	0	3292	65	0
1	N	3396	0	3292	57	0
2	B	3178	0	3153	72	0
2	O	3156	0	3123	44	0
3	C	2892	0	2938	36	0
3	P	2891	0	2937	43	0
4	D	1919	0	1868	27	0
4	Q	1919	0	1868	28	0
5	E	1510	0	1495	30	0
5	R	1517	0	1499	33	0
6	F	861	0	854	12	0
6	S	861	0	854	19	0
7	G	621	0	626	15	0
7	T	626	0	631	15	0
8	H	539	0	524	11	0
8	U	539	0	524	10	0
9	I	285	0	280	50	0
9	V	285	0	280	24	0
10	J	284	0	264	5	0
10	W	506	0	512	30	0
11	A	18	0	24	0	0
11	C	36	0	48	2	0
11	D	18	0	24	3	0
11	F	36	0	48	3	0
11	P	18	0	24	0	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
11	R	18	0	24	1	0
11	S	18	0	24	3	0
12	A	5	0	0	0	0
12	C	5	0	0	0	0
12	F	5	0	0	0	0
12	P	5	0	0	0	0
12	S	5	0	0	0	0
13	A	3	0	0	0	0
13	C	3	0	0	0	0
13	G	3	0	0	0	0
13	O	3	0	0	0	0
13	P	3	0	0	0	0
14	B	6	0	8	0	0
14	C	12	0	16	1	0
14	O	6	0	8	0	0
14	P	6	0	8	0	0
14	R	6	0	8	1	0
15	C	86	0	60	3	0
15	P	86	0	60	2	0
16	C	37	0	42	2	0
16	P	37	0	42	2	0
17	C	49	0	72	0	0
17	D	26	0	26	3	0
17	P	49	0	72	1	0
17	Q	51	0	82	3	0
18	C	37	0	28	1	0
18	P	37	0	29	2	0
19	D	43	0	30	3	0
19	Q	43	0	30	1	0
20	D	39	0	39	0	0
20	G	44	0	32	0	0
20	P	39	0	39	2	0
20	T	49	0	42	2	0
21	E	4	0	0	0	0
21	R	4	0	0	0	0
22	A	219	0	0	7	0
22	B	167	0	0	5	0
22	C	123	0	0	1	0
22	D	96	0	0	0	0
22	E	50	0	0	0	0
22	F	63	0	0	0	0
22	G	17	0	0	0	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
22	H	17	0	0	0	0
22	I	16	0	0	2	0
22	J	4	0	0	0	0
22	N	98	0	0	1	0
22	O	127	0	0	2	0
22	P	115	0	0	5	0
22	Q	89	0	0	0	0
22	R	63	0	0	5	0
22	S	63	0	0	1	0
22	T	20	0	0	0	0
22	U	6	0	0	0	0
22	V	8	0	0	1	0
22	W	9	0	0	0	0
All	All	33549	0	31803	551	0

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

All (551) close contacts within the same asymmetric unit are listed below, sorted by their clash magnitude.

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:B:95:LYS:HE2	9:I:32:ALA:HB3	1.47	0.94
10:W:16:ARG:HB2	10:W:19:THR:HG22	1.48	0.94
2:O:95:LYS:HE2	9:V:32:ALA:N	1.82	0.94
1:A:136:GLN:HE21	9:I:51:CYS:HB3	1.30	0.93
1:A:146:ARG:HA	22:A:4191:HOH:O	1.69	0.92
9:I:32:ALA:HA	9:I:71:ASN:CB	1.99	0.91
6:S:13:LEU:H	6:S:13:LEU:HD23	1.32	0.91
2:B:200:THR:HG21	2:B:228:GLY:HA3	1.51	0.90
1:N:136:GLN:HE21	9:V:51:CYS:HB3	1.38	0.88
2:O:47:ILE:HG21	2:O:120:MET:HE1	1.56	0.88
8:H:25:GLU:HB2	8:H:34:ARG:HH22	1.38	0.88
2:B:95:LYS:HE2	9:I:32:ALA:CB	2.03	0.88
8:U:25:GLU:HB2	8:U:34:ARG:HH22	1.37	0.87
1:N:136:GLN:NE2	9:V:51:CYS:HB3	1.93	0.83
2:B:204:MET:HE1	2:B:224:LEU:HD22	1.58	0.83
2:B:47:ILE:HG21	2:B:120:MET:HE1	1.57	0.83
1:N:39:VAL:HG11	1:N:195:MET:HE3	1.60	0.81
9:V:36:ALA:HB2	9:V:73:PRO:HD2	1.63	0.81
9:V:49:VAL:HG11	9:V:55:LEU:HD13	1.62	0.81
6:F:13:LEU:O	6:F:16:ILE:HG12	1.80	0.80

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:O:20:HIS:HB2	2:O:22:GLN:HG2	1.62	0.80
1:A:136:GLN:NE2	9:I:51:CYS:HB3	1.96	0.80
5:R:44:THR:HG21	10:W:24:ILE:HD13	1.65	0.78
9:I:49:VAL:HG11	9:I:55:LEU:HD13	1.65	0.77
2:B:71:LEU:HD23	9:I:68:VAL:HG21	1.68	0.74
6:F:95:LYS:HB2	6:F:95:LYS:NZ	2.02	0.74
5:R:34:GLY:CA	10:W:10:TYR:HB2	2.17	0.74
10:W:21:ALA:O	10:W:25:VAL:HG23	1.88	0.74
5:R:34:GLY:HA2	10:W:10:TYR:HB2	1.70	0.74
2:O:71:LEU:HD23	9:V:68:VAL:HG21	1.70	0.74
4:D:110:PRO:HG3	19:D:501:HEC:HMD3	1.71	0.73
6:S:95:LYS:HB2	6:S:95:LYS:NZ	2.04	0.72
7:T:63:THR:O	7:T:67:GLU:HG2	1.90	0.72
8:U:28:GLU:O	8:U:31:VAL:HG22	1.91	0.71
5:E:112:VAL:HG21	5:E:170:ARG:NH2	2.05	0.71
8:H:28:GLU:O	8:H:31:VAL:HG22	1.91	0.71
3:P:17:ALA:HA	3:P:201:HIS:HE1	1.55	0.70
3:C:129:MET:CE	3:C:181:PHE:HD2	2.05	0.70
7:G:63:THR:O	7:G:67:GLU:HG2	1.91	0.70
3:C:17:ALA:HA	3:C:201:HIS:HE1	1.57	0.69
9:I:62:ARG:HB3	9:I:63:PRO:HD2	1.74	0.69
9:I:72:VAL:HG13	9:I:73:PRO:HD2	1.74	0.69
3:P:129:MET:CE	3:P:181:PHE:HD2	2.05	0.69
1:N:209:LEU:O	1:N:213:GLN:HG3	1.93	0.69
5:R:104:LYS:O	5:R:108:GLN:HG3	1.91	0.69
9:V:62:ARG:HB3	9:V:63:PRO:HD2	1.74	0.69
2:B:204:MET:CE	2:B:224:LEU:HD22	2.23	0.68
5:E:104:LYS:O	5:E:108:GLN:HG3	1.92	0.68
1:A:293:PRO:O	1:A:297:ILE:HG12	1.93	0.68
2:B:200:THR:CG2	2:B:228:GLY:HA3	2.23	0.68
1:N:293:PRO:O	1:N:297:ILE:HG12	1.94	0.68
9:I:32:ALA:HA	9:I:71:ASN:HB3	1.76	0.68
2:B:20:HIS:HB2	2:B:22:GLN:HG2	1.74	0.67
8:U:25:GLU:CB	8:U:34:ARG:HH22	2.08	0.67
22:A:4203:HOH:O	9:I:73:PRO:HG3	1.94	0.67
8:U:28:GLU:O	8:U:32:LYS:HG2	1.95	0.67
8:H:25:GLU:CB	8:H:34:ARG:HH22	2.07	0.67
1:A:39:VAL:HG11	1:A:195:MET:HE3	1.75	0.67
2:B:95:LYS:HE2	9:I:32:ALA:N	2.10	0.67
7:G:34:ILE:HB	7:G:35:PRO:HD3	1.77	0.66
8:H:28:GLU:O	8:H:32:LYS:HG2	1.95	0.66

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:O:358:GLN:HB2	22:O:4120:HOH:O	1.95	0.66
3:C:129:MET:HE1	3:C:181:PHE:HD2	1.61	0.66
8:H:21:ARG:O	8:H:25:GLU:HG2	1.96	0.66
3:P:379:TRP:CZ3	6:S:33:ARG:HD3	2.29	0.66
6:F:95:LYS:HB2	6:F:95:LYS:HZ2	1.61	0.66
1:A:316:ASP:OD1	1:A:316:ASP:N	2.26	0.66
4:Q:110:PRO:HG3	19:Q:501:HEC:HMD3	1.78	0.66
3:P:129:MET:HE1	3:P:181:PHE:HD2	1.60	0.65
10:W:33:ARG:O	10:W:37:GLN:HG3	1.96	0.65
5:R:189:SER:O	5:R:190:ASP:C	2.33	0.65
3:C:16:ASN:N	3:C:16:ASN:HD22	1.93	0.65
1:A:136:GLN:O	1:A:140:GLU:HG3	1.97	0.65
7:T:34:ILE:HB	7:T:35:PRO:HD3	1.79	0.65
9:I:32:ALA:N	9:I:72:VAL:HG23	2.13	0.64
4:Q:144:ARG:HH11	4:Q:144:ARG:HG2	1.62	0.64
3:C:379:TRP:CZ3	6:F:33:ARG:HD3	2.32	0.64
1:N:113:LEU:O	1:N:117:VAL:HG12	1.97	0.64
2:O:306:PRO:HA	9:V:52:ARG:HG3	1.80	0.64
10:W:16:ARG:HH11	10:W:19:THR:HG21	1.63	0.64
9:I:36:ALA:HB2	9:I:73:PRO:HD2	1.79	0.64
9:V:72:VAL:HG13	9:V:73:PRO:HD2	1.78	0.64
1:A:172:GLU:OE2	1:A:176:LYS:HE3	1.98	0.64
5:E:112:VAL:HG21	5:E:170:ARG:HH22	1.61	0.64
4:D:144:ARG:HG2	4:D:144:ARG:HH11	1.64	0.63
4:D:71:GLN:HA	4:D:82:MET:HE2	1.81	0.63
1:A:305:GLN:HE21	1:A:305:GLN:HA	1.62	0.63
2:B:94:GLY:O	9:I:32:ALA:HB2	1.99	0.63
8:U:21:ARG:O	8:U:25:GLU:HG2	1.98	0.62
9:I:32:ALA:CA	9:I:71:ASN:CB	2.74	0.62
2:B:299:VAL:HG12	2:B:303:VAL:CG1	2.30	0.62
1:N:136:GLN:O	1:N:140:GLU:HG3	2.00	0.62
1:A:352:SER:HB3	6:S:110:LYS:OXT	1.99	0.62
2:B:95:LYS:CE	9:I:32:ALA:HB3	2.25	0.61
1:N:316:ASP:OD1	1:N:316:ASP:N	2.33	0.61
15:P:501:HEM:HMC1	15:P:501:HEM:HBC2	1.83	0.61
1:N:224:ASP:OD1	1:N:227:ALA:HB3	1.99	0.61
5:R:44:THR:CG2	10:W:24:ILE:HG21	2.30	0.61
2:O:202:ALA:HB3	2:O:229:GLY:O	2.00	0.61
9:I:32:ALA:N	9:I:71:ASN:HB2	2.16	0.61
4:Q:218:LEU:HD13	22:R:4057:HOH:O	1.99	0.61
1:N:172:GLU:OE2	1:N:176:LYS:HE3	2.00	0.61

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:O:250:ASP:HB3	22:O:4111:HOH:O	1.99	0.60
1:A:288:ALA:HB2	1:A:300:THR:HG22	1.84	0.60
22:A:4157:HOH:O	9:I:41:PRO:HB3	2.00	0.60
15:C:501:HEM:HMC1	15:C:501:HEM:HBC2	1.82	0.60
6:F:13:LEU:HD12	6:F:16:ILE:HD11	1.84	0.60
3:P:16:ASN:N	3:P:16:ASN:HD22	1.99	0.60
5:E:71:MET:O	5:E:72:SER:HB3	2.01	0.60
6:S:95:LYS:HB2	6:S:95:LYS:HZ2	1.66	0.60
5:E:94:LYS:HE3	3:P:168:PHE:O	2.01	0.59
1:N:193:PRO:HD3	1:N:221:GLY:HA2	1.84	0.59
9:I:32:ALA:HA	9:I:71:ASN:HB2	1.84	0.59
9:V:36:ALA:CB	9:V:73:PRO:HD2	2.32	0.59
1:N:288:ALA:HB2	1:N:300:THR:HG22	1.85	0.59
6:S:13:LEU:HD23	6:S:13:LEU:N	2.12	0.59
10:W:15:ARG:HH11	10:W:15:ARG:HG3	1.67	0.59
2:B:33:LEU:HD12	2:B:204:MET:HE2	1.85	0.58
5:R:39:VAL:HG13	22:R:4057:HOH:O	2.02	0.58
4:Q:218:LEU:HD22	22:R:4057:HOH:O	2.01	0.58
1:N:117:VAL:HG13	1:N:118:GLN:HG3	1.85	0.58
1:A:305:GLN:HB3	9:I:41:PRO:HA	1.85	0.58
1:A:252:HIS:ND1	22:A:4191:HOH:O	2.32	0.58
5:R:131:GLU:HG2	5:R:132:TRP:CD1	2.38	0.58
2:O:169:ARG:HG3	2:O:240:HIS:HB2	1.85	0.58
3:P:15:ASN:OD1	3:P:19:ILE:HB	2.03	0.58
5:E:131:GLU:HG2	5:E:132:TRP:CD1	2.39	0.57
2:B:276:GLN:HG2	2:B:281:ALA:HB2	1.86	0.57
9:I:42:VAL:HG12	9:I:43:LEU:CG	2.35	0.57
2:B:12:GLU:HG2	2:B:17:VAL:N	2.19	0.57
3:C:129:MET:HE1	3:C:181:PHE:CD2	2.40	0.57
4:D:145:GLU:HA	11:D:4003:JZR:H2	1.87	0.57
3:C:251:GLY:HA2	14:C:2008:GOL:H11	1.87	0.56
4:Q:165:TYR:HA	4:Q:179:MET:HE2	1.86	0.56
10:W:13:LEU:O	10:W:19:THR:HG23	2.05	0.56
1:A:118:GLN:HG2	1:A:219:LEU:HD13	1.88	0.56
2:B:299:VAL:O	2:B:303:VAL:HG12	2.05	0.56
2:B:354:ASN:HB2	2:B:355:PRO:HD3	1.85	0.56
7:T:71:ARG:HH22	8:U:60:ASP:CG	2.08	0.56
1:A:188:ARG:NH1	1:A:229:PRO:HD3	2.20	0.56
2:B:299:VAL:HG12	2:B:303:VAL:HG12	1.87	0.56
1:N:3:THR:OG1	1:N:6:GLN:HG3	2.05	0.56
7:G:42:ARG:HG3	7:G:42:ARG:HH11	1.71	0.56

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
9:I:32:ALA:HA	9:I:71:ASN:CG	2.25	0.56
10:J:56:LYS:HG2	10:J:60:GLU:CD	2.26	0.56
2:O:276:GLN:HG2	2:O:281:ALA:HB2	1.88	0.56
4:Q:44:ASP:OD1	4:Q:93:LYS:HE2	2.05	0.56
1:N:228:VAL:O	1:N:228:VAL:HG13	2.06	0.56
1:A:191:LYS:HE2	1:A:223:TYR:CB	2.36	0.56
17:Q:3006:PEE:H18	5:R:54:VAL:HG22	1.88	0.56
5:R:128:LYS:HE3	5:R:185:TYR:O	2.05	0.56
11:F:3011:JZR:H1	1:N:289:HIS:NE2	2.21	0.55
2:B:305:GLN:HB3	2:B:329:GLN:OE1	2.06	0.55
10:J:32:GLU:HG3	10:J:33:ARG:N	2.20	0.55
5:R:44:THR:HG22	10:W:24:ILE:HG21	1.89	0.55
1:N:39:VAL:CG1	1:N:195:MET:HE3	2.33	0.55
1:N:361:LEU:O	1:N:365:LEU:HG	2.07	0.55
2:B:212:SER:O	2:B:215:VAL:HG22	2.07	0.55
1:N:281:ASP:OD2	9:V:73:PRO:HG3	2.07	0.55
2:O:202:ALA:HB1	2:O:230:LEU:HD23	1.89	0.55
1:A:193:PRO:HD3	1:A:221:GLY:HA2	1.88	0.54
1:A:267:ASN:O	1:A:271:GLN:HG2	2.07	0.54
4:D:44:ASP:OD1	4:D:93:LYS:HE2	2.07	0.54
1:A:228:VAL:O	1:A:228:VAL:HG13	2.06	0.54
3:P:100:ARG:HD2	3:P:100:ARG:C	2.27	0.54
5:R:44:THR:CG2	10:W:24:ILE:HD13	2.37	0.54
9:V:42:VAL:HG12	9:V:43:LEU:CG	2.38	0.54
1:A:136:GLN:NE2	9:I:51:CYS:CB	2.70	0.54
3:P:18:PHE:O	3:P:21:LEU:HB2	2.07	0.54
3:P:314:SER:O	3:P:318:ARG:HD3	2.08	0.54
10:W:10:TYR:OH	10:W:15:ARG:NH1	2.41	0.54
1:A:296:SER:O	1:A:300:THR:HG23	2.08	0.54
1:N:78:GLU:OE2	1:N:108:LYS:HD3	2.08	0.54
9:V:36:ALA:HB3	9:V:73:PRO:HG2	1.90	0.54
10:W:15:ARG:HG3	10:W:15:ARG:NH1	2.23	0.54
1:A:78:GLU:OE2	1:A:108:LYS:HD3	2.08	0.53
3:C:17:ALA:HA	3:C:201:HIS:CE1	2.42	0.53
4:D:144:ARG:HG2	4:D:144:ARG:NH1	2.23	0.53
4:D:165:TYR:HA	4:D:179:MET:HE2	1.90	0.53
6:F:95:LYS:NZ	6:F:95:LYS:CB	2.69	0.53
9:I:32:ALA:CA	9:I:71:ASN:HB3	2.38	0.53
1:N:373:THR:HB	1:N:374:PRO:HD3	1.90	0.53
3:P:129:MET:HE1	3:P:181:PHE:CD2	2.41	0.53
6:S:106:GLU:HG2	22:S:3048:HOH:O	2.06	0.53

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
10:J:33:ARG:O	10:J:37:GLN:HG3	2.09	0.53
7:T:71:ARG:NH2	8:U:60:ASP:OD1	2.42	0.53
3:C:18:PHE:O	3:C:21:LEU:HB2	2.08	0.53
3:C:158:THR:O	3:C:162:GLU:HG3	2.09	0.53
5:E:95:PRO:HG2	5:E:145:VAL:HG22	1.90	0.53
4:Q:208:MET:HA	17:Q:3006:PEE:H49	1.88	0.53
2:O:279:LEU:HB3	2:O:295:LEU:HG	1.89	0.53
4:Q:144:ARG:HG2	4:Q:144:ARG:NH1	2.21	0.53
2:B:20:HIS:HB2	2:B:22:GLN:CG	2.39	0.53
9:I:70:LEU:HB3	22:I:1016:HOH:O	2.09	0.53
1:N:195:MET:SD	1:N:219:LEU:HD21	2.49	0.53
2:O:305:GLN:N	2:O:306:PRO:HD3	2.23	0.53
1:A:366:VAL:HG21	2:B:44:ALA:HB2	1.89	0.52
1:N:146:ARG:NH2	1:N:308:GLN:HE22	2.06	0.52
2:B:169:ARG:HG3	2:B:240:HIS:HB2	1.91	0.52
10:W:4:THR:O	10:W:8:ARG:HG2	2.09	0.52
1:N:267:ASN:O	1:N:271:GLN:HG2	2.09	0.52
1:N:365:LEU:HD11	1:N:399:ILE:HD11	1.91	0.52
2:O:212:SER:O	2:O:215:VAL:HG22	2.08	0.52
9:I:32:ALA:CA	9:I:71:ASN:HB2	2.40	0.52
7:T:41:THR:O	7:T:45:ILE:HG12	2.09	0.52
1:A:4:TYR:HB2	22:B:2124:HOH:O	2.10	0.52
7:G:41:THR:O	7:G:45:ILE:HG12	2.09	0.52
4:Q:164:ILE:O	4:Q:179:MET:HE2	2.10	0.52
4:D:148:TYR:OH	11:D:4003:JZR:H6	2.08	0.52
9:I:36:ALA:HB3	9:I:73:PRO:HG2	1.90	0.52
2:B:86:THR:HG23	9:I:70:LEU:HD11	1.92	0.52
1:N:158:PHE:O	1:N:164:ALA:HB2	2.10	0.52
10:W:52:TRP:O	10:W:56:LYS:HB2	2.09	0.52
2:B:187:THR:OG1	2:B:190:GLU:HG3	2.10	0.52
3:P:206:ASN:HB3	15:P:502:HEM:O2D	2.10	0.52
5:R:94:LYS:HE3	14:R:4005:GOL:O3	2.09	0.52
8:U:19:THR:O	8:U:23:GLN:HG3	2.10	0.52
1:A:364:ALA:HB2	9:I:33:ALA:HB1	1.92	0.52
6:F:19:TRP:CD1	11:F:4001:JZR:H1	2.46	0.51
4:Q:71:GLN:HA	4:Q:82:MET:HE2	1.90	0.51
7:G:50:PRO:HB2	7:G:51:PRO:HD3	1.92	0.51
1:N:354:VAL:HG21	1:N:404:ALA:HA	1.92	0.51
3:P:158:THR:O	3:P:162:GLU:HG3	2.11	0.51
3:P:80:ARG:HD3	3:P:80:ARG:C	2.31	0.51
1:A:191:LYS:HZ3	1:A:223:TYR:HA	1.75	0.51

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
5:E:99:ARG:HB3	5:E:133:VAL:CG1	2.41	0.51
2:B:208:GLY:HA3	2:B:216:LEU:HD11	1.91	0.51
1:N:296:SER:O	1:N:300:THR:HG23	2.10	0.51
3:P:17:ALA:HA	3:P:201:HIS:CE1	2.42	0.51
7:T:32:LYS:C	7:T:35:PRO:HD2	2.31	0.51
5:E:114:VAL:O	5:E:114:VAL:HG12	2.10	0.51
7:G:48:VAL:O	7:G:51:PRO:HD2	2.10	0.51
2:B:397:THR:O	2:B:401:GLN:HG3	2.11	0.51
3:C:16:ASN:N	3:C:16:ASN:ND2	2.59	0.51
3:C:206:ASN:HB3	15:C:502:HEM:O2D	2.11	0.51
4:D:2:ASP:OD1	7:G:70:LYS:HE3	2.11	0.51
2:O:202:ALA:HB3	2:O:229:GLY:C	2.30	0.51
9:I:36:ALA:CB	9:I:73:PRO:HD2	2.41	0.50
7:T:50:PRO:HB2	7:T:51:PRO:HD3	1.92	0.50
2:B:94:GLY:O	9:I:32:ALA:CB	2.59	0.50
6:S:12:TRP:N	6:S:13:LEU:HD23	2.27	0.50
6:S:95:LYS:NZ	6:S:95:LYS:CB	2.72	0.50
2:B:95:LYS:NZ	9:I:34:VAL:HG22	2.27	0.50
4:D:116:ILE:HG12	19:D:501:HEC:HMA3	1.92	0.50
7:T:48:VAL:O	7:T:51:PRO:HD2	2.12	0.50
10:J:52:TRP:O	10:J:56:LYS:HB2	2.12	0.50
1:N:366:VAL:HG21	2:O:44:ALA:HB2	1.94	0.50
6:F:13:LEU:O	6:F:16:ILE:CG1	2.56	0.50
9:I:32:ALA:HA	9:I:71:ASN:ND2	2.26	0.50
2:B:279:LEU:HB3	2:B:295:LEU:HG	1.93	0.49
7:G:71:ARG:HH2	8:H:60:ASP:CG	2.15	0.49
8:H:19:THR:O	8:H:23:GLN:HG3	2.11	0.49
3:C:15:ASN:C	3:C:17:ALA:H	2.15	0.49
2:O:95:LYS:NZ	9:V:34:VAL:HG22	2.26	0.49
5:R:25:SER:HA	22:R:4016:HOH:O	2.12	0.49
5:R:45:VAL:HG13	10:W:28:ALA:HA	1.94	0.49
1:A:158:PHE:O	1:A:164:ALA:HB2	2.12	0.49
2:B:71:LEU:CD2	9:I:68:VAL:HG21	2.38	0.49
3:C:129:MET:HE2	3:C:181:PHE:HD2	1.78	0.49
5:R:90:LYS:HE3	5:R:93:GLY:O	2.12	0.49
1:A:140:GLU:HB3	9:I:48:SER:O	2.12	0.49
1:N:433:ASP:OD2	1:N:435:ASN:HB2	2.12	0.49
3:C:80:ARG:C	3:C:80:ARG:HD3	2.33	0.49
5:E:71:MET:O	5:E:72:SER:CB	2.60	0.49
3:P:378:LYS:HE3	6:S:17:ARG:HD3	1.95	0.49
2:B:246:GLU:O	2:B:427:SER:HA	2.13	0.49

