



Full wwPDB X-ray Structure Validation Report ⓘ

Mar 5, 2026 – 06:12 PM UTC

PDB ID : 5DJQ / pdb_00005djq
Title : The structure of CBB3 cytochrome oxidase.
Authors : Buschmann, S.; Warkentin, E.; Xie, H.; Kohlstaedt, M.; Langer, J.D.; Ermler, U.; Michel, H.
Deposited on : 2015-09-02
Resolution : 3.20 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	:	4-5-2 with Phenix2.0
Mogul	:	2022.3.0, CSD as543be (2022)
Xtriage (Phenix)	:	2.0
EDS	:	3.0
Buster-report	:	wwPDB partial adaption of 1.1.7 (2018)
Percentile statistics	:	20250101.v01 (using entries in the PDB archive January 1st 2025)
CCP4	:	9.0.010 (Gargrove)
Density-Fitness	:	1.0.12
Ideal geometry (proteins)	:	Engh & Huber (2001)
Ideal geometry (DNA, RNA)	:	Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP)	:	2.49

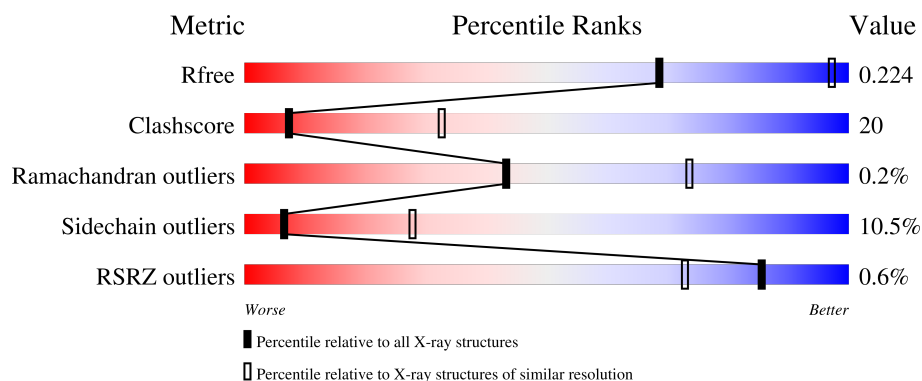
1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

X-RAY DIFFRACTION

The reported resolution of this entry is 3.20 Å.

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










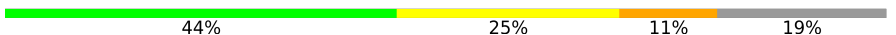
Metric	Whole archive (#Entries)	Similar resolution (#Entries, resolution range(Å))
R_{free}	180053	1466 (3.20-3.20)
Clashscore	190562	1573 (3.20-3.20)
Ramachandran outliers	187476	1548 (3.20-3.20)
Sidechain outliers	187428	1547 (3.20-3.20)
RSRZ outliers	180081	1466 (3.20-3.20)

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	474	<div> <div>%</div> <div> <div></div> <div>61%</div> <div>32%</div> <div>• •</div> </div> </div>
1	D	474	<div> <div></div> <div> <div>58%</div> <div>35%</div> <div>• •</div> </div> </div>
1	G	474	<div> <div>%</div> <div> <div></div> <div>59%</div> <div>35%</div> <div>• •</div> </div> </div>
1	K	474	<div> <div>%</div> <div> <div></div> <div>60%</div> <div>34%</div> <div>• •</div> </div> </div>
2	B	203	<div> <div></div> <div> <div>63%</div> <div>29%</div> <div>6%</div> <div>•</div> </div> </div>

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Mol	Chain	Length	Quality of chain
2	E	203	
2	H	203	
2	L	203	
3	C	311	
3	F	311	
3	I	311	
3	M	311	
4	N	36	
4	O	36	
4	P	36	
4	Q	36	

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
9	PO4	K	506	-	-	X	-

2 Entry composition

There are 11 unique types of molecules in this entry. The entry contains 31974 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 Cbb3-type cytochrome c oxidase subunit CcoN1.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
1	A	466	Total	C	N	O	S	0	0	0
			3683	2461	593	607	22			
1	D	463	Total	C	N	O	S	0	0	0
			3663	2450	590	601	22			
1	G	465	Total	C	N	O	S	0	0	0
			3676	2457	592	605	22			
1	K	465	Total	C	N	O	S	0	0	0
			3676	2457	592	605	22			

- Molecule 2 is a protein called Cbb3-type cytochrome c oxidase subunit II.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
2	B	197	Total	C	N	O	S	0	0	0
			1548	981	268	289	10			
2	E	197	Total	C	N	O	S	0	0	0
			1548	981	268	289	10			
2	H	197	Total	C	N	O	S	0	0	0
			1548	981	268	289	10			
2	L	197	Total	C	N	O	S	0	0	0
			1548	981	268	289	10			

- Molecule 3 is a protein called Cbb3-type cytochrome c oxidase subunit CcoP1.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
3	C	303	Total	C	N	O	S	0	0	0
			2312	1483	391	427	11			
3	F	303	Total	C	N	O	S	0	0	0
			2312	1483	391	427	11			
3	I	303	Total	C	N	O	S	0	0	0
			2312	1483	391	427	11			
3	M	303	Total	C	N	O	S	0	0	0
			2312	1483	391	427	11			

- | Mol | Chain | Residues | Atoms | | | | | ZeroOcc | AltConf | Trace |
|-----|-------|----------|--------------|----------|---------|---------|--------|---------|---------|-------|
| 4 | N | 29 | Total
221 | C
154 | N
31 | O
34 | S
2 | 0 | 0 | 0 |
| 4 | O | 29 | Total
221 | C
154 | N
31 | O
34 | S
2 | 0 | 0 | 0 |
| 4 | P | 29 | Total
221 | C
154 | N
31 | O
34 | S
2 | 0 | 0 | 0 |
| 4 | Q | 29 | Total
221 | C
154 | N
31 | O
34 | S
2 | 0 | 0 | 0 |

- # HEM

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf
5	A	1	Total 43	C 34	Fe 1	N 4	O 4	0	0
5	A	1	Total 43	C 34	Fe 1	N 4	O 4	0	0
5	D	1	Total 43	C 34	Fe 1	N 4	O 4	0	0
5	D	1	Total 43	C 34	Fe 1	N 4	O 4	0	0
5	G	1	Total 43	C 34	Fe 1	N 4	O 4	0	0
5	G	1	Total 43	C 34	Fe 1	N 4	O 4	0	0



WORLD WIDE
PDB
PROTEIN DATA BANK

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Mol	Chain	Residues	Atoms				ZeroOcc	AltConf
5	K	1	Total	C	Fe	N	O	
			43	34	1	4	4	
5	K	1	Total	C	Fe	N	O	
			43	34	1	4	4	

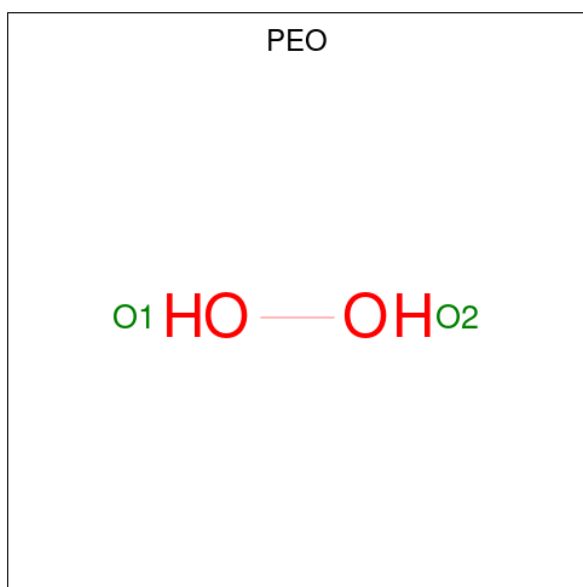
- Molecule 6 is COPPER (II) ION (CCD ID: CU) (formula: Cu).

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
6	A	1	Total	Cu		
			1	1	0	0
6	D	1	Total	Cu		
			1	1	0	0
6	G	1	Total	Cu		
			1	1	0	0
6	K	1	Total	Cu		
			1	1	0	0

- Molecule 7 is CALCIUM ION (CCD ID: CA) (formula: Ca).

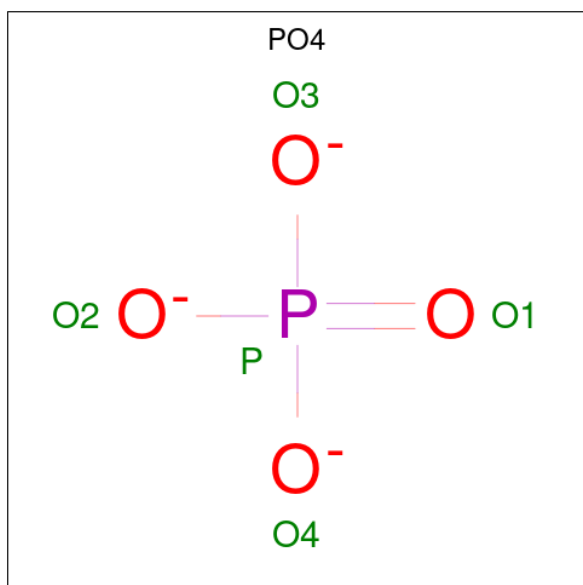
Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
7	A	2	Total	Ca		
			2	2	0	0
7	D	2	Total	Ca		
			2	2	0	0
7	G	2	Total	Ca		
			2	2	0	0
7	K	2	Total	Ca		
			2	2	0	0

- Molecule 8 is HYDROGEN PEROXIDE (CCD ID: PEO) (formula: H₂O₂).



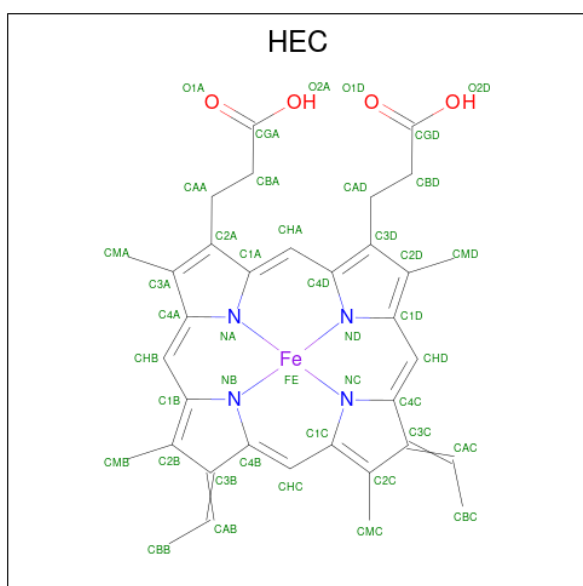
Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
8	A	1	Total O 2 2	0	0
8	D	1	Total O 2 2	0	0
8	G	1	Total O 2 2	0	0
8	K	1	Total O 2 2	0	0

- Molecule 9 is PHOSPHATE ION (CCD ID: PO4) (formula: O₄P).



Mol	Chain	Residues	Atoms			ZeroOcc	AltConf
9	A	1	Total 5	O 4	P 1	0	0
9	D	1	Total 5	O 4	P 1	0	0
9	G	1	Total 5	O 4	P 1	0	0
9	K	1	Total 5	O 4	P 1	0	0

- Molecule 10 is HEME C (CCD ID: HEC) (formula: $\text{C}_{34}\text{H}_{34}\text{FeN}_4\text{O}_4$).



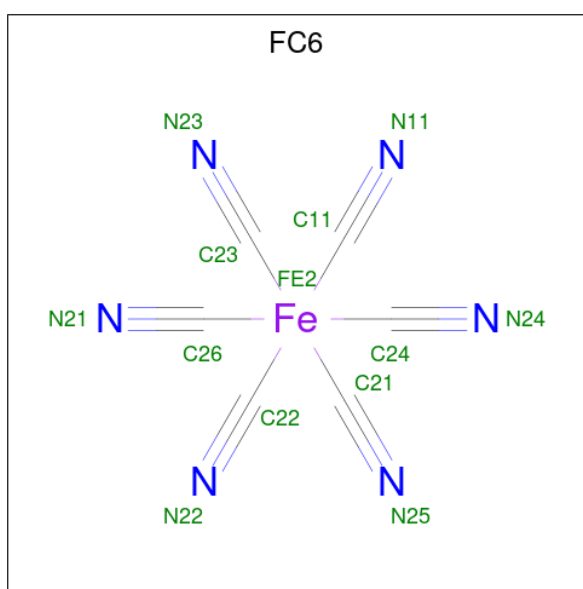
Mol	Chain	Residues	Atoms					ZeroOcc	AltConf
10	B	1	Total 43	C 34	Fe 1	N 4	O 4	0	0
10	C	1	Total 43	C 34	Fe 1	N 4	O 4	0	0
10	C	1	Total 43	C 34	Fe 1	N 4	O 4	0	0
10	E	1	Total 43	C 34	Fe 1	N 4	O 4	0	0
10	F	1	Total 43	C 34	Fe 1	N 4	O 4	0	0
10	F	1	Total 43	C 34	Fe 1	N 4	O 4	0	0
10	H	1	Total 43	C 34	Fe 1	N 4	O 4	0	0
10	I	1	Total 43	C 34	Fe 1	N 4	O 4	0	0

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Mol	Chain	Residues	Atoms				ZeroOcc	AltConf
10	I	1	Total	C	Fe	N	O	
			43	34	1	4	4	
10	L	1	Total	C	Fe	N	O	
			43	34	1	4	4	
10	M	1	Total	C	Fe	N	O	
			43	34	1	4	4	
10	M	1	Total	C	Fe	N	O	
			43	34	1	4	4	

- Molecule 11 is HEXACYANOFERRATE(3-) (CCD ID: FC6) (formula: C_6FeN_6).

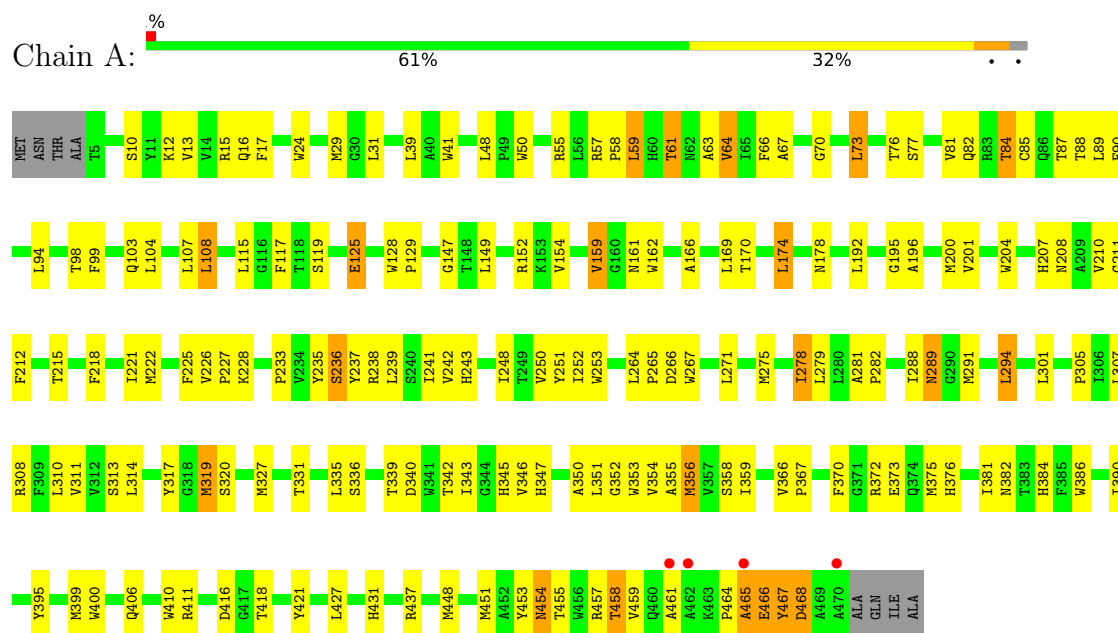


Mol	Chain	Residues	Atoms				ZeroOcc	AltConf
11	C	1	Total	C	Fe	N		
			13	6	1	6	0	0
11	F	1	Total	C	Fe	N		
			13	6	1	6	0	0
11	I	1	Total	C	Fe	N		
			13	6	1	6	0	0
11	M	1	Total	C	Fe	N		
			13	6	1	6	0	0

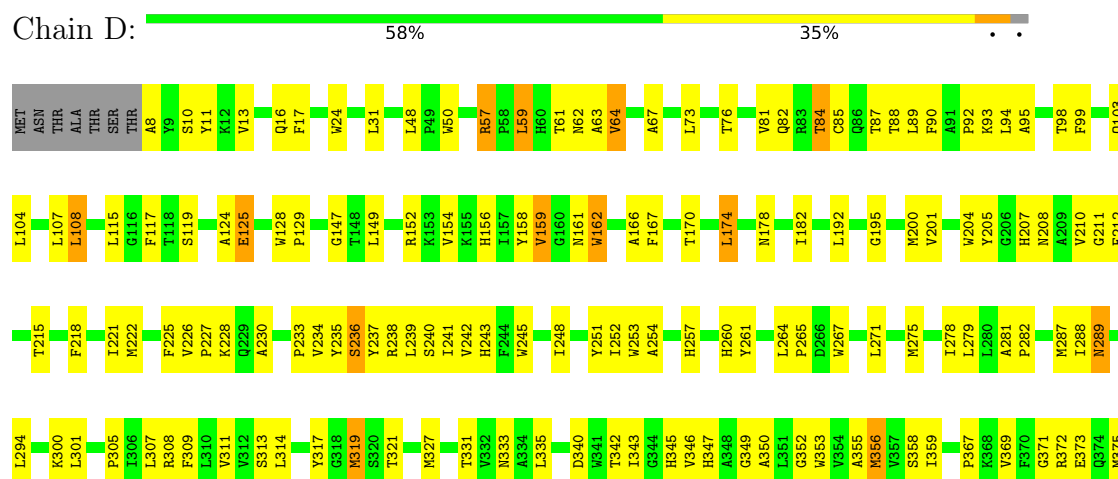
3 Residue-property plots [i](#)

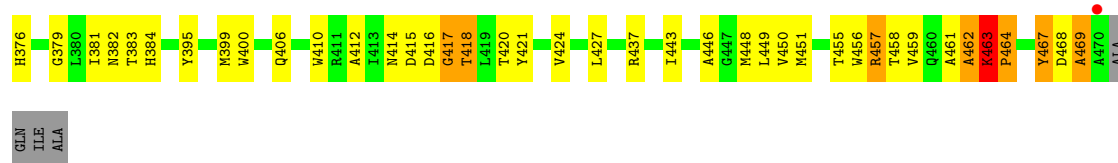
These plots are drawn for all protein, RNA, DNA and oligosaccharide chains in the entry. The first graphic for a chain summarises the proportions of the various outlier classes displayed in the second graphic. The second graphic shows the sequence view annotated by issues in geometry and electron density. 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: Cbb3-type cytochrome c oxidase subunit CcoN1

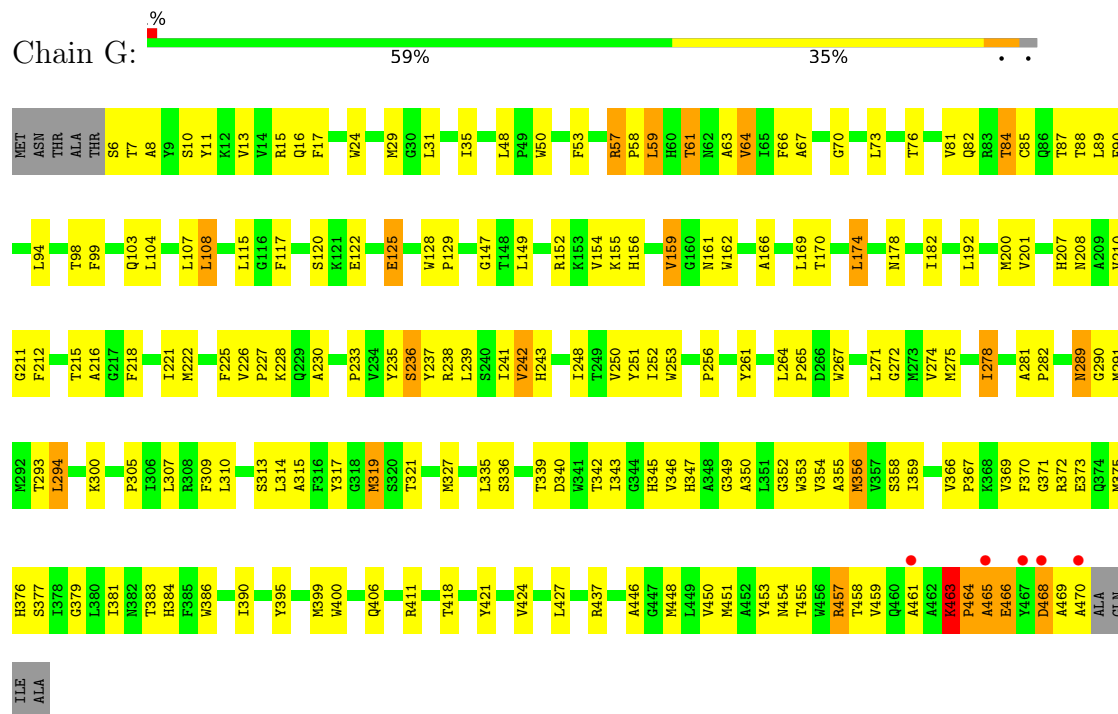


- Molecule 1: Cbb3-type cytochrome c oxidase subunit CcoN1

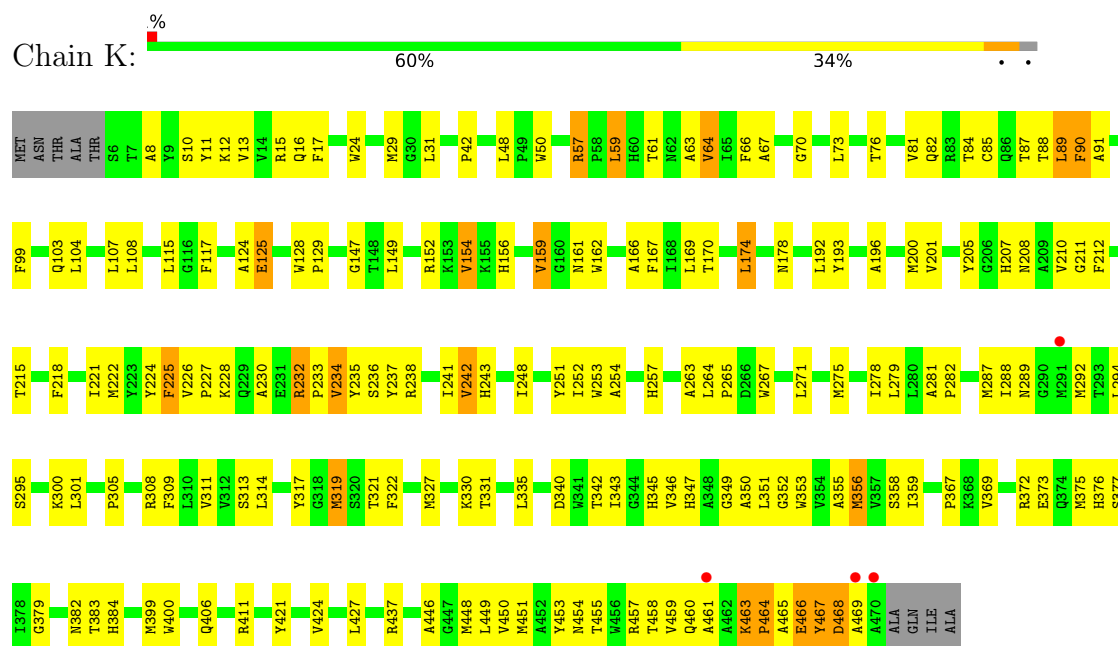




- Molecule 1: Cbb3-type cytochrome c oxidase subunit CcoN1

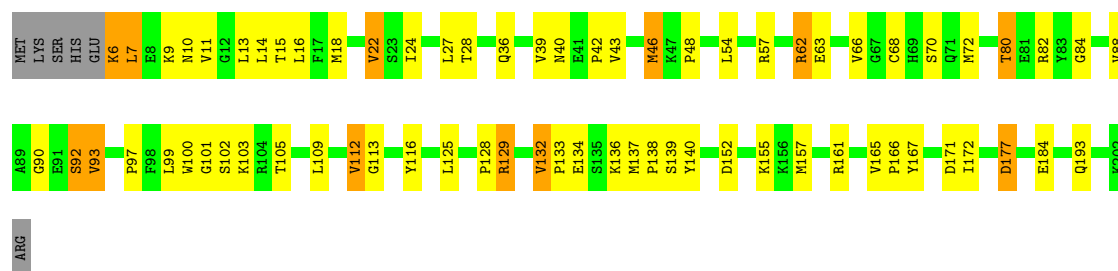


- Molecule 1: Cbb3-type cytochrome c oxidase subunit CcoN1



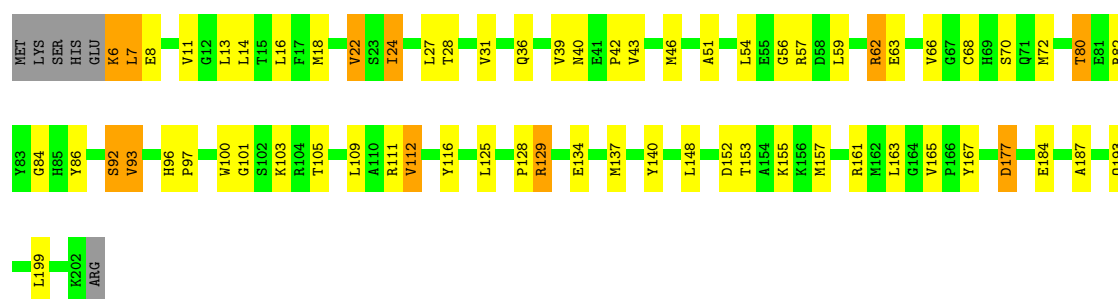
- Molecule 2: Cbb3-type cytochrome c oxidase subunit II

Chain B: 



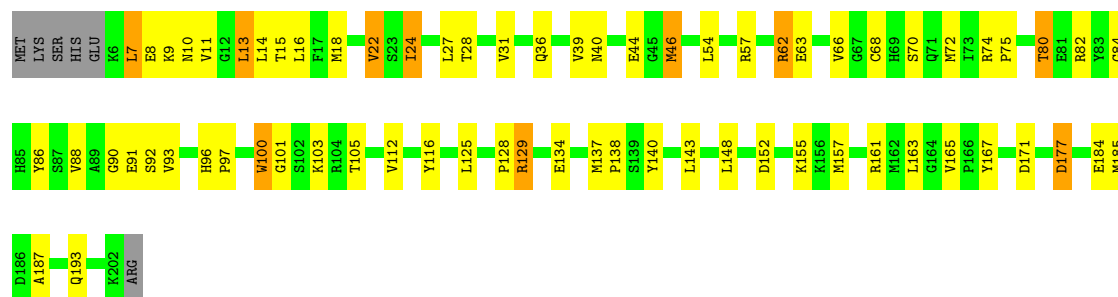
- Molecule 2: Cbb3-type cytochrome c oxidase subunit II

Chain E: 



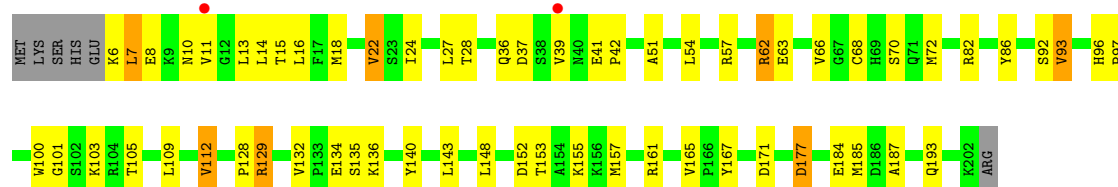
- Molecule 2: Cbb3-type cytochrome c oxidase subunit II

Chain H: 



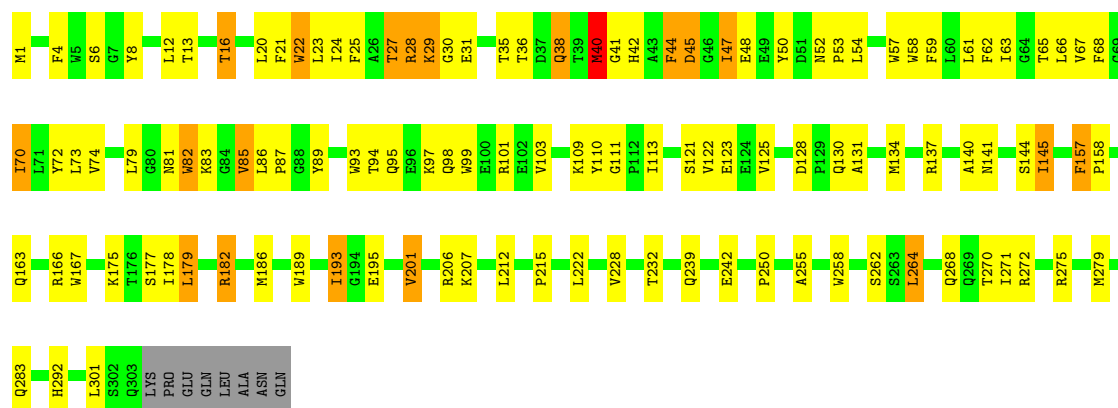
- Molecule 2: Cbb3-type cytochrome c oxidase subunit II

Chain L: 



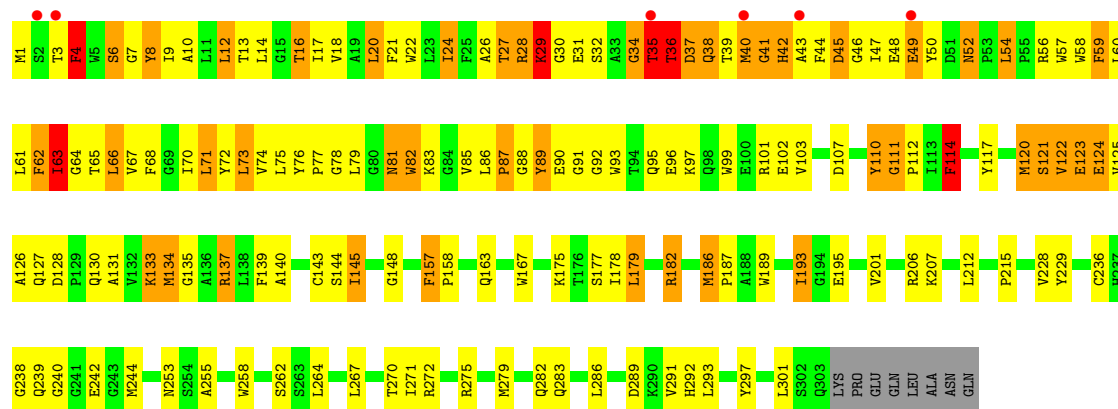
- Molecule 3: Cbb3-type cytochrome c oxidase subunit CcoP1

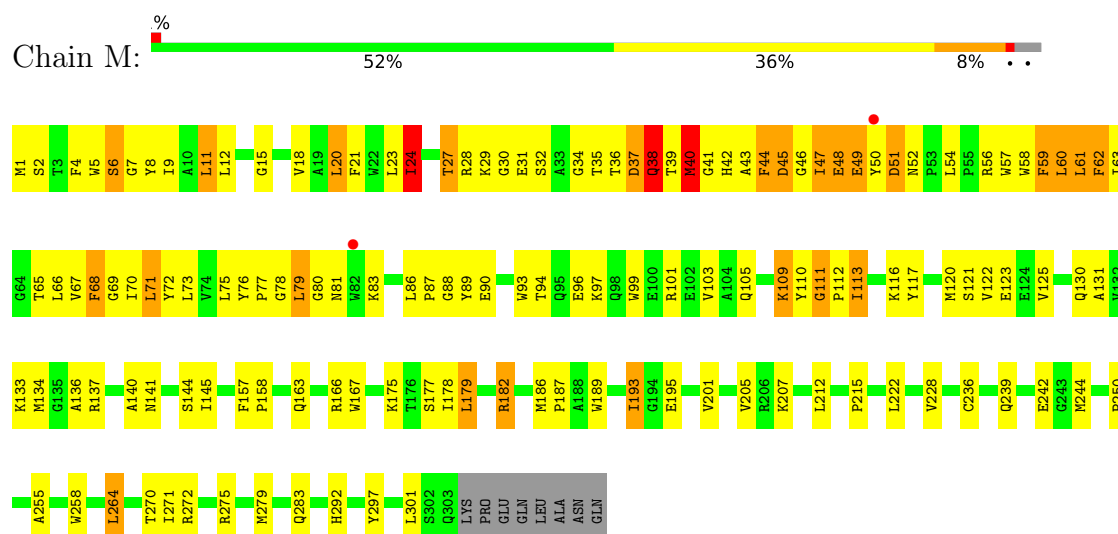
Chain C: 



• Molecule 3: Cbb3-type cytochrome c oxidase subunit CcoP1

Chain F: 

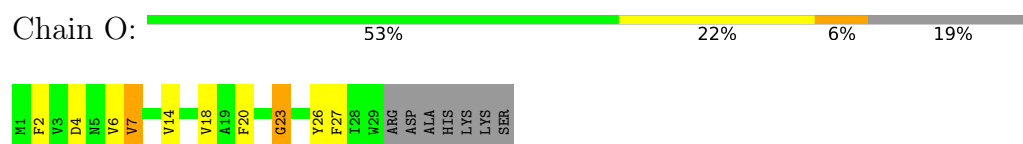




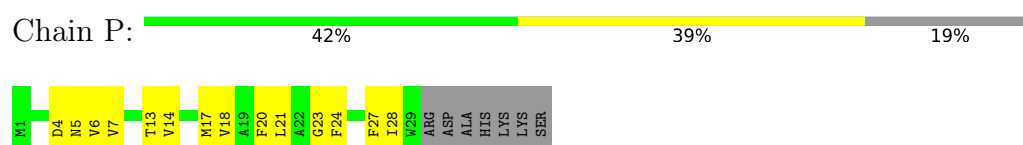
• Molecule 4: Putative uncharacterized protein



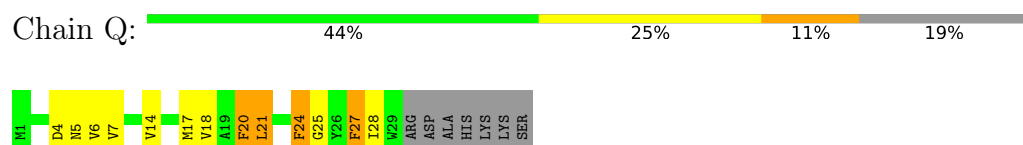
• Molecule 4: Putative uncharacterized protein



• Molecule 4: Putative uncharacterized protein



• Molecule 4: Putative uncharacterized protein



4 Data and refinement statistics

Property	Value	Source
Space group	P 21 21 2	Depositor
Cell constants a, b, c, α , β , γ	136.47Å 279.93Å 175.19Å 90.00° 90.00° 90.00°	Depositor
Resolution (Å)	14.98 – 3.20 14.98 – 3.20	Depositor EDS
% Data completeness (in resolution range)	98.5 (14.98-3.20) 97.4 (14.98-3.20)	Depositor EDS
R_{merge}	0.16	Depositor
R_{sym}	0.11	Depositor
$\langle I/\sigma(I) \rangle$ ¹	1.69 (at 3.01Å)	Xtriage
Refinement program	PHENIX 1.9_1692	Depositor
R, R_{free}	0.187 , 0.223 0.190 , 0.224	Depositor DCC
R_{free} test set	6635 reflections (4.93%)	wwPDB-VP
Wilson B-factor (Å ²)	86.4	Xtriage
Anisotropy	0.200	Xtriage
Bulk solvent k_{sol} (e/Å ³), B_{sol} (Å ²)	0.29 , 78.4	EDS
L-test for twinning ²	$\langle L \rangle = 0.45$, $\langle L^2 \rangle = 0.28$	Xtriage
Estimated twinning fraction	No twinning to report.	Xtriage
F_o, F_c correlation	0.94	EDS
Total number of atoms	31974	wwPDB-VP
Average B, all atoms (Å ²)	117.0	wwPDB-VP

Xtriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 1.95% 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

5.1 Standard geometry

Bond lengths and bond angles in the following residue types are not validated in this section: FC6, CA, HEC, CU, PEO, HEM, PO4

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	0.50	0/3811	0.97	14/5210 (0.3%)
1	D	0.48	0/3791	1.03	16/5182 (0.3%)
1	G	0.50	0/3804	0.93	13/5200 (0.2%)
1	K	0.48	1/3804 (0.0%)	0.97	11/5200 (0.2%)
2	B	0.44	0/1584	0.91	4/2146 (0.2%)
2	E	0.37	0/1584	0.85	2/2146 (0.1%)
2	H	0.43	0/1584	0.88	3/2146 (0.1%)
2	L	0.38	0/1584	0.85	2/2146 (0.1%)
3	C	0.65	0/2374	1.31	25/3225 (0.8%)
3	F	0.70	1/2374 (0.0%)	1.48	52/3225 (1.6%)
3	I	0.65	0/2374	1.30	26/3225 (0.8%)
3	M	0.69	0/2374	1.30	24/3225 (0.7%)
4	N	0.57	0/227	1.06	0/309
4	O	0.53	0/227	1.12	1/309 (0.3%)
4	P	0.57	0/227	1.10	0/309
4	Q	0.67	0/227	1.25	3/309 (1.0%)
All	All	0.54	2/31950 (0.0%)	1.09	196/43512 (0.5%)

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

Mol	Chain	#Chirality outliers	#Planarity outliers
1	A	0	2
1	G	0	1
3	C	0	1
3	F	0	2
3	I	0	2
All	All	0	8

All (2) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
1	K	463	LYS	CA-C	6.43	1.60	1.52
3	F	36	THR	CB-OG1	5.05	1.51	1.43

All (196) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	D	462	ALA	N-CA-C	15.63	135.18	108.76
3	C	29	LYS	N-CA-C	13.58	126.08	111.28
1	A	467	TYR	N-CA-C	-13.04	87.81	109.46
1	A	468	ASP	N-CA-C	-11.19	86.96	110.80
3	F	102	GLU	N-CA-C	-10.54	99.79	111.28
1	K	463	LYS	CA-C-N	10.46	132.92	119.84
1	K	463	LYS	C-N-CA	10.46	132.92	119.84
3	F	45	ASP	CA-C-N	10.39	131.51	119.98
3	F	45	ASP	C-N-CA	10.39	131.51	119.98
1	A	467	TYR	CA-C-N	9.76	140.19	121.54
1	A	467	TYR	C-N-CA	9.76	140.19	121.54
1	K	467	TYR	N-CA-C	9.71	125.58	109.46
3	I	29	LYS	N-CA-C	9.44	121.57	111.28
1	D	463	LYS	CA-C-N	-9.38	109.86	119.99
1	D	463	LYS	C-N-CA	-9.38	109.86	119.99
1	K	242	VAL	CB-CA-C	-8.79	100.45	111.70
3	C	41	GLY	N-CA-C	8.77	133.97	113.18
3	F	41	GLY	CA-C-N	-8.75	107.33	122.37
3	F	41	GLY	C-N-CA	-8.75	107.33	122.37
3	C	45	ASP	CA-C-N	8.73	129.68	119.98
3	C	45	ASP	C-N-CA	8.73	129.68	119.98
3	C	42	HIS	N-CA-C	-8.73	94.22	109.06
1	A	236	SER	N-CA-C	8.65	121.83	111.02
1	G	463	LYS	O-C-N	-8.59	111.44	121.32
3	I	42	HIS	CA-C-N	8.49	134.17	122.19
3	I	42	HIS	C-N-CA	8.49	134.17	122.19
1	A	461	ALA	N-CA-C	8.38	120.04	111.07
3	C	28	ARG	CB-CA-C	-8.35	94.24	110.11
3	F	6	SER	N-CA-C	8.09	119.72	111.07
3	I	85	VAL	N-CA-C	-7.97	104.79	112.29
3	F	110	TYR	N-CA-C	7.68	122.82	113.38
3	C	44	PHE	N-CA-C	-7.66	95.93	108.41
1	D	417	GLY	N-CA-C	7.65	125.13	115.42
1	D	461	ALA	CA-C-N	-7.59	111.06	122.74
1	D	461	ALA	C-N-CA	-7.59	111.06	122.74
3	C	38	GLN	N-CA-C	-7.57	100.77	110.53

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
3	F	7	GLY	N-CA-C	-7.24	103.51	112.77
3	M	18	VAL	N-CA-C	-7.16	103.31	110.62
3	M	69	GLY	N-CA-C	-7.10	104.21	112.73
3	F	36	THR	OG1-CB-CG2	7.06	123.41	109.30
3	F	122	VAL	N-CA-C	7.04	117.80	110.62
1	D	468	ASP	N-CA-C	-7.02	95.84	110.80
3	I	41	GLY	N-CA-C	7.00	123.98	115.31
1	D	464	PRO	N-CA-C	6.99	123.27	111.32
1	G	236	SER	N-CA-C	6.96	119.72	111.02
3	F	43	ALA	N-CA-C	6.94	120.55	109.24
1	G	463	LYS	CA-C-N	6.92	132.79	120.88
1	G	463	LYS	C-N-CA	6.92	132.79	120.88
1	K	232	ARG	N-CA-C	-6.92	98.20	109.82
3	F	35	THR	N-CA-C	-6.90	103.76	111.28
3	F	111	GLY	O-C-N	6.87	123.54	121.07
3	C	41	GLY	CA-C-N	-6.85	110.59	122.37
3	C	41	GLY	C-N-CA	-6.85	110.59	122.37
3	F	43	ALA	CA-C-N	-6.82	113.38	123.00
3	F	43	ALA	C-N-CA	-6.82	113.38	123.00
3	I	28	ARG	CB-CA-C	-6.80	97.18	110.11
3	F	87	PRO	N-CA-C	6.80	122.19	111.38
3	M	88	GLY	N-CA-C	-6.79	106.39	115.21
3	F	133	LYS	N-CA-C	-6.75	103.92	111.28
3	M	111	GLY	O-C-N	6.75	123.50	121.07
1	D	469	ALA	N-CA-C	-6.75	104.93	113.43
3	C	111	GLY	O-C-N	6.65	123.47	121.07
3	F	18	VAL	N-CA-C	-6.62	104.06	110.42
3	C	42	HIS	N-CA-CB	6.51	122.78	111.13
3	I	1	MET	CB-CA-C	-6.50	97.75	110.10
1	D	236	SER	N-CA-C	6.50	119.14	111.02
3	I	44	PHE	N-CA-C	-6.43	97.93	108.41
3	I	52	ASN	CA-C-N	-6.38	114.05	120.31
3	I	52	ASN	C-N-CA	-6.38	114.05	120.31
1	K	461	ALA	N-CA-C	6.32	117.83	111.07
1	K	234	VAL	N-CA-C	6.30	117.18	109.30
1	A	464	PRO	CB-CA-C	6.30	117.13	111.40
1	A	467	TYR	O-C-N	6.29	130.39	123.22
1	D	457	ARG	CD-NE-CZ	-6.28	115.62	124.40
3	M	30	GLY	CA-C-N	-6.24	112.69	121.99
3	M	30	GLY	C-N-CA	-6.24	112.69	121.99
3	M	41	GLY	N-CA-C	6.20	119.97	111.54
1	D	457	ARG	CG-CD-NE	6.19	125.61	112.00

