



Full wwPDB X-ray Structure Validation Report ⓘ

Mar 10, 2026 – 04:55 PM UTC

PDB ID : 7FY8 / pdb_00007fy8
Title : Crystal Structure of human FABP1 in complex with 2-[[4-cyclopropyl-5-methyl-3-[3-(trifluoromethyl)-1,2,4-oxadiazol-5-yl]thiophen-2-yl]carbamoyl]cyclopentene-1-carboxylic acid
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Deposited on : 2023-04-27
Resolution : 2.23 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

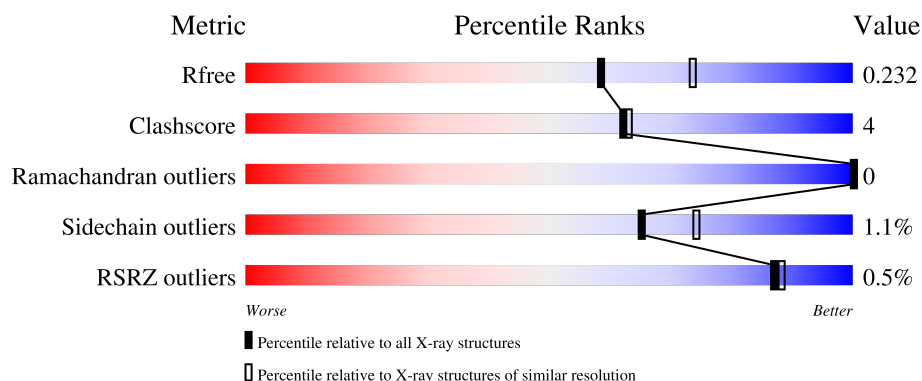
1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

X-RAY DIFFRACTION

The reported resolution of this entry is 2.23 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	3416 (2.26-2.22)
Clashscore	190562	3556 (2.26-2.22)
Ramachandran outliers	187476	3500 (2.26-2.22)
Sidechain outliers	187428	3501 (2.26-2.22)
RSRZ outliers	180081	3415 (2.26-2.22)

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	130	% 82% 18%
1	B	130	% 89% 8%
1	C	130	% 88% 8%
1	D	130	% 89% 11%

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Mol	Chain	Length	Quality of chain
1	E	130	2%89%8%.
1	F	130	82%15%.
1	G	130	%85%12%..
1	H	130	82%14%..

2 Entry composition

There are 4 unique types of molecules in this entry. The entry contains 8644 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 Fatty acid-binding protein, liver.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
1	A	129	Total	C	N	O	S	0	0	0
			1011	640	168	198	5			
1	B	126	Total	C	N	O	S	0	0	0
			987	626	163	194	4			
1	C	126	Total	C	N	O	S	0	0	0
			987	626	163	194	4			
1	D	130	Total	C	N	O	S	0	0	0
			1015	642	169	199	5			
1	E	127	Total	C	N	O	S	0	0	0
			992	629	164	195	4			
1	F	126	Total	C	N	O	S	0	0	0
			987	626	163	194	4			
1	G	127	Total	C	N	O	S	0	0	0
			995	631	164	195	5			
1	H	126	Total	C	N	O	S	0	0	0
			987	626	163	194	4			

There are 24 discrepancies between the modelled and reference sequences:

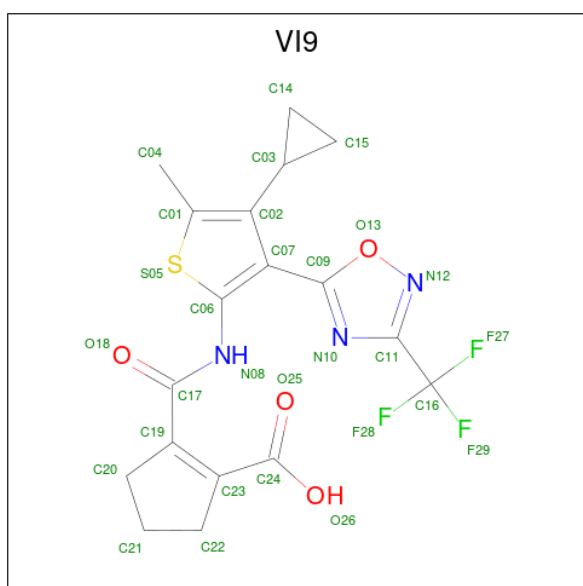
Chain	Residue	Modelled	Actual	Comment	Reference
A	-2	GLY	-	expression tag	UNP P07148
A	-1	SER	-	expression tag	UNP P07148
A	0	HIS	-	expression tag	UNP P07148
B	-2	GLY	-	expression tag	UNP P07148
B	-1	SER	-	expression tag	UNP P07148
B	0	HIS	-	expression tag	UNP P07148
C	-2	GLY	-	expression tag	UNP P07148
C	-1	SER	-	expression tag	UNP P07148
C	0	HIS	-	expression tag	UNP P07148
D	-2	GLY	-	expression tag	UNP P07148
D	-1	SER	-	expression tag	UNP P07148
D	0	HIS	-	expression tag	UNP P07148
E	-2	GLY	-	expression tag	UNP P07148

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Chain	Residue	Modelled	Actual	Comment	Reference
E	-1	SER	-	expression tag	UNP P07148
E	0	HIS	-	expression tag	UNP P07148
F	-2	GLY	-	expression tag	UNP P07148
F	-1	SER	-	expression tag	UNP P07148
F	0	HIS	-	expression tag	UNP P07148
G	-2	GLY	-	expression tag	UNP P07148
G	-1	SER	-	expression tag	UNP P07148
G	0	HIS	-	expression tag	UNP P07148
H	-2	GLY	-	expression tag	UNP P07148
H	-1	SER	-	expression tag	UNP P07148
H	0	HIS	-	expression tag	UNP P07148

- Molecule 2 is 2-((3P)-4-cyclopropyl-5-methyl-3-[3-(trifluoromethyl)-1,2,4-oxadiazol-5-yl]thiophen-2-yl)carbamoylcyclopent-1-ene-1-carboxylic acid (CCD ID: VI9) (formula: C₁₈H₁₆F₃N₃O₄S) (labeled as "Ligand of Interest" by depositor).



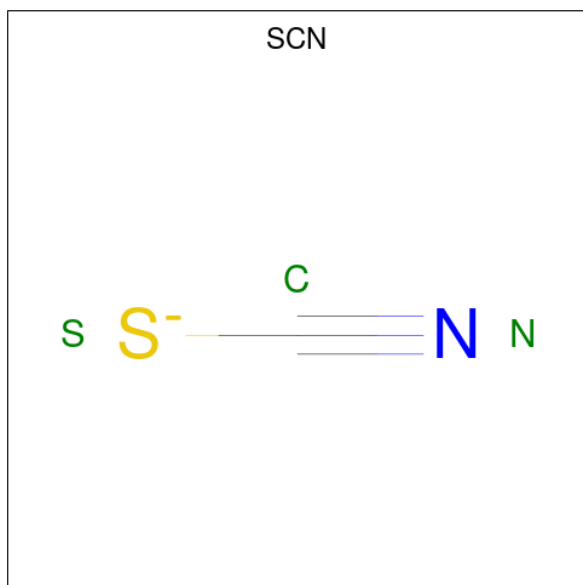
Mol	Chain	Residues	Atoms						ZeroOcc	AltConf
2	A	1	Total	C	F	N	O	S	0	0
			29	18	3	3	4	1		
2	B	1	Total	C	F	N	O	S	0	0
			29	18	3	3	4	1		
2	C	1	Total	C	F	N	O	S	0	0
			29	18	3	3	4	1		
2	D	1	Total	C	F	N	O	S	0	0
			29	18	3	3	4	1		
2	E	1	Total	C	F	N	O	S	0	0
			29	18	3	3	4	1		

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Mol	Chain	Residues	Atoms					ZeroOcc	AltConf
2	F	1	Total	C	F	N	O	S	
			29	18	3	3	4	1	
2	G	1	Total	C	F	N	O	S	
			29	18	3	3	4	1	
2	H	1	Total	C	F	N	O	S	
			29	18	3	3	4	1	

- Molecule 3 is THIOCYANATE ION (CCD ID: SCN) (formula: CNS).



Mol	Chain	Residues	Atoms				ZeroOcc	AltConf
3	A	1	Total	C	N	S	0	0
			3	1	1	1		
3	B	1	Total	C	N	S	0	0
			3	1	1	1		
3	C	1	Total	C	N	S	0	0
			3	1	1	1		
3	D	1	Total	C	N	S	0	0
			3	1	1	1		
3	E	1	Total	C	N	S	0	0
			3	1	1	1		
3	F	1	Total	C	N	S	0	0
			3	1	1	1		
3	G	1	Total	C	N	S	0	0
			3	1	1	1		
3	H	1	Total	C	N	S	0	0
			3	1	1	1		

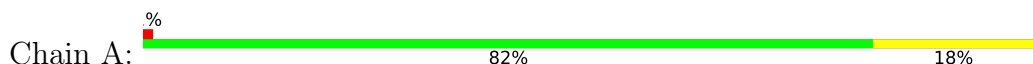
- Molecule 4 is water.

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
4	A	80	Total 80	O 80	0	0
4	B	52	Total 52	O 52	0	0
4	C	62	Total 62	O 62	0	0
4	D	38	Total 38	O 38	0	0
4	E	59	Total 59	O 59	0	0
4	F	48	Total 48	O 48	0	0
4	G	61	Total 61	O 61	0	0
4	H	27	Total 27	O 27	0	0

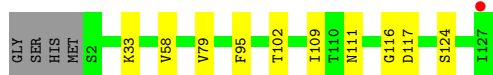
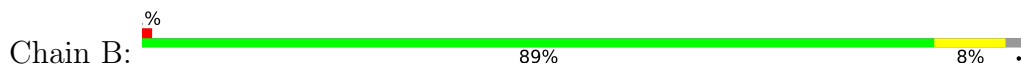
3 Residue-property plots [i](#)

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.

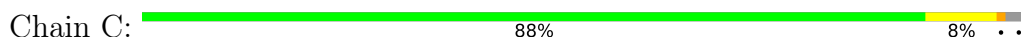
- Molecule 1: Fatty acid-binding protein, liver



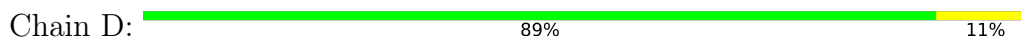
- Molecule 1: Fatty acid-binding protein, liver



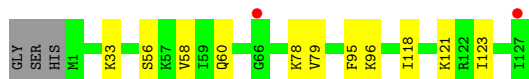
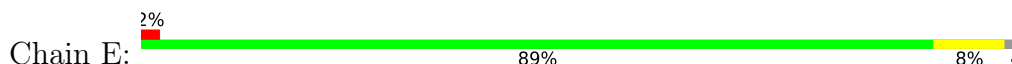
- Molecule 1: Fatty acid-binding protein, liver



- Molecule 1: Fatty acid-binding protein, liver

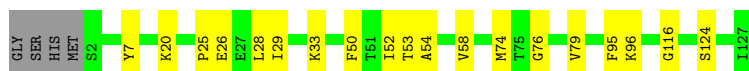


- Molecule 1: Fatty acid-binding protein, liver



- Molecule 1: Fatty acid-binding protein, liver

Chain F:  82% 15% .



- Molecule 1: Fatty acid-binding protein, liver

Chain G:  85% 12% . .



- Molecule 1: Fatty acid-binding protein, liver

Chain H:  82% 14% . .



4 Data and refinement statistics

Property	Value	Source
Space group	C 1 2 1	Depositor
Cell constants a, b, c, α , β , γ	119.66Å 75.08Å 110.69Å 90.00° 94.38° 90.00°	Depositor
Resolution (Å)	42.53 – 2.23 42.53 – 2.23	Depositor EDS
% Data completeness (in resolution range)	97.1 (42.53-2.23) 93.8 (42.53-2.23)	Depositor EDS
R_{merge}	0.06	Depositor
R_{sym}	(Not available)	Depositor
$\langle I/\sigma(I) \rangle$ ¹	1.02 (at 2.22Å)	Xtriage
Refinement program	BUSTER 2.11.2	Depositor
R, R_{free}	0.196 , 0.243 0.188 , 0.232	Depositor DCC
R_{free} test set	2348 reflections (4.91%)	wwPDB-VP
Wilson B-factor (Å ²)	43.7	Xtriage
Anisotropy	0.193	Xtriage
Bulk solvent k_{sol} (e/Å ³), B_{sol} (Å ²)	0.31 , 53.7	EDS
L-test for twinning ²	$\langle L \rangle = 0.49$, $\langle L^2 \rangle = 0.32$	Xtriage
Estimated twinning fraction	No twinning to report.	Xtriage
F_o, F_c correlation	0.96	EDS
Total number of atoms	8644	wwPDB-VP
Average B, all atoms (Å ²)	57.0	wwPDB-VP

Xtriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 5.04% of the height of the origin peak. No significant pseudotranslation is detected.*

¹Intensities estimated from amplitudes.