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
7:G:56:TYR:O	7:G:60:THR:HG23	2.12	0.49
4:D:234:LYS:HE2	5:E:10:PHE:CE1	2.48	0.49
7:G:32:LYS:C	7:G:35:PRO:HD2	2.32	0.49
10:W:16:ARG:NH1	10:W:19:THR:HG21	2.25	0.49
20:P:3003:CDL:H511	20:P:3003:CDL:H721	1.95	0.49
5:E:102:THR:O	5:E:106:ILE:HG13	2.12	0.48
2:O:215:VAL:HG23	2:O:216:LEU:N	2.28	0.48
1:N:408:ARG:HD2	22:N:522:HOH:O	2.12	0.48
2:O:39:GLU:OE2	2:O:41:TYR:N	2.44	0.48
1:A:431:LEU:HD12	1:A:432:PRO:HD2	1.96	0.48
4:D:165:TYR:HA	4:D:179:MET:CE	2.44	0.48
3:P:29:SER:HB3	20:P:3003:CDL:H722	1.94	0.48
1:A:281:ASP:OD2	9:I:73:PRO:HG3	2.13	0.48
4:Q:124:GLU:OE2	4:Q:191:ARG:CD	2.62	0.48
9:V:32:ALA:HB1	22:V:1505:HOH:O	2.13	0.48
2:B:297:GLN:O	2:B:301:LYS:HG3	2.14	0.48
6:F:72:GLN:OE1	6:F:72:GLN:HA	2.14	0.48
1:N:76:GLU:HG2	1:N:80:GLU:OE2	2.14	0.48
1:A:76:GLU:HG2	1:A:80:GLU:OE2	2.13	0.48
3:C:191:ALA:HA	3:C:194:MET:CE	2.43	0.47
3:C:217:LYS:HE3	22:C:4101:HOH:O	2.14	0.47
4:D:124:GLU:OE2	4:D:191:ARG:HD3	2.13	0.47
1:N:366:VAL:HG23	1:N:367:SER:N	2.28	0.47
5:R:99:ARG:HB3	5:R:133:VAL:CG1	2.44	0.47
6:S:100:GLU:HB3	11:S:2011:JZR:H6A	1.94	0.47
3:C:27:ILE:HD12	18:C:2002:ANY:H3	1.96	0.47
3:C:63:PHE:O	3:C:67:THR:HG23	2.14	0.47
2:B:95:LYS:HE2	9:I:32:ALA:CA	2.45	0.47
3:C:120:LEU:O	3:C:124:MET:HG3	2.13	0.47
2:O:187:THR:OG1	2:O:190:GLU:HG3	2.14	0.47
5:E:62:MET:HG2	22:P:3114:HOH:O	2.14	0.47
2:O:279:LEU:HA	2:O:294:SER:HB3	1.97	0.47
7:T:39:ARG:HG2	7:T:39:ARG:HH11	1.79	0.47
7:G:39:ARG:HG2	7:G:39:ARG:HH11	1.78	0.47
2:O:95:LYS:NZ	9:V:34:VAL:CG2	2.78	0.47
5:R:77:LYS:HA	5:R:192:MET:HG2	1.96	0.47
1:A:102:LEU:CD2	2:B:369:LEU:HD12	2.45	0.47
10:W:62:LYS:C	10:W:62:LYS:HD2	2.35	0.47
1:A:223:TYR:O	1:A:224:ASP:HB3	2.14	0.47
9:I:72:VAL:HG13	9:I:73:PRO:CD	2.43	0.47
9:I:72:VAL:CG1	9:I:73:PRO:HD2	2.44	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
7:T:56:TYR:O	7:T:60:THR:HG23	2.14	0.47
2:B:250:ASP:HB3	22:B:2139:HOH:O	2.14	0.47
3:C:314:SER:O	3:C:318:ARG:HD3	2.14	0.47
2:O:209:LEU:HD23	2:O:375:SER:HB2	1.96	0.47
3:P:156:ILE:HA	3:P:159:ASN:HD22	1.80	0.47
1:A:11:VAL:HG21	1:A:392:LEU:HD12	1.97	0.47
1:A:433:ASP:OD2	1:A:435:ASN:HB2	2.14	0.47
1:N:250:LEU:HD13	1:N:305:GLN:HG3	1.98	0.47
2:O:241:GLY:HA2	2:O:423:SER:OG	2.14	0.47
5:E:112:VAL:CG2	5:E:170:ARG:HH22	2.28	0.46
4:Q:165:TYR:HA	4:Q:179:MET:CE	2.44	0.46
5:R:44:THR:HG21	10:W:24:ILE:HG21	1.97	0.46
1:A:213:GLN:O	1:A:217:SER:OG	2.25	0.46
6:S:72:GLN:OE1	6:S:72:GLN:HA	2.15	0.46
10:W:20:PHE:CE1	10:W:24:ILE:HD11	2.51	0.46
3:P:237:LEU:HD13	4:Q:212:MET:HG3	1.98	0.46
2:B:95:LYS:CE	9:I:32:ALA:N	2.76	0.46
2:B:306:PRO:HA	9:I:52:ARG:HG3	1.96	0.46
5:E:160:CYS:HB3	16:P:3001:SMA:H4	1.95	0.46
1:N:29:GLN:O	2:O:18:PRO:HG3	2.15	0.46
1:N:189:HIS:ND1	1:N:194:ARG:NH2	2.64	0.46
1:N:206:ARG:HG3	1:N:206:ARG:HH11	1.80	0.46
2:B:187:THR:HB	22:B:2093:HOH:O	2.14	0.46
2:O:305:GLN:N	2:O:305:GLN:C	2.68	0.46
4:Q:124:GLU:OE2	4:Q:191:ARG:HD3	2.15	0.46
6:S:16:ILE:HG13	6:S:17:ARG:N	2.30	0.46
1:A:354:VAL:HG21	1:A:404:ALA:HA	1.97	0.46
4:D:138:PRO:HG2	4:D:141:VAL:CG2	2.46	0.46
9:I:69:SER:HB2	22:I:1441:HOH:O	2.14	0.46
3:P:191:ALA:HA	3:P:194:MET:CE	2.46	0.46
1:A:195:MET:HB3	1:A:195:MET:HE2	1.79	0.46
1:N:224:ASP:OD2	1:N:227:ALA:N	2.49	0.46
16:C:2001:SMA:H4	5:R:160:CYS:HB3	1.97	0.46
3:P:120:LEU:O	3:P:124:MET:HG3	2.16	0.46
3:P:348:ILE:O	3:P:352:GLN:HG3	2.16	0.46
7:T:28:HIS:CG	7:T:32:LYS:HE2	2.51	0.46
1:A:189:HIS:ND1	1:A:194:ARG:NH2	2.63	0.45
1:A:373:THR:HB	1:A:374:PRO:HD3	1.96	0.45
3:C:379:TRP:CE3	6:F:33:ARG:HD3	2.50	0.45
1:A:366:VAL:HG23	1:A:367:SER:N	2.31	0.45
3:C:43:LEU:HD11	3:C:82:MET:HE2	1.97	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
3:C:97:HIS:CD2	15:C:502:HEM:NC	2.83	0.45
2:O:71:LEU:CD2	9:V:68:VAL:HG21	2.44	0.45
10:W:8:ARG:O	10:W:12:LEU:HB2	2.16	0.45
3:C:345:HIS:NE2	11:C:4002:JZR:H3	2.32	0.45
3:P:158:THR:HB	22:P:3127:HOH:O	2.17	0.45
4:Q:240:PRO:O	4:Q:241:LYS:HB2	2.16	0.45
1:A:29:GLN:HB3	2:B:12:GLU:O	2.17	0.45
1:A:102:LEU:HD21	2:B:369:LEU:HD12	1.98	0.45
4:D:207:LYS:HZ2	17:D:2006:PEE:H11	1.81	0.45
4:Q:204:MET:HE3	17:Q:3006:PEE:C10	2.46	0.45
7:G:28:HIS:CG	7:G:32:LYS:HE2	2.51	0.45
1:A:206:ARG:HG3	1:A:206:ARG:HH11	1.80	0.45
5:R:52:LYS:HE3	10:W:32:GLU:OE2	2.17	0.45
6:S:49:ARG:HH22	11:S:2011:JZR:H4	1.81	0.45
9:V:72:VAL:HG13	9:V:73:PRO:CD	2.46	0.45
2:O:102:ARG:HH22	2:O:161:GLU:CD	2.20	0.45
3:P:281:LEU:C	3:P:281:LEU:HD23	2.37	0.45
6:S:13:LEU:H	6:S:13:LEU:CD2	2.07	0.45
9:V:64:LEU:HB3	9:V:78:TYR:OXT	2.17	0.45
2:B:240:HIS:CE1	2:O:435:PHE:CD1	3.05	0.45
9:I:32:ALA:N	9:I:71:ASN:CB	2.79	0.45
2:O:109:VAL:HB	2:O:119:LEU:HD12	1.98	0.45
5:R:102:THR:O	5:R:106:ILE:HG13	2.17	0.45
3:C:145:VAL:HG21	16:C:2001:SMA:H6	1.98	0.45
3:C:191:ALA:HA	3:C:194:MET:HE2	1.98	0.45
3:P:129:MET:HE2	3:P:181:PHE:HD2	1.78	0.45
1:A:108:LYS:HE3	1:A:108:LYS:HA	1.99	0.44
1:A:206:ARG:HG3	1:A:206:ARG:NH1	2.31	0.44
2:B:241:GLY:HA2	2:B:423:SER:OG	2.17	0.44
3:C:141:TRP:CH2	5:R:145:VAL:HG23	2.52	0.44
3:C:281:LEU:C	3:C:281:LEU:HD23	2.37	0.44
1:N:206:ARG:HG3	1:N:206:ARG:NH1	2.32	0.44
3:P:327:ALA:HA	7:T:51:PRO:HB3	1.98	0.44
1:A:213:GLN:HG2	22:A:4063:HOH:O	2.16	0.44
2:B:160:ILE:HG22	22:B:2146:HOH:O	2.16	0.44
2:O:246:GLU:O	2:O:427:SER:HA	2.17	0.44
19:D:501:HEC:HMB1	19:D:501:HEC:HBB3	1.99	0.44
2:O:354:ASN:HB3	2:O:355:PRO:HD3	2.00	0.44
2:O:181:TYR:CE1	2:O:182:ARG:HG2	2.53	0.44
10:W:25:VAL:O	10:W:28:ALA:HB3	2.17	0.44
3:C:237:LEU:HD13	4:D:212:MET:HG3	1.99	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
4:D:124:GLU:OE2	4:D:191:ARG:CD	2.65	0.44
5:E:145:VAL:HG23	3:P:141:TRP:CH2	2.52	0.44
3:P:197:LEU:CD1	18:P:3002:ANY:H12	2.48	0.44
1:N:431:LEU:HD12	1:N:432:PRO:HD2	1.99	0.44
4:Q:43:MET:CE	4:Q:91:PHE:HE2	2.31	0.44
7:G:71:ARG:NH2	8:H:60:ASP:OD1	2.50	0.44
1:N:103:SER:HB3	1:N:202:GLY:O	2.18	0.44
2:O:397:THR:O	2:O:401:GLN:HG3	2.18	0.44
3:P:145:VAL:HG21	16:P:3001:SMA:H6	1.99	0.44
3:P:191:ALA:HA	3:P:194:MET:HE2	1.99	0.44
1:A:15:GLN:NE2	2:B:12:GLU:HB2	2.33	0.43
2:B:218:GLN:O	2:B:222:GLN:HG3	2.18	0.43
2:B:437:ASP:OD2	2:O:240:HIS:CD2	2.71	0.43
3:C:100:ARG:HD2	3:C:100:ARG:C	2.37	0.43
5:E:77:LYS:HA	5:E:192:MET:HG2	1.99	0.43
4:Q:148:TYR:CD1	4:Q:148:TYR:N	2.86	0.43
1:A:195:MET:SD	1:A:219:LEU:HD21	2.58	0.43
1:A:223:TYR:O	1:A:224:ASP:CB	2.66	0.43
6:F:104:ARG:HH21	11:F:3011:JZR:H6'B	1.83	0.43
2:B:279:LEU:HA	2:B:294:SER:HB3	2.00	0.43
1:N:82:MET:CE	1:N:108:LYS:HG2	2.48	0.43
1:N:213:GLN:O	1:N:217:SER:OG	2.29	0.43
1:A:222:THR:O	1:A:223:TYR:CB	2.66	0.43
1:A:356:ARG:NH1	22:A:4058:HOH:O	2.51	0.43
4:D:49:ARG:NH2	5:E:67:ASP:HB3	2.33	0.43
1:N:8:LEU:HD22	1:N:392:LEU:HB3	2.01	0.43
3:P:21:LEU:HD13	22:P:3100:HOH:O	2.18	0.43
5:R:69:LEU:O	5:R:71:MET:HG3	2.18	0.43
2:B:299:VAL:HG12	2:B:303:VAL:HG11	1.98	0.43
5:E:90:LYS:HE2	5:E:93:GLY:HA2	2.00	0.43
2:B:12:GLU:CG	2:B:17:VAL:N	2.82	0.43
2:O:305:GLN:N	2:O:306:PRO:CD	2.82	0.43
5:R:16:PRO:HA	5:R:19:LEU:HD12	2.00	0.43
22:B:2146:HOH:O	9:I:64:LEU:CG	2.66	0.43
9:I:64:LEU:HB3	9:I:78:TYR:OXT	2.18	0.43
1:N:288:ALA:CB	1:N:300:THR:HG22	2.48	0.43
1:A:149:VAL:CG1	22:A:4191:HOH:O	2.66	0.42
1:A:281:ASP:HA	1:A:305:GLN:O	2.18	0.42
3:C:92:ILE:O	3:C:96:MET:HG2	2.19	0.42
4:D:145:GLU:HG2	11:D:4003:JZR:O3	2.19	0.42
6:S:95:LYS:HB2	6:S:95:LYS:HZ3	1.82	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
9:V:34:VAL:HG23	9:V:34:VAL:O	2.19	0.42
1:A:187:SER:O	1:A:191:LYS:HD3	2.18	0.42
2:B:232:LEU:HB3	2:B:235:ALA:CB	2.49	0.42
1:A:288:ALA:CB	1:A:300:THR:HG22	2.48	0.42
5:E:122:HIS:HB3	5:E:125:GLU:HG3	2.02	0.42
6:F:40:ASN:O	6:F:44:LYS:HG3	2.19	0.42
10:W:1:VAL:O	10:W:2:ALA:HB2	2.19	0.42
1:A:286:GLY:HA3	1:A:290:LEU:HD21	2.01	0.42
2:B:305:GLN:NE2	2:B:305:GLN:HA	2.35	0.42
4:D:175:THR:HG23	8:H:78:LYS:HE3	2.01	0.42
4:D:211:MET:HE1	10:J:31:PHE:CZ	2.54	0.42
7:G:39:ARG:HG2	7:G:39:ARG:NH1	2.34	0.42
8:H:31:VAL:HG23	8:H:32:LYS:N	2.33	0.42
3:P:217:LYS:HG3	7:T:7:LEU:HD13	2.01	0.42
1:A:156:THR:HA	5:E:7:VAL:HG21	2.00	0.42
4:D:43:MET:HE1	4:D:189:PHE:HZ	1.84	0.42
1:N:156:THR:HA	5:R:7:VAL:HG21	2.01	0.42
1:N:264:HIS:HA	1:N:265:PRO:HD3	1.81	0.42
3:P:92:ILE:O	3:P:96:MET:HG2	2.19	0.42
9:V:42:VAL:HG12	9:V:43:LEU:N	2.34	0.42
1:A:42:ASP:O	1:A:194:ARG:CZ	2.68	0.42
4:D:203:ARG:HD2	17:D:2006:PEE:N	2.34	0.42
7:G:33:GLY:O	7:G:37:VAL:HG23	2.20	0.42
2:O:202:ALA:HB3	2:O:230:LEU:HA	2.01	0.42
2:O:371:SER:O	2:O:377:GLY:HA3	2.20	0.42
3:P:193:ALA:O	3:P:196:HIS:HB3	2.19	0.42
4:Q:43:MET:HE1	4:Q:91:PHE:HE2	1.85	0.42
8:U:31:VAL:HG23	8:U:32:LYS:N	2.34	0.42
1:A:117:VAL:HG11	1:A:195:MET:CE	2.50	0.42
2:B:57:TYR:HD1	2:B:233:SER:HA	1.85	0.42
2:B:303:VAL:O	2:B:303:VAL:HG13	2.20	0.42
3:C:193:ALA:O	3:C:196:HIS:HB3	2.19	0.42
4:D:207:LYS:NZ	17:D:2006:PEE:H11	2.35	0.42
5:E:99:ARG:HB3	5:E:133:VAL:HG12	2.01	0.42
3:P:147:THR:HG22	3:P:161:VAL:HG13	2.00	0.42
4:Q:43:MET:HE1	4:Q:189:PHE:HZ	1.83	0.42
2:B:230:LEU:N	2:B:230:LEU:HD12	2.35	0.42
3:C:345:HIS:CD2	11:C:4002:JZR:H3	2.55	0.42
10:W:8:ARG:HG2	10:W:8:ARG:HH11	1.84	0.42
5:E:77:LYS:HD3	5:E:80:ASP:OD1	2.20	0.42
2:O:17:VAL:HA	2:O:18:PRO:HD3	1.78	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:B:243:GLU:HA	2:B:424:MET:O	2.20	0.41
3:C:369:ALA:O	3:C:373:GLU:HG3	2.20	0.41
5:E:77:LYS:HB2	5:E:192:MET:HE3	2.02	0.41
1:N:117:VAL:HG11	1:N:216:PHE:HE2	1.85	0.41
2:O:243:GLU:HA	2:O:424:MET:O	2.21	0.41
8:U:26:GLN:OE1	8:U:26:GLN:HA	2.19	0.41
9:V:72:VAL:CG1	9:V:73:PRO:HD2	2.48	0.41
8:H:25:GLU:HB2	8:H:34:ARG:NH2	2.20	0.41
1:A:264:HIS:HA	1:A:265:PRO:HD3	1.83	0.41
2:B:200:THR:O	2:B:204:MET:HG3	2.20	0.41
2:B:371:SER:O	2:B:377:GLY:HA3	2.20	0.41
5:E:172:ARG:HB3	5:E:172:ARG:HH11	1.85	0.41
3:P:63:PHE:O	3:P:67:THR:HG23	2.21	0.41
4:Q:218:LEU:HB3	22:R:4057:HOH:O	2.19	0.41
6:S:49:ARG:NH2	11:S:2011:JZR:H4	2.35	0.41
2:B:229:GLY:C	2:B:230:LEU:HD12	2.41	0.41
5:E:87:MET:CG	5:E:89:PHE:CZ	3.03	0.41
1:N:117:VAL:HG11	1:N:216:PHE:CE2	2.56	0.41
1:N:187:SER:O	1:N:191:LYS:HD3	2.20	0.41
5:R:34:GLY:HA3	10:W:10:TYR:HB2	1.97	0.41
5:R:122:HIS:HB3	5:R:125:GLU:HG3	2.01	0.41
6:S:77:LYS:HA	6:S:80:TRP:CE2	2.56	0.41
9:I:62:ARG:CB	9:I:63:PRO:HD2	2.49	0.41
2:O:95:LYS:O	2:O:109:VAL:HA	2.20	0.41
3:P:28:SER:HB2	20:T:3004:CDL:HA21	2.01	0.41
1:N:12:PRO:HG3	2:O:18:PRO:HA	2.02	0.41
3:P:377:LEU:HD11	22:P:3086:HOH:O	2.21	0.41
4:Q:43:MET:CE	4:Q:91:PHE:CE2	3.04	0.41
4:Q:58:GLU:O	4:Q:62:LYS:HG3	2.21	0.41
5:E:87:MET:HG2	5:E:89:PHE:CZ	2.56	0.41
4:Q:43:MET:CE	4:Q:189:PHE:HZ	2.34	0.41
4:D:43:MET:HE1	4:D:91:PHE:HE2	1.85	0.41
9:I:36:ALA:HB3	9:I:73:PRO:CG	2.51	0.41
2:O:124:LEU:HD13	2:O:223:PHE:CB	2.50	0.41
1:A:250:LEU:HD13	1:A:305:GLN:HG3	2.03	0.41
2:B:354:ASN:ND2	2:B:407:ASP:OD2	2.54	0.41
1:N:73:ASN:O	1:N:77:LYS:HG3	2.20	0.41
1:N:284:TYR:HE1	9:V:73:PRO:HG3	1.85	0.41
2:O:129:ALA:N	2:O:130:PRO:CD	2.84	0.41
3:P:379:TRP:CE3	6:S:33:ARG:HD3	2.55	0.41
5:R:80:ASP:O	5:R:82:PRO:HD3	2.20	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:B:314:ALA:HA	9:I:63:PRO:HD3	2.02	0.41
3:C:348:ILE:O	3:C:352:GLN:HG3	2.20	0.41
4:D:164:ILE:O	4:D:179:MET:HE2	2.21	0.41
1:N:264:HIS:ND1	1:N:265:PRO:HD2	2.36	0.41
4:Q:71:GLN:HG3	4:Q:82:MET:CE	2.51	0.41
4:Q:232:SER:O	5:R:10:PHE:HE1	2.04	0.41
5:E:128:LYS:HE3	5:E:185:TYR:O	2.21	0.40
7:T:39:ARG:HG2	7:T:39:ARG:NH1	2.35	0.40
10:W:26:VAL:O	10:W:30:PHE:HD1	2.04	0.40
1:A:15:GLN:HE21	2:B:12:GLU:HB2	1.86	0.40
2:B:170:ASN:HD22	2:B:232:LEU:HD23	1.86	0.40
4:D:91:PHE:HA	4:D:92:PRO:HD3	1.97	0.40
3:P:159:ASN:ND2	22:P:3127:HOH:O	2.54	0.40
17:P:3007:PEE:H2	20:T:3004:CDL:OB3	2.21	0.40
1:A:106:LEU:O	1:A:110:VAL:HG23	2.20	0.40
2:B:109:VAL:HB	2:B:119:LEU:HD12	2.03	0.40
2:B:242:GLY:O	2:B:423:SER:HA	2.21	0.40
2:B:365:LYS:HB3	2:B:399:LEU:HD22	2.03	0.40
1:N:121:SER:O	1:N:122:LEU:HB2	2.22	0.40
1:N:307:PHE:CD1	1:N:307:PHE:C	2.94	0.40
4:Q:49:ARG:NH2	5:R:67:ASP:HB3	2.36	0.40
5:R:77:LYS:HB2	5:R:192:MET:HE3	2.02	0.40
2:B:95:LYS:HB2	9:I:32:ALA:HB2	2.02	0.40
2:B:120:MET:HE2	2:B:120:MET:HA	2.04	0.40
2:B:232:LEU:HB3	2:B:235:ALA:HB3	2.04	0.40
2:B:307:PHE:CD1	2:B:307:PHE:C	2.94	0.40
5:E:112:VAL:O	5:E:114:VAL:N	2.54	0.40
3:P:318:ARG:HB3	3:P:373:GLU:OE2	2.21	0.40
9:V:76:VAL:O	9:V:76:VAL:HG13	2.21	0.40
1:A:224:ASP:OD2	1:A:226:ASP:OD1	2.40	0.40
2:B:95:LYS:O	2:B:109:VAL:HA	2.21	0.40
5:E:181:GLU:HG2	5:E:182:VAL:N	2.36	0.40
1:N:146:ARG:O	1:N:149:VAL:HG12	2.21	0.40
3:P:27:ILE:HD12	18:P:3002:ANY:H3	2.03	0.40
3:P:75:TYR:CE2	11:R:4007:JZR:H6	2.56	0.40
4:Q:234:LYS:HD2	5:R:8:PRO:HB2	2.04	0.40
7:T:54:ALA:O	7:T:58:VAL:HG23	2.22	0.40
10:W:29:LEU:HD12	10:W:29:LEU:HA	1.86	0.40
10:W:53:LYS:HE3	10:W:53:LYS:HB2	1.90	0.40

There are no symmetry-related clashes.

5.3 Torsion angles

5.3.1 Protein backbone

In the following table, the Percentiles column shows the percent Ramachandran outliers of the chain as a percentile score with respect to all X-ray entries followed by that with respect to entries of similar resolution.

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	440/446 (99%)	425 (97%)	11 (2%)	4 (1%)	17	12
1	N	440/446 (99%)	425 (97%)	11 (2%)	4 (1%)	17	12
2	B	418/439 (95%)	405 (97%)	10 (2%)	3 (1%)	22	18
2	O	419/439 (95%)	404 (96%)	13 (3%)	2 (0%)	29	26
3	C	363/379 (96%)	352 (97%)	9 (2%)	2 (1%)	25	21
3	P	363/379 (96%)	352 (97%)	10 (3%)	1 (0%)	41	41
4	D	239/241 (99%)	233 (98%)	6 (2%)	0	100	100
4	Q	239/241 (99%)	232 (97%)	7 (3%)	0	100	100
5	E	194/196 (99%)	181 (93%)	10 (5%)	3 (2%)	10	5
5	R	194/196 (99%)	183 (94%)	8 (4%)	3 (2%)	10	5
6	F	97/110 (88%)	96 (99%)	1 (1%)	0	100	100
6	S	97/110 (88%)	94 (97%)	1 (1%)	2 (2%)	7	3
7	G	73/81 (90%)	70 (96%)	3 (4%)	0	100	100
7	T	74/81 (91%)	69 (93%)	5 (7%)	0	100	100
8	H	64/78 (82%)	63 (98%)	1 (2%)	0	100	100
8	U	64/78 (82%)	64 (100%)	0	0	100	100
9	I	39/78 (50%)	37 (95%)	1 (3%)	1 (3%)	5	2
9	V	39/78 (50%)	36 (92%)	2 (5%)	1 (3%)	5	2
10	J	30/62 (48%)	28 (93%)	2 (7%)	0	100	100
10	W	59/62 (95%)	54 (92%)	4 (7%)	1 (2%)	9	4
All	All	3945/4220 (94%)	3803 (96%)	115 (3%)	27 (1%)	22	18

All (27) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	A	224	ASP

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Mol	Chain	Res	Type
3	C	19	ILE
5	E	71	MET
5	E	72	SER
9	I	41	PRO
1	N	224	ASP
2	O	171	ALA
2	O	303	VAL
3	P	19	ILE
5	R	191	ASP
9	V	41	PRO
2	B	171	ALA
2	B	229	GLY
5	E	113	GLU
5	R	189	SER
5	R	190	ASP
6	S	13	LEU
1	A	223	TYR
3	C	18	PHE
1	N	223	TYR
1	A	229	PRO
1	A	442	PHE
1	N	229	PRO
1	N	442	PHE
6	S	14	GLU
10	W	25	VAL
2	B	234	GLY

5.3.2 Protein sidechains [i](#)

In the following table, the Percentiles column shows the percent sidechain outliers of the chain as a percentile score with respect to all X-ray entries followed by that with respect to entries of similar resolution.

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	363/370 (98%)	355 (98%)	8 (2%)	52 57
1	N	363/370 (98%)	357 (98%)	6 (2%)	60 67
2	B	332/343 (97%)	332 (100%)	0	100 100
2	O	328/343 (96%)	328 (100%)	0	100 100

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Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
3	C	312/327 (95%)	304 (97%)	8 (3%)	46	50
3	P	311/327 (95%)	303 (97%)	8 (3%)	46	50
4	D	206/206 (100%)	206 (100%)	0	100	100
4	Q	206/206 (100%)	204 (99%)	2 (1%)	76	82
5	E	165/168 (98%)	164 (99%)	1 (1%)	86	90
5	R	167/168 (99%)	164 (98%)	3 (2%)	59	65
6	F	90/98 (92%)	90 (100%)	0	100	100
6	S	90/98 (92%)	87 (97%)	3 (3%)	38	40
7	G	66/71 (93%)	66 (100%)	0	100	100
7	T	66/71 (93%)	66 (100%)	0	100	100
8	H	63/74 (85%)	63 (100%)	0	100	100
8	U	63/74 (85%)	61 (97%)	2 (3%)	39	41
9	I	27/60 (45%)	26 (96%)	1 (4%)	34	35
9	V	27/60 (45%)	26 (96%)	1 (4%)	34	35
10	J	27/52 (52%)	25 (93%)	2 (7%)	13	10
10	W	51/52 (98%)	49 (96%)	2 (4%)	32	33
All	All	3323/3538 (94%)	3276 (99%)	47 (1%)	67	73

All (47) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	58	PHE
1	A	203	LEU
1	A	210	ASP
1	A	245	GLU
1	A	281	ASP
1	A	305	GLN
1	A	316	ASP
1	A	348	SER
3	C	16	ASN
3	C	21	LEU
3	C	80	ARG
3	C	90	PHE
3	C	128	PHE
3	C	222	PRO
3	C	346	PRO

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Mol	Chain	Res	Type
3	C	379	TRP
5	E	12	ASP
9	I	41	PRO
10	J	30	PHE
10	J	32	GLU
1	N	58	PHE
1	N	203	LEU
1	N	245	GLU
1	N	281	ASP
1	N	316	ASP
1	N	348	SER
3	P	16	ASN
3	P	21	LEU
3	P	80	ARG
3	P	90	PHE
3	P	128	PHE
3	P	222	PRO
3	P	346	PRO
3	P	379	TRP
4	Q	76	GLU
4	Q	169	LEU
5	R	12	ASP
5	R	113	GLU
5	R	191	ASP
6	S	13	LEU
6	S	33	ARG
6	S	58	ARG
8	U	42	GLU
8	U	78	LYS
9	V	41	PRO
10	W	29	LEU
10	W	62	LYS

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (37) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	15	GLN
1	A	136	GLN
1	A	165	GLN
1	A	213	GLN
1	A	271	GLN
1	A	289	HIS

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Mol	Chain	Res	Type
1	A	305	GLN
2	B	22	GLN
2	B	104	ASN
2	B	240	HIS
2	B	305	GLN
2	B	412	ASN
3	C	16	ASN
3	C	159	ASN
3	C	201	HIS
3	C	341	GLN
5	E	57	GLN
6	F	79	GLN
9	I	71	ASN
1	N	136	GLN
1	N	165	GLN
1	N	215	HIS
1	N	271	GLN
1	N	311	ASN
2	O	104	ASN
2	O	218	GLN
2	O	240	HIS
2	O	412	ASN
3	P	16	ASN
3	P	159	ASN
3	P	201	HIS
4	Q	225	HIS
5	R	57	GLN
6	S	38	HIS
6	S	79	GLN
8	U	71	HIS
8	U	75	ASN

5.3.3 RNA ⓘ

There are no RNA molecules in this entry.

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

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

5.5 Carbohydrates [i](#)

There are no monosaccharides in this entry.

5.6 Ligand geometry [i](#)

45 ligands are modelled in this entry.

