



Full wwPDB X-ray Structure Validation Report ⓘ

Mar 10, 2026 – 09:47 PM UTC

PDB ID : 6PLG / pdb_00006plg
Title : Crystal structure of human PHGDH complexed with Compound 15
Authors : Olland, A.; Lakshminarasimhan, D.; White, A.; Suto, R.K.
Deposited on : 2019-06-30
Resolution : 2.93 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

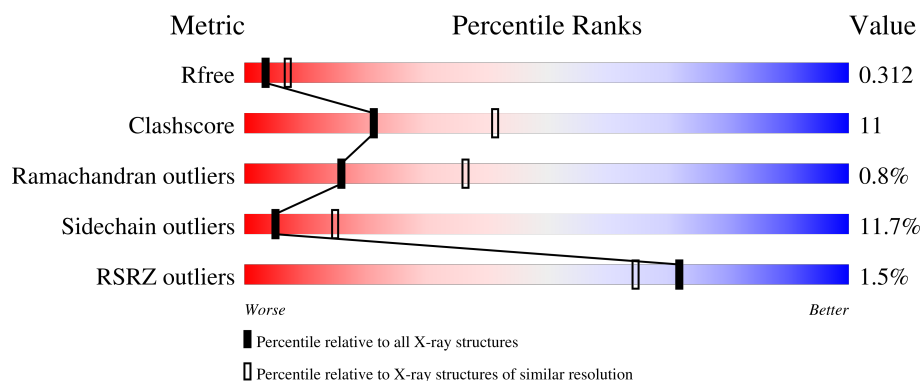
1 Overall quality at a glance ⓘ

The following experimental techniques were used to determine the structure:

X-RAY DIFFRACTION

The reported resolution of this entry is 2.93 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	1159 (2.96-2.92)
Clashscore	190562	1184 (2.96-2.92)
Ramachandran outliers	187476	1131 (2.96-2.92)
Sidechain outliers	187428	1131 (2.96-2.92)
RSRZ outliers	180081	1159 (2.96-2.92)

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	314	2% 72% 20% . .
1	B	314	2% 65% 24% 7% . .
1	C	314	% 74% 19% . .
1	D	314	% 76% 18% . .
1	E	314	2% 75% 17% . .

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Mol	Chain	Length	Quality of chain
1	F	314	73%20%5%
1	G	314	2% 67%26%••
1	H	314	2% 72%22%••

2 Entry composition [i](#)

There are 3 unique types of molecules in this entry. The entry contains 18254 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 D-3-phosphoglycerate dehydrogenase.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
1	A	303	Total	C	N	O	S	0	0	0
			2245	1396	399	431	19			
1	B	303	Total	C	N	O	S	0	0	0
			2253	1400	399	435	19			
1	C	303	Total	C	N	O	S	0	0	0
			2253	1399	399	436	19			
1	D	303	Total	C	N	O	S	0	0	0
			2249	1398	398	434	19			
1	E	302	Total	C	N	O	S	0	0	0
			2237	1390	393	435	19			
1	F	299	Total	C	N	O	S	0	0	0
			2208	1370	389	430	19			
1	G	302	Total	C	N	O	S	0	0	0
			2236	1389	395	433	19			
1	H	303	Total	C	N	O	S	0	0	0
			2257	1402	400	436	19			

There are 16 discrepancies between the modelled and reference sequences:

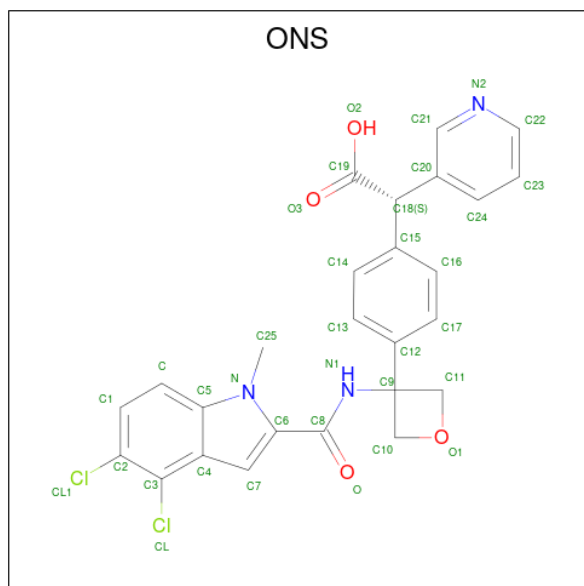
Chain	Residue	Modelled	Actual	Comment	Reference
A	2	SER	-	expression tag	UNP O43175
A	3	MET	-	expression tag	UNP O43175
B	2	SER	-	expression tag	UNP O43175
B	3	MET	-	expression tag	UNP O43175
C	2	SER	-	expression tag	UNP O43175
C	3	MET	-	expression tag	UNP O43175
D	2	SER	-	expression tag	UNP O43175
D	3	MET	-	expression tag	UNP O43175
E	2	SER	-	expression tag	UNP O43175
E	3	MET	-	expression tag	UNP O43175
F	2	SER	-	expression tag	UNP O43175
F	3	MET	-	expression tag	UNP O43175
G	2	SER	-	expression tag	UNP O43175

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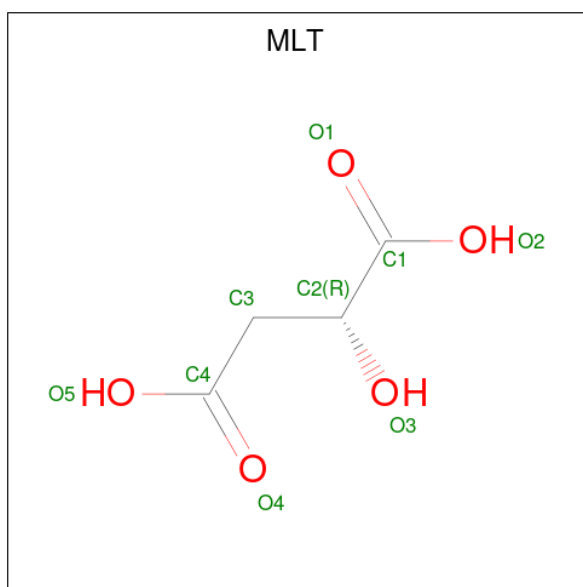
Chain	Residue	Modelled	Actual	Comment	Reference
G	3	MET	-	expression tag	UNP O43175
H	2	SER	-	expression tag	UNP O43175
H	3	MET	-	expression tag	UNP O43175

- Molecule 2 is (2S)-(4-{3-[(4,5-dichloro-1-methyl-1H-indole-2-carbonyl)amino]phenyl}(pyridin-3-yl)acetic acid (CCD ID: ONS) (formula: C₂₆H₂₁Cl₂N₃O₄) (labeled as "Ligand of Interest" by depositor).



Mol	Chain	Residues	Atoms					ZeroOcc	AltConf
2	A	1	Total 35	C 26	Cl 2	N 3	O 4	0	0
2	B	1	Total 35	C 26	Cl 2	N 3	O 4	0	0
2	C	1	Total 35	C 26	Cl 2	N 3	O 4	0	0
2	D	1	Total 35	C 26	Cl 2	N 3	O 4	0	0
2	E	1	Total 35	C 26	Cl 2	N 3	O 4	0	0
2	F	1	Total 35	C 26	Cl 2	N 3	O 4	0	0
2	G	1	Total 35	C 26	Cl 2	N 3	O 4	0	0
2	H	1	Total 35	C 26	Cl 2	N 3	O 4	0	0

- Molecule 3 is D-MALATE (CCD ID: MLT) (formula: C₄H₆O₅).

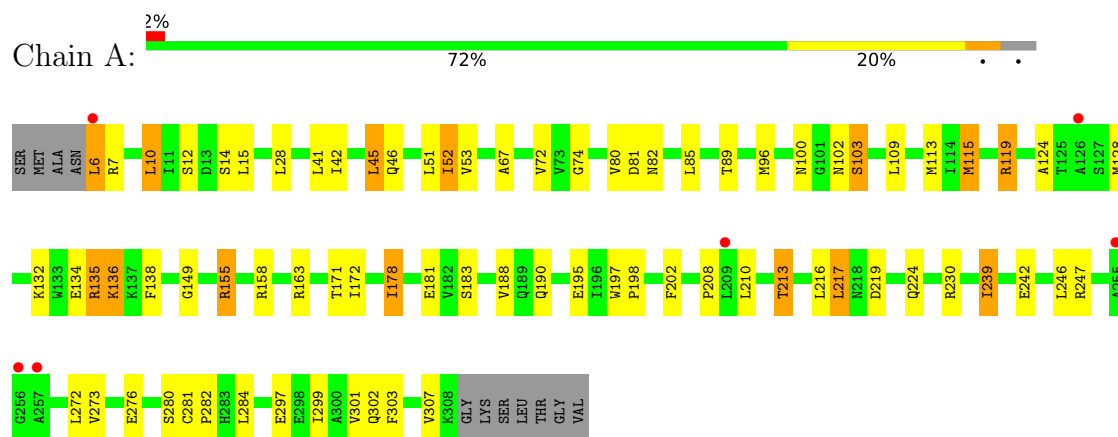


Mol	Chain	Residues	Atoms			ZeroOcc	AltConf
3	E	1	Total	C	O	0	0
			9	4	5		
3	F	1	Total	C	O	0	0
			9	4	5		
3	G	1	Total	C	O	0	0
			9	4	5		
3	H	1	Total	C	O	0	0
			9	4	5		

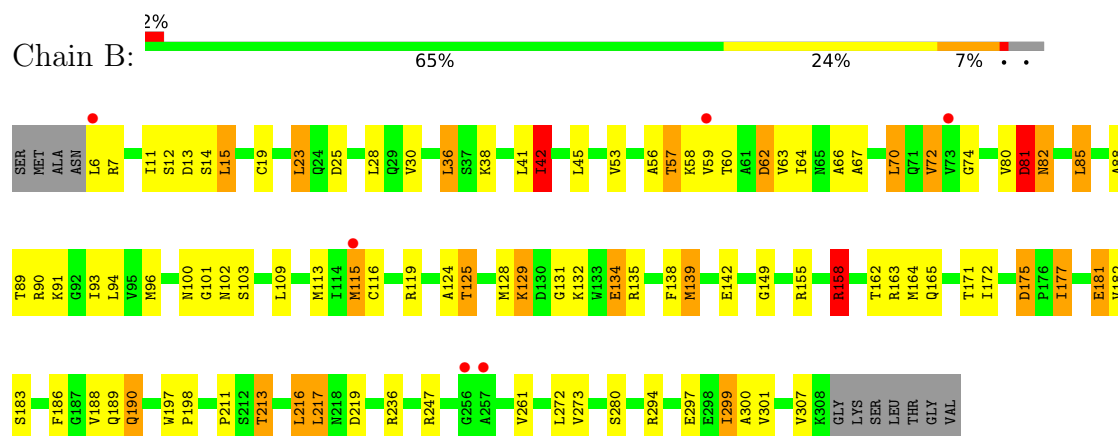
3 Residue-property plots [i](#)

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.

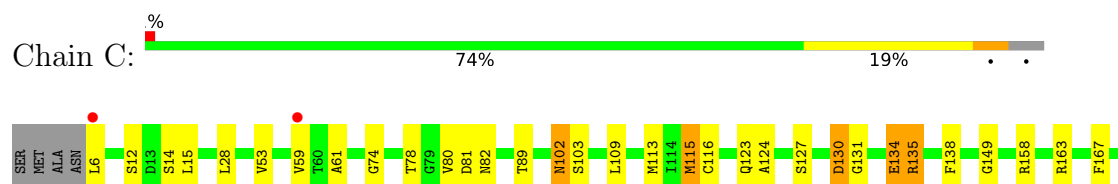
- Molecule 1: D-3-phosphoglycerate dehydrogenase

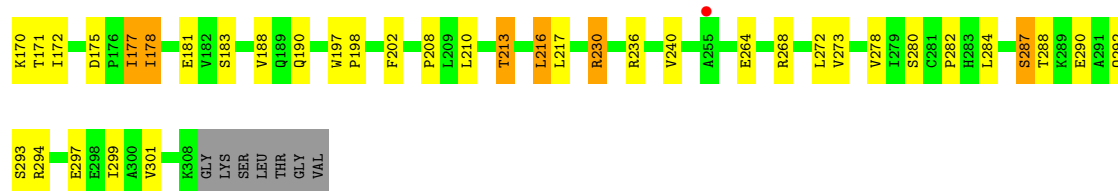


- Molecule 1: D-3-phosphoglycerate dehydrogenase

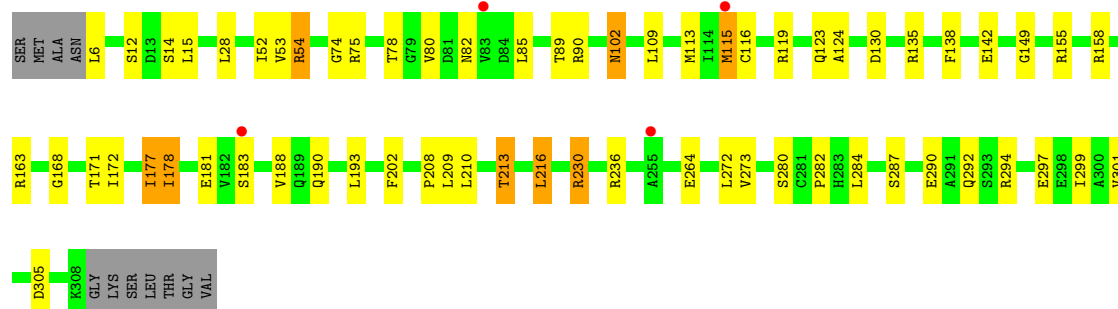
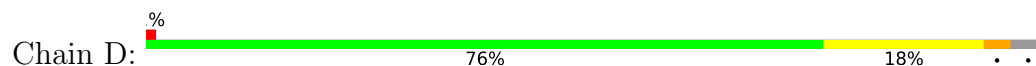