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

5 Model quality [i](#)

5.1 Standard geometry [i](#)

Bond lengths and bond angles in the following residue types are not validated in this section: SCN, VI9

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	0.85	0/1022	1.11	4/1367 (0.3%)
1	B	0.77	0/997	1.09	1/1334 (0.1%)
1	C	0.92	1/997 (0.1%)	1.13	1/1334 (0.1%)
1	D	0.78	0/1026	1.13	1/1372 (0.1%)
1	E	0.74	0/1002	1.06	1/1341 (0.1%)
1	F	0.77	0/997	1.13	5/1334 (0.4%)
1	G	0.83	0/1005	1.15	5/1344 (0.4%)
1	H	0.69	0/997	1.11	1/1334 (0.1%)
All	All	0.80	1/8043 (0.0%)	1.11	19/10760 (0.2%)

All (1) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
1	C	22	ILE	CA-C	7.13	1.60	1.52

All (19) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	F	33	LYS	N-CA-C	6.95	119.73	111.33
1	F	26	GLU	CA-C-N	6.43	128.90	120.28
1	F	26	GLU	C-N-CA	6.43	128.90	120.28
1	H	33	LYS	N-CA-C	6.41	119.09	111.33
1	G	28	LEU	CA-C-N	6.35	128.56	120.56
1	G	28	LEU	C-N-CA	6.35	128.56	120.56
1	G	2	SER	N-CA-C	6.33	119.02	108.96
1	B	33	LYS	N-CA-C	6.28	118.92	111.33
1	D	33	LYS	N-CA-C	6.14	118.76	111.33
1	E	33	LYS	N-CA-C	6.14	119.61	111.75
1	C	33	LYS	N-CA-C	5.98	118.56	111.33
1	A	116	GLY	CA-C-N	-5.52	113.89	122.67

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	A	116	GLY	C-N-CA	-5.52	113.89	122.67
1	A	65	VAL	N-CA-CB	5.38	117.33	110.13
1	G	65	VAL	N-CA-CB	5.22	117.13	110.13
1	F	76	GLY	CA-C-N	5.17	128.05	120.71
1	F	76	GLY	C-N-CA	5.17	128.05	120.71
1	G	33	LYS	N-CA-C	5.16	117.57	111.33
1	A	33	LYS	N-CA-C	5.07	117.53	111.71

There are no chirality outliers.

There are no planarity outliers.

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	1011	0	1040	16	0
1	B	987	0	1016	7	0
1	C	987	0	1016	7	0
1	D	1015	0	1043	11	0
1	E	992	0	1021	9	0
1	F	987	0	1016	11	0
1	G	995	0	1028	10	0
1	H	987	0	1016	12	0
2	A	29	0	0	0	0
2	B	29	0	0	0	0
2	C	29	0	0	0	0
2	D	29	0	0	0	0
2	E	29	0	0	0	0
2	F	29	0	0	1	0
2	G	29	0	0	0	0
2	H	29	0	0	0	0
3	A	3	0	0	0	0
3	B	3	0	0	0	0
3	C	3	0	0	0	0
3	D	3	0	0	0	0
3	E	3	0	0	0	0
3	F	3	0	0	0	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
3	G	3	0	0	1	0
3	H	3	0	0	0	0
4	A	80	0	0	1	0
4	B	52	0	0	0	0
4	C	62	0	0	0	0
4	D	38	0	0	0	0
4	E	59	0	0	0	0
4	F	48	0	0	0	0
4	G	61	0	0	0	0
4	H	27	0	0	0	0
All	All	8644	0	8196	68	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 4.

All (68) 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:A:58:VAL:HG21	1:D:53:THR:HG23	1.28	1.09
1:A:66:GLY:HA2	1:A:84:GLN:HE22	1.24	0.99
1:G:19:MET:HE1	1:G:74:MET:HG2	1.59	0.83
1:E:58:VAL:HG21	1:H:53:THR:HG23	1.66	0.77
1:A:58:VAL:HG21	1:D:53:THR:CG2	2.11	0.75
1:F:50:PHE:HD2	1:F:52:ILE:HD11	1.50	0.74
1:B:58:VAL:HG21	1:C:53:THR:HG23	1.71	0.72
1:G:54:ALA:O	1:G:74:MET:HE1	1.92	0.70
1:D:110:THR:CG2	1:D:121:LYS:HE3	2.22	0.70
1:F:79:VAL:HG21	1:F:95:PHE:HB2	1.74	0.68
1:F:50:PHE:CD2	1:F:52:ILE:HD11	2.30	0.66
1:F:7:TYR:HB3	1:F:124:SER:HB3	1.80	0.63
1:B:79:VAL:HG21	1:B:95:PHE:HB2	1.81	0.62
1:H:109:ILE:HG22	1:H:124:SER:HB2	1.83	0.60
1:G:79:VAL:HG21	1:G:95:PHE:HB2	1.83	0.60
1:A:109:ILE:CG2	1:A:124:SER:HB2	2.33	0.59
1:D:110:THR:HG23	1:D:121:LYS:HE3	1.85	0.58
1:C:109:ILE:CG2	1:C:124:SER:HB2	2.34	0.57
1:F:58:VAL:HG21	1:G:53:THR:HG23	1.87	0.57
1:C:109:ILE:HG22	1:C:124:SER:HB2	1.87	0.56
1:A:109:ILE:HG22	1:A:124:SER:HB2	1.88	0.55
1:A:56:SER:HA	1:D:58:VAL:HB	1.89	0.55
1:H:73:THR:HG21	1:H:96:LYS:HE2	1.89	0.54

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:G:16:GLU:HG2	1:G:29:ILE:CG2	2.38	0.54
1:E:79:VAL:HG21	1:E:95:PHE:HB2	1.89	0.53
1:D:73:THR:HG21	1:D:96:LYS:HE3	1.91	0.52
1:C:18:PHE:HD2	1:C:19:MET:HE2	1.74	0.52
1:D:1:MET:HE3	1:D:104:LEU:HD23	1.91	0.52
1:A:85:LEU:HD11	4:A:662:HOH:O	2.11	0.51
1:A:7:TYR:HB3	1:A:124:SER:HB3	1.91	0.51
1:C:50:PHE:HD2	1:C:52:ILE:HD11	1.75	0.51
1:H:50:PHE:HD2	1:H:52:ILE:HD11	1.75	0.51
1:D:110:THR:HG21	1:D:121:LYS:HE3	1.92	0.50
1:F:25:PRO:HD2	1:F:28:LEU:HD12	1.92	0.50
1:G:74:MET:HB2	3:G:501:SCN:S	2.53	0.49
1:D:98:ILE:HG13	1:D:115:LEU:HD13	1.96	0.48
1:A:79:VAL:HG21	1:A:95:PHE:HB2	1.96	0.48
1:H:79:VAL:HG21	1:H:95:PHE:HB2	1.95	0.48
1:A:117:ASP:HB2	1:B:117:ASP:OD1	2.15	0.47
1:H:109:ILE:CG2	1:H:124:SER:HB2	2.44	0.47
1:A:121:LYS:HE3	1:A:123:ILE:HD11	1.96	0.47
1:A:54:ALA:O	1:A:74:MET:HE1	2.14	0.47
1:E:78:LYS:HE3	1:H:31:LYS:NZ	2.29	0.47
1:E:121:LYS:HE3	1:E:123:ILE:HD11	1.95	0.47
1:A:118:ILE:HD12	1:B:116:GLY:HA2	1.96	0.47
1:B:109:ILE:HG22	1:B:124:SER:HB2	1.96	0.47
1:E:56:SER:HA	1:H:58:VAL:HB	1.97	0.46
1:A:58:VAL:CG2	1:D:53:THR:HG23	2.21	0.46
1:D:109:ILE:HG22	1:D:124:SER:HB2	2.00	0.44
1:G:79:VAL:HG21	1:G:95:PHE:CB	2.46	0.44
1:F:53:THR:HG23	1:G:58:VAL:HG21	2.00	0.44
1:B:109:ILE:CG2	1:B:124:SER:HB2	2.48	0.44
1:C:54:ALA:O	1:C:74:MET:HE1	2.18	0.43
1:E:118:ILE:HD12	1:F:116:GLY:HA2	2.00	0.43
1:B:102:THR:OG1	1:B:111:ASN:ND2	2.52	0.43
1:F:20:LYS:HG3	1:F:29:ILE:HD13	2.01	0.42
1:E:78:LYS:HE3	1:H:31:LYS:HZ3	1.84	0.42
1:G:109:ILE:CG2	1:G:124:SER:HB2	2.49	0.42
1:G:109:ILE:HG22	1:G:124:SER:HB2	2.00	0.42
1:H:25:PRO:HD2	1:H:28:LEU:HD12	2.02	0.41
1:E:96:LYS:HD2	1:F:96:LYS:HA	2.01	0.41
1:H:54:ALA:O	1:H:74:MET:HE1	2.20	0.41
1:F:54:ALA:O	1:F:74:MET:HE1	2.20	0.41
1:C:28:LEU:C	1:C:28:LEU:HD23	2.45	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:E:60:GLN:HG3	1:H:35:ILE:HG12	2.01	0.41
2:F:500:VI9:O18	2:F:500:VI9:S05	2.78	0.41
1:A:82:VAL:CG1	1:A:84:GLN:HE21	2.34	0.40
1:A:47:HIS:HD2	1:A:64:THR:OG1	2.04	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	127/130 (98%)	125 (98%)	2 (2%)	0	100	100
1	B	124/130 (95%)	123 (99%)	1 (1%)	0	100	100
1	C	124/130 (95%)	120 (97%)	4 (3%)	0	100	100
1	D	128/130 (98%)	124 (97%)	4 (3%)	0	100	100
1	E	125/130 (96%)	122 (98%)	3 (2%)	0	100	100
1	F	124/130 (95%)	123 (99%)	1 (1%)	0	100	100
1	G	125/130 (96%)	121 (97%)	4 (3%)	0	100	100
1	H	124/130 (95%)	120 (97%)	4 (3%)	0	100	100
All	All	1001/1040 (96%)	978 (98%)	23 (2%)	0	100	100

There are no Ramachandran outliers to report.

5.3.2 Protein sidechains [i](#)

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

The Analysed column shows the number of residues for which the sidechain conformation was

analysed, and the total number of residues.

Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
1	A	115/115 (100%)	114 (99%)	1 (1%)	70	78
1	B	112/115 (97%)	112 (100%)	0	100	100
1	C	112/115 (97%)	111 (99%)	1 (1%)	70	78
1	D	115/115 (100%)	114 (99%)	1 (1%)	70	78
1	E	112/115 (97%)	112 (100%)	0	100	100
1	F	112/115 (97%)	112 (100%)	0	100	100
1	G	113/115 (98%)	109 (96%)	4 (4%)	32	37
1	H	112/115 (97%)	109 (97%)	3 (3%)	39	47
All	All	903/920 (98%)	893 (99%)	10 (1%)	65	74

All (10) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	96	LYS
1	C	28	LEU
1	D	117	ASP
1	G	1	MET
1	G	28	LEU
1	G	74	MET
1	G	117	ASP
1	H	107	ASP
1	H	117	ASP
1	H	124	SER

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (35) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	12	GLN
1	A	47	HIS
1	A	60	GLN
1	A	84	GLN
1	A	111	ASN
1	B	12	GLN
1	B	47	HIS
1	B	60	GLN
1	B	111	ASN
1	C	47	HIS

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Mol	Chain	Res	Type
1	C	60	GLN
1	C	105	ASN
1	C	111	ASN
1	D	8	GLN
1	D	12	GLN
1	D	47	HIS
1	D	60	GLN
1	D	105	ASN
1	D	111	ASN
1	E	47	HIS
1	E	60	GLN
1	E	111	ASN
1	F	12	GLN
1	F	47	HIS
1	F	60	GLN
1	F	111	ASN
1	G	12	GLN
1	G	47	HIS
1	G	60	GLN
1	G	105	ASN
1	G	111	ASN
1	H	12	GLN
1	H	47	HIS
1	H	60	GLN
1	H	111	ASN

5.3.3 RNA ⓘ

There are no RNA molecules in this entry.

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

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

5.5 Carbohydrates ⓘ

There are no oligosaccharides in this entry.

5.6 Ligand geometry

16 ligands are modelled in this entry.