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

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	# Z > 2	Counts	RMSZ	# Z > 2
11	JZR	S	2011	-	18,18,18	1.78	3 (16%)	23,23,23	0.72	0
12	PO4	P	3013	-	4,4,4	1.35	1 (25%)	6,6,6	0.83	0
14	GOL	O	3009	-	5,5,5	1.12	0	5,5,5	0.49	0
20	CDL	D	2003	-	38,38,99	1.05	1 (2%)	43,47,111	1.04	3 (6%)
20	CDL	P	3003	-	38,38,99	1.02	1 (2%)	43,47,111	1.03	3 (6%)
11	JZR	A	4004	-	18,18,18	1.58	3 (16%)	23,23,23	0.62	0
17	PEE	P	3007	-	48,48,50	1.27	5 (10%)	51,53,55	0.76	2 (3%)
18	ANY	C	2002	-	38,38,41	1.84	11 (28%)	34,52,55	1.70	6 (17%)
11	JZR	F	3011	-	18,18,18	1.79	5 (27%)	23,23,23	0.66	0
13	AZI	C	2005	-	0,2,2	-	-	0,1,1	-	-
14	GOL	C	2008	-	5,5,5	1.40	0	5,5,5	0.74	0
19	HEC	Q	501	4	32,50,50	1.86	3 (9%)	24,82,82	0.94	0
13	AZI	G	4009	-	0,2,2	-	-	0,1,1	-	-
16	SMA	C	2001	-	38,38,38	1.62	9 (23%)	48,52,52	0.85	2 (4%)
14	GOL	B	2009	-	5,5,5	1.17	0	5,5,5	0.55	0
17	PEE	Q	3006	-	50,50,50	1.29	5 (10%)	53,55,55	0.76	2 (3%)
20	CDL	G	2004	-	43,43,99	1.11	3 (6%)	49,55,111	1.21	5 (10%)
13	AZI	P	3005	-	0,2,2	-	-	0,1,1	-	-
11	JZR	F	4001	-	18,18,18	1.84	5 (27%)	23,23,23	0.70	0
13	AZI	O	4010	-	0,2,2	-	-	0,1,1	-	-
17	PEE	D	2006	-	25,25,50	1.49	6 (24%)	28,30,55	0.75	0
19	HEC	D	501	4	32,50,50	1.73	5 (15%)	24,82,82	1.01	1 (4%)
20	CDL	T	3004	-	48,48,99	1.13	4 (8%)	54,60,111	1.15	3 (5%)

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	# Z > 2	Counts	RMSZ	# Z > 2
15	HEM	C	502	3	41,50,50	1.59	7 (17%)	45,82,82	1.26	3 (6%)
18	ANY	P	3002	-	38,38,41	1.84	11 (28%)	34,52,55	1.58	7 (20%)
15	HEM	P	502	3	41,50,50	1.72	6 (14%)	45,82,82	1.32	3 (6%)
11	JZR	C	4002	-	18,18,18	1.86	4 (22%)	23,23,23	0.76	1 (4%)
12	PO4	S	3012	-	4,4,4	1.33	1 (25%)	6,6,6	0.85	0
11	JZR	R	4007	-	18,18,18	1.84	5 (27%)	23,23,23	0.70	0
15	HEM	P	501	3	41,50,50	1.63	5 (12%)	45,82,82	1.33	4 (8%)
14	GOL	R	4005	-	5,5,5	1.26	0	5,5,5	0.55	0
15	HEM	C	501	3	41,50,50	1.55	4 (9%)	45,82,82	1.33	6 (13%)
11	JZR	C	2010	-	18,18,18	1.80	5 (27%)	23,23,23	0.68	0
12	PO4	A	2013	-	4,4,4	1.36	1 (25%)	6,6,6	0.86	0
21	FES	R	501	5	0,4,4	-	-	-	-	-
14	GOL	P	3008	-	5,5,5	1.24	0	5,5,5	0.55	0
17	PEE	C	2007	-	48,48,50	1.25	5 (10%)	51,53,55	0.76	2 (3%)
11	JZR	D	4003	-	18,18,18	1.83	5 (27%)	23,23,23	0.71	0
16	SMA	P	3001	-	38,38,38	1.59	9 (23%)	48,52,52	0.85	2 (4%)
13	AZI	A	4011	-	0,2,2	-	-	0,1,1	-	-
11	JZR	P	3010	-	18,18,18	1.81	6 (33%)	23,23,23	0.69	0
12	PO4	C	4008	-	4,4,4	1.40	1 (25%)	6,6,6	0.85	0
12	PO4	F	2012	-	4,4,4	1.28	1 (25%)	6,6,6	0.86	0
14	GOL	C	4006	-	5,5,5	1.27	0	5,5,5	0.60	0
21	FES	E	501	5	0,4,4	-	-	-	-	-

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
11	JZR	S	2011	-	-	5/9/29/29	0/1/1/1
14	GOL	O	3009	-	-	4/4/4/4	-
20	CDL	D	2003	-	-	19/43/43/110	-
20	CDL	P	3003	-	-	26/43/43/110	-
11	JZR	A	4004	-	-	0/9/29/29	0/1/1/1
17	PEE	P	3007	-	-	19/52/52/54	-
18	ANY	C	2002	-	-	2/37/52/56	0/1/2/2
11	JZR	F	3011	-	-	3/9/29/29	0/1/1/1

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Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
14	GOL	C	2008	-	-	4/4/4/4	-
19	HEC	Q	501	4	-	4/10/54/54	-
16	SMA	C	2001	-	-	2/34/34/34	0/2/2/2
14	GOL	B	2009	-	-	2/4/4/4	-
17	PEE	Q	3006	-	-	24/54/54/54	-
20	CDL	G	2004	-	-	36/52/52/110	-
11	JZR	F	4001	-	-	2/9/29/29	0/1/1/1
17	PEE	D	2006	-	-	19/29/29/54	-
19	HEC	D	501	4	-	4/10/54/54	-
20	CDL	T	3004	-	-	28/57/57/110	-
15	HEM	C	502	3	-	4/12/54/54	-
18	ANY	P	3002	-	1/1/10/13	3/37/52/56	0/1/2/2
15	HEM	P	502	3	-	4/12/54/54	-
11	JZR	C	4002	-	-	3/9/29/29	0/1/1/1
11	JZR	R	4007	-	-	2/9/29/29	0/1/1/1
15	HEM	P	501	3	-	5/12/54/54	-
14	GOL	R	4005	-	-	2/4/4/4	-
15	HEM	C	501	3	-	5/12/54/54	-
11	JZR	C	2010	-	-	4/9/29/29	0/1/1/1
21	FES	R	501	5	-	-	0/1/1/1
14	GOL	P	3008	-	-	2/4/4/4	-
17	PEE	C	2007	-	-	20/52/52/54	-
11	JZR	D	4003	-	-	4/9/29/29	0/1/1/1
16	SMA	P	3001	-	-	0/34/34/34	0/2/2/2
11	JZR	P	3010	-	-	4/9/29/29	0/1/1/1
14	GOL	C	4006	-	-	3/4/4/4	-
21	FES	E	501	5	-	-	0/1/1/1

All (146) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
19	Q	501	HEC	C3C-C2C	-6.52	1.33	1.40
19	Q	501	HEC	C2B-C3B	-5.66	1.34	1.40
15	P	502	HEM	CBB-CAB	5.33	1.56	1.30
15	P	501	HEM	CBB-CAB	5.27	1.56	1.30
18	P	3002	ANY	C8-N1	4.94	1.40	1.34
19	D	501	HEC	C3C-C2C	-4.90	1.35	1.40

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
19	D	501	HEC	C2B-C3B	-4.84	1.35	1.40
11	C	4002	JZR	O1-C1	4.81	1.48	1.40
11	S	2011	JZR	O1-C1	4.80	1.48	1.40
11	D	4003	JZR	O1-C1	4.76	1.48	1.40
11	F	4001	JZR	O1-C1	4.70	1.48	1.40
11	C	2010	JZR	O1-C1	4.66	1.48	1.40
11	R	4007	JZR	O1-C1	4.66	1.48	1.40
15	C	502	HEM	CBB-CAB	4.56	1.52	1.30
18	C	2002	ANY	C2-C1	4.54	1.47	1.40
11	P	3010	JZR	O1-C1	4.53	1.47	1.40
11	F	3011	JZR	O1-C1	4.50	1.47	1.40
15	C	501	HEM	CBB-CAB	4.42	1.52	1.30
18	C	2002	ANY	C8-N1	4.27	1.40	1.34
18	P	3002	ANY	C2-C1	4.24	1.46	1.40
15	P	502	HEM	C3C-CAC	-4.18	1.39	1.47
17	P	3007	PEE	C39-C38	4.04	1.55	1.31
15	C	501	HEM	CBC-CAC	4.02	1.56	1.29
17	C	2007	PEE	C39-C38	4.00	1.54	1.31
17	Q	3006	PEE	C39-C38	3.99	1.54	1.31
15	C	501	HEM	C3C-CAC	-3.91	1.39	1.47
15	P	501	HEM	C3C-CAC	-3.90	1.39	1.47
16	P	3001	SMA	O1-C2	3.86	1.41	1.36
15	P	501	HEM	CBC-CAC	3.78	1.54	1.29
16	C	2001	SMA	O1-C2	3.78	1.40	1.36
15	C	502	HEM	CBC-CAC	3.78	1.54	1.29
15	P	502	HEM	CBC-CAC	3.75	1.54	1.29
18	C	2002	ANY	C3-C2	3.56	1.45	1.39
18	P	3002	ANY	C12-C11	3.51	1.60	1.52
18	C	2002	ANY	C12-C11	3.51	1.60	1.52
19	D	501	HEC	C3C-C4C	3.49	1.49	1.43
18	P	3002	ANY	C3-C2	3.49	1.45	1.39
15	C	502	HEM	C3C-CAC	-3.41	1.40	1.47
11	S	2011	JZR	O5-C1	3.41	1.50	1.41
11	F	3011	JZR	O5-C1	3.40	1.50	1.41
15	P	502	HEM	CAB-C3B	-3.39	1.38	1.47
16	C	2001	SMA	C7-C8	3.35	1.44	1.40
11	R	4007	JZR	O5-C1	3.34	1.50	1.41
11	D	4003	JZR	O5-C1	3.32	1.50	1.41
11	A	4004	JZR	O1-C1	3.31	1.45	1.40
16	P	3001	SMA	C7-C8	3.26	1.44	1.40
11	C	4002	JZR	O5-C1	3.26	1.50	1.41
11	F	4001	JZR	O5-C1	3.26	1.50	1.41

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
11	C	2010	JZR	O5-C1	3.22	1.50	1.41
17	C	2007	PEE	O3-C30	3.16	1.42	1.33
16	C	2001	SMA	C4A-C5	3.13	1.46	1.40
16	P	3001	SMA	C6-C5	3.12	1.44	1.38
11	A	4004	JZR	O5-C1	3.09	1.49	1.41
18	P	3002	ANY	C13-C12	3.09	1.59	1.53
11	P	3010	JZR	O5-C1	3.09	1.49	1.41
19	Q	501	HEC	C3C-C4C	3.07	1.48	1.43
16	P	3001	SMA	C6-C7	3.05	1.44	1.38
16	C	2001	SMA	C6-C7	3.05	1.44	1.38
17	Q	3006	PEE	O3-C30	3.03	1.42	1.33
17	Q	3006	PEE	C21-C22	-2.99	1.34	1.51
17	P	3007	PEE	O3-C30	2.98	1.42	1.33
17	D	2006	PEE	P-O1P	2.97	1.61	1.50
17	C	2007	PEE	C21-C22	-2.97	1.34	1.51
18	C	2002	ANY	C10-C9	2.96	1.60	1.53
17	P	3007	PEE	C21-C22	-2.95	1.35	1.51
17	Q	3006	PEE	P-O1P	2.95	1.61	1.50
17	P	3007	PEE	P-O1P	2.94	1.61	1.50
15	P	501	HEM	CAB-C3B	-2.93	1.39	1.47
17	P	3007	PEE	O2-C10	2.91	1.42	1.34
15	P	502	HEM	C1A-NA	2.90	1.42	1.36
17	D	2006	PEE	O2-C10	2.90	1.42	1.34
15	C	501	HEM	CAB-C3B	-2.87	1.39	1.47
17	Q	3006	PEE	O2-C10	2.83	1.42	1.34
16	P	3001	SMA	C4A-C5	2.82	1.45	1.40
18	C	2002	ANY	C13-C12	2.74	1.58	1.53
18	P	3002	ANY	C7-N2	2.74	1.40	1.34
11	A	4004	JZR	C4-C5	2.73	1.58	1.53
16	C	2001	SMA	C20-C19	2.72	1.35	1.33
16	C	2001	SMA	C6-C5	2.71	1.43	1.38
17	C	2007	PEE	O2-C10	2.71	1.42	1.34
17	D	2006	PEE	O3-C30	2.67	1.41	1.33
11	C	4002	JZR	C4-C5	2.64	1.58	1.53
16	P	3001	SMA	C8-C8A	2.63	1.43	1.39
18	C	2002	ANY	O8-C21	2.62	1.40	1.34
18	C	2002	ANY	O5-C14	2.61	1.40	1.34
11	P	3010	JZR	C4-C5	2.60	1.58	1.53
15	C	502	HEM	CAB-C3B	-2.59	1.40	1.47
11	R	4007	JZR	C4-C5	2.57	1.58	1.53
15	C	502	HEM	C3C-C2C	-2.54	1.36	1.40
17	C	2007	PEE	P-O1P	2.47	1.59	1.50

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
11	F	4001	JZR	C4-C5	2.47	1.58	1.53
16	C	2001	SMA	C3-C2	2.46	1.39	1.34
12	C	4008	PO4	P-O1	2.44	1.56	1.50
16	P	3001	SMA	C20-C19	2.44	1.35	1.33
11	F	3011	JZR	C4-C5	2.40	1.58	1.53
15	P	501	HEM	C4A-NA	2.40	1.41	1.36
11	D	4003	JZR	C4-C5	2.39	1.58	1.53
18	C	2002	ANY	C5-C6	2.39	1.43	1.39
20	T	3004	CDL	O1-C1	2.38	1.50	1.43
20	T	3004	CDL	OB8-CB6	-2.36	1.39	1.45
16	C	2001	SMA	C4A-C8A	2.35	1.46	1.40
20	G	2004	CDL	O1-C1	2.35	1.50	1.43
18	P	3002	ANY	O5-C14	2.34	1.39	1.34
18	P	3002	ANY	O8-C21	2.33	1.39	1.34
12	A	2013	PO4	P-O1	2.33	1.56	1.50
11	C	4002	JZR	O5-C5	2.32	1.50	1.44
17	D	2006	PEE	C3-C2	2.32	1.57	1.50
18	P	3002	ANY	C5-C6	2.32	1.43	1.39
11	S	2011	JZR	O5-C5	2.32	1.50	1.44
12	S	3012	PO4	P-O1	2.31	1.56	1.50
11	R	4007	JZR	O5-C5	2.31	1.49	1.44
12	P	3013	PO4	P-O1	2.30	1.56	1.50
18	P	3002	ANY	C10-C9	2.28	1.58	1.53
11	D	4003	JZR	O5-C5	2.28	1.49	1.44
18	C	2002	ANY	C7-N2	2.27	1.39	1.34
20	D	2003	CDL	O1-C1	2.24	1.50	1.43
12	F	2012	PO4	P-O1	2.22	1.56	1.50
11	F	4001	JZR	O5-C5	2.21	1.49	1.44
16	C	2001	SMA	C8-C8A	2.20	1.43	1.39
20	T	3004	CDL	OA8-CA6	-2.19	1.40	1.45
19	D	501	HEC	C4B-C3B	2.19	1.47	1.43
11	C	2010	JZR	C4-C5	2.18	1.57	1.53
19	D	501	HEC	C3A-C4A	2.15	1.47	1.42
11	F	3011	JZR	O5-C5	2.14	1.49	1.44
18	P	3002	ANY	C6-C1	2.14	1.45	1.41
20	P	3003	CDL	O1-C1	2.14	1.49	1.43
11	C	2010	JZR	O5-C5	2.14	1.49	1.44
15	P	502	HEM	CHA-C4D	2.12	1.40	1.35
11	P	3010	JZR	C1-C2	2.12	1.58	1.52
11	P	3010	JZR	O5-C5	2.10	1.49	1.44
17	D	2006	PEE	C1-C2	2.10	1.57	1.50
20	G	2004	CDL	OA8-CA6	-2.09	1.40	1.45

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
16	P	3001	SMA	C3-C2	2.08	1.38	1.34
20	G	2004	CDL	OB8-CB6	-2.07	1.40	1.45
11	F	3011	JZR	C1-C2	2.07	1.58	1.52
17	D	2006	PEE	C31-C30	2.07	1.56	1.50
11	F	4001	JZR	C1-C2	2.05	1.58	1.52
11	P	3010	JZR	C4-C3	2.04	1.57	1.52
15	C	502	HEM	C3B-C4B	2.03	1.48	1.44
11	C	2010	JZR	C1-C2	2.03	1.58	1.52
18	C	2002	ANY	C6-C1	2.03	1.44	1.41
11	R	4007	JZR	C1-C2	2.02	1.58	1.52
20	T	3004	CDL	CB3-CB4	2.02	1.56	1.50
16	P	3001	SMA	O5-C5	2.01	1.40	1.37
15	C	502	HEM	C1A-NA	2.01	1.40	1.36
11	D	4003	JZR	C1-C2	2.00	1.58	1.52

All (55) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
18	C	2002	ANY	C25-C22-C23	5.11	133.03	111.69
15	P	502	HEM	C4C-CHD-C1D	4.90	129.02	122.56
20	T	3004	CDL	CB4-OB6-CB5	-4.33	109.82	117.90
15	C	502	HEM	C4C-CHD-C1D	4.28	128.21	122.56
18	P	3002	ANY	C23-C22-C21	3.97	123.05	111.02
20	G	2004	CDL	CB4-OB6-CB5	-3.82	110.77	117.90
15	P	501	HEM	C4C-CHD-C1D	3.81	127.59	122.56
15	P	501	HEM	C4B-CHC-C1C	3.66	127.38	122.56
15	P	502	HEM	C4B-CHC-C1C	3.60	127.30	122.56
18	C	2002	ANY	O5-C14-O6	-3.58	119.58	124.08
15	C	501	HEM	C4B-CHC-C1C	3.56	127.25	122.56
18	P	3002	ANY	O5-C14-O6	-3.49	119.69	124.08
16	P	3001	SMA	C9-C10-C11	-3.21	108.65	114.52
18	C	2002	ANY	O2-C8-N1	-3.12	121.82	125.80
17	Q	3006	PEE	C22-C21-C20	3.11	127.32	113.79
20	T	3004	CDL	CA4-OA6-CA5	-3.00	110.42	117.79
18	P	3002	ANY	O2-C8-N1	-2.98	121.99	125.80
17	P	3007	PEE	C22-C21-C20	2.90	126.44	113.79
16	C	2001	SMA	C9-C10-C11	-2.89	109.23	114.52
15	C	502	HEM	C4B-CHC-C1C	2.89	126.37	122.56
17	C	2007	PEE	C22-C21-C20	2.88	126.32	113.79
15	C	501	HEM	C4C-CHD-C1D	2.86	126.33	122.56
18	C	2002	ANY	C25-C22-C21	2.76	119.39	111.02
20	G	2004	CDL	CA4-OA6-CA5	-2.74	111.06	117.79

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
18	P	3002	ANY	C25-C22-C23	2.72	123.05	111.69
16	C	2001	SMA	C4A-C4-C3	-2.72	114.79	118.79
20	G	2004	CDL	CA6-CA4-CA3	-2.66	105.50	111.79
15	C	501	HEM	C4A-C3A-C2A	-2.65	105.15	107.00
19	D	501	HEC	CMB-C2B-C3B	-2.64	122.72	125.82
17	C	2007	PEE	C21-C22-C23	2.62	127.74	114.42
17	P	3007	PEE	C21-C22-C23	2.61	127.67	114.42
15	P	501	HEM	C4A-C3A-C2A	-2.60	105.19	107.00
15	C	502	HEM	C4B-C3B-C2B	-2.59	105.06	107.11
20	P	3003	CDL	CB6-CB4-CB3	-2.58	105.68	111.79
20	D	2003	CDL	CB4-OB6-CB5	-2.58	111.44	117.79
15	C	501	HEM	C2D-C1D-ND	2.52	112.90	109.88
20	D	2003	CDL	CB6-CB4-CB3	-2.49	105.89	111.79
16	P	3001	SMA	C4A-C4-C3	-2.41	115.25	118.79
20	P	3003	CDL	CB4-OB6-CB5	-2.39	111.90	117.79
18	P	3002	ANY	O4-C20-O7	-2.37	121.09	124.08
15	P	502	HEM	C4B-C3B-C2B	-2.29	105.29	107.11
18	C	2002	ANY	O8-C21-O9	-2.29	119.67	123.94
15	P	501	HEM	CMD-C2D-C1D	2.28	128.52	125.04
20	D	2003	CDL	OA4-PA1-OA2	2.28	112.81	106.73
18	P	3002	ANY	O8-C21-O9	-2.26	119.72	123.94
11	C	4002	JZR	C1'-O1-C1	2.26	117.58	113.84
20	G	2004	CDL	CB6-CB4-CB3	-2.25	106.47	111.79
17	Q	3006	PEE	C21-C22-C23	2.23	125.74	114.42
20	T	3004	CDL	CB6-OB8-CB7	-2.20	111.57	117.10
18	C	2002	ANY	C23-C22-C21	-2.17	104.43	111.02
20	G	2004	CDL	CB6-OB8-CB7	-2.13	111.76	117.10
15	C	501	HEM	CMD-C2D-C1D	2.12	128.27	125.04
20	P	3003	CDL	OA4-PA1-OA2	2.09	112.30	106.73
15	C	501	HEM	C4D-ND-C1D	-2.07	102.94	105.07
18	P	3002	ANY	O7-C20-C9	2.04	130.37	124.72

All (1) chirality outliers are listed below:

Mol	Chain	Res	Type	Atom
18	P	3002	ANY	C22

All (268) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
14	C	2008	GOL	C1-C2-C3-O3
14	O	3009	GOL	O1-C1-C2-C3

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Mol	Chain	Res	Type	Atoms
14	O	3009	GOL	C1-C2-C3-O3
14	P	3008	GOL	O1-C1-C2-C3
14	R	4005	GOL	O1-C1-C2-C3
17	C	2007	PEE	C4-O4P-P-O1P
17	D	2006	PEE	C2-C1-O3P-P
17	D	2006	PEE	C4-O4P-P-O3P
17	D	2006	PEE	C4-O4P-P-O2P
17	D	2006	PEE	C4-O4P-P-O1P
17	P	3007	PEE	C4-O4P-P-O1P
17	Q	3006	PEE	C4-O4P-P-O3P
17	Q	3006	PEE	C4-O4P-P-O2P
17	Q	3006	PEE	C4-O4P-P-O1P
17	Q	3006	PEE	O4P-C4-C5-N
20	D	2003	CDL	CA2-OA2-PA1-OA4
20	D	2003	CDL	CA2-OA2-PA1-OA5
20	D	2003	CDL	CB2-OB2-PB2-OB3
20	D	2003	CDL	CB2-OB2-PB2-OB4
20	D	2003	CDL	OB5-CB3-CB4-OB6
20	G	2004	CDL	O1-C1-CB2-OB2
20	G	2004	CDL	CA2-C1-CB2-OB2
20	G	2004	CDL	CA2-OA2-PA1-OA3
20	G	2004	CDL	CA2-OA2-PA1-OA4
20	G	2004	CDL	CA2-OA2-PA1-OA5
20	G	2004	CDL	C11-CA5-OA6-CA4
20	G	2004	CDL	C51-CB5-OB6-CB4
20	P	3003	CDL	CA2-C1-CB2-OB2
20	P	3003	CDL	CA2-OA2-PA1-OA3
20	P	3003	CDL	CA2-OA2-PA1-OA5
20	P	3003	CDL	OB6-CB4-CB6-OB8
20	T	3004	CDL	O1-C1-CA2-OA2
20	T	3004	CDL	O1-C1-CB2-OB2
20	T	3004	CDL	CB2-OB2-PB2-OB3
20	T	3004	CDL	CB2-OB2-PB2-OB5
20	T	3004	CDL	C51-CB5-OB6-CB4
20	G	2004	CDL	C71-CB7-OB8-CB6
20	T	3004	CDL	OB7-CB5-OB6-CB4
20	G	2004	CDL	OA7-CA5-OA6-CA4
20	T	3004	CDL	OA9-CA7-OA8-CA6
20	G	2004	CDL	OB7-CB5-OB6-CB4
20	G	2004	CDL	OB9-CB7-OB8-CB6
17	C	2007	PEE	C37-C38-C39-C40
17	P	3007	PEE	C37-C38-C39-C40

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Mol	Chain	Res	Type	Atoms
17	Q	3006	PEE	C17-C18-C19-C20
17	D	2006	PEE	O5-C30-O3-C3
20	P	3003	CDL	O1-C1-CB2-OB2
17	D	2006	PEE	C31-C30-O3-C3
20	T	3004	CDL	C31-CA7-OA8-CA6
20	T	3004	CDL	C71-CB7-OB8-CB6
20	G	2004	CDL	C31-CA7-OA8-CA6
11	S	2011	JZR	C4-C5-C6-O6
17	C	2007	PEE	C21-C22-C23-C24
17	P	3007	PEE	C21-C22-C23-C24
20	G	2004	CDL	CA7-C31-C32-C33
20	T	3004	CDL	C11-CA5-OA6-CA4
17	C	2007	PEE	C10-C11-C12-C13
17	P	3007	PEE	C10-C11-C12-C13
20	T	3004	CDL	OB9-CB7-OB8-CB6
14	O	3009	GOL	O1-C1-C2-O2
14	O	3009	GOL	O2-C2-C3-O3
17	Q	3006	PEE	C10-C11-C12-C13
17	Q	3006	PEE	C30-C31-C32-C33
20	T	3004	CDL	CA5-C11-C12-C13
11	F	3011	JZR	O1-C1'-C2'-C3'
11	D	4003	JZR	O5-C5-C6-O6
11	P	3010	JZR	O1-C1'-C2'-C3'
20	G	2004	CDL	OA9-CA7-OA8-CA6
11	D	4003	JZR	O1-C1'-C2'-C3'
17	Q	3006	PEE	C37-C38-C39-C40
11	S	2011	JZR	O5-C5-C6-O6
20	D	2003	CDL	CB2-OB2-PB2-OB5
20	G	2004	CDL	CB2-OB2-PB2-OB5
20	T	3004	CDL	CB2-C1-CA2-OA2
20	T	3004	CDL	CA2-C1-CB2-OB2
20	T	3004	CDL	OA7-CA5-OA6-CA4
11	P	3010	JZR	O5-C5-C6-O6
17	C	2007	PEE	C12-C13-C14-C15
17	P	3007	PEE	C12-C13-C14-C15
20	T	3004	CDL	C11-C12-C13-C14
11	D	4003	JZR	C2'-C3'-C4'-C5'
20	D	2003	CDL	C78-C79-C80-C81
17	C	2007	PEE	C41-C42-C43-C44
20	T	3004	CDL	C13-C14-C15-C16
17	P	3007	PEE	C41-C42-C43-C44
17	Q	3006	PEE	C43-C44-C45-C46

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Mol	Chain	Res	Type	Atoms
20	P	3003	CDL	C77-C78-C79-C80
20	T	3004	CDL	C32-C33-C34-C35
14	B	2009	GOL	C1-C2-C3-O3
14	C	2008	GOL	O1-C1-C2-C3
14	C	4006	GOL	O1-C1-C2-C3
14	C	4006	GOL	C1-C2-C3-O3
20	D	2003	CDL	C51-CB5-OB6-CB4
17	C	2007	PEE	C20-C21-C22-C23
17	C	2007	PEE	C19-C20-C21-C22
17	P	3007	PEE	C19-C20-C21-C22
11	C	4002	JZR	C2'-C3'-C4'-C5'
17	P	3007	PEE	C20-C21-C22-C23
17	Q	3006	PEE	C42-C43-C44-C45
20	D	2003	CDL	C73-C74-C75-C76
17	Q	3006	PEE	C40-C41-C42-C43
20	T	3004	CDL	C31-C32-C33-C34
20	D	2003	CDL	CB3-CB4-CB6-OB8
17	Q	3006	PEE	C13-C14-C15-C16
17	C	2007	PEE	C33-C34-C35-C36
14	B	2009	GOL	O2-C2-C3-O3
14	C	2008	GOL	O1-C1-C2-O2
14	C	2008	GOL	O2-C2-C3-O3
14	C	4006	GOL	O2-C2-C3-O3
14	R	4005	GOL	O1-C1-C2-O2
17	Q	3006	PEE	C22-C23-C24-C25
17	Q	3006	PEE	C35-C36-C37-C38
20	P	3003	CDL	C73-C74-C75-C76
20	D	2003	CDL	OB7-CB5-OB6-CB4
17	P	3007	PEE	C33-C34-C35-C36
17	Q	3006	PEE	C34-C35-C36-C37
20	P	3003	CDL	C72-C73-C74-C75
20	T	3004	CDL	C34-C35-C36-C37
17	C	2007	PEE	C22-C23-C24-C25
17	P	3007	PEE	C22-C23-C24-C25
20	P	3003	CDL	CB5-C51-C52-C53
20	P	3003	CDL	CB7-C71-C72-C73
20	P	3003	CDL	C78-C79-C80-C81
17	Q	3006	PEE	C23-C24-C25-C26
20	D	2003	CDL	CB7-C71-C72-C73
11	C	2010	JZR	C1'-C2'-C3'-C4'
11	D	4003	JZR	C1'-C2'-C3'-C4'
11	R	4007	JZR	C1'-C2'-C3'-C4'

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Mol	Chain	Res	Type	Atoms
17	P	3007	PEE	C13-C14-C15-C16
17	D	2006	PEE	C11-C10-O2-C2
17	C	2007	PEE	C13-C14-C15-C16
17	D	2006	PEE	O4-C10-O2-C2
17	Q	3006	PEE	C15-C16-C17-C18
11	C	4002	JZR	O5-C5-C6-O6
11	F	4001	JZR	C1'-C2'-C3'-C4'
20	G	2004	CDL	CA3-OA5-PA1-OA2
11	P	3010	JZR	C1'-C2'-C3'-C4'
20	G	2004	CDL	OA5-CA3-CA4-CA6
20	G	2004	CDL	OB5-CB3-CB4-CB6
20	P	3003	CDL	OB5-CB3-CB4-CB6
11	S	2011	JZR	C1'-C2'-C3'-C4'
17	Q	3006	PEE	C20-C21-C22-C23
20	P	3003	CDL	CB3-CB4-CB6-OB8
14	P	3008	GOL	O1-C1-C2-O2
17	C	2007	PEE	C35-C36-C37-C38
17	P	3007	PEE	C35-C36-C37-C38
11	C	4002	JZR	C3'-C4'-C5'-C6'
20	P	3003	CDL	C51-C52-C53-C54
20	D	2003	CDL	CA2-OA2-PA1-OA3
17	D	2006	PEE	C33-C34-C35-C36
20	D	2003	CDL	C72-C73-C74-C75
17	Q	3006	PEE	C39-C40-C41-C42
11	P	3010	JZR	C2'-C3'-C4'-C5'
17	P	3007	PEE	C23-C24-C25-C26
20	D	2003	CDL	OB5-CB3-CB4-CB6
17	C	2007	PEE	C23-C24-C25-C26
20	G	2004	CDL	C35-C36-C37-C38
20	G	2004	CDL	C34-C35-C36-C37
20	T	3004	CDL	CA3-CA4-CA6-OA8
17	D	2006	PEE	C32-C33-C34-C35
20	P	3003	CDL	OB5-CB3-CB4-OB6
20	T	3004	CDL	OB5-CB3-CB4-OB6
18	P	3002	ANY	C16-C17-C18-C19
20	D	2003	CDL	C76-C77-C78-C79
11	C	2010	JZR	C4-C5-C6-O6
20	G	2004	CDL	OA6-CA4-CA6-OA8
18	P	3002	ANY	C15-C16-C17-C18
17	Q	3006	PEE	C44-C45-C46-C47
20	G	2004	CDL	CA3-CA4-CA6-OA8
17	Q	3006	PEE	O3P-C1-C2-O2