- Molecule 1: D-3-phosphoglycerate dehydrogenase

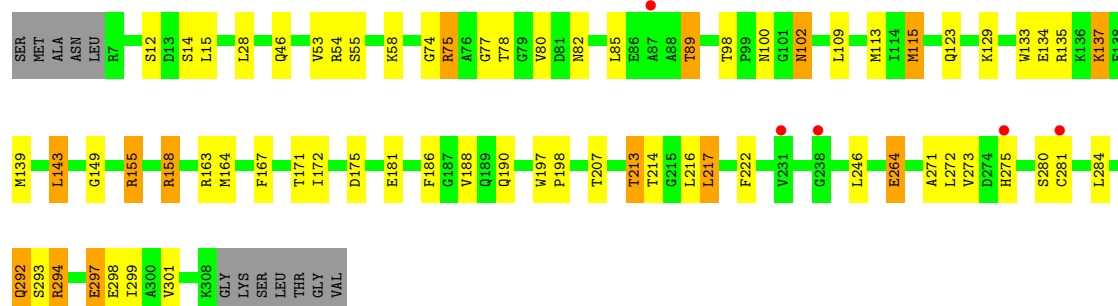
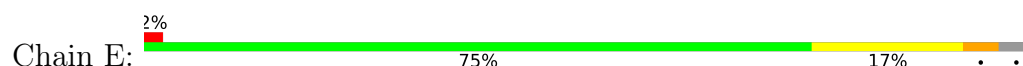




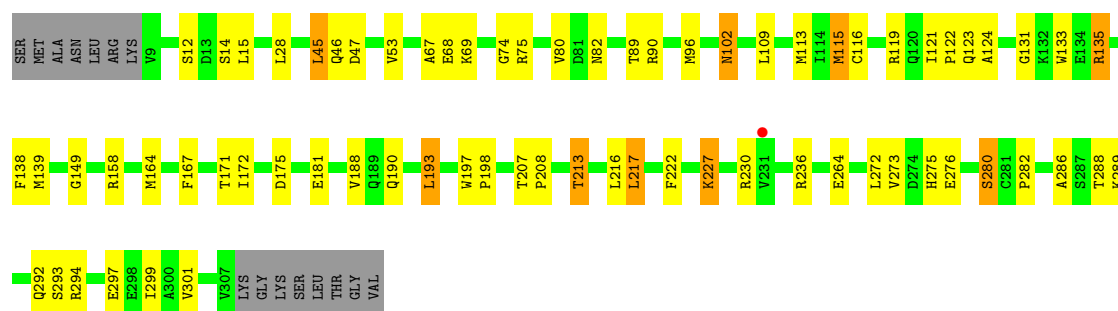
- Molecule 1: D-3-phosphoglycerate dehydrogenase



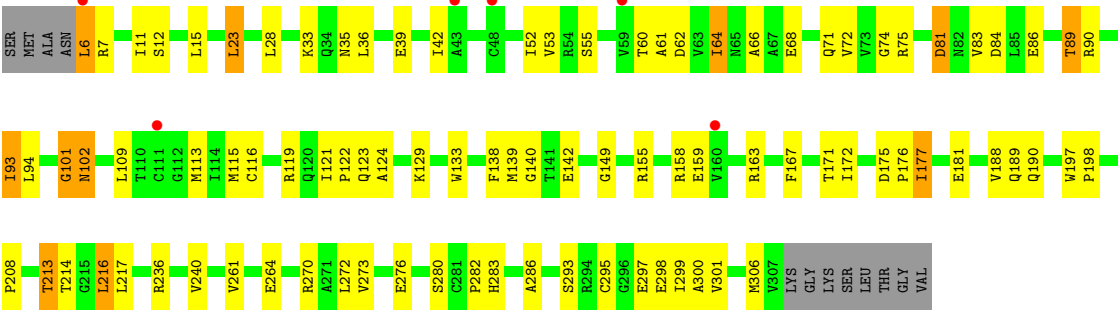
- Molecule 1: D-3-phosphoglycerate dehydrogenase



- Molecule 1: D-3-phosphoglycerate dehydrogenase



- Molecule 1: D-3-phosphoglycerate dehydrogenase



● Molecule 1: D-3-phosphoglycerate dehydrogenase



4 Data and refinement statistics

Property	Value	Source
Space group	P 1	Depositor
Cell constants a, b, c, α , β , γ	44.65Å 112.70Å 137.84Å 105.98° 96.20° 101.42°	Depositor
Resolution (Å)	45.42 – 2.93 45.42 – 2.93	Depositor EDS
% Data completeness (in resolution range)	92.6 (45.42-2.93) 92.6 (45.42-2.93)	Depositor EDS
R_{merge}	0.10	Depositor
R_{sym}	(Not available)	Depositor
$\langle I/\sigma(I) \rangle$ ¹	1.38 (at 2.96Å)	Xtriage
Refinement program	REFMAC 5.8.0253	Depositor
R, R_{free}	0.274 , 0.315 0.274 , 0.312	Depositor DCC
R_{free} test set	2342 reflections (4.39%)	wwPDB-VP
Wilson B-factor (Å ²)	69.2	Xtriage
Anisotropy	0.652	Xtriage
Bulk solvent k_{sol} (e/Å ³), B_{sol} (Å ²)	0.31 , 72.3	EDS
L-test for twinning ²	$\langle L \rangle = 0.50$, $\langle L^2 \rangle = 0.33$	Xtriage
Estimated twinning fraction	No twinning to report.	Xtriage
F_o, F_c correlation	0.91	EDS
Total number of atoms	18254	wwPDB-VP
Average B, all atoms (Å ²)	108.0	wwPDB-VP

Xtriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 5.52% 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: ONS, MLT

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	1.08	0/2271	1.53	2/3072 (0.1%)
1	B	1.13	0/2279	1.57	5/3082 (0.2%)
1	C	1.08	2/2279 (0.1%)	1.51	5/3083 (0.2%)
1	D	1.09	1/2275 (0.0%)	1.50	1/3077 (0.0%)
1	E	1.09	0/2263	1.56	4/3062 (0.1%)
1	F	1.05	0/2234	1.53	0/3027
1	G	1.10	0/2262	1.55	0/3062
1	H	1.07	1/2283 (0.0%)	1.53	2/3087 (0.1%)
All	All	1.09	4/18146 (0.0%)	1.53	19/24552 (0.1%)

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	B	0	1
1	G	0	1
All	All	0	2

All (4) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
1	H	210	LEU	N-CA	6.29	1.50	1.46
1	D	210	LEU	N-CA	6.13	1.50	1.46
1	C	210	LEU	N-CA	5.85	1.50	1.46
1	C	287	SER	C-O	5.02	1.30	1.23

All (19) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	A	119	ARG	CG-CD-NE	-9.66	90.74	112.00
1	C	130	ASP	CA-CB-CG	9.23	121.83	112.60
1	B	158	ARG	CB-CA-C	-8.70	96.06	110.85
1	C	130	ASP	CB-CA-C	6.89	122.95	109.72
1	B	42	ILE	CA-CB-CG1	6.86	122.06	110.40
1	E	264	GLU	CB-CG-CD	6.77	124.11	112.60
1	A	213	THR	CA-CB-OG1	-6.75	99.48	109.60
1	H	75	ARG	CG-CD-NE	6.61	126.55	112.00
1	D	130	ASP	CA-CB-CG	6.08	118.68	112.60
1	B	158	ARG	CG-CD-NE	5.68	124.50	112.00
1	B	125	THR	CA-C-O	-5.61	115.11	121.00
1	H	79	GLY	CA-C-O	-5.42	117.90	122.29
1	B	134	GLU	CA-C-O	-5.18	115.15	120.54
1	E	135	ARG	CA-C-N	5.18	127.48	120.38
1	E	135	ARG	C-N-CA	5.18	127.48	120.38
1	E	137	LYS	CB-CA-C	-5.18	101.47	109.80
1	C	61	ALA	CA-C-N	5.11	127.08	120.44
1	C	61	ALA	C-N-CA	5.11	127.08	120.44
1	C	59	VAL	CA-C-O	-5.10	118.19	122.63

There are no chirality outliers.

All (2) planarity outliers are listed below:

Mol	Chain	Res	Type	Group
1	B	131	GLY	Peptide
1	G	6	LEU	Peptide

5.2 Too-close contacts [i](#)

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

Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
1	A	2245	0	2283	68	0
1	B	2253	0	2291	90	0
1	C	2253	0	2286	37	1
1	D	2249	0	2285	35	0
1	E	2237	0	2264	54	0
1	F	2208	0	2221	52	0
1	G	2236	0	2261	64	1

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
1	H	2257	0	2297	47	0
2	A	35	0	0	0	0
2	B	35	0	0	1	0
2	C	35	0	0	2	0
2	D	35	0	0	1	0
2	E	35	0	0	2	0
2	F	35	0	0	3	0
2	G	35	0	0	0	0
2	H	35	0	0	0	0
3	E	9	0	4	0	0
3	F	9	0	4	1	0
3	G	9	0	4	2	0
3	H	9	0	4	0	0
All	All	18254	0	18204	396	1

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 11.

All (396) 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:B:125:THR:O	1:B:129:LYS:HB2	1.52	1.09
1:A:115:MET:HE1	1:E:115:MET:SD	1.94	1.07
1:F:193:LEU:HD11	1:F:197:TRP:CZ2	1.90	1.07
1:A:115:MET:CE	1:E:115:MET:SD	2.44	1.05
1:H:52:ILE:HD11	1:H:303:PHE:CE2	1.93	1.03
1:H:52:ILE:HD11	1:H:303:PHE:CZ	1.97	0.98
1:F:193:LEU:CD1	1:F:197:TRP:CZ2	2.51	0.94
1:A:197:TRP:CZ3	1:A:217:LEU:HD11	2.03	0.93
1:B:197:TRP:CZ3	1:B:217:LEU:HD11	2.03	0.92
1:C:127:SER:OG	1:C:134:GLU:OE1	1.88	0.92
1:G:23:LEU:CD1	1:G:300:ALA:HB1	2.03	0.88
1:B:67:ALA:HB1	1:B:70:LEU:HD23	1.56	0.87
1:B:100:ASN:OD1	1:B:155:ARG:NH1	2.09	0.84
1:F:193:LEU:HD12	1:F:197:TRP:CE2	2.13	0.84
1:F:193:LEU:CD1	1:F:197:TRP:CE2	2.61	0.83
1:E:271:ALA:O	1:E:275:HIS:ND1	2.11	0.83
1:B:36:LEU:HD23	1:B:36:LEU:H	1.43	0.82
1:A:242:GLU:O	1:A:246:LEU:CD1	2.30	0.80
1:B:85:LEU:HD22	1:D:6:LEU:HD11	1.63	0.80
1:B:124:ALA:O	1:B:128:MET:CB	2.31	0.80

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:242:GLU:O	1:A:246:LEU:HD13	1.82	0.79
1:E:100:ASN:OD1	1:E:155:ARG:NH2	2.15	0.79
1:A:210:LEU:H	1:A:213:THR:CG2	1.97	0.78
1:E:292:GLN:HE21	1:E:292:GLN:HA	1.49	0.78
1:B:15:LEU:HD21	1:B:19:CYS:HB3	1.64	0.77
1:A:52:ILE:HD11	1:A:303:PHE:CE2	2.19	0.77
1:F:45:LEU:HD12	1:F:67:ALA:HB2	1.65	0.76
1:A:219:ASP:OD2	1:A:247:ARG:NH2	2.20	0.75
1:H:132:LYS:HD2	1:H:134:GLU:OE1	1.87	0.74
1:D:178:ILE:HD11	1:D:183:SER:HB3	1.69	0.74
1:G:33:LYS:CB	1:G:36:LEU:HD11	2.17	0.73
1:D:236:ARG:NH1	2:D:401:ONS:N2	2.36	0.73
1:A:178:ILE:HD11	1:A:183:SER:HB3	1.71	0.73
1:B:88:ALA:HA	1:B:93:ILE:HD12	1.71	0.72
1:B:85:LEU:CD2	1:D:6:LEU:HD11	2.20	0.72
1:G:23:LEU:CD1	1:G:300:ALA:CB	2.67	0.72
1:E:246:LEU:HD11	1:E:275:HIS:CE1	2.26	0.71
1:C:178:ILE:HD11	1:C:183:SER:HB3	1.72	0.71
1:A:103:SER:HB3	1:A:155:ARG:HD3	1.73	0.71
1:H:51:LEU:C	1:H:52:ILE:HD12	2.16	0.70
1:E:158:ARG:HB3	1:E:186:PHE:CE2	2.27	0.70
1:B:60:THR:O	1:B:63:VAL:HG22	1.91	0.70
1:B:72:VAL:CG2	1:B:94:LEU:HB2	2.21	0.69
1:B:23:LEU:CD2	1:B:300:ALA:HB1	2.23	0.69
1:B:139:MET:HE3	1:F:288:THR:C	2.18	0.69
1:C:178:ILE:CD1	1:C:183:SER:HB3	2.23	0.69
1:H:52:ILE:CD1	1:H:303:PHE:CZ	2.74	0.69
1:A:52:ILE:CD1	1:A:303:PHE:CZ	2.76	0.68
1:B:124:ALA:O	1:B:128:MET:HB3	1.93	0.68
1:G:93:ILE:HD13	1:G:93:ILE:H	1.57	0.68
1:A:124:ALA:CA	1:A:138:PHE:HE2	2.07	0.68
1:B:11:ILE:HG21	1:B:15:LEU:HD22	1.74	0.67
1:A:52:ILE:HD11	1:A:303:PHE:CZ	2.30	0.67
1:B:181:GLU:HB3	1:D:209:LEU:O	1.95	0.67
1:G:101:GLY:O	1:G:295:CYS:SG	2.44	0.66
1:A:124:ALA:HA	1:A:138:PHE:HE2	1.60	0.66
1:B:124:ALA:HA	1:B:138:PHE:HE2	1.62	0.65
1:G:33:LYS:CB	1:G:36:LEU:CD1	2.73	0.65
1:H:209:LEU:O	1:H:209:LEU:HD23	1.97	0.65
1:F:193:LEU:HD11	1:F:197:TRP:CH2	2.30	0.65
1:B:15:LEU:O	1:B:15:LEU:HD23	1.97	0.65