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

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	$\# Z > 2$	Counts	RMSZ	$\# Z > 2$
2	VI9	D	500	-	31,32,32	3.40	12 (38%)	46,49,49	4.06	20 (43%)
2	VI9	C	500	-	31,32,32	3.74	12 (38%)	46,49,49	4.02	17 (36%)
3	SCN	B	501	-	1,2,2	0.22	0	0,1,1	-	-
3	SCN	D	501	-	1,2,2	0.15	0	0,1,1	-	-
2	VI9	A	500	-	31,32,32	3.42	12 (38%)	46,49,49	3.65	19 (41%)
2	VI9	F	500	-	31,32,32	3.23	12 (38%)	46,49,49	3.85	22 (47%)
2	VI9	E	500	-	31,32,32	3.55	14 (45%)	46,49,49	4.05	16 (34%)
3	SCN	A	501	-	1,2,2	0.06	0	0,1,1	-	-
2	VI9	H	500	-	31,32,32	3.49	13 (41%)	46,49,49	3.93	20 (43%)
2	VI9	G	500	-	31,32,32	3.65	12 (38%)	46,49,49	4.05	17 (36%)
3	SCN	C	501	-	1,2,2	0.29	0	0,1,1	-	-
3	SCN	H	501	-	1,2,2	0.07	0	0,1,1	-	-
3	SCN	E	501	-	1,2,2	0.13	0	0,1,1	-	-
3	SCN	F	501	-	1,2,2	0.11	0	0,1,1	-	-
2	VI9	B	500	-	31,32,32	3.39	13 (41%)	46,49,49	3.81	22 (47%)
3	SCN	G	501	-	1,2,2	0.13	0	0,1,1	-	-

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
2	VI9	D	500	-	-	5/25/38/38	0/4/4/4
2	VI9	C	500	-	-	5/25/38/38	0/4/4/4
2	VI9	A	500	-	-	5/25/38/38	0/4/4/4
2	VI9	F	500	-	-	4/25/38/38	0/4/4/4
2	VI9	E	500	-	-	4/25/38/38	0/4/4/4

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Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
2	VI9	H	500	-	-	5/25/38/38	0/4/4/4
2	VI9	G	500	-	-	5/25/38/38	0/4/4/4
2	VI9	B	500	-	-	5/25/38/38	0/4/4/4

All (100) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
2	C	500	VI9	C06-S05	-16.78	1.53	1.73
2	G	500	VI9	C06-S05	-15.46	1.54	1.73
2	H	500	VI9	C06-S05	-14.81	1.55	1.73
2	A	500	VI9	C06-S05	-14.43	1.55	1.73
2	E	500	VI9	C06-S05	-14.25	1.56	1.73
2	B	500	VI9	C06-S05	-14.20	1.56	1.73
2	D	500	VI9	C06-S05	-13.97	1.56	1.73
2	F	500	VI9	C06-S05	-12.81	1.57	1.73
2	D	500	VI9	C07-C02	5.54	1.60	1.44
2	G	500	VI9	C07-C02	5.50	1.60	1.44
2	E	500	VI9	C06-N08	5.44	1.45	1.38
2	H	500	VI9	C07-C02	5.32	1.59	1.44
2	G	500	VI9	C17-N08	5.31	1.47	1.37
2	E	500	VI9	C17-N08	5.30	1.47	1.37
2	E	500	VI9	C07-C02	5.28	1.59	1.44
2	C	500	VI9	C07-C02	5.20	1.59	1.44
2	A	500	VI9	C07-C02	5.02	1.58	1.44
2	F	500	VI9	C07-C02	4.95	1.58	1.44
2	B	500	VI9	C07-C02	4.77	1.58	1.44
2	H	500	VI9	C17-N08	4.27	1.45	1.37
2	D	500	VI9	C06-N08	4.22	1.44	1.38
2	F	500	VI9	C24-C23	4.21	1.53	1.47
2	F	500	VI9	C06-N08	4.16	1.43	1.38
2	G	500	VI9	C01-S05	-4.16	1.56	1.73
2	B	500	VI9	C17-N08	4.16	1.45	1.37
2	C	500	VI9	C17-N08	4.14	1.45	1.37
2	D	500	VI9	C17-N08	4.13	1.45	1.37
2	G	500	VI9	C06-N08	3.98	1.43	1.38
2	C	500	VI9	C01-S05	-3.97	1.56	1.73
2	A	500	VI9	C17-N08	3.87	1.44	1.37
2	F	500	VI9	C17-N08	3.87	1.44	1.37
2	A	500	VI9	C07-C06	3.85	1.46	1.39
2	B	500	VI9	C06-N08	3.70	1.43	1.38
2	A	500	VI9	C06-N08	3.69	1.43	1.38
2	D	500	VI9	C01-S05	-3.62	1.58	1.73

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
2	H	500	VI9	C01-S05	-3.60	1.58	1.73
2	A	500	VI9	C24-C23	3.58	1.52	1.47
2	E	500	VI9	C07-C06	3.57	1.45	1.39
2	F	500	VI9	C07-C09	3.55	1.55	1.46
2	F	500	VI9	C01-S05	-3.52	1.58	1.73
2	D	500	VI9	C07-C09	3.49	1.55	1.46
2	C	500	VI9	C24-C23	3.47	1.52	1.47
2	A	500	VI9	C01-S05	-3.44	1.59	1.73
2	B	500	VI9	C01-S05	-3.43	1.59	1.73
2	E	500	VI9	C01-S05	-3.42	1.59	1.73
2	D	500	VI9	C07-C06	3.38	1.45	1.39
2	B	500	VI9	C22-C23	-3.37	1.43	1.51
2	F	500	VI9	C07-C06	3.37	1.45	1.39
2	H	500	VI9	C06-N08	3.36	1.42	1.38
2	A	500	VI9	C07-C09	3.33	1.55	1.46
2	C	500	VI9	C06-N08	3.30	1.42	1.38
2	C	500	VI9	O13-N12	-3.27	1.36	1.42
2	B	500	VI9	C07-C06	3.24	1.45	1.39
2	H	500	VI9	C24-C23	3.23	1.52	1.47
2	H	500	VI9	C07-C09	3.18	1.54	1.46
2	H	500	VI9	C07-C06	3.17	1.45	1.39
2	B	500	VI9	C07-C09	3.16	1.54	1.46
2	G	500	VI9	C24-C23	3.14	1.52	1.47
2	C	500	VI9	C07-C09	3.13	1.54	1.46
2	G	500	VI9	C07-C06	3.12	1.45	1.39
2	B	500	VI9	C24-C23	3.11	1.52	1.47
2	D	500	VI9	O13-N12	-3.07	1.36	1.42
2	A	500	VI9	C01-C02	3.02	1.48	1.37
2	G	500	VI9	O13-N12	-3.01	1.36	1.42
2	C	500	VI9	C07-C06	2.97	1.44	1.39
2	D	500	VI9	C24-C23	2.94	1.52	1.47
2	F	500	VI9	C01-C02	2.94	1.48	1.37
2	H	500	VI9	C01-C02	2.92	1.48	1.37
2	E	500	VI9	C07-C09	2.92	1.54	1.46
2	H	500	VI9	O13-N12	-2.89	1.37	1.42
2	H	500	VI9	C22-C23	-2.87	1.44	1.51
2	B	500	VI9	C01-C02	2.87	1.47	1.37
2	E	500	VI9	C24-C23	2.86	1.51	1.47
2	E	500	VI9	C01-C02	2.85	1.47	1.37
2	G	500	VI9	C07-C09	2.79	1.53	1.46
2	D	500	VI9	C01-C02	2.77	1.47	1.37
2	B	500	VI9	O13-N12	-2.77	1.37	1.42

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
2	G	500	VI9	C01-C02	2.72	1.47	1.37
2	E	500	VI9	O25-C24	2.69	1.29	1.22
2	G	500	VI9	C22-C23	-2.69	1.45	1.51
2	F	500	VI9	C22-C23	-2.69	1.45	1.51
2	F	500	VI9	O13-N12	-2.66	1.37	1.42
2	E	500	VI9	C22-C23	-2.63	1.45	1.51
2	G	500	VI9	C20-C19	-2.62	1.45	1.51
2	A	500	VI9	C22-C23	-2.61	1.45	1.51
2	E	500	VI9	C20-C19	-2.60	1.45	1.51
2	A	500	VI9	O13-N12	-2.60	1.37	1.42
2	E	500	VI9	O13-N12	-2.60	1.37	1.42
2	C	500	VI9	C01-C02	2.58	1.46	1.37
2	C	500	VI9	C22-C23	-2.58	1.45	1.51
2	D	500	VI9	C22-C23	-2.50	1.45	1.51
2	A	500	VI9	C20-C19	-2.47	1.45	1.51
2	F	500	VI9	C20-C19	-2.46	1.45	1.51
2	H	500	VI9	C20-C19	-2.43	1.45	1.51
2	E	500	VI9	C04-C01	2.39	1.55	1.50
2	B	500	VI9	C04-C01	2.35	1.55	1.50
2	C	500	VI9	C20-C19	-2.17	1.46	1.51
2	D	500	VI9	C20-C19	-2.13	1.46	1.51
2	H	500	VI9	O25-C24	2.06	1.27	1.22
2	B	500	VI9	C20-C19	-2.05	1.46	1.51

All (153) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
2	G	500	VI9	C01-S05-C06	22.34	109.28	91.19
2	C	500	VI9	C01-S05-C06	20.90	108.11	91.19
2	E	500	VI9	C01-S05-C06	20.56	107.83	91.19
2	D	500	VI9	C01-S05-C06	19.44	106.92	91.19
2	H	500	VI9	C01-S05-C06	19.32	106.83	91.19
2	B	500	VI9	C01-S05-C06	18.52	106.18	91.19
2	A	500	VI9	C01-S05-C06	17.12	105.05	91.19
2	F	500	VI9	C01-S05-C06	16.99	104.94	91.19
2	D	500	VI9	C11-N10-C09	8.99	107.17	102.55
2	F	500	VI9	C11-N10-C09	8.85	107.10	102.55
2	A	500	VI9	C11-N10-C09	8.39	106.87	102.55
2	H	500	VI9	C11-N10-C09	8.33	106.84	102.55
2	E	500	VI9	C11-N10-C09	7.66	106.49	102.55
2	B	500	VI9	C11-N10-C09	7.66	106.49	102.55
2	C	500	VI9	C11-N10-C09	7.58	106.45	102.55

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
2	F	500	VI9	C17-N08-C06	-6.99	119.74	125.26
2	B	500	VI9	S05-C06-N08	6.96	131.45	122.95
2	E	500	VI9	S05-C06-N08	6.86	131.33	122.95
2	G	500	VI9	C11-N10-C09	6.60	105.94	102.55
2	F	500	VI9	S05-C06-N08	6.10	130.41	122.95
2	E	500	VI9	C07-C09-N10	-5.90	120.51	129.03
2	D	500	VI9	S05-C06-N08	5.83	130.08	122.95
2	D	500	VI9	C17-N08-C06	-5.79	120.69	125.26
2	E	500	VI9	O13-C09-C07	5.59	129.06	118.03
2	C	500	VI9	S05-C06-N08	5.54	129.72	122.95
2	D	500	VI9	O13-C09-C07	5.39	128.67	118.03
2	H	500	VI9	S05-C06-N08	5.17	129.27	122.95
2	D	500	VI9	O13-N12-C11	5.14	107.45	103.14
2	H	500	VI9	O13-C09-C07	5.12	128.13	118.03
2	A	500	VI9	O13-C09-C07	5.08	128.05	118.03
2	B	500	VI9	O13-C09-C07	5.08	128.04	118.03
2	F	500	VI9	O13-C09-N10	-5.00	108.80	114.12
2	F	500	VI9	O13-C09-C07	4.97	127.82	118.03
2	H	500	VI9	O13-N12-C11	4.94	107.29	103.14
2	E	500	VI9	C07-C06-S05	-4.80	106.30	112.62
2	H	500	VI9	C07-C09-N10	-4.80	122.10	129.03
2	D	500	VI9	C07-C09-N10	-4.80	122.11	129.03
2	H	500	VI9	C17-N08-C06	-4.79	121.48	125.26
2	G	500	VI9	C07-C06-S05	-4.77	106.35	112.62
2	A	500	VI9	C17-N08-C06	-4.75	121.51	125.26
2	D	500	VI9	O13-C09-N10	-4.74	109.08	114.12
2	F	500	VI9	O13-N12-C11	4.69	107.08	103.14
2	C	500	VI9	O13-C09-C07	4.66	127.22	118.03
2	F	500	VI9	C07-C06-N08	-4.65	119.98	124.61
2	C	500	VI9	O13-C09-N10	-4.63	109.20	114.12
2	D	500	VI9	N10-C11-N12	-4.59	108.97	114.74
2	A	500	VI9	O13-C09-N10	-4.59	109.24	114.12
2	G	500	VI9	C17-N08-C06	-4.55	121.66	125.26
2	B	500	VI9	C07-C09-N10	-4.51	122.52	129.03
2	A	500	VI9	S05-C06-N08	4.51	128.46	122.95
2	A	500	VI9	C07-C09-N10	-4.50	122.54	129.03
2	B	500	VI9	O13-C09-N10	-4.49	109.34	114.12
2	B	500	VI9	C07-C06-N08	-4.41	120.22	124.61
2	F	500	VI9	N10-C11-N12	-4.40	109.21	114.74
2	G	500	VI9	O13-N12-C11	4.38	106.81	103.14
2	H	500	VI9	N10-C11-N12	-4.37	109.24	114.74
2	C	500	VI9	C17-N08-C06	-4.29	121.87	125.26