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Mol	Chain	Res	Type	Atoms
20	G	2004	CDL	OA5-CA3-CA4-OA6
20	G	2004	CDL	OB5-CB3-CB4-OB6
17	D	2006	PEE	C10-C11-C12-C13
20	P	3003	CDL	OB7-CB5-OB6-CB4
11	F	3011	JZR	C1'-C2'-C3'-C4'
17	D	2006	PEE	C1-O3P-P-O4P
17	D	2006	PEE	C1-O3P-P-O2P
20	G	2004	CDL	CA3-OA5-PA1-OA3
20	G	2004	CDL	CB2-OB2-PB2-OB3
20	G	2004	CDL	CB3-OB5-PB2-OB3
20	T	3004	CDL	CA2-OA2-PA1-OA3
17	D	2006	PEE	O3P-C1-C2-C3
20	T	3004	CDL	OB5-CB3-CB4-CB6
20	P	3003	CDL	C51-CB5-OB6-CB4
20	G	2004	CDL	C33-C34-C35-C36
17	D	2006	PEE	O3P-C1-C2-O2
20	D	2003	CDL	OB6-CB4-CB6-OB8
20	T	3004	CDL	OA6-CA4-CA6-OA8
20	G	2004	CDL	CA4-CA3-OA5-PA1
11	S	2011	JZR	O1-C1'-C2'-C3'
20	P	3003	CDL	C75-C76-C77-C78
17	D	2006	PEE	C3-C2-O2-C10
11	F	3011	JZR	C3'-C4'-C5'-C6'
17	P	3007	PEE	C38-C39-C40-C41
17	C	2007	PEE	C4-O4P-P-O3P
20	P	3003	CDL	CB2-OB2-PB2-OB5
20	P	3003	CDL	CB3-OB5-PB2-OB2
20	D	2003	CDL	CB5-C51-C52-C53
17	C	2007	PEE	C38-C39-C40-C41
20	G	2004	CDL	C12-C11-CA5-OA6
17	C	2007	PEE	C16-C17-C18-C19
15	C	501	HEM	CAD-CBD-CGD-O1D
17	P	3007	PEE	C16-C17-C18-C19
17	Q	3006	PEE	O3P-C1-C2-C3
20	D	2003	CDL	C71-C72-C73-C74
15	C	502	HEM	CAA-CBA-CGA-O1A
11	C	2010	JZR	O5-C5-C6-O6
15	P	502	HEM	CAA-CBA-CGA-O1A
15	P	501	HEM	CAD-CBD-CGD-O1D
15	C	502	HEM	CAA-CBA-CGA-O2A
15	P	502	HEM	CAA-CBA-CGA-O2A
19	Q	501	HEC	CAD-CBD-CGD-O1D

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Mol	Chain	Res	Type	Atoms
17	C	2007	PEE	C42-C43-C44-C45
16	C	2001	SMA	C9-C10-C11-C22
20	G	2004	CDL	O1-C1-CA2-OA2
11	F	4001	JZR	C2'-C3'-C4'-C5'
17	P	3007	PEE	C42-C43-C44-C45
15	P	501	HEM	CAD-CBD-CGD-O2D
20	G	2004	CDL	C12-C11-CA5-OA7
17	Q	3006	PEE	C36-C37-C38-C39
15	C	501	HEM	CAD-CBD-CGD-O2D
17	D	2006	PEE	C30-C31-C32-C33
19	D	501	HEC	CAD-CBD-CGD-O1D
11	S	2011	JZR	C2'-C3'-C4'-C5'
15	C	502	HEM	CAD-CBD-CGD-O2D
11	C	2010	JZR	C2'-C3'-C4'-C5'
15	P	502	HEM	CAD-CBD-CGD-O2D
19	D	501	HEC	CAA-CBA-CGA-O2A
19	Q	501	HEC	CAA-CBA-CGA-O2A
11	R	4007	JZR	C3'-C4'-C5'-C6'
19	Q	501	HEC	CAD-CBD-CGD-O2D
15	C	501	HEM	CAA-CBA-CGA-O2A
20	P	3003	CDL	CA2-OA2-PA1-OA4
15	C	501	HEM	CAA-CBA-CGA-O1A
19	D	501	HEC	CAA-CBA-CGA-O1A
15	C	502	HEM	CAD-CBD-CGD-O1D
19	Q	501	HEC	CAA-CBA-CGA-O1A
15	P	501	HEM	CAA-CBA-CGA-O2A
19	D	501	HEC	CAD-CBD-CGD-O2D
20	G	2004	CDL	C32-C31-CA7-OA8
17	P	3007	PEE	C36-C37-C38-C39
15	C	501	HEM	C3D-CAD-CBD-CGD
15	P	501	HEM	C3D-CAD-CBD-CGD
15	P	502	HEM	CAD-CBD-CGD-O1D
17	C	2007	PEE	O3-C30-C31-C32
15	P	501	HEM	CAA-CBA-CGA-O1A
18	C	2002	ANY	C9-C10-O5-C14
18	P	3002	ANY	C9-C10-O5-C14
17	P	3007	PEE	O3-C30-C31-C32
20	P	3003	CDL	C72-C71-CB7-OB8
20	T	3004	CDL	C32-C31-CA7-OA8
18	C	2002	ANY	C16-C17-C18-C19
20	T	3004	CDL	C12-C13-C14-C15
20	P	3003	CDL	C71-C72-C73-C74

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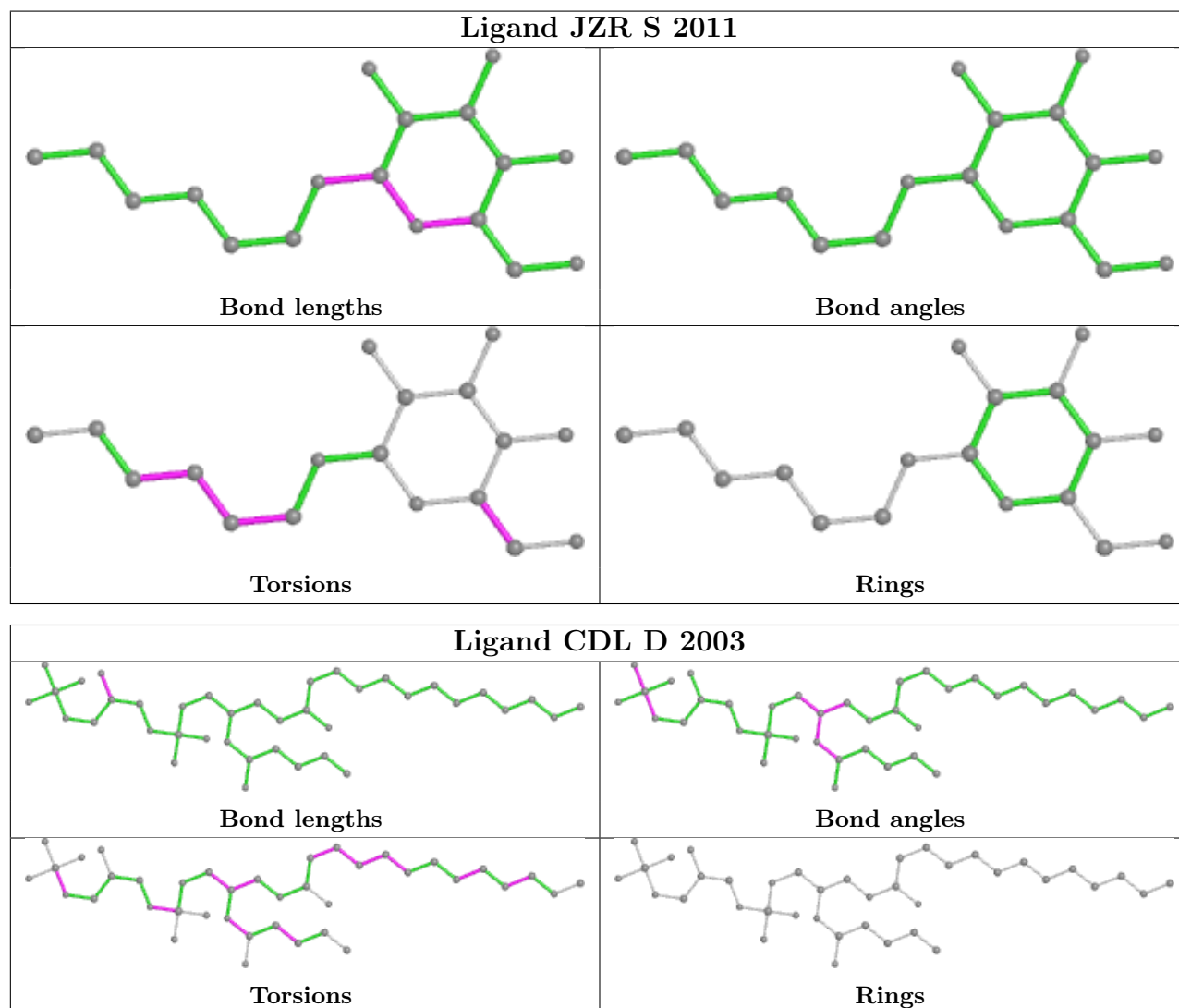
Mol	Chain	Res	Type	Atoms
20	G	2004	CDL	C32-C31-CA7-OA9
17	C	2007	PEE	C36-C37-C38-C39
17	Q	3006	PEE	C31-C32-C33-C34
17	D	2006	PEE	C1-O3P-P-O1P
20	G	2004	CDL	CA3-OA5-PA1-OA4
20	G	2004	CDL	CB2-OB2-PB2-OB4
20	P	3003	CDL	CB2-OB2-PB2-OB3
20	P	3003	CDL	CB3-OB5-PB2-OB3
17	C	2007	PEE	O5-C30-C31-C32
16	C	2001	SMA	C16-C17-C18-C19
17	D	2006	PEE	C5-C4-O4P-P
17	P	3007	PEE	O5-C30-C31-C32
20	P	3003	CDL	C72-C71-CB7-OB9
20	T	3004	CDL	C32-C31-CA7-OA9

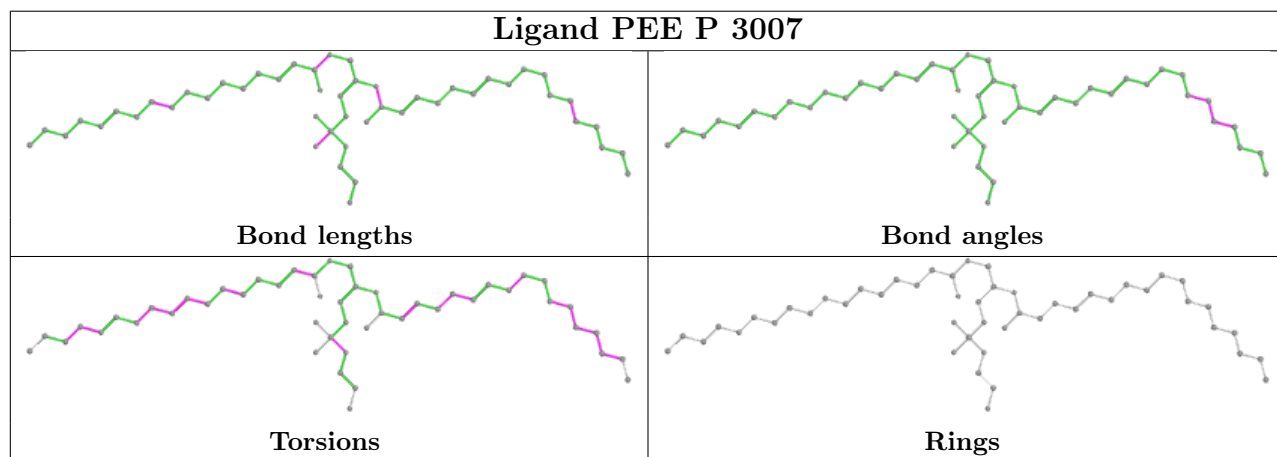
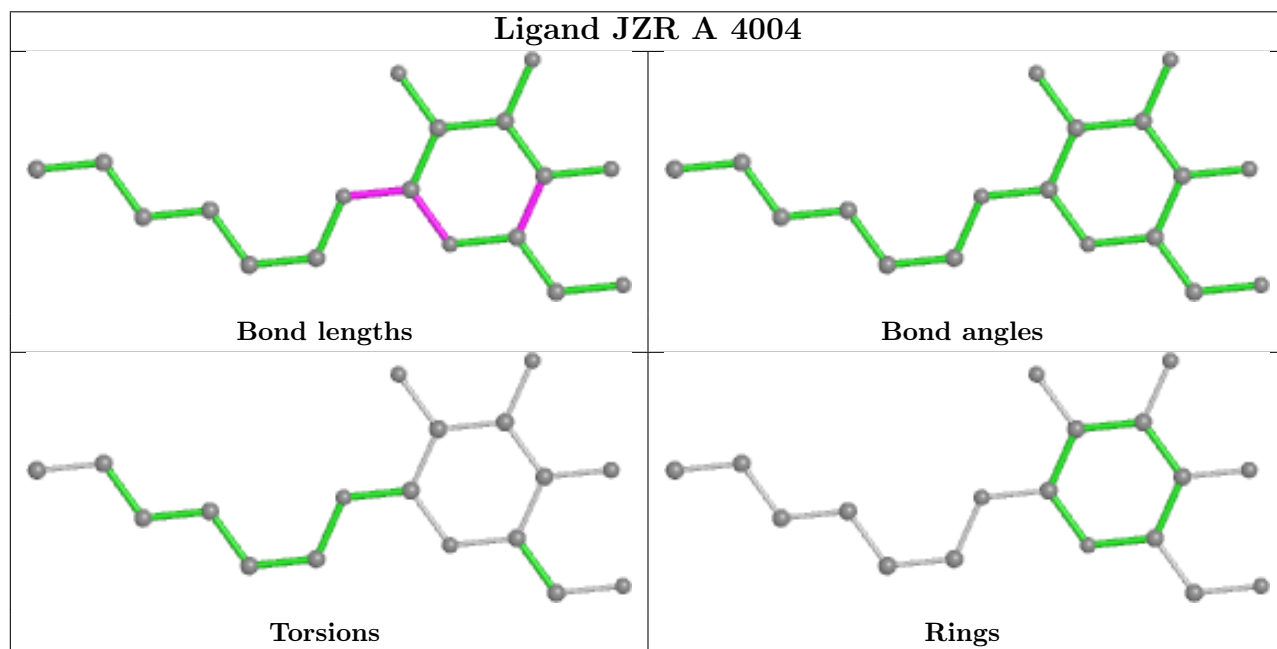
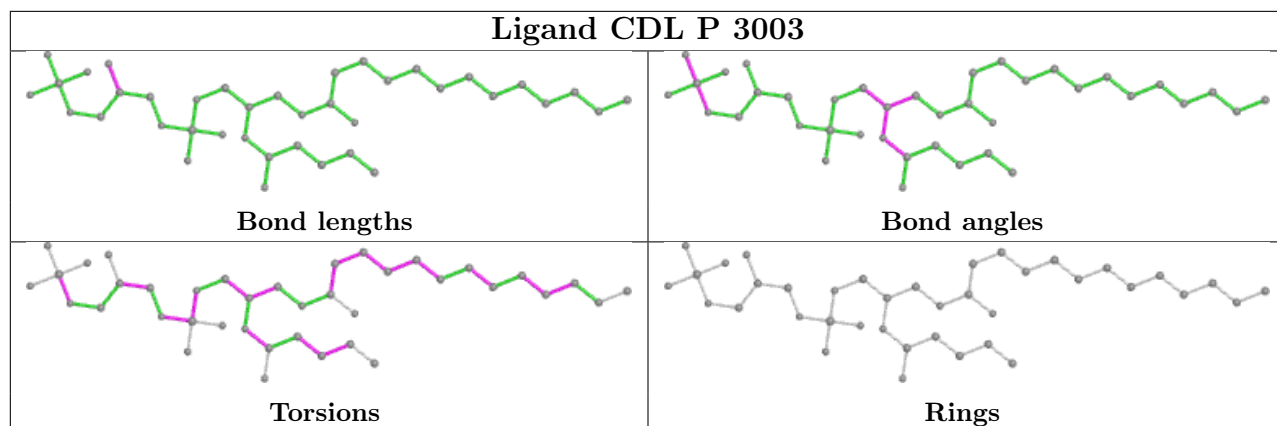
There are no ring outliers.

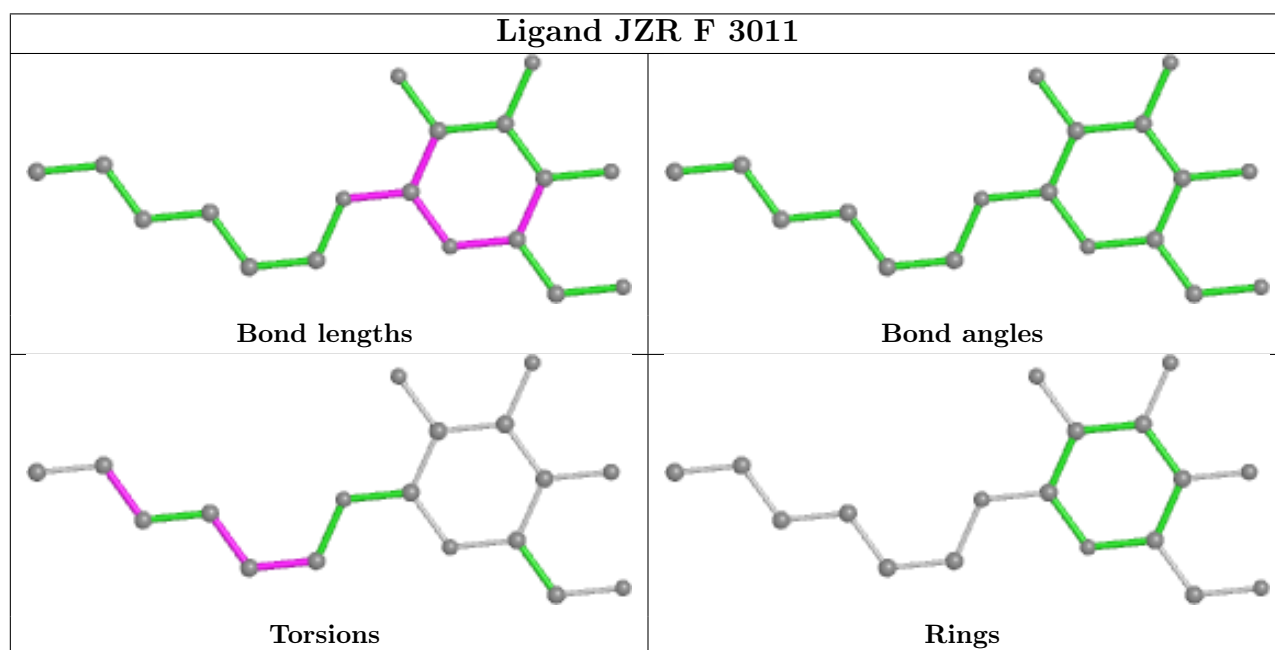
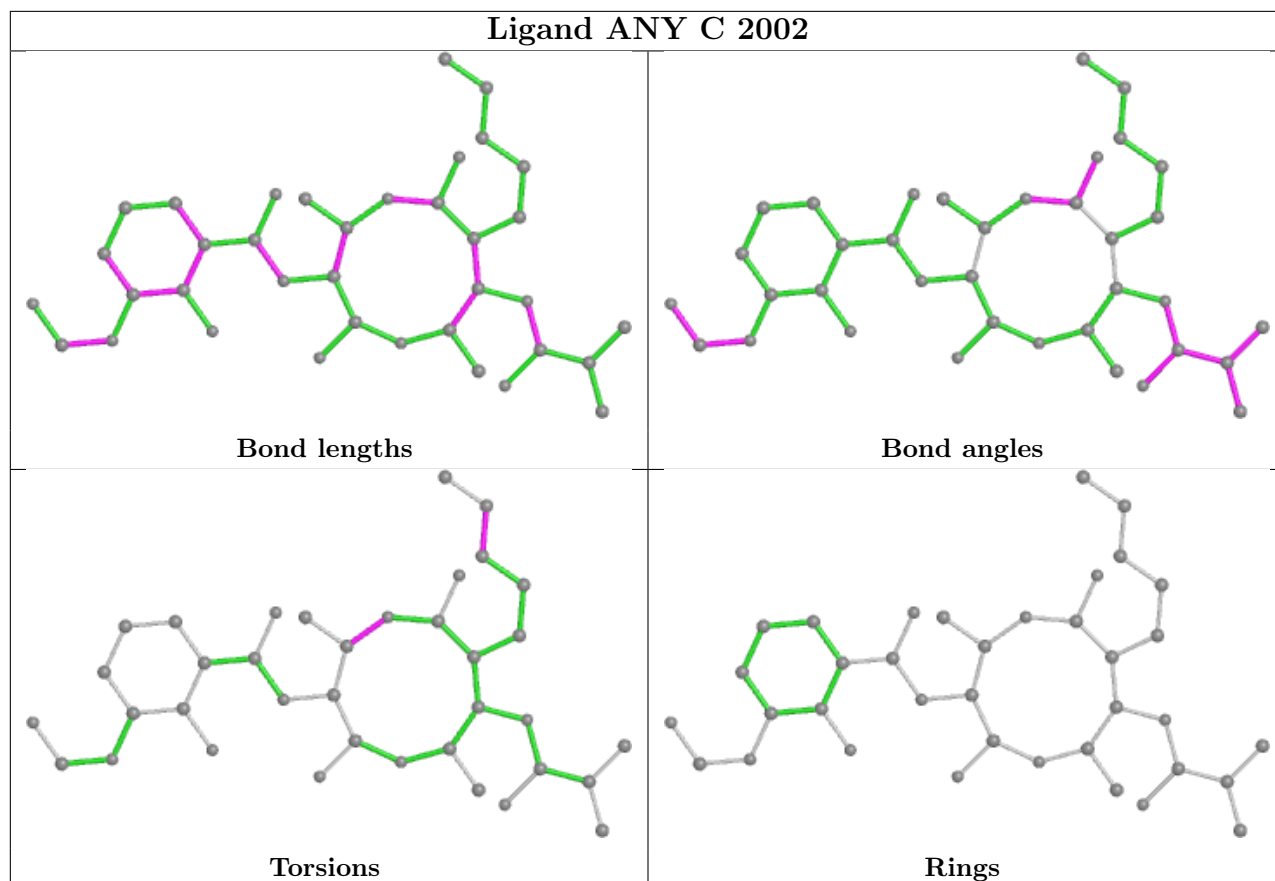
23 monomers are involved in 40 short contacts:

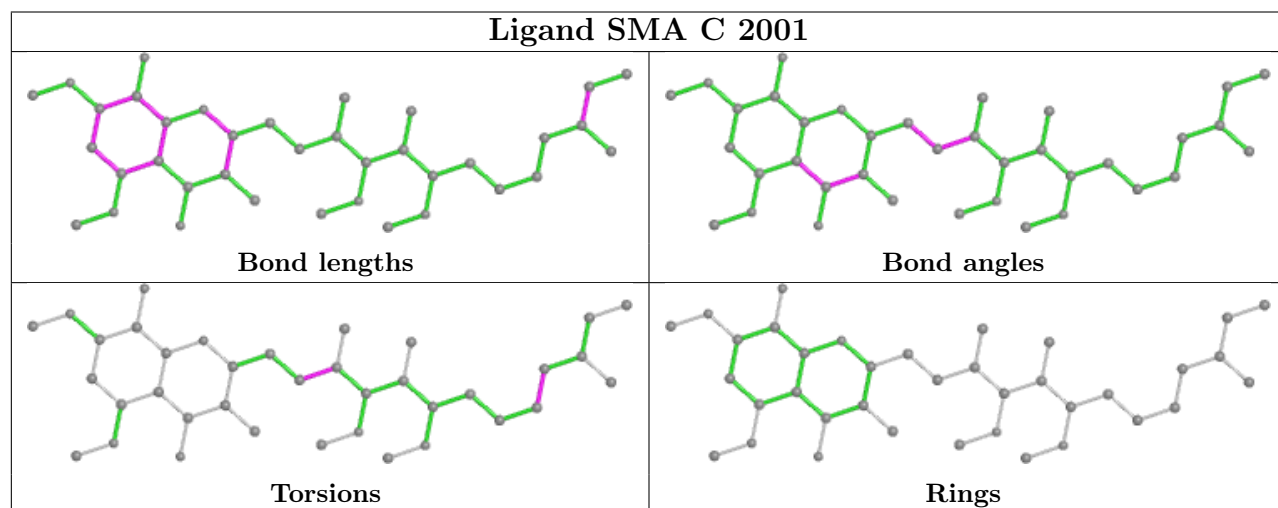
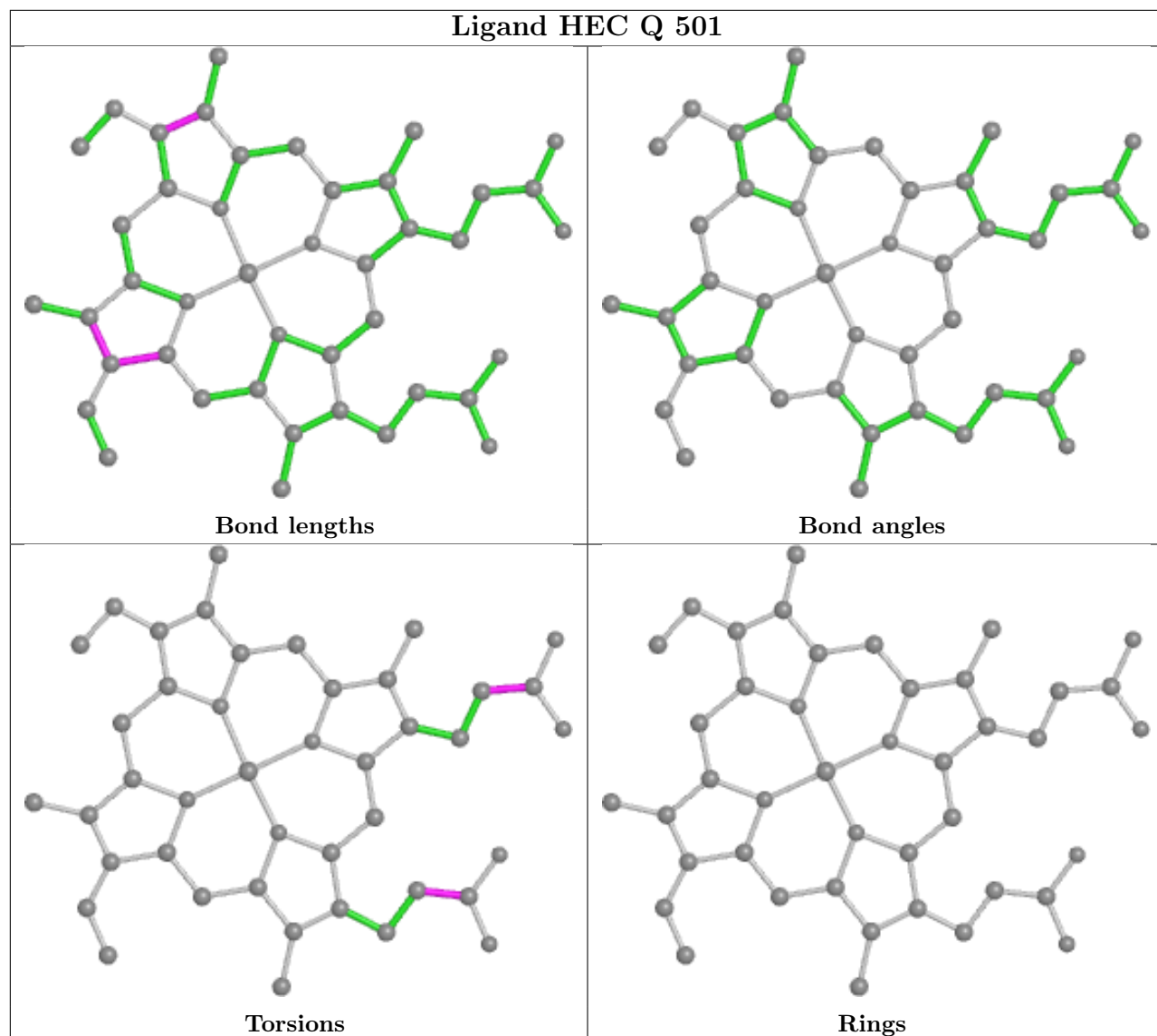
Mol	Chain	Res	Type	Clashes	Symm-Clashes
11	S	2011	JZR	3	0
20	P	3003	CDL	2	0
17	P	3007	PEE	1	0
18	C	2002	ANY	1	0
11	F	3011	JZR	2	0
14	C	2008	GOL	1	0
19	Q	501	HEC	1	0
16	C	2001	SMA	2	0
17	Q	3006	PEE	3	0
11	F	4001	JZR	1	0
17	D	2006	PEE	3	0
19	D	501	HEC	3	0
20	T	3004	CDL	2	0
15	C	502	HEM	2	0
18	P	3002	ANY	2	0
15	P	502	HEM	1	0
11	C	4002	JZR	2	0
11	R	4007	JZR	1	0
15	P	501	HEM	1	0
14	R	4005	GOL	1	0
15	C	501	HEM	1	0
11	D	4003	JZR	3	0
16	P	3001	SMA	2	0