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
3	I	111	GLY	O-C-N	6.15	123.28	121.07
4	Q	24	PHE	CA-C-N	6.13	126.79	119.98
4	Q	24	PHE	C-N-CA	6.13	126.79	119.98
3	F	34	GLY	CA-C-O	-6.10	115.10	121.63
3	F	114	PHE	N-CA-CB	6.03	118.98	110.12
3	F	56	ARG	CB-CG-CD	5.99	125.08	111.30
3	F	22	TRP	N-CA-C	-5.95	104.80	111.28
3	M	40	MET	N-CA-C	-5.92	100.96	110.14
3	I	86	LEU	CA-C-N	-5.89	113.90	119.85
3	I	86	LEU	C-N-CA	-5.89	113.90	119.85
3	C	42	HIS	CA-C-N	5.87	130.82	122.72
3	C	42	HIS	C-N-CA	5.87	130.82	122.72
1	A	467	TYR	CA-C-O	5.87	127.17	120.54
1	G	464	PRO	N-CA-C	5.86	120.39	112.48
3	M	7	GLY	N-CA-C	-5.85	105.71	112.73
3	I	49	GLU	N-CA-C	5.81	118.37	108.90
3	F	52	ASN	CA-C-N	-5.79	114.63	120.31
3	F	52	ASN	C-N-CA	-5.79	114.63	120.31
3	C	40	MET	CA-C-N	-5.79	110.06	121.41
3	C	40	MET	C-N-CA	-5.79	110.06	121.41
3	I	15	GLY	N-CA-C	-5.79	105.79	112.73
3	M	61	LEU	N-CA-C	-5.78	104.98	111.28
3	F	186	MET	CA-C-N	-5.78	114.67	120.21
3	F	186	MET	C-N-CA	-5.78	114.67	120.21
2	B	132	VAL	CA-C-N	5.77	126.16	119.47
2	B	132	VAL	C-N-CA	5.77	126.16	119.47
3	F	29	LYS	N-CA-C	5.74	117.54	111.28
3	M	47	ILE	N-CA-C	5.74	117.59	108.87
3	F	59	PHE	CB-CA-C	5.67	120.20	110.79
3	F	73	LEU	N-CA-C	-5.66	105.11	111.28
3	C	22	TRP	N-CA-C	-5.64	105.13	111.28
1	G	468	ASP	CA-C-N	5.64	130.71	122.08
1	G	468	ASP	C-N-CA	5.64	130.71	122.08
2	B	46	MET	N-CA-C	5.63	118.39	110.23
1	D	456	TRP	CB-CG-CD1	-5.61	118.48	126.90
3	I	38	GLN	N-CA-C	-5.61	102.61	110.35
1	D	462	ALA	N-CA-CB	-5.58	101.14	110.80
3	F	49	GLU	CA-C-N	-5.58	112.94	120.87
3	F	49	GLU	C-N-CA	-5.58	112.94	120.87
3	F	117	TYR	N-CA-C	5.58	117.45	111.36
3	C	201	VAL	CB-CA-C	-5.58	104.61	112.14
2	H	46	MET	N-CA-C	5.57	118.30	110.23

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
3	I	101	ARG	N-CA-CB	-5.56	101.95	110.01
1	G	464	PRO	CA-C-O	-5.56	115.19	121.97
3	M	24	ILE	CG1-CB-CG2	-5.54	94.06	110.70
3	F	3	THR	N-CA-C	-5.54	105.24	111.28
1	D	418	THR	N-CA-C	-5.54	103.21	110.53
1	A	467	TYR	CB-CA-C	5.53	118.86	109.80
1	K	232	ARG	CA-C-N	5.52	125.99	120.14
1	K	232	ARG	C-N-CA	5.52	125.99	120.14
3	C	70	ILE	N-CA-CB	5.50	118.03	110.54
3	M	48	GLU	CA-C-N	-5.50	115.23	122.99
3	M	48	GLU	C-N-CA	-5.50	115.23	122.99
2	H	31	VAL	CB-CA-C	-5.48	108.49	113.70
3	M	59	PHE	N-CA-C	-5.48	105.30	111.28
3	I	47	ILE	N-CA-C	5.48	117.20	108.87
3	F	59	PHE	N-CA-C	-5.47	105.31	111.28
3	M	32	SER	N-CA-C	5.47	117.24	111.28
3	F	157	PHE	CA-C-N	5.45	125.37	119.76
3	F	157	PHE	C-N-CA	5.45	125.37	119.76
1	A	41	TRP	CA-C-N	5.42	125.09	119.56
1	A	41	TRP	C-N-CA	5.42	125.09	119.56
3	C	85	VAL	N-CA-C	-5.42	107.20	112.29
3	F	10	ALA	N-CA-C	-5.41	105.38	111.28
3	I	47	ILE	CB-CA-C	-5.41	103.80	111.21
3	F	89	TYR	N-CA-C	5.40	117.22	108.41
3	I	50	TYR	CA-CB-CG	5.40	123.62	113.90
3	F	49	GLU	N-CA-C	5.39	117.69	108.90
3	F	64	GLY	N-CA-C	-5.38	106.28	112.73
2	E	31	VAL	CB-CA-C	-5.36	108.61	113.70
3	M	51	ASP	N-CA-C	5.33	118.01	107.98
3	I	126	ALA	N-CA-C	-5.33	105.58	111.71
3	F	66	LEU	CB-CG-CD1	-5.33	94.72	110.70
3	C	82	TRP	N-CA-C	-5.32	102.18	110.10
3	F	4	PHE	N-CA-C	-5.31	104.73	111.11
3	C	29	LYS	CB-CA-C	-5.31	101.97	110.79
1	G	461	ALA	N-CA-C	5.31	116.75	111.07
3	F	34	GLY	N-CA-C	-5.26	103.12	110.96
3	M	34	GLY	N-CA-C	5.26	118.80	110.96
3	F	31	GLU	N-CA-C	5.23	117.28	109.59
2	L	132	VAL	CA-C-N	5.23	125.53	119.47
2	L	132	VAL	C-N-CA	5.23	125.53	119.47
3	C	157	PHE	CA-C-N	5.22	125.14	119.76
3	C	157	PHE	C-N-CA	5.22	125.14	119.76

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	G	457	ARG	CD-NE-CZ	5.19	131.66	124.40
3	I	41	GLY	CA-C-N	-5.16	114.37	122.73
3	I	41	GLY	C-N-CA	-5.16	114.37	122.73
1	A	366	VAL	CB-CA-C	-5.16	108.80	113.70
2	B	102	SER	N-CA-C	-5.15	106.81	114.64
1	K	225	PHE	N-CA-C	5.15	116.97	111.36
3	M	45	ASP	CA-C-N	-5.13	114.35	120.00
3	M	45	ASP	C-N-CA	-5.13	114.35	120.00
3	F	63	ILE	N-CA-CB	5.12	117.50	110.54
3	I	70	ILE	N-CA-CB	5.12	117.50	110.54
3	M	15	GLY	N-CA-C	-5.11	106.60	112.73
3	F	52	ASN	N-CA-C	5.10	118.25	110.50
3	M	79	LEU	CB-CG-CD1	-5.09	95.42	110.70
1	G	366	VAL	CB-CA-C	-5.08	108.87	113.70
4	Q	25	GLY	N-CA-C	-5.08	106.63	112.73
3	M	6	SER	CA-C-N	5.08	125.62	119.98
3	M	6	SER	C-N-CA	5.08	125.62	119.98
1	D	162	TRP	N-CA-C	-5.08	105.64	111.07
3	F	6	SER	CA-C-N	5.07	125.58	120.00
3	F	6	SER	C-N-CA	5.07	125.58	120.00
3	F	39	THR	N-CA-C	5.07	116.90	109.24
1	A	204	TRP	N-CA-C	-5.07	105.65	111.07
3	F	42	HIS	N-CA-C	-5.07	100.45	109.06
1	K	464	PRO	N-CA-C	5.06	122.90	112.47
3	F	81	ASN	N-CA-C	-5.06	106.88	113.16
3	C	68	PHE	N-CA-C	-5.06	105.77	111.28
1	G	242	VAL	CB-CA-C	-5.06	105.23	111.70
4	O	23	GLY	N-CA-C	-5.05	106.64	112.50
2	E	6	LYS	CB-CG-CD	5.05	122.92	111.30
3	I	88	GLY	CA-C-N	-5.03	115.91	123.00
3	I	88	GLY	C-N-CA	-5.03	115.91	123.00
2	H	100	TRP	N-CA-C	-5.01	103.53	110.35
1	G	466	GLU	N-CA-C	5.00	118.69	112.58
3	F	124	GLU	N-CA-C	-5.00	105.83	111.28

There are no chirality outliers.

All (8) planarity outliers are listed below:

Mol	Chain	Res	Type	Group
1	A	465	ALA	Mainchain
1	A	467	TYR	Peptide
3	C	44	PHE	Sidechain

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Mol	Chain	Res	Type	Group
3	F	114	PHE	Sidechain
3	F	37	ASP	Peptide
1	G	463	LYS	Mainchain
3	I	4	PHE	Sidechain
3	I	74	VAL	Mainchain

5.2 Too-close contacts

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

Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
1	A	3683	0	3663	142	0
1	D	3663	0	3644	172	0
1	G	3676	0	3656	156	0
1	K	3676	0	3656	168	0
2	B	1548	0	1526	50	0
2	E	1548	0	1526	50	0
2	H	1548	0	1526	49	0
2	L	1548	0	1526	44	0
3	C	2312	0	2237	103	0
3	F	2312	0	2237	199	0
3	I	2312	0	2237	130	0
3	M	2312	0	2237	144	0
4	N	221	0	226	9	0
4	O	221	0	226	11	0
4	P	221	0	226	13	0
4	Q	221	0	226	13	0
5	A	86	0	60	12	0
5	D	86	0	60	13	0
5	G	86	0	60	13	0
5	K	86	0	60	14	0
6	A	1	0	0	0	0
6	D	1	0	0	0	0
6	G	1	0	0	0	0
6	K	1	0	0	0	0
7	A	2	0	0	0	0
7	D	2	0	0	0	0
7	G	2	0	0	0	0
7	K	2	0	0	0	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
8	A	2	0	0	0	0
8	D	2	0	0	0	0
8	G	2	0	0	0	0
8	K	2	0	0	0	0
9	A	5	0	0	1	0
9	D	5	0	0	1	0
9	G	5	0	0	1	0
9	K	5	0	0	4	0
10	B	43	0	30	5	0
10	C	86	0	60	10	0
10	E	43	0	30	6	0
10	F	86	0	60	8	0
10	H	43	0	30	6	0
10	I	86	0	60	11	0
10	L	43	0	30	3	0
10	M	86	0	60	8	0
11	C	13	0	0	2	0
11	F	13	0	0	2	0
11	I	13	0	0	1	0
11	M	13	0	0	2	0
All	All	31974	0	31175	1293	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 20.

All (1293) 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)
1:D:207:HIS:NE2	1:D:251:TYR:CE1	1.70	1.59
1:A:207:HIS:NE2	1:A:251:TYR:CE1	1.70	1.56
1:G:207:HIS:NE2	1:G:251:TYR:CE1	1.70	1.56
1:K:207:HIS:NE2	1:K:251:TYR:CE1	1.70	1.53
1:K:207:HIS:NE2	1:K:251:TYR:HE1	1.02	1.33
1:D:207:HIS:NE2	1:D:251:TYR:HE1	1.05	1.26
1:G:207:HIS:CE1	1:G:251:TYR:HE1	1.55	1.25
1:G:207:HIS:NE2	1:G:251:TYR:HE1	1.05	1.21
1:K:207:HIS:CE1	1:K:251:TYR:HE1	1.62	1.16
1:D:207:HIS:CE1	1:D:251:TYR:HE1	1.63	1.15
1:A:207:HIS:NE2	1:A:251:TYR:HE1	1.14	1.13
1:G:207:HIS:NE2	1:G:251:TYR:CD1	2.18	1.12
3:M:43:ALA:HA	3:M:48:GLU:HB3	1.34	1.09

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:207:HIS:CE1	1:A:251:TYR:HE1	1.70	1.08
1:A:207:HIS:NE2	1:A:251:TYR:CD1	2.21	1.07
1:D:207:HIS:NE2	1:D:251:TYR:CD1	2.23	1.06
1:D:234:VAL:HB	3:F:49:GLU:HG2	1.37	1.05
1:K:207:HIS:NE2	1:K:251:TYR:CD1	2.23	1.04
1:A:207:HIS:CE1	1:A:251:TYR:CE1	2.45	1.03
1:D:462:ALA:HB1	1:D:464:PRO:HD2	1.37	1.03
1:D:418:THR:OG1	3:F:137:ARG:NH1	1.91	1.02
3:M:186:MET:HG2	10:M:402:HEC:ND	1.75	1.01
3:F:37:ASP:HB3	3:F:38:GLN:HA	1.43	1.00
1:G:237:TYR:OH	2:H:8:GLU:OE2	1.81	0.98
3:F:6:SER:OG	3:F:81:ASN:N	1.97	0.97
1:G:207:HIS:CE1	1:G:251:TYR:CE1	2.40	0.97
3:C:186:MET:HG2	10:C:401:HEC:ND	1.78	0.97
3:M:2:SER:HG	3:M:5:TRP:HD1	1.13	0.96
3:I:186:MET:HG2	10:I:402:HEC:ND	1.79	0.96
3:F:6:SER:HB2	3:F:81:ASN:HD22	1.28	0.95
1:D:207:HIS:CE1	1:D:251:TYR:CE1	2.45	0.94
3:I:137:ARG:O	3:I:141:ASN:ND2	2.01	0.94
1:K:207:HIS:CE1	1:K:251:TYR:CE1	2.46	0.93
1:G:90:PHE:HD1	1:G:147:GLY:HA3	1.34	0.93
1:D:90:PHE:CD1	1:D:147:GLY:HA3	2.03	0.92
3:F:186:MET:HG2	10:F:401:HEC:ND	1.85	0.92
3:M:68:PHE:HA	3:M:71:LEU:HD12	1.49	0.91
3:M:137:ARG:O	3:M:141:ASN:ND2	2.05	0.90
1:D:24:TRP:HE1	1:D:103:GLN:HE22	1.19	0.90
3:M:36:THR:HG22	3:M:38:GLN:NE2	1.86	0.90
1:K:242:VAL:HG22	3:M:27:THR:HG21	1.54	0.89
3:I:82:TRP:CZ2	3:I:85:VAL:HG23	2.05	0.89
1:G:7:THR:O	1:G:469:ALA:HB1	1.71	0.89
3:C:137:ARG:O	3:C:141:ASN:ND2	2.06	0.88
3:M:2:SER:HG	3:M:5:TRP:CD1	1.91	0.88
3:F:86:LEU:HG	3:F:87:PRO:HD2	1.57	0.87
1:D:233:PRO:HG2	3:F:50:TYR:CE2	2.09	0.87
1:D:446:ALA:HA	1:D:449:LEU:HD12	1.55	0.87
1:D:156:HIS:CG	3:F:42:HIS:HD2	1.92	0.86
3:F:50:TYR:HB3	3:F:52:ASN:ND2	1.90	0.86
1:A:90:PHE:HD1	1:A:147:GLY:HA3	1.41	0.86
1:G:24:TRP:HE1	1:G:103:GLN:HE22	1.23	0.85
1:G:233:PRO:HG2	3:I:50:TYR:CE2	2.11	0.85
1:A:24:TRP:HE1	1:A:103:GLN:HE22	1.24	0.85

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
3:F:92:GLY:O	3:F:97:LYS:NZ	2.10	0.85
2:L:7:LEU:HA	2:L:10:ASN:HD22	1.42	0.84
3:M:6:SER:OG	3:M:81:ASN:N	2.08	0.84
3:C:193:ILE:HD11	3:C:228:VAL:HG11	1.59	0.84
3:F:12:LEU:O	3:F:16:THR:OG1	1.95	0.84
3:I:193:ILE:HD11	3:I:228:VAL:HG11	1.58	0.83
1:K:24:TRP:HE1	1:K:103:GLN:HE22	1.22	0.83
9:K:506:PO4:O1	3:M:72:TYR:OH	1.94	0.83
1:G:15:ARG:NH2	1:G:466:GLU:OE2	2.12	0.83
1:A:233:PRO:HG2	3:C:50:TYR:CE2	2.13	0.83
1:D:245:TRP:HZ2	2:E:7:LEU:HD11	1.44	0.83
3:I:6:SER:OG	3:I:81:ASN:N	2.12	0.82
1:A:455:THR:O	1:A:459:VAL:HG23	1.80	0.82
3:I:73:LEU:HB3	3:I:79:LEU:HD11	1.63	0.81
1:K:234:VAL:HB	3:M:49:GLU:HB3	1.62	0.81
3:F:193:ILE:HD11	3:F:228:VAL:HG11	1.61	0.81
1:A:90:PHE:CD1	1:A:147:GLY:HA3	2.15	0.80
3:I:207:LYS:HD3	3:I:222:LEU:HD21	1.63	0.80
2:H:68:CYS:HB3	2:H:105:THR:HB	1.61	0.80
1:K:232:ARG:NH1	1:K:295:SER:O	2.14	0.79
3:M:193:ILE:HD11	3:M:228:VAL:HG11	1.63	0.79
1:D:156:HIS:CD2	3:F:42:HIS:HD2	2.01	0.79
2:B:68:CYS:HB3	2:B:105:THR:HB	1.63	0.78
1:G:8:ALA:HA	1:G:469:ALA:HA	1.65	0.78
9:G:506:PO4:O4	3:I:72:TYR:OH	2.00	0.78
2:H:57:ARG:NH2	2:H:97:PRO:O	2.17	0.78
3:I:82:TRP:HZ2	3:I:85:VAL:HG23	1.45	0.78
1:A:335:LEU:HB2	4:N:6:VAL:HG12	1.66	0.78
3:M:24:ILE:HD11	3:M:59:PHE:CZ	2.18	0.78
1:D:267:TRP:HA	3:F:78:GLY:HA2	1.65	0.78
1:D:90:PHE:HD1	1:D:147:GLY:HA3	1.47	0.78
3:I:86:LEU:HD12	3:I:87:PRO:HD2	1.66	0.78
3:I:90:GLU:O	3:I:97:LYS:NZ	2.16	0.78
3:F:90:GLU:O	3:F:97:LYS:NZ	2.16	0.77
1:D:207:HIS:CD2	1:D:251:TYR:CE1	2.71	0.77
3:I:1:MET:HB3	3:I:81:ASN:HD21	1.49	0.77
1:A:207:HIS:CD2	1:A:251:TYR:CE1	2.70	0.77
5:D:502:HEM:HHC	5:D:502:HEM:HBB2	1.67	0.77
1:D:455:THR:O	1:D:459:VAL:HG23	1.86	0.76
5:K:502:HEM:HBC2	5:K:502:HEM:HHD	1.64	0.76
1:G:10:SER:H	1:G:82:GLN:HE22	1.33	0.76

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
3:M:167:TRP:CE2	3:M:182:ARG:HG2	2.20	0.76
2:E:68:CYS:HB3	2:E:105:THR:HB	1.66	0.76
3:I:6:SER:HB2	3:I:81:ASN:HD22	1.51	0.76
5:D:502:HEM:HBC2	5:D:502:HEM:HHD	1.68	0.76
3:C:6:SER:OG	3:C:81:ASN:N	2.19	0.76
3:I:167:TRP:CE2	3:I:182:ARG:HG2	2.21	0.76
2:L:57:ARG:NH2	2:L:97:PRO:O	2.19	0.75
3:F:40:MET:HB2	3:F:49:GLU:O	1.85	0.75
3:F:60:LEU:HA	3:F:63:ILE:HD11	1.68	0.75
1:K:335:LEU:HB2	4:Q:6:VAL:HG12	1.69	0.75
3:M:86:LEU:HD12	3:M:87:PRO:HD2	1.67	0.75
3:M:242:GLU:OE1	3:M:242:GLU:N	2.18	0.75
3:C:186:MET:HG2	10:C:401:HEC:C4D	2.17	0.74
1:D:416:ASP:CG	3:F:137:ARG:HH22	1.95	0.74
1:D:376:HIS:N	1:D:458:THR:HG22	2.03	0.74
5:G:502:HEM:HBB2	5:G:502:HEM:HHC	1.68	0.74
3:M:43:ALA:HA	3:M:48:GLU:CB	2.16	0.74
1:D:335:LEU:HB2	4:O:6:VAL:HG12	1.70	0.74
3:I:195:GLU:OE2	3:I:272:ARG:NH1	2.20	0.74
3:F:73:LEU:HB3	3:F:79:LEU:HD11	1.70	0.74
1:G:335:LEU:HB2	4:P:6:VAL:HG12	1.70	0.74
2:L:177:ASP:N	2:L:177:ASP:OD1	2.21	0.74
2:B:57:ARG:NH2	2:B:97:PRO:O	2.21	0.73
3:I:76:TYR:C	3:I:82:TRP:HZ3	1.96	0.73
1:D:416:ASP:OD1	3:F:137:ARG:NH2	2.19	0.73
1:K:242:VAL:CG2	3:M:27:THR:HG21	2.18	0.73
3:I:82:TRP:CZ3	3:I:84:GLY:HA2	2.23	0.73
4:O:23:GLY:O	4:O:27:PHE:HB2	1.89	0.73
5:A:502:HEM:HHC	5:A:502:HEM:HBB2	1.69	0.73
3:F:66:LEU:H	3:F:66:LEU:HD12	1.52	0.73
3:M:44:PHE:N	3:M:47:ILE:O	2.21	0.73
1:A:178:ASN:HD22	1:A:201:VAL:HG12	1.54	0.72
1:G:455:THR:O	1:G:459:VAL:HG23	1.89	0.72
3:M:73:LEU:HD21	3:M:79:LEU:HD21	1.70	0.72
3:M:99:TRP:O	3:M:103:VAL:HG23	1.89	0.72
1:G:115:LEU:HB3	1:G:117:PHE:CE2	2.24	0.72
1:A:359:ILE:HD11	1:A:448:MET:HE1	1.70	0.72
3:F:167:TRP:CE2	3:F:182:ARG:HG2	2.25	0.72
3:I:36:THR:HG22	3:I:38:GLN:HB2	1.72	0.72
1:A:85:CYS:HB2	1:A:152:ARG:HB2	1.70	0.72
3:C:23:LEU:O	3:C:27:THR:OG1	2.06	0.72

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
9:D:505:PO4:O3	3:F:72:TYR:OH	2.06	0.72
3:I:1:MET:HB3	3:I:81:ASN:ND2	2.05	0.72
1:G:207:HIS:CD2	1:G:251:TYR:CE1	2.75	0.71
1:A:227:PRO:HB2	3:C:47:ILE:HD12	1.73	0.71
3:F:21:PHE:CE2	3:F:66:LEU:HD22	2.25	0.71
3:M:186:MET:HG2	10:M:402:HEC:C4D	2.20	0.71
3:C:29:LYS:HG3	3:C:30:GLY:N	2.04	0.71
1:K:85:CYS:HB2	1:K:152:ARG:HB2	1.72	0.71
3:C:66:LEU:O	3:C:70:ILE:HD12	1.89	0.71
3:F:6:SER:HB2	3:F:81:ASN:ND2	2.04	0.71
1:D:234:VAL:HB	3:F:49:GLU:CG	2.18	0.71
3:C:86:LEU:HD12	3:C:87:PRO:HD2	1.72	0.71
1:K:457:ARG:HH11	1:K:460:GLN:HE21	1.38	0.71
5:K:502:HEM:HH1	5:K:502:HEM:HBB2	1.71	0.71
1:D:10:SER:H	1:D:82:GLN:HE22	1.39	0.70
2:E:57:ARG:NH2	2:E:97:PRO:O	2.24	0.70
5:G:502:HEM:HBC2	5:G:502:HEM:HHD	1.71	0.70
5:A:502:HEM:HBC2	5:A:502:HEM:HHD	1.71	0.70
3:C:195:GLU:OE2	3:C:272:ARG:NH1	2.23	0.70
1:D:85:CYS:HB2	1:D:152:ARG:HB2	1.72	0.70
1:K:207:HIS:CD2	1:K:251:TYR:CE1	2.73	0.70
9:A:506:PO4:O3	3:C:72:TYR:OH	2.06	0.70
3:F:50:TYR:HB3	3:F:52:ASN:HD21	1.57	0.70
1:G:238:ARG:NH2	3:I:30:GLY:O	2.24	0.70
3:I:82:TRP:CH2	3:I:84:GLY:HA2	2.26	0.70
2:B:7:LEU:HA	2:B:10:ASN:HD22	1.54	0.70
1:K:149:LEU:HD21	1:K:161:ASN:HD22	1.57	0.70
1:G:166:ALA:O	1:G:170:THR:HG22	1.92	0.70
4:P:14:VAL:O	4:P:18:VAL:HG23	1.90	0.70
1:A:76:THR:HG21	1:A:221:ILE:HG12	1.72	0.70
3:F:60:LEU:HD23	3:F:63:ILE:HD11	1.73	0.70
1:G:76:THR:HG21	1:G:221:ILE:HG12	1.72	0.70
1:K:235:TYR:HE2	1:K:292:MET:HB3	1.56	0.70
3:C:82:TRP:CH2	3:C:85:VAL:HG23	2.27	0.69
1:G:85:CYS:HB2	1:G:152:ARG:HB2	1.74	0.69
2:H:7:LEU:HA	2:H:10:ASN:HD22	1.57	0.69
1:K:267:TRP:HA	3:M:78:GLY:HA2	1.74	0.69
2:L:68:CYS:HB3	2:L:105:THR:HB	1.73	0.69
1:D:156:HIS:CG	3:F:42:HIS:CD2	2.78	0.69
1:K:10:SER:HB3	1:K:89:LEU:CD1	2.21	0.69
1:G:238:ARG:HH12	3:I:30:GLY:C	2.00	0.69

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
3:M:24:ILE:HD11	3:M:59:PHE:CE2	2.25	0.69
3:M:28:ARG:HE	3:M:31:GLU:HG2	1.57	0.69
3:M:43:ALA:CA	3:M:48:GLU:HB3	2.18	0.69
3:M:195:GLU:OE2	3:M:272:ARG:NH1	2.25	0.69
3:I:66:LEU:O	3:I:70:ILE:HD12	1.92	0.69
3:C:167:TRP:CE2	3:C:182:ARG:HG2	2.27	0.69
1:K:267:TRP:HE1	2:L:36:GLN:HE22	1.41	0.69
1:K:467:TYR:O	1:K:468:ASP:HB2	1.93	0.69
1:A:166:ALA:O	1:A:170:THR:HG22	1.93	0.69
1:D:237:TYR:HD1	3:F:49:GLU:OE1	1.76	0.69
1:K:235:TYR:CE2	1:K:292:MET:HB3	2.28	0.69
1:G:375:MET:HE2	1:G:458:THR:HG21	1.74	0.69
3:F:62:PHE:CD1	3:F:66:LEU:HD11	2.28	0.68
3:M:79:LEU:H	3:M:79:LEU:HD12	1.58	0.68
1:A:31:LEU:HD11	1:A:59:LEU:HD13	1.74	0.68
5:A:501:HEM:HBC2	5:A:501:HEM:HHD	1.75	0.68
2:E:24:ILE:HG21	3:F:16:THR:HG21	1.74	0.68
3:I:242:GLU:OE1	3:I:242:GLU:N	2.24	0.68
3:F:74:VAL:HA	3:F:82:TRP:CZ2	2.28	0.68
3:F:186:MET:HG2	10:F:401:HEC:C4D	2.24	0.68
1:K:29:MET:HE1	1:K:448:MET:HE3	1.76	0.68
1:K:76:THR:HG21	1:K:221:ILE:HG12	1.76	0.68
1:G:90:PHE:CD1	1:G:147:GLY:HA3	2.24	0.68
1:G:31:LEU:HD11	1:G:59:LEU:HD13	1.76	0.68
1:K:222:MET:HG3	1:K:314:LEU:HD21	1.76	0.68
1:G:376:HIS:N	1:G:458:THR:HG22	2.09	0.67
1:K:463:LYS:CB	1:K:464:PRO:HD3	2.24	0.67
1:G:237:TYR:CE2	1:G:241:ILE:HD11	2.29	0.67
3:F:121:SER:O	3:F:125:VAL:HG23	1.94	0.67
3:F:40:MET:SD	3:F:41:GLY:N	2.68	0.67
1:D:76:THR:HG23	1:D:225:PHE:HE1	1.60	0.67
3:F:121:SER:O	3:F:125:VAL:N	2.28	0.67
3:C:62:PHE:O	3:C:66:LEU:HD12	1.94	0.67
3:F:9:ILE:O	3:F:13:THR:HG23	1.94	0.67
3:I:50:TYR:HB3	3:I:52:ASN:OD1	1.95	0.66
3:I:186:MET:HG2	10:I:402:HEC:C4D	2.24	0.66
1:K:90:PHE:HD2	1:K:91:ALA:N	1.94	0.66
1:D:166:ALA:O	1:D:170:THR:HG22	1.96	0.66
1:A:207:HIS:CD2	1:A:251:TYR:CD1	2.83	0.66
3:F:13:THR:O	3:F:17:ILE:HG13	1.96	0.66
1:G:29:MET:HE1	1:G:448:MET:HE3	1.78	0.66

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
3:M:61:LEU:O	3:M:65:THR:HG23	1.96	0.66
4:Q:24:PHE:HA	4:Q:27:PHE:HB3	1.78	0.66
2:E:86:TYR:OH	3:F:96:GLU:OE1	2.10	0.66
3:F:62:PHE:HD1	3:F:66:LEU:HD11	1.61	0.66
3:F:99:TRP:O	3:F:103:VAL:HG23	1.96	0.65
1:G:463:LYS:HB2	1:G:464:PRO:HD3	1.76	0.65
3:M:6:SER:HA	3:M:80:GLY:HA2	1.78	0.65
1:A:207:HIS:CD2	1:A:251:TYR:HE1	2.07	0.65
3:C:215:PRO:HB3	11:M:401:FC6:N24	2.12	0.65
1:A:29:MET:HE1	1:A:448:MET:HE3	1.76	0.65
1:G:149:LEU:HD21	1:G:161:ASN:HD22	1.62	0.65
1:D:149:LEU:HD21	1:D:161:ASN:HD22	1.61	0.65
1:D:207:HIS:CD2	1:D:251:TYR:CD1	2.85	0.65
1:D:416:ASP:OD1	3:F:137:ARG:NH1	2.30	0.65
3:F:36:THR:O	3:F:38:GLN:NE2	2.30	0.65
1:A:10:SER:H	1:A:82:GLN:HE22	1.44	0.65
1:A:421:TYR:O	2:B:82:ARG:NH2	2.30	0.65
1:K:421:TYR:O	2:L:82:ARG:NH2	2.30	0.65
2:B:140:TYR:CZ	10:B:301:HEC:HBB2	2.30	0.65
1:D:376:HIS:H	1:D:458:THR:CG2	2.10	0.65
1:K:84:THR:HA	3:M:45:ASP:HB2	1.78	0.65
1:K:237:TYR:CE2	1:K:241:ILE:HD11	2.32	0.65
1:K:463:LYS:HB2	1:K:464:PRO:HD3	1.79	0.65
2:E:8:GLU:OE2	3:F:42:HIS:NE2	2.31	0.64
2:H:7:LEU:HD13	2:H:13:LEU:HD22	1.77	0.64
2:H:177:ASP:OD1	2:H:177:ASP:N	2.30	0.64
3:M:117:TYR:CE1	3:M:131:ALA:HB2	2.32	0.64
1:G:267:TRP:HE1	2:H:36:GLN:HE22	1.45	0.64
2:L:72:MET:HE3	2:L:100:TRP:CD2	2.32	0.64
2:H:86:TYR:OH	3:I:96:GLU:OE1	2.06	0.64
1:D:238:ARG:HH12	3:F:30:GLY:C	2.05	0.64
1:K:465:ALA:O	1:K:467:TYR:N	2.30	0.64
2:E:62:ARG:NH1	2:E:63:GLU:OE2	2.28	0.64
2:L:14:LEU:HG	2:L:18:MET:HE2	1.80	0.64
4:N:23:GLY:O	4:N:27:PHE:HB2	1.97	0.64
2:E:128:PRO:HD2	2:E:129:ARG:HH21	1.61	0.64
4:O:4:ASP:H	4:O:7:VAL:HG22	1.62	0.64
1:D:355:ALA:O	1:D:359:ILE:HG12	1.97	0.64
3:I:4:PHE:CD1	3:I:4:PHE:C	2.75	0.64
3:M:62:PHE:CD1	3:M:66:LEU:HD11	2.33	0.64
3:M:177:SER:OG	3:M:182:ARG:NH1	2.30	0.64

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:170:THR:HG21	1:A:212:PHE:CD2	2.33	0.63
3:C:1:MET:HB3	3:C:81:ASN:OD1	1.98	0.63
1:G:274:VAL:HG21	3:I:73:LEU:CD2	2.27	0.63
1:K:359:ILE:HD11	1:K:448:MET:HE1	1.79	0.63
1:K:10:SER:HB3	1:K:89:LEU:HD12	1.79	0.63
1:K:233:PRO:HG2	3:M:50:TYR:CZ	2.34	0.63
3:C:25:PHE:HE1	3:C:59:PHE:HZ	1.46	0.63
1:D:376:HIS:H	1:D:458:THR:HG22	1.61	0.63
1:G:336:SER:O	1:G:339:THR:OG1	2.12	0.63
1:G:376:HIS:H	1:G:458:THR:HG22	1.63	0.63
4:Q:14:VAL:O	4:Q:18:VAL:HG23	1.99	0.63
1:K:166:ALA:O	1:K:170:THR:HG22	1.99	0.63
1:G:178:ASN:HD22	1:G:201:VAL:HG12	1.64	0.63
1:G:207:HIS:CD2	1:G:251:TYR:CD1	2.86	0.63
1:G:242:VAL:HG21	3:I:54:LEU:HD21	1.80	0.63
3:M:63:ILE:HA	3:M:66:LEU:HD12	1.80	0.63
1:A:222:MET:HG3	1:A:314:LEU:HD21	1.80	0.63
1:A:340:ASP:H	1:A:406:GLN:HE22	1.47	0.63
1:K:235:TYR:HE2	1:K:292:MET:CB	2.12	0.63
3:C:109:LYS:HG2	3:C:110:TYR:CD2	2.33	0.62
1:D:421:TYR:O	2:E:82:ARG:NH2	2.32	0.62
3:F:82:TRP:CD1	3:F:82:TRP:C	2.77	0.62
3:F:128:ASP:OD2	3:F:130:GLN:N	2.31	0.62
1:K:90:PHE:CD1	1:K:147:GLY:HA3	2.34	0.62
1:K:207:HIS:CD2	1:K:251:TYR:CD1	2.87	0.62
1:K:343:ILE:HG12	5:K:502:HEM:HBA2	1.80	0.62
3:M:1:MET:HB3	3:M:81:ASN:OD1	1.99	0.62
1:D:76:THR:HG21	1:D:221:ILE:HG12	1.80	0.62
3:M:94:THR:OG1	3:M:97:LYS:HG3	1.99	0.62
2:E:177:ASP:OD1	2:E:177:ASP:N	2.31	0.62
3:M:133:LYS:HE3	3:M:137:ARG:HH21	1.64	0.62
1:A:149:LEU:HD21	1:A:161:ASN:HD22	1.65	0.62
1:A:76:THR:HG23	1:A:225:PHE:HE1	1.64	0.62
3:F:29:LYS:CD	3:F:30:GLY:H	2.13	0.62
1:G:170:THR:HG21	1:G:212:PHE:CD2	2.35	0.62
1:K:235:TYR:CE2	1:K:292:MET:CB	2.82	0.62
1:K:455:THR:O	1:K:459:VAL:HG23	2.00	0.62
1:D:178:ASN:HD22	1:D:201:VAL:HG12	1.65	0.62
3:F:89:TYR:C	3:F:97:LYS:HZ3	2.07	0.62
3:M:28:ARG:HA	3:M:31:GLU:OE2	1.99	0.62
3:M:62:PHE:HE1	3:M:66:LEU:HD21	1.65	0.62

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:B:116:TYR:HE2	3:C:145:ILE:HG21	1.64	0.62
1:G:253:TRP:CH2	2:H:28:THR:HG21	2.34	0.62
1:K:31:LEU:HD11	1:K:59:LEU:HD13	1.82	0.62
1:A:267:TRP:HE1	2:B:36:GLN:HE22	1.48	0.61
1:D:375:MET:HE2	1:D:458:THR:HG21	1.82	0.61
4:O:14:VAL:O	4:O:18:VAL:HG23	2.00	0.61
3:F:62:PHE:O	3:F:66:LEU:HD12	2.01	0.61
5:G:501:HEM:HBC2	5:G:501:HEM:HHD	1.82	0.61
1:A:281:ALA:HB3	1:A:282:PRO:HD3	1.81	0.61
1:A:327:MET:HE1	1:A:345:HIS:CG	2.36	0.61
2:E:140:TYR:CZ	10:E:301:HEC:HBB2	2.34	0.61
3:F:29:LYS:HD2	3:F:30:GLY:H	1.64	0.61
1:G:236:SER:HA	3:I:52:ASN:HB2	1.82	0.61
3:C:109:LYS:HG2	3:C:110:TYR:CE2	2.34	0.61
1:A:63:ALA:O	1:A:67:ALA:HB3	2.01	0.61
2:B:72:MET:HE3	2:B:100:TRP:CD2	2.35	0.61
1:G:359:ILE:HD11	1:G:448:MET:HE1	1.83	0.61
1:A:218:PHE:HA	1:A:221:ILE:HG13	1.82	0.61
3:C:99:TRP:O	3:C:103:VAL:HG23	2.00	0.61
1:D:343:ILE:HG12	5:D:502:HEM:HBA2	1.83	0.61
1:D:384:HIS:HE1	1:D:451:MET:HE3	1.65	0.61
4:Q:24:PHE:O	4:Q:28:ILE:HG13	2.01	0.61
4:Q:27:PHE:C	4:Q:27:PHE:CD2	2.78	0.61
2:B:177:ASP:N	2:B:177:ASP:OD1	2.33	0.60
3:F:83:LYS:NZ	3:F:91:GLY:O	2.17	0.60
2:H:39:VAL:HG23	2:H:40:ASN:ND2	2.16	0.60
1:A:237:TYR:CE2	1:A:241:ILE:HD11	2.35	0.60
3:I:39:THR:HG22	3:I:40:MET:O	2.01	0.60
2:H:140:TYR:CZ	10:H:301:HEC:HBB2	2.35	0.60
3:I:97:LYS:O	3:I:101:ARG:HG3	2.01	0.60
1:A:228:LYS:NZ	3:C:45:ASP:OD1	2.31	0.60
2:B:62:ARG:NH1	2:B:63:GLU:OE2	2.31	0.60
11:C:403:FC6:N24	3:M:215:PRO:HB3	2.17	0.60
3:I:24:ILE:HD12	3:I:59:PHE:HE2	1.66	0.60
3:I:36:THR:CG2	3:I:38:GLN:HB2	2.31	0.60
3:F:195:GLU:OE2	3:F:272:ARG:NH1	2.35	0.60
1:K:76:THR:HG23	1:K:225:PHE:HE1	1.66	0.60
1:D:63:ALA:O	1:D:67:ALA:HB3	2.01	0.60
3:F:187:PRO:HG2	3:F:189:TRP:CZ2	2.37	0.60
3:I:38:GLN:CD	3:I:39:THR:H	2.09	0.60
1:K:178:ASN:HD22	1:K:201:VAL:HG12	1.67	0.60

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:291:MET:SD	4:N:24:PHE:CZ	2.95	0.60
3:C:61:LEU:O	3:C:65:THR:HG23	2.02	0.60
3:C:271:ILE:HG12	10:C:401:HEC:HMB2	1.84	0.60
1:G:63:ALA:O	1:G:67:ALA:HB3	2.01	0.60
1:G:319:MET:HE1	1:G:400:TRP:HZ2	1.66	0.60
1:K:235:TYR:CD1	1:K:236:SER:N	2.70	0.60
1:D:252:ILE:HD11	2:E:22:VAL:HG22	1.84	0.60
3:F:74:VAL:HA	3:F:82:TRP:HZ2	1.67	0.60
1:G:281:ALA:HB3	1:G:282:PRO:HD3	1.84	0.60
2:E:14:LEU:HG	2:E:18:MET:HE2	1.84	0.60
1:G:468:ASP:OD1	1:G:470:ALA:N	2.35	0.60
3:I:178:ILE:HG12	10:I:403:HEC:HMB2	1.83	0.60
1:K:319:MET:HB2	4:Q:21:LEU:HD21	1.84	0.60
3:C:59:PHE:CE1	3:C:63:ILE:HD11	2.37	0.59
1:D:417:GLY:N	3:F:110:TYR:CE2	2.70	0.59
1:A:346:VAL:HG22	5:A:501:HEM:C2D	2.37	0.59
3:I:86:LEU:HD12	3:I:87:PRO:CD	2.31	0.59
1:D:31:LEU:HD11	1:D:59:LEU:HD13	1.85	0.59
3:C:62:PHE:CD1	3:C:66:LEU:HD11	2.38	0.59
11:F:403:FC6:N24	3:I:215:PRO:HB3	2.17	0.59
1:G:227:PRO:HB2	3:I:47:ILE:HD12	1.82	0.59
2:L:140:TYR:CZ	10:L:301:HEC:HBB2	2.38	0.59
1:A:370:PHE:CE2	1:A:459:VAL:HG13	2.37	0.59
1:G:343:ILE:HG12	5:G:502:HEM:HBA2	1.85	0.59
3:I:89:TYR:CD1	3:I:93:TRP:CD1	2.91	0.59
3:M:37:ASP:C	3:M:38:GLN:NE2	2.61	0.59
2:B:193:GLN:HA	2:B:193:GLN:HE21	1.66	0.59
2:H:72:MET:HE3	2:H:100:TRP:CD2	2.38	0.59
3:I:127:GLN:HE21	3:I:127:GLN:HA	1.68	0.59
1:K:230:ALA:O	1:K:300:LYS:NZ	2.33	0.59
3:C:93:TRP:HE1	3:C:98:GLN:HE21	1.51	0.58
3:I:99:TRP:O	3:I:103:VAL:HG23	2.03	0.58
2:L:62:ARG:NH1	2:L:63:GLU:OE2	2.35	0.58
3:F:60:LEU:O	3:F:63:ILE:HG12	2.02	0.58
3:I:63:ILE:O	3:I:67:VAL:HG23	2.02	0.58
3:F:271:ILE:HG12	10:F:401:HEC:HMB2	1.85	0.58
3:I:1:MET:HE1	3:I:80:GLY:O	2.03	0.58
1:K:375:MET:HE2	1:K:458:THR:HG21	1.85	0.58
1:A:17:PHE:CZ	1:A:99:PHE:HA	2.39	0.58
3:I:40:MET:HE1	3:I:51:ASP:OD2	2.02	0.58
1:K:457:ARG:HH11	1:K:460:GLN:NE2	2.01	0.58

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
5:K:501:HEM:HHD	5:K:501:HEM:HBC2	1.83	0.58
3:M:24:ILE:CG1	3:M:59:PHE:HE2	2.16	0.58
3:C:189:TRP:HZ2	10:C:401:HEC:HMC1	1.67	0.58
1:K:10:SER:N	1:K:82:GLN:HE22	2.02	0.58
1:K:63:ALA:O	1:K:67:ALA:HB3	2.04	0.58
3:C:29:LYS:HG3	3:C:30:GLY:H	1.66	0.58
1:G:347:HIS:HA	1:G:350:ALA:HB3	1.84	0.58
3:I:137:ARG:HG2	3:I:137:ARG:HH11	1.68	0.58
3:M:207:LYS:HD3	3:M:222:LEU:HD21	1.86	0.58
1:D:218:PHE:HA	1:D:221:ILE:HG13	1.85	0.58
1:D:253:TRP:CZ3	3:F:13:THR:HG22	2.39	0.58
3:C:178:ILE:HG12	10:C:402:HEC:HMB2	1.86	0.58
3:F:40:MET:N	3:F:49:GLU:O	2.37	0.58
3:M:24:ILE:HD13	3:M:24:ILE:C	2.28	0.58
3:C:189:TRP:CZ2	10:C:401:HEC:HMC1	2.39	0.57
1:D:253:TRP:CH2	2:E:28:THR:HG21	2.39	0.57
1:G:222:MET:HG3	1:G:314:LEU:HD21	1.85	0.57
1:G:218:PHE:HA	1:G:221:ILE:HG13	1.87	0.57
3:M:63:ILE:O	3:M:67:VAL:HG23	2.04	0.57
1:A:13:VAL:HA	1:A:16:GLN:HE21	1.70	0.57
1:K:235:TYR:HD1	1:K:236:SER:N	2.03	0.57
1:G:10:SER:N	1:G:82:GLN:HE22	2.02	0.57
2:L:86:TYR:OH	3:M:96:GLU:OE1	2.17	0.57
3:I:117:TYR:CZ	3:I:131:ALA:HB2	2.40	0.57
1:K:322:PHE:CE1	4:Q:17:MET:HE1	2.38	0.57
3:C:128:ASP:OD2	3:C:131:ALA:N	2.32	0.57
1:D:57:ARG:NH2	5:D:502:HEM:O2D	2.37	0.57
3:M:24:ILE:HD11	3:M:59:PHE:HZ	1.66	0.57
3:M:110:TYR:HA	3:M:113:ILE:HG13	1.86	0.57
3:I:74:VAL:O	3:I:82:TRP:CZ2	2.58	0.57
1:K:347:HIS:HA	1:K:350:ALA:HB3	1.85	0.57
3:C:25:PHE:CE1	3:C:59:PHE:HZ	2.23	0.57
1:D:242:VAL:HG22	3:F:27:THR:HG21	1.86	0.57
1:D:410:TRP:O	2:E:82:ARG:NH1	2.37	0.57
1:A:319:MET:HE1	1:A:400:TRP:HZ2	1.70	0.57
1:A:453:TYR:O	1:A:457:ARG:HG2	2.05	0.57
3:F:63:ILE:HA	3:F:66:LEU:CD1	2.34	0.57
1:K:242:VAL:HG21	3:M:54:LEU:HD21	1.87	0.57
4:P:24:PHE:HE1	4:P:28:ILE:HD11	1.69	0.57
3:C:89:TYR:CE1	3:C:93:TRP:CD1	2.93	0.56
3:F:79:LEU:O	3:F:82:TRP:HB3	2.04	0.56