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:197:TRP:CZ3	1:A:217:LEU:CD1	2.80	0.64
1:G:55:SER:HB3	3:G:402:MLT:H32	1.78	0.64
1:B:124:ALA:O	1:B:128:MET:HB2	1.97	0.64
1:A:51:LEU:C	1:A:52:ILE:HD13	2.23	0.64
1:A:115:MET:HE2	1:E:115:MET:SD	2.35	0.64
1:E:158:ARG:HB2	1:E:186:PHE:CD2	2.33	0.63
1:F:193:LEU:HD11	1:F:197:TRP:CE2	2.29	0.62
1:G:61:ALA:O	1:G:64:ILE:HG23	1.98	0.62
1:B:15:LEU:HD23	1:B:15:LEU:C	2.24	0.62
1:B:64:ILE:HG23	1:B:93:ILE:HD11	1.81	0.62
1:B:72:VAL:HG22	1:B:94:LEU:HB2	1.80	0.62
1:D:142:GLU:OE2	1:H:294:ARG:NH1	2.31	0.62
1:B:128:MET:HG2	1:F:280:SER:HB2	1.82	0.62
1:G:60:THR:O	1:G:64:ILE:HG22	2.00	0.62
1:B:125:THR:O	1:B:129:LYS:CB	2.39	0.61
1:B:13:ASP:OD2	1:B:57:THR:OG1	2.18	0.61
1:B:158:ARG:HG3	1:B:158:ARG:HH11	1.63	0.61
1:D:178:ILE:CD1	1:D:183:SER:HB3	2.29	0.61
1:E:292:GLN:HA	1:E:292:GLN:NE2	2.16	0.61
1:F:45:LEU:CD1	1:F:67:ALA:CB	2.78	0.61
1:E:155:ARG:HH11	1:E:155:ARG:HB2	1.65	0.60
1:A:239:ILE:N	1:A:239:ILE:HD13	2.16	0.60
1:A:178:ILE:CD1	1:A:183:SER:HB3	2.32	0.60
1:A:178:ILE:C	1:A:178:ILE:HD12	2.27	0.60
1:B:15:LEU:HD11	1:B:19:CYS:SG	2.42	0.60
1:F:216:LEU:HD21	2:F:401:ONS:CL1	2.39	0.60
1:B:81:ASP:OD2	1:B:236:ARG:NH2	2.35	0.60
1:H:81:ASP:HB3	1:H:209:LEU:HD21	1.82	0.60
1:C:178:ILE:HD12	1:C:178:ILE:C	2.27	0.60
1:A:124:ALA:HA	1:A:138:PHE:CE2	2.37	0.59
1:B:139:MET:HE3	1:F:289:LYS:N	2.16	0.59
1:B:23:LEU:CD2	1:B:300:ALA:CB	2.80	0.59
1:B:197:TRP:CZ3	1:B:217:LEU:CD1	2.81	0.59
1:D:178:ILE:C	1:D:178:ILE:HD12	2.27	0.59
1:F:193:LEU:HD12	1:F:197:TRP:NE1	2.17	0.59
1:A:96:MET:HB3	1:A:302:GLN:OE1	2.02	0.59
1:E:85:LEU:HD22	1:G:89:THR:HG21	1.84	0.58
1:G:11:ILE:HG22	1:G:52:ILE:HB	1.86	0.58
1:G:72:VAL:HG12	1:G:94:LEU:HB2	1.85	0.58
1:A:197:TRP:HZ3	1:A:217:LEU:HD11	1.64	0.58
1:B:197:TRP:HZ3	1:B:217:LEU:HD11	1.67	0.57

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:38:LYS:HG2	1:B:42:ILE:HD11	1.86	0.57
1:B:162:THR:HA	1:B:165:GLN:OE1	2.05	0.57
1:D:124:ALA:HA	1:D:138:PHE:CE2	2.40	0.57
1:H:81:ASP:HB3	1:H:209:LEU:CD2	2.34	0.57
1:H:124:ALA:HA	1:H:138:PHE:CE2	2.40	0.57
1:F:45:LEU:CD1	1:F:67:ALA:HB1	2.35	0.57
1:C:124:ALA:HA	1:C:138:PHE:CE2	2.40	0.57
1:E:75:ARG:HH11	1:E:75:ARG:CG	2.17	0.57
1:A:100:ASN:HA	1:A:155:ARG:NH2	2.20	0.56
1:F:207:THR:HG21	2:F:401:ONS:CL	2.43	0.56
1:B:23:LEU:HD23	1:B:300:ALA:HB1	1.88	0.56
1:B:116:CYS:SG	1:F:116:CYS:SG	3.03	0.56
1:D:142:GLU:OE1	1:H:105:SER:OG	2.21	0.56
1:H:52:ILE:CD1	1:H:303:PHE:CE2	2.81	0.56
1:A:135:ARG:HG2	1:A:136:LYS:HE2	1.86	0.56
1:F:124:ALA:HA	1:F:138:PHE:CE2	2.40	0.56
1:G:23:LEU:HD11	1:G:300:ALA:CB	2.35	0.56
1:H:177:ILE:HD13	1:H:177:ILE:N	2.21	0.56
1:B:129:LYS:HA	1:F:273:VAL:CG1	2.36	0.56
1:D:168:GLY:O	1:G:7:ARG:NH1	2.39	0.56
1:E:158:ARG:CB	1:E:186:PHE:CD2	2.89	0.56
1:G:124:ALA:HA	1:G:138:PHE:CE2	2.41	0.56
1:G:177:ILE:N	1:G:177:ILE:HD13	2.21	0.55
1:F:75:ARG:NH1	3:F:402:MLT:O1	2.40	0.55
1:F:131:GLY:O	1:F:133:TRP:CZ3	2.59	0.55
1:A:210:LEU:HB2	1:A:213:THR:HG22	1.88	0.55
1:C:135:ARG:HH11	1:G:283:HIS:CD2	2.25	0.55
1:F:217:LEU:HD23	1:F:222:PHE:CE1	2.42	0.55
1:H:52:ILE:CD1	1:H:52:ILE:N	2.70	0.55
1:A:52:ILE:HD13	1:A:52:ILE:N	2.22	0.54
1:G:23:LEU:HD12	1:G:300:ALA:HB1	1.88	0.54
1:G:261:VAL:HG12	1:G:283:HIS:HD1	1.72	0.54
1:B:36:LEU:HD12	1:B:41:LEU:HA	1.90	0.54
1:E:217:LEU:HD23	1:E:222:PHE:CE1	2.43	0.54
1:B:72:VAL:HG23	1:B:94:LEU:HB2	1.90	0.54
1:E:89:THR:HG23	1:G:89:THR:HG23	1.89	0.53
1:F:227:LYS:HD2	1:F:227:LYS:C	2.34	0.53
1:B:129:LYS:HZ1	1:F:276:GLU:HA	1.74	0.53
1:A:72:VAL:CG2	1:A:96:MET:HE2	2.39	0.53
1:E:293:SER:O	1:E:297:GLU:HB3	2.08	0.53
1:B:45:LEU:HD22	1:B:70:LEU:HD21	1.91	0.53

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:D:294:ARG:NH1	1:H:142:GLU:OE1	2.42	0.52
1:H:52:ILE:HD12	1:H:52:ILE:N	2.23	0.52
1:C:78:THR:HG23	1:C:102:ASN:HD22	1.73	0.52
1:G:23:LEU:HD13	1:G:300:ALA:HB1	1.89	0.52
1:H:134:GLU:HB3	1:H:137:LYS:HG3	1.92	0.52
1:B:129:LYS:NZ	1:F:276:GLU:HA	2.24	0.52
1:F:45:LEU:HD13	1:F:67:ALA:HB1	1.92	0.51
1:G:109:LEU:O	1:G:113:MET:HG2	2.10	0.51
1:A:103:SER:HB3	1:A:155:ARG:CD	2.40	0.51
1:D:78:THR:HG23	1:D:102:ASN:HD22	1.75	0.51
1:H:149:GLY:HA2	1:H:172:ILE:O	2.11	0.51
1:A:246:LEU:CD1	1:A:272:LEU:HG	2.41	0.51
1:G:149:GLY:HA2	1:G:172:ILE:O	2.11	0.51
1:C:109:LEU:O	1:C:113:MET:HG2	2.11	0.51
1:G:217:LEU:HD12	1:G:240:VAL:HG22	1.93	0.51
1:B:183:SER:HB3	1:B:190:GLN:NE2	2.26	0.51
1:H:109:LEU:O	1:H:113:MET:HG2	2.11	0.51
1:F:47:ASP:HA	1:F:69:LYS:HE2	1.92	0.50
1:E:109:LEU:HD11	1:E:113:MET:HE2	1.93	0.50
1:F:109:LEU:O	1:F:113:MET:HG2	2.11	0.50
1:C:290:GLU:CB	1:G:142:GLU:HB2	2.42	0.50
1:F:149:GLY:HA2	1:F:172:ILE:O	2.10	0.50
1:D:116:CYS:SG	1:H:116:CYS:SG	3.09	0.50
1:E:149:GLY:HA2	1:E:172:ILE:O	2.11	0.50
1:B:109:LEU:O	1:B:113:MET:HG2	2.12	0.50
1:H:281:CYS:HB3	1:H:284:LEU:HD12	1.92	0.50
1:A:246:LEU:HD11	1:A:272:LEU:HG	1.94	0.50
1:A:109:LEU:O	1:A:113:MET:HG2	2.12	0.50
1:B:177:ILE:N	1:B:177:ILE:HD12	2.26	0.50
1:D:109:LEU:O	1:D:113:MET:HG2	2.12	0.50
1:A:282:PRO:HA	1:E:133:TRP:CZ3	2.47	0.50
1:C:175:ASP:OD2	2:C:401:ONS:N1	2.45	0.50
1:D:149:GLY:HA2	1:D:172:ILE:O	2.11	0.50
1:E:109:LEU:O	1:E:113:MET:HG2	2.12	0.50
1:A:45:LEU:CD2	1:A:67:ALA:HB1	2.42	0.49
1:A:242:GLU:O	1:A:246:LEU:HD12	2.11	0.49
1:C:149:GLY:HA2	1:C:172:ILE:O	2.11	0.49
1:E:158:ARG:CB	1:E:186:PHE:CE2	2.95	0.49
1:E:207:THR:HG21	2:E:401:ONS:CL	2.49	0.49
1:B:149:GLY:HA2	1:B:172:ILE:O	2.12	0.49
1:C:217:LEU:CD1	1:C:240:VAL:HG22	2.42	0.49

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:D:213:THR:O	1:D:216:LEU:HB2	2.13	0.49
1:F:213:THR:O	1:F:216:LEU:HB2	2.13	0.49
1:A:149:GLY:HA2	1:A:172:ILE:O	2.12	0.49
1:B:11:ILE:CD1	1:B:30:VAL:CG1	2.90	0.49
1:B:11:ILE:CD1	1:B:30:VAL:HG13	2.43	0.49
1:B:100:ASN:HA	1:B:155:ARG:NH1	2.27	0.49
1:B:60:THR:OG1	1:B:62:ASP:OD1	2.29	0.49
1:C:116:CYS:SG	1:G:116:CYS:SG	3.10	0.49
1:C:294:ARG:NH1	1:G:142:GLU:OE1	2.37	0.49
1:G:261:VAL:HG12	1:G:283:HIS:ND1	2.27	0.49
1:E:85:LEU:CD2	1:G:89:THR:HG21	2.42	0.49
1:H:213:THR:O	1:H:216:LEU:HB2	2.13	0.49
1:G:213:THR:O	1:G:216:LEU:HB2	2.13	0.49
1:C:213:THR:O	1:C:216:LEU:HB2	2.13	0.48
1:A:242:GLU:C	1:A:246:LEU:HD13	2.37	0.48
1:D:290:GLU:CB	1:H:142:GLU:HB2	2.44	0.48
1:A:128:MET:HE2	1:E:281:CYS:C	2.38	0.48
1:E:89:THR:HG22	1:G:93:ILE:O	2.14	0.48
1:C:217:LEU:HD12	1:C:240:VAL:HG22	1.94	0.48
1:E:85:LEU:HD22	1:G:89:THR:OG1	2.13	0.48
1:G:84:ASP:OD1	1:G:86:GLU:CG	2.62	0.47
1:H:261:VAL:HG12	1:H:283:HIS:ND1	2.28	0.47
1:C:135:ARG:NH1	1:G:283:HIS:CD2	2.82	0.47
1:G:55:SER:HB3	1:G:75:ARG:HH12	1.80	0.47
1:B:80:VAL:C	1:B:82:ASN:H	2.23	0.47
1:E:85:LEU:HD22	1:G:89:THR:CG2	2.44	0.47
1:G:155:ARG:NH2	1:G:159:GLU:OE2	2.48	0.47
1:E:115:MET:CE	1:E:164:MET:HE1	2.44	0.47
1:B:177:ILE:N	1:B:177:ILE:CD1	2.78	0.47
1:D:74:GLY:HA3	1:D:299:ILE:HD11	1.97	0.47
1:G:84:ASP:OD1	1:G:86:GLU:HG2	2.14	0.47
1:G:176:PRO:HG2	1:G:177:ILE:HD13	1.95	0.47
1:H:81:ASP:CB	1:H:209:LEU:HD21	2.42	0.47
1:B:213:THR:O	1:B:216:LEU:HB2	2.15	0.47
1:A:210:LEU:H	1:A:213:THR:HG22	1.77	0.47
1:A:213:THR:O	1:A:216:LEU:HB2	2.15	0.47
1:E:213:THR:O	1:E:216:LEU:HB2	2.16	0.46
1:F:45:LEU:HD12	1:F:67:ALA:CB	2.33	0.46
1:B:38:LYS:O	1:B:42:ILE:CD1	2.64	0.46
1:B:128:MET:HA	1:B:132:LYS:O	2.16	0.46
1:C:171:THR:O	1:C:188:VAL:HA	2.16	0.46