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
2	H	500	VI9	O13-C09-N10	-4.28	109.57	114.12
2	E	500	VI9	O13-N12-C11	4.25	106.71	103.14
2	C	500	VI9	C07-C06-S05	-4.22	107.07	112.62
2	A	500	VI9	O13-N12-C11	4.15	106.62	103.14
2	G	500	VI9	C15-C03-C02	-4.14	113.42	120.91
2	A	500	VI9	N10-C11-N12	-4.12	109.56	114.74
2	D	500	VI9	C16-C11-N12	4.09	127.90	121.21
2	G	500	VI9	S05-C06-N08	4.03	127.87	122.95
2	F	500	VI9	C07-C09-N10	-4.03	123.22	129.03
2	C	500	VI9	O13-N12-C11	4.00	106.49	103.14
2	G	500	VI9	O13-C09-N10	-3.98	109.89	114.12
2	E	500	VI9	N10-C11-N12	-3.96	109.76	114.74
2	C	500	VI9	C07-C09-N10	-3.95	123.33	129.03
2	G	500	VI9	N10-C11-N12	-3.88	109.86	114.74
2	H	500	VI9	C16-C11-N12	3.85	127.51	121.21
2	E	500	VI9	C16-C11-N12	3.83	127.47	121.21
2	D	500	VI9	C07-C06-S05	-3.77	107.66	112.62
2	C	500	VI9	N10-C11-N12	-3.77	110.01	114.74
2	B	500	VI9	O13-N12-C11	3.73	106.27	103.14
2	E	500	VI9	O13-C09-N10	-3.71	110.18	114.12
2	B	500	VI9	N10-C11-N12	-3.57	110.25	114.74
2	A	500	VI9	C06-C07-C02	-3.56	109.11	111.73
2	A	500	VI9	C16-C11-N12	3.49	126.92	121.21
2	H	500	VI9	C07-C06-S05	-3.41	108.14	112.62
2	B	500	VI9	C07-C06-S05	-3.38	108.18	112.62
2	C	500	VI9	C16-C11-N12	3.34	126.68	121.21
2	B	500	VI9	C16-C11-N12	3.26	126.53	121.21
2	F	500	VI9	C06-C07-C02	-3.25	109.34	111.73
2	A	500	VI9	C07-C06-N08	-3.22	121.40	124.61
2	G	500	VI9	O13-C09-C07	3.12	124.19	118.03
2	F	500	VI9	C16-C11-N12	3.11	126.29	121.21
2	C	500	VI9	C07-C02-C01	-2.97	106.06	111.91
2	E	500	VI9	F29-C16-C11	-2.93	106.24	112.25
2	B	500	VI9	O18-C17-N08	-2.89	117.71	122.88
2	F	500	VI9	F29-C16-C11	-2.88	106.35	112.25
2	D	500	VI9	C07-C06-N08	-2.85	121.77	124.61
2	E	500	VI9	C07-C02-C01	-2.83	106.34	111.91
2	G	500	VI9	C16-C11-N12	2.81	125.80	121.21
2	C	500	VI9	C15-C03-C02	-2.74	115.96	120.91
2	E	500	VI9	C07-C06-N08	-2.67	121.95	124.61
2	H	500	VI9	C07-C06-N08	-2.67	121.95	124.61
2	D	500	VI9	C07-C02-C01	-2.66	106.67	111.91

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
2	A	500	VI9	C17-C19-C23	-2.65	122.08	129.77
2	H	500	VI9	C07-C02-C01	-2.64	106.71	111.91
2	B	500	VI9	F28-C16-C11	-2.61	106.89	112.25
2	F	500	VI9	C07-C06-S05	-2.59	109.22	112.62
2	C	500	VI9	F28-C16-C11	-2.58	106.96	112.25
2	G	500	VI9	C07-C02-C01	-2.57	106.85	111.91
2	F	500	VI9	C17-C19-C23	-2.55	122.39	129.77
2	A	500	VI9	C07-C02-C01	-2.54	106.90	111.91
2	G	500	VI9	C07-C09-N10	-2.53	125.38	129.03
2	G	500	VI9	F27-C16-C11	-2.52	107.07	112.25
2	H	500	VI9	C17-C19-C23	-2.43	122.72	129.77
2	G	500	VI9	C02-C01-S05	-2.42	107.07	111.65
2	B	500	VI9	C07-C02-C01	-2.42	107.15	111.91
2	C	500	VI9	C17-C19-C23	-2.40	122.81	129.77
2	F	500	VI9	F28-C16-C11	-2.40	107.33	112.25
2	H	500	VI9	C06-C07-C02	-2.39	109.97	111.73
2	B	500	VI9	F29-C16-C11	-2.37	107.39	112.25
2	D	500	VI9	C15-C03-C02	-2.33	116.69	120.91
2	F	500	VI9	C07-C02-C01	-2.32	107.34	111.91
2	H	500	VI9	C15-C03-C02	-2.31	116.73	120.91
2	C	500	VI9	F29-C16-C11	-2.31	107.51	112.25
2	H	500	VI9	F28-C16-C11	-2.29	107.54	112.25
2	D	500	VI9	F28-C16-C11	-2.28	107.57	112.25
2	A	500	VI9	C07-C06-S05	-2.27	109.63	112.62
2	D	500	VI9	C17-C19-C23	-2.26	123.22	129.77
2	E	500	VI9	C04-C01-S05	2.25	125.60	118.62
2	H	500	VI9	C04-C01-S05	2.25	125.59	118.62
2	D	500	VI9	O26-C24-C23	2.23	122.31	115.83
2	D	500	VI9	C04-C01-S05	2.22	125.50	118.62
2	D	500	VI9	O26-C24-O25	-2.21	118.64	123.90
2	B	500	VI9	C04-C01-S05	2.20	125.45	118.62
2	B	500	VI9	C14-C03-C02	-2.19	116.95	120.91
2	F	500	VI9	C16-C11-N10	2.16	124.50	121.86
2	E	500	VI9	F27-C16-C11	-2.16	107.82	112.25
2	D	500	VI9	C06-C07-C02	-2.15	110.14	111.73
2	F	500	VI9	C04-C01-S05	2.15	125.29	118.62
2	F	500	VI9	O26-C24-O25	-2.15	118.78	123.90
2	A	500	VI9	O26-C24-C23	2.13	122.02	115.83
2	G	500	VI9	C06-C07-C02	-2.13	110.16	111.73
2	C	500	VI9	O26-C24-O25	-2.13	118.83	123.90
2	H	500	VI9	F29-C16-C11	-2.12	107.89	112.25
2	A	500	VI9	F29-C16-C11	-2.10	107.93	112.25

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
2	A	500	VI9	C04-C01-S05	2.10	125.15	118.62
2	B	500	VI9	C17-C19-C23	-2.09	123.72	129.77
2	F	500	VI9	C24-C23-C19	-2.08	122.86	127.79
2	A	500	VI9	O26-C24-O25	-2.07	118.97	123.90
2	B	500	VI9	F27-C16-C11	-2.07	108.00	112.25
2	E	500	VI9	C15-C03-C02	-2.05	117.20	120.91
2	H	500	VI9	O26-C24-C23	2.03	121.70	115.83
2	G	500	VI9	C16-C11-N10	2.02	124.33	121.86
2	B	500	VI9	O26-C24-O25	-2.02	119.08	123.90
2	B	500	VI9	O26-C24-C23	2.01	121.67	115.83
2	F	500	VI9	O26-C24-C23	2.00	121.64	115.83
2	B	500	VI9	C06-C07-C02	-2.00	110.26	111.73

There are no chirality outliers.

All (38) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
2	A	500	VI9	C19-C23-C24-O25
2	A	500	VI9	C19-C23-C24-O26
2	A	500	VI9	C22-C23-C24-O25
2	A	500	VI9	C22-C23-C24-O26
2	B	500	VI9	C19-C23-C24-O25
2	B	500	VI9	C19-C23-C24-O26
2	B	500	VI9	C22-C23-C24-O25
2	B	500	VI9	C22-C23-C24-O26
2	C	500	VI9	C19-C23-C24-O25
2	C	500	VI9	C19-C23-C24-O26
2	C	500	VI9	C22-C23-C24-O25
2	C	500	VI9	C22-C23-C24-O26
2	D	500	VI9	C19-C23-C24-O25
2	D	500	VI9	C19-C23-C24-O26
2	D	500	VI9	C22-C23-C24-O25
2	D	500	VI9	C22-C23-C24-O26
2	E	500	VI9	C19-C23-C24-O25
2	E	500	VI9	C19-C23-C24-O26
2	E	500	VI9	C22-C23-C24-O25
2	E	500	VI9	C22-C23-C24-O26
2	F	500	VI9	C19-C23-C24-O25
2	F	500	VI9	C19-C23-C24-O26
2	F	500	VI9	C22-C23-C24-O25
2	F	500	VI9	C22-C23-C24-O26
2	G	500	VI9	C19-C23-C24-O25

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Mol	Chain	Res	Type	Atoms
2	G	500	VI9	C19-C23-C24-O26
2	G	500	VI9	C22-C23-C24-O25
2	G	500	VI9	C22-C23-C24-O26
2	H	500	VI9	C19-C23-C24-O25
2	H	500	VI9	C19-C23-C24-O26
2	H	500	VI9	C22-C23-C24-O25
2	H	500	VI9	C22-C23-C24-O26
2	A	500	VI9	C02-C07-C09-O13
2	B	500	VI9	C02-C07-C09-O13
2	C	500	VI9	C02-C07-C09-O13
2	D	500	VI9	C02-C07-C09-O13
2	H	500	VI9	C02-C07-C09-O13
2	G	500	VI9	C02-C07-C09-N10

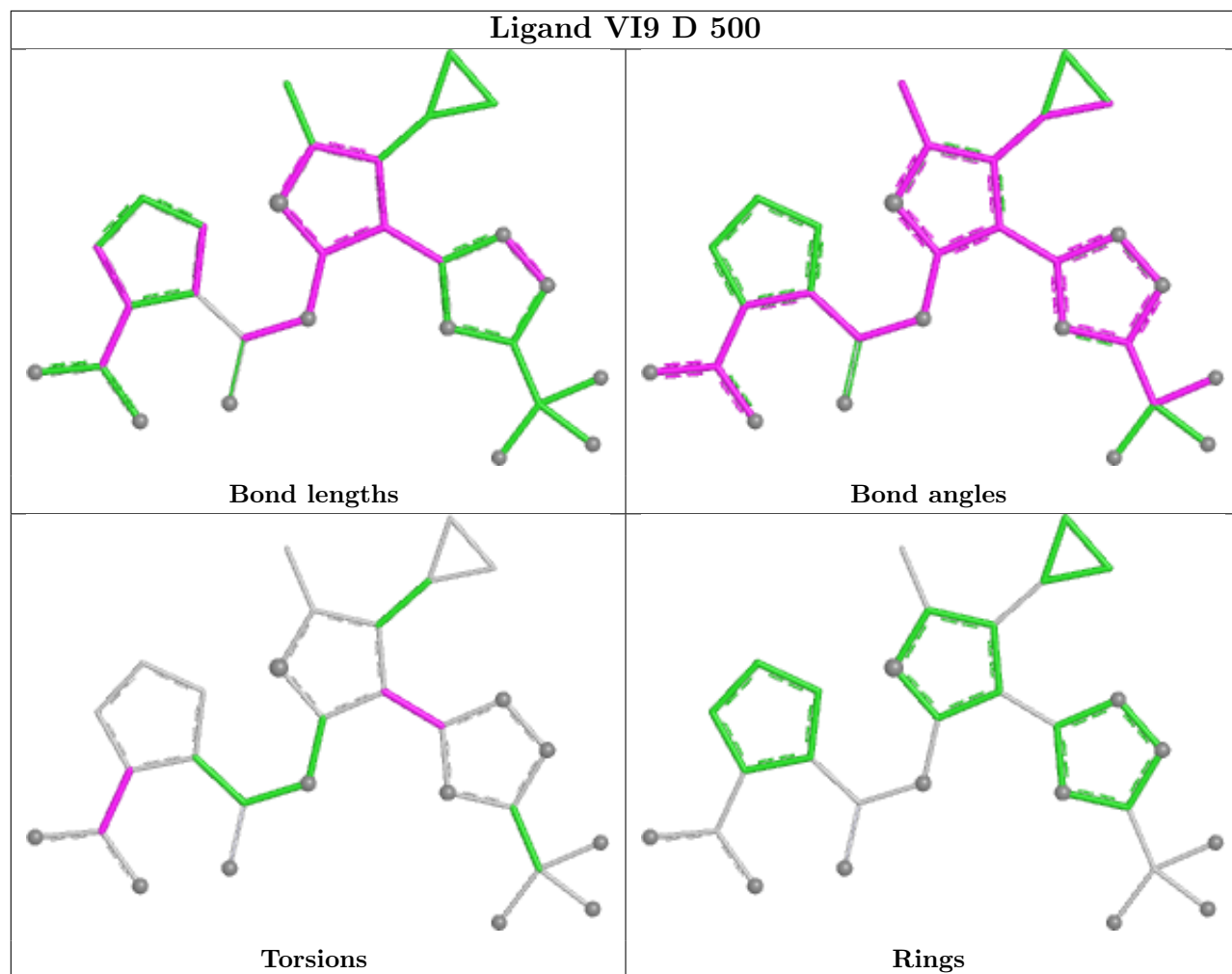
There are no ring outliers.