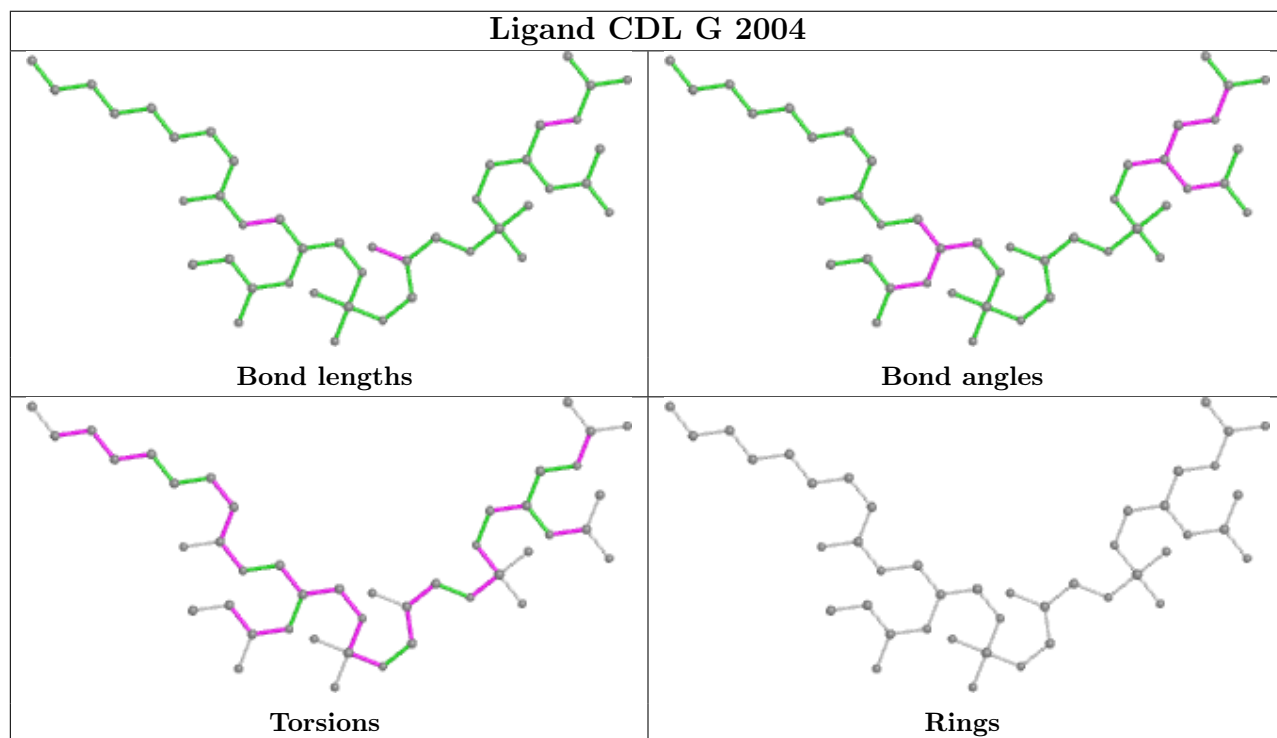
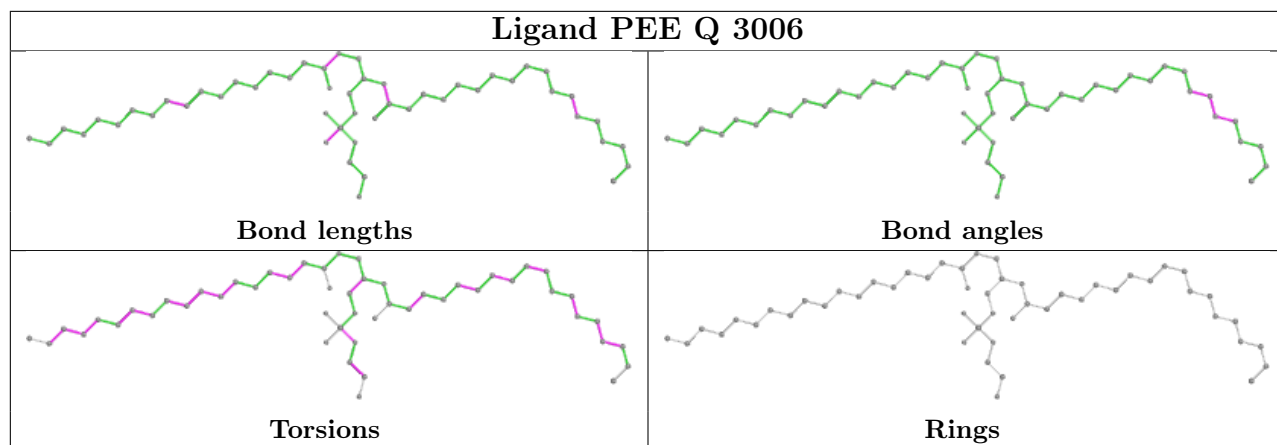
The following is a two-dimensional graphical depiction of Mogul quality analysis of bond lengths, bond angles, torsion angles, and ring geometry for all instances of the Ligand of Interest. In addition, ligands with molecular weight > 250 and outliers as shown on the validation Tables will also be included.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

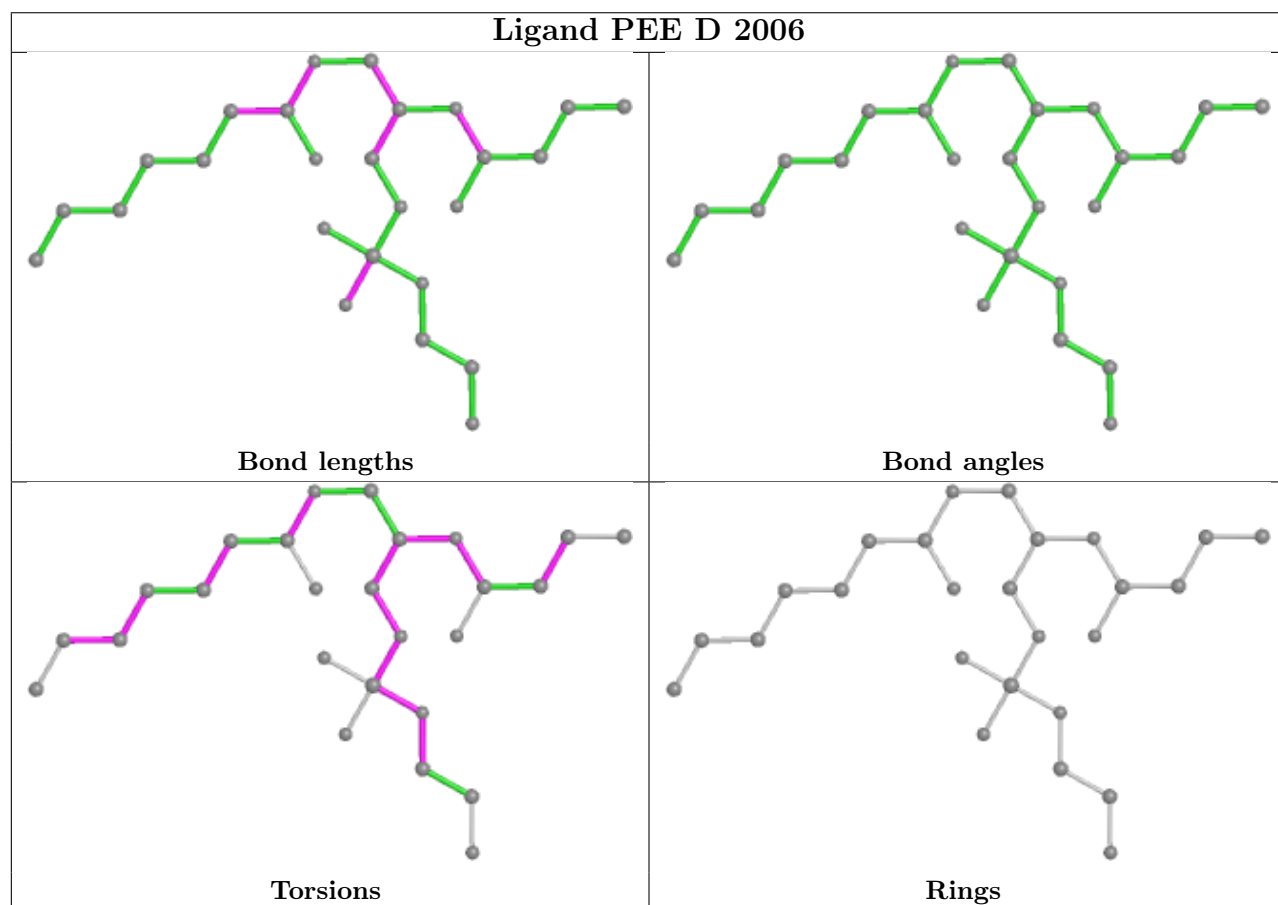
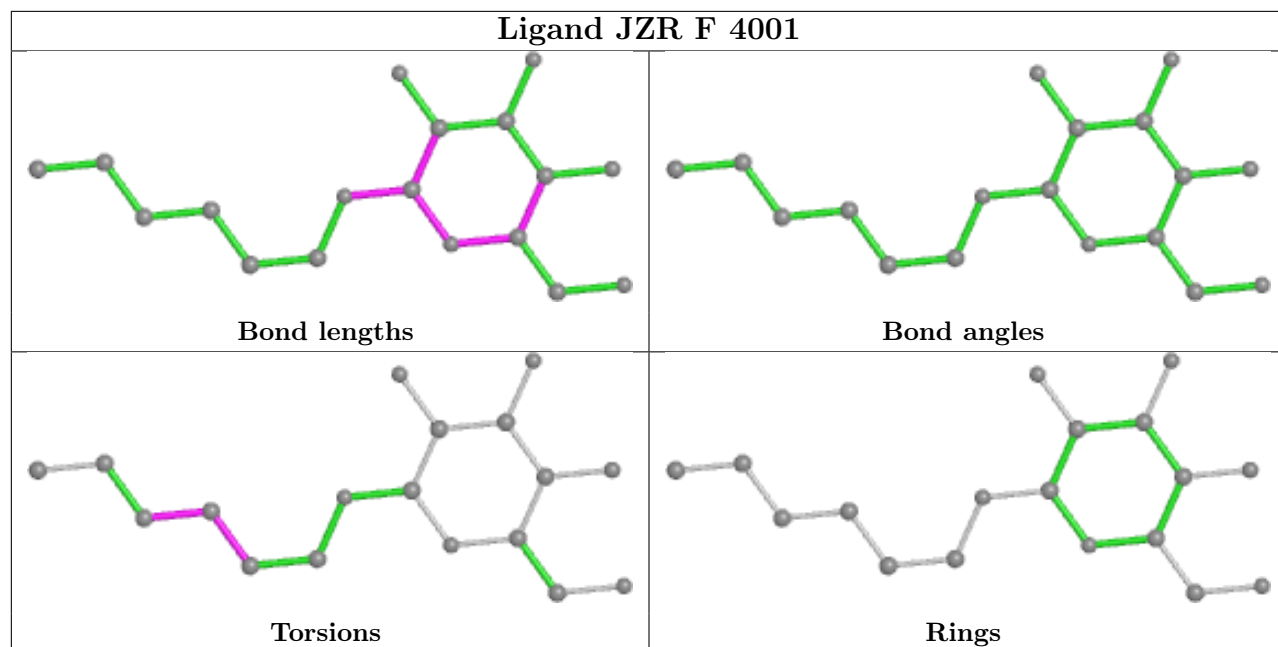