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:K:218:PHE:HA	1:K:221:ILE:HG13	1.85	0.56
1:G:342:THR:O	1:G:346:VAL:HG23	2.05	0.56
5:D:501:HEM:HBC2	5:D:501:HEM:HHD	1.87	0.56
3:F:35:THR:O	3:F:52:ASN:OD1	2.24	0.56
2:H:157:MET:HE3	2:H:167:TYR:CD2	2.40	0.56
3:I:4:PHE:HD1	3:I:4:PHE:O	1.87	0.56
3:M:62:PHE:CE1	3:M:66:LEU:HD21	2.40	0.56
1:A:347:HIS:HA	1:A:350:ALA:HB3	1.88	0.56
2:E:6:LYS:HD3	2:E:8:GLU:OE2	2.06	0.56
1:A:411:ARG:NH1	4:N:4:ASP:OD2	2.39	0.56
1:D:233:PRO:HG2	3:F:50:TYR:CZ	2.41	0.56
1:G:115:LEU:HD23	1:G:117:PHE:HE2	1.70	0.56
1:G:291:MET:SD	4:P:24:PHE:HZ	2.28	0.56
1:A:211:GLY:O	1:A:215:THR:HB	2.06	0.56
3:I:140:ALA:O	3:I:144:SER:OG	2.18	0.56
1:K:235:TYR:CE1	1:K:236:SER:HB2	2.41	0.56
1:K:237:TYR:HB2	3:M:49:GLU:HG3	1.87	0.56
3:M:20:LEU:HD22	3:M:62:PHE:HZ	1.70	0.56
1:A:359:ILE:HD11	1:A:448:MET:CE	2.36	0.56
3:C:89:TYR:CD2	3:C:101:ARG:NH1	2.74	0.56
3:F:123:GLU:O	3:F:126:ALA:HB3	2.06	0.56
1:D:281:ALA:HB3	1:D:282:PRO:HD3	1.87	0.56
1:D:384:HIS:CE1	1:D:451:MET:HE3	2.41	0.56
1:K:170:THR:HG21	1:K:212:PHE:CD2	2.41	0.56
1:A:57:ARG:NH1	5:A:502:HEM:O2A	2.39	0.55
1:A:253:TRP:CH2	2:B:28:THR:HG21	2.40	0.55
2:B:157:MET:HE3	2:B:167:TYR:CD2	2.41	0.55
1:D:222:MET:HG3	1:D:314:LEU:HD21	1.87	0.55
1:D:245:TRP:CZ2	2:E:7:LEU:HD11	2.32	0.55
3:F:45:ASP:CG	3:F:46:GLY:H	2.13	0.55
3:I:4:PHE:C	3:I:4:PHE:HD1	2.14	0.55
3:C:94:THR:OG1	3:C:97:LYS:HG3	2.06	0.55
1:D:347:HIS:HA	1:D:350:ALA:HB3	1.87	0.55
1:K:281:ALA:HB3	1:K:282:PRO:HD3	1.88	0.55
1:D:8:ALA:HA	1:D:469:ALA:O	2.06	0.55
3:I:89:TYR:CE1	3:I:93:TRP:CD1	2.95	0.55
3:I:116:LYS:O	3:I:120:MET:HG3	2.06	0.55
3:M:8:TYR:HE2	3:M:12:LEU:HD12	1.71	0.55
2:B:14:LEU:HG	2:B:18:MET:HE2	1.87	0.55
1:K:457:ARG:NH1	1:K:460:GLN:NE2	2.55	0.55
3:F:24:ILE:HG13	3:F:59:PHE:HE1	1.71	0.55

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:G:352:GLY:O	1:G:356:MET:HG3	2.06	0.55
3:F:6:SER:HG	3:F:81:ASN:H	1.48	0.55
3:F:63:ILE:HA	3:F:66:LEU:HD13	1.88	0.55
3:F:83:LYS:HD2	3:F:92:GLY:HA3	1.89	0.55
1:G:376:HIS:H	1:G:458:THR:CG2	2.19	0.55
1:G:421:TYR:O	2:H:82:ARG:NH2	2.40	0.55
1:K:376:HIS:N	1:K:458:THR:HG22	2.22	0.55
1:D:211:GLY:O	1:D:215:THR:HB	2.07	0.55
1:D:235:TYR:CE1	1:D:236:SER:HB2	2.42	0.55
1:G:242:VAL:HG22	3:I:27:THR:HG21	1.89	0.55
1:A:233:PRO:CG	3:C:50:TYR:CE2	2.89	0.55
1:G:367:PRO:HD3	1:G:375:MET:HE3	1.88	0.55
1:A:370:PHE:C	1:A:465:ALA:HB1	2.31	0.55
3:C:81:ASN:O	3:C:83:LYS:HD3	2.07	0.55
1:A:252:ILE:HD11	2:B:22:VAL:HG22	1.89	0.54
3:C:63:ILE:O	3:C:67:VAL:HG23	2.07	0.54
2:E:42:PRO:HG3	2:E:93:VAL:HG11	1.89	0.54
3:F:111:GLY:N	3:F:112:PRO:HD2	2.22	0.54
1:G:230:ALA:O	1:G:300:LYS:NZ	2.34	0.54
1:K:264:LEU:HD12	1:K:265:PRO:HD2	1.89	0.54
3:M:28:ARG:O	3:M:31:GLU:HB2	2.07	0.54
3:M:105:GLN:HB3	3:M:109:LYS:NZ	2.22	0.54
1:A:376:HIS:HB2	1:A:458:THR:HG22	1.90	0.54
1:D:237:TYR:OH	2:E:8:GLU:OE1	2.25	0.54
2:E:6:LYS:O	2:E:7:LEU:HG	2.06	0.54
3:F:177:SER:OG	3:F:182:ARG:NH1	2.36	0.54
3:I:74:VAL:O	3:I:82:TRP:CH2	2.60	0.54
1:K:17:PHE:CZ	1:K:99:PHE:HA	2.42	0.54
2:L:37:ASP:O	2:L:41:GLU:HG3	2.07	0.54
3:C:50:TYR:HD1	3:C:52:ASN:HD21	1.56	0.54
3:I:76:TYR:CE1	3:I:86:LEU:HD22	2.42	0.54
3:M:59:PHE:CE1	3:M:63:ILE:HD11	2.42	0.54
1:D:238:ARG:NH2	3:F:30:GLY:O	2.40	0.54
1:D:352:GLY:O	1:D:356:MET:HG3	2.08	0.54
3:M:37:ASP:C	3:M:38:GLN:HE21	2.16	0.54
4:N:14:VAL:O	4:N:18:VAL:HG23	2.07	0.54
3:C:207:LYS:HD3	3:C:222:LEU:HD21	1.89	0.54
1:D:399:MET:HE3	1:D:437:ARG:HB2	1.89	0.54
2:H:70:SER:HA	2:H:101:GLY:HA3	1.89	0.54
1:K:340:ASP:H	1:K:406:GLN:HE22	1.55	0.54
1:D:13:VAL:HA	1:D:16:GLN:HE21	1.73	0.54

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
3:F:63:ILE:O	3:F:67:VAL:HG23	2.06	0.54
1:K:10:SER:H	1:K:82:GLN:HE22	1.54	0.54
1:K:331:THR:OG1	9:K:506:PO4:O2	2.22	0.54
2:L:6:LYS:O	2:L:7:LEU:HG	2.07	0.54
3:M:187:PRO:HG2	3:M:189:TRP:CZ2	2.43	0.54
3:C:206:ARG:NH1	3:C:262:SER:O	2.40	0.54
3:F:97:LYS:HE2	3:F:101:ARG:HH12	1.73	0.54
1:K:13:VAL:HA	1:K:16:GLN:HE21	1.72	0.54
1:K:211:GLY:O	1:K:215:THR:HB	2.08	0.54
3:M:62:PHE:CE1	3:M:66:LEU:HD11	2.43	0.54
1:A:342:THR:O	1:A:346:VAL:HG23	2.07	0.54
1:D:170:THR:HG21	1:D:212:PHE:CD2	2.43	0.54
1:D:233:PRO:HB3	3:F:48:GLU:HG3	1.89	0.54
1:D:234:VAL:O	3:F:50:TYR:N	2.41	0.54
2:H:39:VAL:HG23	2:H:40:ASN:HD22	1.73	0.54
3:M:37:ASP:O	3:M:38:GLN:NE2	2.41	0.54
1:D:267:TRP:HE1	2:E:36:GLN:HE22	1.56	0.54
2:B:128:PRO:HD2	2:B:129:ARG:HH21	1.73	0.54
1:D:455:THR:C	1:D:459:VAL:HG23	2.33	0.54
2:E:70:SER:HA	2:E:101:GLY:HA3	1.90	0.54
3:F:66:LEU:O	3:F:70:ILE:HG12	2.07	0.54
1:G:64:VAL:HG11	5:G:502:HEM:C4C	2.43	0.54
3:M:28:ARG:HG3	3:M:31:GLU:CD	2.32	0.54
3:M:66:LEU:O	3:M:70:ILE:HG13	2.07	0.54
3:I:76:TYR:C	3:I:82:TRP:CZ3	2.83	0.53
3:I:177:SER:HA	3:I:182:ARG:HD2	1.91	0.53
3:M:186:MET:HG2	10:M:402:HEC:C1D	2.39	0.53
3:C:12:LEU:O	3:C:16:THR:OG1	2.26	0.53
3:F:37:ASP:OD2	3:F:50:TYR:CD1	2.62	0.53
1:D:10:SER:N	1:D:82:GLN:HE22	2.04	0.53
1:D:17:PHE:CZ	1:D:99:PHE:HA	2.43	0.53
1:D:416:ASP:C	3:F:110:TYR:CE2	2.86	0.53
1:D:371:GLY:HA3	1:D:467:TYR:CD1	2.43	0.53
1:G:17:PHE:CZ	1:G:99:PHE:HA	2.43	0.53
3:F:76:TYR:CZ	3:F:86:LEU:HD13	2.44	0.53
1:G:76:THR:HG23	1:G:225:PHE:HE1	1.73	0.53
1:G:370:PHE:CE2	1:G:459:VAL:HG13	2.43	0.53
1:D:446:ALA:O	1:D:450:VAL:HG23	2.08	0.53
1:A:238:ARG:HH22	3:C:30:GLY:C	2.17	0.53
1:A:352:GLY:O	1:A:356:MET:HG3	2.08	0.53
1:D:340:ASP:H	1:D:406:GLN:HE22	1.55	0.53

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
3:F:60:LEU:HA	3:F:63:ILE:CD1	2.37	0.53
3:I:167:TRP:CD2	3:I:182:ARG:HG2	2.44	0.53
1:A:239:LEU:HD23	1:A:289:ASN:HD22	1.74	0.53
1:D:319:MET:HE1	1:D:400:TRP:HZ2	1.72	0.53
2:H:193:GLN:HE21	2:H:193:GLN:HA	1.74	0.53
1:D:340:ASP:H	1:D:406:GLN:NE2	2.07	0.53
2:E:86:TYR:HE2	3:F:99:TRP:CE3	2.27	0.53
3:F:120:MET:CE	3:F:124:GLU:HB3	2.39	0.53
1:K:399:MET:HE3	1:K:437:ARG:HB2	1.91	0.53
3:M:39:THR:HG22	3:M:40:MET:O	2.09	0.53
1:G:82:GLN:NE2	1:G:89:LEU:H	2.07	0.53
2:L:62:ARG:HH22	2:L:184:GLU:CD	2.17	0.53
2:L:128:PRO:HD2	2:L:129:ARG:HH21	1.74	0.53
1:G:291:MET:SD	4:P:24:PHE:CZ	3.02	0.52
1:A:340:ASP:H	1:A:406:GLN:NE2	2.07	0.52
1:D:261:TYR:HA	3:F:95:GLN:OE1	2.09	0.52
3:F:8:TYR:O	3:F:12:LEU:HD12	2.09	0.52
1:G:152:ARG:NH2	2:H:9:LYS:O	2.42	0.52
3:I:61:LEU:O	3:I:65:THR:HG23	2.08	0.52
1:K:253:TRP:CH2	2:L:28:THR:HG21	2.44	0.52
2:E:62:ARG:HH22	2:E:184:GLU:CD	2.18	0.52
1:G:239:LEU:HD23	1:G:289:ASN:HD22	1.74	0.52
1:D:10:SER:H	1:D:82:GLN:NE2	2.08	0.52
3:I:8:TYR:O	3:I:12:LEU:HD12	2.10	0.52
1:K:82:GLN:CG	1:K:89:LEU:HG	2.39	0.52
1:K:238:ARG:NH2	3:M:51:ASP:OD1	2.41	0.52
1:K:330:LYS:HB2	9:K:506:PO4:O1	2.10	0.52
2:L:193:GLN:HA	2:L:193:GLN:HE21	1.74	0.52
1:G:236:SER:CA	3:I:52:ASN:HB2	2.39	0.52
3:I:177:SER:OG	3:I:182:ARG:NH1	2.40	0.52
1:D:62:ASN:HD21	1:D:125:GLU:HG3	1.74	0.52
1:G:274:VAL:HG21	3:I:73:LEU:HD21	1.89	0.52
2:L:143:LEU:HB2	2:L:185:MET:HE2	1.92	0.52
3:M:11:LEU:HD23	3:M:12:LEU:N	2.24	0.52
1:D:346:VAL:HG22	5:D:501:HEM:C2D	2.44	0.52
1:G:267:TRP:HA	3:I:78:GLY:HA2	1.92	0.52
3:I:17:ILE:HG23	3:I:66:LEU:CD2	2.40	0.52
3:M:97:LYS:O	3:M:101:ARG:HG3	2.09	0.52
2:E:24:ILE:HG21	3:F:16:THR:CG2	2.39	0.52
3:F:114:PHE:HB3	3:F:289:ASP:OD2	2.09	0.52
3:F:178:ILE:HG12	10:F:402:HEC:HMB2	1.91	0.52

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:E:152:ASP:HA	2:E:155:LYS:HE3	1.92	0.52
3:F:29:LYS:CD	3:F:30:GLY:N	2.73	0.52
3:F:34:GLY:O	3:F:36:THR:OG1	2.26	0.52
1:K:227:PRO:CB	3:M:47:ILE:HG21	2.39	0.52
1:K:321:THR:HG22	5:K:501:HEM:HAB	1.93	0.51
2:H:63:GLU:HB3	10:H:301:HEC:HBB1	1.90	0.51
3:I:25:PHE:HE1	3:I:59:PHE:HZ	1.58	0.51
3:F:40:MET:HB2	3:F:49:GLU:HB2	1.92	0.51
1:K:352:GLY:O	1:K:356:MET:HG3	2.09	0.51
2:L:157:MET:HE3	2:L:167:TYR:CD2	2.46	0.51
1:A:64:VAL:HG11	5:A:502:HEM:C4C	2.45	0.51
1:D:207:HIS:CD2	1:D:251:TYR:HE1	2.07	0.51
1:K:82:GLN:CD	1:K:89:LEU:HG	2.35	0.51
2:L:72:MET:HE3	2:L:100:TRP:CE2	2.46	0.51
3:M:8:TYR:HE2	3:M:12:LEU:CD1	2.23	0.51
2:B:152:ASP:HA	2:B:155:LYS:HE3	1.92	0.51
1:D:301:LEU:HD21	1:D:311:VAL:HG21	1.93	0.51
2:E:193:GLN:HE21	2:E:193:GLN:HA	1.74	0.51
3:F:75:LEU:HD22	3:F:86:LEU:HD12	1.92	0.51
1:G:395:TYR:CZ	1:G:437:ARG:HD2	2.46	0.51
2:H:128:PRO:HD2	2:H:129:ARG:HH21	1.75	0.51
3:M:73:LEU:HG	3:M:79:LEU:HD11	1.92	0.51
3:M:116:LYS:O	3:M:120:MET:HG3	2.11	0.51
3:C:62:PHE:CE1	3:C:66:LEU:HD11	2.46	0.51
3:F:77:PRO:HG3	3:F:93:TRP:O	2.10	0.51
3:I:56:ARG:O	3:I:59:PHE:HB3	2.09	0.51
3:I:117:TYR:CE1	3:I:131:ALA:HB2	2.46	0.51
1:A:355:ALA:O	1:A:359:ILE:HG12	2.11	0.51
3:C:59:PHE:CZ	3:C:63:ILE:HD11	2.45	0.51
3:F:206:ARG:NH1	3:F:262:SER:O	2.42	0.51
3:I:73:LEU:HB3	3:I:79:LEU:CD1	2.37	0.51
4:P:24:PHE:CE1	4:P:28:ILE:HD11	2.46	0.51
4:Q:20:PHE:C	4:Q:20:PHE:CD2	2.88	0.51
3:F:37:ASP:CB	3:F:38:GLN:HA	2.28	0.51
1:G:10:SER:H	1:G:82:GLN:NE2	2.03	0.51
1:G:252:ILE:HD11	2:H:22:VAL:HG22	1.93	0.51
1:G:355:ALA:O	1:G:359:ILE:HG12	2.11	0.51
2:L:7:LEU:HD12	2:L:7:LEU:O	2.11	0.51
3:M:11:LEU:HD23	3:M:12:LEU:HG	1.93	0.51
3:I:89:TYR:HA	3:I:101:ARG:NH2	2.26	0.51
3:M:81:ASN:O	3:M:83:LYS:HD3	2.10	0.51

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
3:M:121:SER:O	3:M:125:VAL:HG23	2.10	0.51
3:M:177:SER:HA	3:M:182:ARG:HD2	1.92	0.51
3:C:74:VAL:O	3:C:82:TRP:CH2	2.64	0.51
1:D:82:GLN:NE2	1:D:89:LEU:H	2.09	0.51
3:F:24:ILE:HG13	3:F:59:PHE:CE1	2.46	0.51
3:F:89:TYR:HD1	3:F:93:TRP:HD1	1.57	0.51
1:K:154:VAL:HG21	3:M:44:PHE:CE2	2.46	0.51
3:M:21:PHE:CE2	3:M:66:LEU:HD13	2.46	0.51
1:A:115:LEU:HB3	1:A:117:PHE:CE2	2.46	0.50
2:B:70:SER:HA	2:B:101:GLY:HA3	1.91	0.50
2:E:140:TYR:CE1	10:E:301:HEC:HBB2	2.46	0.50
3:C:215:PRO:HG3	11:M:401:FC6:N25	2.27	0.50
1:G:235:TYR:CE1	1:G:236:SER:HB2	2.47	0.50
3:I:24:ILE:HD13	3:I:24:ILE:C	2.35	0.50
1:K:350:ALA:HB1	5:K:502:HEM:CAC	2.41	0.50
5:K:501:HEM:HMB1	5:K:501:HEM:HBB2	1.92	0.50
2:L:6:LYS:HD3	2:L:8:GLU:OE2	2.11	0.50
3:M:179:LEU:HD22	3:M:283:GLN:HB2	1.94	0.50
3:F:167:TRP:CD2	3:F:182:ARG:HG2	2.46	0.50
1:K:313:SER:HB2	1:K:356:MET:HB2	1.93	0.50
2:B:62:ARG:HG3	2:B:63:GLU:N	2.27	0.50
3:C:50:TYR:CB	3:C:52:ASN:ND2	2.74	0.50
1:D:327:MET:HE1	1:D:345:HIS:CG	2.47	0.50
1:D:416:ASP:OD1	3:F:137:ARG:CZ	2.59	0.50
1:K:359:ILE:HD12	1:K:384:HIS:HE1	1.75	0.50
3:C:167:TRP:CD2	3:C:182:ARG:HG2	2.46	0.50
1:K:82:GLN:HE21	1:K:88:THR:HA	1.76	0.50
3:C:28:ARG:O	3:C:28:ARG:HG2	2.12	0.50
2:H:62:ARG:HH22	2:H:184:GLU:CD	2.20	0.50
3:M:23:LEU:O	3:M:27:THR:OG1	2.28	0.50
1:A:169:LEU:HD11	2:B:15:THR:HG23	1.94	0.50
1:D:156:HIS:CD2	3:F:42:HIS:CD2	2.92	0.50
2:E:39:VAL:HG23	2:E:40:ASN:ND2	2.27	0.50
1:G:211:GLY:O	1:G:215:THR:HB	2.11	0.50
2:H:148:LEU:HD11	2:H:187:ALA:HB2	1.94	0.50
1:K:235:TYR:CE1	3:M:52:ASN:ND2	2.79	0.50
1:A:82:GLN:NE2	1:A:89:LEU:H	2.09	0.50
3:C:4:PHE:CD2	3:C:4:PHE:C	2.89	0.50
1:D:239:LEU:HD23	1:D:289:ASN:HD22	1.76	0.50
3:F:131:ALA:O	3:F:134:MET:HB3	2.12	0.50
1:G:156:HIS:CD2	3:I:42:HIS:CD2	3.00	0.50

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:K:169:LEU:HD11	2:L:15:THR:HG23	1.94	0.50
1:K:342:THR:O	1:K:346:VAL:HG23	2.11	0.50
3:M:133:LYS:HE3	3:M:137:ARG:NH2	2.27	0.50
2:B:6:LYS:O	2:B:7:LEU:HG	2.12	0.49
1:K:367:PRO:HD3	1:K:375:MET:HE3	1.93	0.49
1:A:10:SER:N	1:A:82:GLN:HE22	2.10	0.49
1:A:94:LEU:O	1:A:98:THR:HG23	2.12	0.49
1:G:375:MET:CE	1:G:458:THR:HG21	2.41	0.49
2:H:14:LEU:HG	2:H:18:MET:HE2	1.93	0.49
1:A:238:ARG:NH2	3:C:30:GLY:O	2.45	0.49
3:F:1:MET:HB3	3:F:81:ASN:ND2	2.27	0.49
1:G:120:SER:OG	2:H:97:PRO:HG2	2.13	0.49
3:I:239:GLN:OE1	3:I:239:GLN:N	2.26	0.49
1:K:10:SER:O	1:K:89:LEU:HD11	2.12	0.49
1:K:64:VAL:HG11	5:K:502:HEM:C4C	2.47	0.49
1:K:235:TYR:CD2	1:K:292:MET:HB2	2.47	0.49
1:G:327:MET:HE1	1:G:345:HIS:CG	2.46	0.49
1:G:346:VAL:HG22	5:G:501:HEM:C2D	2.47	0.49
1:G:359:ILE:HD12	1:G:384:HIS:HE1	1.77	0.49
3:I:21:PHE:O	3:I:24:ILE:HG22	2.12	0.49
1:K:238:ARG:HG3	3:M:51:ASP:OD2	2.12	0.49
2:L:63:GLU:HB3	10:L:301:HEC:HBB1	1.93	0.49
4:O:2:PHE:CE2	4:O:4:ASP:HB2	2.48	0.49
3:F:4:PHE:CD1	3:F:4:PHE:C	2.90	0.49
3:F:29:LYS:HD3	3:F:30:GLY:N	2.27	0.49
3:F:66:LEU:HD12	3:F:66:LEU:N	2.23	0.49
1:K:8:ALA:HA	1:K:469:ALA:HA	1.93	0.49
2:L:86:TYR:HE2	3:M:99:TRP:CE3	2.30	0.49
3:M:28:ARG:NH1	3:M:59:PHE:CE1	2.80	0.49
4:O:4:ASP:H	4:O:7:VAL:CG2	2.25	0.49
3:M:122:VAL:HG22	3:M:292:HIS:CD2	2.46	0.49
1:A:15:ARG:HG2	1:A:370:PHE:CZ	2.48	0.49
1:G:238:ARG:O	1:G:242:VAL:HG23	2.12	0.49
3:I:271:ILE:HG12	10:I:402:HEC:HMB2	1.93	0.49
2:B:62:ARG:HH22	2:B:184:GLU:CD	2.20	0.49
3:F:6:SER:CB	3:F:81:ASN:HD22	2.14	0.49
3:F:121:SER:C	3:F:125:VAL:HG23	2.37	0.49
1:G:155:LYS:HE3	2:H:9:LYS:NZ	2.27	0.49
2:E:43:VAL:HG13	2:E:46:MET:HB2	1.95	0.49
3:F:89:TYR:HD1	3:F:93:TRP:CD1	2.31	0.49
3:F:229:TYR:HE1	3:F:239:GLN:HA	1.77	0.49

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
3:M:21:PHE:O	3:M:24:ILE:HG22	2.13	0.49
2:B:43:VAL:HG13	2:B:46:MET:HB2	1.93	0.48
1:D:313:SER:HB2	1:D:356:MET:HB2	1.94	0.48
1:G:15:ARG:HG2	1:G:370:PHE:CZ	2.48	0.48
2:H:88:VAL:HG12	2:H:90:GLY:H	1.78	0.48
3:I:89:TYR:CD1	3:I:93:TRP:HD1	2.30	0.48
3:C:122:VAL:HG22	3:C:292:HIS:CD2	2.47	0.48
3:C:242:GLU:CD	3:C:242:GLU:H	2.20	0.48
1:D:238:ARG:O	1:D:242:VAL:HG23	2.13	0.48
3:F:26:ALA:O	3:F:29:LYS:HG3	2.13	0.48
3:F:54:LEU:H	3:F:54:LEU:HD22	1.78	0.48
1:G:169:LEU:HD11	2:H:15:THR:HG23	1.95	0.48
1:G:468:ASP:OD1	1:G:469:ALA:N	2.45	0.48
2:L:70:SER:HA	2:L:101:GLY:HA3	1.93	0.48
3:C:73:LEU:HB3	3:C:79:LEU:HD11	1.94	0.48
1:D:24:TRP:NE1	1:D:103:GLN:HE22	2.01	0.48
1:D:342:THR:O	1:D:346:VAL:HG23	2.12	0.48
1:G:125:GLU:H	1:G:125:GLU:HG2	1.36	0.48
3:M:62:PHE:O	3:M:66:LEU:HG	2.13	0.48
1:A:418:THR:OG1	3:C:137:ARG:HD2	2.13	0.48
2:B:39:VAL:HG23	2:B:40:ASN:ND2	2.27	0.48
3:C:166:ARG:HH21	10:C:401:HEC:HAD2	1.79	0.48
2:E:72:MET:HE3	2:E:100:TRP:CD2	2.48	0.48
3:F:89:TYR:CD2	3:F:101:ARG:NH1	2.82	0.48
1:G:359:ILE:HD12	1:G:384:HIS:CE1	2.48	0.48
2:H:140:TYR:CE1	10:H:301:HEC:HBB2	2.48	0.48
1:D:84:THR:O	3:F:44:PHE:HD2	1.95	0.48
1:D:233:PRO:CG	3:F:50:TYR:CE2	2.90	0.48
2:E:157:MET:HE3	2:E:167:TYR:CD2	2.48	0.48
1:G:57:ARG:NH1	5:G:502:HEM:O2A	2.46	0.48
3:M:28:ARG:HG3	3:M:31:GLU:OE2	2.13	0.48
1:A:384:HIS:CE1	1:A:451:MET:HB2	2.49	0.48
3:F:123:GLU:O	3:F:127:GLN:HG3	2.14	0.48
3:I:179:LEU:HD23	3:I:291:VAL:HG11	1.96	0.48
3:M:37:ASP:OD1	3:M:38:GLN:N	2.46	0.48
1:D:367:PRO:HD3	1:D:375:MET:HE3	1.95	0.48
1:D:415:ASP:O	3:F:110:TYR:CE2	2.67	0.48
1:D:416:ASP:CA	3:F:110:TYR:HE2	2.26	0.48
1:G:159:VAL:HA	1:G:162:TRP:CD2	2.49	0.48
1:K:233:PRO:CG	3:M:50:TYR:CZ	2.97	0.48
1:K:340:ASP:H	1:K:406:GLN:NE2	2.12	0.48

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
4:O:20:PHE:C	4:O:20:PHE:CD2	2.92	0.48
1:G:384:HIS:CE1	1:G:451:MET:HB2	2.49	0.48
2:B:161:ARG:HA	2:B:165:VAL:O	2.14	0.48
1:D:159:VAL:HA	1:D:162:TRP:CD2	2.49	0.48
3:F:40:MET:SD	3:F:42:HIS:ND1	2.87	0.48
3:F:179:LEU:HD23	3:F:291:VAL:HG11	1.94	0.48
3:M:255:ALA:HA	3:M:258:TRP:CD2	2.49	0.48
2:B:63:GLU:HB3	10:B:301:HEC:HBB1	1.96	0.48
1:K:376:HIS:H	1:K:458:THR:CG2	2.27	0.48
1:A:29:MET:CE	1:A:448:MET:HE3	2.44	0.47
1:A:310:LEU:O	1:A:313:SER:HB3	2.13	0.47
3:C:189:TRP:O	3:C:193:ILE:HG22	2.14	0.47
3:M:111:GLY:N	3:M:112:PRO:CD	2.77	0.47
3:M:178:ILE:HG12	10:M:403:HEC:HMB2	1.96	0.47
1:A:55:ARG:HH21	2:B:63:GLU:CD	2.22	0.47
1:A:416:ASP:OD2	3:C:137:ARG:NH1	2.47	0.47
1:D:76:THR:HG21	1:D:221:ILE:CG1	2.44	0.47
1:G:315:ALA:HB2	4:P:24:PHE:CE1	2.48	0.47
3:I:122:VAL:HG22	3:I:292:HIS:CD2	2.50	0.47
3:F:14:LEU:HD23	3:F:17:ILE:HD12	1.96	0.47
1:K:57:ARG:NH2	5:K:502:HEM:O2D	2.47	0.47
1:K:227:PRO:HB3	3:M:47:ILE:HG21	1.95	0.47
1:K:346:VAL:HG22	5:K:501:HEM:C2D	2.49	0.47
3:M:44:PHE:O	3:M:47:ILE:N	2.47	0.47
1:A:346:VAL:HG22	5:A:501:HEM:C3D	2.49	0.47
1:D:346:VAL:HG22	5:D:501:HEM:C3D	2.49	0.47
1:D:455:THR:O	1:D:458:THR:OG1	2.25	0.47
3:F:82:TRP:C	3:F:82:TRP:HD1	2.19	0.47
1:K:376:HIS:H	1:K:458:THR:HG22	1.80	0.47
2:B:137:MET:HB2	10:B:301:HEC:C1D	2.44	0.47
3:I:187:PRO:HG2	3:I:189:TRP:CZ2	2.49	0.47
1:A:236:SER:HA	3:C:52:ASN:HB2	1.97	0.47
2:H:152:ASP:HA	2:H:155:LYS:HE3	1.95	0.47
3:M:105:GLN:HB3	3:M:109:LYS:HZ3	1.80	0.47
3:C:189:TRP:HZ2	10:C:401:HEC:CMC	2.27	0.47
3:C:270:THR:HG23	3:C:275:ARG:HG2	1.97	0.47
1:D:228:LYS:HA	3:F:47:ILE:HD11	1.95	0.47
1:D:230:ALA:O	1:D:300:LYS:NZ	2.38	0.47
1:D:412:ALA:HA	4:O:2:PHE:CD2	2.50	0.47
1:G:94:LEU:O	1:G:98:THR:HG23	2.13	0.47
1:G:250:VAL:HG11	1:G:278:ILE:HG22	1.97	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:G:253:TRP:CH2	3:I:13:THR:HA	2.49	0.47
1:G:310:LEU:O	1:G:313:SER:HB3	2.14	0.47
1:G:359:ILE:HD11	1:G:448:MET:CE	2.43	0.47
1:K:81:VAL:HG23	1:K:161:ASN:ND2	2.29	0.47
1:K:226:VAL:HB	1:K:227:PRO:HD3	1.96	0.47
1:K:446:ALA:O	1:K:450:VAL:HG23	2.15	0.47
2:L:161:ARG:HA	2:L:165:VAL:O	2.15	0.47
3:M:166:ARG:NH2	3:M:250:PRO:HG3	2.30	0.47
1:A:128:TRP:CG	1:A:129:PRO:HD3	2.49	0.47
1:G:233:PRO:CG	3:I:50:TYR:CE2	2.93	0.47
1:K:453:TYR:O	1:K:457:ARG:HG2	2.15	0.47
2:L:62:ARG:HG3	2:L:63:GLU:N	2.29	0.47
3:F:68:PHE:HD1	3:F:68:PHE:O	1.98	0.47
2:H:62:ARG:NH1	2:H:63:GLU:OE2	2.48	0.47
4:P:23:GLY:O	4:P:27:PHE:HB2	2.14	0.47
1:A:376:HIS:CB	1:A:458:THR:HG22	2.44	0.47
1:D:253:TRP:HZ3	3:F:13:THR:HG22	1.79	0.47
3:I:73:LEU:CD1	3:I:79:LEU:HG	2.45	0.47
3:I:189:TRP:O	3:I:193:ILE:HG22	2.15	0.47
1:K:252:ILE:HD11	2:L:22:VAL:HG22	1.97	0.47
1:K:463:LYS:HB2	1:K:464:PRO:CD	2.45	0.47
1:A:76:THR:HG21	1:A:221:ILE:CG1	2.43	0.46
3:C:279:MET:HE1	10:C:402:HEC:C4B	2.44	0.46
1:K:287:MET:HG3	1:K:288:ILE:N	2.30	0.46
2:L:140:TYR:CE1	10:L:301:HEC:HBB2	2.50	0.46
3:M:157:PHE:HA	3:M:158:PRO:HD3	1.81	0.46
1:A:319:MET:HE1	1:A:400:TRP:CZ2	2.49	0.46
2:B:157:MET:HE1	2:B:171:ASP:C	2.41	0.46
1:D:350:ALA:HB1	5:D:502:HEM:CAC	2.45	0.46
3:F:215:PRO:HB3	11:I:401:FC6:N24	2.30	0.46
3:C:179:LEU:HD22	3:C:283:GLN:HB2	1.97	0.46
1:D:124:ALA:HB2	1:D:205:TYR:CE2	2.51	0.46
2:E:63:GLU:HB3	10:E:301:HEC:HBB1	1.97	0.46
1:G:13:VAL:HA	1:G:16:GLN:HE21	1.79	0.46
1:K:156:HIS:ND1	2:L:8:GLU:OE2	2.49	0.46
1:A:242:VAL:HG21	3:C:54:LEU:HD21	1.98	0.46
3:F:32:SER:HB3	3:F:36:THR:OG1	2.14	0.46
1:G:350:ALA:HB1	5:G:502:HEM:CAC	2.46	0.46
3:M:57:TRP:CG	3:M:58:TRP:N	2.83	0.46
3:F:133:LYS:HD2	3:F:133:LYS:HA	1.76	0.46
11:F:403:FC6:C21	3:I:215:PRO:HG3	2.45	0.46