2 monomers are involved in 2 short contacts:

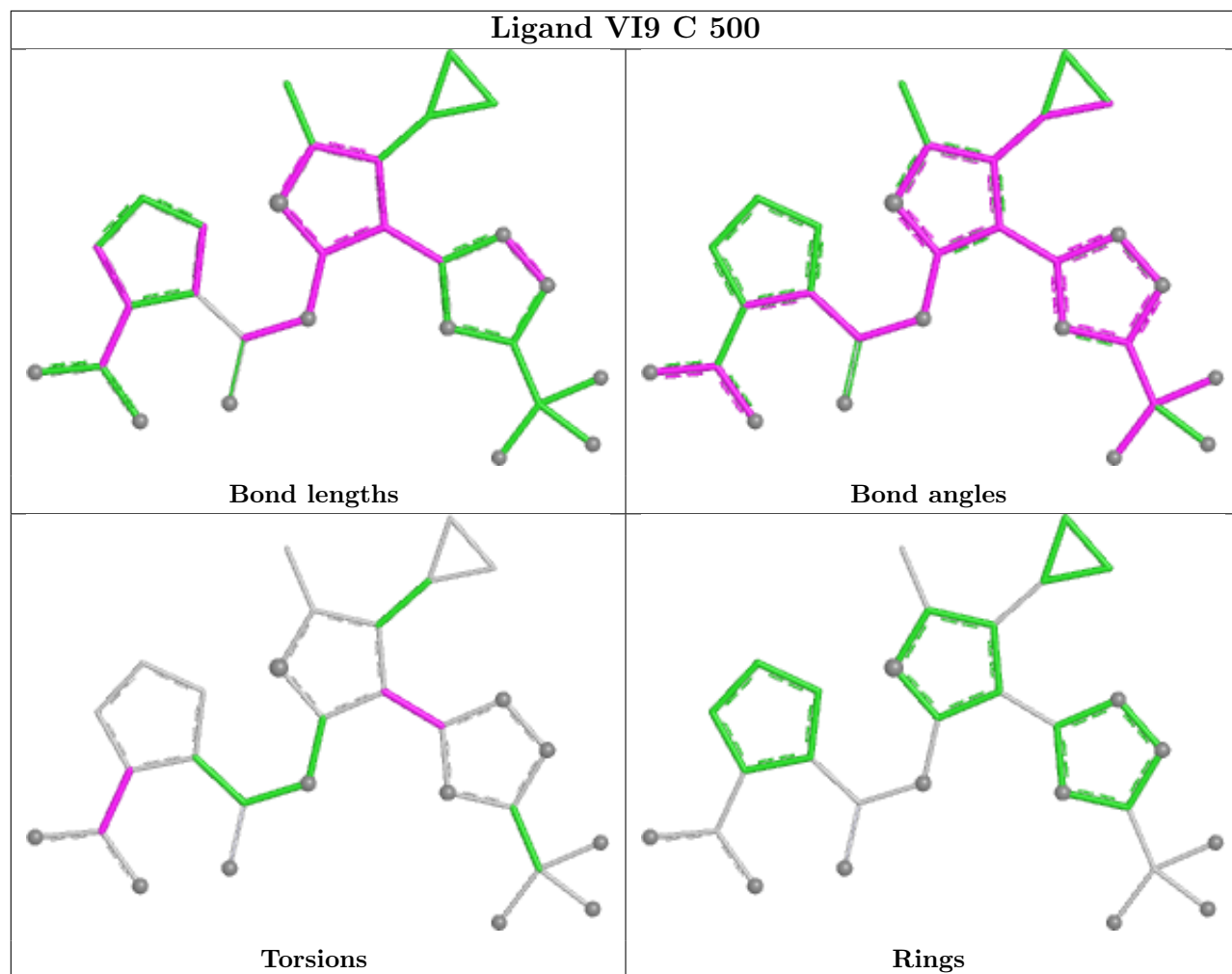
Mol	Chain	Res	Type	Clashes	Symm-Clashes
2	F	500	VI9	1	0
3	G	501	SCN	1	0

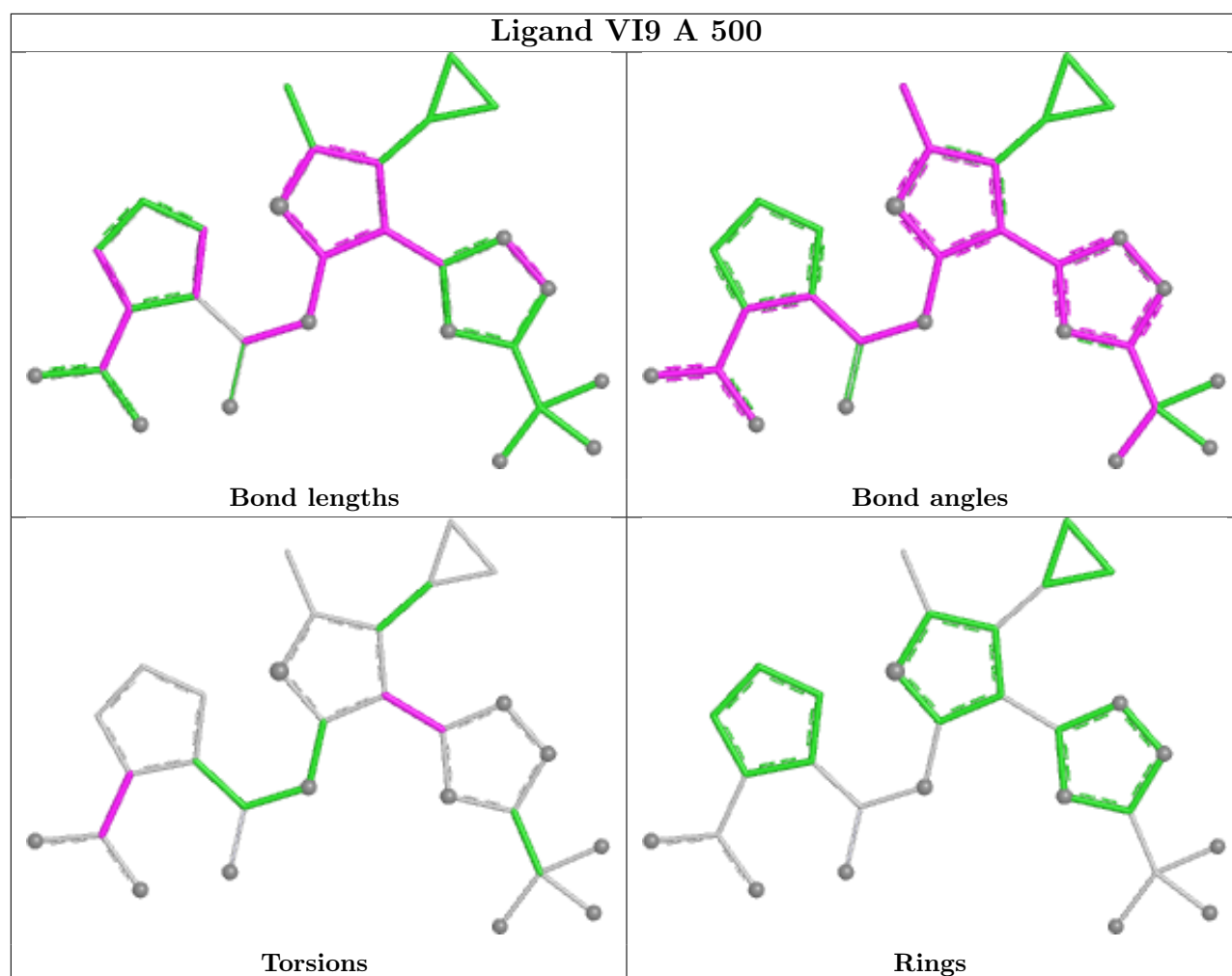
The following is a two-dimensional graphical depiction of Mogul quality analysis of bond lengths, bond angles, torsion angles, and ring geometry for all instances of the Ligand of Interest. In addition, ligands with molecular weight > 250 and outliers as shown on the validation Tables will also be included. 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 VI9 D 500