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:11:ILE:HD13	1:B:30:VAL:CG1	2.45	0.46
1:D:6:LEU:N	1:D:6:LEU:HD12	2.30	0.46
1:E:143:LEU:N	1:E:143:LEU:CD2	2.79	0.46
1:H:6:LEU:N	1:H:6:LEU:HD12	2.31	0.46
1:A:282:PRO:HA	1:E:133:TRP:CH2	2.50	0.46
1:D:171:THR:O	1:D:188:VAL:HA	2.16	0.46
1:C:135:ARG:HG3	1:G:282:PRO:O	2.15	0.46
1:G:297:GLU:O	1:G:301:VAL:HG23	2.16	0.46
1:A:45:LEU:HD23	1:A:67:ALA:HB1	1.98	0.45
1:B:64:ILE:CG2	1:B:93:ILE:HD11	2.47	0.45
1:H:171:THR:O	1:H:188:VAL:HA	2.15	0.45
1:F:74:GLY:HA3	1:F:299:ILE:HD11	1.97	0.45
1:E:115:MET:HE3	1:E:164:MET:HE1	1.99	0.45
1:C:284:LEU:HA	1:C:287:SER:HB2	1.98	0.45
1:F:171:THR:O	1:F:188:VAL:HA	2.16	0.45
1:G:261:VAL:HG12	1:G:283:HIS:CE1	2.52	0.45
1:E:171:THR:O	1:E:188:VAL:HA	2.16	0.45
1:F:115:MET:HE2	1:F:167:PHE:CE2	2.52	0.45
1:A:155:ARG:O	1:A:158:ARG:HG2	2.17	0.44
1:G:171:THR:O	1:G:188:VAL:HA	2.16	0.44
1:A:297:GLU:O	1:A:301:VAL:HG23	2.18	0.44
1:C:131:GLY:HA2	1:G:270:ARG:CZ	2.47	0.44
1:F:297:GLU:O	1:F:301:VAL:HG23	2.18	0.44
1:G:121:ILE:HB	1:G:122:PRO:HD3	1.99	0.44
1:H:85:LEU:HD23	1:H:85:LEU:HA	1.89	0.44
1:H:217:LEU:HD12	1:H:240:VAL:HG22	2.00	0.44
1:A:246:LEU:HD12	1:A:246:LEU:H	1.82	0.44
1:F:115:MET:CE	1:F:164:MET:HE1	2.47	0.44
1:A:276:GLU:HA	1:E:129:LYS:NZ	2.33	0.44
1:B:129:LYS:HE2	1:F:275:HIS:O	2.18	0.44
1:D:54:ARG:C	1:D:75:ARG:HH11	2.25	0.44
1:E:297:GLU:O	1:E:301:VAL:HG23	2.18	0.44
1:A:202:PHE:CE2	1:A:230:ARG:HD3	2.53	0.44
1:B:158:ARG:HD3	1:B:186:PHE:CD2	2.52	0.44
1:C:177:ILE:CD1	1:C:177:ILE:N	2.81	0.44
1:H:261:VAL:HG12	1:H:283:HIS:CE1	2.52	0.44
1:B:129:LYS:HA	1:F:273:VAL:HG12	1.99	0.44
1:C:282:PRO:HA	1:G:133:TRP:CZ3	2.53	0.44
1:A:171:THR:O	1:A:188:VAL:HA	2.17	0.43
1:F:102:ASN:OD1	1:F:286:ALA:HB2	2.18	0.43
1:G:272:LEU:O	1:G:273:VAL:C	2.61	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:42:ILE:CG2	1:B:66:ALA:HB3	2.48	0.43
1:B:85:LEU:CD2	1:D:6:LEU:CD1	2.95	0.43
1:B:175:ASP:OD2	2:B:401:ONS:N1	2.50	0.43
1:C:115:MET:HE2	1:C:167:PHE:CE2	2.53	0.43
1:D:297:GLU:O	1:D:301:VAL:HG23	2.17	0.43
1:G:102:ASN:OD1	1:G:286:ALA:HB2	2.18	0.43
1:H:81:ASP:OD2	1:H:236:ARG:HD2	2.18	0.43
1:H:272:LEU:O	1:H:273:VAL:C	2.61	0.43
1:A:42:ILE:O	1:A:46:GLN:HG2	2.19	0.43
1:B:81:ASP:OD1	1:B:81:ASP:N	2.51	0.43
1:C:236:ARG:NH2	2:C:401:ONS:N2	2.66	0.43
1:E:77:GLY:O	1:E:98:THR:OG1	2.31	0.43
1:G:33:LYS:CB	1:G:36:LEU:HD13	2.47	0.43
1:H:74:GLY:HA3	1:H:299:ILE:HD11	2.00	0.43
1:H:297:GLU:O	1:H:301:VAL:HG23	2.18	0.43
1:B:56:ALA:HB2	1:F:135:ARG:NH2	2.32	0.43
1:B:171:THR:O	1:B:188:VAL:HA	2.17	0.43
1:D:208:PRO:O	1:D:213:THR:HG21	2.18	0.43
1:E:214:THR:HG21	1:G:214:THR:HB	2.00	0.43
1:G:283:HIS:NE2	3:G:402:MLT:H31	2.34	0.43
1:A:210:LEU:H	1:A:213:THR:HG23	1.81	0.43
1:A:210:LEU:N	1:A:213:THR:CG2	2.76	0.43
1:B:12:SER:OG	1:B:53:VAL:HG12	2.18	0.43
1:F:272:LEU:O	1:F:273:VAL:C	2.62	0.43
1:G:81:ASP:OD1	1:G:81:ASP:N	2.51	0.43
1:A:72:VAL:HG21	1:A:96:MET:HE2	1.99	0.43
1:A:197:TRP:CH2	1:A:217:LEU:CD1	3.01	0.43
1:B:74:GLY:HA3	1:B:299:ILE:HD11	2.00	0.43
1:B:158:ARG:HG2	1:B:186:PHE:CZ	2.53	0.43
1:B:177:ILE:HG22	1:D:85:LEU:HD11	2.01	0.43
1:A:239:ILE:HD13	1:A:239:ILE:H	1.84	0.43
1:B:183:SER:CB	1:B:190:GLN:NE2	2.82	0.43
1:C:297:GLU:O	1:C:301:VAL:HG23	2.18	0.43
1:G:42:ILE:CG2	1:G:66:ALA:HB1	2.49	0.43
1:H:115:MET:CE	1:H:164:MET:HE1	2.49	0.43
1:H:150:ILE:HD13	1:H:161:ALA:HB2	2.01	0.43
1:B:115:MET:HE3	1:B:164:MET:HE1	2.01	0.43
1:D:80:VAL:C	1:D:82:ASN:H	2.27	0.43
1:D:115:MET:CE	1:H:108:GLU:HB3	2.49	0.43
1:E:272:LEU:O	1:E:273:VAL:C	2.62	0.43
1:F:193:LEU:CG	1:F:197:TRP:CZ2	3.01	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:74:GLY:HA3	1:A:299:ILE:HD11	2.01	0.43
1:E:155:ARG:O	1:E:158:ARG:HG3	2.18	0.43
1:A:208:PRO:O	1:A:213:THR:HG21	2.18	0.42
1:B:211:PRO:HG2	1:D:305:ASP:HB3	2.01	0.42
1:B:272:LEU:O	1:B:273:VAL:C	2.62	0.42
1:C:12:SER:OG	1:C:53:VAL:HG12	2.19	0.42
1:D:12:SER:OG	1:D:53:VAL:HG12	2.19	0.42
1:E:197:TRP:N	1:E:198:PRO:HD2	2.34	0.42
1:H:197:TRP:N	1:H:198:PRO:HD2	2.34	0.42
1:B:36:LEU:HD23	1:B:36:LEU:N	2.22	0.42
1:B:115:MET:CE	1:B:164:MET:HE1	2.49	0.42
1:B:183:SER:HB3	1:B:190:GLN:HE22	1.84	0.42
1:C:272:LEU:O	1:C:273:VAL:C	2.62	0.42
1:D:282:PRO:HA	1:H:133:TRP:CZ3	2.54	0.42
1:H:121:ILE:HB	1:H:122:PRO:HD3	2.01	0.42
1:A:197:TRP:N	1:A:198:PRO:HD2	2.34	0.42
1:F:207:THR:CG2	2:F:401:ONS:CL	3.04	0.42
1:G:74:GLY:HA3	1:G:299:ILE:HD11	2.01	0.42
1:B:128:MET:SD	1:F:282:PRO:HD3	2.59	0.42
1:B:197:TRP:N	1:B:198:PRO:HD2	2.35	0.42
1:G:75:ARG:NH2	1:G:236:ARG:HH12	2.17	0.42
1:D:272:LEU:O	1:D:273:VAL:C	2.62	0.42
1:A:239:ILE:N	1:A:239:ILE:CD1	2.82	0.42
1:A:272:LEU:O	1:A:273:VAL:C	2.62	0.42
1:B:142:GLU:OE2	1:F:294:ARG:NH1	2.39	0.42
1:B:297:GLU:O	1:B:301:VAL:HG23	2.19	0.42
1:C:202:PHE:CE2	1:C:230:ARG:HD3	2.55	0.42
1:A:216:LEU:HA	1:A:216:LEU:HD12	1.81	0.42
1:B:56:ALA:HB2	1:F:135:ARG:HH22	1.83	0.42
1:E:74:GLY:HA3	1:E:299:ILE:HD11	2.02	0.42
1:C:288:THR:HA	1:G:140:GLY:O	2.19	0.42
1:E:143:LEU:HD23	1:E:143:LEU:H	1.84	0.42
1:H:12:SER:OG	1:H:53:VAL:HG12	2.20	0.42
1:A:124:ALA:N	1:A:138:PHE:HE2	2.17	0.42
1:A:281:CYS:HB3	1:A:284:LEU:HD12	2.01	0.42
1:E:12:SER:OG	1:E:53:VAL:HG12	2.20	0.42
1:G:217:LEU:CD1	1:G:240:VAL:HG22	2.50	0.42
1:B:197:TRP:CH2	1:B:217:LEU:CD1	3.03	0.42
1:F:12:SER:OG	1:F:53:VAL:HG12	2.20	0.42
1:F:121:ILE:HB	1:F:122:PRO:HD3	2.02	0.42
1:B:217:LEU:HD12	1:B:217:LEU:HA	1.80	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:74:GLY:HA3	1:C:299:ILE:HD11	2.01	0.41
1:C:80:VAL:C	1:C:82:ASN:H	2.28	0.41
1:D:177:ILE:N	1:D:177:ILE:CD1	2.83	0.41
1:E:78:THR:CG2	1:E:102:ASN:HB3	2.50	0.41
1:G:6:LEU:HD12	1:G:6:LEU:N	2.35	0.41
1:G:12:SER:OG	1:G:53:VAL:HG12	2.20	0.41
1:H:139:MET:HE3	1:H:139:MET:HB3	1.88	0.41
1:H:176:PRO:HG2	1:H:177:ILE:HD13	2.00	0.41
1:F:197:TRP:N	1:F:198:PRO:HD2	2.35	0.41
1:H:208:PRO:O	1:H:213:THR:HG21	2.19	0.41
1:C:278:VAL:O	1:G:129:LYS:NZ	2.53	0.41
1:E:281:CYS:HB3	1:E:284:LEU:HD12	2.02	0.41
1:F:208:PRO:HA	1:F:236:ARG:HD3	2.03	0.41
1:A:12:SER:OG	1:A:53:VAL:HG12	2.20	0.41
1:A:72:VAL:HG21	1:A:96:MET:CE	2.51	0.41
1:A:80:VAL:C	1:A:82:ASN:H	2.29	0.41
1:C:6:LEU:HD12	1:C:6:LEU:N	2.35	0.41
1:C:208:PRO:O	1:C:213:THR:HG21	2.20	0.41
1:D:202:PHE:CE2	1:D:230:ARG:HD3	2.56	0.41
1:G:197:TRP:N	1:G:198:PRO:HD2	2.35	0.41
1:C:127:SER:CB	1:C:134:GLU:OE1	2.68	0.41
1:D:284:LEU:HA	1:D:287:SER:HB2	2.02	0.41
1:E:115:MET:HE2	1:E:167:PHE:CE2	2.56	0.41
1:A:45:LEU:CD2	1:A:67:ALA:CB	2.98	0.41
1:B:23:LEU:HD23	1:B:300:ALA:CB	2.48	0.41
1:C:197:TRP:N	1:C:198:PRO:HD2	2.35	0.41
1:A:10:LEU:HD23	1:A:45:LEU:HD12	2.03	0.41
1:B:94:LEU:HD12	1:B:94:LEU:N	2.35	0.41
1:B:219:ASP:OD1	1:B:247:ARG:NH2	2.53	0.41
1:G:177:ILE:N	1:G:177:ILE:CD1	2.84	0.41
1:E:80:VAL:C	1:E:82:ASN:H	2.29	0.41
1:E:109:LEU:CD1	1:E:113:MET:HE2	2.51	0.41
1:E:216:LEU:HA	1:E:216:LEU:HD12	1.78	0.41
1:E:216:LEU:HD21	2:E:401:ONS:CL1	2.58	0.41
1:G:115:MET:HE1	1:G:167:PHE:CZ	2.55	0.41
1:B:119:ARG:HA	1:B:119:ARG:HD2	1.82	0.40
1:F:80:VAL:C	1:F:82:ASN:H	2.29	0.40
1:G:208:PRO:O	1:G:213:THR:HG21	2.21	0.40
1:H:177:ILE:N	1:H:177:ILE:CD1	2.84	0.40
1:B:42:ILE:HD13	1:B:63:VAL:HG12	2.03	0.40
1:E:271:ALA:O	1:E:275:HIS:CE1	2.73	0.40

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:F:115:MET:HE3	1:F:164:MET:HE1	2.04	0.40
1:H:80:VAL:C	1:H:82:ASN:H	2.29	0.40
1:A:6:LEU:N	1:A:6:LEU:HD12	2.36	0.40
1:E:75:ARG:C	1:E:75:ARG:HD2	2.47	0.40
1:F:292:GLN:OE1	1:F:292:GLN:HA	2.22	0.40
1:H:236:ARG:HA	1:H:236:ARG:HD3	1.85	0.40
1:E:294:ARG:O	1:E:298:GLU:HB2	2.22	0.40

All (1) symmetry-related close contacts are listed below. The label for Atom-2 includes the symmetry operator and encoded unit-cell translations to be applied.