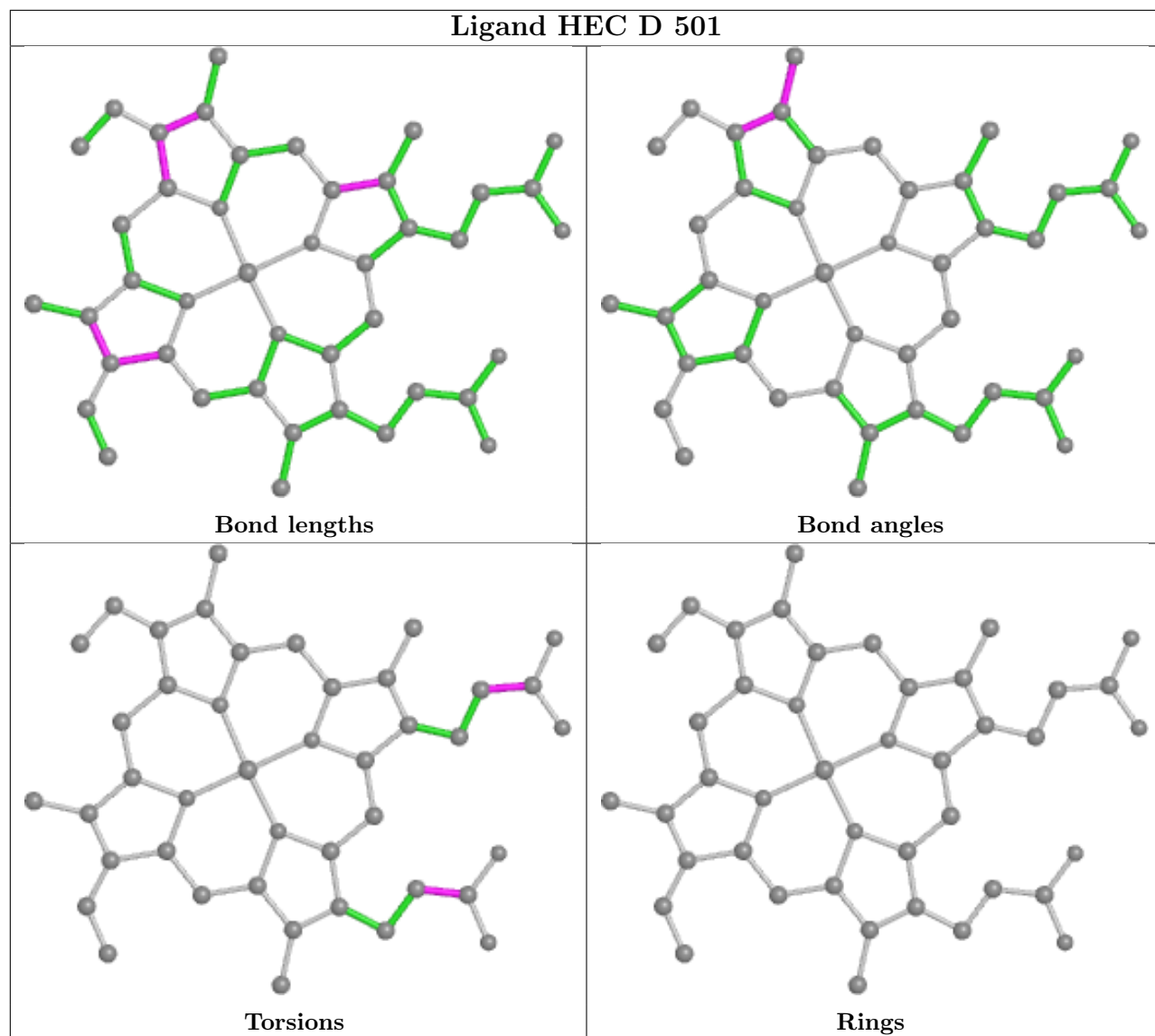


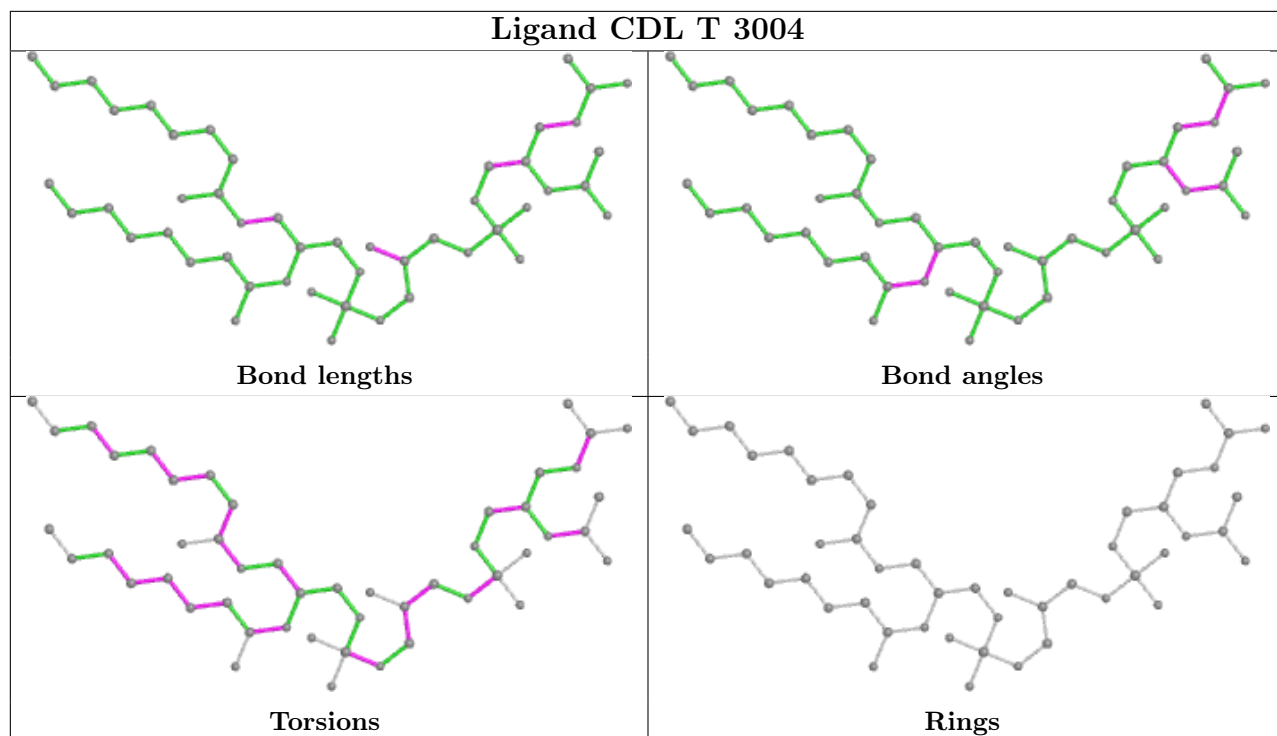


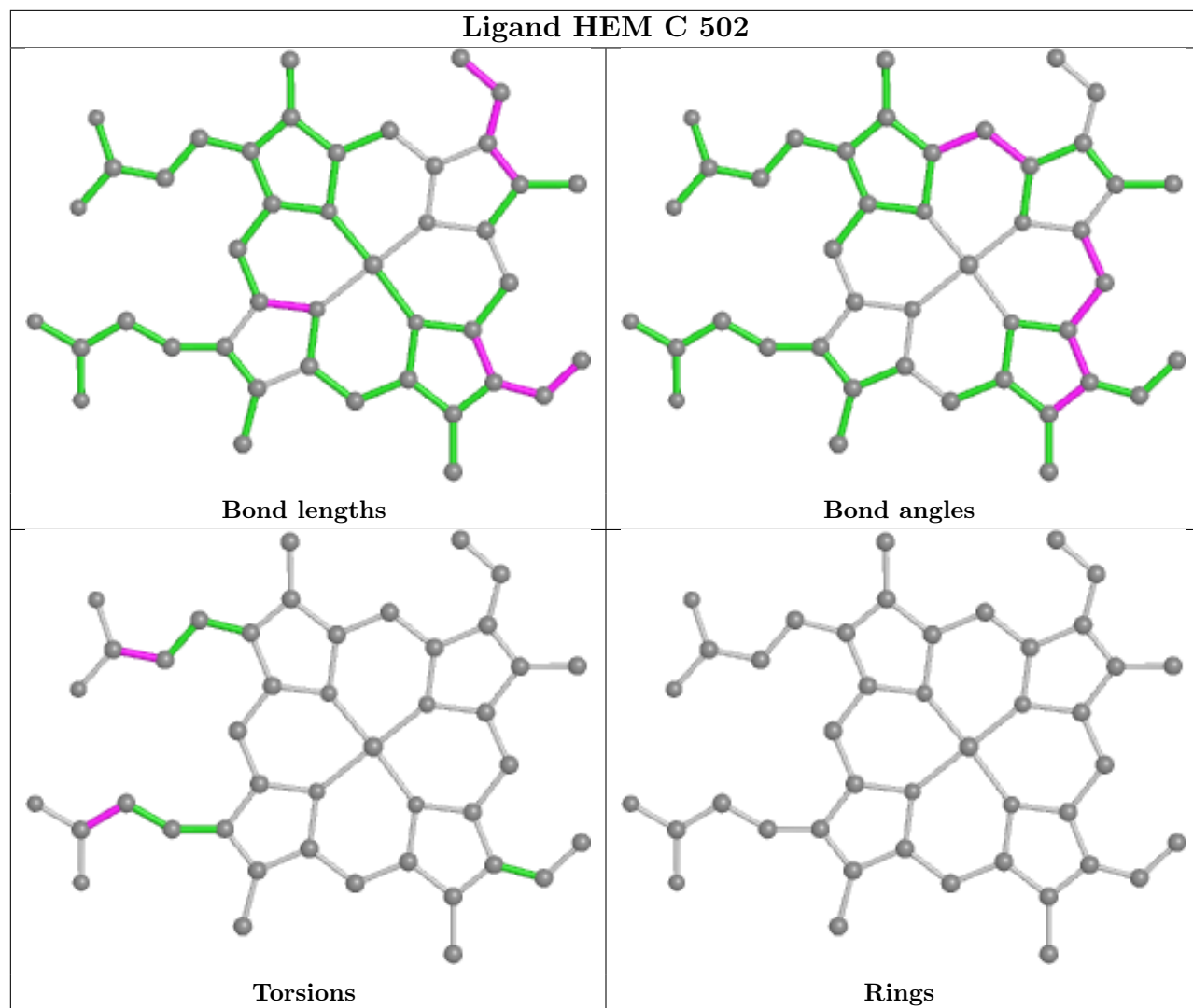


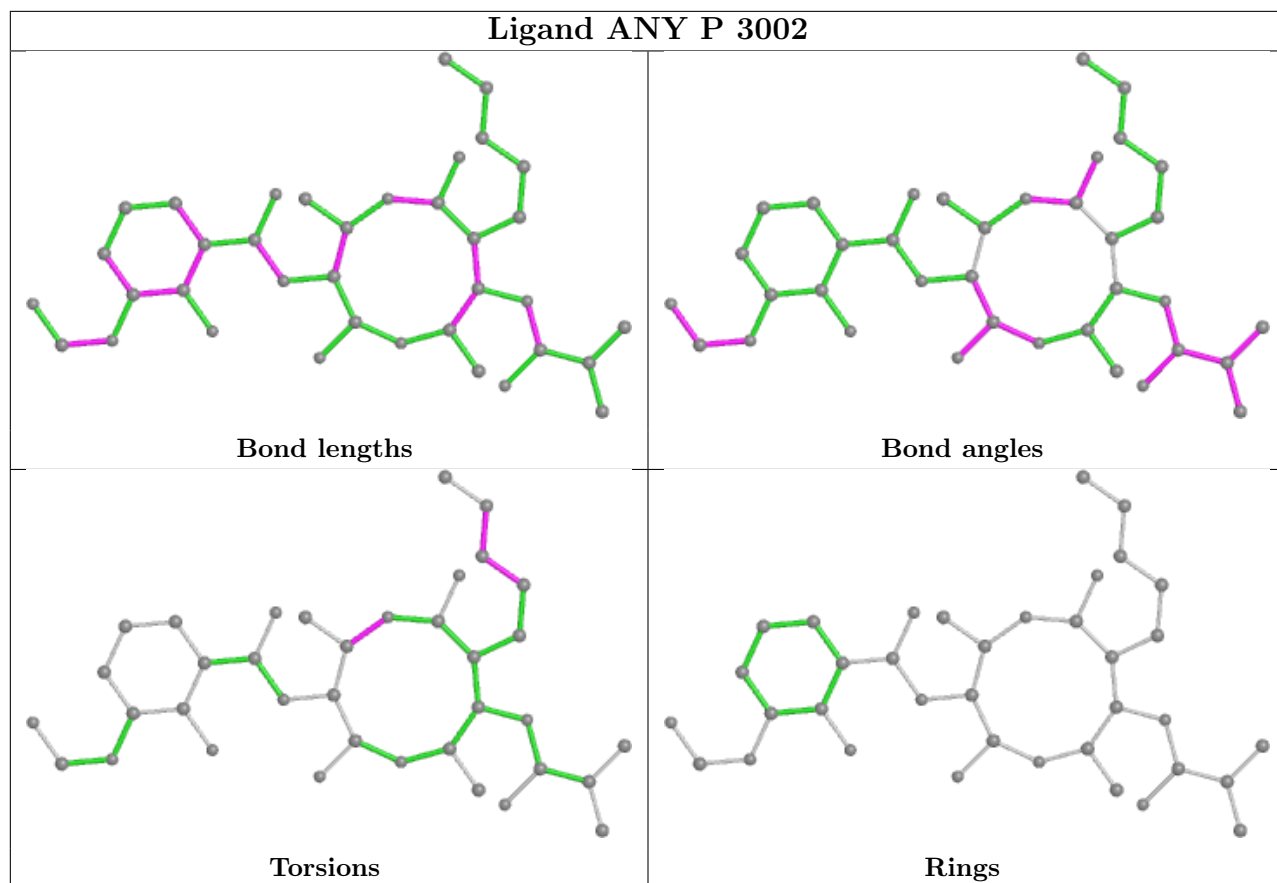


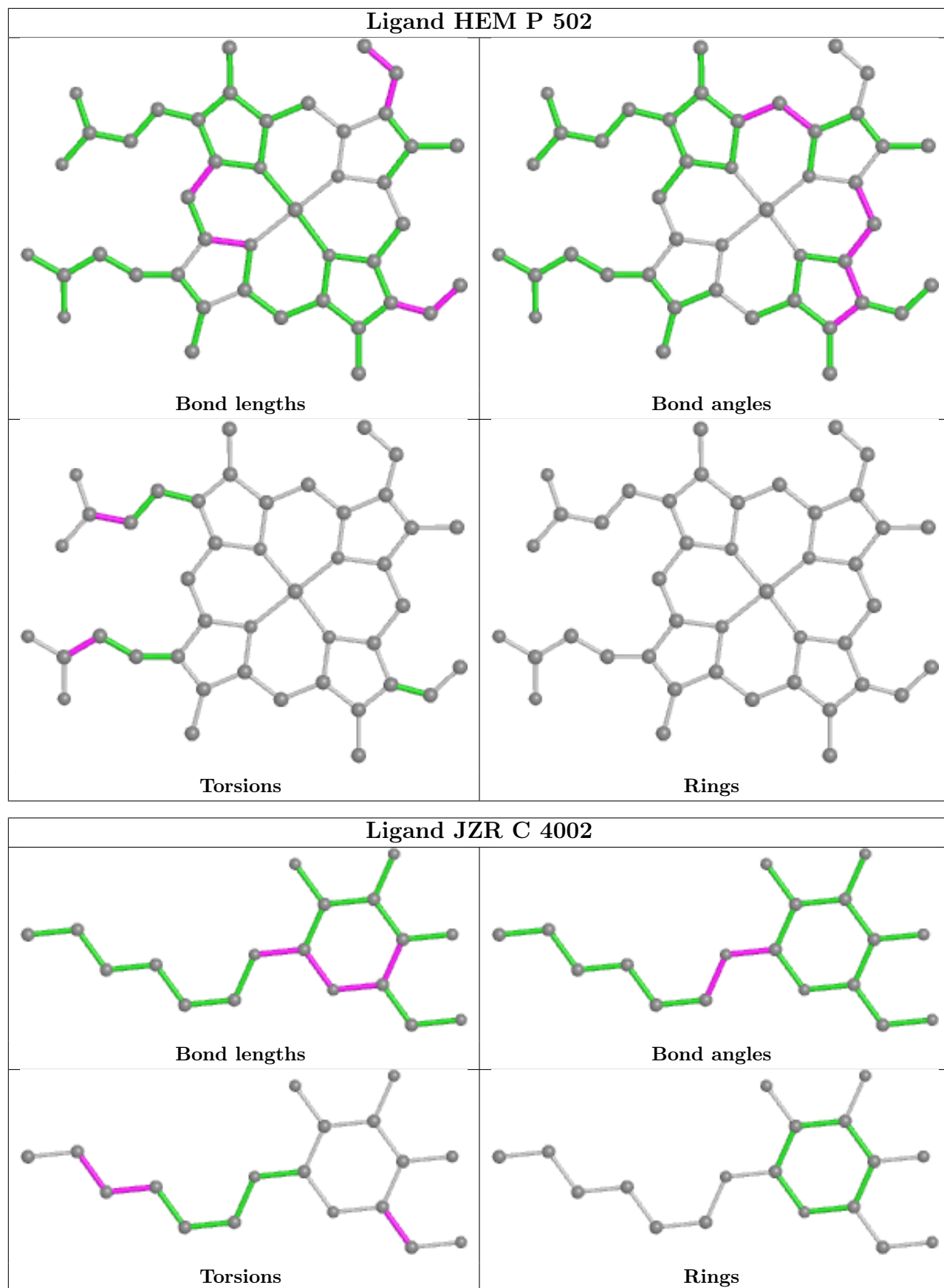


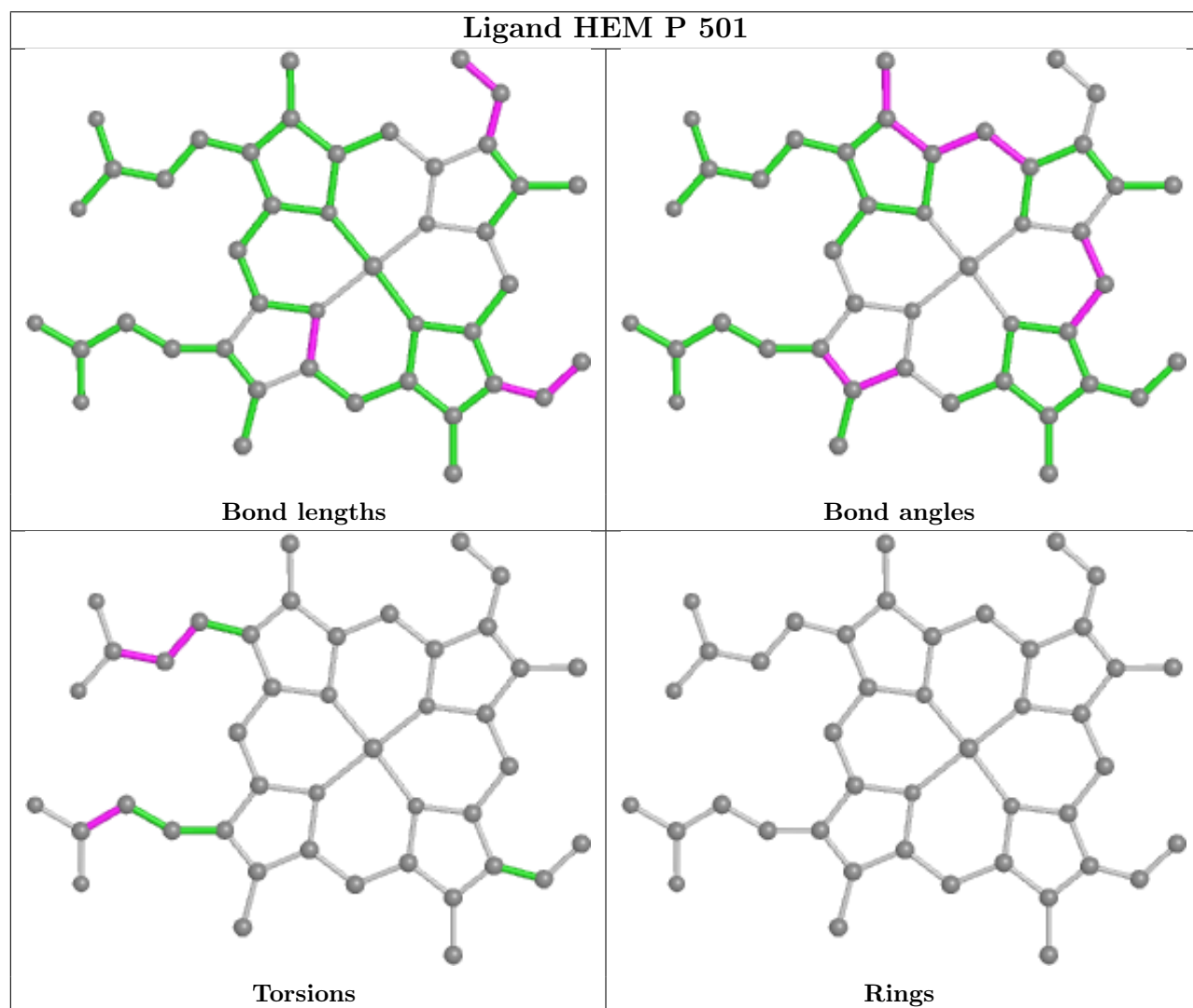
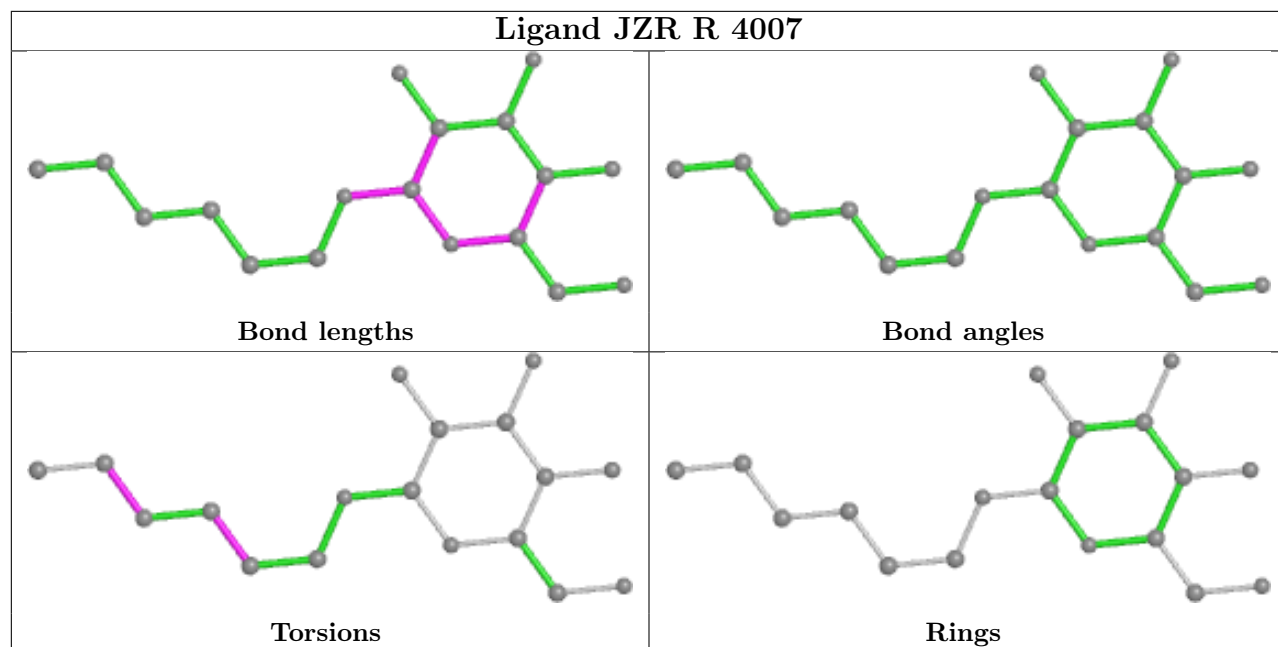


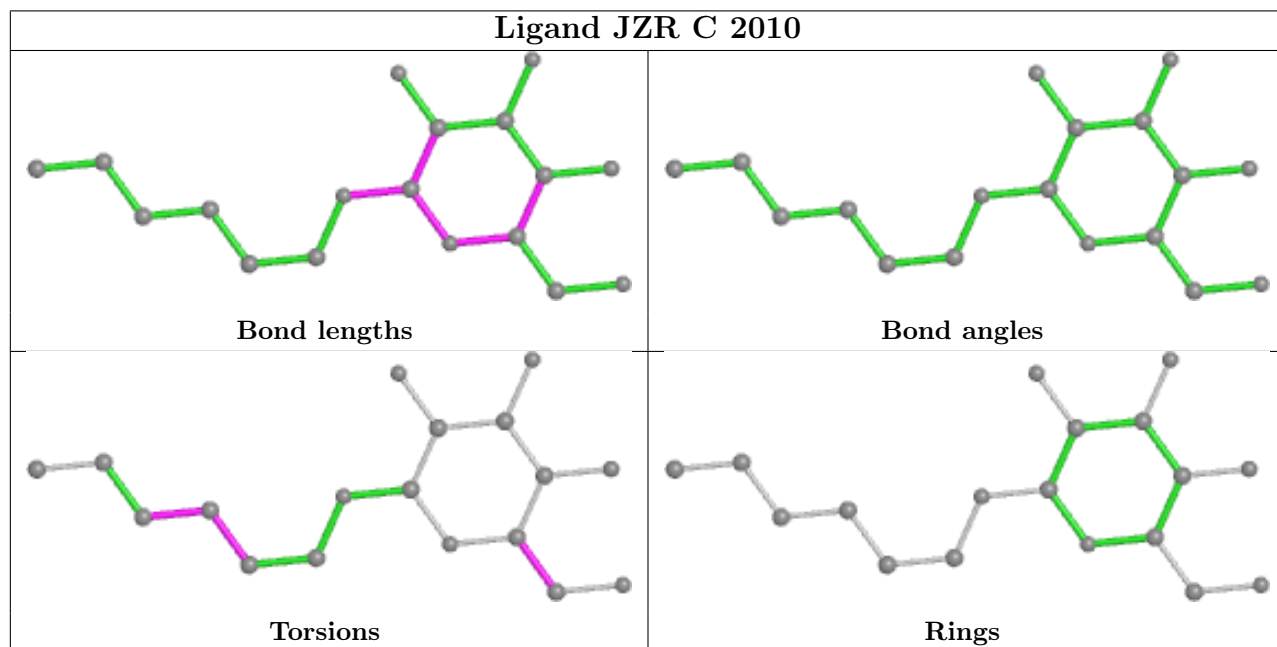
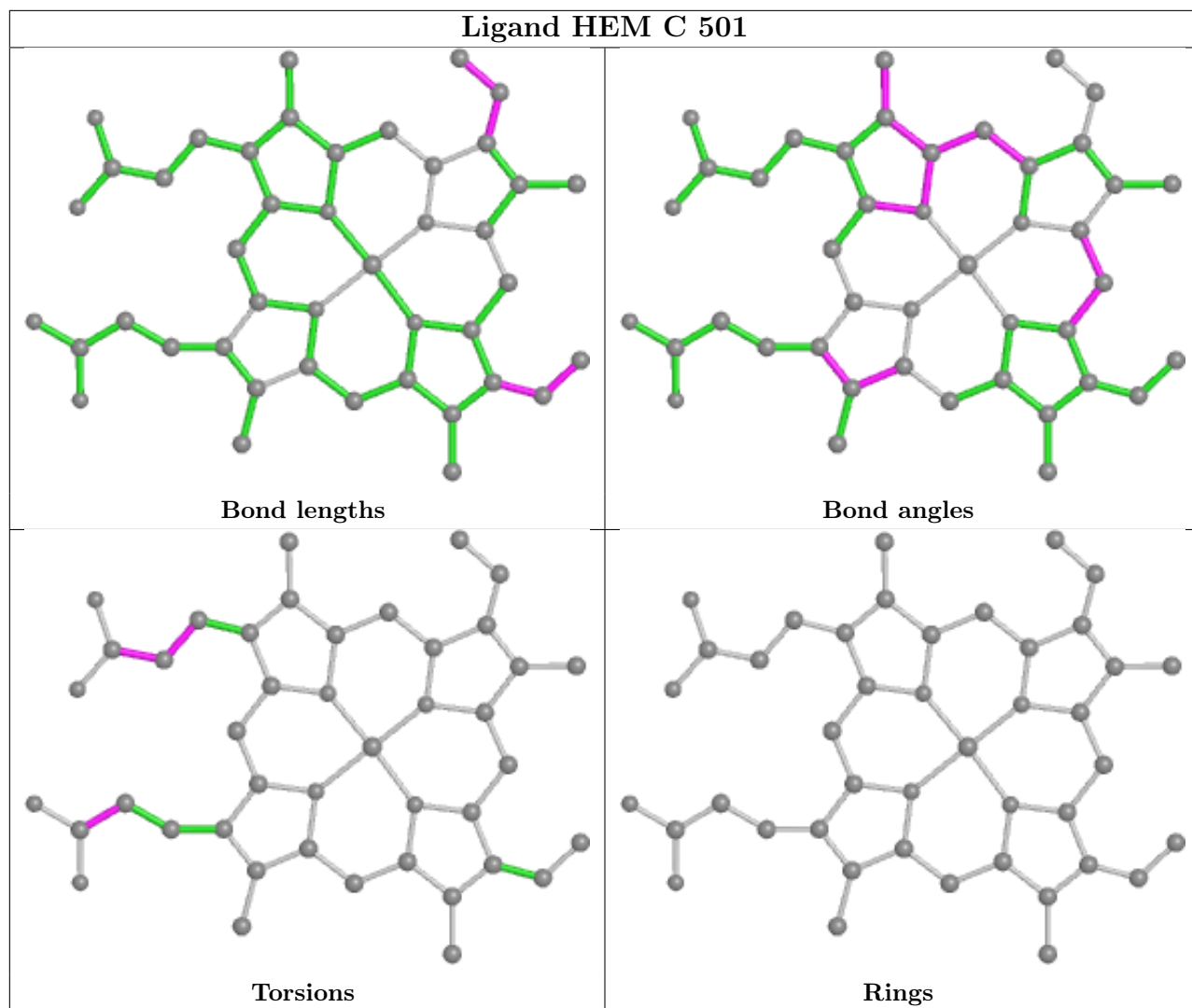


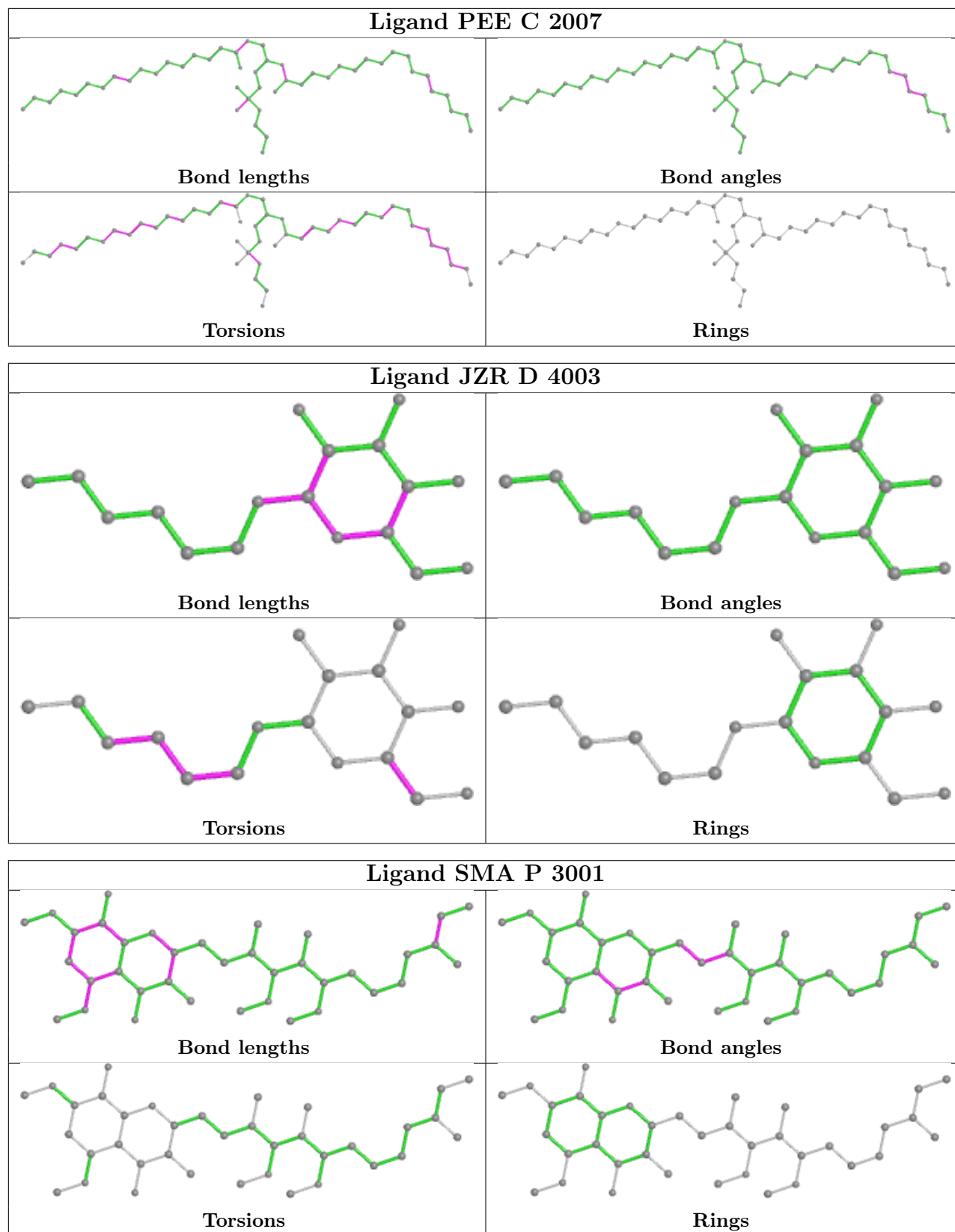


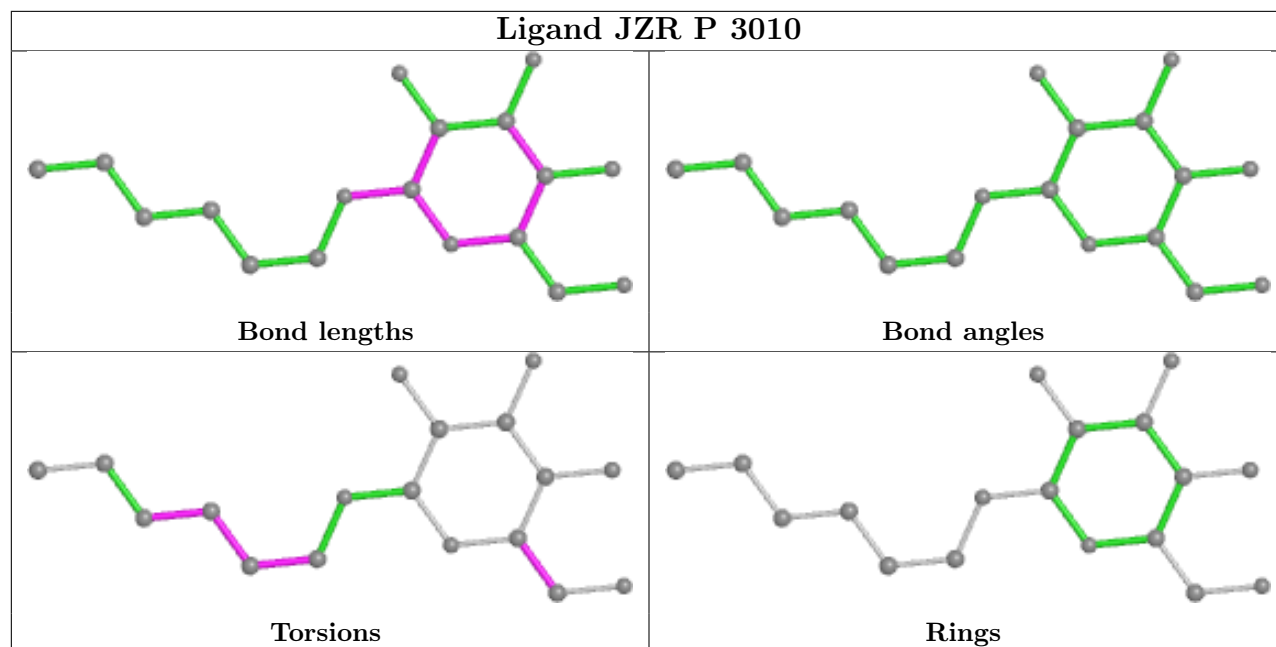












5.7 Other polymers [i](#)

There are no such residues in this entry.

5.8 Polymer linkage issues [i](#)

There are no chain breaks in this entry.

6 Fit of model and data

6.1 Protein, DNA and RNA chains

In the following table, the column labelled ‘#RSRZ> 2’ contains the number (and percentage) of RSRZ outliers, followed by percent RSRZ outliers for the chain as percentile scores relative to all X-ray entries and entries of similar resolution. The OWAB column contains the minimum, median, 95th percentile and maximum values of the occupancy-weighted average B-factor per residue. The column labelled ‘Q< 0.9’ lists the number of (and percentage) of residues with an average occupancy less than 0.9.

Mol	Chain	Analysed	<RSRZ>	#RSRZ>2	OWAB(Å ²)	Q<0.9
1	A	442/446 (99%)	0.28	9 (2%) 65 69	25, 39, 60, 115	0
1	N	441/446 (98%)	0.41	23 (5%) 27 32	33, 52, 76, 139	1 (0%)
2	B	424/439 (96%)	0.21	9 (2%) 63 68	29, 42, 66, 94	0
2	O	424/439 (96%)	0.26	12 (2%) 53 59	30, 47, 70, 124	0
3	C	365/379 (96%)	0.00	3 (0%) 86 88	23, 36, 53, 108	0
3	P	365/379 (96%)	0.02	4 (1%) 80 84	29, 39, 53, 106	0
4	D	241/241 (100%)	0.02	1 (0%) 92 93	31, 44, 64, 82	0
4	Q	241/241 (100%)	0.11	3 (1%) 79 82	35, 48, 67, 89	0
5	E	196/196 (100%)	1.05	39 (19%) 1 1	35, 62, 106, 111	0
5	R	196/196 (100%)	0.37	9 (4%) 32 38	34, 51, 77, 95	0
6	F	99/110 (90%)	0.04	1 (1%) 82 85	27, 40, 69, 78	0
6	S	99/110 (90%)	0.24	4 (4%) 38 44	33, 42, 80, 102	0
7	G	75/81 (92%)	0.54	5 (6%) 17 22	29, 53, 76, 89	0
7	T	76/81 (93%)	0.80	13 (17%) 1 1	37, 63, 93, 95	0
8	H	66/78 (84%)	0.32	2 (3%) 50 56	43, 59, 77, 81	0
8	U	66/78 (84%)	0.95	9 (13%) 3 4	50, 66, 89, 104	0
9	I	43/78 (55%)	1.61	15 (34%) 0 0	34, 65, 84, 89	0
9	V	43/78 (55%)	2.22	20 (46%) 0 0	38, 72, 86, 90	0
10	J	33/62 (53%)	1.03	5 (15%) 2 3	37, 54, 115, 130	0
10	W	62/62 (100%)	1.70	22 (35%) 0 0	44, 74, 129, 144	0
All	All	3997/4220 (94%)	0.33	208 (5%) 27 32	23, 45, 81, 144	1 (0%)

All (208) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	N	227	ALA	18.6
7	G	75	ALA	11.6
10	J	62	LYS	10.2
10	W	2	ALA	9.8
10	W	1	VAL	9.4
1	N	226	ASP	7.9
2	O	12	GLU	7.8
2	B	232	LEU	7.7
10	J	31	PHE	7.4
10	J	32	GLU	7.3
10	W	12	LEU	7.2
9	V	41	PRO	6.8
1	N	229	PRO	6.7
2	O	17	VAL	6.6
2	B	233	SER	6.3
5	E	187	PHE	5.8
10	J	30	PHE	5.8
7	T	76	ALA	5.7
1	N	2	ALA	5.7
10	W	5	LEU	5.6
9	V	36	ALA	5.6
10	W	25	VAL	5.6
5	E	83	GLU	5.5
5	E	104	LYS	5.5
2	B	12	GLU	5.4
1	A	2	ALA	5.4
9	V	33	ALA	5.3
9	I	78	TYR	5.3
9	V	78	TYR	5.3
1	N	222	THR	5.2
2	O	19	PRO	5.2
7	T	1	GLY	5.1
3	C	16	ASN	5.1
4	Q	241	LYS	5.1
2	O	21	PRO	5.1
2	B	230	LEU	5.1
1	N	225	GLU	5.0
5	E	112	VAL	4.9
10	W	3	PRO	4.9
10	W	62	LYS	4.8
5	E	132	TRP	4.8
5	E	76	ILE	4.8
5	E	78	LEU	4.7

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Mol	Chain	Res	Type	RSRZ
5	R	27	GLU	4.7
9	V	38	SER	4.6
1	N	228	VAL	4.6
1	A	225	GLU	4.6
1	N	365	LEU	4.4
7	T	30	PHE	4.4
5	E	192	MET	4.4
10	W	19	THR	4.4
5	E	107	ASP	4.4
5	E	194	ILE	4.4
9	V	50	LEU	4.4
2	B	231	GLY	4.3
10	W	21	ALA	4.3
1	A	227	ALA	4.2
5	E	167	ALA	4.2
7	T	31	SER	4.2
3	C	17	ALA	4.2
7	T	29	TYR	4.2
5	E	80	ASP	4.2
8	U	51	GLU	4.1
5	E	195	VAL	4.1
9	I	63	PRO	4.0
5	E	84	GLY	4.0
10	W	13	LEU	4.0
9	V	63	PRO	3.9
5	E	127	VAL	3.9
4	Q	1	SER	3.9
1	A	226	ASP	3.9
10	W	9	LEU	3.9
5	E	103	LYS	3.8
1	A	223	TYR	3.8
10	W	14	PHE	3.8
2	O	20	HIS	3.8
8	U	49	GLN	3.7
5	E	71	MET	3.7
1	A	222	THR	3.7
6	S	12	TRP	3.7
9	V	42	VAL	3.7
5	E	108	GLN	3.6
5	R	70	ALA	3.6
1	N	20	ASP	3.6
5	E	101	ARG	3.6

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Mol	Chain	Res	Type	RSRZ
8	U	47	ARG	3.6
9	I	50	LEU	3.5
9	V	48	SER	3.5
10	W	16	ARG	3.5
5	E	81	ILE	3.5
5	E	111	ALA	3.3
9	I	37	THR	3.3
5	E	79	SER	3.3
9	I	49	VAL	3.3
10	W	17	THR	3.3
2	O	233	SER	3.2
10	J	61	ASN	3.2
7	G	30	PHE	3.2
9	V	54	SER	3.2
8	U	34	ARG	3.2
5	E	77	LYS	3.2
8	U	48	SER	3.2
5	E	114	VAL	3.2
5	R	16	PRO	3.1
7	G	29	TYR	3.1
10	W	20	PHE	3.1
1	A	443	TRP	3.1
2	B	20	HIS	3.1
9	I	70	LEU	3.1
2	B	18	PRO	3.1
9	I	42	VAL	3.0
5	E	186	GLU	3.0
9	I	62	ARG	3.0
5	E	188	THR	3.0
9	V	37	THR	3.0
2	O	230	LEU	3.0
8	U	71	HIS	2.9
6	S	16	ILE	2.9
5	R	29	SER	2.9
5	E	110	ALA	2.9
5	R	25	SER	2.9
8	U	44	VAL	2.8
2	O	18	PRO	2.8
3	C	155	TYR	2.8
9	V	72	VAL	2.8
3	P	168	PHE	2.8
5	E	131	GLU	2.8

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Mol	Chain	Res	Type	RSRZ
7	T	43	ALA	2.7
9	V	32	ALA	2.7
5	E	193	VAL	2.7
9	V	43	LEU	2.7
9	V	35	PRO	2.7
4	Q	144	ARG	2.6
9	I	60	ALA	2.6
10	W	6	THR	2.6
1	N	192	ALA	2.6
7	T	32	LYS	2.6
1	N	206	ARG	2.6
2	O	215	VAL	2.6
3	P	16	ASN	2.6
5	E	100	HIS	2.6
9	I	32	ALA	2.6
10	W	28	ALA	2.6
9	V	61	GLY	2.6
1	N	224	ASP	2.6
3	P	17	ALA	2.6
5	E	133	VAL	2.5
1	N	230	THR	2.5
10	W	8	ARG	2.5
10	W	7	ALA	2.5
5	E	49	TYR	2.5
9	V	57	GLY	2.5
4	D	3	LEU	2.4
7	T	33	GLY	2.4
5	E	106	ILE	2.4
5	E	116	GLN	2.4
6	S	14	GLU	2.4
2	B	17	VAL	2.4
3	P	330	ALA	2.4
7	G	43	ALA	2.4
1	N	213	GLN	2.4
7	G	1	GLY	2.4
9	V	62	ARG	2.3
7	T	73	ASN	2.3
1	N	219	LEU	2.3
5	R	75	GLU	2.3
7	T	28	HIS	2.3
8	U	67	HIS	2.3
9	V	51	CYS	2.3

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Mol	Chain	Res	Type	RSRZ
1	N	66	GLY	2.3
1	A	262	TRP	2.3
5	R	33	LYS	2.2
8	H	51	GLU	2.2
5	E	38	LEU	2.2
6	F	13	LEU	2.2
9	I	48	SER	2.2
10	W	10	TYR	2.2
5	E	191	ASP	2.2
5	E	124	LEU	2.2
10	W	26	VAL	2.2
9	I	71	ASN	2.2
1	N	187	SER	2.2
5	R	23	LYS	2.2
1	N	193	PRO	2.2
1	N	231	LEU	2.1
1	N	209	LEU	2.1
6	S	13	LEU	2.1
7	T	38	LEU	2.1
2	O	232	LEU	2.1
1	N	81	SER	2.1
2	B	391	SER	2.1
1	A	229	PRO	2.1
9	I	61	GLY	2.1
2	O	267	ALA	2.1
1	N	102	LEU	2.1
8	U	13	LEU	2.1
10	W	15	ARG	2.1
2	O	347	ILE	2.0
5	E	134	ILE	2.0
7	T	74	PRO	2.0
7	T	34	ILE	2.0
9	I	34	VAL	2.0
5	R	35	PHE	2.0
1	N	15	GLN	2.0
9	I	73	PRO	2.0
8	H	34	ARG	2.0
5	E	155	GLY	2.0
9	V	34	VAL	2.0

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

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

6.3 Carbohydrates [i](#)

There are no monosaccharides in this entry.