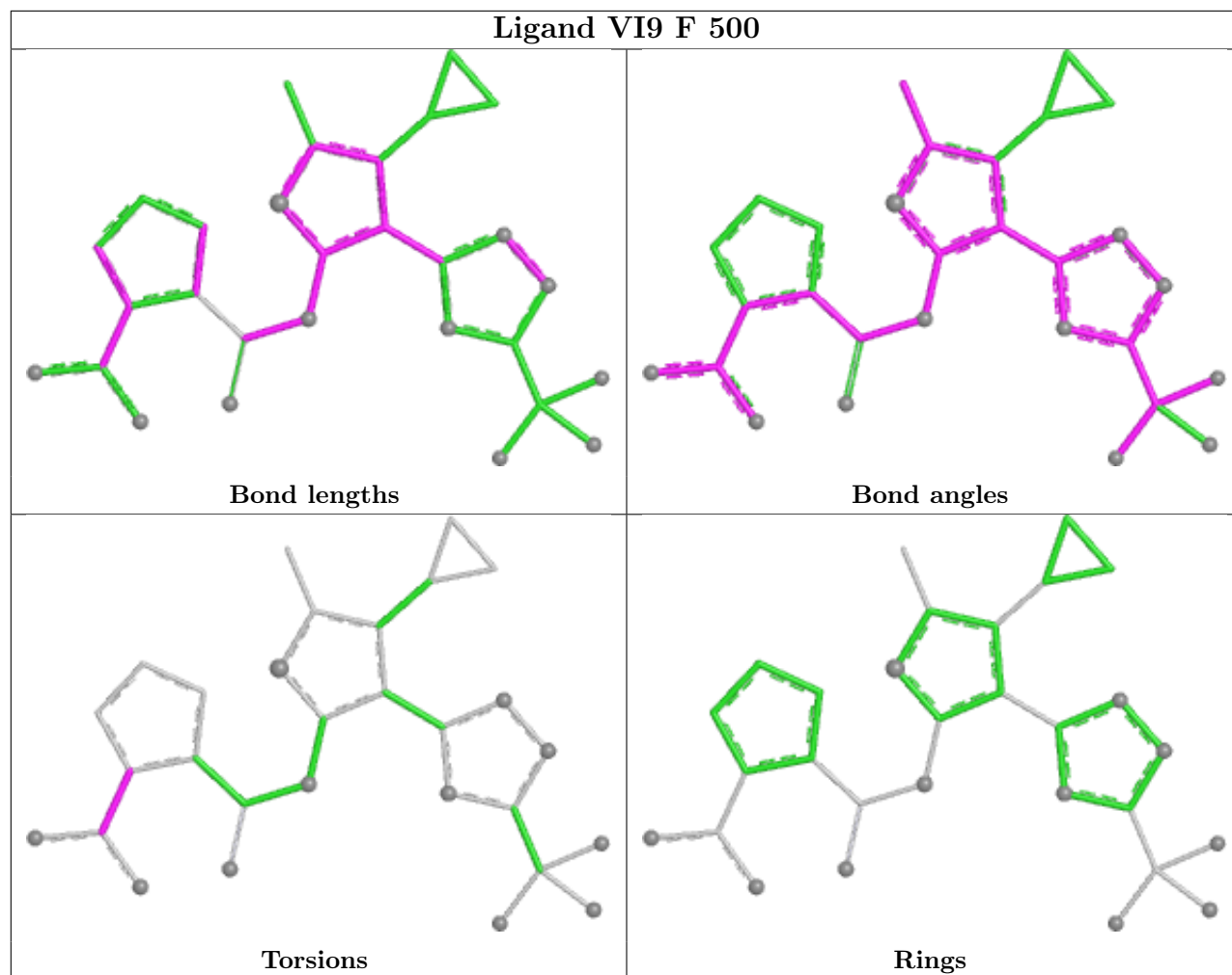


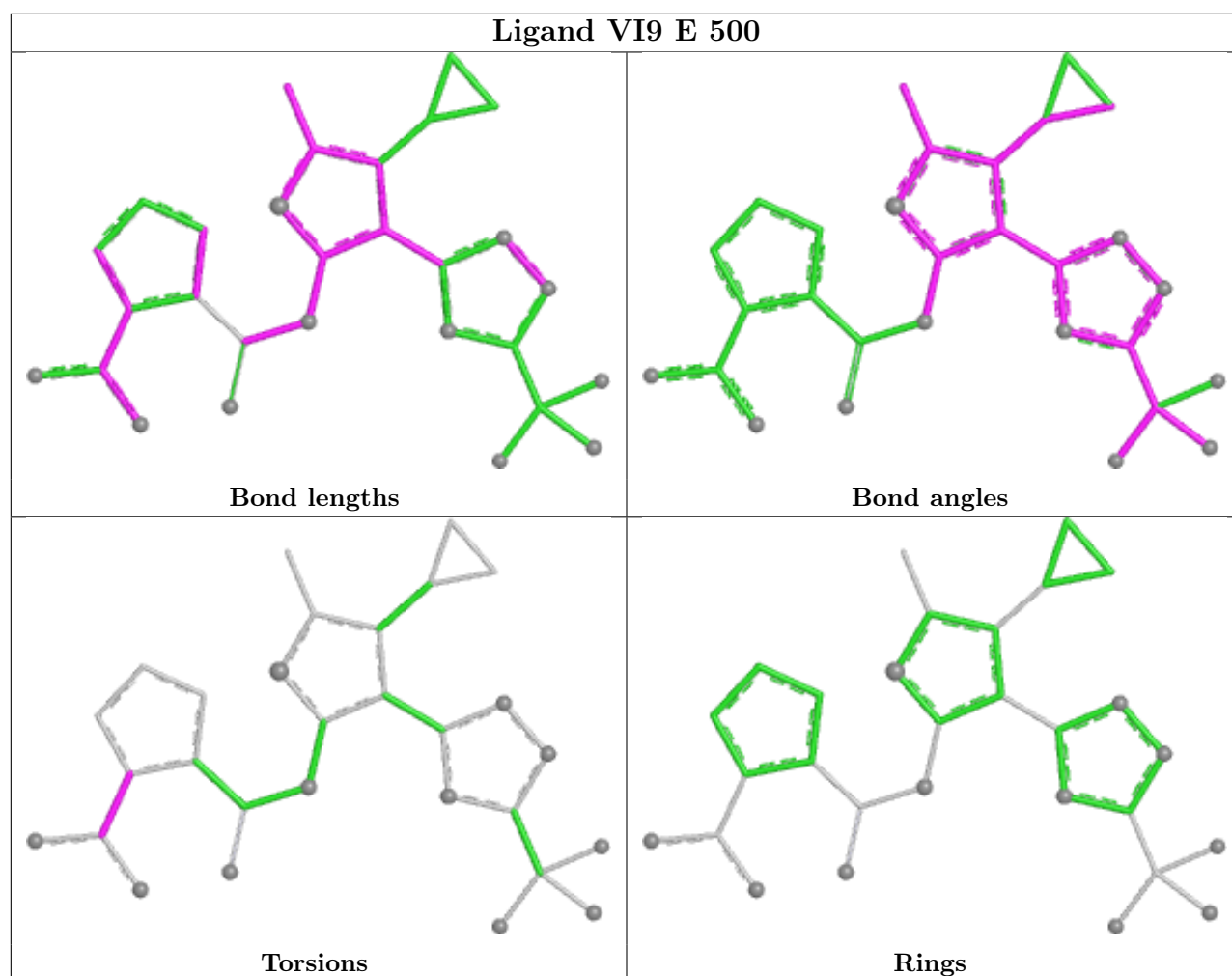
Ligand VI9 C 500

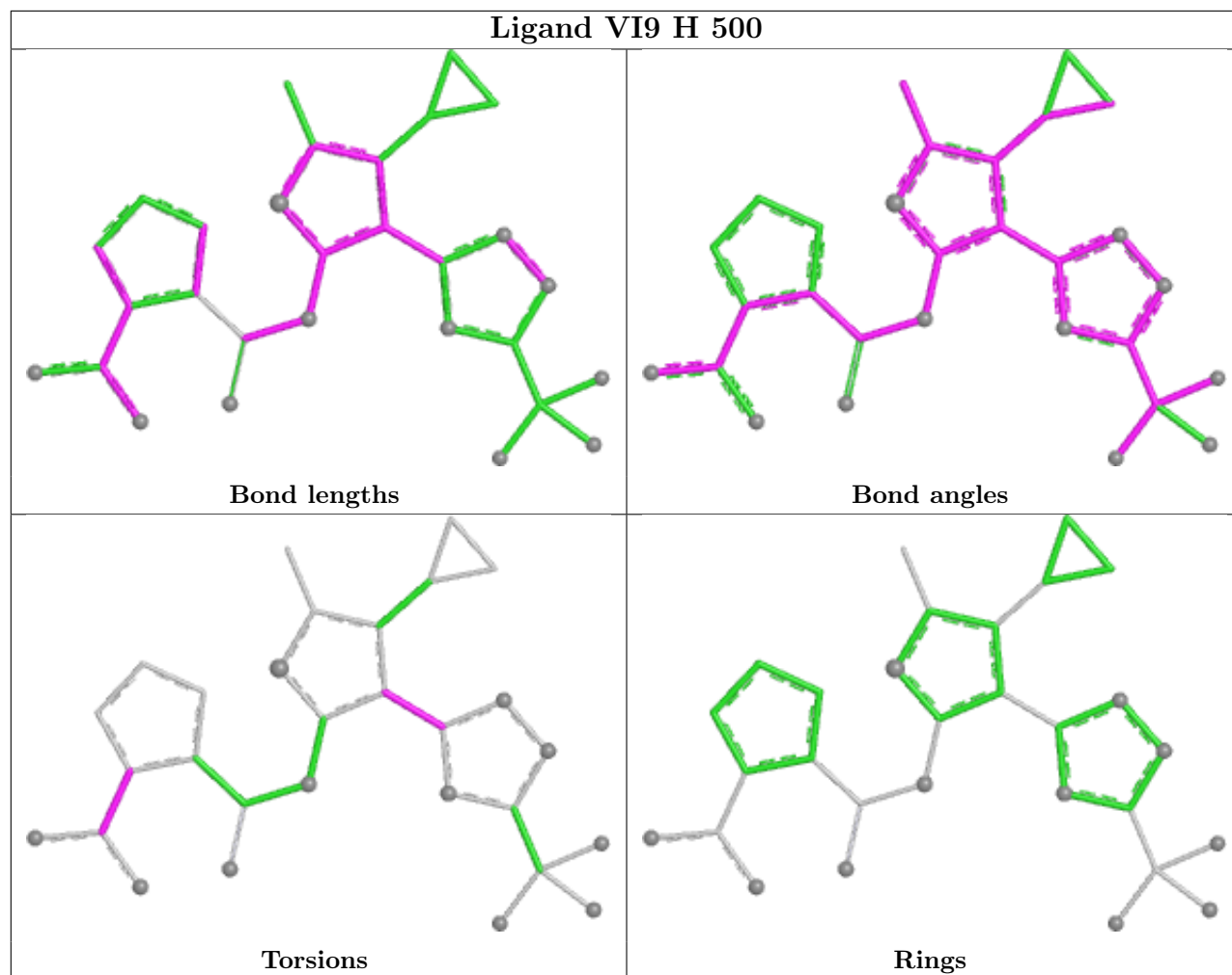




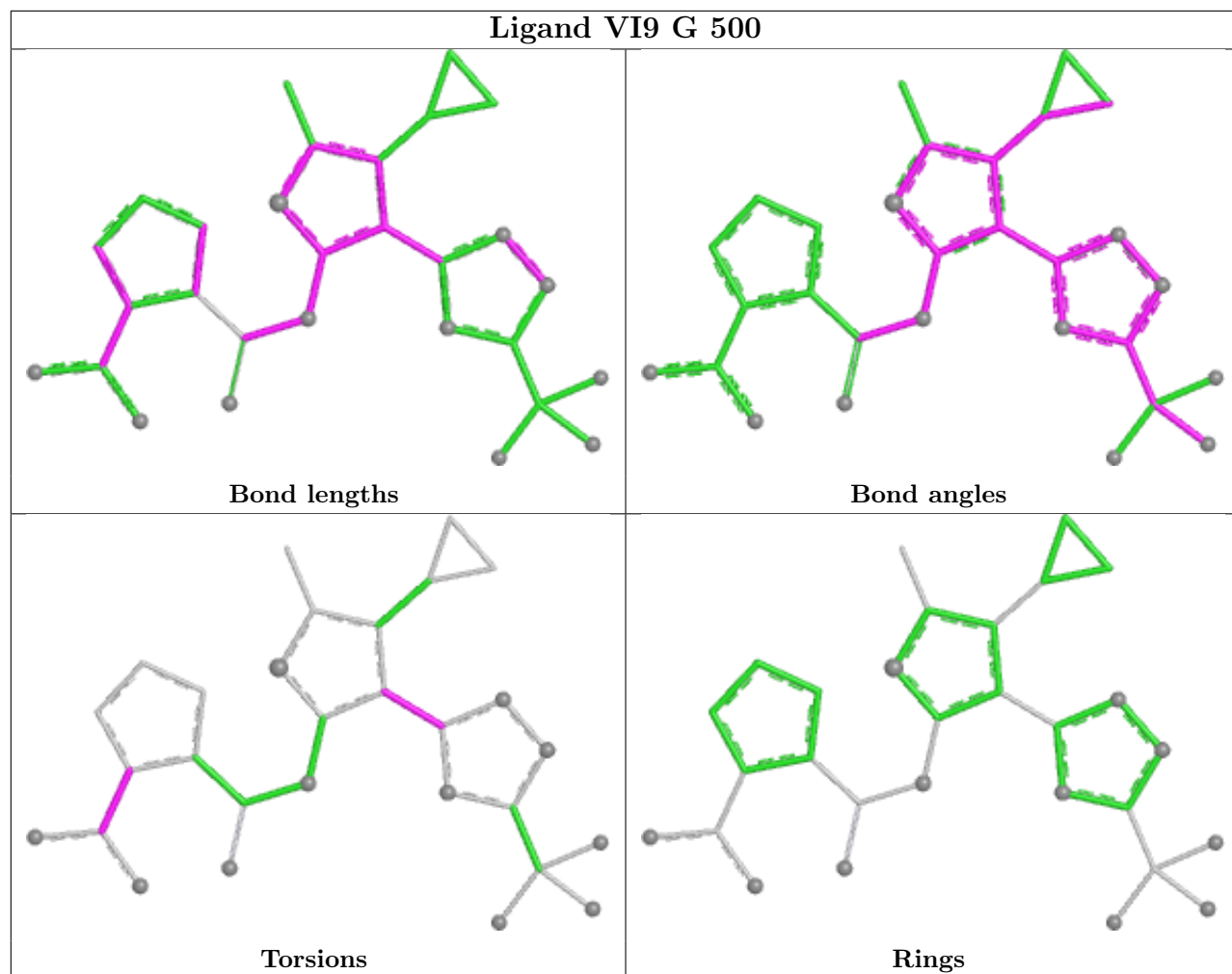
Ligand VI9 F 500

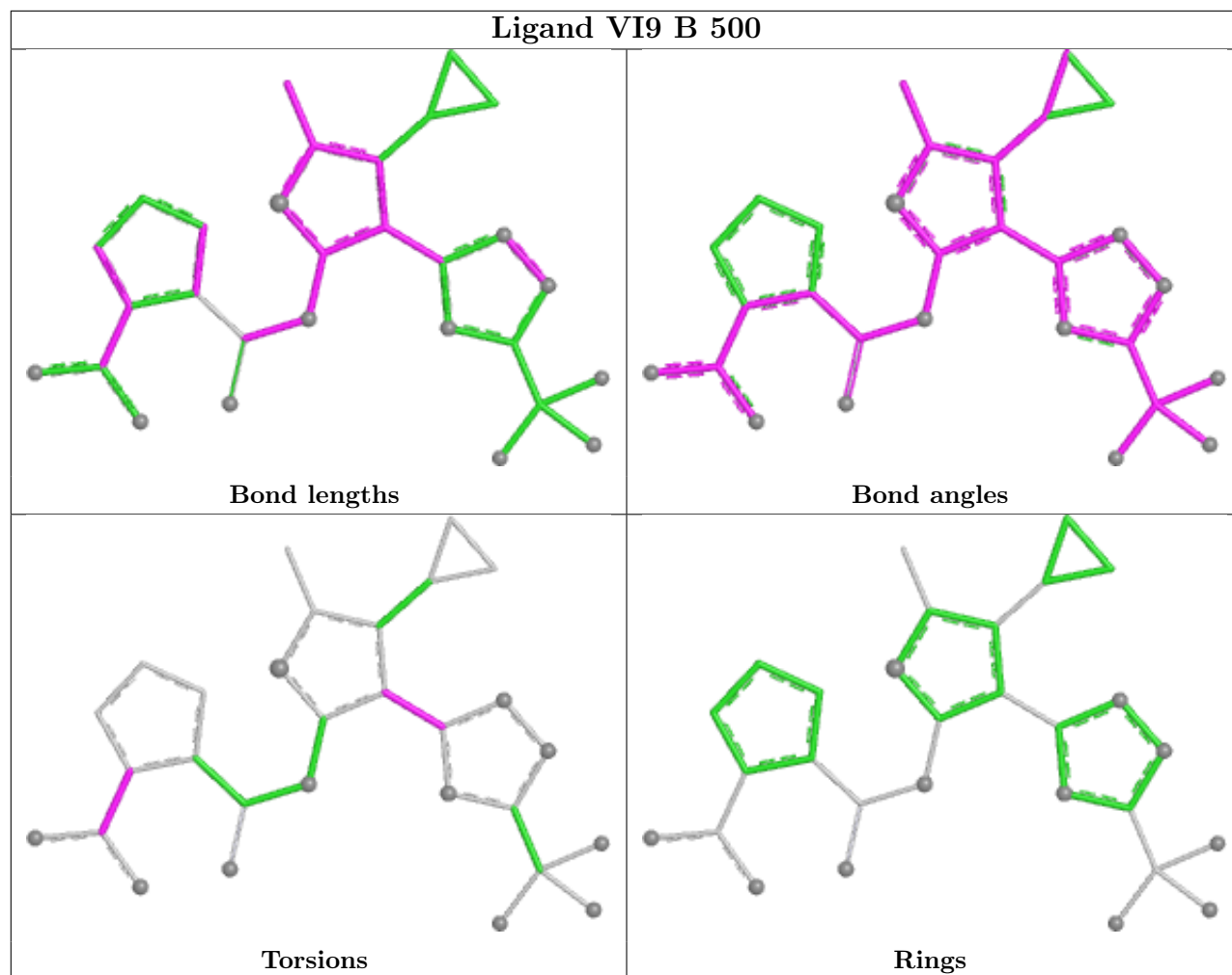






Ligand VI9 G 500





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 [i](#)

6.1 Protein, DNA and RNA chains [i](#)

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	129/130 (99%)	-0.34	1 (0%) 82 84	31, 42, 70, 91	0
1	B	126/130 (96%)	-0.09	1 (0%) 82 84	33, 54, 90, 106	0
1	C	126/130 (96%)	-0.35	0 100 100	33, 44, 67, 79	0
1	D	130/130 (100%)	0.00	0 100 100	37, 60, 94, 111	0
1	E	127/130 (97%)	-0.06	2 (1%) 70 72	36, 54, 90, 102	0
1	F	126/130 (96%)	-0.21	0 100 100	37, 50, 75, 87	0
1	G	127/130 (97%)	-0.15	1 (0%) 82 84	39, 53, 80, 92	0
1	H	126/130 (96%)	0.33	0 100 100	42, 73, 98, 113	0
All	All	1017/1040 (97%)	-0.11	5 (0%) 87 88	31, 53, 90, 113	0

All (5) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	B	127	ILE	3.1
1	E	127	ILE	2.9
1	A	71	LEU	2.6
1	E	66	GLY	2.5
1	G	127	ILE	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 ⓘ

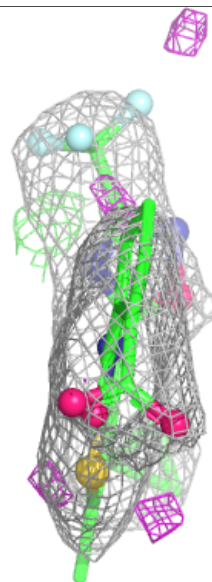
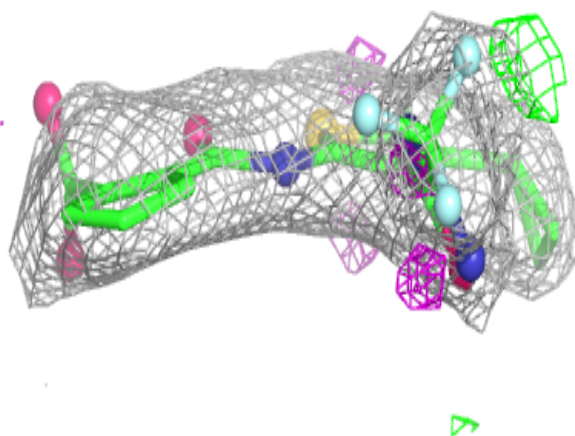
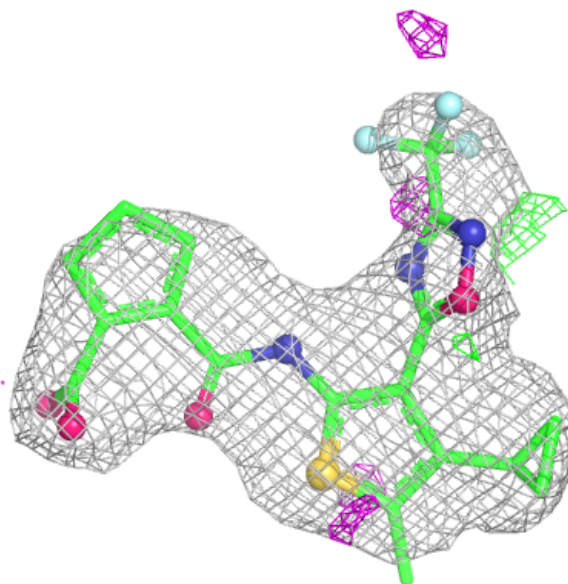