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:H:161:ARG:HA	2:H:165:VAL:O	2.15	0.46
4:P:13:THR:O	4:P:17:MET:HG2	2.16	0.46
1:D:57:ARG:NH1	5:D:502:HEM:O2A	2.48	0.46
3:F:86:LEU:HG	3:F:87:PRO:CD	2.39	0.46
3:I:6:SER:HB2	3:I:81:ASN:ND2	2.24	0.46
1:K:359:ILE:HD11	1:K:448:MET:CE	2.44	0.46
4:Q:21:LEU:HD13	4:Q:21:LEU:HA	1.60	0.46
3:C:50:TYR:HB3	3:C:52:ASN:ND2	2.31	0.46
1:D:415:ASP:O	3:F:110:TYR:HE2	1.98	0.46
3:I:89:TYR:CZ	3:I:101:ARG:HD2	2.50	0.46
1:K:174:LEU:HD21	1:K:208:ASN:HB3	1.97	0.46
3:M:236:CYS:O	3:M:244:MET:HG3	2.15	0.46
3:F:17:ILE:HA	3:F:20:LEU:HG	1.98	0.46
1:G:227:PRO:HB2	3:I:47:ILE:HG23	1.96	0.46
1:K:228:LYS:CA	3:M:47:ILE:HD11	2.45	0.46
1:A:66:PHE:O	1:A:70:GLY:HA3	2.16	0.46
2:B:113:GLY:O	2:B:193:GLN:NE2	2.49	0.46
3:F:279:MET:HE1	10:F:402:HEC:C4B	2.45	0.46
1:K:42:PRO:HG3	2:L:136:LYS:HD2	1.97	0.46
1:D:226:VAL:HB	1:D:227:PRO:HD3	1.97	0.46
3:F:57:TRP:HZ3	3:F:61:LEU:HD12	1.80	0.46
1:G:399:MET:HE3	1:G:437:ARG:HB2	1.96	0.46
2:H:137:MET:HB2	10:H:301:HEC:CHD	2.46	0.46
1:K:196:ALA:HB3	2:L:39:VAL:HB	1.97	0.46
1:K:234:VAL:N	3:M:48:GLU:O	2.49	0.46
1:K:359:ILE:HD12	1:K:384:HIS:CE1	2.50	0.46
1:A:57:ARG:NH1	5:A:502:HEM:HAA1	2.31	0.45
1:A:250:VAL:CG2	3:C:20:LEU:HD11	2.46	0.45
2:B:125:LEU:HD21	10:B:301:HEC:HMB2	1.98	0.45
3:C:85:VAL:HG12	3:C:85:VAL:O	2.15	0.45
1:D:455:THR:HG22	1:D:459:VAL:CG2	2.46	0.45
2:E:86:TYR:HE2	3:F:99:TRP:CZ3	2.33	0.45
3:F:207:LYS:HA	3:F:212:LEU:O	2.15	0.45
1:G:321:THR:HG22	5:G:501:HEM:HAB	1.98	0.45
1:K:327:MET:HE1	1:K:345:HIS:CG	2.51	0.45
4:N:20:PHE:C	4:N:20:PHE:CD2	2.95	0.45
1:A:242:VAL:HG22	3:C:27:THR:HG21	1.98	0.45
1:A:264:LEU:HD12	1:A:265:PRO:HD2	1.97	0.45
3:F:8:TYR:CE2	3:F:12:LEU:HD13	2.52	0.45
3:F:189:TRP:CZ2	10:F:401:HEC:HMC1	2.51	0.45
3:I:24:ILE:HD12	3:I:59:PHE:CE2	2.48	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
3:I:98:GLN:O	3:I:101:ARG:HB2	2.17	0.45
1:A:350:ALA:HB1	5:A:502:HEM:CAC	2.47	0.45
3:F:120:MET:HE1	3:F:124:GLU:C	2.41	0.45
3:F:122:VAL:HG22	3:F:292:HIS:NE2	2.30	0.45
3:F:128:ASP:OD2	3:F:128:ASP:C	2.58	0.45
2:H:137:MET:HB2	10:H:301:HEC:C1D	2.47	0.45
3:I:140:ALA:HA	3:I:144:SER:HB3	1.99	0.45
1:A:250:VAL:HG11	1:A:278:ILE:HG22	1.99	0.45
1:D:128:TRP:CG	1:D:129:PRO:HD3	2.51	0.45
1:K:12:LYS:HA	1:K:15:ARG:NH1	2.31	0.45
1:K:317:TYR:HB2	1:K:353:TRP:CE3	2.51	0.45
2:B:57:ARG:NH1	2:B:99:LEU:HD12	2.31	0.45
1:D:174:LEU:HD21	1:D:208:ASN:HB3	1.98	0.45
1:D:379:GLY:O	1:D:383:THR:HG23	2.17	0.45
1:D:414:ASN:HD21	1:D:420:THR:HG23	1.81	0.45
1:D:416:ASP:HA	3:F:110:TYR:HE2	1.81	0.45
1:G:156:HIS:HD2	3:I:42:HIS:CD2	2.33	0.45
3:I:239:GLN:H	3:I:239:GLN:CD	2.20	0.45
1:K:224:TYR:HE1	3:M:45:ASP:OD2	2.00	0.45
3:M:167:TRP:CD2	3:M:182:ARG:HG2	2.50	0.45
1:A:82:GLN:HE21	1:A:88:THR:HA	1.82	0.45
1:A:152:ARG:NH2	2:B:9:LYS:O	2.50	0.45
3:C:177:SER:OG	3:C:182:ARG:NH1	2.45	0.45
1:D:237:TYR:CE2	1:D:241:ILE:HD11	2.51	0.45
1:D:376:HIS:CG	1:D:457:ARG:HB2	2.51	0.45
3:F:28:ARG:O	3:F:28:ARG:HD3	2.16	0.45
3:F:236:CYS:O	3:F:244:MET:HG3	2.17	0.45
2:H:143:LEU:HB2	2:H:185:MET:HE2	1.98	0.45
1:K:90:PHE:C	1:K:90:PHE:CD2	2.95	0.45
1:K:346:VAL:HG22	5:K:501:HEM:C3D	2.52	0.45
1:A:233:PRO:HG2	3:C:50:TYR:CZ	2.51	0.45
1:K:115:LEU:HB3	1:K:117:PHE:CE2	2.51	0.45
1:K:308:ARG:NH1	1:K:382:ASN:HD21	2.14	0.45
3:M:73:LEU:CD2	3:M:79:LEU:HD11	2.46	0.45
1:A:336:SER:O	1:A:339:THR:OG1	2.17	0.45
2:B:109:LEU:O	2:B:112:VAL:HG22	2.17	0.45
2:B:140:TYR:CE1	10:B:301:HEC:HBB2	2.51	0.45
1:D:158:TYR:HB2	3:F:44:PHE:CD2	2.51	0.45
3:F:67:VAL:O	3:F:71:LEU:HD13	2.17	0.45
3:F:135:GLY:HA3	3:F:297:TYR:HB2	1.99	0.45
1:K:233:PRO:HG2	3:M:50:TYR:CE2	2.51	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:K:301:LEU:HD21	1:K:311:VAL:HG21	1.98	0.45
1:A:253:TRP:CH2	3:C:13:THR:HA	2.52	0.45
3:C:31:GLU:HG3	3:C:53:PRO:HB3	1.99	0.45
1:D:82:GLN:HE21	1:D:89:LEU:H	1.65	0.45
1:G:309:PHE:CE2	1:G:359:ILE:HG21	2.52	0.45
1:A:73:LEU:HD12	1:A:73:LEU:HA	1.81	0.45
1:A:159:VAL:HA	1:A:162:TRP:CD2	2.52	0.45
1:D:81:VAL:HG23	1:D:161:ASN:ND2	2.32	0.45
2:E:137:MET:HB2	10:E:301:HEC:C1D	2.47	0.45
1:G:212:PHE:HA	1:G:216:ALA:HB3	1.99	0.45
2:H:46:MET:HE1	2:H:91:GLU:HA	1.99	0.45
3:I:186:MET:HG2	10:I:402:HEC:C1D	2.44	0.45
3:M:270:THR:HG23	3:M:275:ARG:HG2	1.98	0.45
1:G:82:GLN:HE21	1:G:89:LEU:H	1.65	0.44
1:G:128:TRP:CG	1:G:129:PRO:HD3	2.52	0.44
3:I:255:ALA:HA	3:I:258:TRP:CD2	2.51	0.44
1:K:235:TYR:CE2	1:K:292:MET:HB2	2.51	0.44
1:K:355:ALA:O	1:K:359:ILE:HG12	2.16	0.44
3:M:40:MET:HG2	3:M:51:ASP:HB2	1.98	0.44
3:M:43:ALA:CB	3:M:48:GLU:HB3	2.46	0.44
1:A:238:ARG:O	1:A:242:VAL:HG23	2.18	0.44
1:A:291:MET:SD	4:N:24:PHE:HZ	2.40	0.44
1:A:367:PRO:HD3	1:A:375:MET:HE3	1.99	0.44
2:B:88:VAL:HG12	2:B:90:GLY:H	1.82	0.44
1:D:115:LEU:HB3	1:D:117:PHE:CE2	2.51	0.44
1:D:267:TRP:HB2	3:F:78:GLY:O	2.17	0.44
1:D:443:ILE:O	1:D:446:ALA:HB3	2.17	0.44
5:D:501:HEM:HMB1	5:D:501:HEM:HBB2	1.98	0.44
1:K:411:ARG:NH1	4:Q:4:ASP:OD2	2.51	0.44
3:M:4:PHE:CD1	3:M:4:PHE:C	2.95	0.44
3:M:205:VAL:HG21	10:M:402:HEC:HMB3	1.99	0.44
3:C:36:THR:HG22	3:C:38:GLN:HG2	1.99	0.44
3:C:40:MET:HE3	3:C:40:MET:HB2	1.75	0.44
2:E:109:LEU:O	2:E:112:VAL:HG22	2.18	0.44
3:F:68:PHE:HA	3:F:71:LEU:HD22	1.99	0.44
3:F:89:TYR:HB3	3:F:97:LYS:HZ3	1.83	0.44
3:I:121:SER:O	3:I:125:VAL:HG23	2.16	0.44
9:K:506:PO4:P	3:M:72:TYR:OH	2.75	0.44
1:D:11:TYR:CD1	1:D:369:VAL:HA	2.53	0.44
1:D:64:VAL:HG11	5:D:502:HEM:C4C	2.53	0.44
1:D:287:MET:HG3	1:D:288:ILE:N	2.31	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
3:F:73:LEU:HB3	3:F:79:LEU:CD1	2.43	0.44
1:G:82:GLN:HE21	1:G:88:THR:HA	1.83	0.44
1:K:90:PHE:CD1	1:K:147:GLY:CA	3.01	0.44
3:M:56:ARG:O	3:M:59:PHE:HB3	2.17	0.44
1:A:207:HIS:CD2	1:A:251:TYR:HD1	2.33	0.44
1:A:226:VAL:HB	1:A:227:PRO:HD3	1.99	0.44
1:D:174:LEU:HD12	1:D:204:TRP:CZ2	2.52	0.44
3:F:38:GLN:CA	3:F:38:GLN:HE21	2.29	0.44
3:F:89:TYR:CD1	3:F:93:TRP:HD1	2.36	0.44
1:K:384:HIS:CE1	1:K:451:MET:HB2	2.52	0.44
2:L:152:ASP:HA	2:L:155:LYS:HE3	1.98	0.44
3:M:38:GLN:O	3:M:50:TYR:CE2	2.71	0.44
1:A:305:PRO:HB2	1:A:381:ILE:HG22	1.98	0.44
2:B:157:MET:HE2	2:B:172:ILE:HG13	1.99	0.44
1:G:76:THR:HG21	1:G:221:ILE:CG1	2.45	0.44
1:G:261:TYR:HA	3:I:95:GLN:OE1	2.18	0.44
1:G:264:LEU:HD12	1:G:265:PRO:HD2	1.99	0.44
1:G:377:SER:H	1:G:454:ASN:HD21	1.66	0.44
2:L:148:LEU:HD11	2:L:187:ALA:HB2	2.00	0.44
1:D:331:THR:O	4:O:6:VAL:HG13	2.18	0.44
1:G:340:ASP:H	1:G:406:GLN:HE22	1.65	0.44
2:L:129:ARG:HD3	2:L:135:SER:O	2.18	0.44
4:Q:4:ASP:H	4:Q:7:VAL:HB	1.82	0.44
1:A:39:LEU:HD23	1:A:39:LEU:HA	1.88	0.44
3:C:121:SER:O	3:C:125:VAL:HG23	2.18	0.44
5:G:501:HEM:HMB1	5:G:501:HEM:HBB2	1.99	0.44
1:A:81:VAL:HG23	1:A:161:ASN:ND2	2.33	0.44
3:C:157:PHE:HA	3:C:158:PRO:HD3	1.83	0.44
2:E:80:THR:HA	2:E:84:GLY:O	2.18	0.44
3:F:88:GLY:O	3:F:89:TYR:HD2	2.01	0.44
1:G:108:LEU:HD12	1:G:108:LEU:HA	1.80	0.44
1:G:305:PRO:HB2	1:G:381:ILE:HG22	2.00	0.44
1:K:76:THR:HG21	1:K:221:ILE:CG1	2.46	0.44
1:K:90:PHE:HD2	1:K:90:PHE:C	2.25	0.44
3:M:189:TRP:O	3:M:193:ILE:HG22	2.16	0.44
1:K:11:TYR:CD1	1:K:369:VAL:HA	2.53	0.43
2:L:157:MET:HE1	2:L:171:ASP:HB3	1.99	0.43
3:M:140:ALA:HA	3:M:144:SER:HB3	2.00	0.43
1:A:399:MET:HE2	1:A:399:MET:HA	2.00	0.43
3:C:140:ALA:O	3:C:144:SER:OG	2.21	0.43
1:D:170:THR:HB	2:E:22:VAL:HG21	1.99	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:D:182:ILE:HD12	2:E:163:LEU:HG	2.00	0.43
2:E:111:ARG:HH22	2:E:199:LEU:HD13	1.83	0.43
2:E:161:ARG:HA	2:E:165:VAL:O	2.19	0.43
1:K:379:GLY:O	1:K:383:THR:HG23	2.17	0.43
2:L:51:ALA:HB1	2:L:153:THR:HG21	1.99	0.43
4:P:4:ASP:H	4:P:7:VAL:HB	1.83	0.43
1:A:235:TYR:CD1	1:A:236:SER:HB2	2.54	0.43
1:A:350:ALA:HB1	5:A:502:HEM:C3C	2.54	0.43
1:D:321:THR:HG22	5:D:501:HEM:HAB	2.00	0.43
1:K:235:TYR:CD2	1:K:292:MET:CB	3.01	0.43
1:K:327:MET:HE3	1:K:327:MET:HB2	1.88	0.43
1:K:376:HIS:HB3	1:K:454:ASN:ND2	2.32	0.43
1:K:377:SER:H	1:K:454:ASN:HD21	1.67	0.43
4:P:20:PHE:C	4:P:20:PHE:CD2	2.95	0.43
2:B:6:LYS:HD2	2:B:6:LYS:HA	1.61	0.43
3:C:74:VAL:O	3:C:82:TRP:HH2	2.02	0.43
1:D:264:LEU:HD12	1:D:265:PRO:HD2	1.99	0.43
3:F:83:LYS:HD2	3:F:91:GLY:O	2.17	0.43
3:F:114:PHE:CD1	3:F:289:ASP:HB3	2.53	0.43
1:G:35:ILE:HB	1:G:53:PHE:CE1	2.54	0.43
3:I:121:SER:OG	3:I:123:GLU:HG2	2.19	0.43
3:M:38:GLN:HB2	3:M:39:THR:H	1.64	0.43
4:O:26:TYR:N	4:O:26:TYR:CD2	2.86	0.43
1:D:207:HIS:CD2	1:D:251:TYR:HD1	2.36	0.43
1:D:463:LYS:H	1:D:463:LYS:HG2	1.59	0.43
3:I:260:TYR:OH	10:I:402:HEC:O2D	2.34	0.43
1:K:124:ALA:HB2	1:K:205:TYR:CE2	2.52	0.43
1:K:305:PRO:O	1:K:308:ARG:HB2	2.18	0.43
2:L:42:PRO:HG3	2:L:93:VAL:HG11	2.00	0.43
3:M:89:TYR:HA	3:M:101:ARG:NH2	2.33	0.43
4:P:4:ASP:OD1	4:P:5:ASN:N	2.48	0.43
1:D:92:PRO:O	1:D:95:ALA:HB3	2.18	0.43
1:D:238:ARG:NH1	3:F:30:GLY:O	2.52	0.43
3:I:205:VAL:HG21	10:I:402:HEC:HMB3	2.01	0.43
1:K:233:PRO:CG	3:M:50:TYR:CE2	3.02	0.43
1:K:309:PHE:CE2	1:K:359:ILE:HG21	2.54	0.43
1:K:446:ALA:HA	1:K:449:LEU:HD12	2.00	0.43
3:M:60:LEU:HD13	3:M:61:LEU:N	2.34	0.43
1:A:410:TRP:O	2:B:82:ARG:NH1	2.52	0.43
1:A:457:ARG:HH11	1:A:457:ARG:HD2	1.67	0.43
3:C:206:ARG:HG2	3:C:212:LEU:HB2	2.01	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
3:F:258:TRP:CZ3	3:F:267:LEU:HD21	2.54	0.43
1:G:346:VAL:HG22	5:G:501:HEM:C3D	2.53	0.43
1:G:371:GLY:HA3	1:G:465:ALA:HB1	1.99	0.43
3:I:57:TRP:CG	3:I:58:TRP:N	2.86	0.43
3:I:242:GLU:H	3:I:242:GLU:CD	2.17	0.43
3:M:77:PRO:HG3	3:M:93:TRP:O	2.19	0.43
3:C:20:LEU:HD23	3:C:20:LEU:HA	1.78	0.43
3:C:50:TYR:HB2	3:C:52:ASN:HD22	1.84	0.43
1:D:108:LEU:HD12	1:D:108:LEU:HA	1.81	0.43
1:D:350:ALA:HB1	5:D:502:HEM:C3C	2.54	0.43
1:D:376:HIS:CE1	1:D:457:ARG:HG3	2.54	0.43
3:F:58:TRP:CH2	3:F:62:PHE:HD2	2.37	0.43
1:G:207:HIS:CD2	1:G:251:TYR:HD1	2.36	0.43
3:I:85:VAL:HG12	3:I:85:VAL:O	2.19	0.43
1:K:128:TRP:CG	1:K:129:PRO:HD3	2.54	0.43
1:K:159:VAL:HA	1:K:162:TRP:CD2	2.54	0.43
1:A:343:ILE:HG12	5:A:502:HEM:HBA2	2.01	0.43
2:E:51:ALA:HB1	2:E:153:THR:HG21	2.01	0.43
3:F:37:ASP:HB2	3:F:38:GLN:NE2	2.34	0.43
3:F:206:ARG:HG2	3:F:212:LEU:HB2	2.00	0.43
1:G:228:LYS:NZ	3:I:45:ASP:OD1	2.46	0.43
3:I:24:ILE:CD1	3:I:59:PHE:HE2	2.31	0.43
3:I:229:TYR:HE1	3:I:239:GLN:HA	1.83	0.43
3:I:279:MET:HB2	10:I:403:HEC:C4D	2.48	0.43
1:K:463:LYS:CB	1:K:464:PRO:CD	2.95	0.43
3:M:279:MET:HB2	10:M:403:HEC:C4D	2.48	0.43
1:A:266:ASP:OD2	3:C:95:GLN:HG2	2.19	0.43
1:A:319:MET:HG3	1:A:320:SER:N	2.34	0.43
3:C:264:LEU:O	3:C:268:GLN:HG3	2.19	0.43
1:D:158:TYR:HE2	3:F:49:GLU:OE2	2.02	0.43
1:D:260:HIS:HB2	1:D:333:ASN:OD1	2.19	0.43
1:D:335:LEU:HD13	4:O:7:VAL:HA	2.00	0.43
1:D:359:ILE:CD1	1:D:451:MET:HE1	2.49	0.43
3:F:120:MET:HE2	3:F:120:MET:HB3	1.50	0.43
1:G:446:ALA:O	1:G:450:VAL:HG23	2.19	0.43
3:I:24:ILE:CD1	3:I:59:PHE:CE2	3.02	0.43
1:K:125:GLU:H	1:K:125:GLU:HG2	1.42	0.43
1:A:195:GLY:HA2	2:B:92:SER:HB2	2.00	0.42
1:D:308:ARG:NH1	1:D:382:ASN:HD21	2.17	0.42
2:E:116:TYR:HE2	3:F:145:ILE:HG21	1.84	0.42
3:F:60:LEU:HA	3:F:60:LEU:HD23	1.74	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
3:F:279:MET:HB2	10:F:402:HEC:C4D	2.49	0.42
3:I:50:TYR:CB	3:I:52:ASN:OD1	2.64	0.42
3:I:63:ILE:HD13	3:I:63:ILE:N	2.34	0.42
3:I:206:ARG:HG2	3:I:212:LEU:HB2	2.01	0.42
1:A:196:ALA:HB3	2:B:39:VAL:HB	2.02	0.42
2:E:62:ARG:HG3	2:E:63:GLU:N	2.34	0.42
3:F:103:VAL:HG12	3:F:107:ASP:OD2	2.19	0.42
1:G:235:TYR:CD1	1:G:236:SER:HB2	2.53	0.42
1:K:267:TRP:NE1	2:L:36:GLN:HE22	2.13	0.42
3:C:59:PHE:CD1	3:C:63:ILE:HD11	2.53	0.42
3:C:177:SER:HA	3:C:182:ARG:HD2	2.02	0.42
1:D:13:VAL:HA	1:D:16:GLN:NE2	2.35	0.42
1:D:349:GLY:O	1:D:353:TRP:HB3	2.20	0.42
3:F:179:LEU:HD22	3:F:283:GLN:HB2	2.00	0.42
1:G:29:MET:CE	1:G:448:MET:HE3	2.48	0.42
2:H:7:LEU:HA	2:H:10:ASN:ND2	2.30	0.42
2:H:80:THR:HA	2:H:84:GLY:O	2.19	0.42
3:I:24:ILE:HD11	3:I:59:PHE:CD2	2.54	0.42
3:I:94:THR:OG1	3:I:97:LYS:HG3	2.19	0.42
3:I:179:LEU:HD22	3:I:283:GLN:HB2	2.01	0.42
3:I:185:ALA:H	10:I:402:HEC:HMD2	1.83	0.42
1:K:305:PRO:HA	1:K:308:ARG:HB2	2.01	0.42
1:A:125:GLU:H	1:A:125:GLU:HG2	1.30	0.42
1:A:218:PHE:CZ	1:A:354:VAL:HG13	2.54	0.42
1:A:235:TYR:CE1	1:A:236:SER:HB2	2.53	0.42
1:A:301:LEU:HD21	1:A:311:VAL:HG21	2.01	0.42
1:A:454:ASN:O	1:A:458:THR:HG23	2.19	0.42
2:B:72:MET:HE3	2:B:100:TRP:CE2	2.54	0.42
1:D:317:TYR:HB2	1:D:353:TRP:CE3	2.55	0.42
3:F:40:MET:HB2	3:F:49:GLU:C	2.44	0.42
1:G:226:VAL:HB	1:G:227:PRO:HD3	2.01	0.42
3:I:75:LEU:HD22	3:I:86:LEU:HB2	2.01	0.42
3:I:157:PHE:HA	3:I:158:PRO:HD3	1.81	0.42
1:K:351:LEU:HD23	5:K:502:HEM:HMC3	2.01	0.42
1:A:317:TYR:HB2	1:A:353:TRP:CE3	2.54	0.42
1:A:395:TYR:CZ	1:A:437:ARG:HD2	2.55	0.42
1:D:416:ASP:CG	3:F:134:MET:SD	3.02	0.42
3:F:144:SER:O	3:F:148:GLY:N	2.52	0.42
2:H:116:TYR:HE2	3:I:145:ILE:HG21	1.83	0.42
1:K:227:PRO:HB2	3:M:47:ILE:HG12	2.02	0.42
1:D:237:TYR:CD2	3:F:40:MET:HE3	2.55	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:G:208:ASN:OD1	1:G:252:ILE:HA	2.20	0.42
1:G:319:MET:HE1	1:G:400:TRP:CZ2	2.52	0.42
3:I:297:TYR:CZ	3:I:301:LEU:HD11	2.55	0.42
1:K:228:LYS:NZ	3:M:46:GLY:HA3	2.33	0.42
1:K:279:LEU:O	1:K:282:PRO:HD2	2.19	0.42
1:K:319:MET:HE1	1:K:400:TRP:HZ2	1.84	0.42
3:M:68:PHE:CA	3:M:71:LEU:HD12	2.36	0.42
3:M:90:GLU:O	3:M:97:LYS:NZ	2.51	0.42
3:C:232:THR:HB	10:C:401:HEC:HBB1	2.02	0.42
1:D:279:LEU:O	1:D:282:PRO:HD2	2.19	0.42
1:D:457:ARG:HD2	1:D:457:ARG:HA	1.84	0.42
1:G:58:PRO:HA	1:G:61:THR:HB	2.01	0.42
1:G:375:MET:HG3	1:G:381:ILE:HD11	2.01	0.42
2:H:24:ILE:HG21	3:I:16:THR:HG23	2.01	0.42
1:K:349:GLY:O	1:K:353:TRP:HB3	2.19	0.42
4:N:4:ASP:OD1	4:N:5:ASN:N	2.48	0.42
3:C:89:TYR:CD1	3:C:93:TRP:CD1	3.07	0.42
1:D:309:PHE:CE2	1:D:359:ILE:HG21	2.55	0.42
1:K:254:ALA:O	1:K:257:HIS:ND1	2.52	0.42
4:Q:4:ASP:OD1	4:Q:5:ASN:N	2.50	0.42
1:A:308:ARG:NH1	1:A:382:ASN:HD21	2.18	0.42
1:D:62:ASN:ND2	1:D:125:GLU:HG3	2.35	0.42
1:D:253:TRP:CH2	3:F:13:THR:HA	2.54	0.42
1:D:305:PRO:HB2	1:D:381:ILE:HG22	2.02	0.42
3:M:271:ILE:HG12	10:M:402:HEC:HMB2	2.02	0.42
2:B:80:THR:HA	2:B:84:GLY:O	2.20	0.42
3:C:50:TYR:HB2	3:C:52:ASN:ND2	2.35	0.42
1:D:307:LEU:HD12	1:D:307:LEU:HA	1.94	0.42
2:E:56:GLY:HA2	2:E:59:LEU:HD12	2.01	0.42
3:F:270:THR:HG23	3:F:275:ARG:HG2	2.01	0.42
1:G:57:ARG:NH2	5:G:502:HEM:O2D	2.52	0.42
1:G:81:VAL:HA	1:G:84:THR:HG22	2.02	0.42
1:G:340:ASP:H	1:G:406:GLN:NE2	2.18	0.42
1:A:466:GLU:OE1	1:A:466:GLU:HA	2.20	0.41
2:B:193:GLN:HA	2:B:193:GLN:NE2	2.34	0.41
3:F:189:TRP:O	3:F:193:ILE:HG22	2.19	0.41
1:K:208:ASN:OD1	1:K:252:ILE:HA	2.20	0.41
1:A:57:ARG:NH2	5:A:502:HEM:O2D	2.53	0.41
2:B:42:PRO:HG3	2:B:93:VAL:HG11	2.02	0.41
3:C:22:TRP:CE3	3:C:23:LEU:HA	2.54	0.41
3:C:35:THR:O	3:C:52:ASN:OD1	2.37	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:D:82:GLN:HE21	1:D:88:THR:HA	1.85	0.41
3:F:240:GLY:O	3:F:253:ASN:HB3	2.20	0.41
2:H:72:MET:HE3	2:H:100:TRP:CE2	2.55	0.41
2:H:157:MET:HE1	2:H:171:ASP:HB3	2.02	0.41
3:I:279:MET:HE1	10:I:403:HEC:C4B	2.49	0.41
1:K:263:ALA:HB3	2:L:100:TRP:CH2	2.54	0.41
2:B:137:MET:HA	2:B:138:PRO:HD3	1.95	0.41
3:C:212:LEU:HD23	3:C:212:LEU:HA	1.85	0.41
1:G:182:ILE:HD12	2:H:163:LEU:HG	2.01	0.41
1:G:411:ARG:NH1	4:P:4:ASP:OD2	2.51	0.41
1:K:13:VAL:HA	1:K:16:GLN:NE2	2.34	0.41
3:M:136:ALA:HB2	3:M:297:TYR:CE1	2.54	0.41
1:A:108:LEU:HA	1:A:108:LEU:HD12	1.78	0.41
1:G:10:SER:HB2	1:G:88:THR:HG23	2.02	0.41
1:G:218:PHE:CD2	1:G:221:ILE:HD12	2.56	0.41
3:I:1:MET:HE3	3:I:1:MET:HB2	1.80	0.41
3:I:24:ILE:HD13	3:I:24:ILE:O	2.20	0.41
3:M:9:ILE:HD12	3:M:80:GLY:HA2	2.02	0.41
1:A:12:LYS:HA	1:A:15:ARG:NH1	2.34	0.41
1:D:94:LEU:O	1:D:98:THR:HG23	2.19	0.41
2:E:137:MET:HB2	10:E:301:HEC:CHD	2.50	0.41
3:F:17:ILE:HA	3:F:20:LEU:CG	2.50	0.41
3:F:89:TYR:HB3	3:F:97:LYS:NZ	2.35	0.41
1:G:159:VAL:HA	1:G:162:TRP:CG	2.55	0.41
1:G:399:MET:HA	1:G:399:MET:HE2	2.01	0.41
3:I:189:TRP:CZ2	10:I:402:HEC:HMC1	2.55	0.41
1:K:115:LEU:HD23	1:K:117:PHE:HE2	1.86	0.41
3:M:24:ILE:CD1	3:M:59:PHE:HE2	2.33	0.41
1:D:305:PRO:HA	1:D:308:ARG:HB2	2.03	0.41
3:F:37:ASP:HB3	3:F:38:GLN:CA	2.32	0.41
3:F:111:GLY:N	3:F:112:PRO:CD	2.83	0.41
1:G:218:PHE:CZ	1:G:354:VAL:HG13	2.56	0.41
2:H:7:LEU:O	2:H:7:LEU:HG	2.20	0.41
2:H:125:LEU:HD21	10:H:301:HEC:HMB2	2.02	0.41
1:K:66:PHE:O	1:K:70:GLY:HA3	2.20	0.41
1:K:84:THR:O	3:M:44:PHE:CE2	2.74	0.41
1:K:193:TYR:CE1	1:K:201:VAL:HG11	2.55	0.41
1:K:218:PHE:CD2	1:K:221:ILE:HD12	2.55	0.41
2:L:15:THR:HA	2:L:18:MET:HE3	2.03	0.41
1:D:235:TYR:CD1	1:D:236:SER:HB2	2.56	0.41
2:E:148:LEU:HD11	2:E:187:ALA:HB2	2.02	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
3:F:40:MET:CB	3:F:49:GLU:HB2	2.50	0.41
3:F:122:VAL:HA	3:F:125:VAL:HG23	2.03	0.41
3:F:139:PHE:CD1	3:F:143:CYS:HB2	2.56	0.41
1:G:64:VAL:HG21	5:G:502:HEM:C2C	2.55	0.41
1:G:66:PHE:O	1:G:70:GLY:HA3	2.21	0.41
1:G:174:LEU:HD21	1:G:208:ASN:HB3	2.02	0.41
1:G:294:LEU:HD11	1:G:307:LEU:HD11	2.03	0.41
2:H:15:THR:HA	2:H:18:MET:HE3	2.01	0.41
3:M:215:PRO:CD	3:M:264:LEU:HD12	2.51	0.41
2:B:128:PRO:HD3	2:B:139:SER:HA	2.03	0.41
1:D:237:TYR:O	1:D:241:ILE:HD12	2.20	0.41
3:F:85:VAL:HG12	3:F:85:VAL:O	2.21	0.41
3:M:24:ILE:CD1	3:M:59:PHE:CE2	3.01	0.41
1:A:58:PRO:HA	1:A:61:THR:HB	2.03	0.41
1:A:431:HIS:HD2	2:B:136:LYS:NZ	2.18	0.41
1:A:454:ASN:HD22	1:A:454:ASN:C	2.29	0.41
1:D:195:GLY:HA2	2:E:92:SER:HB2	2.02	0.41
3:F:134:MET:HG2	3:F:293:LEU:HD13	2.03	0.41
3:F:157:PHE:HA	3:F:158:PRO:HD3	1.80	0.41
3:F:271:ILE:CD1	10:F:401:HEC:HMB2	2.51	0.41
1:G:233:PRO:HB3	3:I:48:GLU:HG3	2.03	0.41
1:G:290:GLY:O	1:G:293:THR:HB	2.21	0.41
1:G:418:THR:OG1	3:I:137:ARG:NH1	2.54	0.41
2:H:96:HIS:HA	2:H:97:PRO:HA	1.87	0.41
3:I:6:SER:CB	3:I:81:ASN:HD22	2.25	0.41
2:L:96:HIS:HA	2:L:97:PRO:HA	1.88	0.41
3:M:61:LEU:HD12	3:M:61:LEU:HA	1.91	0.41
3:M:166:ARG:HH21	10:M:402:HEC:HAD2	1.85	0.41
3:M:207:LYS:HA	3:M:212:LEU:O	2.21	0.41
1:A:82:GLN:HE21	1:A:89:LEU:H	1.67	0.41
1:A:218:PHE:CD2	1:A:221:ILE:HD12	2.56	0.41
1:A:266:ASP:CG	3:C:95:GLN:HG2	2.46	0.41
3:C:21:PHE:O	3:C:24:ILE:HG22	2.21	0.41
3:C:255:ALA:HA	3:C:258:TRP:CD2	2.56	0.41
1:G:317:TYR:HB2	1:G:353:TRP:CE3	2.56	0.41
2:H:74:ARG:HA	2:H:75:PRO:HD3	1.88	0.41
2:H:137:MET:HA	2:H:138:PRO:HD3	1.98	0.41
1:K:457:ARG:HD2	1:K:457:ARG:HA	1.76	0.41
3:M:212:LEU:HD23	3:M:212:LEU:HA	1.86	0.41
1:A:81:VAL:HA	1:A:84:THR:HG22	2.03	0.40
1:A:375:MET:HE2	1:A:458:THR:HG21	2.03	0.40

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:418:THR:HG23	3:C:134:MET:HE3	2.03	0.40
3:C:166:ARG:NH2	3:C:250:PRO:HG3	2.37	0.40
11:C:403:FC6:N25	3:M:215:PRO:HG3	2.36	0.40
3:F:14:LEU:O	3:F:17:ILE:HB	2.21	0.40
3:F:242:GLU:H	3:F:242:GLU:CD	2.24	0.40
3:F:255:ALA:HA	3:F:258:TRP:CD2	2.56	0.40
3:F:282:GLN:HB3	3:F:286:LEU:HD12	2.03	0.40
1:K:267:TRP:CA	3:M:78:GLY:HA2	2.48	0.40
1:K:350:ALA:HB1	5:K:502:HEM:C3C	2.57	0.40
3:M:8:TYR:HA	3:M:11:LEU:HD22	2.02	0.40
1:A:77:SER:O	1:A:81:VAL:HG12	2.21	0.40
1:A:174:LEU:HD21	1:A:208:ASN:HB3	2.03	0.40
1:A:386:TRP:O	1:A:390:ILE:HG12	2.21	0.40
1:D:237:TYR:O	1:D:240:SER:HB2	2.21	0.40
1:D:359:ILE:HD12	1:D:451:MET:HE1	2.03	0.40
2:E:96:HIS:HA	2:E:97:PRO:HA	1.90	0.40
3:F:239:GLN:O	3:F:239:GLN:HG3	2.20	0.40
3:I:69:GLY:O	3:I:73:LEU:HD23	2.21	0.40
1:K:57:ARG:NH1	5:K:502:HEM:O2A	2.54	0.40
4:Q:27:PHE:CD2	4:Q:27:PHE:O	2.73	0.40
1:A:13:VAL:HA	1:A:16:GLN:NE2	2.33	0.40
1:A:288:ILE:HD12	3:C:58:TRP:CD1	2.56	0.40
1:A:331:THR:O	4:N:6:VAL:HG13	2.21	0.40
1:A:351:LEU:O	1:A:355:ALA:HB3	2.21	0.40
2:B:48:PRO:HG3	2:B:166:PRO:HD2	2.03	0.40
3:C:57:TRP:CG	3:C:58:TRP:N	2.89	0.40
2:E:125:LEU:HD21	10:E:301:HEC:HMB2	2.02	0.40
1:G:11:TYR:CD1	1:G:369:VAL:HA	2.56	0.40
1:G:235:TYR:O	1:G:289:ASN:ND2	2.54	0.40
1:G:349:GLY:O	1:G:353:TRP:HB3	2.22	0.40
1:G:453:TYR:O	1:G:457:ARG:HG2	2.20	0.40
3:M:60:LEU:O	3:M:60:LEU:HD22	2.21	0.40
1:A:279:LEU:O	1:A:282:PRO:HD2	2.22	0.40
3:C:47:ILE:H	3:C:47:ILE:HG12	1.69	0.40
1:D:236:SER:OG	1:D:239:LEU:HB2	2.21	0.40
1:D:254:ALA:O	1:D:257:HIS:ND1	2.55	0.40
1:D:395:TYR:CZ	1:D:437:ARG:HD2	2.57	0.40
3:F:61:LEU:O	3:F:65:THR:HG23	2.20	0.40
3:F:120:MET:HE1	3:F:124:GLU:HB3	2.02	0.40
3:F:229:TYR:OH	3:F:238:GLY:O	2.33	0.40
1:G:256:PRO:HB2	1:G:272:GLY:HA3	2.03	0.40

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:G:379:GLY:O	1:G:383:THR:HG23	2.22	0.40
3:M:76:TYR:CE1	3:M:86:LEU:HD22	2.57	0.40
1:A:294:LEU:HD11	1:A:307:LEU:HD11	2.04	0.40
2:B:132:VAL:HA	2:B:133:PRO:HD2	1.89	0.40
1:D:253:TRP:CH2	3:F:13:THR:HG22	2.55	0.40
3:F:140:ALA:HA	3:F:144:SER:HB3	2.04	0.40
1:G:386:TRP:O	1:G:390:ILE:HG12	2.21	0.40
1:K:15:ARG:HG3	1:K:369:VAL:HG12	2.03	0.40
2:L:109:LEU:O	2:L:112:VAL:HG22	2.22	0.40

There are no symmetry-related clashes.

5.3 Torsion angles [i](#)

5.3.1 Protein backbone [i](#)

In the following table, the Percentiles column shows the percent Ramachandran outliers of the chain as a percentile score with respect to all 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	464/474 (98%)	442 (95%)	20 (4%)	2 (0%)	30	62
1	D	461/474 (97%)	443 (96%)	17 (4%)	1 (0%)	43	73
1	G	463/474 (98%)	443 (96%)	19 (4%)	1 (0%)	43	73
1	K	463/474 (98%)	442 (96%)	19 (4%)	2 (0%)	30	62
2	B	195/203 (96%)	187 (96%)	8 (4%)	0	100	100
2	E	195/203 (96%)	187 (96%)	8 (4%)	0	100	100
2	H	195/203 (96%)	187 (96%)	8 (4%)	0	100	100
2	L	195/203 (96%)	187 (96%)	8 (4%)	0	100	100
3	C	301/311 (97%)	286 (95%)	15 (5%)	0	100	100
3	F	301/311 (97%)	286 (95%)	15 (5%)	0	100	100
3	I	301/311 (97%)	287 (95%)	14 (5%)	0	100	100
3	M	301/311 (97%)	284 (94%)	14 (5%)	3 (1%)	12	45
4	N	27/36 (75%)	27 (100%)	0	0	100	100

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
4	O	27/36 (75%)	27 (100%)	0	0	100	100
4	P	27/36 (75%)	27 (100%)	0	0	100	100
4	Q	27/36 (75%)	27 (100%)	0	0	100	100
All	All	3943/4096 (96%)	3769 (96%)	165 (4%)	9 (0%)	43	73

All (9) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	A	466	GLU
1	A	468	ASP
1	G	465	ALA
1	K	466	GLU
1	K	468	ASP
3	M	38	GLN
3	M	42	HIS
3	M	37	ASP
1	D	463	LYS

5.3.2 Protein sidechains ⓘ

In the following table, the Percentiles column shows the percent sidechain outliers of the chain as a percentile score with respect to all 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	374/379 (99%)	340 (91%)	34 (9%)	9	34
1	D	371/379 (98%)	333 (90%)	38 (10%)	7	29
1	G	373/379 (98%)	338 (91%)	35 (9%)	8	33
1	K	373/379 (98%)	337 (90%)	36 (10%)	8	32
2	B	166/172 (96%)	147 (89%)	19 (11%)	5	24
2	E	166/172 (96%)	148 (89%)	18 (11%)	6	27
2	H	166/172 (96%)	147 (89%)	19 (11%)	5	24
2	L	166/172 (96%)	149 (90%)	17 (10%)	7	29
3	C	227/234 (97%)	208 (92%)	19 (8%)	10	38

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Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
3	F	227/234 (97%)	195 (86%)	32 (14%)	3	17
3	I	227/234 (97%)	199 (88%)	28 (12%)	4	22
3	M	227/234 (97%)	197 (87%)	30 (13%)	4	19
4	N	22/28 (79%)	22 (100%)	0	100	100
4	O	22/28 (79%)	21 (96%)	1 (4%)	24	58
4	P	22/28 (79%)	21 (96%)	1 (4%)	24	58
4	Q	22/28 (79%)	19 (86%)	3 (14%)	3	18
All	All	3151/3252 (97%)	2821 (90%)	330 (10%)	6	28

All (330) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	48	LEU
1	A	50	TRP
1	A	59	LEU
1	A	61	THR
1	A	64	VAL
1	A	73	LEU
1	A	84	THR
1	A	87	THR
1	A	104	LEU
1	A	107	LEU
1	A	108	LEU
1	A	119	SER
1	A	125	GLU
1	A	154	VAL
1	A	159	VAL
1	A	174	LEU
1	A	192	LEU
1	A	200	MET
1	A	210	VAL
1	A	243	HIS
1	A	248	ILE
1	A	271	LEU
1	A	275	MET
1	A	278	ILE
1	A	289	ASN
1	A	294	LEU
1	A	319	MET
1	A	356	MET

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Mol	Chain	Res	Type
1	A	358	SER
1	A	372	ARG
1	A	373	GLU
1	A	427	LEU
1	A	454	ASN
1	A	458	THR
2	B	6	LYS
2	B	7	LEU
2	B	11	VAL
2	B	13	LEU
2	B	16	LEU
2	B	22	VAL
2	B	24	ILE
2	B	27	LEU
2	B	54	LEU
2	B	62	ARG
2	B	66	VAL
2	B	80	THR
2	B	92	SER
2	B	93	VAL
2	B	103	LYS
2	B	112	VAL
2	B	129	ARG
2	B	134	GLU
2	B	177	ASP
3	C	8	TYR
3	C	16	THR
3	C	27	THR
3	C	40	MET
3	C	47	ILE
3	C	48	GLU
3	C	113	ILE
3	C	123	GLU
3	C	130	GLN
3	C	145	ILE
3	C	163	GLN
3	C	175	LYS
3	C	179	LEU
3	C	182	ARG
3	C	193	ILE
3	C	201	VAL
3	C	239	GLN

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Mol	Chain	Res	Type
3	C	264	LEU
3	C	301	LEU
1	D	48	LEU
1	D	50	TRP
1	D	57	ARG
1	D	59	LEU
1	D	61	THR
1	D	64	VAL
1	D	73	LEU
1	D	84	THR
1	D	87	THR
1	D	93	LYS
1	D	104	LEU
1	D	107	LEU
1	D	108	LEU
1	D	119	SER
1	D	125	GLU
1	D	154	VAL
1	D	159	VAL
1	D	167	PHE
1	D	174	LEU
1	D	192	LEU
1	D	200	MET
1	D	210	VAL
1	D	243	HIS
1	D	248	ILE
1	D	271	LEU
1	D	275	MET
1	D	278	ILE
1	D	289	ASN
1	D	294	LEU
1	D	319	MET
1	D	356	MET
1	D	358	SER
1	D	372	ARG
1	D	373	GLU
1	D	424	VAL
1	D	427	LEU
1	D	448	MET
1	D	467	TYR
2	E	7	LEU
2	E	11	VAL

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Mol	Chain	Res	Type
2	E	13	LEU
2	E	16	LEU
2	E	22	VAL
2	E	24	ILE
2	E	27	LEU
2	E	54	LEU
2	E	62	ARG
2	E	66	VAL
2	E	80	THR
2	E	92	SER
2	E	93	VAL
2	E	103	LYS
2	E	112	VAL
2	E	129	ARG
2	E	134	GLU
2	E	177	ASP
3	F	4	PHE
3	F	8	TYR
3	F	12	LEU
3	F	16	THR
3	F	20	LEU
3	F	24	ILE
3	F	27	THR
3	F	28	ARG
3	F	29	LYS
3	F	35	THR
3	F	36	THR
3	F	38	GLN
3	F	40	MET
3	F	54	LEU
3	F	62	PHE
3	F	63	ILE
3	F	71	LEU
3	F	82	TRP
3	F	120	MET
3	F	121	SER
3	F	123	GLU
3	F	134	MET
3	F	137	ARG
3	F	145	ILE
3	F	163	GLN
3	F	175	LYS

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Mol	Chain	Res	Type
3	F	179	LEU
3	F	182	ARG
3	F	193	ILE
3	F	201	VAL
3	F	264	LEU
3	F	301	LEU
1	G	6	SER
1	G	48	LEU
1	G	50	TRP
1	G	57	ARG
1	G	59	LEU
1	G	61	THR
1	G	64	VAL
1	G	73	LEU
1	G	84	THR
1	G	87	THR
1	G	104	LEU
1	G	107	LEU
1	G	108	LEU
1	G	122	GLU
1	G	125	GLU
1	G	154	VAL
1	G	159	VAL
1	G	174	LEU
1	G	192	LEU
1	G	200	MET
1	G	210	VAL
1	G	243	HIS
1	G	248	ILE
1	G	271	LEU
1	G	275	MET
1	G	278	ILE
1	G	289	ASN
1	G	294	LEU
1	G	319	MET
1	G	356	MET
1	G	358	SER
1	G	372	ARG
1	G	373	GLU
1	G	424	VAL
1	G	427	LEU
2	H	7	LEU

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Mol	Chain	Res	Type
2	H	11	VAL
2	H	13	LEU
2	H	16	LEU
2	H	22	VAL
2	H	24	ILE
2	H	27	LEU
2	H	44	GLU
2	H	54	LEU
2	H	62	ARG
2	H	66	VAL
2	H	80	THR
2	H	92	SER
2	H	93	VAL
2	H	103	LYS
2	H	112	VAL
2	H	129	ARG
2	H	134	GLU
2	H	177	ASP
3	I	4	PHE
3	I	8	TYR
3	I	12	LEU
3	I	16	THR
3	I	20	LEU
3	I	24	ILE
3	I	27	THR
3	I	38	GLN
3	I	40	MET
3	I	47	ILE
3	I	49	GLU
3	I	60	LEU
3	I	63	ILE
3	I	66	LEU
3	I	73	LEU
3	I	86	LEU
3	I	116	LYS
3	I	123	GLU
3	I	133	LYS
3	I	137	ARG
3	I	163	GLN
3	I	175	LYS
3	I	179	LEU
3	I	182	ARG

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Mol	Chain	Res	Type
3	I	193	ILE
3	I	201	VAL
3	I	264	LEU
3	I	301	LEU
1	K	48	LEU
1	K	50	TRP
1	K	57	ARG
1	K	59	LEU
1	K	61	THR
1	K	64	VAL
1	K	73	LEU
1	K	87	THR
1	K	89	LEU
1	K	90	PHE
1	K	104	LEU
1	K	107	LEU
1	K	108	LEU
1	K	125	GLU
1	K	154	VAL
1	K	159	VAL
1	K	167	PHE
1	K	174	LEU
1	K	192	LEU
1	K	200	MET
1	K	210	VAL
1	K	243	HIS
1	K	248	ILE
1	K	271	LEU
1	K	275	MET
1	K	278	ILE
1	K	289	ASN
1	K	294	LEU
1	K	319	MET
1	K	356	MET
1	K	358	SER
1	K	372	ARG
1	K	373	GLU
1	K	424	VAL
1	K	427	LEU
1	K	466	GLU
2	L	7	LEU
2	L	11	VAL

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Mol	Chain	Res	Type
2	L	13	LEU
2	L	16	LEU
2	L	22	VAL
2	L	24	ILE
2	L	27	LEU
2	L	54	LEU
2	L	62	ARG
2	L	66	VAL
2	L	92	SER
2	L	93	VAL
2	L	103	LYS
2	L	112	VAL
2	L	129	ARG
2	L	134	GLU
2	L	177	ASP
3	M	11	LEU
3	M	20	LEU
3	M	24	ILE
3	M	27	THR
3	M	29	LYS
3	M	35	THR
3	M	38	GLN
3	M	40	MET
3	M	44	PHE
3	M	49	GLU
3	M	60	LEU
3	M	62	PHE
3	M	68	PHE
3	M	71	LEU
3	M	75	LEU
3	M	109	LYS
3	M	113	ILE
3	M	123	GLU
3	M	130	GLN
3	M	134	MET
3	M	145	ILE
3	M	163	GLN
3	M	175	LYS
3	M	179	LEU
3	M	182	ARG
3	M	193	ILE
3	M	201	VAL

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Mol	Chain	Res	Type
3	M	239	GLN
3	M	264	LEU
3	M	301	LEU
4	O	7	VAL
4	P	21	LEU
4	Q	20	PHE
4	Q	21	LEU
4	Q	27	PHE

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (118) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	16	GLN
1	A	38	GLN
1	A	62	ASN
1	A	82	GLN
1	A	103	GLN
1	A	161	ASN
1	A	175	HIS
1	A	178	ASN
1	A	243	HIS
1	A	289	ASN
1	A	374	GLN
1	A	376	HIS
1	A	382	ASN
1	A	406	GLN
1	A	414	ASN
1	A	431	HIS
1	A	460	GLN
2	B	10	ASN
2	B	29	GLN
2	B	36	GLN
2	B	40	ASN
2	B	193	GLN
3	C	52	ASN
3	C	98	GLN
3	C	141	ASN
3	C	163	GLN
3	C	231	GLN
3	C	276	ASN
3	C	282	GLN
3	C	292	HIS

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Mol	Chain	Res	Type
1	D	16	GLN
1	D	62	ASN
1	D	82	GLN
1	D	103	GLN
1	D	161	ASN
1	D	175	HIS
1	D	178	ASN
1	D	243	HIS
1	D	289	ASN
1	D	374	GLN
1	D	382	ASN
1	D	406	GLN
1	D	414	ASN
1	D	431	HIS
1	D	460	GLN
2	E	29	GLN
2	E	36	GLN
2	E	40	ASN
2	E	71	GLN
2	E	121	HIS
2	E	127	ASN
2	E	193	GLN
3	F	38	GLN
3	F	42	HIS
3	F	52	ASN
3	F	81	ASN
3	F	163	GLN
3	F	282	GLN
1	G	16	GLN
1	G	62	ASN
1	G	82	GLN
1	G	103	GLN
1	G	156	HIS
1	G	161	ASN
1	G	178	ASN
1	G	289	ASN
1	G	299	HIS
1	G	374	GLN
1	G	382	ASN
1	G	406	GLN
1	G	414	ASN
1	G	431	HIS

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Mol	Chain	Res	Type
1	G	454	ASN
2	H	10	ASN
2	H	29	GLN
2	H	36	GLN
2	H	40	ASN
2	H	71	GLN
2	H	193	GLN
3	I	42	HIS
3	I	81	ASN
3	I	127	GLN
3	I	141	ASN
3	I	163	GLN
3	I	268	GLN
3	I	276	ASN
3	I	282	GLN
3	I	292	HIS
1	K	16	GLN
1	K	38	GLN
1	K	62	ASN
1	K	82	GLN
1	K	103	GLN
1	K	161	ASN
1	K	178	ASN
1	K	299	HIS
1	K	374	GLN
1	K	382	ASN
1	K	406	GLN
1	K	414	ASN
1	K	431	HIS
1	K	454	ASN
1	K	460	GLN
2	L	10	ASN
2	L	29	GLN
2	L	36	GLN
2	L	71	GLN
2	L	121	HIS
2	L	127	ASN
2	L	193	GLN
3	M	38	GLN
3	M	95	GLN
3	M	141	ASN
3	M	163	GLN

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Mol	Chain	Res	Type
3	M	268	GLN
3	M	273	HIS
3	M	282	GLN
3	M	292	HIS

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 ⓘ

There are no oligosaccharides in this entry.

5.6 Ligand geometry ⓘ

Of 44 ligands modelled in this entry, 12 are monoatomic - leaving 32 for Mogul analysis.