6.4 Ligands [i](#)

In the following table, the Atoms column lists the number of modelled atoms in the group and the number defined in the chemical component dictionary. The B-factors column lists the minimum, median, 95th percentile and maximum values of B factors of atoms in the group. The column labelled 'Q< 0.9' lists the number of atoms with occupancy less than 0.9.

Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors(\AA^2)	Q<0.9
11	JZR	F	4001	18/18	0.13	0.73	146,154,157,158	0
13	AZI	A	4011	3/3	0.20	0.46	61,61,66,69	0
11	JZR	D	4003	18/18	0.28	0.70	160,169,171,171	0
14	GOL	B	2009	6/6	0.36	0.59	84,85,86,86	0
11	JZR	S	2011	18/18	0.42	0.46	61,89,94,98	0
11	JZR	C	4002	18/18	0.54	0.51	114,122,125,125	0
14	GOL	O	3009	6/6	0.56	0.64	82,84,85,85	0
11	JZR	F	3011	18/18	0.58	0.42	108,113,116,116	0
13	AZI	O	4010	3/3	0.60	0.65	102,102,104,104	0
14	GOL	C	4006	6/6	0.62	0.52	96,98,99,100	0
11	JZR	C	2010	18/18	0.63	0.38	94,103,108,108	0
11	JZR	P	3010	18/18	0.64	0.37	103,107,112,112	0
11	JZR	R	4007	18/18	0.65	0.34	85,95,98,99	0
13	AZI	C	2005	3/3	0.67	0.20	54,54,56,58	0
17	PEE	D	2006	26/51	0.67	0.30	85,98,108,109	0
13	AZI	G	4009	3/3	0.69	0.22	66,66,67,68	0
12	PO4	A	2013	5/5	0.71	0.16	119,120,121,122	0
12	PO4	C	4008	5/5	0.76	0.17	153,153,153,153	0
13	AZI	P	3005	3/3	0.78	0.12	51,51,54,56	0
20	CDL	D	2003	39/100	0.79	0.18	53,78,93,94	0
14	GOL	R	4005	6/6	0.81	0.20	81,83,84,85	0
14	GOL	P	3008	6/6	0.82	0.15	67,69,71,71	0
20	CDL	P	3003	39/100	0.84	0.19	61,89,111,111	0
17	PEE	Q	3006	51/51	0.86	0.29	65,75,98,100	0
20	CDL	G	2004	44/100	0.88	0.21	73,87,99,102	0
14	GOL	C	2008	6/6	0.89	0.31	61,65,68,75	0
12	PO4	P	3013	5/5	0.91	0.10	104,105,106,106	0

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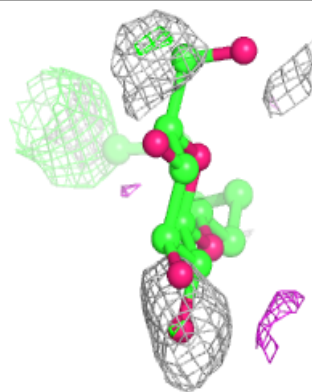
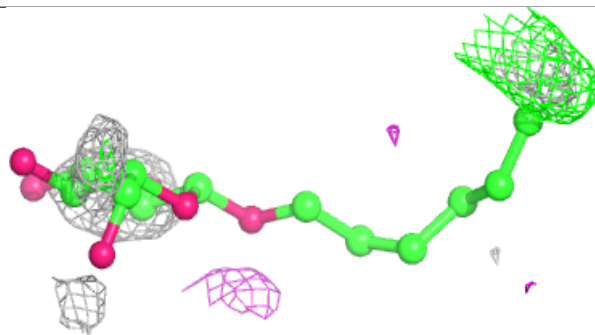
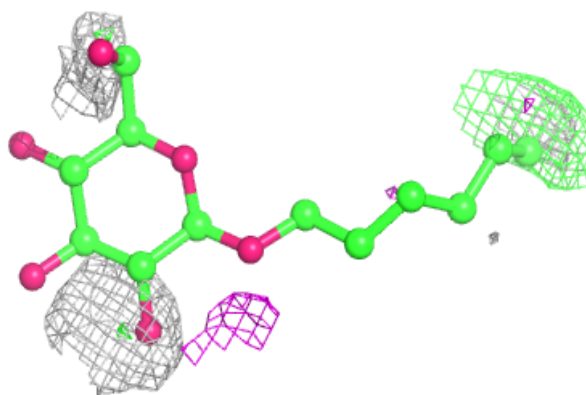
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Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors(\AA^2)	Q<0.9
20	CDL	T	3004	49/100	0.91	0.23	74,89,107,107	0
12	PO4	S	3012	5/5	0.93	0.15	97,97,99,100	0
17	PEE	P	3007	49/51	0.94	0.20	41,57,81,81	0
18	ANY	P	3002	37/40	0.95	0.16	33,39,67,71	0
12	PO4	F	2012	5/5	0.95	0.12	81,82,83,84	0
16	SMA	P	3001	37/37	0.95	0.13	27,40,44,46	0
17	PEE	C	2007	49/51	0.95	0.18	35,55,81,83	0
18	ANY	C	2002	37/40	0.95	0.14	31,39,65,70	0
16	SMA	C	2001	37/37	0.96	0.13	31,39,44,48	0
11	JZR	A	4004	18/18	0.96	0.13	28,34,40,42	0
15	HEM	P	502	43/43	0.97	0.13	27,31,36,40	0
19	HEC	Q	501	43/43	0.97	0.12	38,45,48,51	0
15	HEM	C	501	43/43	0.97	0.12	20,31,38,47	0
21	FES	E	501	4/4	0.97	0.10	41,41,43,43	0
15	HEM	P	501	43/43	0.98	0.12	30,34,42,46	0
15	HEM	C	502	43/43	0.98	0.13	22,28,34,37	0
19	HEC	D	501	43/43	0.98	0.12	35,41,44,45	0
21	FES	R	501	4/4	0.98	0.14	35,35,37,37	0

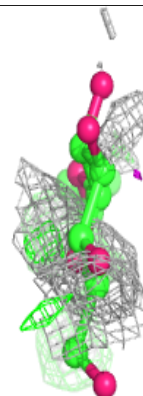
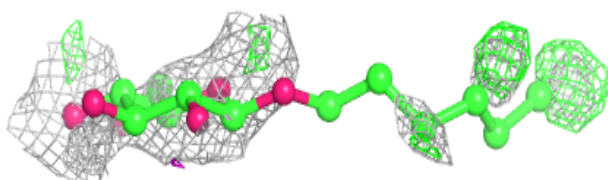
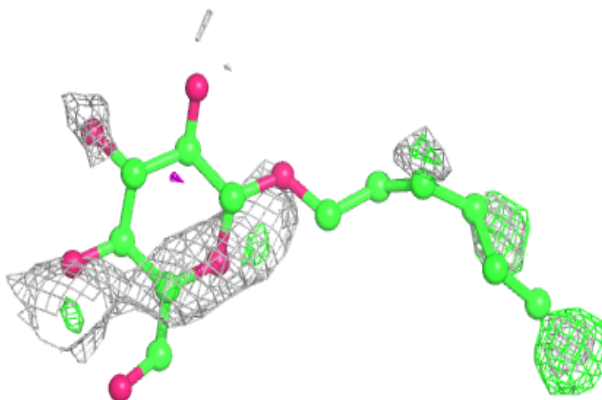
The following is a graphical depiction of the model fit to experimental electron density of all instances of the Ligand of Interest. In addition, ligands with molecular weight > 250 and outliers as shown on the geometry validation Tables will also be included. Each fit is shown from different orientation to approximate a three-dimensional view.

Electron density around JZR F 4001:

$2mF_o-DF_c$ (at 0.7 rmsd) in gray
 mF_o-DF_c (at 3 rmsd) in purple (negative)
and green (positive)

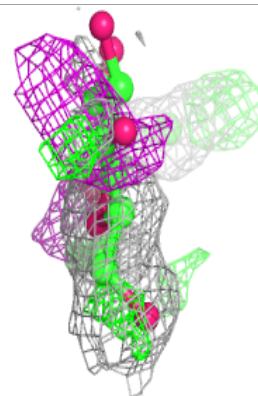
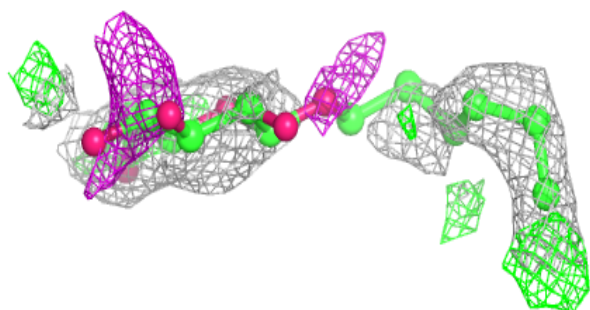
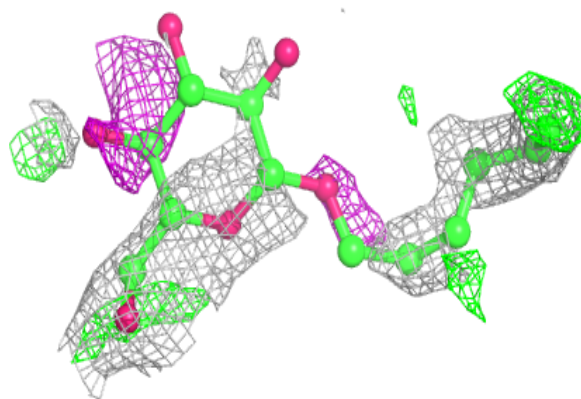
**Electron density around JZR D 4003:**

$2mF_o-DF_c$ (at 0.7 rmsd) in gray
 mF_o-DF_c (at 3 rmsd) in purple (negative)
and green (positive)

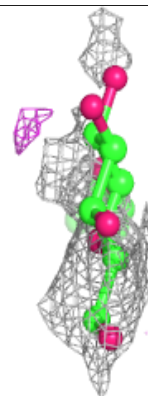
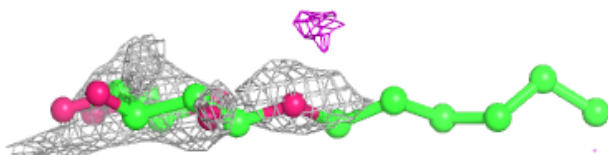
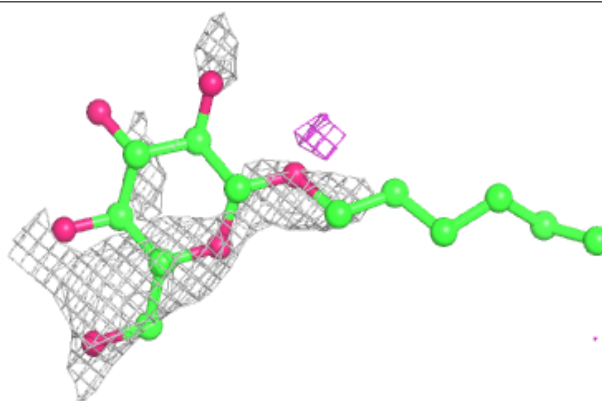


Electron density around JZR S 2011:

$2mF_o-DF_c$ (at 0.7 rmsd) in gray
 mF_o-DF_c (at 3 rmsd) in purple (negative)
and green (positive)

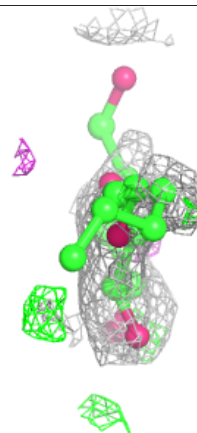
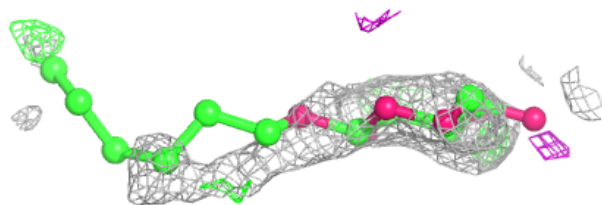
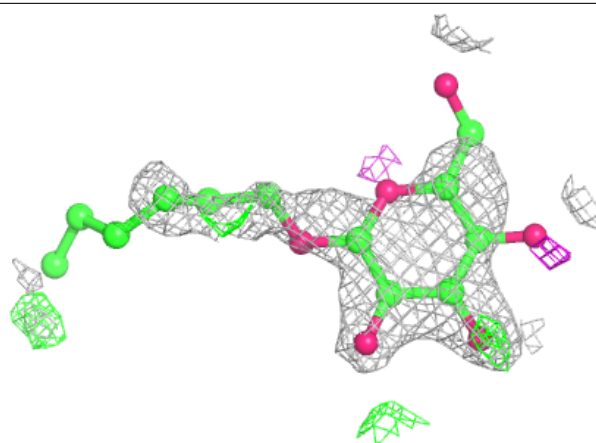
**Electron density around JZR C 4002:**

$2mF_o-DF_c$ (at 0.7 rmsd) in gray
 mF_o-DF_c (at 3 rmsd) in purple (negative)
and green (positive)

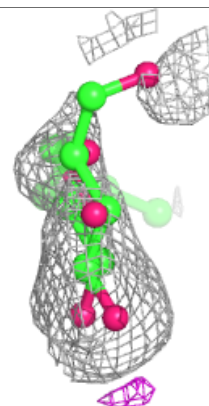
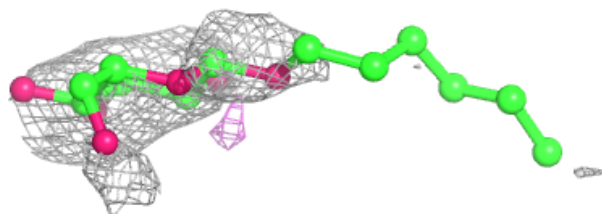
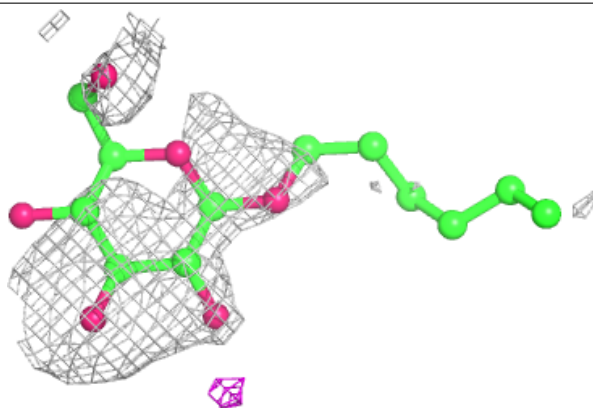


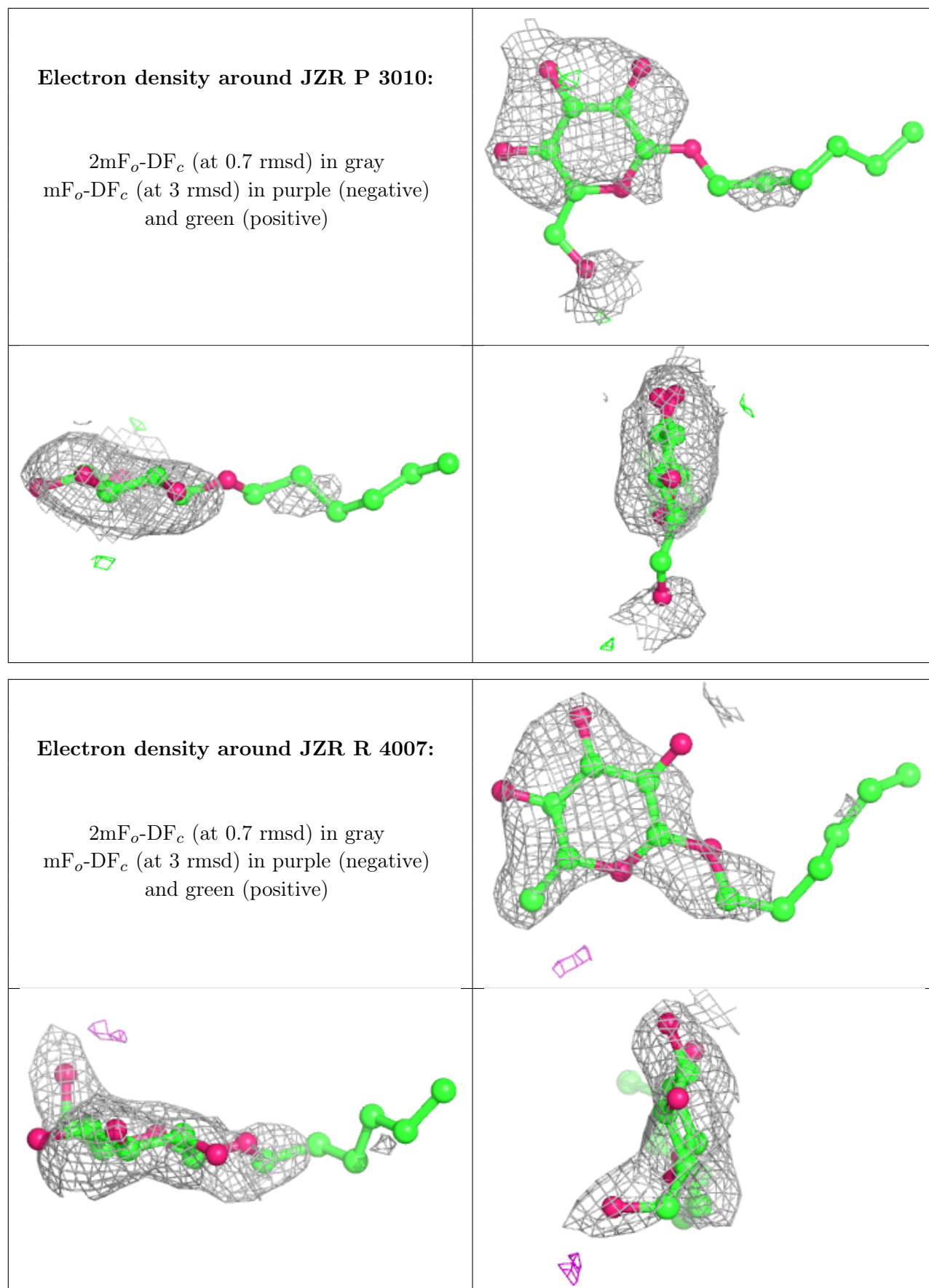
Electron density around JZR F 3011:

$2mF_o-DF_c$ (at 0.7 rmsd) in gray
 mF_o-DF_c (at 3 rmsd) in purple (negative)
and green (positive)

**Electron density around JZR C 2010:**

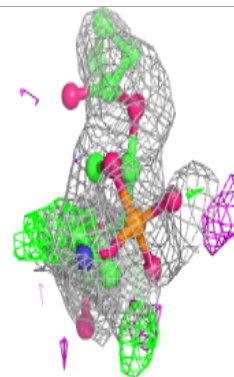
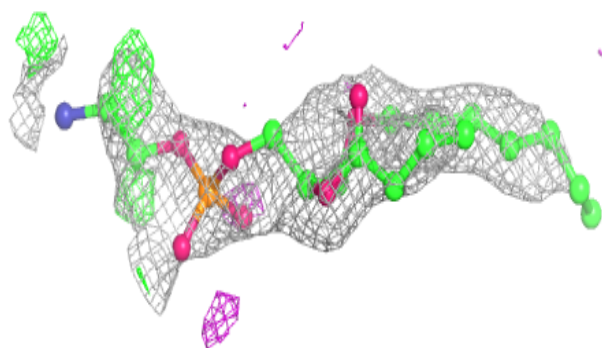
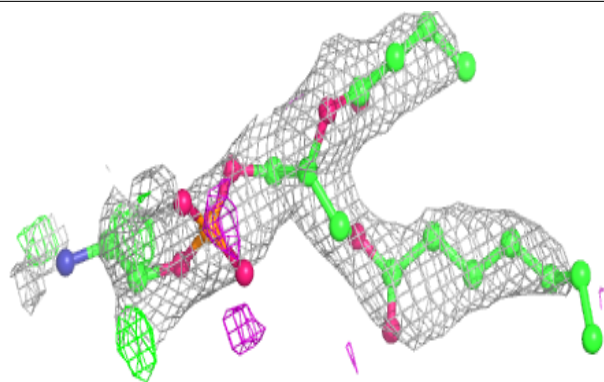
$2mF_o-DF_c$ (at 0.7 rmsd) in gray
 mF_o-DF_c (at 3 rmsd) in purple (negative)
and green (positive)



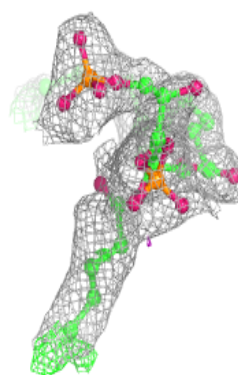
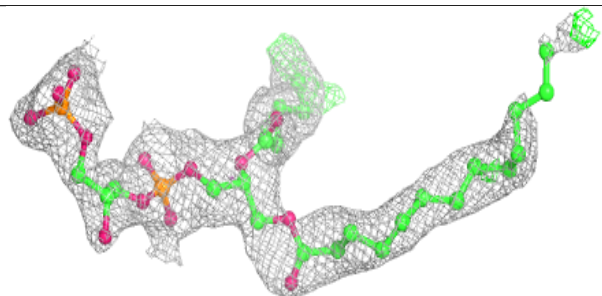
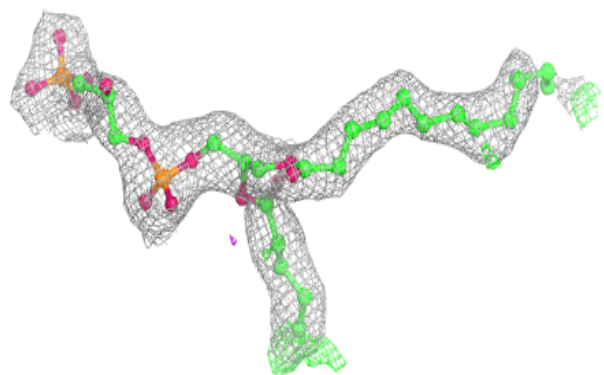


Electron density around PEE D 2006:

$2mF_o-DF_c$ (at 0.7 rmsd) in gray
 mF_o-DF_c (at 3 rmsd) in purple (negative)
and green (positive)

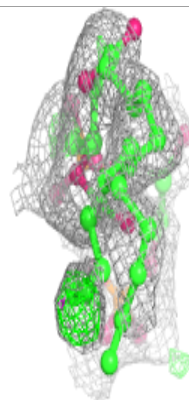
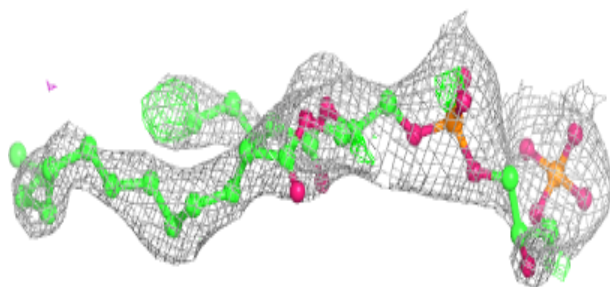
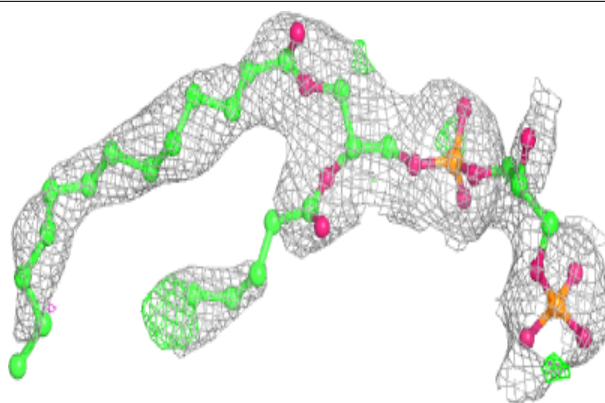
**Electron density around CDL D 2003:**

$2mF_o-DF_c$ (at 0.7 rmsd) in gray
 mF_o-DF_c (at 3 rmsd) in purple (negative)
and green (positive)

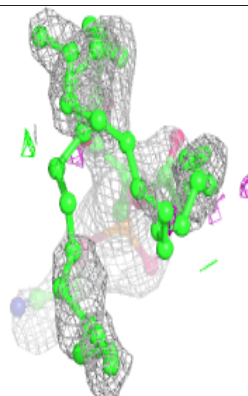
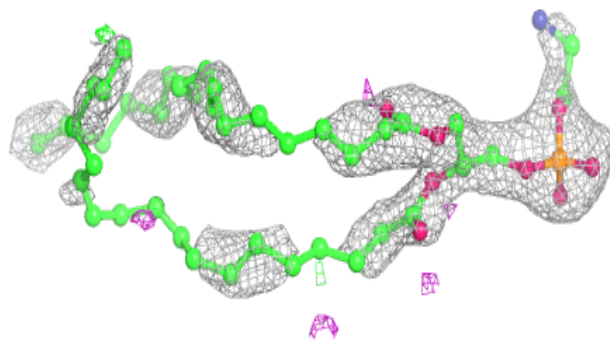
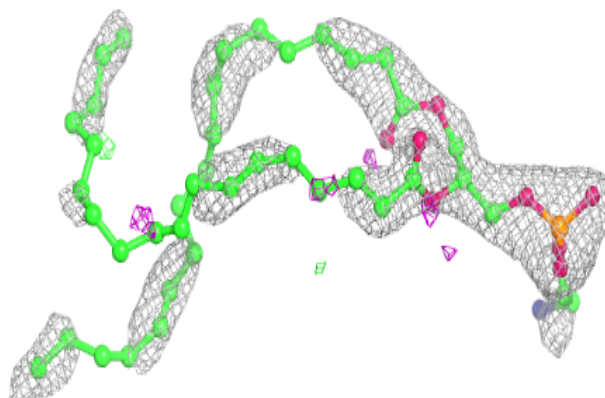


Electron density around CDL P 3003:

$2mF_o-DF_c$ (at 0.7 rmsd) in gray
 mF_o-DF_c (at 3 rmsd) in purple (negative)
and green (positive)

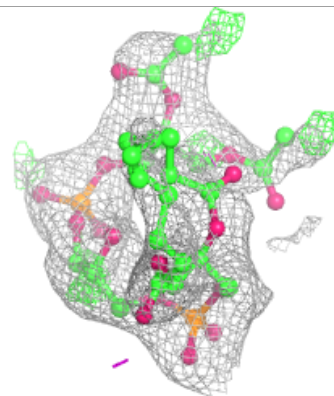
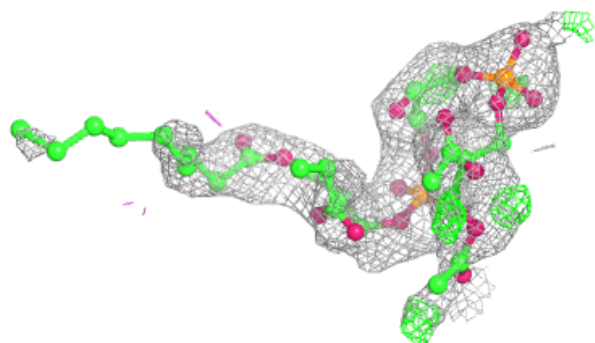
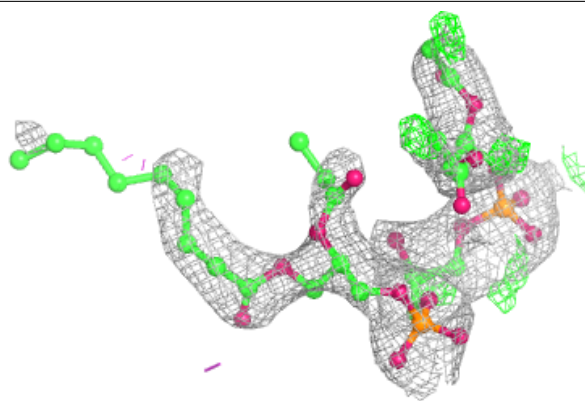
**Electron density around PEE Q 3006:**

$2mF_o-DF_c$ (at 0.7 rmsd) in gray
 mF_o-DF_c (at 3 rmsd) in purple (negative)
and green (positive)