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:131:GLY:O	1:G:189:GLN:NE2[1_655]	2.01	0.19

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	301/314 (96%)	263 (87%)	36 (12%)	2 (1%)	18	40
1	B	301/314 (96%)	262 (87%)	35 (12%)	4 (1%)	9	25
1	C	301/314 (96%)	263 (87%)	36 (12%)	2 (1%)	18	40
1	D	301/314 (96%)	264 (88%)	35 (12%)	2 (1%)	18	40
1	E	300/314 (96%)	260 (87%)	38 (13%)	2 (1%)	18	40
1	F	297/314 (95%)	259 (87%)	36 (12%)	2 (1%)	18	40
1	G	300/314 (96%)	260 (87%)	37 (12%)	3 (1%)	12	31
1	H	301/314 (96%)	261 (87%)	38 (13%)	2 (1%)	18	40
All	All	2402/2512 (96%)	2092 (87%)	291 (12%)	19 (1%)	16	36

All (19) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	B	101	GLY
1	B	102	ASN
1	C	102	ASN
1	E	102	ASN
1	F	102	ASN
1	G	102	ASN
1	H	102	ASN
1	A	102	ASN
1	D	102	ASN
1	B	81	ASP
1	D	14	SER
1	A	14	SER
1	C	14	SER
1	E	14	SER
1	F	14	SER
1	G	35	ASN
1	G	101	GLY
1	H	14	SER
1	B	14	SER

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	243/257 (95%)	214 (88%)	29 (12%)	5	14
1	B	245/257 (95%)	202 (82%)	43 (18%)	2	4
1	C	245/257 (95%)	220 (90%)	25 (10%)	7	19
1	D	244/257 (95%)	220 (90%)	24 (10%)	7	20
1	E	243/257 (95%)	216 (89%)	27 (11%)	6	16
1	F	239/257 (93%)	214 (90%)	25 (10%)	6	18
1	G	242/257 (94%)	212 (88%)	30 (12%)	4	13
1	H	246/257 (96%)	221 (90%)	25 (10%)	7	19
All	All	1947/2056 (95%)	1719 (88%)	228 (12%)	5	15

All (228) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	6	LEU
1	A	7	ARG
1	A	10	LEU
1	A	15	LEU
1	A	28	LEU
1	A	41	LEU
1	A	45	LEU
1	A	52	ILE
1	A	81	ASP
1	A	85	LEU
1	A	89	THR
1	A	103	SER
1	A	115	MET
1	A	119	ARG
1	A	132	LYS
1	A	134	GLU
1	A	135	ARG
1	A	136	LYS
1	A	155	ARG
1	A	163	ARG
1	A	178	ILE
1	A	181	GLU
1	A	190	GLN
1	A	195	GLU
1	A	217	LEU
1	A	224	GLN
1	A	239	ILE
1	A	280	SER
1	A	307	VAL
1	B	6	LEU
1	B	7	ARG
1	B	15	LEU
1	B	23	LEU
1	B	25	ASP
1	B	28	LEU
1	B	36	LEU
1	B	42	ILE
1	B	57	THR
1	B	58	LYS
1	B	59	VAL
1	B	62	ASP
1	B	70	LEU
1	B	72	VAL

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Mol	Chain	Res	Type
1	B	81	ASP
1	B	82	ASN
1	B	85	LEU
1	B	89	THR
1	B	90	ARG
1	B	91	LYS
1	B	96	MET
1	B	103	SER
1	B	115	MET
1	B	129	LYS
1	B	134	GLU
1	B	135	ARG
1	B	139	MET
1	B	158	ARG
1	B	163	ARG
1	B	175	ASP
1	B	177	ILE
1	B	181	GLU
1	B	182	VAL
1	B	189	GLN
1	B	190	GLN
1	B	213	THR
1	B	216	LEU
1	B	217	LEU
1	B	261	VAL
1	B	280	SER
1	B	294	ARG
1	B	299	ILE
1	B	307	VAL
1	C	15	LEU
1	C	28	LEU
1	C	81	ASP
1	C	89	THR
1	C	103	SER
1	C	115	MET
1	C	123	GLN
1	C	130	ASP
1	C	134	GLU
1	C	135	ARG
1	C	158	ARG
1	C	163	ARG
1	C	170	LYS

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Mol	Chain	Res	Type
1	C	177	ILE
1	C	178	ILE
1	C	181	GLU
1	C	190	GLN
1	C	213	THR
1	C	216	LEU
1	C	230	ARG
1	C	264	GLU
1	C	268	ARG
1	C	280	SER
1	C	292	GLN
1	C	293	SER
1	D	15	LEU
1	D	28	LEU
1	D	52	ILE
1	D	54	ARG
1	D	89	THR
1	D	90	ARG
1	D	115	MET
1	D	119	ARG
1	D	123	GLN
1	D	135	ARG
1	D	155	ARG
1	D	158	ARG
1	D	163	ARG
1	D	177	ILE
1	D	178	ILE
1	D	181	GLU
1	D	190	GLN
1	D	193	LEU
1	D	213	THR
1	D	216	LEU
1	D	230	ARG
1	D	264	GLU
1	D	280	SER
1	D	292	GLN
1	E	15	LEU
1	E	28	LEU
1	E	46	GLN
1	E	54	ARG
1	E	55	SER
1	E	58	LYS

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Mol	Chain	Res	Type
1	E	75	ARG
1	E	89	THR
1	E	115	MET
1	E	123	GLN
1	E	134	GLU
1	E	137	LYS
1	E	139	MET
1	E	143	LEU
1	E	155	ARG
1	E	158	ARG
1	E	163	ARG
1	E	175	ASP
1	E	181	GLU
1	E	190	GLN
1	E	213	THR
1	E	217	LEU
1	E	264	GLU
1	E	280	SER
1	E	292	GLN
1	E	294	ARG
1	E	297	GLU
1	F	15	LEU
1	F	28	LEU
1	F	45	LEU
1	F	46	GLN
1	F	68	GLU
1	F	89	THR
1	F	90	ARG
1	F	96	MET
1	F	115	MET
1	F	119	ARG
1	F	123	GLN
1	F	135	ARG
1	F	139	MET
1	F	158	ARG
1	F	175	ASP
1	F	181	GLU
1	F	190	GLN
1	F	193	LEU
1	F	213	THR
1	F	217	LEU
1	F	227	LYS

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Mol	Chain	Res	Type
1	F	230	ARG
1	F	264	GLU
1	F	280	SER
1	F	293	SER
1	G	15	LEU
1	G	23	LEU
1	G	28	LEU
1	G	39	GLU
1	G	62	ASP
1	G	64	ILE
1	G	68	GLU
1	G	71	GLN
1	G	81	ASP
1	G	83	VAL
1	G	89	THR
1	G	90	ARG
1	G	93	ILE
1	G	119	ARG
1	G	123	GLN
1	G	139	MET
1	G	158	ARG
1	G	163	ARG
1	G	175	ASP
1	G	177	ILE
1	G	181	GLU
1	G	190	GLN
1	G	213	THR
1	G	216	LEU
1	G	264	GLU
1	G	276	GLU
1	G	280	SER
1	G	293	SER
1	G	298	GLU
1	G	306	MET
1	H	15	LEU
1	H	21	LYS
1	H	28	LEU
1	H	52	ILE
1	H	55	SER
1	H	62	ASP
1	H	75	ARG
1	H	89	THR

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Mol	Chain	Res	Type
1	H	115	MET
1	H	123	GLN
1	H	150	ILE
1	H	155	ARG
1	H	158	ARG
1	H	163	ARG
1	H	170	LYS
1	H	175	ASP
1	H	177	ILE
1	H	189	GLN
1	H	190	GLN
1	H	209	LEU
1	H	213	THR
1	H	216	LEU
1	H	264	GLU
1	H	280	SER
1	H	293	SER

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (21) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	46	GLN
1	A	224	GLN
1	A	233	ASN
1	B	34	GLN
1	B	65	ASN
1	B	190	GLN
1	B	233	ASN
1	C	233	ASN
1	C	283	HIS
1	C	302	GLN
1	D	65	ASN
1	D	233	ASN
1	D	302	GLN
1	E	233	ASN
1	F	65	ASN
1	F	233	ASN
1	G	65	ASN
1	G	302	GLN
1	H	46	GLN
1	H	82	ASN
1	H	292	GLN

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 ⓘ

12 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	ONS	G	401	-	39,39,39	1.52	8 (20%)	48,58,58	1.88	12 (25%)
2	ONS	B	401	-	39,39,39	1.40	7 (17%)	48,58,58	1.84	15 (31%)
3	MLT	F	402	-	8,8,8	1.01	0	10,10,10	1.50	2 (20%)
2	ONS	E	401	-	39,39,39	1.46	9 (23%)	48,58,58	1.49	10 (20%)
2	ONS	A	401	-	39,39,39	1.43	8 (20%)	48,58,58	2.25	17 (35%)
2	ONS	C	401	-	39,39,39	1.39	7 (17%)	48,58,58	1.53	9 (18%)
2	ONS	H	401	-	39,39,39	1.51	9 (23%)	48,58,58	1.43	6 (12%)
3	MLT	G	402	-	8,8,8	1.06	0	10,10,10	1.48	1 (10%)
3	MLT	E	402	-	8,8,8	1.02	0	10,10,10	1.78	2 (20%)
3	MLT	H	402	-	8,8,8	1.01	0	10,10,10	1.51	2 (20%)
2	ONS	D	401	-	39,39,39	1.48	7 (17%)	48,58,58	1.53	11 (22%)
2	ONS	F	401	-	39,39,39	1.47	7 (17%)	48,58,58	1.78	14 (29%)

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	ONS	G	401	-	-	3/27/35/35	0/5/5/5
2	ONS	B	401	-	-	0/27/35/35	0/5/5/5
3	MLT	F	402	-	-	5/8/8/8	-
2	ONS	E	401	-	-	2/27/35/35	0/5/5/5
2	ONS	A	401	-	-	0/27/35/35	0/5/5/5
2	ONS	C	401	-	-	2/27/35/35	0/5/5/5
2	ONS	H	401	-	-	0/27/35/35	0/5/5/5
3	MLT	G	402	-	-	2/8/8/8	-
3	MLT	E	402	-	-	0/8/8/8	-
3	MLT	H	402	-	-	4/8/8/8	-
2	ONS	D	401	-	-	4/27/35/35	0/5/5/5
2	ONS	F	401	-	-	8/27/35/35	0/5/5/5

All (62) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
2	C	401	ONS	C3-CL	3.64	1.80	1.72
2	G	401	ONS	C4-C5	-3.55	1.37	1.41
2	H	401	ONS	C4-C5	-3.53	1.37	1.41
2	H	401	ONS	C11-C9	-3.43	1.51	1.54
2	A	401	ONS	C3-CL	3.33	1.79	1.72
2	E	401	ONS	C3-CL	3.24	1.79	1.72
2	G	401	ONS	C11-C9	-3.24	1.51	1.54
2	F	401	ONS	C4-C5	-3.21	1.38	1.41
2	E	401	ONS	C15-C18	-3.21	1.48	1.53
2	F	401	ONS	C3-CL	3.19	1.79	1.72
2	G	401	ONS	C20-C18	-3.18	1.48	1.53
2	D	401	ONS	C3-CL	3.16	1.79	1.72
2	E	401	ONS	C10-C9	-3.16	1.51	1.54
2	D	401	ONS	C20-C18	-3.13	1.48	1.53
2	F	401	ONS	C15-C18	-3.12	1.48	1.53
2	C	401	ONS	C10-C9	-3.03	1.51	1.54
2	D	401	ONS	C10-C9	-3.01	1.51	1.54
2	B	401	ONS	C10-C9	-3.00	1.51	1.54
2	B	401	ONS	C3-CL	2.99	1.79	1.72
2	H	401	ONS	C6-N	-2.99	1.34	1.38
2	H	401	ONS	C2-CL1	2.98	1.80	1.73
2	G	401	ONS	C10-C9	-2.98	1.51	1.54
2	D	401	ONS	C4-C5	-2.97	1.38	1.41

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
2	A	401	ONS	C20-C18	-2.95	1.49	1.53
2	E	401	ONS	C20-C18	-2.90	1.49	1.53
2	G	401	ONS	C6-N	-2.89	1.34	1.38
2	B	401	ONS	C2-CL1	2.88	1.80	1.73
2	C	401	ONS	C4-C5	-2.88	1.38	1.41
2	F	401	ONS	C20-C18	-2.83	1.49	1.53
2	H	401	ONS	C10-C9	-2.81	1.52	1.54
2	F	401	ONS	C10-C9	-2.74	1.52	1.54
2	A	401	ONS	C10-C9	-2.71	1.52	1.54
2	B	401	ONS	C11-C9	-2.70	1.52	1.54
2	C	401	ONS	C11-C9	-2.66	1.52	1.54
2	H	401	ONS	C15-C18	-2.63	1.49	1.53
2	D	401	ONS	C2-CL1	2.62	1.79	1.73
2	A	401	ONS	C15-C18	-2.60	1.49	1.53
2	A	401	ONS	C11-C9	-2.58	1.52	1.54
2	H	401	ONS	C20-C18	-2.57	1.49	1.53
2	F	401	ONS	C2-CL1	2.56	1.79	1.73
2	D	401	ONS	C11-C9	-2.54	1.52	1.54
2	E	401	ONS	C5-N	-2.50	1.35	1.39
2	C	401	ONS	C15-C18	-2.49	1.49	1.53
2	B	401	ONS	C15-C18	-2.47	1.49	1.53
2	H	401	ONS	C3-CL	2.43	1.78	1.72
2	G	401	ONS	C5-N	-2.42	1.35	1.39
2	E	401	ONS	C4-C5	-2.40	1.39	1.41
2	G	401	ONS	C2-CL1	2.39	1.79	1.73
2	E	401	ONS	C2-CL1	2.38	1.79	1.73
2	D	401	ONS	C6-N	-2.35	1.35	1.38
2	C	401	ONS	C2-CL1	2.33	1.79	1.73
2	A	401	ONS	C2-CL1	2.32	1.79	1.73
2	F	401	ONS	C5-N	-2.32	1.35	1.39
2	E	401	ONS	C11-C9	-2.26	1.52	1.54
2	B	401	ONS	C20-C18	-2.26	1.49	1.53
2	C	401	ONS	C20-C18	-2.25	1.49	1.53
2	G	401	ONS	C3-CL	2.21	1.77	1.72
2	A	401	ONS	C4-C5	-2.15	1.39	1.41
2	E	401	ONS	C6-N	-2.09	1.35	1.38
2	A	401	ONS	C2-C3	-2.08	1.36	1.39
2	H	401	ONS	C5-N	-2.06	1.35	1.39
2	B	401	ONS	C4-C5	-2.03	1.39	1.41