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

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	# Z > 2	Counts	RMSZ	# Z > 2
10	HEC	I	402	3	46,50,50	2.53	24 (52%)	58,82,82	2.23	24 (41%)
10	HEC	B	301	2	46,50,50	2.45	20 (43%)	58,82,82	2.55	21 (36%)
10	HEC	F	402	3	46,50,50	2.66	27 (58%)	58,82,82	2.26	25 (43%)
8	PEO	G	505	6,5	1,1,1	0.36	0	-		
11	FC6	F	403	-	12,12,12	2.76	6 (50%)	-		
10	HEC	E	301	2	46,50,50	2.54	23 (50%)	58,82,82	2.39	23 (39%)
5	HEM	K	501	7,1,8	50,50,50	1.87	9 (18%)	67,82,82	1.27	2 (2%)
11	FC6	C	403	-	12,12,12	2.69	6 (50%)	-		

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	# Z > 2	Counts	RMSZ	# Z > 2
10	HEC	L	301	2	46,50,50	2.53	23 (50%)	58,82,82	2.39	21 (36%)
10	HEC	C	401	3	46,50,50	2.54	21 (45%)	58,82,82	2.36	22 (37%)
5	HEM	D	502	7,1	50,50,50	1.86	9 (18%)	67,82,82	1.36	5 (7%)
5	HEM	K	502	7,1	50,50,50	1.86	8 (16%)	67,82,82	1.37	5 (7%)
11	FC6	I	401	-	12,12,12	2.79	6 (50%)	-		
5	HEM	G	502	7,1	50,50,50	1.87	9 (18%)	67,82,82	1.41	7 (10%)
9	PO4	G	506	-	4,4,4	1.02	0	6,6,6	0.52	0
11	FC6	M	401	-	12,12,12	2.71	6 (50%)	-		
10	HEC	I	403	3	46,50,50	2.52	24 (52%)	58,82,82	2.27	28 (48%)
10	HEC	M	402	3	46,50,50	2.49	23 (50%)	58,82,82	2.36	23 (39%)
9	PO4	K	506	-	4,4,4	1.19	0	6,6,6	0.92	0
10	HEC	C	402	3	46,50,50	2.52	24 (52%)	58,82,82	2.39	24 (41%)
8	PEO	D	506	6,5	1,1,1	0.33	0	-		
5	HEM	G	501	7,8,1	50,50,50	1.84	9 (18%)	67,82,82	1.36	6 (8%)
8	PEO	K	507	6,5	1,1,1	0.33	0	-		
10	HEC	F	401	3	46,50,50	2.62	22 (47%)	58,82,82	2.26	24 (41%)
5	HEM	A	502	7,1	50,50,50	1.79	11 (22%)	67,82,82	1.36	8 (11%)
5	HEM	D	501	7,8,1	50,50,50	1.92	9 (18%)	67,82,82	1.29	3 (4%)
9	PO4	A	506	-	4,4,4	1.08	0	6,6,6	0.37	0
10	HEC	M	403	3	46,50,50	2.53	23 (50%)	58,82,82	2.30	26 (44%)
8	PEO	A	505	6,5	1,1,1	0.30	0	-		
5	HEM	A	501	7,8,1	50,50,50	1.84	10 (20%)	67,82,82	1.30	5 (7%)
10	HEC	H	301	2	46,50,50	2.49	22 (47%)	58,82,82	2.44	22 (37%)
9	PO4	D	505	-	4,4,4	0.99	0	6,6,6	0.42	0

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
10	HEC	I	402	3	-	5/14/54/54	-
10	HEC	B	301	2	-	8/14/54/54	-
10	HEC	F	402	3	-	7/14/54/54	-
10	HEC	E	301	2	-	8/14/54/54	-
5	HEM	K	501	7,1,8	-	3/14/54/54	-
10	HEC	L	301	2	-	7/14/54/54	-

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Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
10	HEC	C	401	3	-	6/14/54/54	-
5	HEM	D	502	7,1	-	4/14/54/54	-
5	HEM	K	502	7,1	-	2/14/54/54	-
5	HEM	G	502	7,1	-	2/14/54/54	-
10	HEC	I	403	3	-	6/14/54/54	-
10	HEC	M	402	3	-	6/14/54/54	-
10	HEC	C	402	3	-	6/14/54/54	-
10	HEC	F	401	3	-	6/14/54/54	-
5	HEM	G	501	7,8,1	-	3/14/54/54	-
5	HEM	A	502	7,1	-	4/14/54/54	-
5	HEM	D	501	7,8,1	-	3/14/54/54	-
10	HEC	M	403	3	-	6/14/54/54	-
5	HEM	A	501	7,8,1	-	5/14/54/54	-
10	HEC	H	301	2	-	8/14/54/54	-

All (374) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
5	D	501	HEM	C3D-C2D	8.08	1.54	1.36
5	K	501	HEM	C3D-C2D	7.97	1.54	1.36
5	G	502	HEM	C3D-C2D	7.93	1.53	1.36
5	A	501	HEM	C3D-C2D	7.74	1.53	1.36
5	D	502	HEM	C3D-C2D	7.74	1.53	1.36
5	K	502	HEM	C3D-C2D	7.71	1.53	1.36
5	G	501	HEM	C3D-C2D	7.63	1.53	1.36
5	A	502	HEM	C3D-C2D	7.63	1.53	1.36
10	C	402	HEC	CHA-C1A	5.54	1.49	1.38
10	F	402	HEC	CHA-C1A	5.54	1.49	1.38
10	I	403	HEC	CHA-C1A	5.33	1.48	1.38
10	F	401	HEC	CHA-C1A	5.19	1.48	1.38
10	M	403	HEC	CHA-C1A	5.17	1.48	1.38
10	I	402	HEC	CHA-C1A	5.16	1.48	1.38
10	L	301	HEC	CHA-C1A	5.13	1.48	1.38
10	L	301	HEC	C2A-C3A	5.13	1.47	1.36
10	F	402	HEC	C2A-C3A	5.09	1.47	1.36
5	D	501	HEM	FE-NC	5.07	2.11	1.95
10	H	301	HEC	C2A-C3A	5.06	1.47	1.36
10	M	402	HEC	CHA-C1A	5.06	1.48	1.38
10	F	402	HEC	CHB-C4A	5.06	1.48	1.38

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
5	G	502	HEM	FE-NB	5.06	2.10	1.94
10	C	402	HEC	C2A-C3A	5.06	1.47	1.36
10	F	401	HEC	CHD-C4C	5.03	1.48	1.38
10	C	401	HEC	CHA-C1A	5.00	1.48	1.38
10	E	301	HEC	CHA-C1A	5.00	1.48	1.38
10	C	401	HEC	CHD-C4C	4.99	1.48	1.38
10	F	401	HEC	C2A-C3A	4.93	1.47	1.36
5	K	502	HEM	FE-NB	4.91	2.10	1.94
10	L	301	HEC	CHB-C4A	4.90	1.48	1.38
10	E	301	HEC	C2A-C3A	4.89	1.47	1.36
10	B	301	HEC	CHB-C4A	4.87	1.47	1.38
10	F	401	HEC	CHB-C4A	4.86	1.47	1.38
10	I	403	HEC	C2A-C3A	4.86	1.47	1.36
10	H	301	HEC	CHA-C1A	4.86	1.47	1.38
10	M	403	HEC	C2A-C3A	4.84	1.47	1.36
10	I	402	HEC	C2A-C3A	4.82	1.47	1.36
10	M	403	HEC	CHB-C4A	4.82	1.47	1.38
10	F	402	HEC	CHD-C4C	4.79	1.47	1.38
10	B	301	HEC	C2A-C3A	4.76	1.47	1.36
10	E	301	HEC	CHB-C4A	4.73	1.47	1.38
10	M	402	HEC	CHB-C4A	4.66	1.47	1.38
10	C	401	HEC	C2A-C3A	4.63	1.46	1.36
11	F	403	FC6	C24-FE2	-4.63	1.80	1.93
10	I	403	HEC	CHB-C4A	4.63	1.47	1.38
10	B	301	HEC	CHA-C1A	4.62	1.47	1.38
10	C	402	HEC	CHB-C4A	4.62	1.47	1.38
10	I	402	HEC	CHB-C4A	4.62	1.47	1.38
10	M	402	HEC	CHD-C4C	4.61	1.47	1.38
11	I	401	FC6	C22-FE2	-4.60	1.80	1.93
11	C	403	FC6	C24-FE2	-4.54	1.80	1.93
10	B	301	HEC	CHD-C4C	4.51	1.47	1.38
10	L	301	HEC	CHD-C4C	4.50	1.47	1.38
10	M	402	HEC	C2A-C3A	4.48	1.46	1.36
11	I	401	FC6	C24-FE2	-4.47	1.80	1.93
10	H	301	HEC	CHD-C4C	4.47	1.47	1.38
10	H	301	HEC	CHB-C4A	4.46	1.47	1.38
10	E	301	HEC	CHD-C4C	4.42	1.47	1.38
10	C	401	HEC	CHC-C4B	4.38	1.47	1.38
11	F	403	FC6	C22-FE2	-4.32	1.81	1.93
5	A	501	HEM	FE-NA	4.31	2.09	1.95
10	F	402	HEC	CHA-C4D	4.30	1.49	1.39
10	F	401	HEC	CHD-C1D	4.28	1.49	1.39

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
10	I	402	HEC	CHD-C4C	4.26	1.46	1.38
10	E	301	HEC	CHC-C4B	4.25	1.46	1.38
10	C	402	HEC	CHA-C4D	4.23	1.48	1.39
5	K	501	HEM	FE-NB	4.22	2.07	1.94
10	C	401	HEC	CHB-C4A	4.21	1.46	1.38
5	D	502	HEM	FE-NB	4.20	2.07	1.94
11	M	401	FC6	C11-FE2	-4.20	1.81	1.93
10	I	403	HEC	CHD-C4C	4.18	1.46	1.38
10	M	403	HEC	CHD-C4C	4.17	1.46	1.38
10	F	402	HEC	CHD-C1D	4.15	1.48	1.39
10	F	402	HEC	CHC-C4B	4.11	1.46	1.38
5	G	501	HEM	FE-NB	4.11	2.07	1.94
10	M	403	HEC	CHA-C4D	4.09	1.48	1.39
5	K	501	HEM	FE-NC	4.08	2.08	1.95
10	F	401	HEC	CHA-C4D	4.07	1.48	1.39
5	G	501	HEM	FE-ND	4.04	2.07	1.94
10	I	402	HEC	CHC-C4B	4.04	1.46	1.38
11	C	403	FC6	C26-FE2	-4.03	1.82	1.93
10	H	301	HEC	CHC-C4B	4.03	1.46	1.38
10	L	301	HEC	CHA-C4D	4.03	1.48	1.39
10	I	403	HEC	CHA-C4D	4.01	1.48	1.39
10	I	403	HEC	CHC-C4B	4.00	1.46	1.38
10	M	402	HEC	CHC-C4B	3.99	1.46	1.38
10	M	403	HEC	CHC-C4B	3.99	1.46	1.38
10	C	401	HEC	CHA-C4D	3.98	1.48	1.39
10	F	401	HEC	C4B-NB	-3.96	1.32	1.39
10	F	401	HEC	CHC-C4B	3.94	1.46	1.38
10	C	401	HEC	CHD-C1D	3.93	1.48	1.39
10	I	402	HEC	CHA-C4D	3.93	1.48	1.39
10	C	402	HEC	CHD-C4C	3.93	1.46	1.38
11	C	403	FC6	C21-FE2	-3.92	1.82	1.93
5	A	501	HEM	FE-ND	3.92	2.07	1.94
5	D	501	HEM	FE-ND	3.92	2.07	1.94
11	I	401	FC6	C21-FE2	-3.92	1.82	1.93
10	B	301	HEC	CHC-C4B	3.91	1.46	1.38
11	F	403	FC6	C21-FE2	-3.89	1.82	1.93
10	C	402	HEC	CHC-C4B	3.89	1.46	1.38
5	A	502	HEM	FE-NC	3.89	2.08	1.95
10	L	301	HEC	CHC-C4B	3.86	1.45	1.38
11	M	401	FC6	C21-FE2	-3.84	1.82	1.93
10	B	301	HEC	C4B-NB	-3.84	1.32	1.39
5	K	502	HEM	FE-NC	3.84	2.07	1.95

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
10	E	301	HEC	CHA-C4D	3.84	1.48	1.39
11	M	401	FC6	C22-FE2	-3.84	1.82	1.93
10	M	402	HEC	CHA-C4D	3.83	1.48	1.39
10	L	301	HEC	C4B-NB	-3.82	1.32	1.39
11	M	401	FC6	C24-FE2	-3.81	1.82	1.93
10	M	402	HEC	CHD-C1D	3.80	1.47	1.39
10	F	402	HEC	CHB-C1B	3.76	1.47	1.39
10	M	403	HEC	CHB-C1B	3.75	1.47	1.39
10	E	301	HEC	C4B-NB	-3.74	1.32	1.39
10	I	402	HEC	CHD-C1D	3.74	1.47	1.39
10	I	403	HEC	CHD-C1D	3.73	1.47	1.39
10	M	403	HEC	C4B-NB	-3.72	1.32	1.39
10	F	402	HEC	CAB-C3B	3.70	1.47	1.35
11	I	401	FC6	C23-FE2	-3.69	1.83	1.93
10	H	301	HEC	C4B-NB	-3.68	1.32	1.39
10	C	401	HEC	CAC-C3C	3.68	1.46	1.35
10	F	401	HEC	CHB-C1B	3.67	1.47	1.39
10	H	301	HEC	CHA-C4D	3.66	1.47	1.39
10	I	402	HEC	C4B-NB	-3.65	1.32	1.39
10	M	402	HEC	C4B-NB	-3.64	1.32	1.39
10	B	301	HEC	CHB-C1B	3.63	1.47	1.39
10	F	401	HEC	CAB-C3B	3.63	1.46	1.35
11	M	401	FC6	C26-FE2	-3.61	1.83	1.93
10	F	401	HEC	CAC-C3C	3.61	1.46	1.35
5	A	501	HEM	FE-NB	3.61	2.06	1.94
10	F	402	HEC	C4B-NB	-3.61	1.32	1.39
11	F	403	FC6	C23-FE2	-3.61	1.83	1.93
10	C	402	HEC	CHD-C1D	3.58	1.47	1.39
10	H	301	HEC	CHD-C1D	3.57	1.47	1.39
10	L	301	HEC	CHB-C1B	3.56	1.47	1.39
10	B	301	HEC	CHD-C1D	3.53	1.47	1.39
10	E	301	HEC	CAB-C3B	3.53	1.46	1.35
10	I	402	HEC	CAC-C3C	3.52	1.46	1.35
5	D	502	HEM	FE-NA	3.51	2.06	1.95
10	I	403	HEC	CHB-C1B	3.51	1.47	1.39
10	M	402	HEC	CHB-C1B	3.50	1.47	1.39
10	M	403	HEC	CHD-C1D	3.50	1.47	1.39
10	L	301	HEC	CAB-C3B	3.49	1.46	1.35
10	I	403	HEC	C4B-NB	-3.49	1.33	1.39
10	E	301	HEC	CHD-C1D	3.47	1.47	1.39
10	B	301	HEC	CHA-C4D	3.47	1.47	1.39
10	E	301	HEC	CHB-C1B	3.46	1.47	1.39

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
10	C	401	HEC	C4B-NB	-3.45	1.33	1.39
10	C	402	HEC	C4B-NB	-3.44	1.33	1.39
5	D	502	HEM	FE-ND	3.44	2.05	1.94
10	I	403	HEC	CAB-C3B	3.44	1.46	1.35
5	D	501	HEM	FE-NB	3.43	2.05	1.94
10	H	301	HEC	CAC-C3C	3.42	1.46	1.35
10	M	403	HEC	CAB-C3B	3.42	1.46	1.35
10	I	402	HEC	CAB-C3B	3.42	1.46	1.35
10	H	301	HEC	C1B-C2B	3.42	1.51	1.43
10	L	301	HEC	CHD-C1D	3.42	1.47	1.39
11	I	401	FC6	C11-FE2	-3.40	1.83	1.93
10	H	301	HEC	CAB-C3B	3.40	1.46	1.35
11	C	403	FC6	C23-FE2	-3.40	1.83	1.93
10	C	401	HEC	C3D-C2D	3.39	1.47	1.38
10	M	402	HEC	CAC-C3C	3.39	1.46	1.35
10	F	402	HEC	C3D-C2D	3.38	1.47	1.38
11	C	403	FC6	C22-FE2	-3.38	1.83	1.93
11	M	401	FC6	C23-FE2	-3.37	1.84	1.93
10	H	301	HEC	C3D-C2D	3.36	1.47	1.38
10	C	401	HEC	CAB-C3B	3.36	1.45	1.35
10	C	402	HEC	CHB-C1B	3.35	1.46	1.39
10	I	402	HEC	CHB-C1B	3.35	1.46	1.39
10	L	301	HEC	C3D-C2D	3.35	1.47	1.38
10	C	401	HEC	CHC-C1C	3.35	1.46	1.39
10	B	301	HEC	CAB-C3B	3.34	1.45	1.35
10	I	403	HEC	CAC-C3C	3.34	1.45	1.35
10	F	401	HEC	C3D-C2D	3.34	1.47	1.38
10	C	402	HEC	CAB-C3B	3.32	1.45	1.35
10	E	301	HEC	C3D-C2D	3.31	1.47	1.38
10	E	301	HEC	CHC-C1C	3.29	1.46	1.39
5	A	502	HEM	FE-ND	3.28	2.05	1.94
10	M	403	HEC	CAC-C3C	3.27	1.45	1.35
10	E	301	HEC	CAC-C3C	3.27	1.45	1.35
11	F	403	FC6	C11-FE2	-3.27	1.84	1.93
10	C	401	HEC	CHB-C1B	3.26	1.46	1.39
11	F	403	FC6	C26-FE2	-3.26	1.84	1.93
10	E	301	HEC	C1B-C2B	3.25	1.50	1.43
10	F	402	HEC	C1B-C2B	3.25	1.50	1.43
10	I	402	HEC	C3D-C2D	3.25	1.47	1.38
10	B	301	HEC	C1A-NA	-3.24	1.33	1.39
10	B	301	HEC	C1B-C2B	3.23	1.50	1.43
10	M	403	HEC	C3D-C2D	3.23	1.47	1.38

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
10	H	301	HEC	CHB-C1B	3.23	1.46	1.39
10	F	401	HEC	C1B-C2B	3.22	1.50	1.43
10	M	402	HEC	CAB-C3B	3.22	1.45	1.35
10	B	301	HEC	CAC-C3C	3.20	1.45	1.35
10	M	402	HEC	C1B-C2B	3.20	1.50	1.43
10	L	301	HEC	C1C-NC	-3.20	1.33	1.39
10	F	402	HEC	C1C-NC	-3.20	1.33	1.39
10	I	403	HEC	C1B-C2B	3.19	1.50	1.43
10	L	301	HEC	CAC-C3C	3.19	1.45	1.35
10	I	402	HEC	CHC-C1C	3.17	1.46	1.39
5	G	501	HEM	FE-NC	3.17	2.05	1.95
10	C	401	HEC	C3C-C4C	3.17	1.51	1.46
10	F	401	HEC	C1C-NC	-3.17	1.33	1.39
10	C	402	HEC	CAC-C3C	3.16	1.45	1.35
5	D	501	HEM	CAC-C3C	3.15	1.55	1.47
10	M	403	HEC	C1B-C2B	3.15	1.50	1.43
10	L	301	HEC	C1B-C2B	3.15	1.50	1.43
5	G	502	HEM	FE-NA	3.14	2.05	1.95
5	K	501	HEM	CAB-C3B	3.14	1.55	1.47
10	M	403	HEC	C1C-NC	-3.13	1.33	1.39
5	K	502	HEM	FE-ND	3.11	2.04	1.94
10	C	402	HEC	C3D-C2D	3.11	1.47	1.38
10	H	301	HEC	CHC-C1C	3.11	1.46	1.39
10	F	402	HEC	CAC-C3C	3.11	1.45	1.35
10	I	403	HEC	C3D-C2D	3.11	1.47	1.38
10	H	301	HEC	C1C-NC	-3.10	1.33	1.39
5	D	501	HEM	CAB-C3B	3.10	1.55	1.47
10	M	402	HEC	C3D-C2D	3.10	1.47	1.38
11	C	403	FC6	C11-FE2	-3.09	1.84	1.93
5	A	501	HEM	CAB-C3B	3.07	1.55	1.47
10	E	301	HEC	C1C-NC	-3.07	1.33	1.39
5	A	502	HEM	FE-NB	3.06	2.04	1.94
5	G	501	HEM	CAB-C3B	3.05	1.55	1.47
10	F	401	HEC	CHC-C1C	3.05	1.46	1.39
10	C	402	HEC	C1B-C2B	3.04	1.50	1.43
10	I	402	HEC	C1C-NC	-3.04	1.33	1.39
10	M	402	HEC	C1C-NC	-3.03	1.33	1.39
5	D	502	HEM	FE-NC	3.03	2.05	1.95
5	G	501	HEM	FE-NA	3.02	2.05	1.95
5	D	502	HEM	CAC-C3C	3.01	1.55	1.47
10	I	403	HEC	C1C-NC	-3.01	1.33	1.39
5	G	501	HEM	CAC-C3C	3.00	1.55	1.47

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
5	K	501	HEM	FE-ND	3.00	2.04	1.94
10	B	301	HEC	C3D-C2D	2.99	1.46	1.38
5	D	502	HEM	CAB-C3B	2.98	1.55	1.47
5	K	502	HEM	CAC-C3C	2.98	1.55	1.47
10	H	301	HEC	C1A-NA	-2.96	1.34	1.39
10	I	402	HEC	C1B-C2B	2.95	1.50	1.43
10	F	402	HEC	CHC-C1C	2.95	1.46	1.39
5	K	501	HEM	CAC-C3C	2.94	1.55	1.47
10	C	402	HEC	CHC-C1C	2.94	1.46	1.39
5	K	502	HEM	CAB-C3B	2.93	1.55	1.47
10	B	301	HEC	CHC-C1C	2.93	1.46	1.39
5	G	502	HEM	CAC-C3C	2.92	1.55	1.47
11	I	401	FC6	C26-FE2	-2.90	1.85	1.93
10	M	402	HEC	CHC-C1C	2.90	1.45	1.39
10	M	403	HEC	CHC-C1C	2.89	1.45	1.39
10	B	301	HEC	C1C-NC	-2.88	1.34	1.39
5	G	502	HEM	FE-NC	2.88	2.04	1.95
10	I	403	HEC	CHC-C1C	2.87	1.45	1.39
10	C	402	HEC	C1C-NC	-2.85	1.34	1.39
5	G	502	HEM	CAB-C3B	2.84	1.55	1.47
5	A	501	HEM	CAC-C3C	2.83	1.54	1.47
10	L	301	HEC	CHC-C1C	2.80	1.45	1.39
5	A	502	HEM	CAC-C3C	2.78	1.54	1.47
10	C	401	HEC	C1C-NC	-2.77	1.34	1.39
5	G	502	HEM	FE-ND	2.76	2.03	1.94
10	F	401	HEC	C3C-C4C	2.74	1.50	1.46
10	L	301	HEC	C1A-NA	-2.74	1.34	1.39
10	M	402	HEC	C1A-NA	-2.72	1.34	1.39
10	E	301	HEC	C1A-NA	-2.72	1.34	1.39
5	A	502	HEM	CAB-C3B	2.72	1.54	1.47
10	F	402	HEC	C1B-NB	-2.68	1.34	1.39
5	K	501	HEM	FE-NA	2.68	2.04	1.95
10	C	401	HEC	C4A-NA	-2.67	1.34	1.39
10	B	301	HEC	C4D-C3D	2.67	1.49	1.44
10	C	401	HEC	C1B-NB	-2.65	1.34	1.39
10	C	401	HEC	C1B-C2B	2.64	1.49	1.43
10	I	402	HEC	C4A-NA	-2.64	1.34	1.39
10	E	301	HEC	C4D-C3D	2.62	1.49	1.44
10	L	301	HEC	C4D-C3D	2.62	1.49	1.44
10	I	403	HEC	C4D-ND	-2.59	1.34	1.39
10	M	403	HEC	C1A-NA	-2.58	1.34	1.39
10	F	402	HEC	C4D-C3D	2.58	1.49	1.44

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
10	C	402	HEC	C4D-C3D	2.57	1.49	1.44
10	M	403	HEC	C4D-C3D	2.54	1.49	1.44
10	H	301	HEC	C4D-ND	-2.54	1.34	1.39
10	M	403	HEC	C4D-ND	-2.54	1.34	1.39
10	B	301	HEC	C4D-ND	-2.53	1.34	1.39
10	C	402	HEC	C1B-NB	-2.53	1.34	1.39
10	I	402	HEC	C1A-NA	-2.50	1.34	1.39
10	I	402	HEC	C1D-ND	-2.50	1.34	1.39
10	F	402	HEC	C1A-NA	-2.47	1.35	1.39
10	C	402	HEC	C4C-NC	-2.47	1.35	1.39
10	F	401	HEC	C1D-C2D	2.46	1.48	1.43
10	I	403	HEC	C1B-NB	-2.46	1.35	1.39
10	M	402	HEC	C4D-ND	-2.46	1.35	1.39
10	I	403	HEC	C1A-NA	-2.44	1.35	1.39
10	I	403	HEC	C4C-NC	-2.44	1.35	1.39
10	E	301	HEC	C4D-ND	-2.43	1.35	1.39
10	C	402	HEC	C1A-NA	-2.42	1.35	1.39
10	F	401	HEC	C1A-NA	-2.41	1.35	1.39
10	C	402	HEC	C4A-NA	-2.39	1.35	1.39
10	L	301	HEC	C4D-ND	-2.39	1.35	1.39
10	H	301	HEC	C4D-C3D	2.38	1.49	1.44
10	I	402	HEC	C1B-NB	-2.38	1.35	1.39
10	F	401	HEC	C1B-NB	-2.38	1.35	1.39
10	M	402	HEC	C4A-NA	-2.37	1.35	1.39
10	F	402	HEC	C1D-C2D	2.37	1.48	1.43
10	C	401	HEC	C1A-NA	-2.36	1.35	1.39
10	F	402	HEC	C4D-ND	-2.35	1.35	1.39
10	E	301	HEC	C4A-NA	-2.35	1.35	1.39
10	I	403	HEC	C1D-ND	-2.33	1.35	1.39
10	C	402	HEC	C1D-ND	-2.32	1.35	1.39
10	M	403	HEC	C4C-NC	-2.31	1.35	1.39
10	I	402	HEC	C1D-C2D	2.31	1.48	1.43
10	M	402	HEC	C4C-NC	-2.31	1.35	1.39
5	A	501	HEM	FE-NC	2.31	2.02	1.95
10	L	301	HEC	C1D-ND	-2.30	1.35	1.39
10	F	402	HEC	C3C-C4C	2.30	1.50	1.46
10	B	301	HEC	C1D-C2D	2.30	1.48	1.43
10	E	301	HEC	C1D-C2D	2.29	1.48	1.43
10	L	301	HEC	C4C-NC	-2.29	1.35	1.39
10	E	301	HEC	C1B-NB	-2.29	1.35	1.39
10	H	301	HEC	C4A-NA	-2.28	1.35	1.39
10	C	401	HEC	C1D-C2D	2.28	1.48	1.43

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
10	M	402	HEC	C1D-C2D	2.28	1.48	1.43
10	I	403	HEC	C1A-C2A	2.27	1.49	1.45
10	I	402	HEC	C4D-ND	-2.25	1.35	1.39
10	M	403	HEC	C1B-NB	-2.25	1.35	1.39
10	I	402	HEC	C4C-NC	-2.25	1.35	1.39
10	L	301	HEC	C1D-C2D	2.24	1.48	1.43
10	C	401	HEC	C1D-ND	-2.24	1.35	1.39
10	H	301	HEC	C1D-C2D	2.23	1.48	1.43
10	M	403	HEC	C1A-C2A	2.23	1.49	1.45
10	F	402	HEC	C1A-C2A	2.23	1.49	1.45
10	F	401	HEC	C4D-ND	-2.22	1.35	1.39
10	I	403	HEC	C4D-C3D	2.22	1.49	1.44
10	C	402	HEC	C4D-ND	-2.22	1.35	1.39
5	A	502	HEM	C2A-C3A	-2.21	1.33	1.38
10	L	301	HEC	C4A-NA	-2.21	1.35	1.39
10	M	402	HEC	C1D-ND	-2.21	1.35	1.39
10	I	403	HEC	C4A-NA	-2.20	1.35	1.39
10	C	402	HEC	C1A-C2A	2.19	1.49	1.45
5	K	502	HEM	FE-NA	2.19	2.02	1.95
10	I	402	HEC	C3C-C4C	2.17	1.49	1.46
10	L	301	HEC	C1B-NB	-2.17	1.35	1.39
10	F	402	HEC	C4C-NC	-2.17	1.35	1.39
5	K	501	HEM	CMB-C2B	2.15	1.55	1.50
10	F	401	HEC	C4A-NA	-2.15	1.35	1.39
10	E	301	HEC	C1D-ND	-2.12	1.35	1.39
5	A	502	HEM	CMC-C2C	2.12	1.55	1.50
5	D	502	HEM	CMA-C3A	2.12	1.55	1.50
5	G	501	HEM	CMB-C2B	2.12	1.55	1.50
5	D	501	HEM	CMB-C2B	2.11	1.55	1.50
10	M	402	HEC	C3C-C4C	2.11	1.49	1.46
5	A	502	HEM	C3C-C2C	-2.11	1.32	1.37
10	F	402	HEC	C4A-NA	-2.11	1.35	1.39
10	C	402	HEC	C1D-C2D	2.11	1.48	1.43
5	A	501	HEM	CMB-C2B	2.09	1.55	1.50
10	M	403	HEC	C1D-C2D	2.09	1.48	1.43
10	F	402	HEC	C3B-C2B	2.09	1.48	1.41
10	F	402	HEC	C3C-C2C	2.08	1.48	1.41
10	F	401	HEC	C1A-C2A	2.08	1.48	1.45
5	D	501	HEM	FE-NA	2.08	2.02	1.95
5	A	501	HEM	CMA-C3A	2.05	1.55	1.50
5	D	502	HEM	CMB-C2B	2.05	1.55	1.50
10	F	402	HEC	C1D-ND	-2.05	1.35	1.39

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
5	G	502	HEM	CMB-C2B	2.05	1.55	1.50
10	I	403	HEC	C1D-C2D	2.05	1.47	1.43
10	M	403	HEC	C1D-ND	-2.05	1.35	1.39
5	A	502	HEM	C3B-C2B	-2.04	1.33	1.37
5	A	502	HEM	CMB-C2B	2.03	1.54	1.50
5	G	501	HEM	C2A-C3A	-2.03	1.33	1.38
5	G	502	HEM	C3C-C2C	-2.03	1.33	1.37
5	K	502	HEM	CMA-C3A	2.02	1.54	1.50
10	E	301	HEC	C4C-NC	-2.02	1.35	1.39
10	H	301	HEC	C3C-C2C	2.02	1.48	1.41
5	D	501	HEM	CMC-C2C	2.02	1.54	1.50
10	M	402	HEC	C1B-NB	-2.01	1.35	1.39
5	K	501	HEM	CMD-C2D	2.01	1.54	1.50
10	I	402	HEC	C3C-C2C	2.01	1.48	1.41
10	H	301	HEC	C1D-ND	-2.00	1.35	1.39
10	B	301	HEC	C1C-C2C	2.00	1.47	1.43
5	A	501	HEM	CMC-C2C	2.00	1.54	1.50

All (324) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
10	B	301	HEC	CBB-CAB-C3B	-8.40	110.64	127.43
10	E	301	HEC	CBB-CAB-C3B	-8.12	111.20	127.43
10	L	301	HEC	CBB-CAB-C3B	-8.01	111.42	127.43
10	H	301	HEC	CBB-CAB-C3B	-7.92	111.59	127.43
10	M	402	HEC	CBB-CAB-C3B	-6.96	113.51	127.43
10	F	402	HEC	CHD-C4C-NC	-6.62	117.25	124.45
10	C	401	HEC	CBB-CAB-C3B	-5.89	115.66	127.43
10	F	401	HEC	CBB-CAB-C3B	-5.89	115.66	127.43
10	C	402	HEC	CHD-C4C-NC	-5.83	118.10	124.45
10	I	402	HEC	CBB-CAB-C3B	-5.80	115.83	127.43
10	C	401	HEC	CBC-CAC-C3C	-5.64	116.16	127.43
5	G	502	HEM	C4D-ND-C1D	5.63	111.88	105.21
10	M	402	HEC	CAA-CBA-CGA	-5.62	98.75	113.67
5	K	501	HEM	C4D-ND-C1D	5.58	111.81	105.21
5	D	501	HEM	C4D-ND-C1D	5.57	111.81	105.21
10	C	402	HEC	CBB-CAB-C3B	-5.38	116.68	127.43
5	G	501	HEM	C4D-ND-C1D	5.32	111.50	105.21
5	A	501	HEM	C4D-ND-C1D	5.29	111.47	105.21
5	D	502	HEM	C4D-ND-C1D	5.28	111.46	105.21
10	B	301	HEC	C3D-C4D-ND	5.25	115.98	110.15
5	K	502	HEM	C4D-ND-C1D	5.25	111.42	105.21

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
10	M	403	HEC	CBB-CAB-C3B	-5.21	117.01	127.43
10	F	401	HEC	CHD-C4C-NC	-5.11	118.89	124.45
10	F	402	HEC	CBB-CAB-C3B	-5.08	117.28	127.43
10	I	403	HEC	CBB-CAB-C3B	-5.01	117.41	127.43
10	C	401	HEC	CHD-C4C-NC	-4.90	119.11	124.45
5	A	502	HEM	C4D-ND-C1D	4.81	110.90	105.21
10	E	301	HEC	C3D-C4D-ND	4.76	115.43	110.15
10	B	301	HEC	CBA-CAA-C2A	-4.68	99.59	112.53
10	I	402	HEC	CHD-C4C-NC	-4.58	119.47	124.45
10	I	402	HEC	CAA-CBA-CGA	-4.56	101.56	113.67
10	L	301	HEC	CBC-CAC-C3C	-4.56	118.33	127.43
10	H	301	HEC	C3D-C4D-ND	4.54	115.18	110.15
10	I	403	HEC	CAD-CBD-CGD	-4.48	101.77	113.67
10	H	301	HEC	CBC-CAC-C3C	-4.48	118.49	127.43
10	E	301	HEC	CBC-CAC-C3C	-4.43	118.57	127.43
10	I	403	HEC	CHC-C4B-C3B	-4.37	117.85	125.21
10	F	402	HEC	CHC-C4B-C3B	-4.33	117.91	125.21
10	C	402	HEC	CHC-C4B-C3B	-4.33	117.92	125.21
10	M	403	HEC	CHC-C4B-C3B	-4.29	117.97	125.21
10	H	301	HEC	C2A-C1A-NA	4.28	114.45	110.32
10	L	301	HEC	C3D-C4D-ND	4.26	114.88	110.15
10	M	403	HEC	C1D-C2D-C3D	-4.23	101.97	106.82
10	C	401	HEC	C2A-C1A-NA	4.23	114.40	110.32
10	M	403	HEC	CBC-CAC-C3C	-4.22	118.99	127.43
10	C	401	HEC	CAA-CBA-CGA	-4.22	102.47	113.67
10	B	301	HEC	C2A-C1A-NA	4.21	114.38	110.32
10	B	301	HEC	CBC-CAC-C3C	-4.19	119.05	127.43
10	E	301	HEC	C2A-C1A-NA	4.16	114.33	110.32
10	F	402	HEC	CHB-C4A-NA	-4.15	119.94	124.45
10	B	301	HEC	CHC-C4B-C3B	-4.14	118.22	125.21
10	I	403	HEC	C2C-C1C-NC	4.12	116.75	110.14
10	C	402	HEC	C2C-C1C-NC	4.11	116.73	110.14
10	F	402	HEC	C2C-C1C-NC	4.10	116.72	110.14
10	B	301	HEC	C2C-C1C-NC	4.09	116.70	110.14
10	H	301	HEC	CBA-CAA-C2A	-4.08	101.24	112.53
10	M	402	HEC	CBC-CAC-C3C	-4.08	119.27	127.43
10	C	402	HEC	C1D-C2D-C3D	-4.04	102.19	106.82
10	I	403	HEC	C1D-C2D-C3D	-4.02	102.21	106.82
10	F	401	HEC	CAA-CBA-CGA	-4.02	103.01	113.67
10	M	402	HEC	CBD-CAD-C3D	-3.99	101.50	112.53
10	M	403	HEC	CHD-C4C-NC	-3.99	120.11	124.45
10	F	401	HEC	CHC-C4B-C3B	-3.98	118.50	125.21

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
10	F	401	HEC	C3D-C4D-ND	3.96	114.55	110.15
10	M	403	HEC	C2C-C1C-NC	3.96	116.49	110.14
10	L	301	HEC	C2A-C1A-NA	3.96	114.14	110.32
10	L	301	HEC	CHC-C4B-C3B	-3.94	118.57	125.21
10	I	402	HEC	C1D-C2D-C3D	-3.93	102.32	106.82
10	F	401	HEC	C2A-C1A-NA	3.92	114.11	110.32
10	M	403	HEC	CAD-CBD-CGD	-3.90	103.32	113.67
10	B	301	HEC	C2B-C1B-NB	3.84	116.31	110.14
10	C	402	HEC	CAD-CBD-CGD	-3.82	103.53	113.67
10	C	401	HEC	C2B-C1B-NB	3.82	116.26	110.14
10	M	402	HEC	C3D-C4D-ND	3.81	114.38	110.15
10	I	403	HEC	CHD-C4C-NC	-3.81	120.31	124.45
10	M	402	HEC	C1D-C2D-C3D	-3.81	102.46	106.82
10	B	301	HEC	C2D-C1D-ND	3.80	116.24	110.14
10	F	401	HEC	C2C-C1C-NC	3.78	116.21	110.14
10	E	301	HEC	C1D-C2D-C3D	-3.78	102.48	106.82
10	B	301	HEC	C1D-C2D-C3D	-3.77	102.50	106.82
10	C	401	HEC	CBD-CAD-C3D	-3.76	102.15	112.53
10	L	301	HEC	C2B-C1B-NB	3.75	116.16	110.14
10	H	301	HEC	CMB-C2B-C1B	3.75	131.13	125.42
10	M	402	HEC	C2C-C1C-NC	3.75	116.15	110.14
10	M	402	HEC	CHC-C4B-C3B	-3.73	118.92	125.21
10	C	401	HEC	C3D-C4D-ND	3.71	114.27	110.15
10	H	301	HEC	C1D-C2D-C3D	-3.70	102.58	106.82
10	H	301	HEC	CHC-C4B-C3B	-3.70	118.98	125.21
10	H	301	HEC	C2B-C1B-NB	3.69	116.06	110.14
10	I	402	HEC	C3D-C4D-ND	3.68	114.23	110.15
10	E	301	HEC	C2D-C1D-ND	3.68	116.04	110.14
10	L	301	HEC	C2C-C1C-NC	3.66	116.02	110.14
10	E	301	HEC	C2B-C1B-NB	3.66	116.00	110.14
10	I	402	HEC	C2B-C1B-NB	3.65	115.99	110.14
10	L	301	HEC	C1D-C2D-C3D	-3.61	102.68	106.82
10	M	402	HEC	CHD-C4C-NC	-3.60	120.54	124.45
10	L	301	HEC	CBA-CAA-C2A	-3.59	102.61	112.53
10	B	301	HEC	CMB-C2B-C1B	3.58	130.87	125.42
10	H	301	HEC	C2C-C1C-NC	3.57	115.87	110.14
10	C	401	HEC	C1D-C2D-C3D	-3.56	102.74	106.82
10	M	403	HEC	C2A-C1A-NA	3.54	113.74	110.32
10	M	403	HEC	C2D-C1D-ND	3.52	115.78	110.14
10	C	402	HEC	CBC-CAC-C3C	-3.50	120.44	127.43
10	C	402	HEC	C2B-C1B-NB	3.49	115.74	110.14
10	F	402	HEC	C1D-C2D-C3D	-3.47	102.85	106.82

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
10	I	402	HEC	C2A-C1A-NA	3.46	113.66	110.32
10	C	402	HEC	C2D-C1D-ND	3.45	115.67	110.14
10	F	401	HEC	C1D-C2D-C3D	-3.44	102.87	106.82
10	E	301	HEC	CHC-C4B-C3B	-3.44	119.42	125.21
10	C	402	HEC	CHB-C4A-NA	-3.42	120.73	124.45
10	I	403	HEC	C3D-C4D-ND	3.42	113.94	110.15
10	L	301	HEC	C2D-C1D-ND	3.42	115.62	110.14
10	M	402	HEC	C2A-C1A-NA	3.41	113.61	110.32
10	F	402	HEC	C3D-C4D-ND	3.41	113.94	110.15
10	I	402	HEC	CHC-C4B-C3B	-3.40	119.47	125.21
10	M	403	HEC	C3D-C4D-ND	3.40	113.92	110.15
10	I	402	HEC	CBC-CAC-C3C	-3.39	120.65	127.43
10	M	402	HEC	C2B-C1B-NB	3.39	115.58	110.14
10	E	301	HEC	CBA-CAA-C2A	-3.36	103.23	112.53
10	H	301	HEC	C2D-C1D-ND	3.36	115.53	110.14
10	F	401	HEC	CBD-CAD-C3D	-3.35	103.26	112.53
10	I	403	HEC	C2A-C1A-NA	3.35	113.55	110.32
10	M	403	HEC	CAA-CBA-CGA	-3.31	104.88	113.67
10	E	301	HEC	C2C-C1C-NC	3.30	115.43	110.14
10	I	403	HEC	C2D-C1D-ND	3.28	115.40	110.14
10	L	301	HEC	CMB-C2B-C1B	3.25	130.37	125.42
10	E	301	HEC	CMB-C2B-C1B	3.22	130.32	125.42
10	C	401	HEC	C2C-C1C-NC	3.22	115.30	110.14
10	B	301	HEC	C4A-C3A-C2A	-3.19	102.24	106.97
10	I	403	HEC	C2B-C1B-NB	3.19	115.25	110.14
10	F	401	HEC	CMB-C2B-C1B	3.18	130.26	125.42
10	F	401	HEC	C1A-C2A-C3A	-3.13	102.98	107.11
10	I	402	HEC	C2D-C1D-ND	3.12	115.15	110.14
10	I	402	HEC	C2C-C1C-NC	3.12	115.14	110.14
10	H	301	HEC	C4A-C3A-C2A	-3.11	102.36	106.97
10	C	401	HEC	C3A-C4A-NA	3.09	115.36	109.64
10	C	402	HEC	C3D-C4D-ND	3.09	113.58	110.15
10	C	401	HEC	C1A-C2A-C3A	-3.07	103.06	107.11
10	F	401	HEC	CBC-CAC-C3C	-3.07	121.31	127.43
10	E	301	HEC	C1A-C2A-C3A	-3.06	103.08	107.11
10	F	401	HEC	C2B-C1B-NB	3.05	115.03	110.14
10	I	402	HEC	CBD-CAD-C3D	-3.04	104.12	112.53
10	C	401	HEC	CHC-C4B-C3B	-3.03	120.09	125.21
10	I	402	HEC	C1A-C2A-C3A	-3.03	103.11	107.11
10	I	403	HEC	CBC-CAC-C3C	-3.03	121.37	127.43
10	L	301	HEC	C4A-C3A-C2A	-3.03	102.47	106.97
5	A	501	HEM	CAD-CBD-CGD	-3.01	105.69	113.67

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
10	F	402	HEC	CHB-C1B-NB	-2.97	118.48	123.86
10	C	402	HEC	CHB-C1B-NB	-2.97	118.48	123.86
10	M	403	HEC	C2B-C1B-NB	2.96	114.88	110.14
10	C	402	HEC	C4A-C3A-C2A	-2.96	102.58	106.97
10	F	401	HEC	CHC-C1C-C2C	-2.96	118.85	127.43
10	F	402	HEC	C2A-C1A-NA	2.95	113.17	110.32
10	I	403	HEC	CHC-C1C-C2C	-2.95	118.88	127.43
10	C	402	HEC	CAA-CBA-CGA	-2.94	105.87	113.67
10	M	402	HEC	C2D-C1D-ND	2.93	114.83	110.14
10	C	402	HEC	C2A-C1A-NA	2.91	113.14	110.32
10	M	402	HEC	CMB-C2B-C1B	2.90	129.83	125.42
10	B	301	HEC	CAD-C3D-C4D	2.88	130.56	124.94
10	F	402	HEC	CBC-CAC-C3C	-2.87	121.69	127.43
10	L	301	HEC	C3A-C4A-NA	2.87	114.95	109.64
10	B	301	HEC	CHB-C4A-C3A	-2.87	119.53	125.49
10	F	402	HEC	CHC-C1C-C2C	-2.85	119.14	127.43
10	H	301	HEC	CHB-C4A-C3A	-2.85	119.55	125.49
10	B	301	HEC	CHD-C4C-C3C	-2.85	120.40	125.21
10	L	301	HEC	CHC-C1C-C2C	-2.85	119.16	127.43
10	C	402	HEC	CHC-C1C-C2C	-2.83	119.22	127.43
10	M	402	HEC	CHC-C1C-C2C	-2.83	119.22	127.43
10	C	401	HEC	C4A-C3A-C2A	-2.83	102.78	106.97
10	M	402	HEC	C1A-C2A-C3A	-2.82	103.40	107.11
10	M	403	HEC	CHC-C1C-C2C	-2.81	119.28	127.43
10	C	402	HEC	CHB-C4A-C3A	-2.81	119.65	125.49
10	L	301	HEC	C1A-C2A-C3A	-2.80	103.42	107.11
10	F	402	HEC	C2D-C1D-ND	2.80	114.62	110.14
10	B	301	HEC	C4B-NB-C1B	-2.80	101.26	105.82
10	C	401	HEC	C2D-C1D-ND	2.78	114.59	110.14
10	B	301	HEC	CHC-C1C-C2C	-2.77	119.37	127.43
10	E	301	HEC	CAD-C3D-C4D	2.77	130.35	124.94
10	C	402	HEC	C4B-NB-C1B	-2.77	101.31	105.82
10	H	301	HEC	C1A-C2A-C3A	-2.76	103.47	107.11
10	B	301	HEC	C3A-C4A-NA	2.76	114.73	109.64
10	I	403	HEC	C4A-C3A-C2A	-2.75	102.89	106.97
10	E	301	HEC	C4D-C3D-C2D	-2.74	102.62	106.87
10	M	403	HEC	C1A-C2A-C3A	-2.74	103.50	107.11
10	I	403	HEC	CMB-C2B-C1B	2.74	129.59	125.42
10	H	301	HEC	CHC-C1C-C2C	-2.73	119.50	127.43
10	L	301	HEC	CHB-C4A-C3A	-2.73	119.81	125.49
10	I	403	HEC	C1A-C2A-C3A	-2.73	103.52	107.11
5	G	501	HEM	CAA-CBA-CGA	-2.73	106.43	113.67