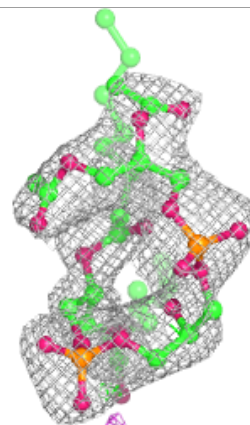
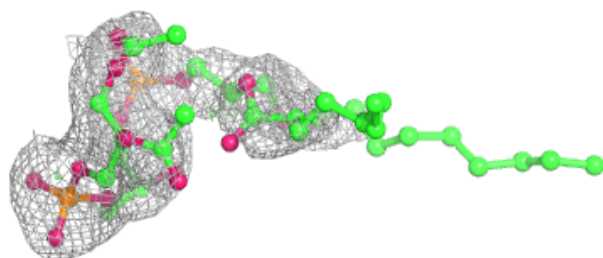
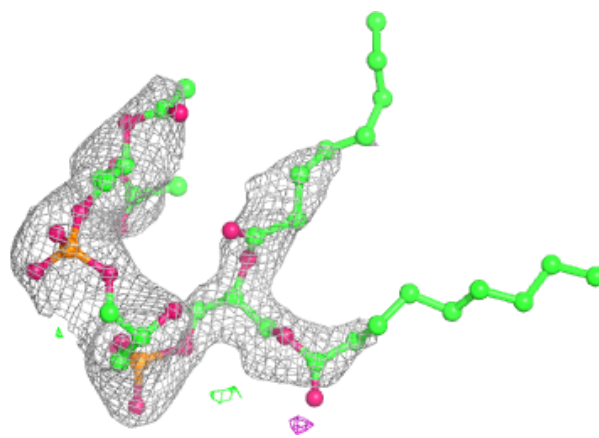


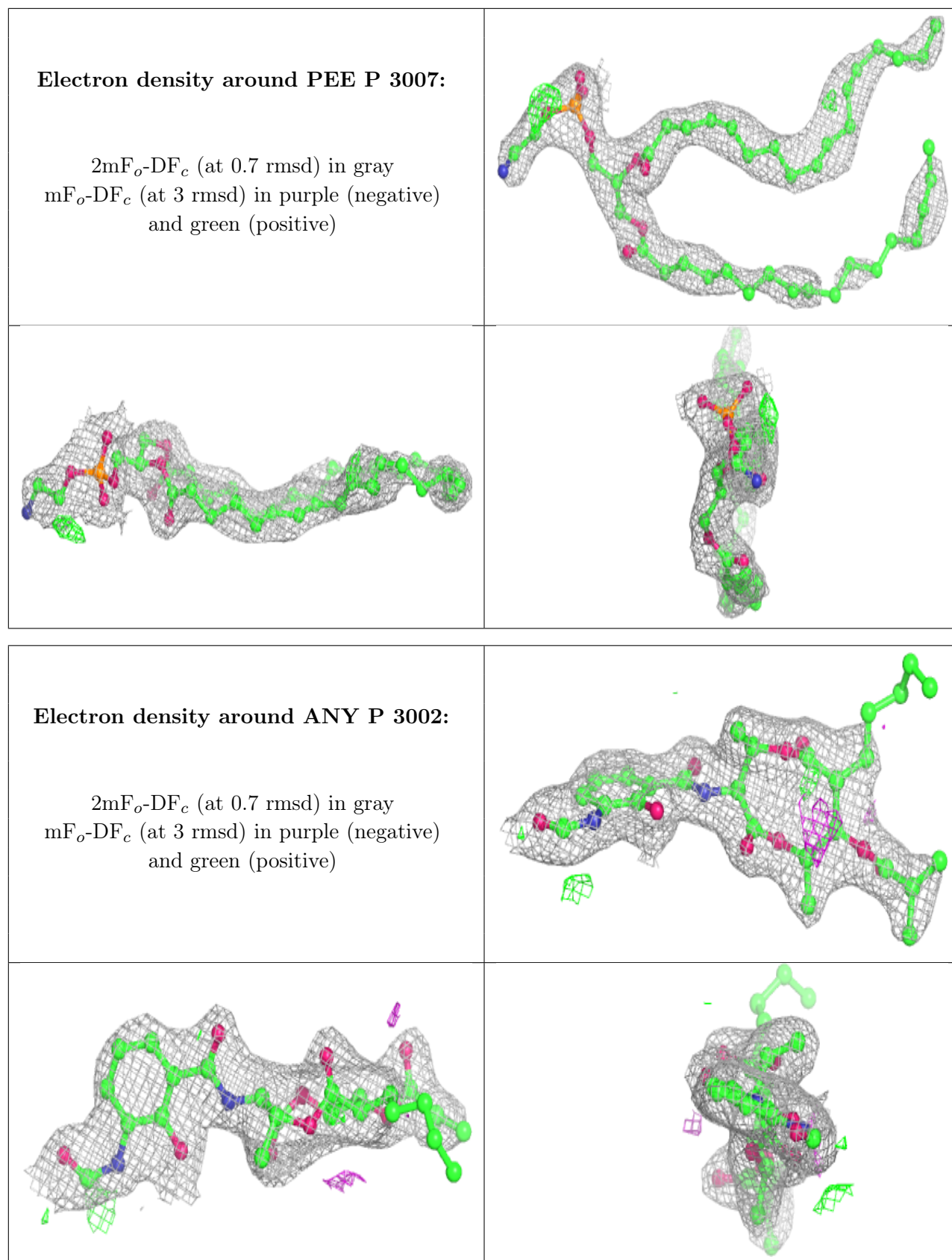
Electron density around CDL G 2004:

$2mF_o-DF_c$ (at 0.7 rmsd) in gray
 mF_o-DF_c (at 3 rmsd) in purple (negative)
and green (positive)

**Electron density around CDL T 3004:**

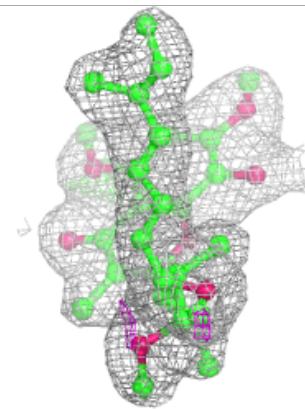
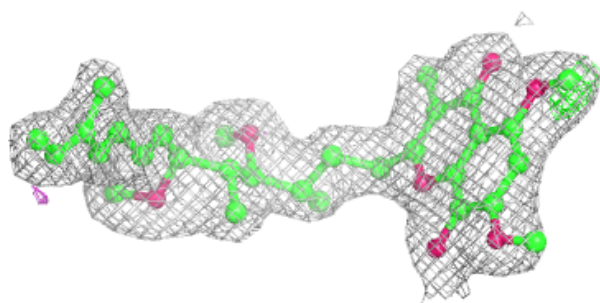
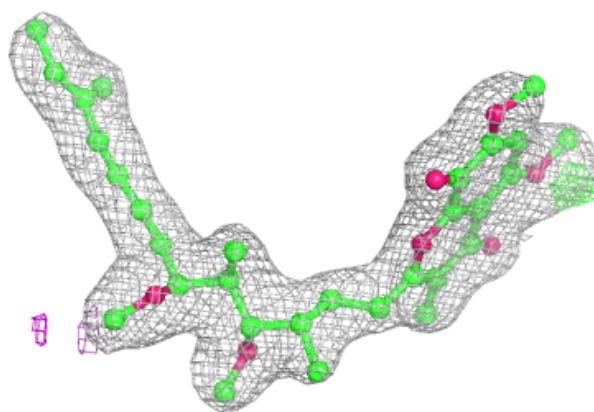
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 mF_o-DF_c (at 3 rmsd) in purple (negative)
and green (positive)

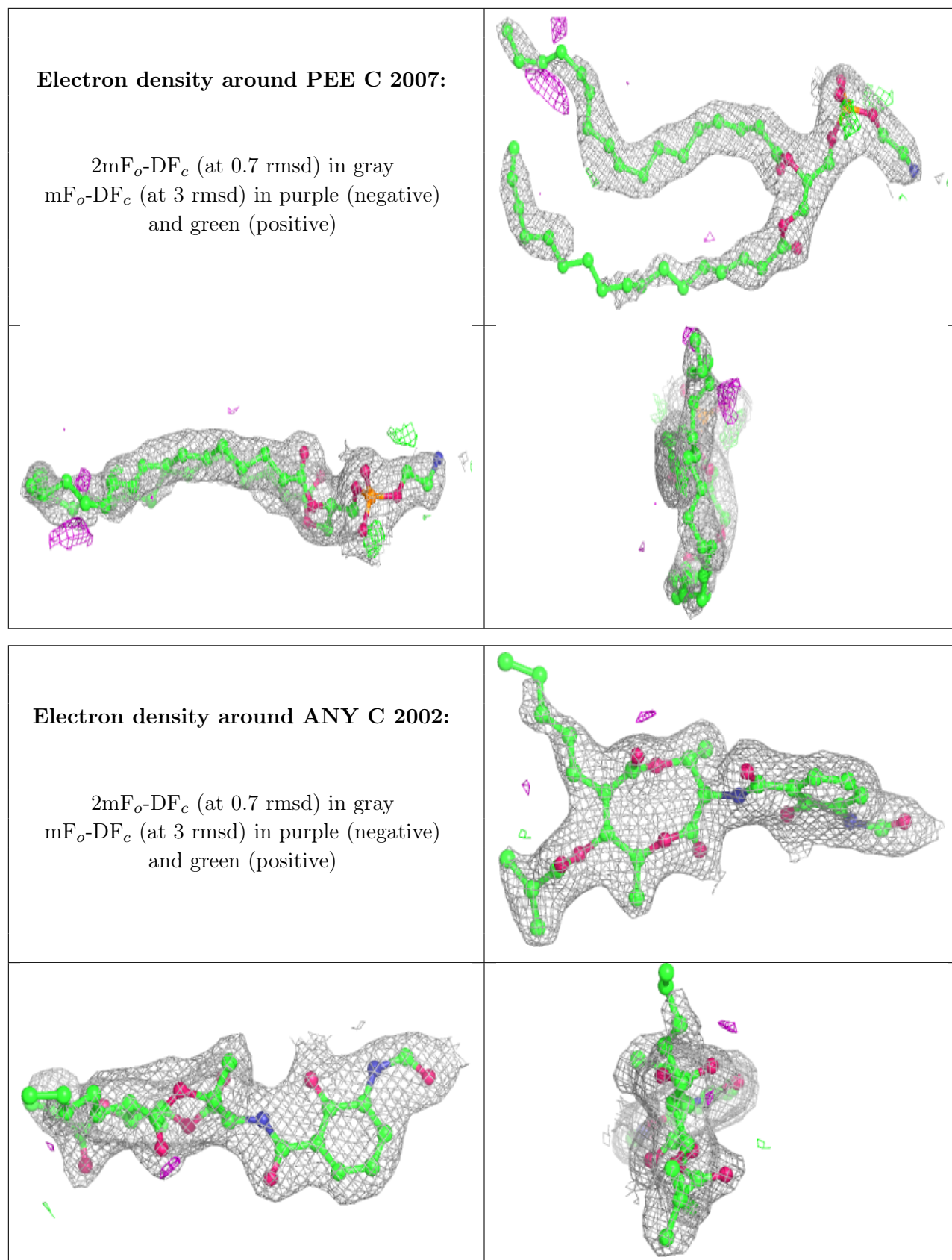




Electron density around SMA P 3001:

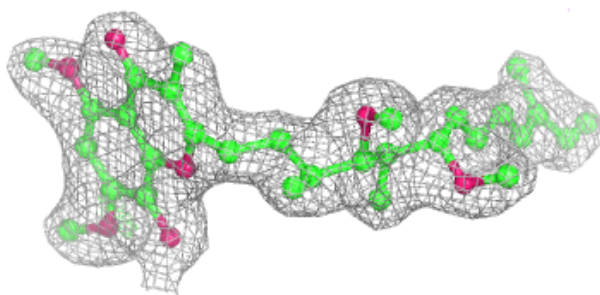
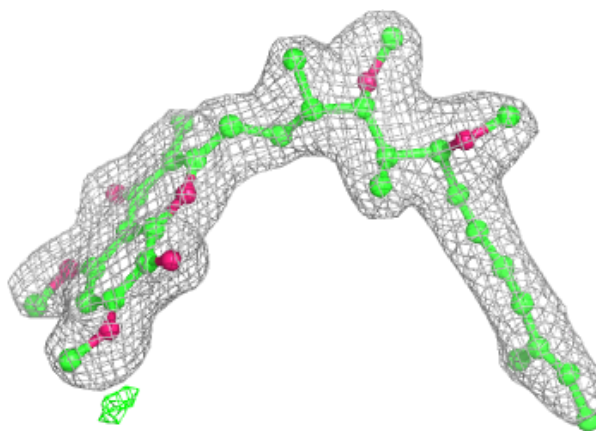
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 mF_o-DF_c (at 3 rmsd) in purple (negative)
and green (positive)



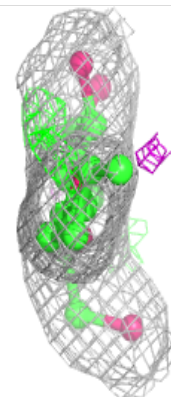
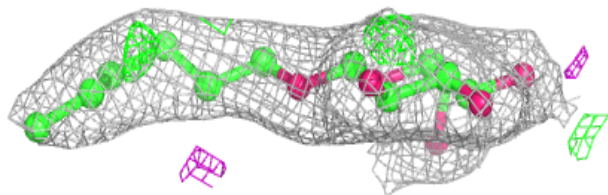
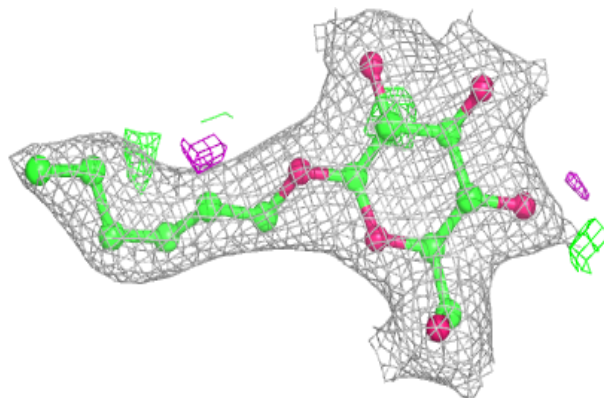


Electron density around SMA C 2001:

$2mF_o-DF_c$ (at 0.7 rmsd) in gray
 mF_o-DF_c (at 3 rmsd) in purple (negative)
and green (positive)

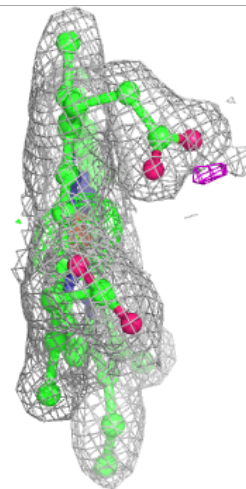
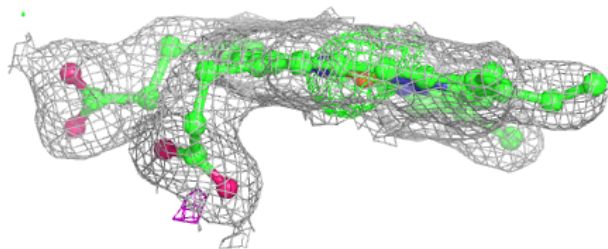
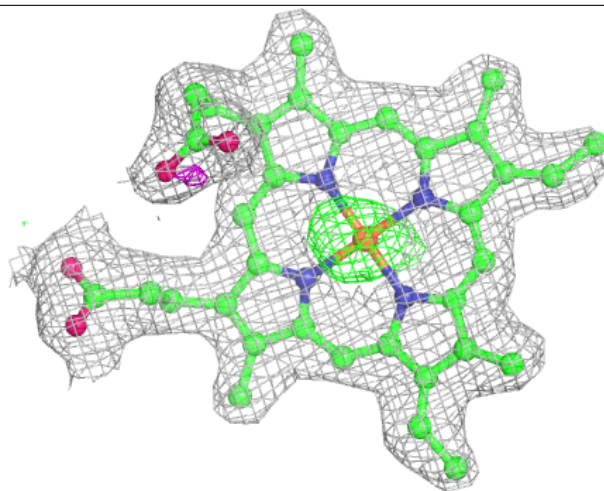
**Electron density around JZR A 4004:**

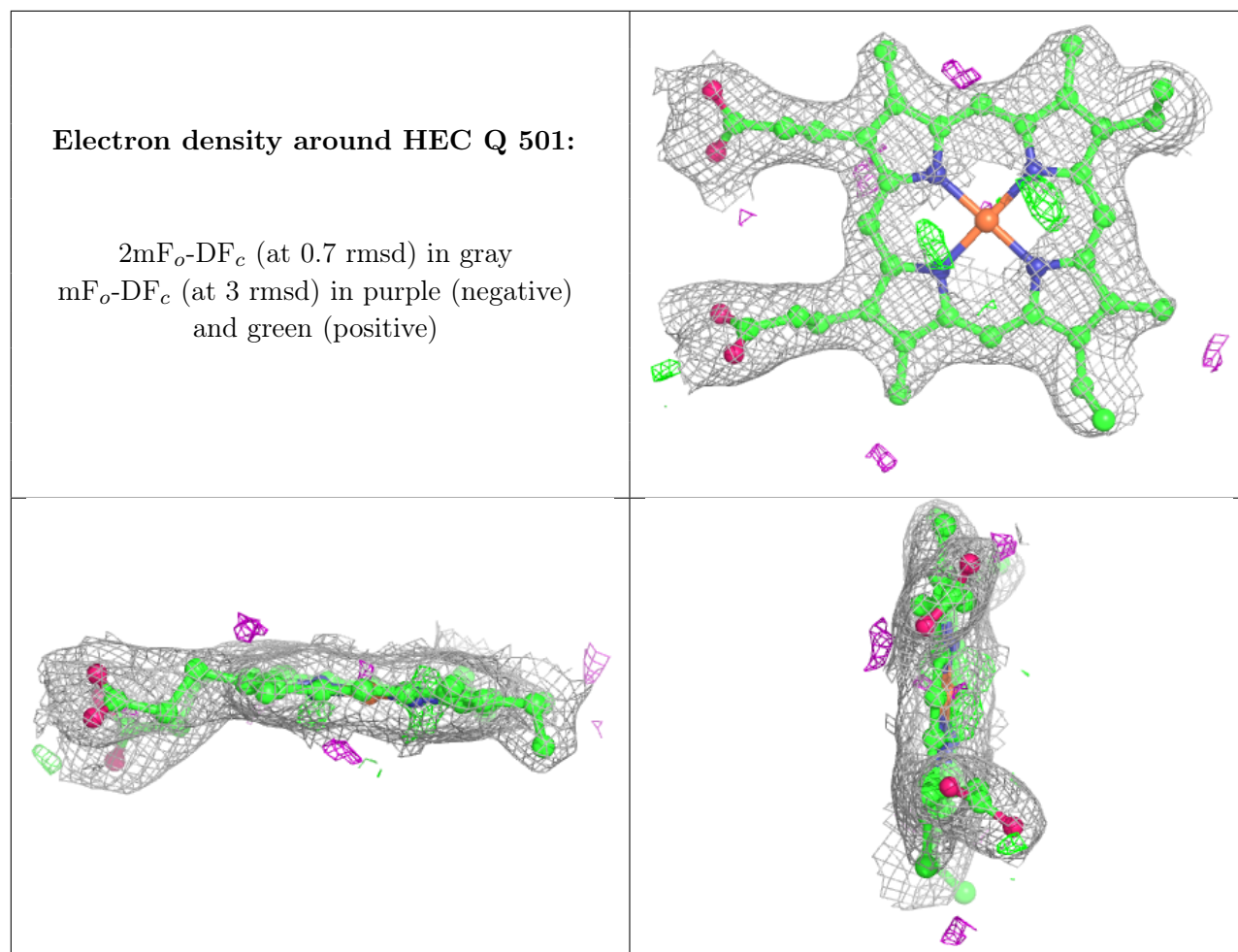
$2mF_o-DF_c$ (at 0.7 rmsd) in gray
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and green (positive)



Electron density around HEM P 502:

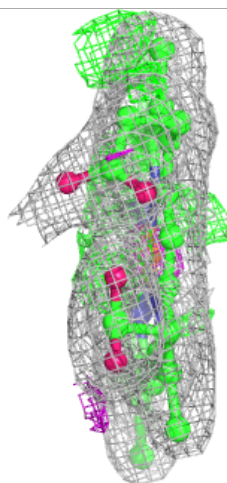
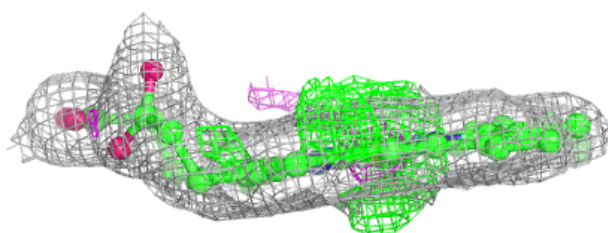
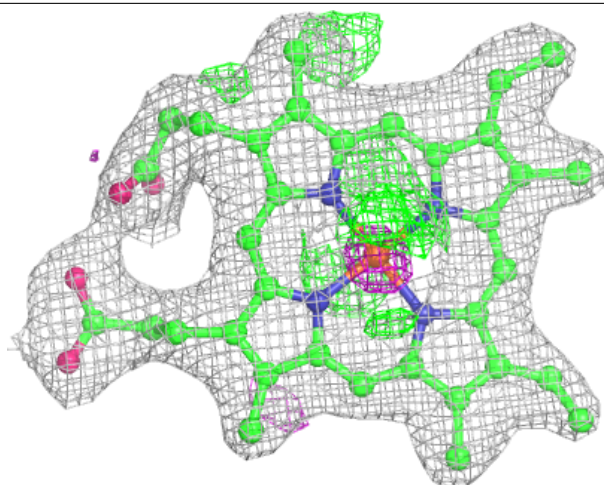
$2mF_o-DF_c$ (at 0.7 rmsd) in gray
 mF_o-DF_c (at 3 rmsd) in purple (negative)
and green (positive)





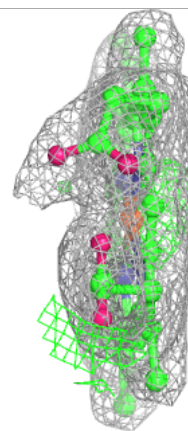
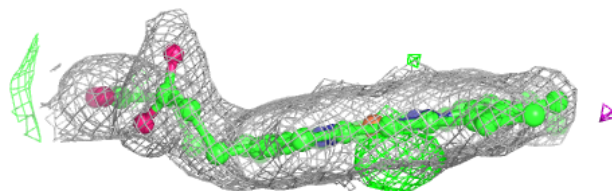
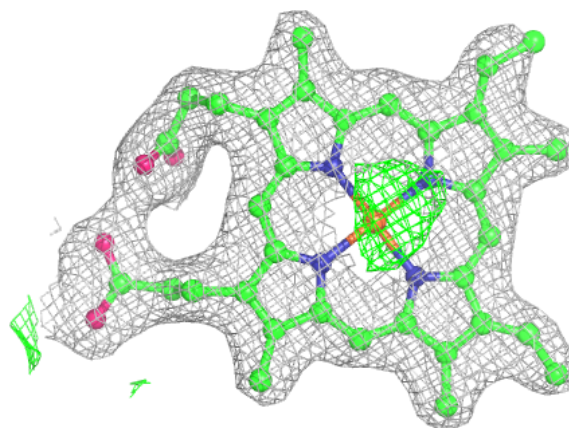
Electron density around HEM C 501:

$2mF_o-DF_c$ (at 0.7 rmsd) in gray
 mF_o-DF_c (at 3 rmsd) in purple (negative)
and green (positive)



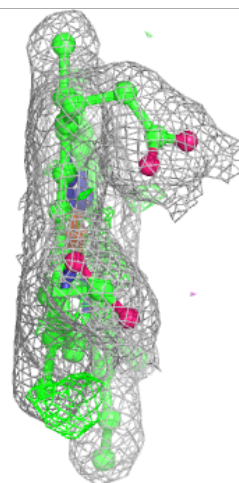
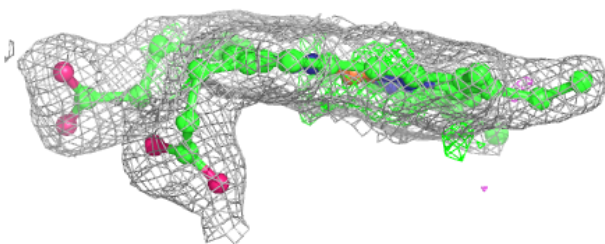
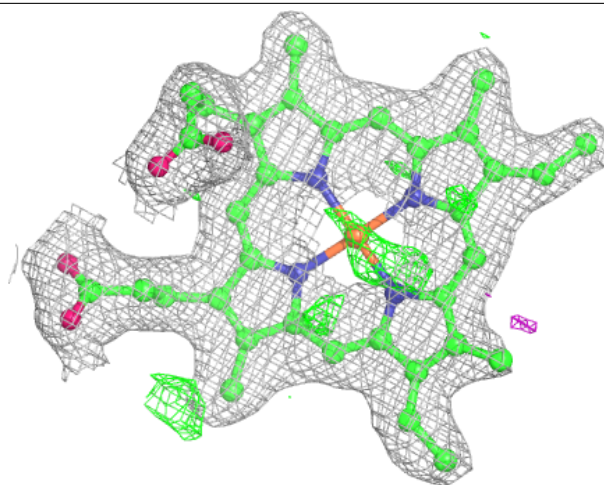
Electron density around HEM P 501:

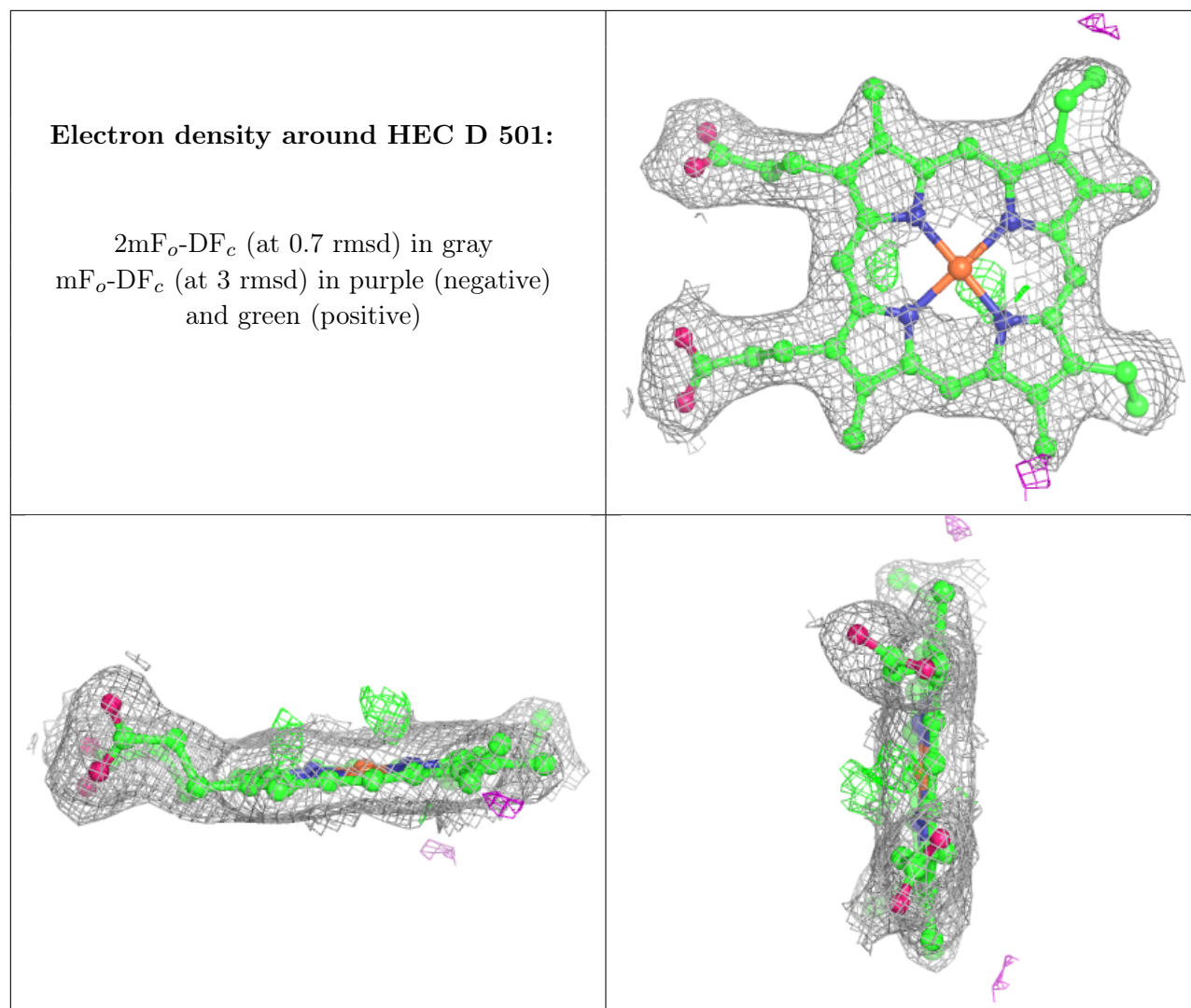
$2mF_o-DF_c$ (at 0.7 rmsd) in gray
 mF_o-DF_c (at 3 rmsd) in purple (negative)
and green (positive)



Electron density around HEM C 502:

$2mF_o-DF_c$ (at 0.7 rmsd) in gray
 mF_o-DF_c (at 3 rmsd) in purple (negative)
and green (positive)





6.5 Other polymers [\(i\)](#)

There are no such residues in this entry.