All (101) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
2	A	401	ONS	C3-C2-CL1	-8.04	113.13	120.51
2	G	401	ONS	C3-C2-CL1	-6.33	114.69	120.51
2	B	401	ONS	C3-C2-CL1	-5.14	115.79	120.51
2	D	401	ONS	C-C5-C4	-4.58	118.63	122.36
3	E	402	MLT	O2-C1-C2	4.45	122.14	112.74
2	B	401	ONS	C8-C6-N	4.44	128.48	122.81
2	G	401	ONS	C2-C3-CL	-4.29	114.58	120.02
2	A	401	ONS	C8-C6-N	4.05	127.98	122.81
2	A	401	ONS	C15-C18-C20	3.80	119.79	113.29
2	A	401	ONS	C4-C5-N	-3.79	105.99	109.38
2	C	401	ONS	C-C5-C4	-3.64	119.39	122.36
2	F	401	ONS	C14-C15-C18	-3.62	113.53	120.85
2	A	401	ONS	C1-C2-CL1	3.61	125.53	118.42
2	B	401	ONS	C4-C5-N	-3.52	106.23	109.38
2	G	401	ONS	C4-C5-N	-3.51	106.24	109.38
2	F	401	ONS	C2-C3-CL	-3.39	115.72	120.02
2	G	401	ONS	C1-C2-CL1	3.33	124.98	118.42
2	F	401	ONS	C3-C2-CL1	-3.29	117.49	120.51
2	E	401	ONS	C3-C2-CL1	-3.29	117.49	120.51
2	A	401	ONS	C2-C3-CL	-3.25	115.90	120.02
2	H	401	ONS	C5-N-C6	3.23	111.72	108.10
2	B	401	ONS	C-C5-C4	-3.23	119.73	122.36
2	H	401	ONS	C-C5-C4	-3.16	119.78	122.36
2	C	401	ONS	C8-C6-N	3.13	126.81	122.81
2	F	401	ONS	O2-C19-C18	3.11	121.68	113.73
2	G	401	ONS	C5-N-C6	3.05	111.52	108.10
2	A	401	ONS	C20-C18-C19	-3.04	105.63	111.27
2	C	401	ONS	C4-C5-N	-3.04	106.66	109.38
2	B	401	ONS	C1-C2-CL1	2.99	124.31	118.42
2	F	401	ONS	C5-N-C6	2.97	111.42	108.10
2	A	401	ONS	C5-N-C6	2.94	111.39	108.10
2	F	401	ONS	C8-C6-N	2.92	126.54	122.81
3	H	402	MLT	O2-C1-C2	2.89	118.86	112.74
2	H	401	ONS	C2-C3-CL	-2.89	116.35	120.02
2	A	401	ONS	C14-C15-C18	-2.89	115.01	120.85
2	A	401	ONS	C-C5-C4	-2.88	120.01	122.36
2	A	401	ONS	C24-C20-C21	2.85	119.83	116.89
2	B	401	ONS	C15-C18-C19	-2.83	106.03	111.27
3	F	402	MLT	O2-C1-C2	2.81	118.67	112.74
2	H	401	ONS	C4-C5-N	-2.80	106.87	109.38
3	G	402	MLT	O2-C1-C2	2.80	118.66	112.74
2	E	401	ONS	C22-N2-C21	2.79	121.74	116.85
2	C	401	ONS	C22-N2-C21	2.79	121.74	116.85

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
2	D	401	ONS	C22-N2-C21	2.78	121.71	116.85
2	C	401	ONS	O2-C19-C18	2.76	120.80	113.73
2	A	401	ONS	O2-C19-C18	2.75	120.77	113.73
2	F	401	ONS	C17-C16-C15	-2.74	118.45	121.18
2	E	401	ONS	C2-C3-CL	-2.72	116.58	120.02
2	F	401	ONS	C16-C15-C18	2.70	126.29	120.85
3	E	402	MLT	O1-C1-C2	-2.67	117.26	122.60
2	A	401	ONS	O3-C19-C18	-2.67	114.97	123.08
2	E	401	ONS	C4-C5-N	-2.66	107.00	109.38
2	G	401	ONS	C20-C18-C19	-2.66	106.35	111.27
2	F	401	ONS	C22-N2-C21	2.66	121.51	116.85
3	F	402	MLT	C3-C2-C1	2.66	117.05	110.53
2	F	401	ONS	C-C5-C4	-2.64	120.21	122.36
2	H	401	ONS	C22-N2-C21	2.59	121.39	116.85
2	F	401	ONS	C4-C5-N	-2.59	107.06	109.38
2	A	401	ONS	C16-C15-C18	2.57	126.03	120.85
2	C	401	ONS	C5-N-C6	2.57	110.97	108.10
2	G	401	ONS	C-C5-C4	-2.53	120.30	122.36
2	B	401	ONS	C5-N-C6	2.52	110.92	108.10
2	D	401	ONS	C4-C5-N	-2.49	107.16	109.38
2	G	401	ONS	O2-C19-C18	2.47	120.04	113.73
2	A	401	ONS	C23-C24-C20	-2.43	117.73	120.65
2	D	401	ONS	O2-C19-C18	2.43	119.95	113.73
2	C	401	ONS	C14-C15-C18	-2.43	115.95	120.85
2	B	401	ONS	C24-C20-C21	2.40	119.36	116.89
2	G	401	ONS	C22-N2-C21	2.39	121.04	116.85
2	E	401	ONS	C5-N-C6	2.37	110.75	108.10
2	D	401	ONS	C14-C15-C18	-2.36	116.09	120.85
2	B	401	ONS	C7-C6-C8	-2.33	123.67	129.48
2	G	401	ONS	C24-C20-C21	2.31	119.28	116.89
2	F	401	ONS	C13-C12-C9	-2.31	117.68	121.09
2	E	401	ONS	C14-C15-C18	-2.31	116.19	120.85
2	C	401	ONS	C16-C15-C18	2.29	125.46	120.85
2	E	401	ONS	O2-C19-C18	2.26	119.52	113.73
2	E	401	ONS	C20-C21-N2	-2.22	120.59	124.05
2	D	401	ONS	C8-C6-N	2.21	125.64	122.81
2	D	401	ONS	C16-C15-C18	2.18	125.25	120.85
2	E	401	ONS	C17-C16-C15	-2.17	119.02	121.18
2	D	401	ONS	C13-C12-C9	-2.16	117.90	121.09
2	G	401	ONS	O3-C19-C18	-2.16	116.51	123.08
2	H	401	ONS	C25-N-C6	-2.16	123.03	126.61
2	B	401	ONS	C14-C15-C18	-2.16	116.49	120.85

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
2	B	401	ONS	C22-N2-C21	2.13	120.59	116.85
2	F	401	ONS	C20-C21-N2	-2.11	120.76	124.05
2	D	401	ONS	C-C5-N	2.10	134.21	129.88
2	F	401	ONS	C24-C20-C21	2.10	119.05	116.89
2	B	401	ONS	C5-C4-C3	2.06	120.87	118.21
2	D	401	ONS	C17-C12-C9	2.06	124.13	121.09
2	B	401	ONS	C16-C15-C18	2.05	124.99	120.85
2	B	401	ONS	C20-C21-N2	-2.04	120.86	124.05
2	C	401	ONS	C20-C21-N2	-2.04	120.86	124.05
2	E	401	ONS	C4-C7-C6	-2.04	105.89	107.50
2	G	401	ONS	C20-C21-N2	-2.03	120.88	124.05
2	D	401	ONS	C5-N-C6	2.03	110.38	108.10
2	A	401	ONS	C7-C6-C8	-2.02	124.44	129.48
2	B	401	ONS	C-C5-N	2.02	134.04	129.88
3	H	402	MLT	O5-C4-C3	2.01	120.25	114.00
2	A	401	ONS	C-C5-N	2.00	134.00	129.88

There are no chirality outliers.

All (30) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
2	F	401	ONS	C15-C18-C19-O2
2	F	401	ONS	C15-C18-C19-O3
2	F	401	ONS	N-C6-C8-N1
2	F	401	ONS	N-C6-C8-O
3	F	402	MLT	O1-C1-C2-C3
3	G	402	MLT	O3-C2-C3-C4
3	G	402	MLT	C1-C2-C3-C4
3	H	402	MLT	O1-C1-C2-O3
3	F	402	MLT	O2-C1-C2-C3
2	F	401	ONS	C20-C18-C19-O3
2	C	401	ONS	C17-C12-C9-C10
2	E	401	ONS	C17-C12-C9-C10
2	F	401	ONS	C17-C12-C9-C10
2	G	401	ONS	C17-C12-C9-C10
2	D	401	ONS	C10-C9-N1-C8
3	H	402	MLT	O2-C1-C2-O3
3	H	402	MLT	O1-C1-C2-C3
3	H	402	MLT	O2-C1-C2-C3
2	D	401	ONS	C17-C12-C9-N1
3	F	402	MLT	O2-C1-C2-O3
2	F	401	ONS	C20-C18-C19-O2

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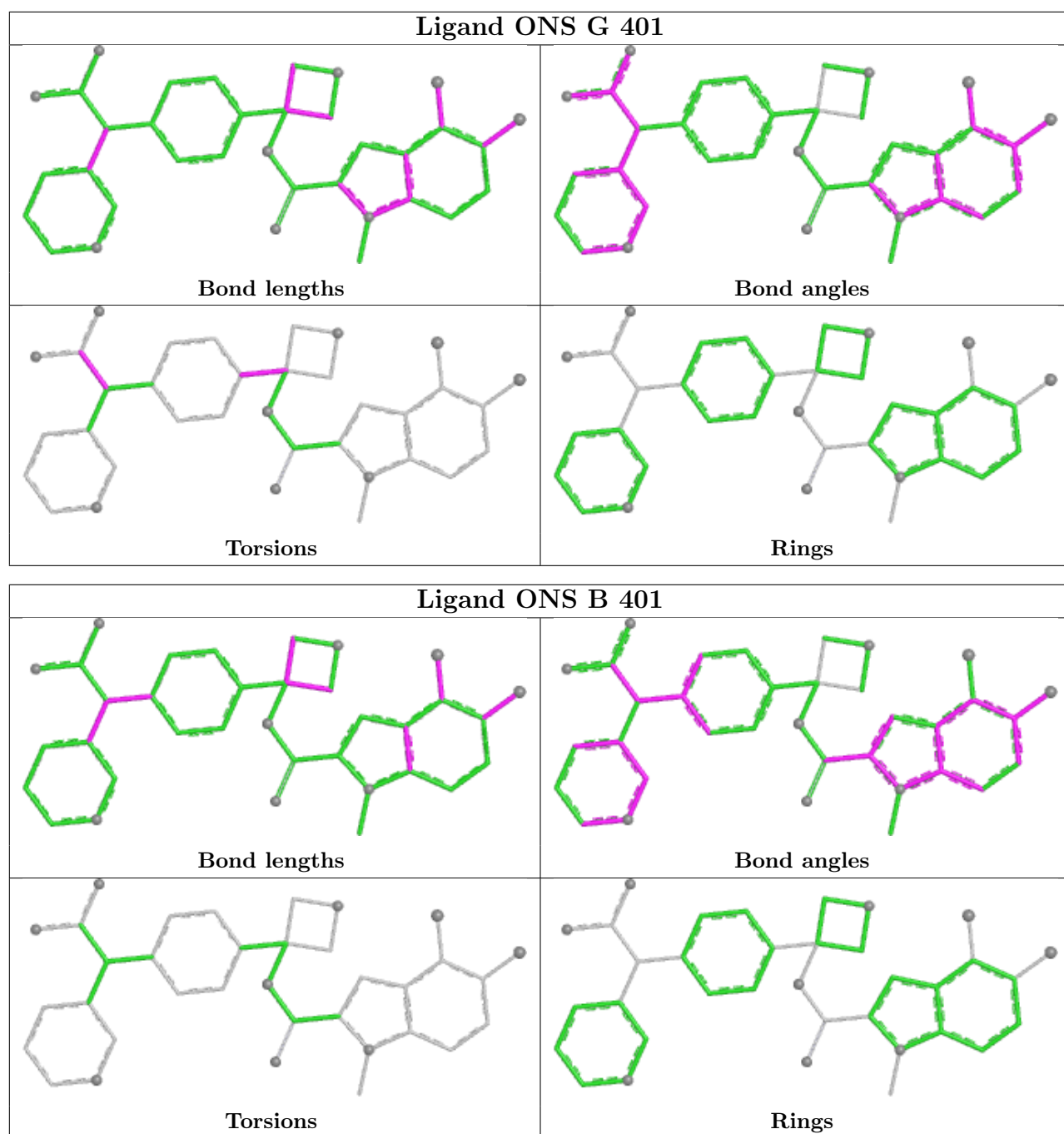
Mol	Chain	Res	Type	Atoms
2	G	401	ONS	C15-C18-C19-O3
3	F	402	MLT	O3-C2-C3-C4
2	C	401	ONS	C13-C12-C9-C10
2	E	401	ONS	C13-C12-C9-C10
2	F	401	ONS	C13-C12-C9-C10
2	G	401	ONS	C13-C12-C9-C10
2	D	401	ONS	C14-C15-C18-C20
2	D	401	ONS	C16-C15-C18-C20
3	F	402	MLT	O1-C1-C2-O3

There are no ring outliers.