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
5	D	502	HEM	C3B-C2B-C1B	2.73	108.46	106.41
5	G	501	HEM	CAD-CBD-CGD	-2.72	106.44	113.67
5	D	501	HEM	CAD-CBD-CGD	-2.72	106.45	113.67
10	L	301	HEC	CAD-C3D-C4D	2.72	130.25	124.94
10	H	301	HEC	C3A-C4A-NA	2.70	114.64	109.64
10	F	401	HEC	C2D-C1D-ND	2.70	114.47	110.14
10	B	301	HEC	CHD-C1D-C2D	-2.70	119.58	127.43
10	M	402	HEC	CHB-C4A-C3A	-2.70	119.88	125.49
10	I	403	HEC	C3A-C4A-NA	2.68	114.60	109.64
10	B	301	HEC	C4D-C3D-C2D	-2.68	102.71	106.87
10	L	301	HEC	C4D-C3D-C2D	-2.68	102.71	106.87
10	F	402	HEC	C2B-C1B-NB	2.68	114.43	110.14
10	E	301	HEC	C4A-C3A-C2A	-2.68	103.00	106.97
5	K	501	HEM	CAD-CBD-CGD	-2.67	106.58	113.67
10	I	402	HEC	CHC-C1C-C2C	-2.67	119.68	127.43
10	C	401	HEC	CHB-C4A-C3A	-2.66	119.95	125.49
10	F	402	HEC	C1A-C2A-C3A	-2.65	103.61	107.11
10	I	402	HEC	CHB-C4A-C3A	-2.65	119.97	125.49
10	L	301	HEC	C4B-NB-C1B	-2.65	101.50	105.82
10	F	402	HEC	CAD-C3D-C4D	2.63	130.07	124.94
10	H	301	HEC	C4D-C3D-C2D	-2.62	102.81	106.87
10	C	402	HEC	C3A-C4A-NA	2.62	114.48	109.64
10	F	402	HEC	CMC-C2C-C3C	2.61	132.70	126.55
10	I	403	HEC	O1D-CGD-CBD	-2.61	114.82	123.09
10	M	403	HEC	C4A-C3A-C2A	-2.61	103.11	106.97
10	C	401	HEC	CHC-C1C-C2C	-2.61	119.86	127.43
10	H	301	HEC	C4B-NB-C1B	-2.60	101.58	105.82
10	C	402	HEC	CBA-CAA-C2A	-2.58	105.39	112.53
10	E	301	HEC	CHB-C4A-C3A	-2.57	120.15	125.49
10	E	301	HEC	C3A-C4A-NA	2.56	114.38	109.64
10	M	403	HEC	O1D-CGD-CBD	-2.55	115.00	123.09
10	M	403	HEC	CHB-C4A-C3A	-2.55	120.18	125.49
10	I	403	HEC	C4B-NB-C1B	-2.55	101.67	105.82
10	F	402	HEC	C4A-C3A-C2A	-2.55	103.20	106.97
5	A	502	HEM	CHD-C1D-ND	2.53	127.15	124.42
10	C	402	HEC	CAD-C3D-C4D	2.53	129.88	124.94
10	I	402	HEC	CHB-C1B-NB	-2.52	119.29	123.86
10	I	402	HEC	CMB-C2B-C1B	2.51	129.24	125.42
10	C	402	HEC	C1A-C2A-C3A	-2.50	103.82	107.11
10	I	403	HEC	CHB-C4A-C3A	-2.50	120.29	125.49
10	M	402	HEC	C4B-NB-C1B	-2.49	101.76	105.82
10	M	403	HEC	CHB-C4A-NA	-2.49	121.74	124.45

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
5	D	502	HEM	CHD-C1D-ND	2.48	127.09	124.42
10	H	301	HEC	CAD-C3D-C4D	2.47	129.76	124.94
10	I	403	HEC	CHB-C1B-NB	-2.47	119.39	123.86
10	I	402	HEC	C4A-C3A-C2A	-2.47	103.31	106.97
10	I	402	HEC	C3A-C4A-NA	2.45	114.17	109.64
10	M	402	HEC	C4A-C3A-C2A	-2.44	103.36	106.97
10	M	402	HEC	CMD-C2D-C1D	2.44	129.13	125.42
10	F	401	HEC	C3A-C4A-NA	2.43	114.13	109.64
10	B	301	HEC	C1A-C2A-C3A	-2.42	103.92	107.11
10	C	401	HEC	C4B-NB-C1B	-2.41	101.88	105.82
10	F	401	HEC	C4A-C3A-C2A	-2.41	103.40	106.97
10	M	402	HEC	C3A-C4A-NA	2.41	114.09	109.64
5	K	502	HEM	C3B-C2B-C1B	2.39	108.21	106.41
10	F	401	HEC	CHB-C1B-NB	-2.39	119.53	123.86
10	I	403	HEC	CMC-C2C-C3C	2.39	132.17	126.55
10	M	403	HEC	C3A-C4A-NA	2.39	114.05	109.64
10	H	301	HEC	CHD-C4C-NC	-2.39	121.86	124.45
10	I	403	HEC	CAA-CBA-CGA	-2.37	107.38	113.67
10	E	301	HEC	CHD-C1D-C2D	-2.37	120.55	127.43
10	M	403	HEC	CAD-C3D-C4D	2.36	129.55	124.94
10	H	301	HEC	CHD-C1D-C2D	-2.36	120.58	127.43
10	E	301	HEC	CHC-C1C-C2C	-2.35	120.59	127.43
10	L	301	HEC	CHD-C1D-C2D	-2.35	120.60	127.43
5	A	501	HEM	O1A-CGA-CBA	-2.34	115.67	123.09
10	E	301	HEC	CHD-C4C-C3C	-2.33	121.29	125.21
10	I	402	HEC	C4B-NB-C1B	-2.32	102.04	105.82
10	E	301	HEC	CHD-C4C-NC	-2.32	121.93	124.45
10	F	401	HEC	CHB-C4A-C3A	-2.31	120.68	125.49
10	C	402	HEC	O1D-CGD-CBD	-2.31	115.77	123.09
10	I	403	HEC	CAD-C3D-C4D	2.31	129.44	124.94
5	A	502	HEM	CAC-C3C-C4C	2.31	130.32	124.82
10	F	401	HEC	C4B-NB-C1B	-2.30	102.06	105.82
10	F	401	HEC	C4D-C3D-C2D	-2.30	103.30	106.87
10	F	402	HEC	C4D-C3D-C2D	-2.29	103.32	106.87
5	G	502	HEM	CAC-C3C-C4C	2.29	130.29	124.82
5	A	501	HEM	CAA-CBA-CGA	-2.28	107.61	113.67
10	M	402	HEC	O1D-CGD-CBD	-2.28	115.85	123.09
10	M	403	HEC	C4B-NB-C1B	-2.28	102.11	105.82
5	G	502	HEM	CHD-C1D-ND	2.27	126.87	124.42
5	G	502	HEM	C3B-C2B-C1B	2.27	108.12	106.41
10	F	401	HEC	CMC-C2C-C3C	2.27	131.89	126.55
5	A	502	HEM	O1A-CGA-CBA	-2.26	115.92	123.09

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
10	F	402	HEC	CMB-C2B-C1B	2.25	128.84	125.42
10	M	403	HEC	CAA-C2A-C1A	2.25	129.43	124.85
5	A	501	HEM	CHD-C1D-ND	2.25	126.84	124.42
10	M	403	HEC	CMC-C2C-C3C	2.23	131.81	126.55
10	E	301	HEC	C4B-NB-C1B	-2.23	102.19	105.82
5	G	501	HEM	CMD-C2D-C1D	2.22	128.51	125.03
5	K	502	HEM	C3B-C4B-NB	-2.22	107.87	109.47
10	F	402	HEC	CAD-CBD-CGD	-2.21	107.79	113.67
10	C	401	HEC	CAA-C2A-C1A	2.18	129.29	124.85
5	D	501	HEM	CAC-C3C-C4C	2.18	130.02	124.82
10	C	402	HEC	CMB-C2B-C1B	2.18	128.74	125.42
5	G	502	HEM	CHC-C1C-NC	2.18	126.83	124.45
10	M	403	HEC	CHB-C1B-NB	-2.17	119.92	123.86
10	C	401	HEC	C4D-C3D-C2D	-2.17	103.50	106.87
10	F	402	HEC	CHB-C4A-C3A	-2.17	120.98	125.49
10	C	401	HEC	CAD-CBD-CGD	-2.17	107.92	113.67
10	I	402	HEC	CAD-CBD-CGD	-2.17	107.92	113.67
10	M	402	HEC	CAD-CBD-CGD	-2.17	107.92	113.67
10	I	402	HEC	CMD-C2D-C1D	2.16	128.71	125.42
5	G	502	HEM	CBA-CAA-C2A	-2.15	106.60	112.53
5	K	502	HEM	CHD-C1D-ND	2.14	126.73	124.42
10	F	402	HEC	CMD-C2D-C1D	2.13	128.67	125.42
10	I	402	HEC	C4D-C3D-C2D	-2.11	103.60	106.87
10	H	301	HEC	CHB-C1B-NB	-2.11	120.03	123.86
10	M	403	HEC	CHD-C1D-C2D	-2.10	121.32	127.43
10	C	401	HEC	O1D-CGD-CBD	-2.09	116.45	123.09
10	F	402	HEC	CAA-C2A-C1A	2.08	129.07	124.85
10	M	403	HEC	CMB-C2B-C1B	2.07	128.58	125.42
10	F	402	HEC	CAA-CBA-CGA	-2.07	108.18	113.67
10	I	403	HEC	CAA-C2A-C1A	2.07	129.05	124.85
10	M	402	HEC	C4D-C3D-C2D	-2.06	103.67	106.87
5	G	501	HEM	CAD-C3D-C4D	2.06	128.29	124.70
10	I	403	HEC	CBA-CAA-C2A	-2.06	106.84	112.53
10	I	403	HEC	CHD-C1D-C2D	-2.06	121.45	127.43
5	D	502	HEM	C1B-NB-C4B	2.05	107.64	105.21
10	I	402	HEC	CMC-C2C-C3C	2.05	131.38	126.55
10	L	301	HEC	CHD-C4C-NC	-2.05	122.22	124.45
5	A	502	HEM	CAC-C3C-C2C	-2.05	121.78	128.43
5	A	502	HEM	C3B-C2B-C1B	2.04	107.94	106.41
10	F	401	HEC	CMD-C2D-C1D	2.03	128.52	125.42
10	F	402	HEC	C3A-C4A-NA	2.03	113.40	109.64
5	A	502	HEM	C3B-C4B-NB	-2.03	108.01	109.47

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
10	F	401	HEC	CAA-C2A-C1A	2.02	128.97	124.85
10	I	403	HEC	C4D-C3D-C2D	-2.02	103.74	106.87
5	D	502	HEM	CBA-CAA-C2A	-2.02	106.94	112.53
10	I	403	HEC	CMD-C2D-C1D	2.02	128.50	125.42
5	G	501	HEM	C2A-C1A-NA	-2.02	107.91	110.15
5	K	502	HEM	C1B-NB-C4B	2.01	107.59	105.21
5	A	502	HEM	CMC-C2C-C3C	-2.00	123.58	128.43
10	E	301	HEC	CHB-C1B-NB	-2.00	120.23	123.86
5	G	502	HEM	CAC-C3C-C2C	-2.00	121.93	128.43

There are no chirality outliers.

All (105) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
10	B	301	HEC	C2B-C3B-CAB-CBB
10	B	301	HEC	C4B-C3B-CAB-CBB
10	B	301	HEC	C4C-C3C-CAC-CBC
10	C	401	HEC	C2B-C3B-CAB-CBB
10	C	401	HEC	C4B-C3B-CAB-CBB
10	C	401	HEC	C2C-C3C-CAC-CBC
10	C	401	HEC	C4C-C3C-CAC-CBC
10	C	402	HEC	C2B-C3B-CAB-CBB
10	C	402	HEC	C4B-C3B-CAB-CBB
10	C	402	HEC	C4C-C3C-CAC-CBC
10	E	301	HEC	C2B-C3B-CAB-CBB
10	E	301	HEC	C4B-C3B-CAB-CBB
10	E	301	HEC	C4C-C3C-CAC-CBC
10	F	401	HEC	C2B-C3B-CAB-CBB
10	F	401	HEC	C4B-C3B-CAB-CBB
10	F	401	HEC	C4C-C3C-CAC-CBC
10	F	402	HEC	C2B-C3B-CAB-CBB
10	F	402	HEC	C4B-C3B-CAB-CBB
10	F	402	HEC	C4C-C3C-CAC-CBC
10	H	301	HEC	C2B-C3B-CAB-CBB
10	H	301	HEC	C4B-C3B-CAB-CBB
10	H	301	HEC	C4C-C3C-CAC-CBC
10	I	402	HEC	C2B-C3B-CAB-CBB
10	I	402	HEC	C4B-C3B-CAB-CBB
10	I	402	HEC	C4C-C3C-CAC-CBC
10	I	403	HEC	C2B-C3B-CAB-CBB
10	I	403	HEC	C4B-C3B-CAB-CBB
10	I	403	HEC	C4C-C3C-CAC-CBC

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Mol	Chain	Res	Type	Atoms
10	L	301	HEC	C2B-C3B-CAB-CBB
10	L	301	HEC	C4B-C3B-CAB-CBB
10	L	301	HEC	C4C-C3C-CAC-CBC
10	M	402	HEC	C2B-C3B-CAB-CBB
10	M	402	HEC	C4B-C3B-CAB-CBB
10	M	402	HEC	C4C-C3C-CAC-CBC
10	M	403	HEC	C2B-C3B-CAB-CBB
10	M	403	HEC	C4B-C3B-CAB-CBB
10	M	403	HEC	C4C-C3C-CAC-CBC
5	D	502	HEM	C4C-C3C-CAC-CBC
5	G	501	HEM	C4C-C3C-CAC-CBC
5	G	502	HEM	C4C-C3C-CAC-CBC
5	A	502	HEM	C4B-C3B-CAB-CBB
5	A	502	HEM	C4C-C3C-CAC-CBC
5	D	501	HEM	C4C-C3C-CAC-CBC
5	D	502	HEM	C4B-C3B-CAB-CBB
5	G	502	HEM	C4B-C3B-CAB-CBB
5	K	501	HEM	C4C-C3C-CAC-CBC
5	K	502	HEM	C4B-C3B-CAB-CBB
5	K	502	HEM	C4C-C3C-CAC-CBC
10	B	301	HEC	C2C-C3C-CAC-CBC
10	C	402	HEC	C2C-C3C-CAC-CBC
10	E	301	HEC	C2C-C3C-CAC-CBC
10	F	401	HEC	C2C-C3C-CAC-CBC
10	F	402	HEC	C2C-C3C-CAC-CBC
10	H	301	HEC	C2C-C3C-CAC-CBC
10	I	403	HEC	C2C-C3C-CAC-CBC
10	L	301	HEC	C2C-C3C-CAC-CBC
10	M	402	HEC	C2C-C3C-CAC-CBC
10	M	403	HEC	C2C-C3C-CAC-CBC
5	A	501	HEM	CAD-CBD-CGD-O2D
5	D	501	HEM	CAD-CBD-CGD-O2D
10	E	301	HEC	CAD-CBD-CGD-O1D
10	B	301	HEC	CAD-CBD-CGD-O1D
10	C	401	HEC	CAA-CBA-CGA-O1A
10	F	401	HEC	CAA-CBA-CGA-O1A
5	A	501	HEM	CAD-CBD-CGD-O1D
10	B	301	HEC	CAD-CBD-CGD-O2D
5	G	501	HEM	CAD-CBD-CGD-O1D
10	L	301	HEC	CAD-CBD-CGD-O2D
10	C	402	HEC	CAD-CBD-CGD-O2D
10	I	402	HEC	CAA-CBA-CGA-O2A

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Mol	Chain	Res	Type	Atoms
10	L	301	HEC	CAD-CBD-CGD-O1D
10	M	402	HEC	CAA-CBA-CGA-O2A
10	E	301	HEC	CAD-CBD-CGD-O2D
10	H	301	HEC	CAD-CBD-CGD-O1D
10	H	301	HEC	CAD-CBD-CGD-O2D
10	I	402	HEC	CAA-CBA-CGA-O1A
10	M	402	HEC	CAA-CBA-CGA-O1A
10	F	401	HEC	CAA-CBA-CGA-O2A
5	D	501	HEM	CAD-CBD-CGD-O1D
5	G	501	HEM	CAD-CBD-CGD-O2D
10	I	403	HEC	CAD-CBD-CGD-O2D
5	D	502	HEM	CAD-CBD-CGD-O2D
10	C	402	HEC	CAD-CBD-CGD-O1D
5	A	502	HEM	CAD-CBD-CGD-O2D
10	M	403	HEC	CAD-CBD-CGD-O2D
5	D	502	HEM	CAD-CBD-CGD-O1D
10	F	402	HEC	CAD-CBD-CGD-O2D
10	L	301	HEC	C2A-CAA-CBA-CGA
5	K	501	HEM	CAD-CBD-CGD-O2D
10	C	401	HEC	CAA-CBA-CGA-O2A
5	A	502	HEM	CAD-CBD-CGD-O1D
5	K	501	HEM	CAD-CBD-CGD-O1D
10	M	403	HEC	CAD-CBD-CGD-O1D
10	I	403	HEC	CAD-CBD-CGD-O1D
5	A	501	HEM	C4C-C3C-CAC-CBC
10	F	402	HEC	CAD-CBD-CGD-O1D
10	H	301	HEC	CAA-CBA-CGA-O1A
10	B	301	HEC	CAA-CBA-CGA-O1A
5	A	501	HEM	CAA-CBA-CGA-O2A
10	B	301	HEC	CAA-CBA-CGA-O2A
10	H	301	HEC	CAA-CBA-CGA-O2A
5	A	501	HEM	CAA-CBA-CGA-O1A
10	E	301	HEC	CAA-CBA-CGA-O2A
10	E	301	HEC	CAA-CBA-CGA-O1A
10	F	402	HEC	CAA-CBA-CGA-O2A

There are no ring outliers.

28 monomers are involved in 123 short contacts:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
10	I	402	HEC	8	0
10	B	301	HEC	5	0

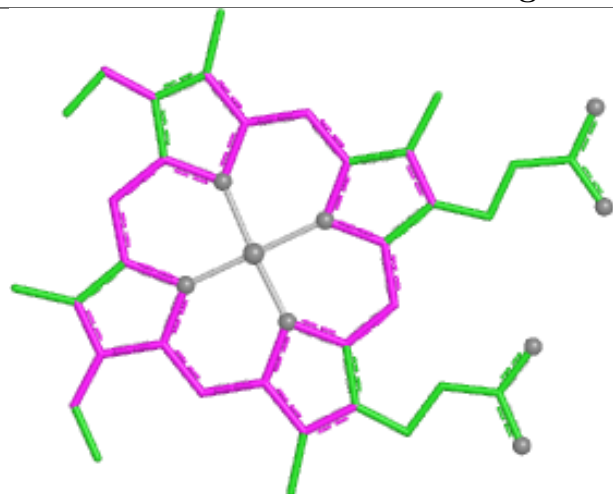
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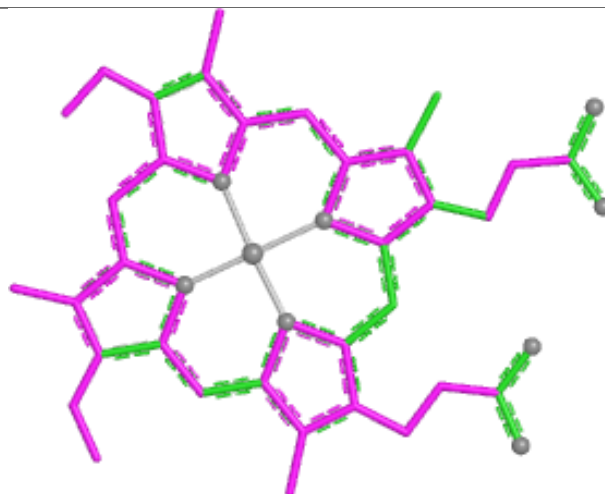
Mol	Chain	Res	Type	Clashes	Symm-Clashes
10	F	402	HEC	3	0
11	F	403	FC6	2	0
10	E	301	HEC	6	0
5	K	501	HEM	5	0
11	C	403	FC6	2	0
10	L	301	HEC	3	0
10	C	401	HEC	8	0
5	D	502	HEM	8	0
5	K	502	HEM	9	0
11	I	401	FC6	1	0
5	G	502	HEM	8	0
9	G	506	PO4	1	0
11	M	401	FC6	2	0
10	I	403	HEC	3	0
10	M	402	HEC	6	0
9	K	506	PO4	4	0
10	C	402	HEC	2	0
5	G	501	HEM	5	0
10	F	401	HEC	5	0
5	A	502	HEM	9	0
5	D	501	HEM	5	0
9	A	506	PO4	1	0
10	M	403	HEC	2	0
5	A	501	HEM	3	0
10	H	301	HEC	6	0
9	D	505	PO4	1	0

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

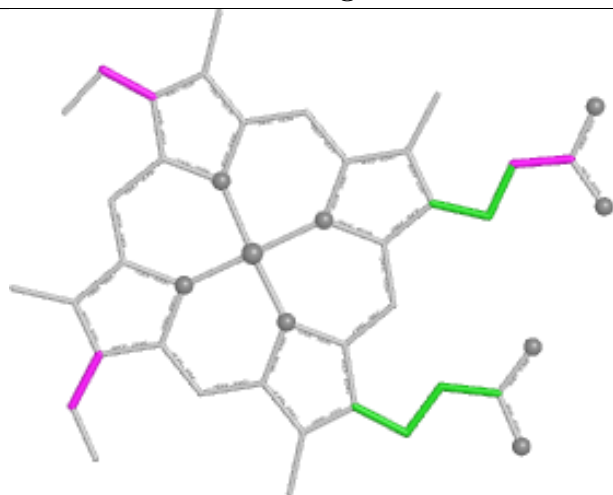
Ligand HEC I 402



Bond lengths



Bond angles

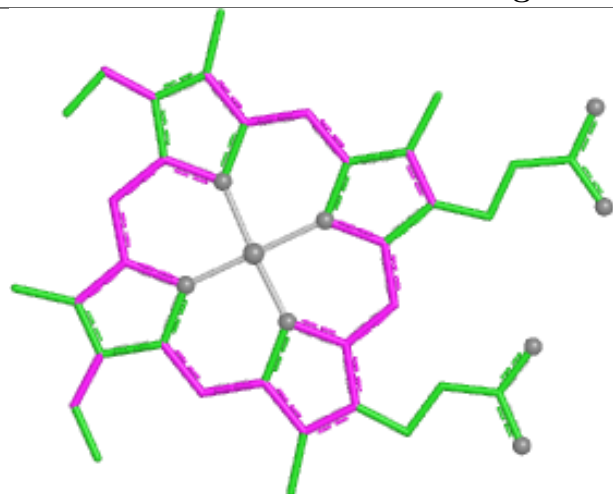


Torsions

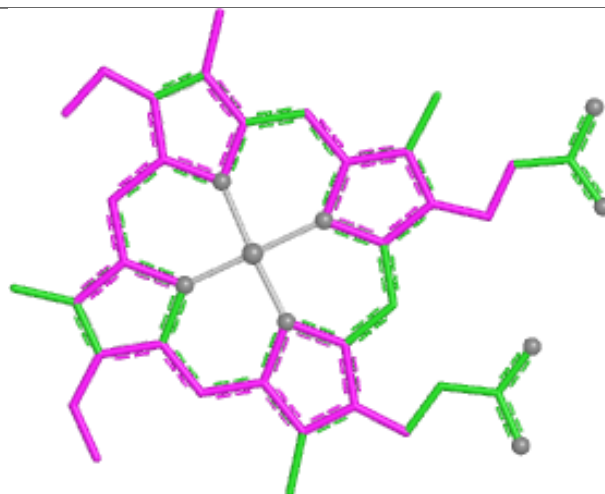


Rings

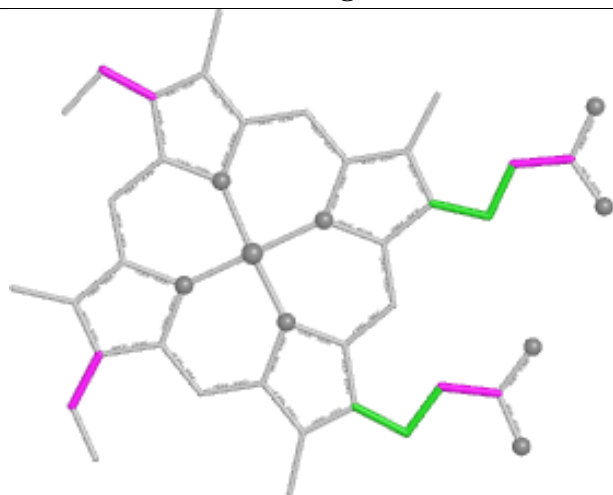
Ligand HEC B 301



Bond lengths



Bond angles

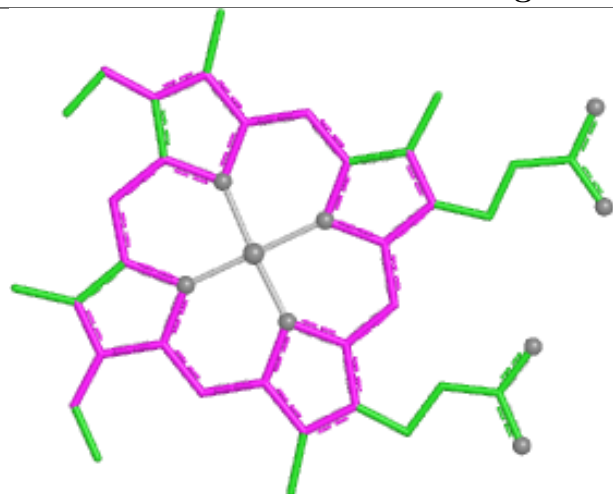


Torsions

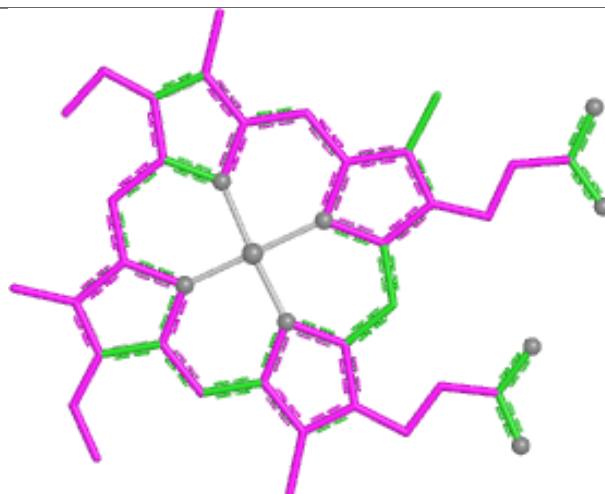


Rings

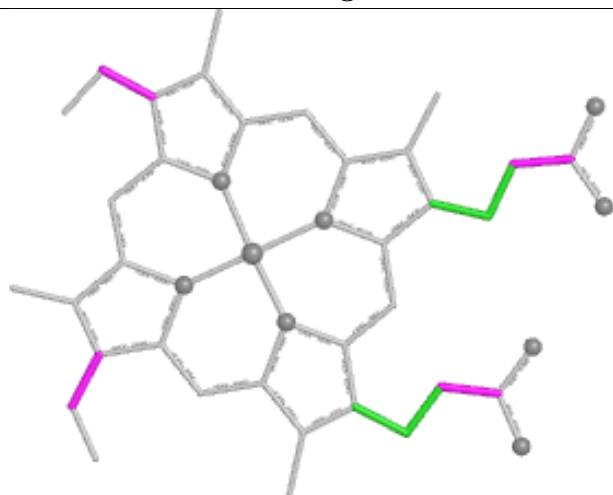
Ligand HEC F 402



Bond lengths



Bond angles

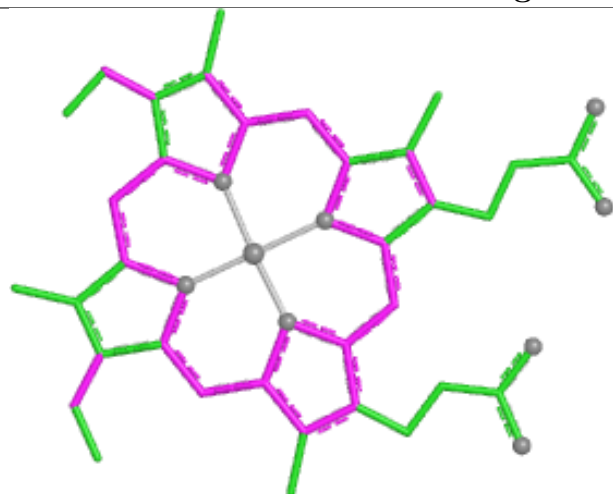


Torsions

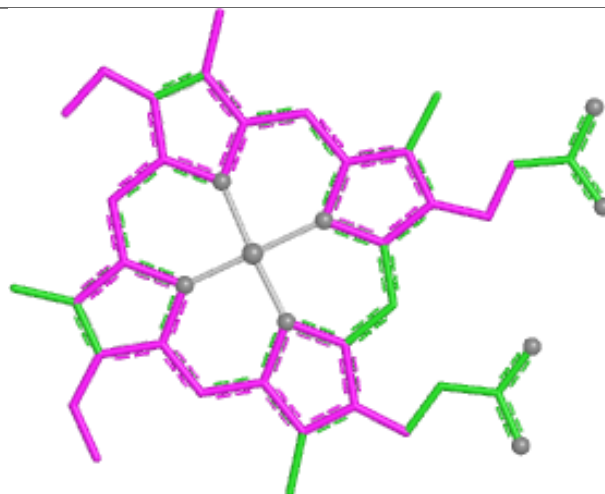


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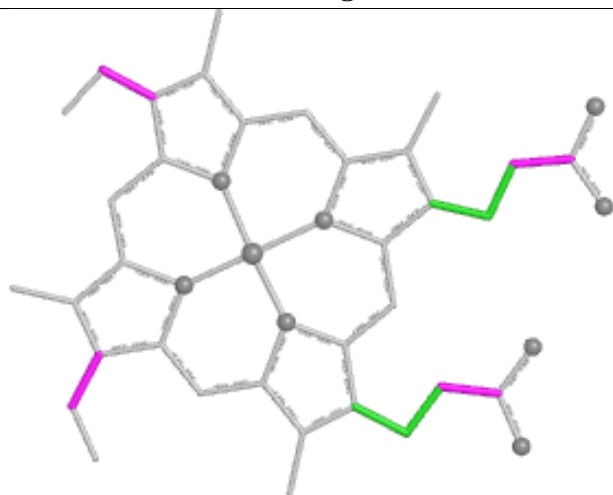
Ligand HEC E 301