In the following table, the Atoms column lists the number of modelled atoms in the group and the number defined in the chemical component dictionary. The B-factors column lists the minimum, median, 95th percentile and maximum values of B factors of atoms in the group. The column labelled 'Q< 0.9' lists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

Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors(Å ²)	Q<0.9
2	VI9	H	500	29/29	0.87	0.14	65,71,103,104	0
2	VI9	D	500	29/29	0.88	0.13	52,68,107,109	0
3	SCN	H	501	3/3	0.88	0.15	84,84,84,85	0
2	VI9	E	500	29/29	0.89	0.12	51,60,87,91	0
3	SCN	D	501	3/3	0.90	0.12	84,84,86,87	0
2	VI9	B	500	29/29	0.91	0.12	45,59,93,96	0
2	VI9	C	500	29/29	0.92	0.10	48,59,98,101	0
2	VI9	F	500	29/29	0.92	0.11	40,55,96,100	0
2	VI9	G	500	29/29	0.92	0.11	52,64,95,97	0
2	VI9	A	500	29/29	0.93	0.11	41,55,100,100	0
3	SCN	F	501	3/3	0.96	0.12	57,57,59,62	0
3	SCN	G	501	3/3	0.96	0.08	43,43,45,49	0
3	SCN	E	501	3/3	0.96	0.10	52,52,55,56	0
3	SCN	B	501	3/3	0.97	0.10	49,49,53,55	0
3	SCN	A	501	3/3	0.98	0.08	36,36,38,40	0
3	SCN	C	501	3/3	0.99	0.06	35,35,37,40	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.

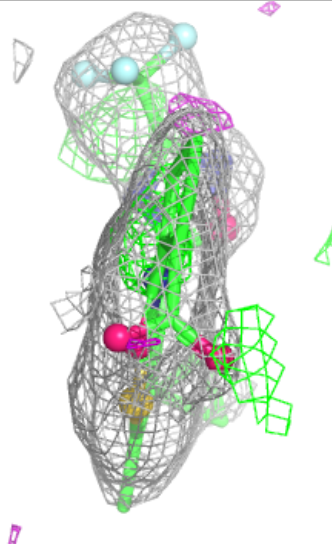
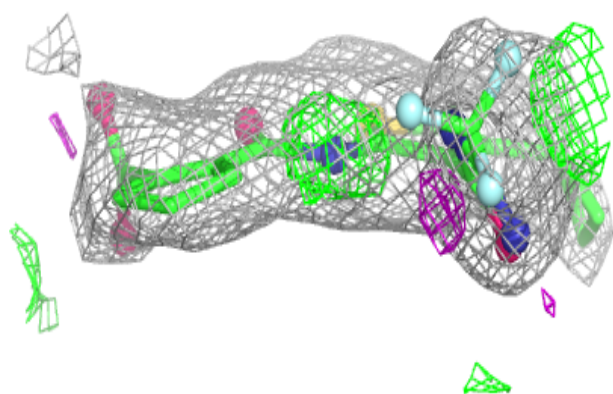
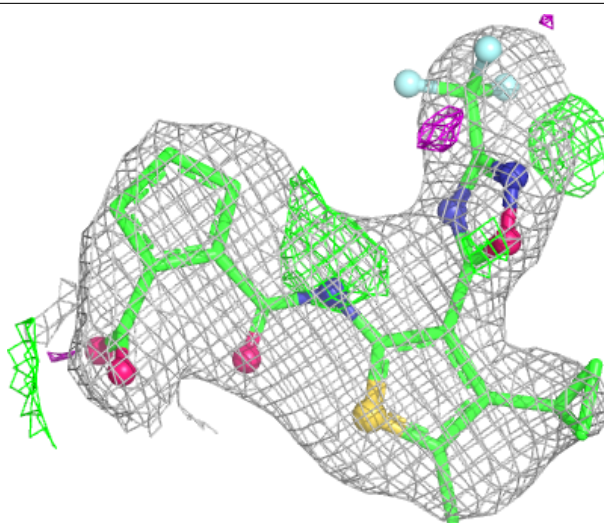
Electron density around VI9 H 500:

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



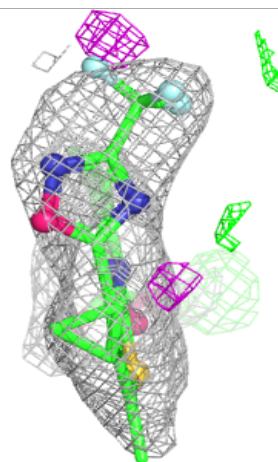
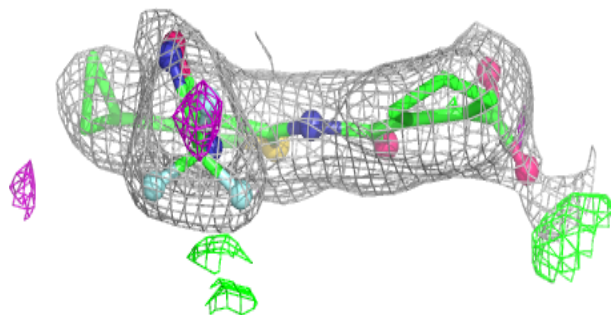
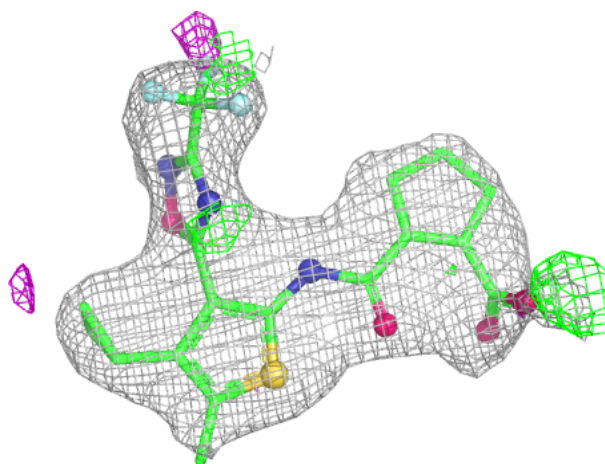
Electron density around VI9 D 500:

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



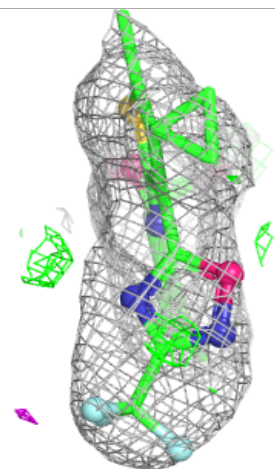
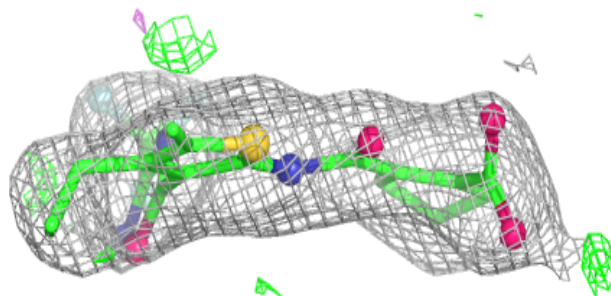
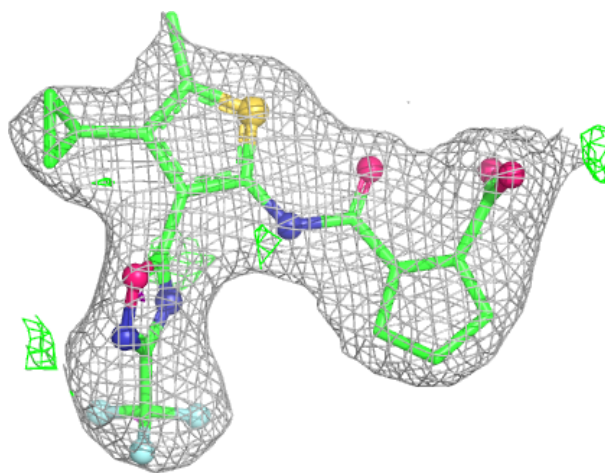
Electron density around VI9 E 500:

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



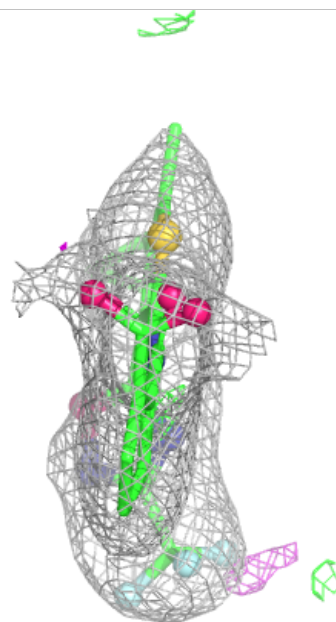
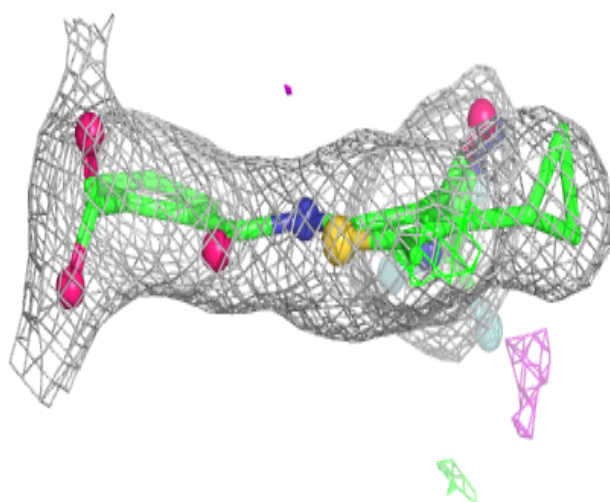
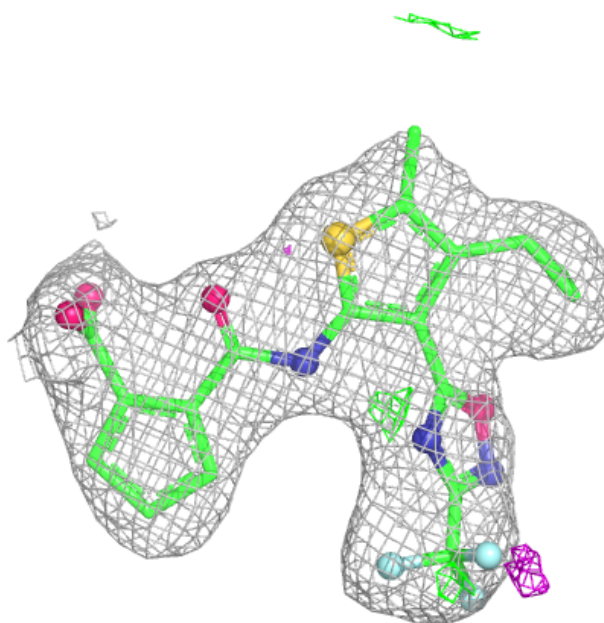
Electron density around VI9 B 500:

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



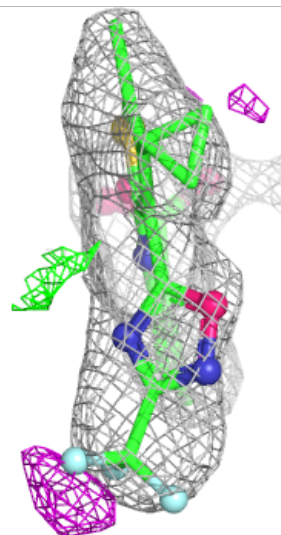
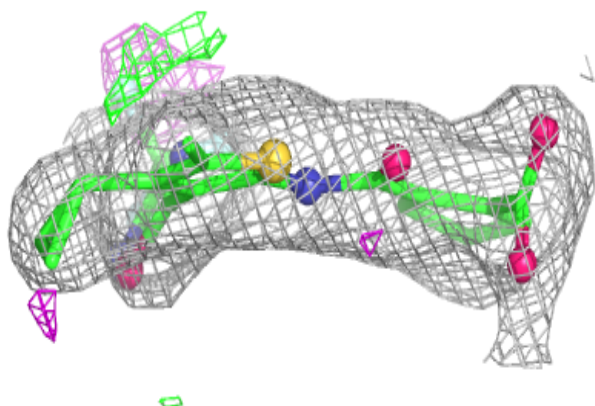
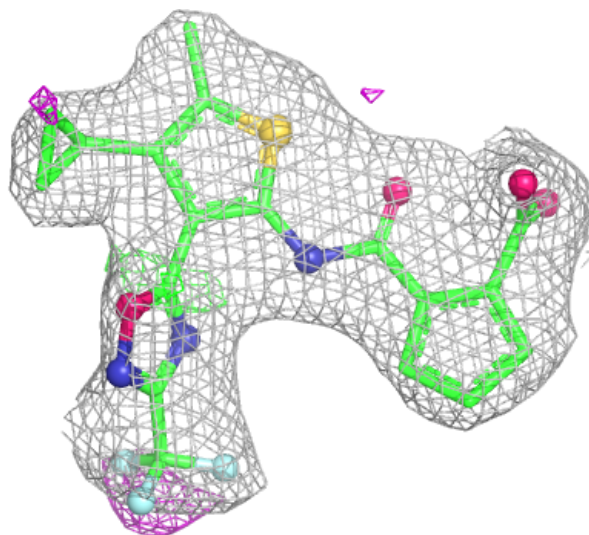
Electron density around VI9 C 500:

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



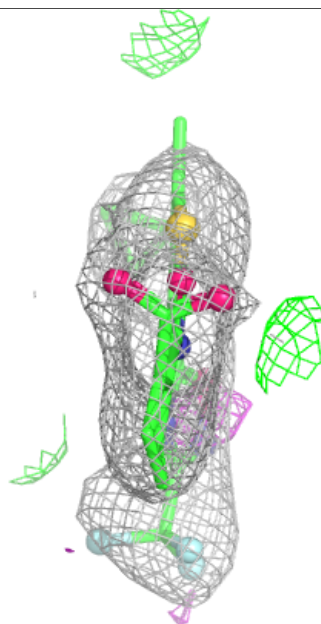
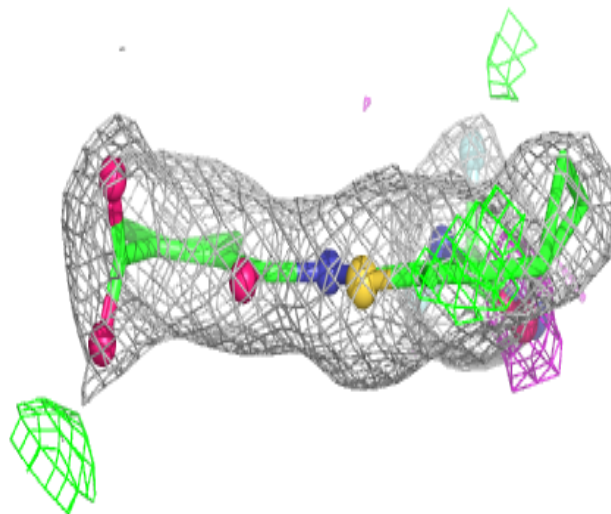
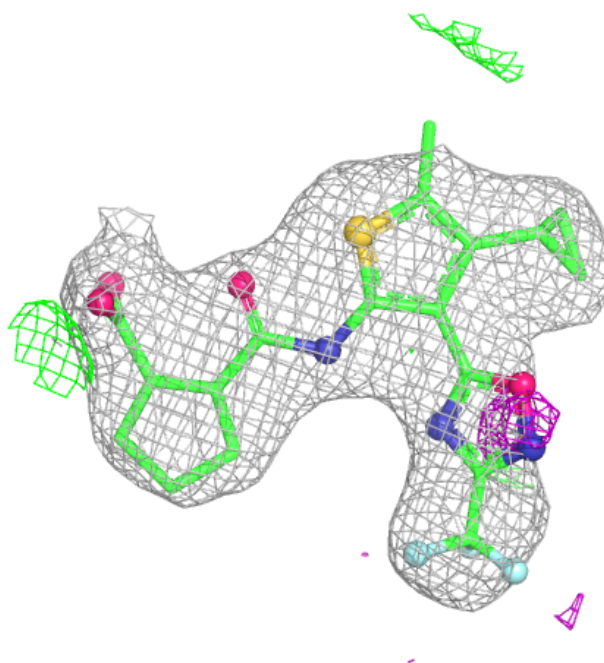
Electron density around VI9 F 500:

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



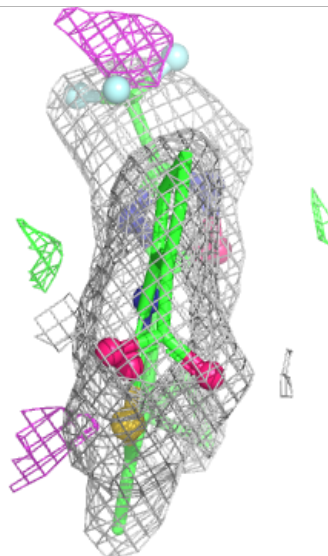
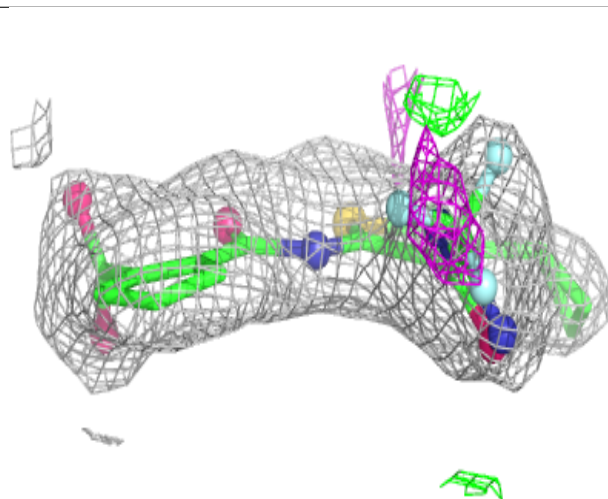
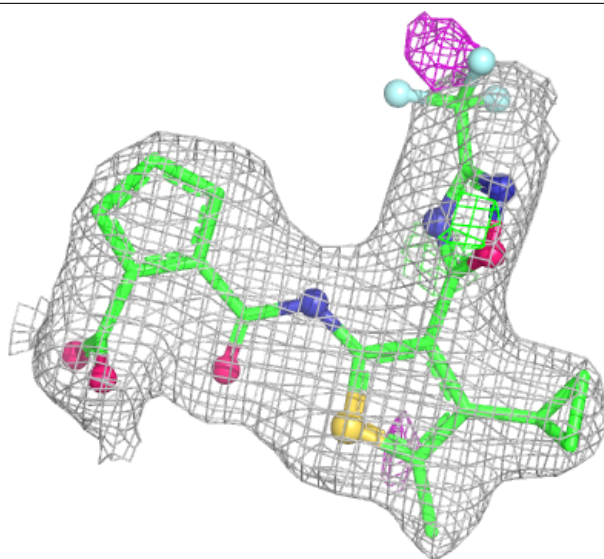
Electron density around VI9 G 500:

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



Electron density around VI9 A 500:

$2mF_o-DF_c$ (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.