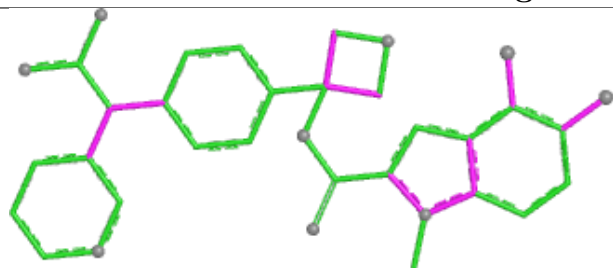
7 monomers are involved in 12 short contacts:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
2	B	401	ONS	1	0
3	F	402	MLT	1	0
2	E	401	ONS	2	0
2	C	401	ONS	2	0
3	G	402	MLT	2	0
2	D	401	ONS	1	0
2	F	401	ONS	3	0

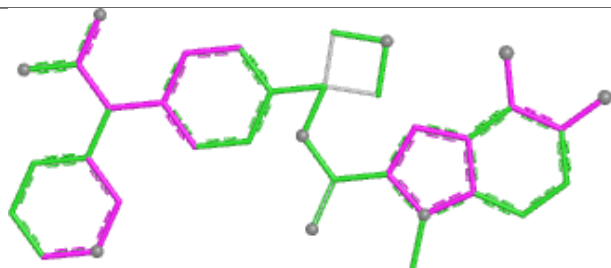
The following is a two-dimensional graphical depiction of Mogul quality analysis of bond lengths, bond angles, torsion angles, and ring geometry for all instances of the Ligand of Interest. In addition, ligands with molecular weight > 250 and outliers as shown on the validation Tables will also be included.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



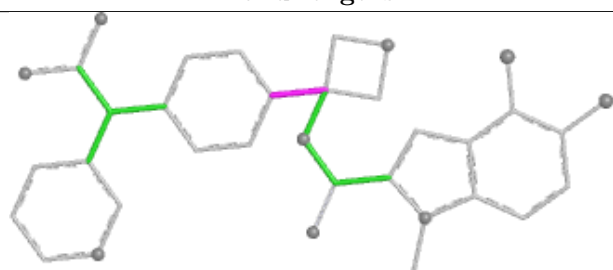
Ligand ONS E 401



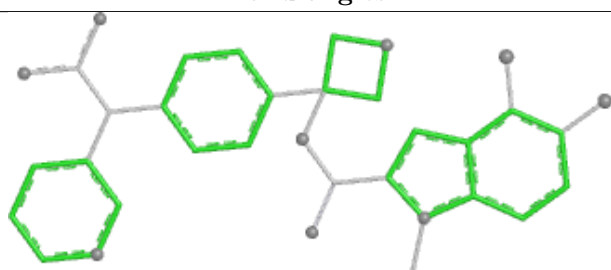
Bond lengths



Bond angles

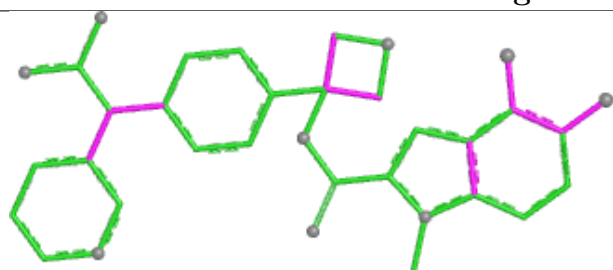


Torsions

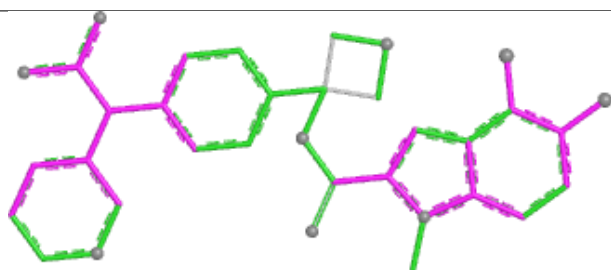


Rings

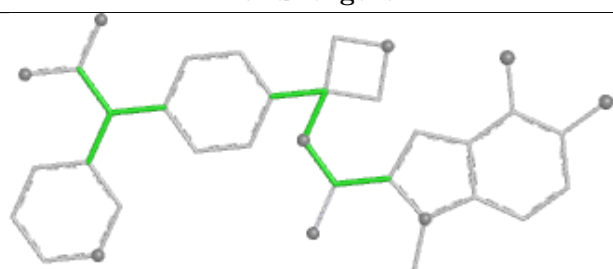
Ligand ONS A 401



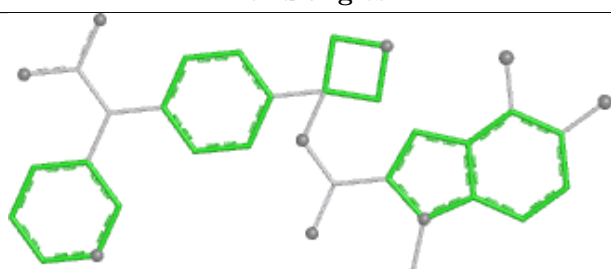
Bond lengths



Bond angles

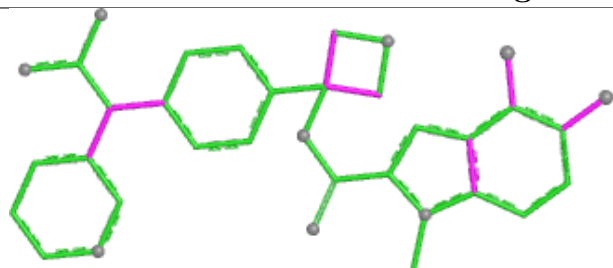


Torsions

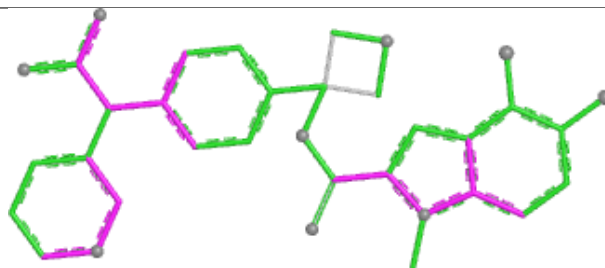


Rings

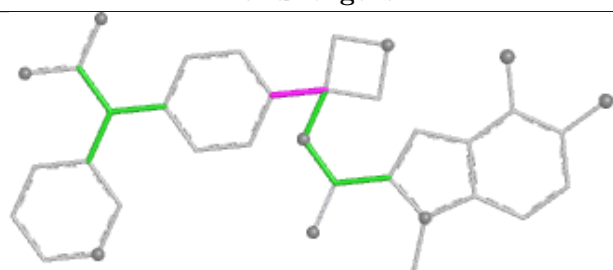
Ligand ONS C 401



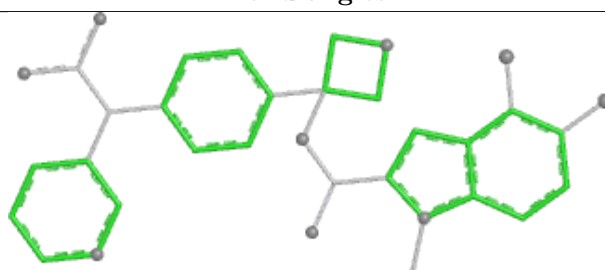
Bond lengths



Bond angles

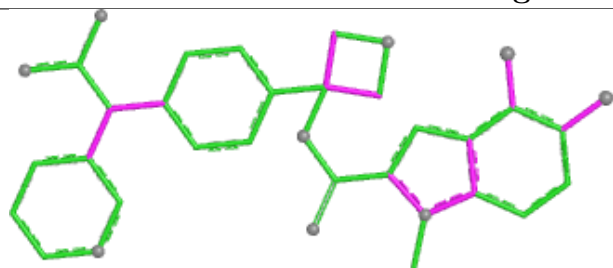


Torsions

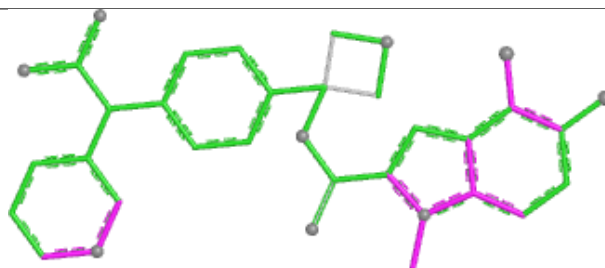


Rings

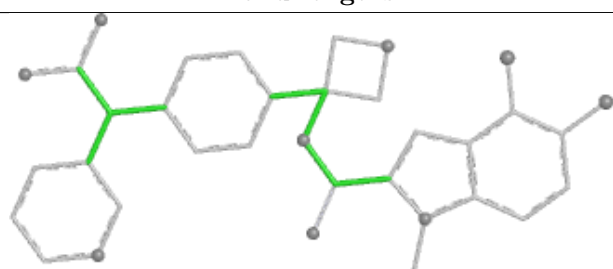
Ligand ONS H 401



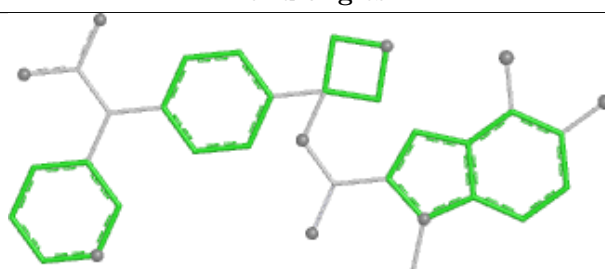
Bond lengths



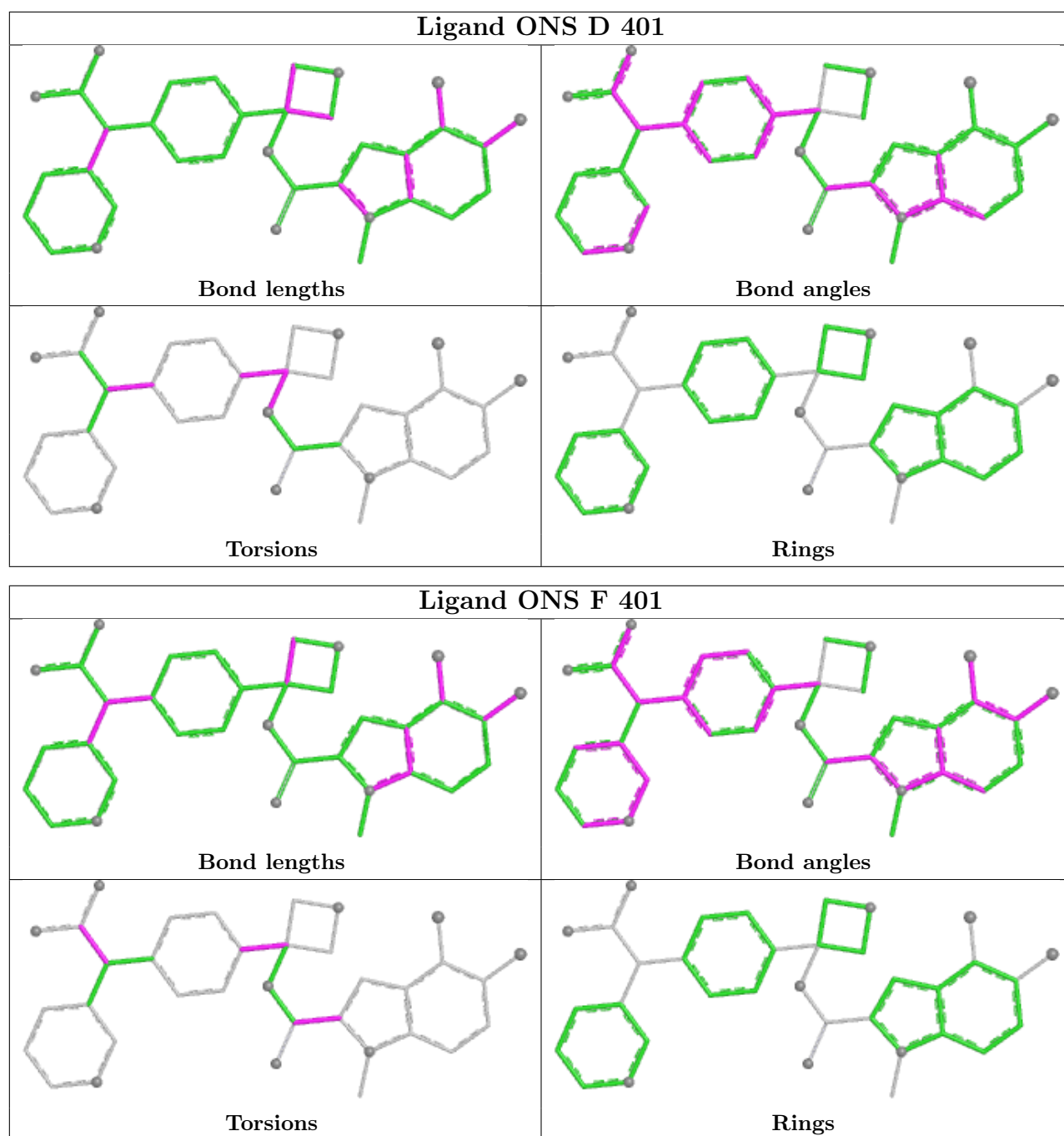
Bond angles



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	303/314 (96%)	0.30	6 (1%) 65 56	69, 114, 146, 159	0
1	B	303/314 (96%)	0.38	6 (1%) 65 56	73, 123, 176, 208	0
1	C	303/314 (96%)	0.15	3 (0%) 79 74	59, 89, 123, 149	0
1	D	303/314 (96%)	0.13	4 (1%) 75 68	61, 89, 124, 143	0
1	E	302/314 (96%)	0.27	5 (1%) 69 61	85, 115, 156, 181	0
1	F	299/314 (95%)	0.33	1 (0%) 90 88	88, 118, 166, 204	0
1	G	302/314 (96%)	0.18	6 (1%) 65 56	64, 94, 158, 205	0
1	H	303/314 (96%)	0.16	6 (1%) 65 56	71, 96, 146, 162	0
All	All	2418/2512 (96%)	0.24	37 (1%) 72 65	59, 103, 160, 208	0