Bond lengths



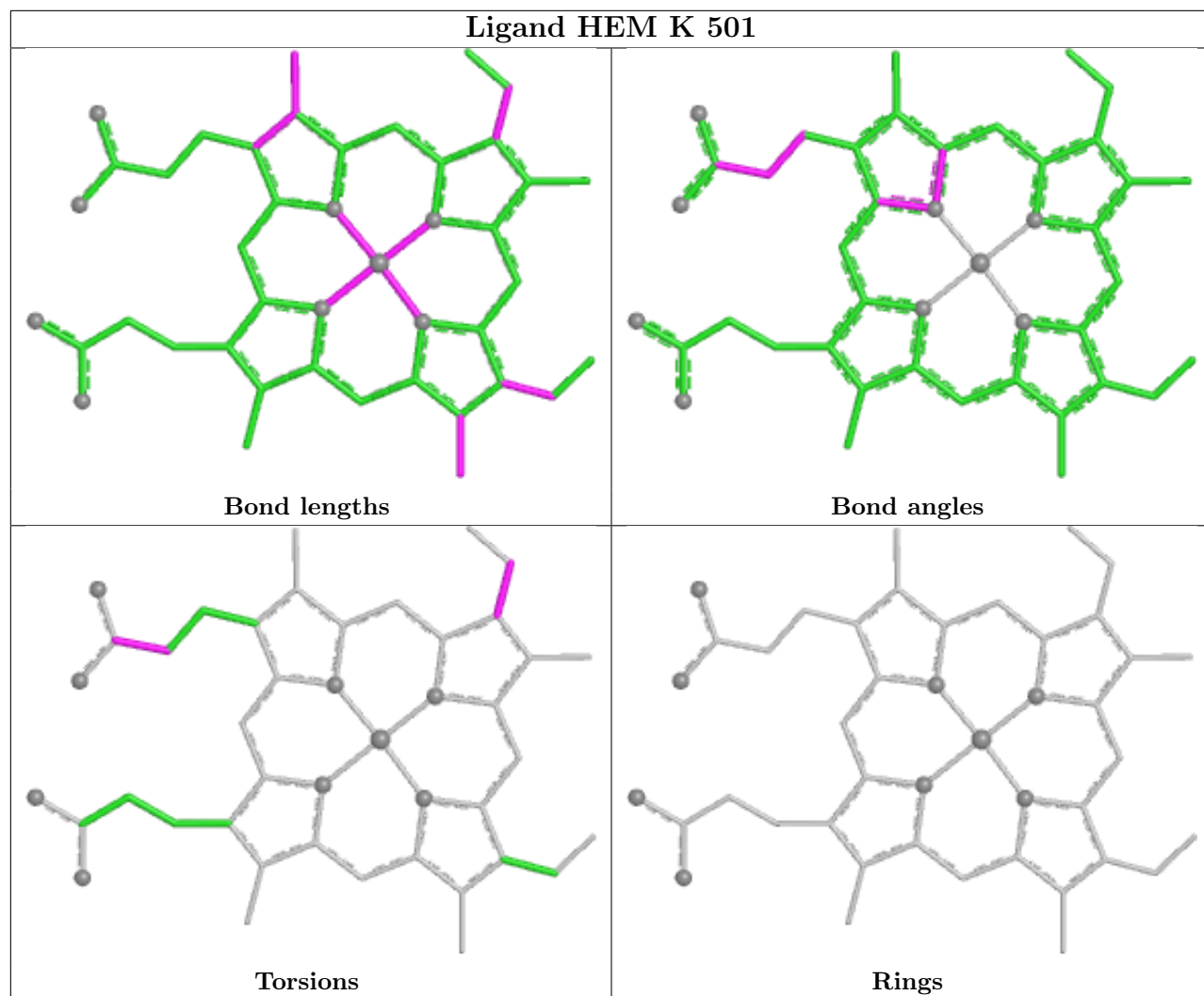
Bond angles



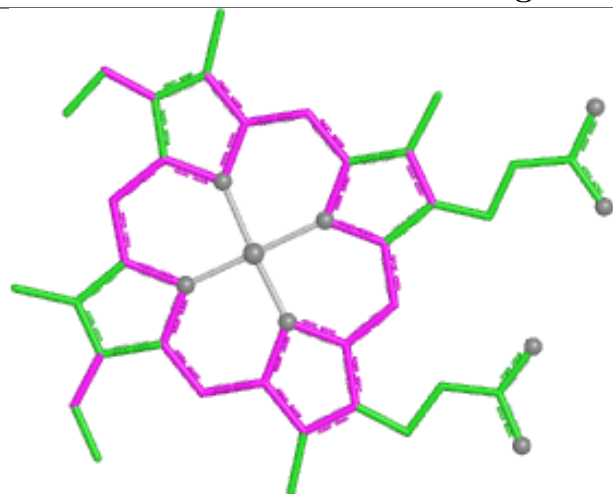
Torsions



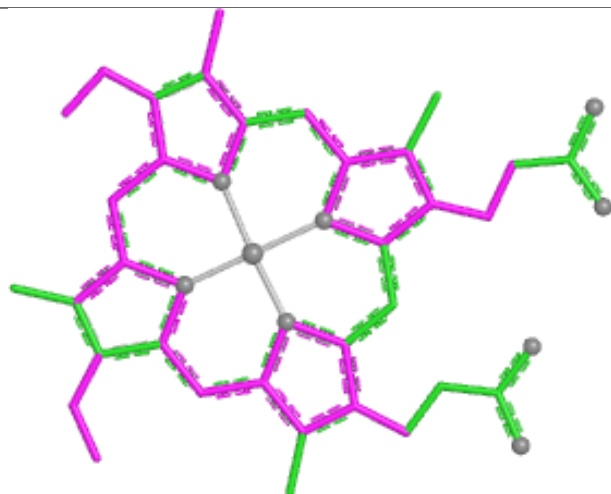
Rings



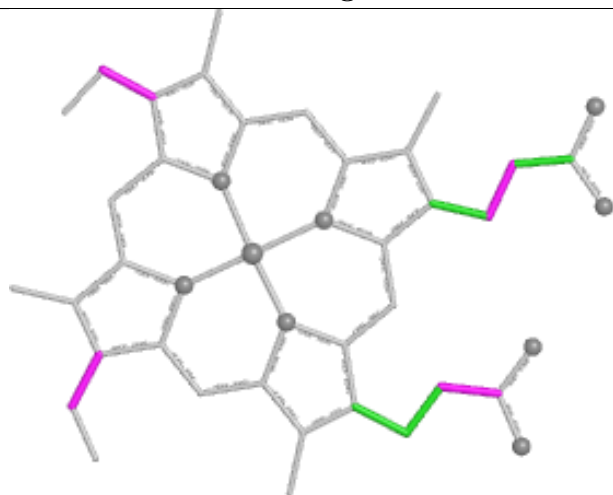
Ligand HEC L 301



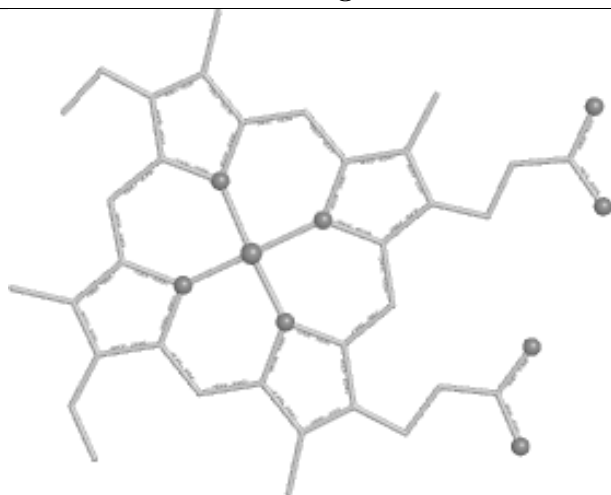
Bond lengths



Bond angles

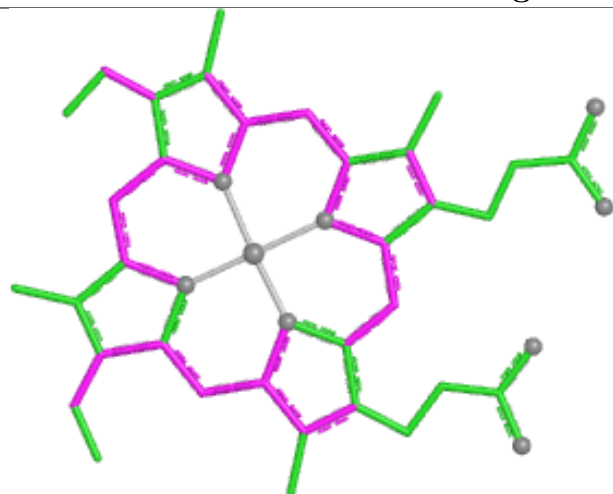


Torsions

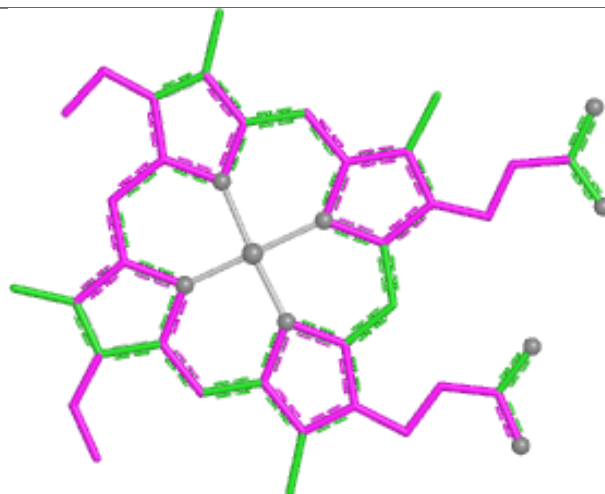


Rings

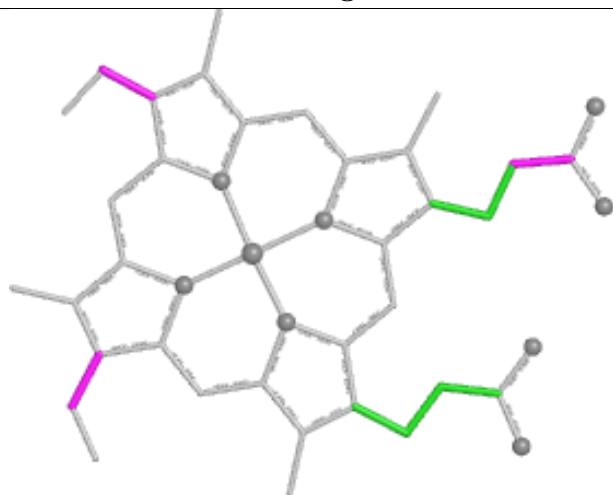
Ligand HEC C 401



Bond lengths



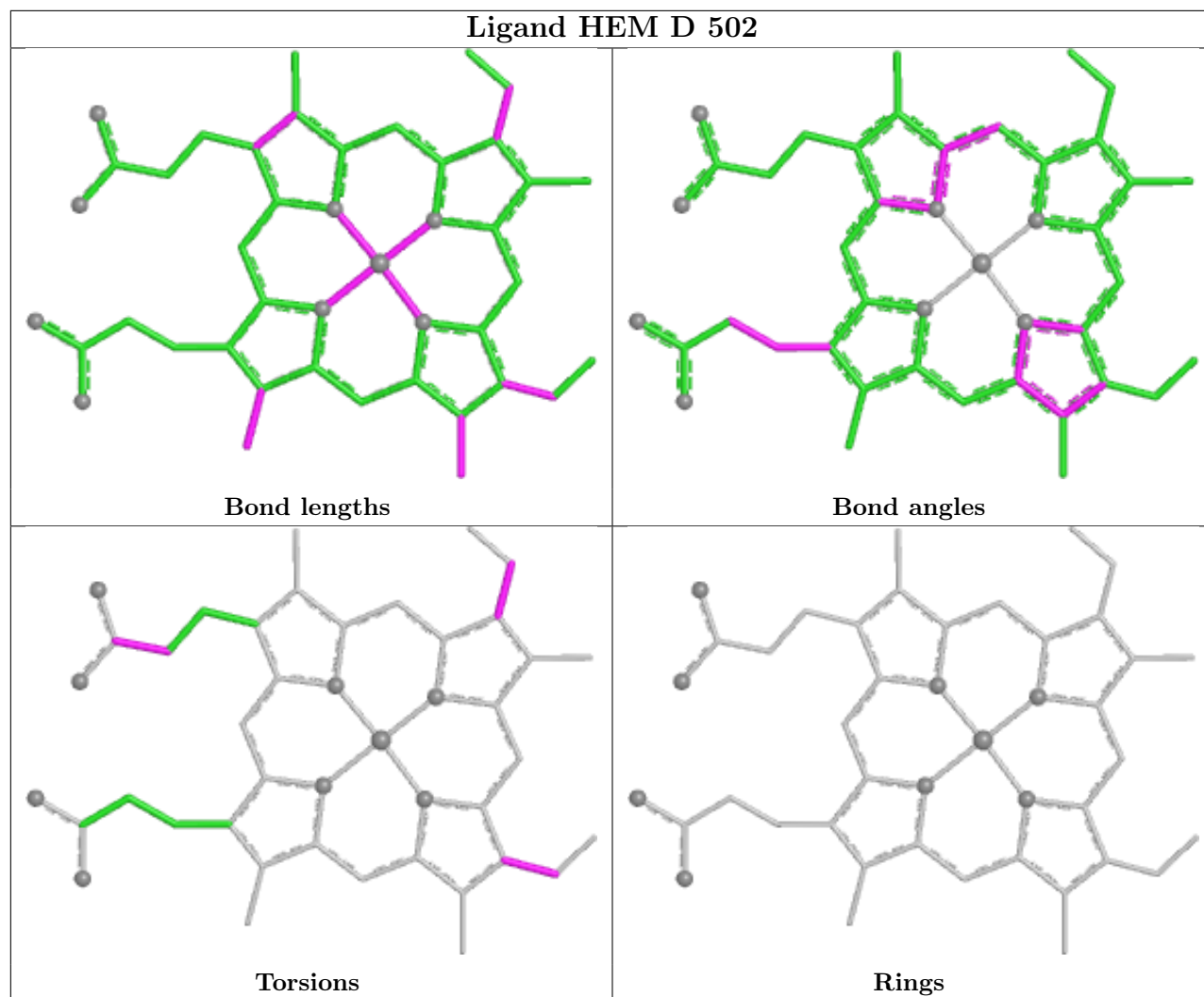
Bond angles

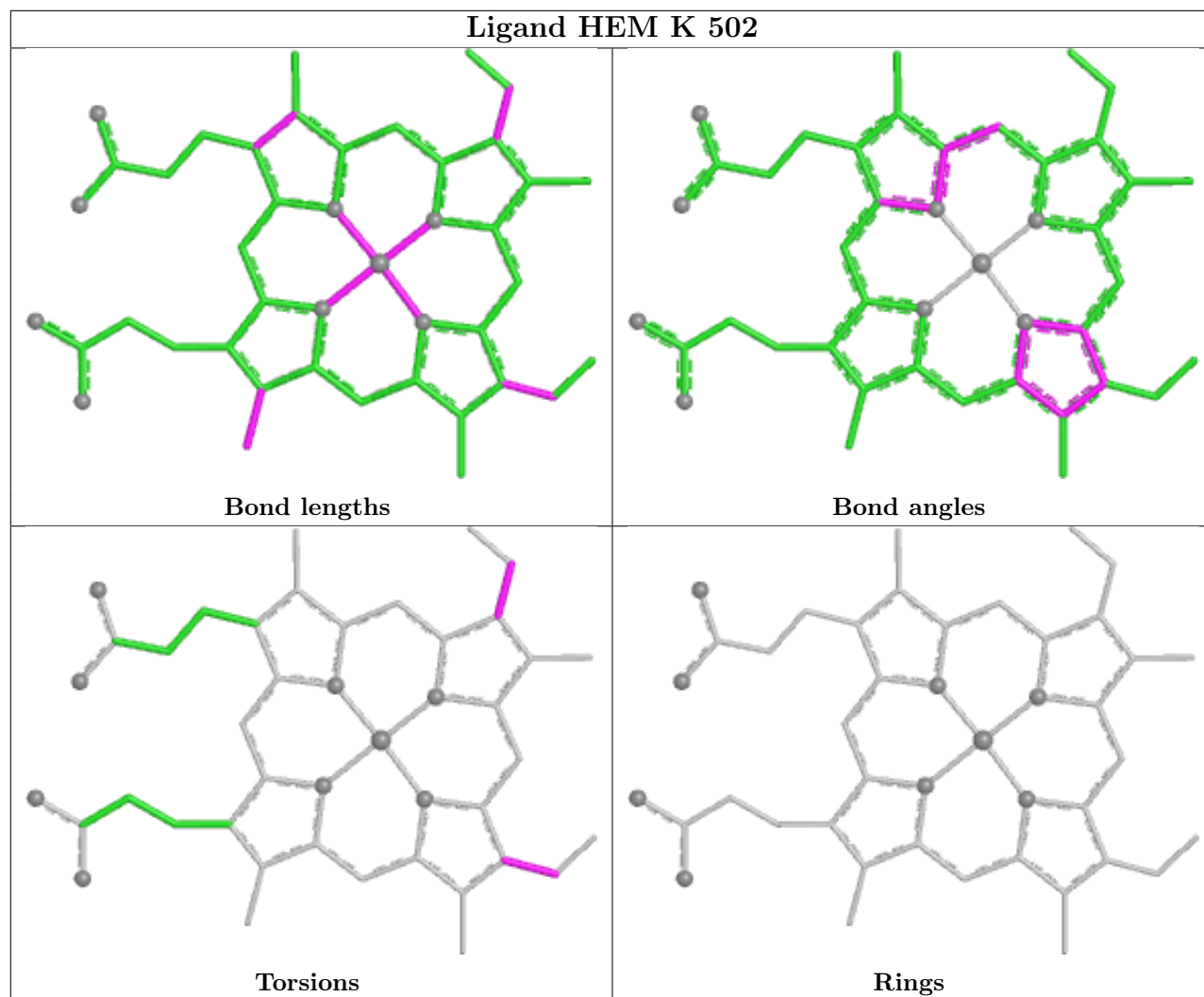


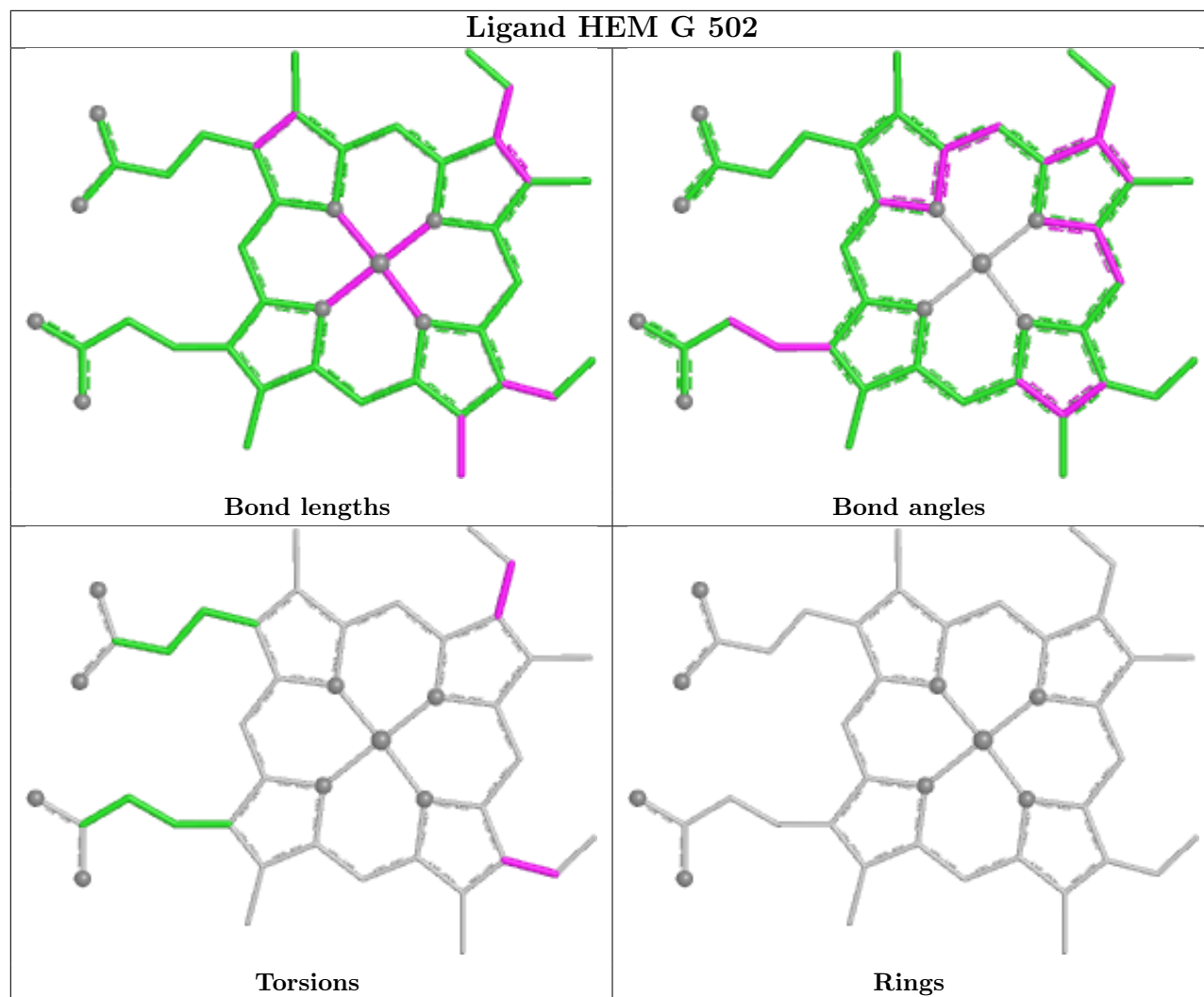
Torsions



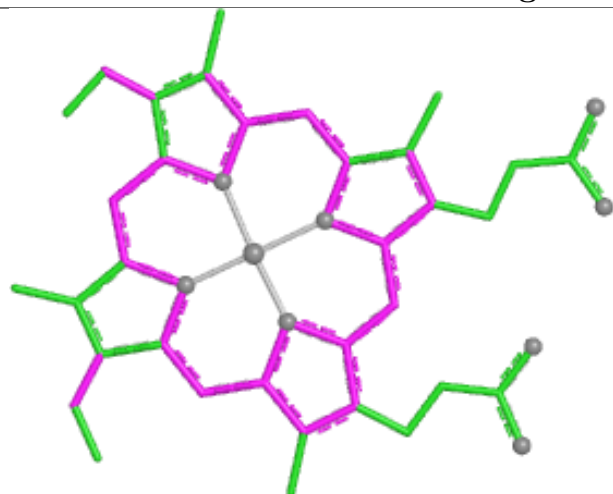
Rings



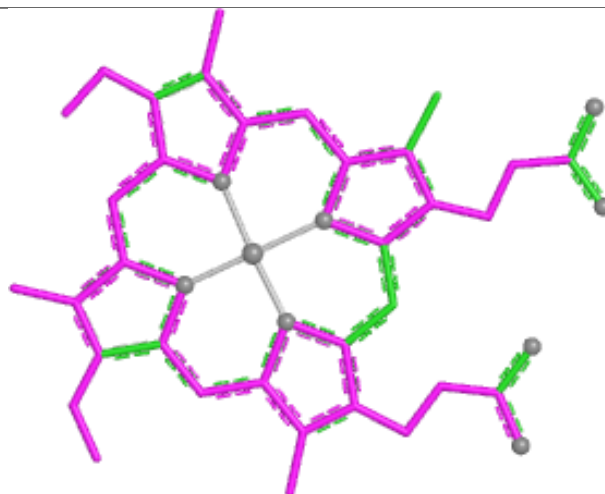




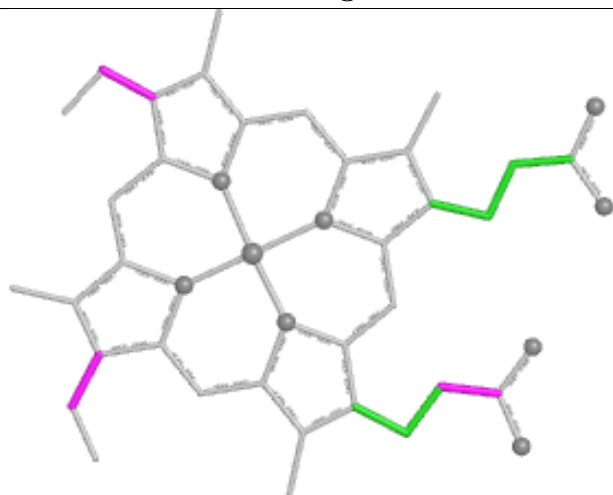
Ligand HEC I 403



Bond lengths



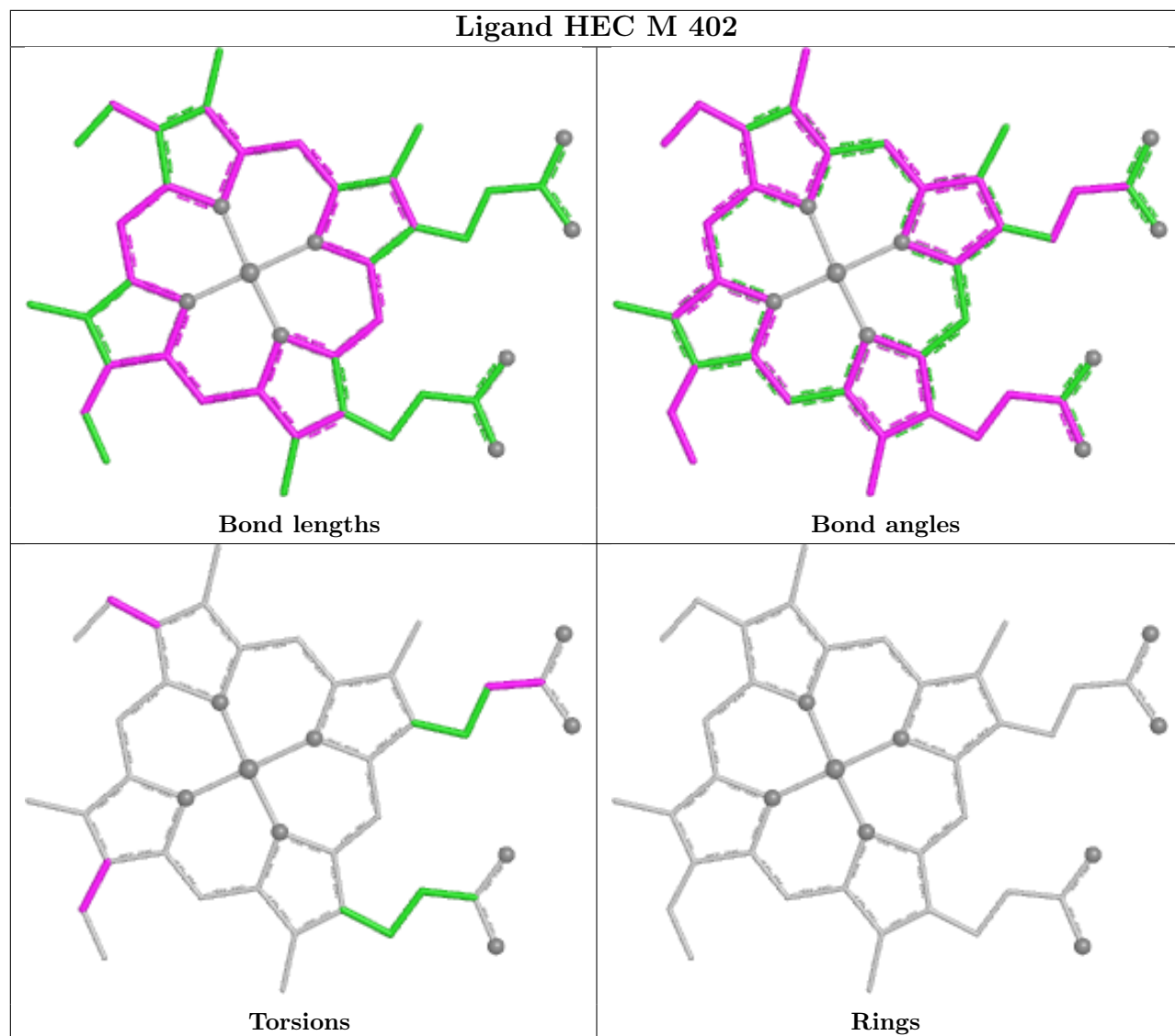
Bond angles



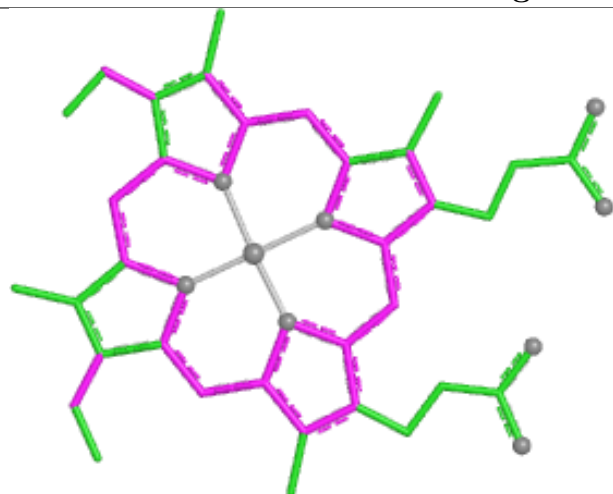
Torsions



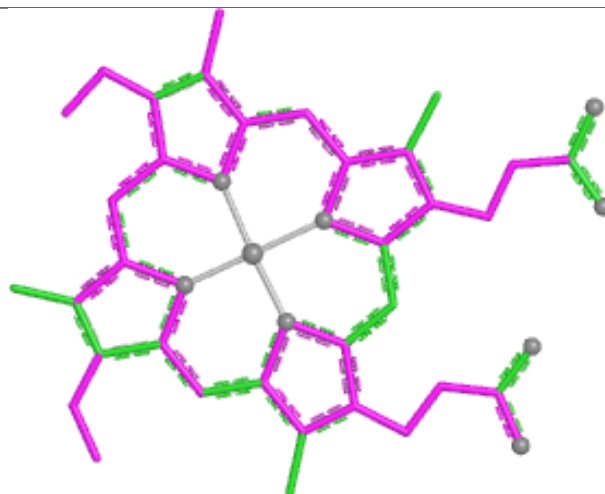
Rings



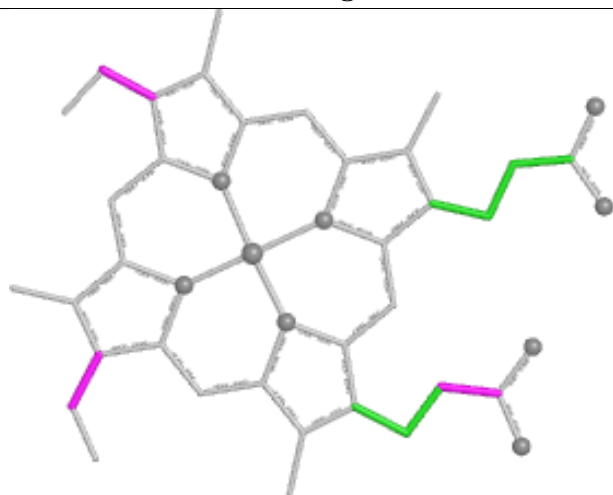
Ligand HEC C 402



Bond lengths



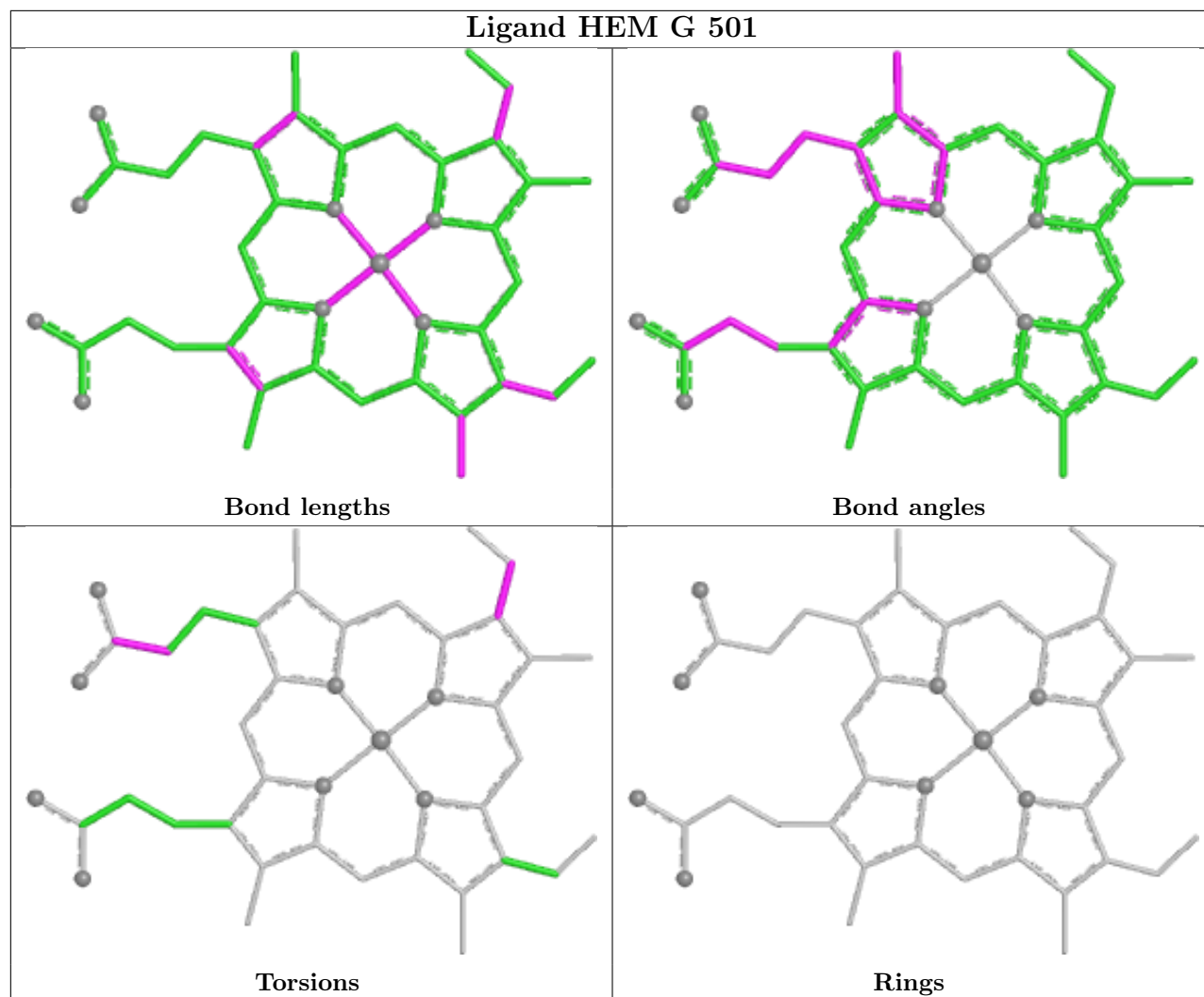
Bond angles



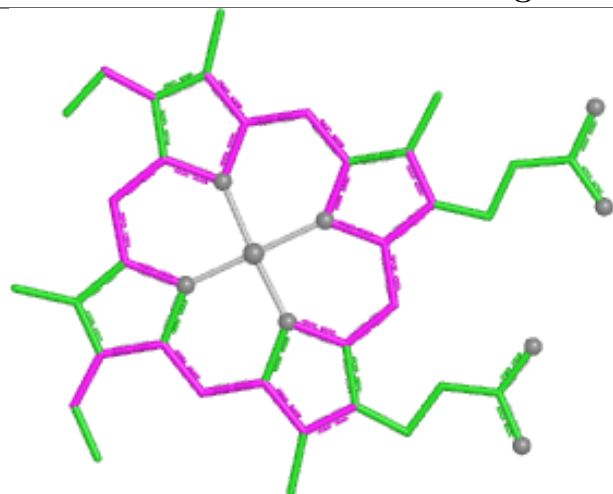
Torsions



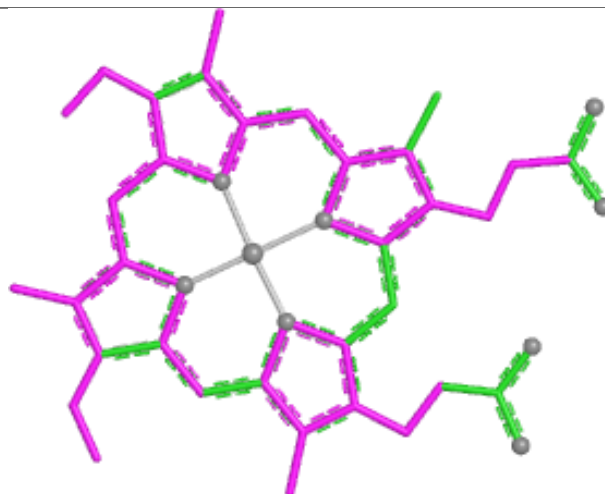
Rings



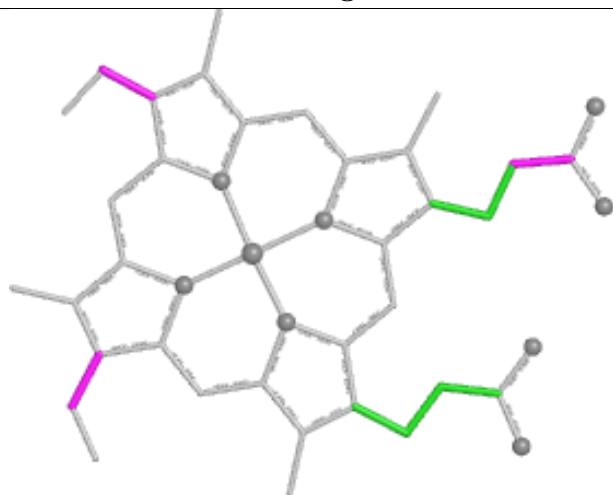
Ligand HEC F 401



Bond lengths



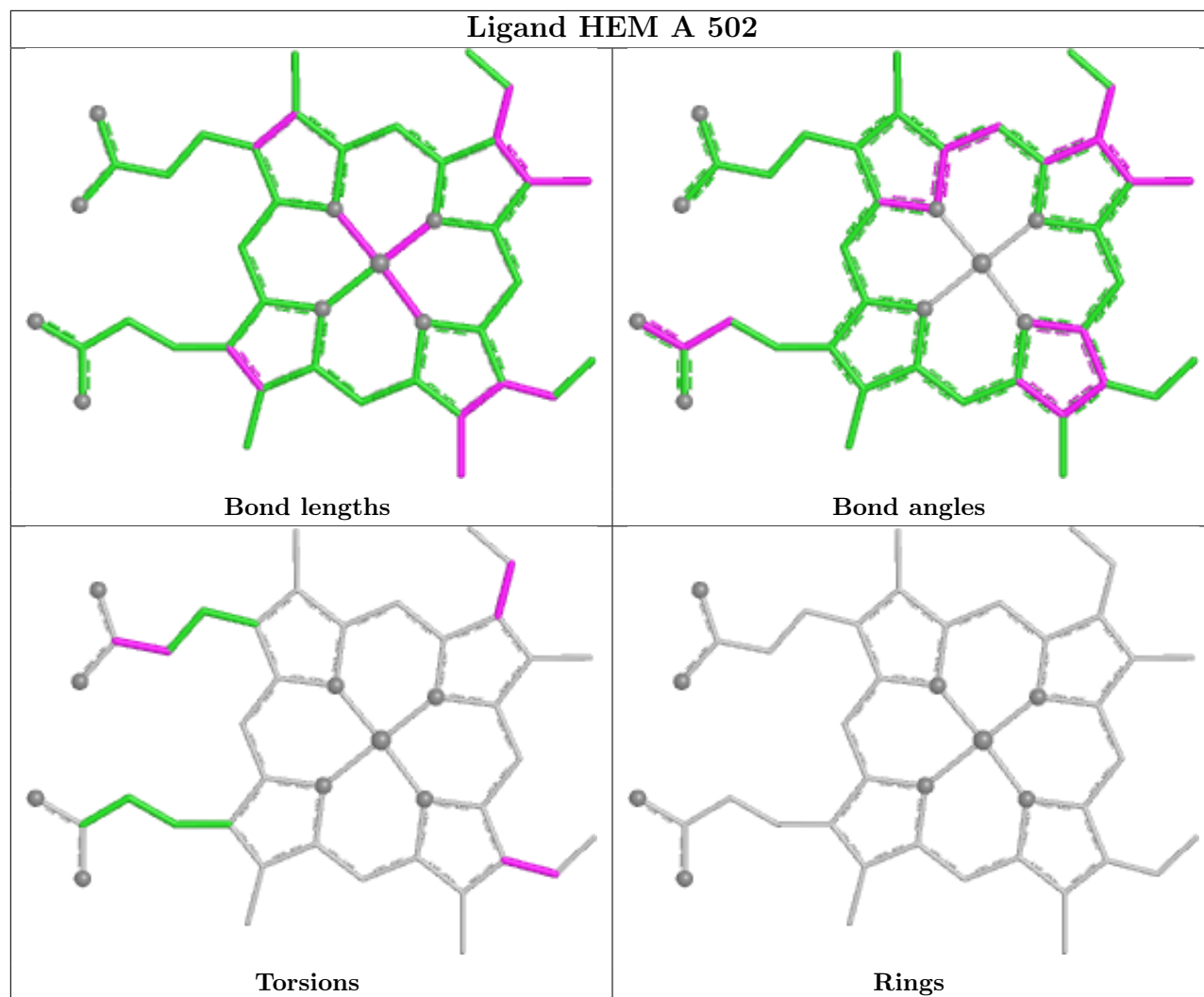
Bond angles

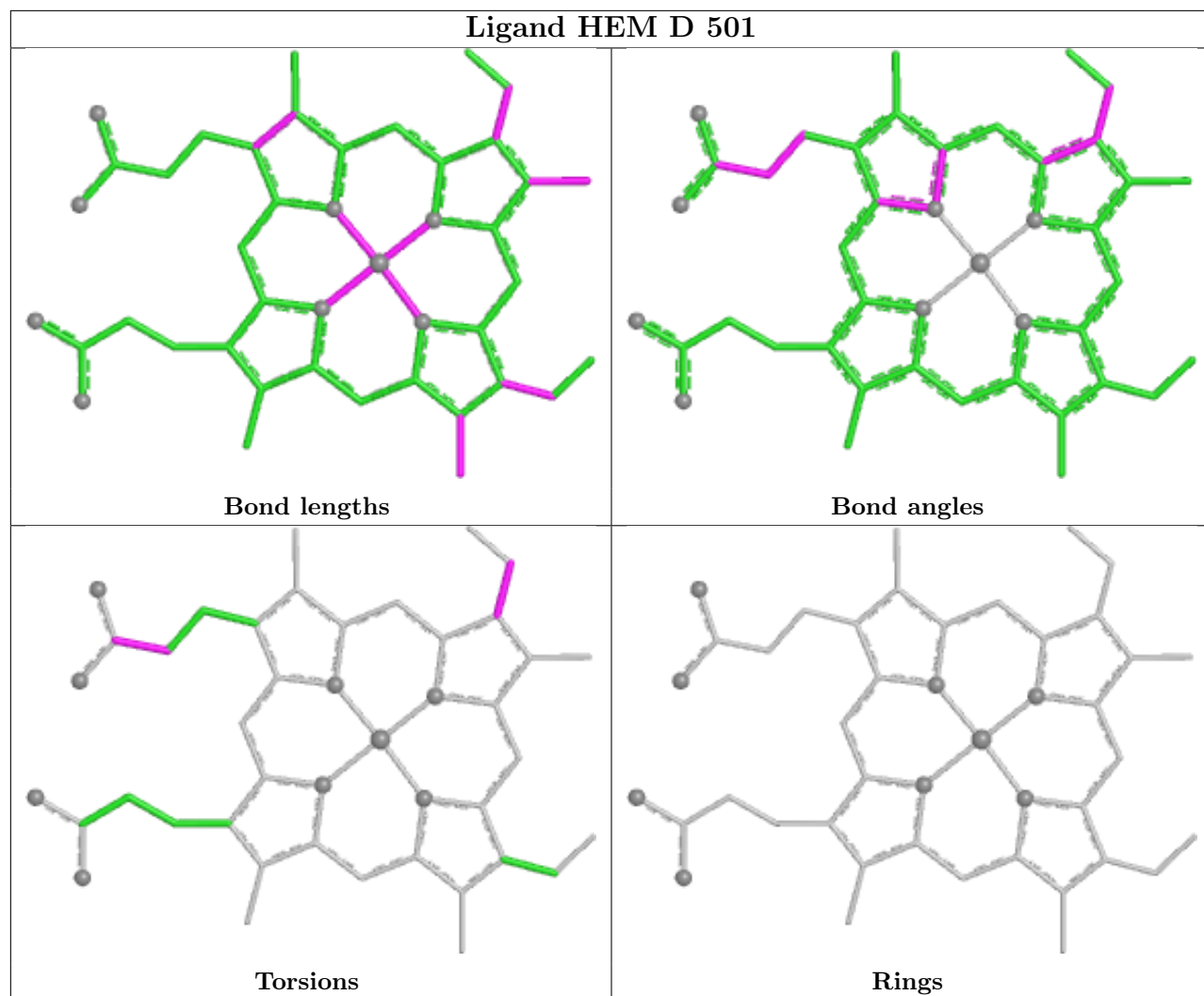


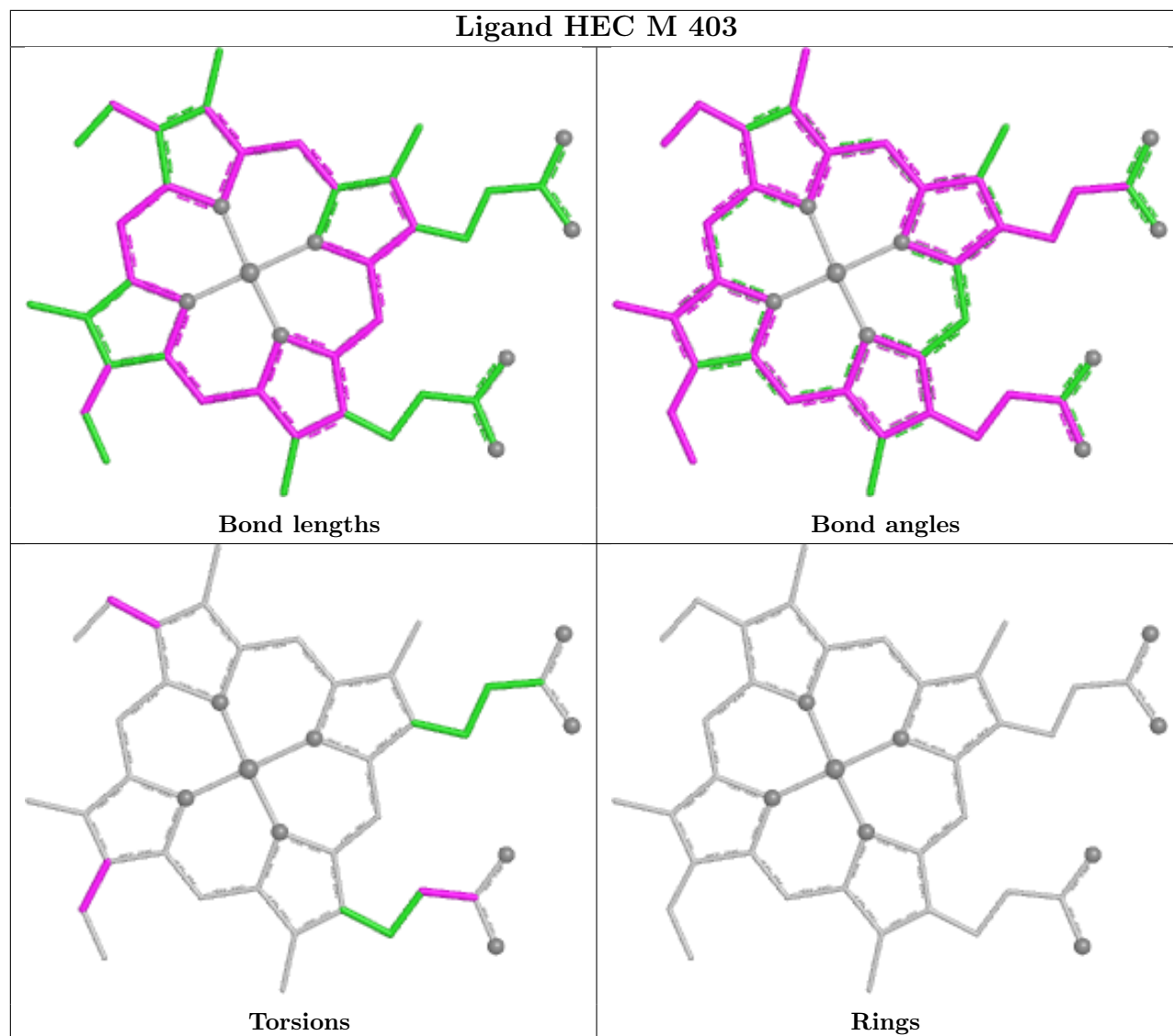
Torsions

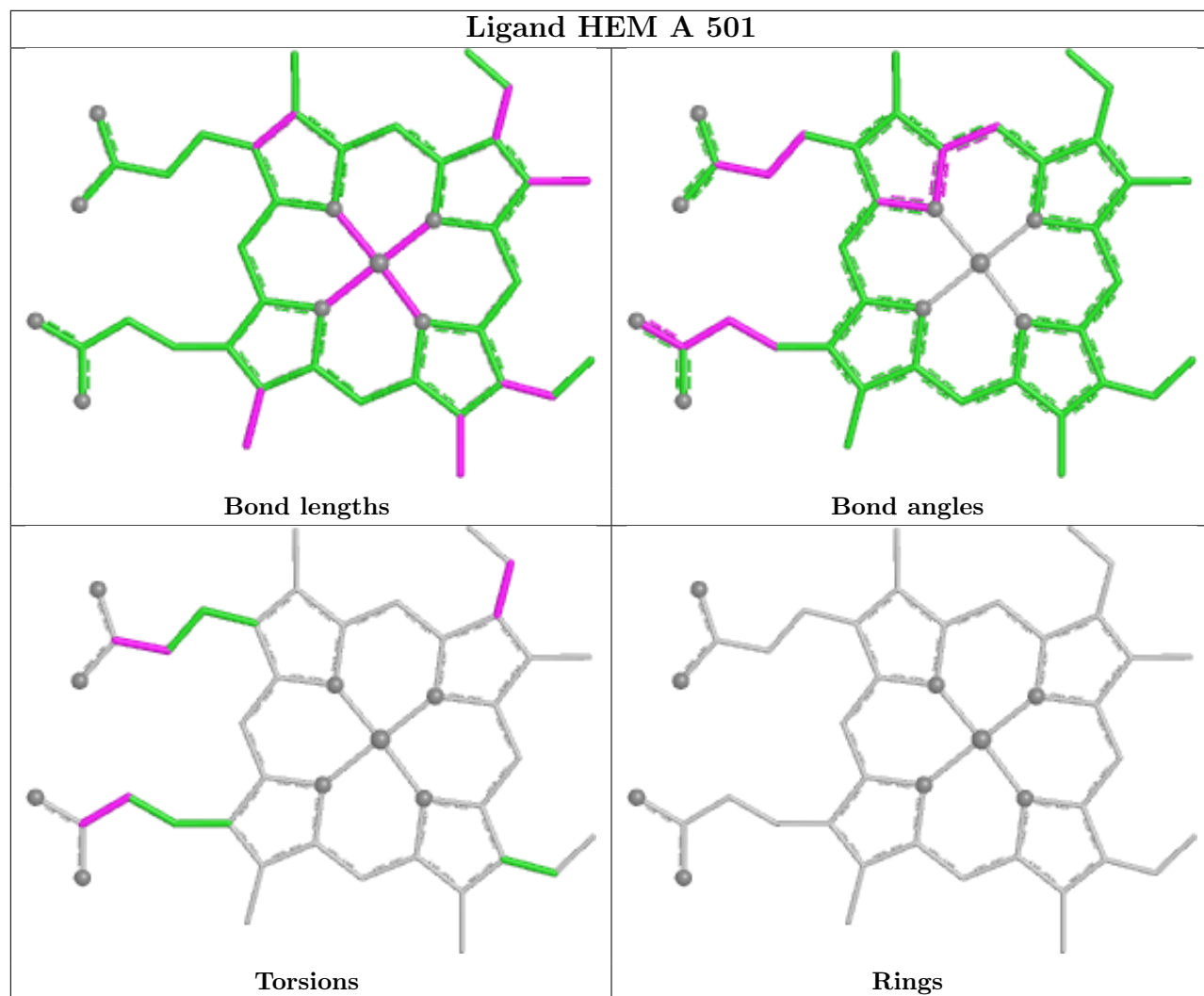


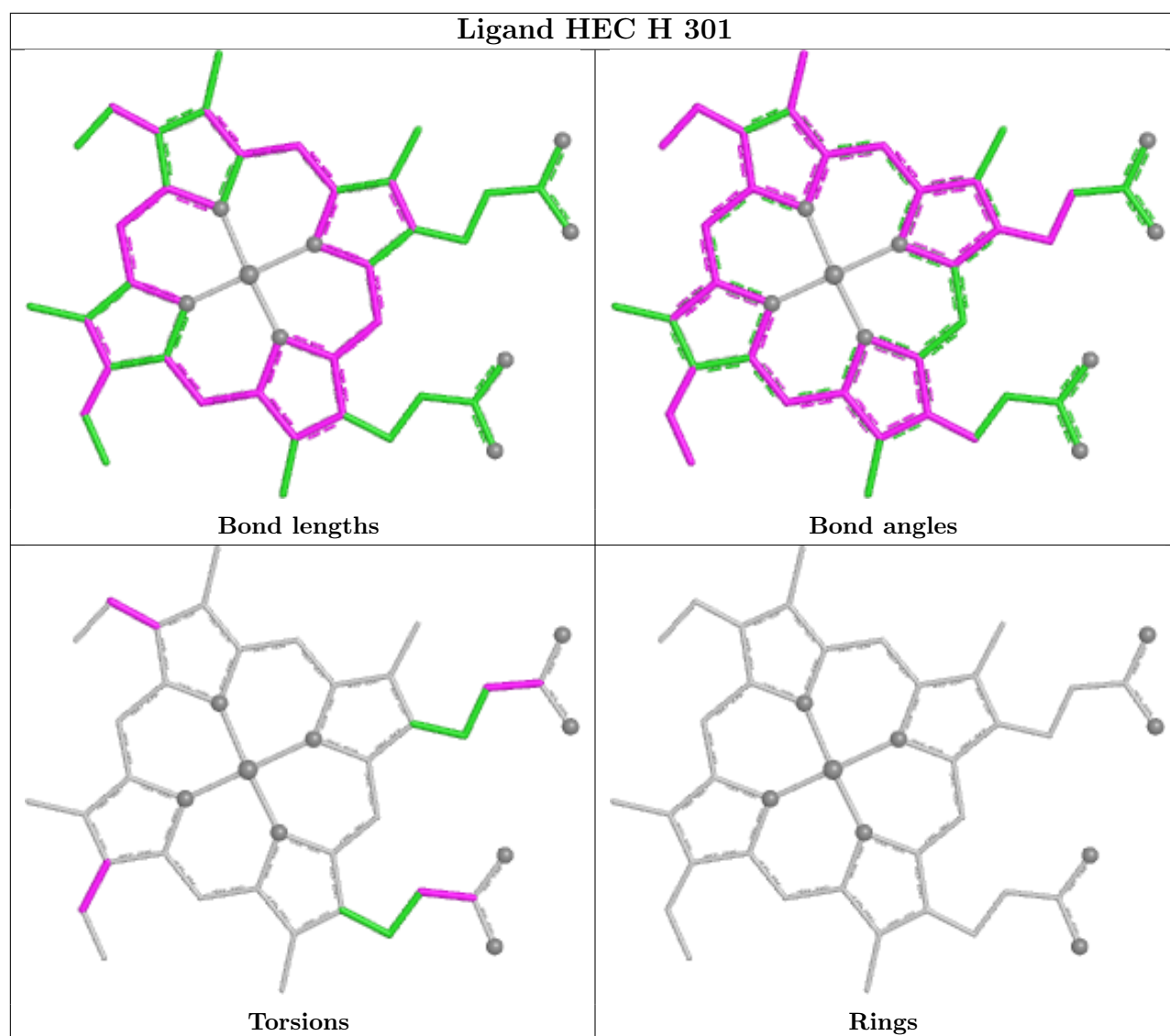
Rings











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	466/474 (98%)	-0.72	4 (0%) 81 64	45, 76, 129, 206	0
1	D	463/474 (97%)	-0.30	1 (0%) 91 85	76, 153, 234, 310	0
1	G	465/474 (98%)	-0.62	5 (1%) 78 61	55, 90, 142, 254	0
1	K	465/474 (98%)	-0.23	4 (0%) 81 64	61, 145, 226, 280	0
2	B	197/203 (97%)	-0.83	0 100 100	42, 70, 126, 169	0
2	E	197/203 (97%)	-0.34	0 100 100	68, 138, 213, 279	0
2	H	197/203 (97%)	-0.71	0 100 100	54, 83, 146, 202	0
2	L	197/203 (97%)	-0.43	2 (1%) 79 63	52, 110, 215, 322	0
3	C	303/311 (97%)	-0.64	0 100 100	41, 83, 138, 192	0
3	F	303/311 (97%)	-0.01	6 (1%) 65 45	72, 173, 260, 419	0
3	I	303/311 (97%)	-0.54	1 (0%) 90 81	52, 106, 166, 215	0
3	M	303/311 (97%)	-0.43	2 (0%) 84 69	43, 85, 243, 322	0
4	N	29/36 (80%)	-0.19	0 100 100	65, 92, 167, 174	0
4	O	29/36 (80%)	-0.06	0 100 100	148, 172, 249, 263	0
4	P	29/36 (80%)	-0.19	0 100 100	91, 109, 173, 191	0
4	Q	29/36 (80%)	0.36	0 100 100	119, 142, 186, 199	0
All	All	3975/4096 (97%)	-0.46	25 (0%) 85 73	41, 107, 219, 419	0

All (25) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
3	F	43	ALA	3.4
3	F	2	SER	3.1
1	A	465	ALA	3.1
3	M	50	TYR	3.0
3	F	49	GLU	2.8

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Mol	Chain	Res	Type	RSRZ
1	K	470	ALA	2.8
1	A	461	ALA	2.7
1	D	470	ALA	2.7
1	G	470	ALA	2.5
1	G	465	ALA	2.4
1	A	462	ALA	2.4
3	F	3	THR	2.3
3	F	40	MET	2.3
1	G	468	ASP	2.3
3	M	82	TRP	2.2
1	G	461	ALA	2.1
1	K	461	ALA	2.1
3	I	36	THR	2.1
1	A	470	ALA	2.1
2	L	39	VAL	2.1
1	K	291	MET	2.1
1	K	469	ALA	2.1
2	L	11	VAL	2.1
3	F	35	THR	2.1
1	G	467	TYR	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 oligosaccharides 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(Å ²)	Q<0.9
9	PO4	D	505	5/5	0.59	0.11	180,183,183,185	0
9	PO4	K	506	5/5	0.80	0.09	138,141,143,150	0
9	PO4	G	506	5/5	0.82	0.10	130,132,139,152	0

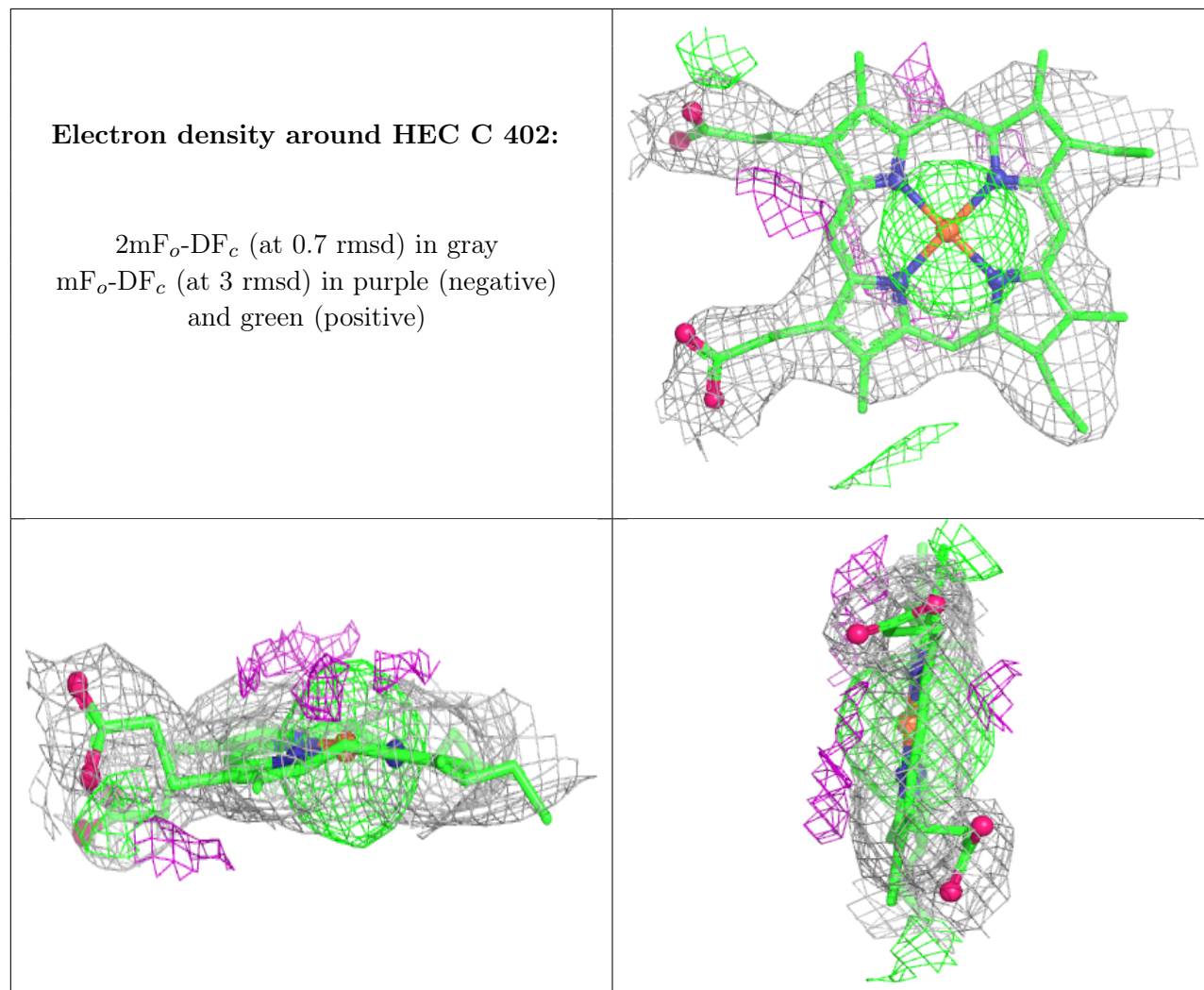
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Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors(\AA^2)	Q<0.9
11	FC6	F	403	13/13	0.85	0.33	53,61,87,101	13
7	CA	D	504	1/1	0.89	0.10	151,151,151,151	0
9	PO4	A	506	5/5	0.91	0.07	60,68,75,88	0
8	PEO	K	507	2/2	0.92	0.09	131,131,131,131	0
7	CA	K	505	1/1	0.93	0.08	136,136,136,136	0
11	FC6	I	401	13/13	0.93	0.18	78,94,143,158	13
10	HEC	C	402	43/43	0.94	0.12	36,54,72,160	0
7	CA	A	504	1/1	0.95	0.06	99,99,99,99	0
7	CA	A	507	1/1	0.95	0.18	84,84,84,84	0
6	CU	A	503	1/1	0.95	0.20	133,133,133,133	0
6	CU	K	503	1/1	0.96	0.05	133,133,133,133	0
7	CA	G	504	1/1	0.96	0.06	87,87,87,87	0
10	HEC	B	301	43/43	0.96	0.10	39,55,69,119	0
8	PEO	D	506	2/2	0.97	0.06	145,145,145,147	0
7	CA	D	507	1/1	0.97	0.05	96,96,96,96	0
5	HEM	K	501	43/43	0.97	0.13	119,135,151,154	0
10	HEC	F	402	43/43	0.97	0.12	117,134,147,154	0
5	HEM	D	501	43/43	0.97	0.10	93,119,136,143	0
8	PEO	A	505	2/2	0.97	0.07	74,74,74,74	0
5	HEM	G	502	43/43	0.98	0.07	54,66,77,86	0
6	CU	D	503	1/1	0.98	0.03	118,118,118,118	0
5	HEM	D	502	43/43	0.98	0.08	89,110,124,130	0
10	HEC	C	401	43/43	0.98	0.08	44,57,66,73	0
8	PEO	G	505	2/2	0.98	0.05	80,80,80,83	0
10	HEC	F	401	43/43	0.98	0.09	85,103,116,121	0
5	HEM	K	502	43/43	0.98	0.10	95,108,128,130	0
10	HEC	H	301	43/43	0.98	0.08	42,53,70,79	0
10	HEC	I	402	43/43	0.98	0.08	38,54,77,91	0
10	HEC	I	403	43/43	0.98	0.09	50,61,69,85	0
10	HEC	M	402	43/43	0.98	0.07	33,42,54,63	0
10	HEC	M	403	43/43	0.98	0.08	35,51,64,84	0
11	FC6	C	403	13/13	0.98	0.10	60,75,98,101	13
7	CA	G	507	1/1	0.98	0.04	72,72,72,72	0
7	CA	K	504	1/1	0.98	0.03	95,95,95,95	0
11	FC6	M	401	13/13	0.98	0.11	43,60,98,98	13
5	HEM	A	501	43/43	0.99	0.07	45,63,72,76	0
10	HEC	E	301	43/43	0.99	0.07	62,73,96,102	0
5	HEM	A	502	43/43	0.99	0.08	41,54,79,83	0
10	HEC	L	301	43/43	0.99	0.08	49,65,78,78	0
5	HEM	G	501	43/43	0.99	0.06	57,72,84,93	0
6	CU	G	503	1/1	1.00	0.04	74,74,74,74	0

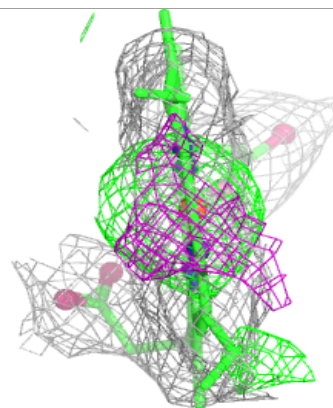
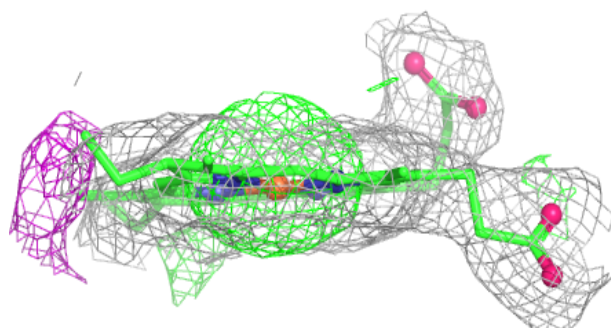
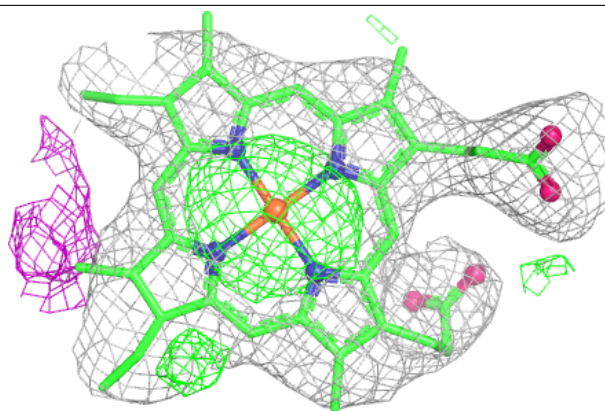
The following is a graphical depiction of the model fit to experimental electron density of all

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.



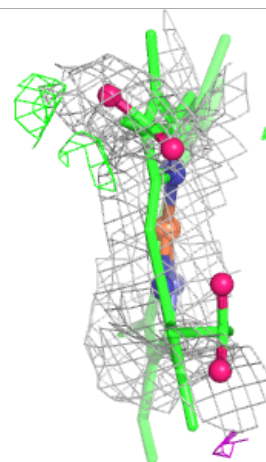
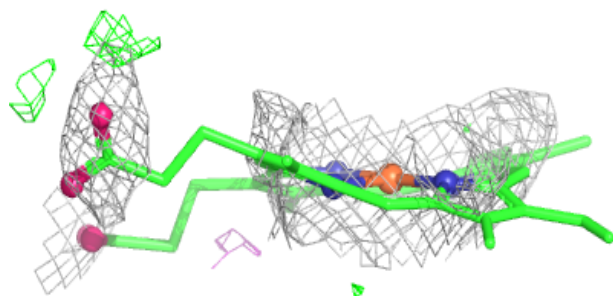
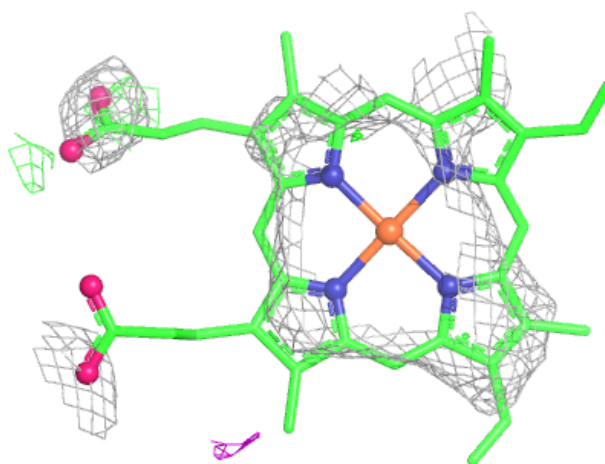
Electron density around HEC B 301:

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



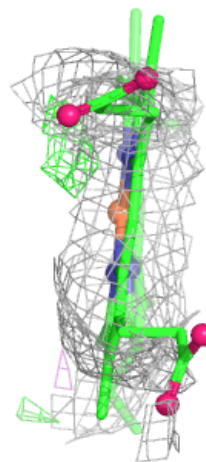
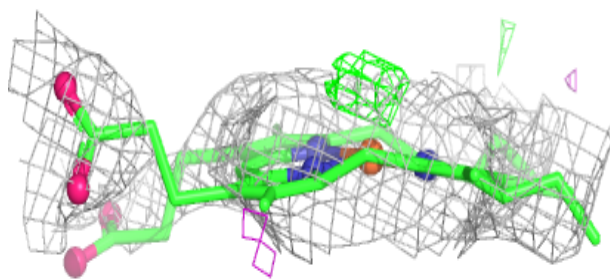
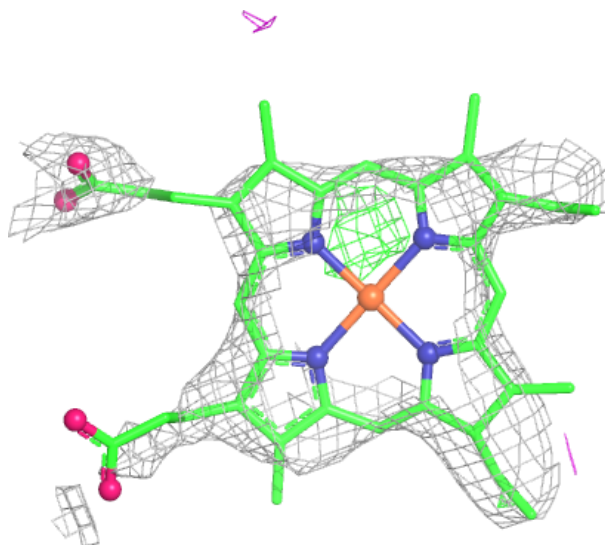
Electron density around HEM K 501:

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



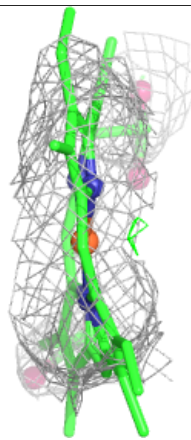
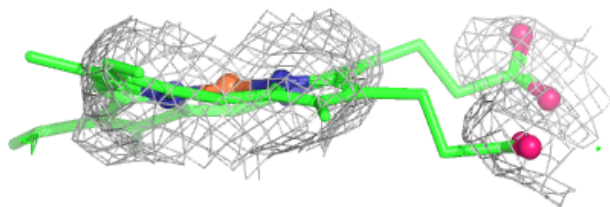
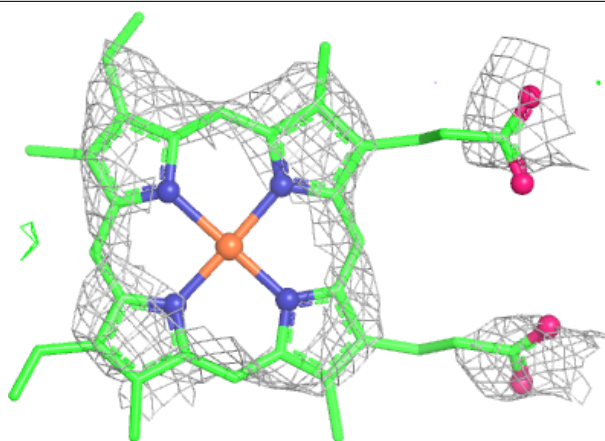
Electron density around HEC F 402:

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



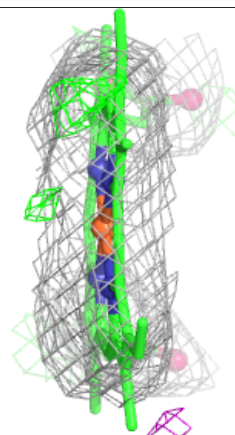
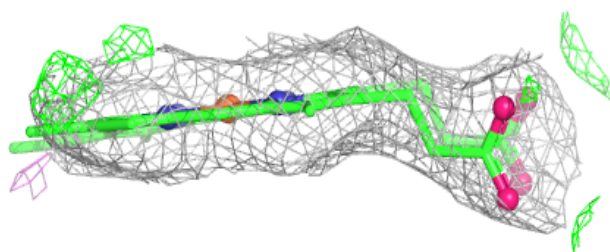
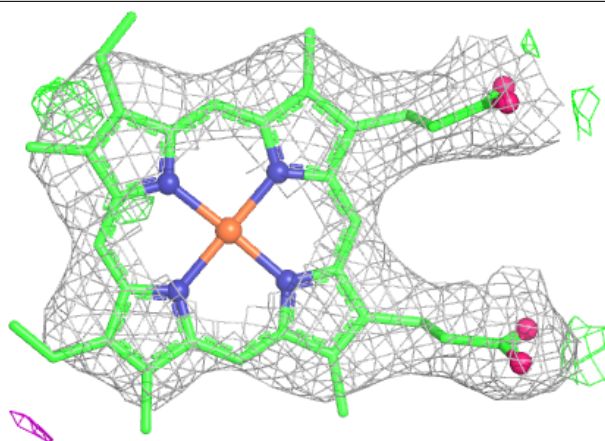
Electron density around HEM D 501:

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



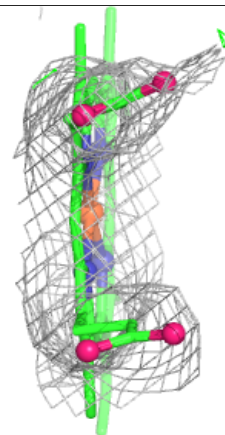
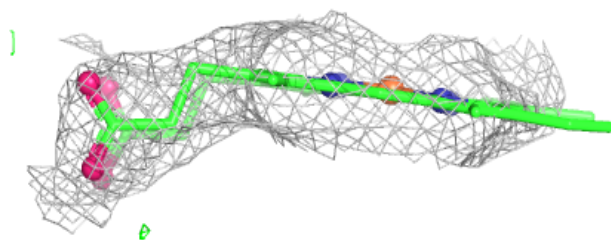
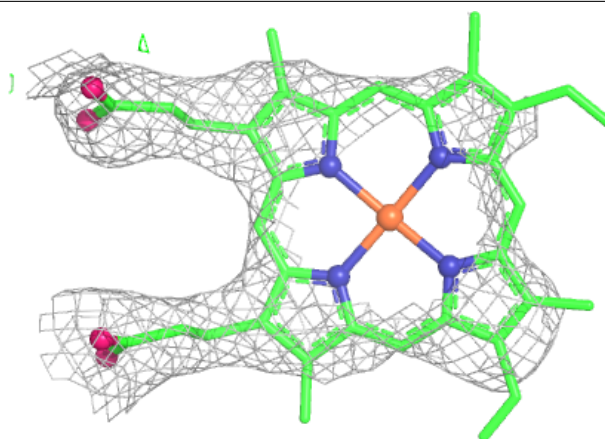
Electron density around HEM G 502:

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



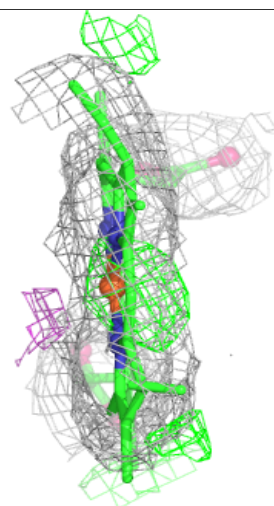
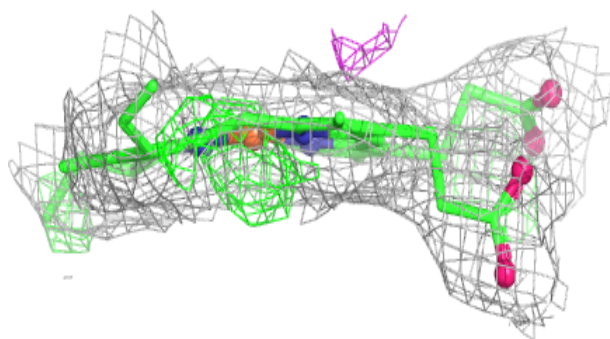
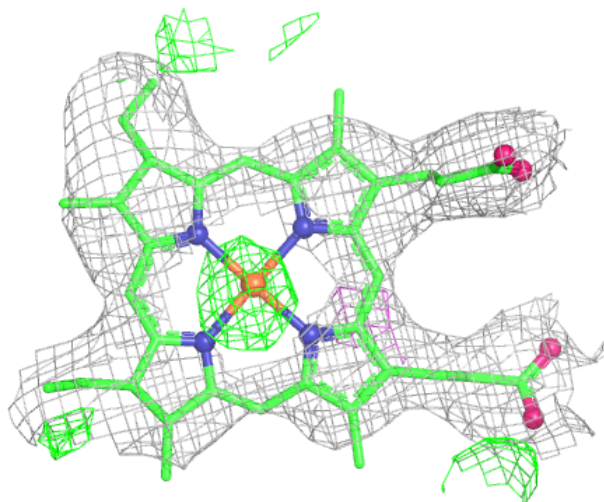
Electron density around HEM D 502:

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



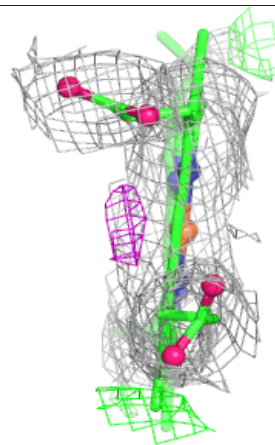
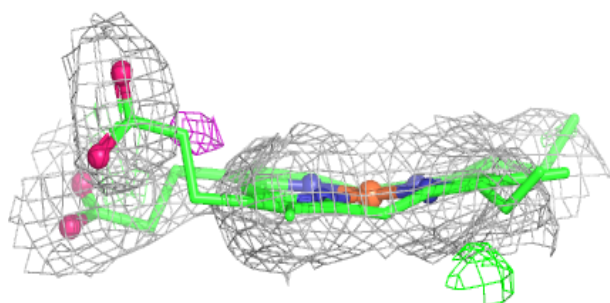
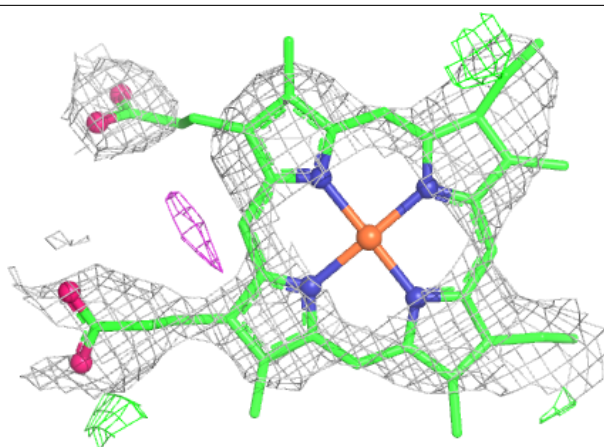
Electron density around HEC C 401:

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



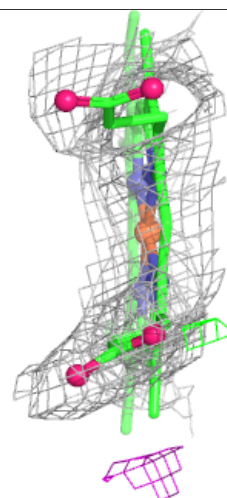
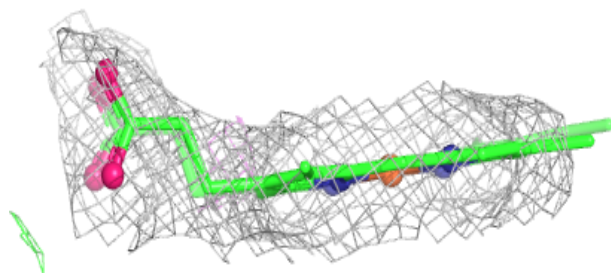
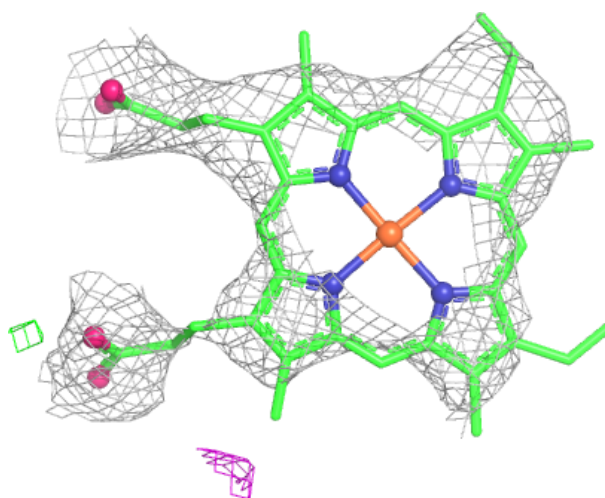
Electron density around HEC F 401:

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



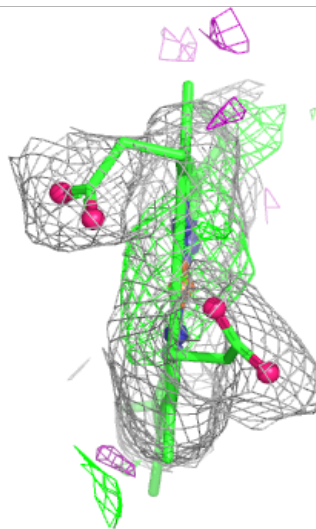
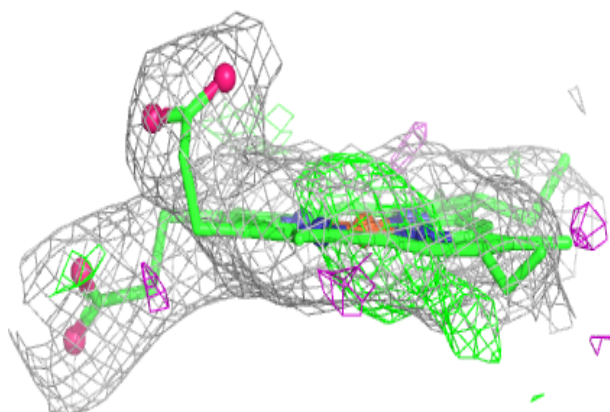
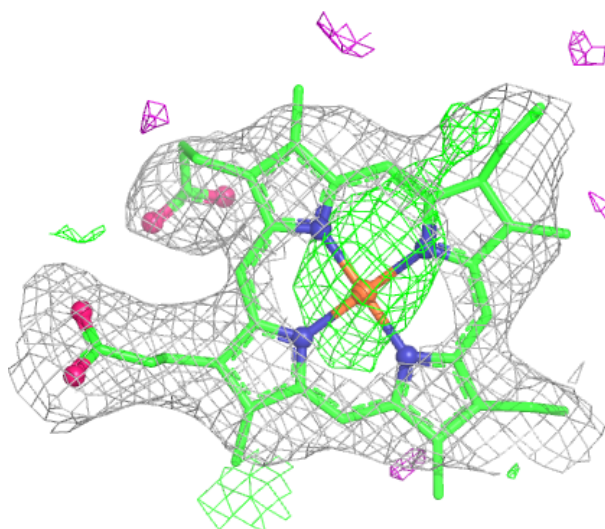
Electron density around HEM K 502:

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



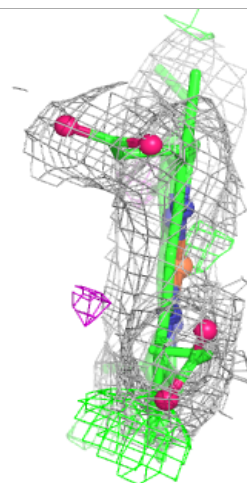
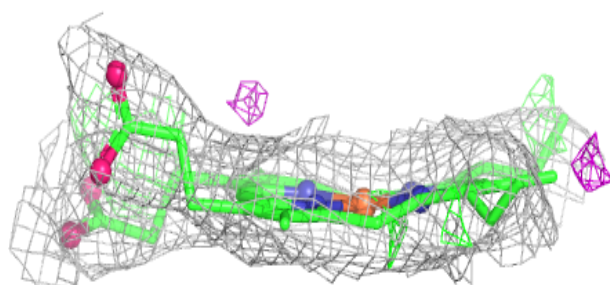
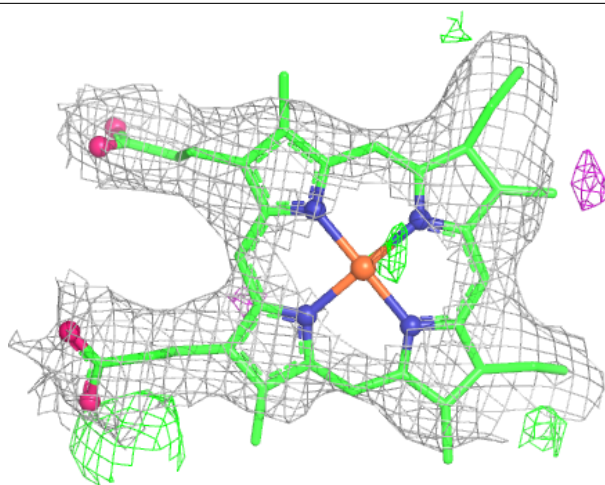
Electron density around HEC H 301:

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



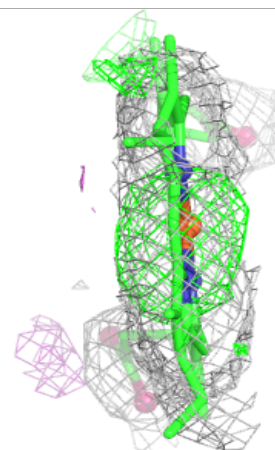
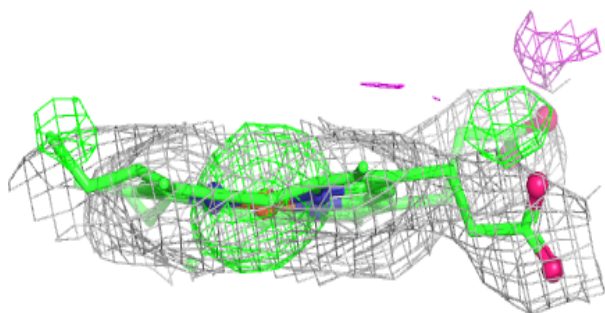
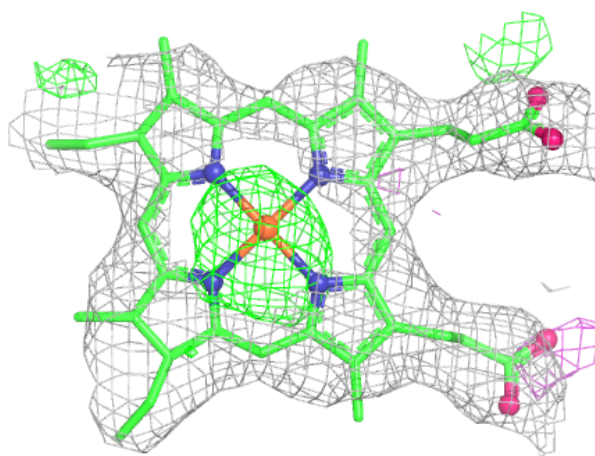
Electron density around HEC I 402:

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



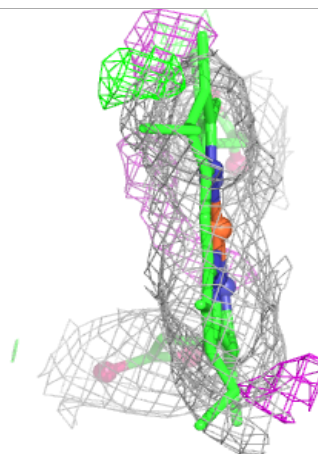
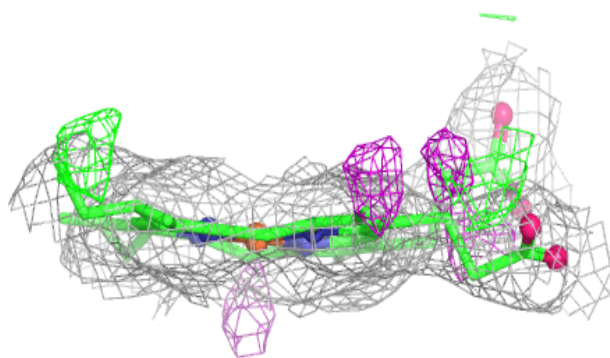
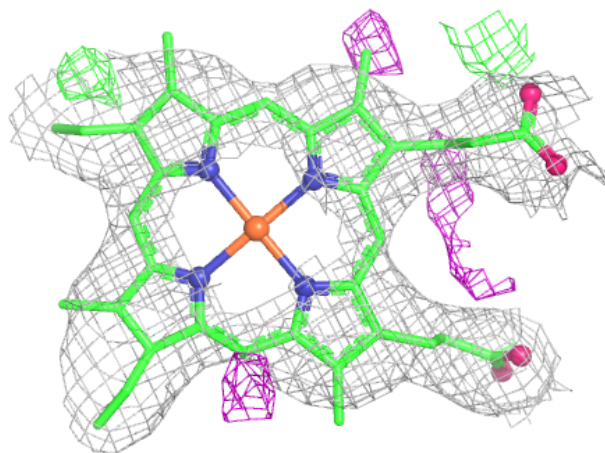
Electron density around HEC I 403:

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



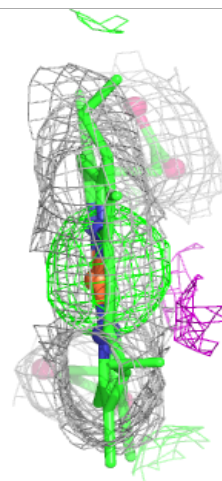
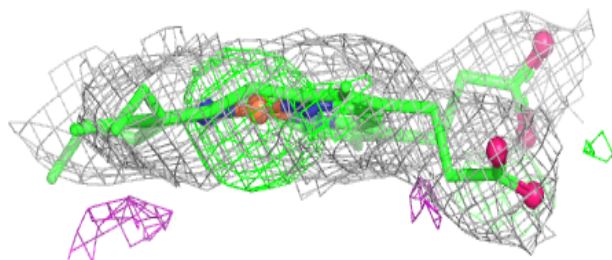
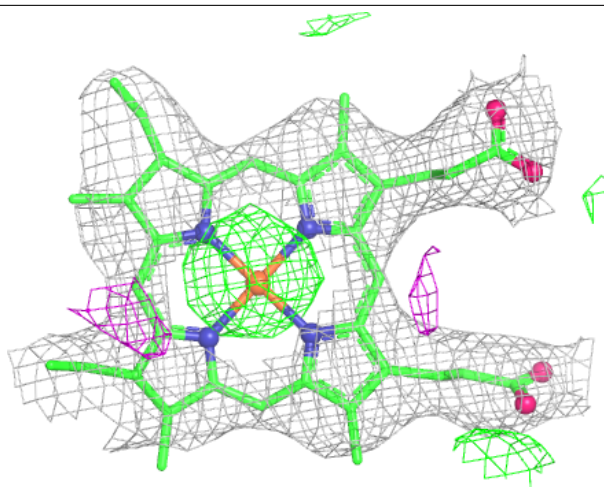
Electron density around HEC M 402:

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



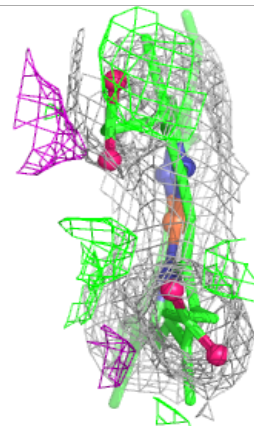
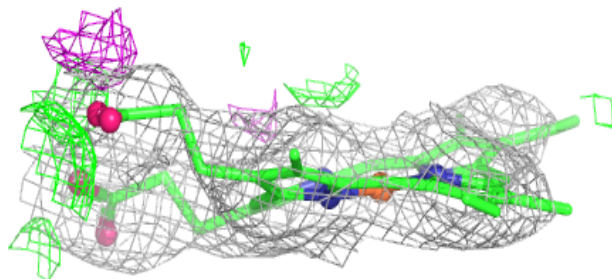
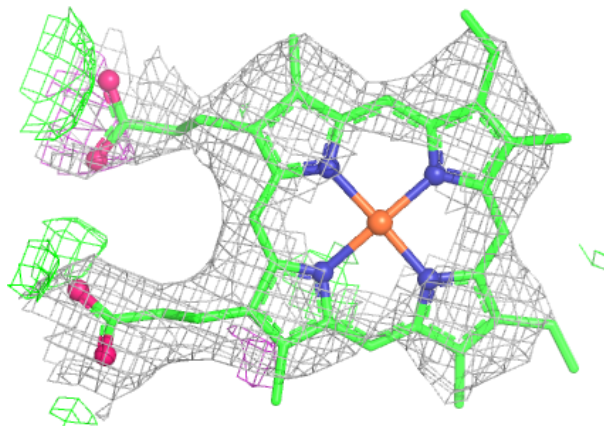
Electron density around HEC M 403:

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



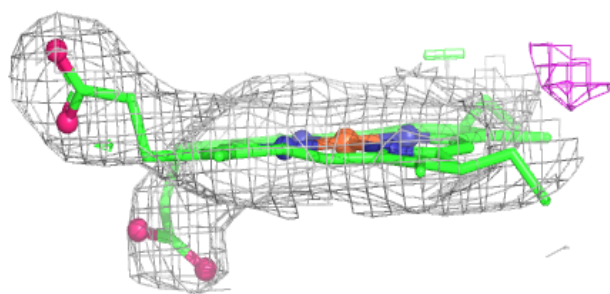
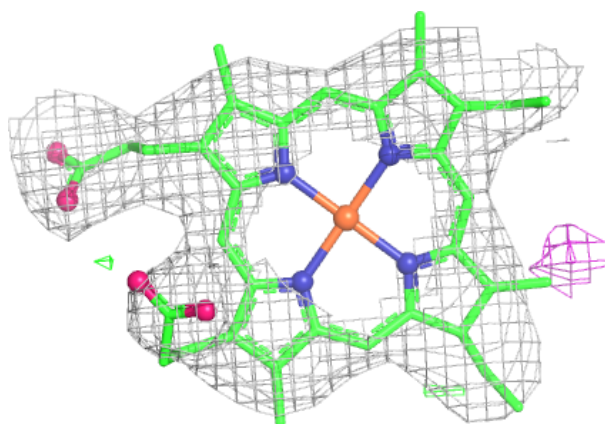
Electron density around HEM A 501:

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

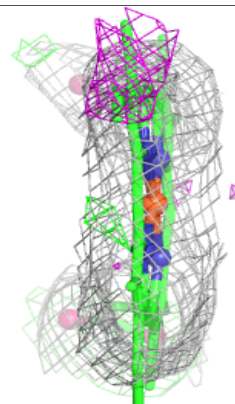
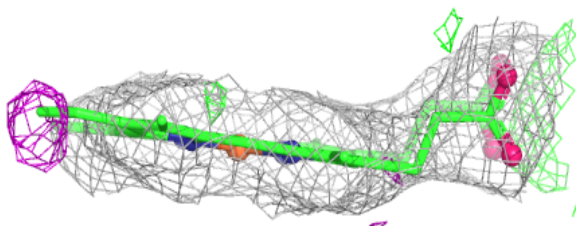
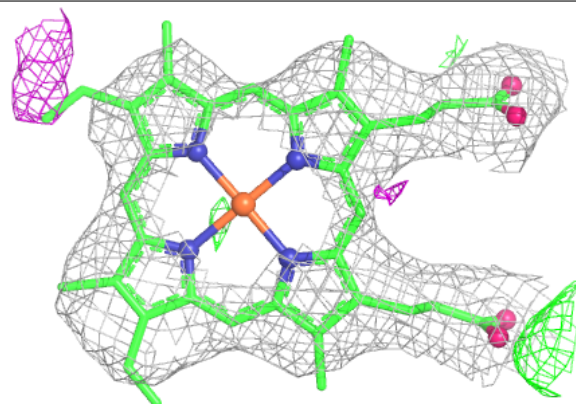


Electron density around HEC E 301:

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

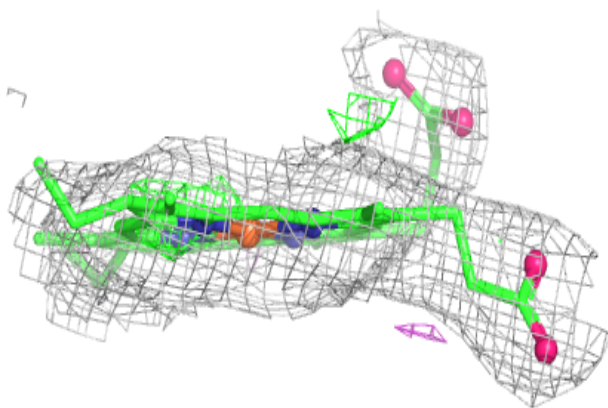
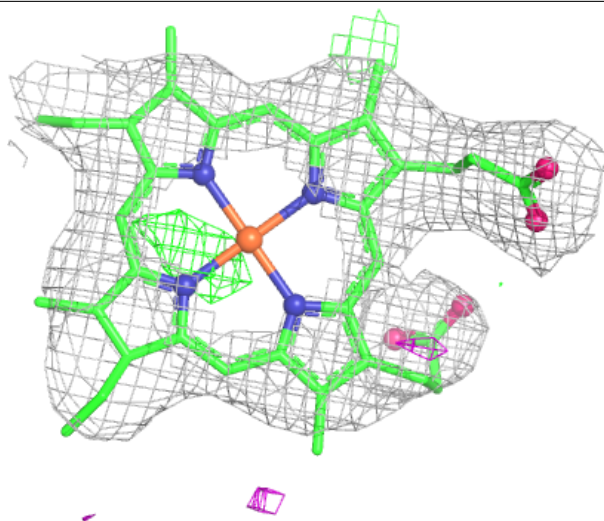
**Electron density around HEM A 502:**

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



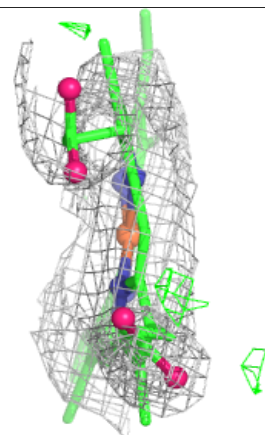
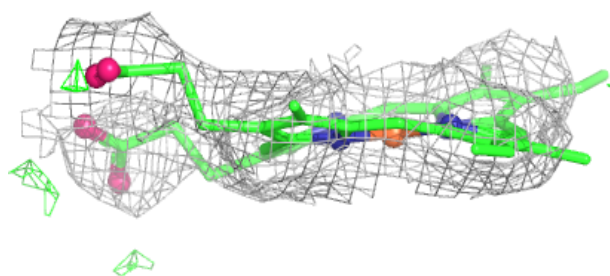
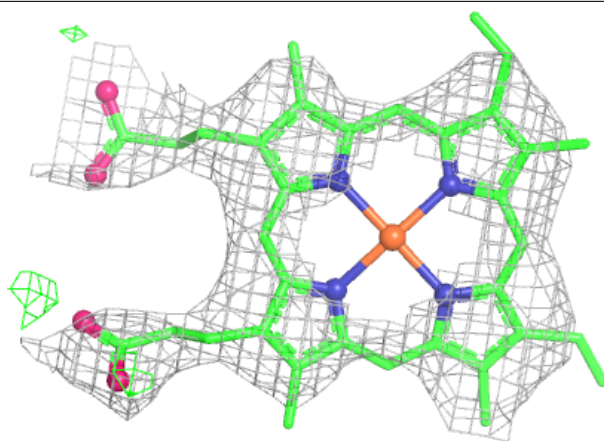
Electron density around HEC L 301:

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



Electron density around HEM G 501:

$2mF_o - DF_c$ (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.