All (37) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	A	6	LEU	4.7
1	B	257	ALA	4.6
1	G	6	LEU	4.5
1	A	257	ALA	4.5
1	D	83	VAL	3.8
1	H	48	CYS	3.8
1	A	256	GLY	3.4
1	E	275	HIS	3.3
1	B	6	LEU	3.3
1	B	73	VAL	3.1
1	G	48	CYS	3.1
1	A	255	ALA	2.9
1	E	238	GLY	2.7
1	C	6	LEU	2.7
1	D	183	SER	2.6
1	H	74	GLY	2.5

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Mol	Chain	Res	Type	RSRZ
1	E	231	VAL	2.5
1	H	9	VAL	2.5
1	H	96	MET	2.4
1	H	303	PHE	2.4
1	E	281	CYS	2.4
1	G	43	ALA	2.4
1	D	255	ALA	2.4
1	B	59	VAL	2.3
1	G	59	VAL	2.3
1	B	256	GLY	2.3
1	H	6	LEU	2.3
1	D	115	MET	2.2
1	G	111	CYS	2.2
1	A	209	LEU	2.2
1	C	59	VAL	2.2
1	G	160	VAL	2.2
1	E	87	ALA	2.2
1	F	231	VAL	2.1
1	C	255	ALA	2.1
1	B	115	MET	2.0
1	A	126	ALA	2.0

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

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

6.3 Carbohydrates ⓘ

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($\text{\AA}^2$)	Q<0.9
2	ONS	F	401	35/35	0.81	0.14	84,101,127,138	0
3	MLT	F	402	9/9	0.82	0.09	73,77,84,86	0

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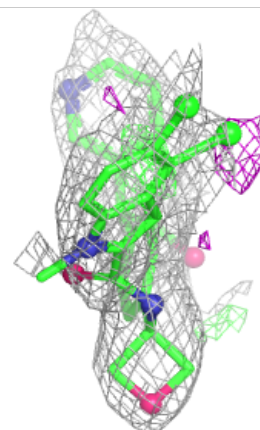
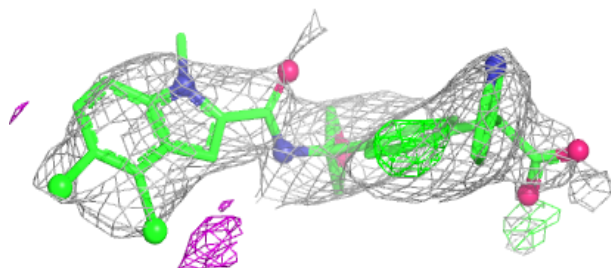
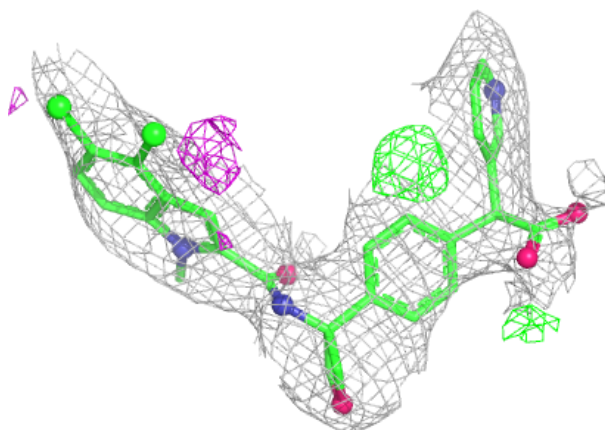
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Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors($\text{\AA}^2$)	Q<0.9
2	ONS	E	401	35/35	0.83	0.13	89,106,139,140	0
2	ONS	G	401	35/35	0.85	0.11	80,95,108,119	0
2	ONS	D	401	35/35	0.86	0.12	72,86,98,101	0
2	ONS	C	401	35/35	0.88	0.10	64,74,90,98	0
2	ONS	H	401	35/35	0.88	0.11	85,91,109,119	0
3	MLT	E	402	9/9	0.88	0.08	84,88,94,96	0
2	ONS	A	401	35/35	0.88	0.10	67,81,93,100	0
2	ONS	B	401	35/35	0.89	0.11	60,80,93,98	0
3	MLT	H	402	9/9	0.89	0.09	69,72,88,90	0
3	MLT	G	402	9/9	0.90	0.08	69,77,85,96	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.

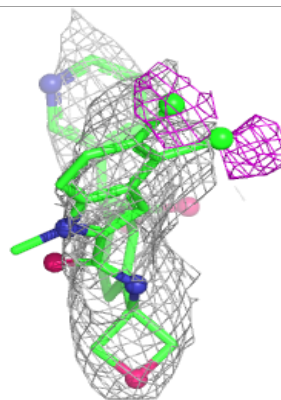
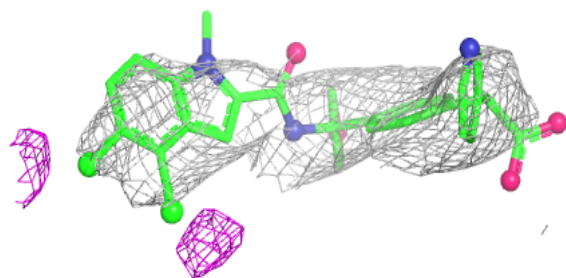
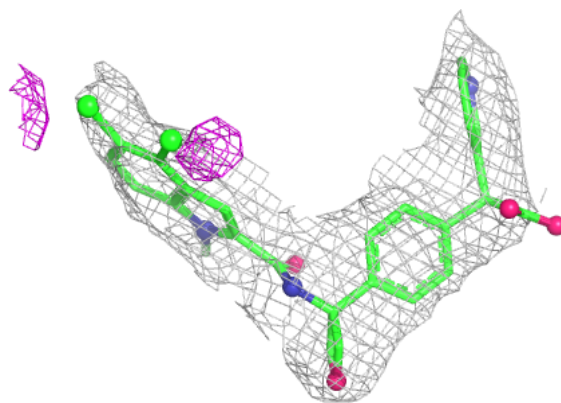
Electron density around ONS F 401:

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

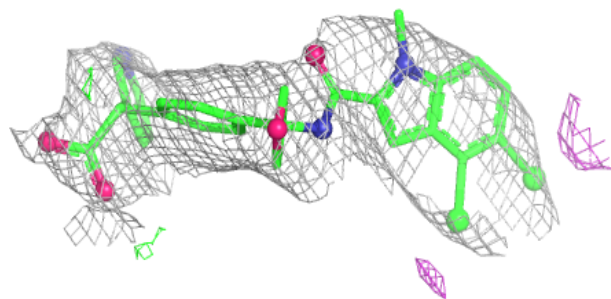
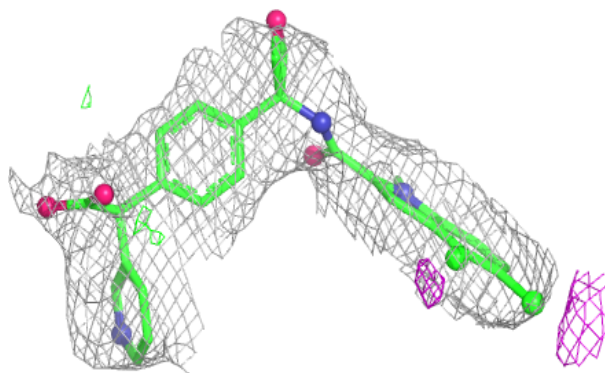


Electron density around ONS E 401:

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

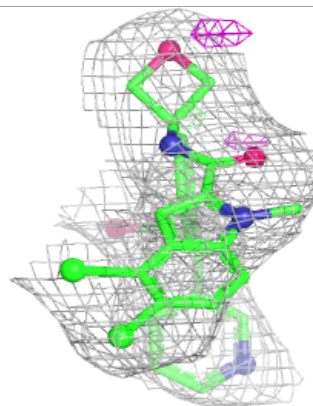
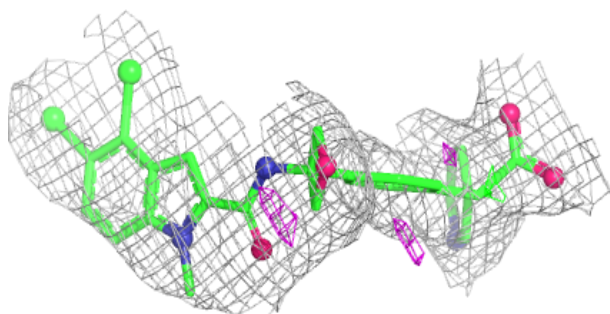
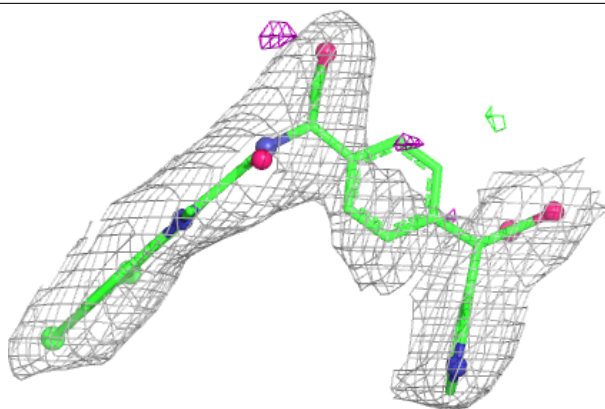
**Electron density around ONS G 401:**

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

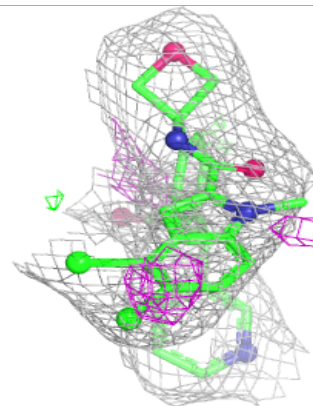
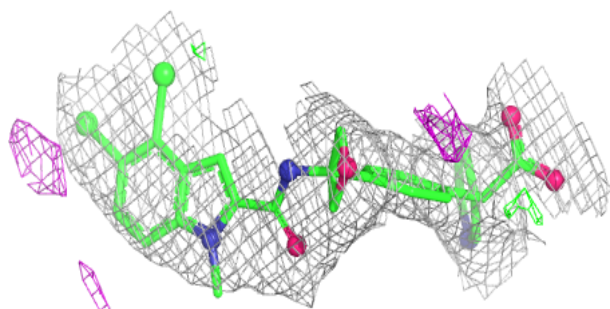
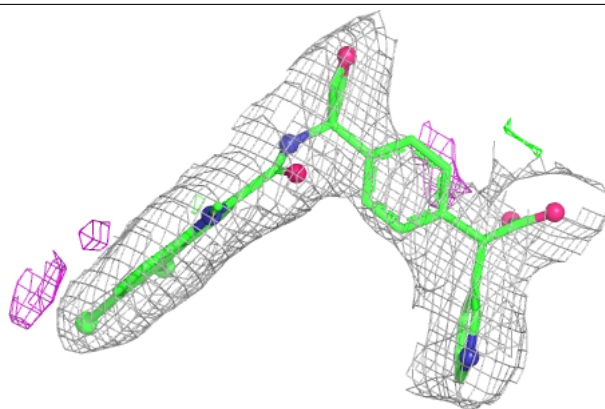


Electron density around ONS D 401:

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

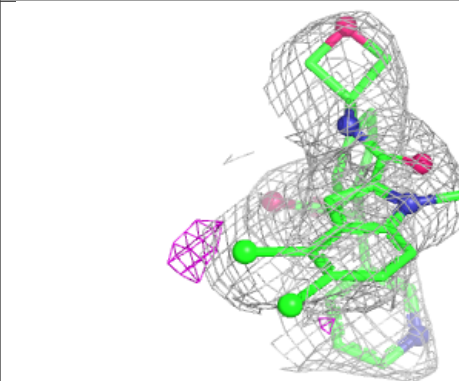
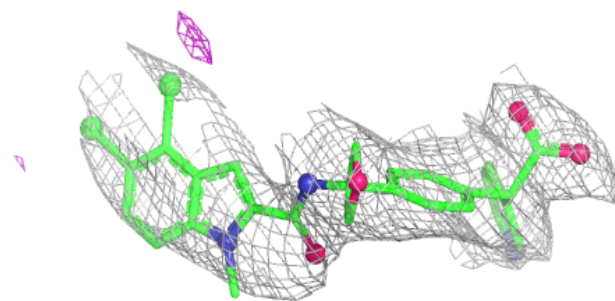
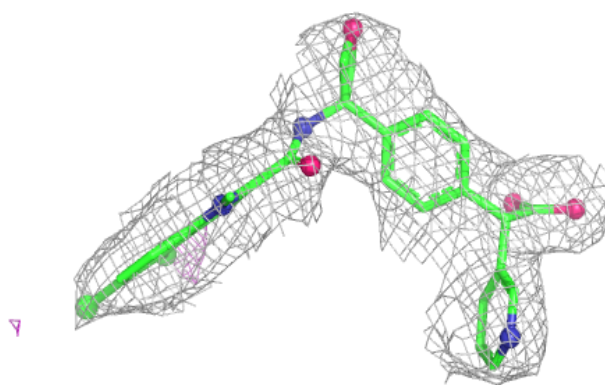
**Electron density around ONS C 401:**

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

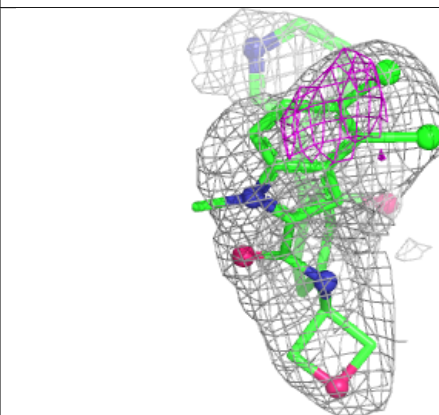
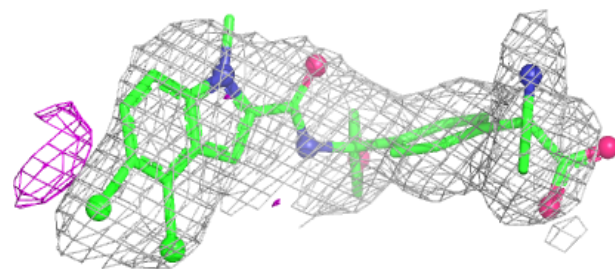
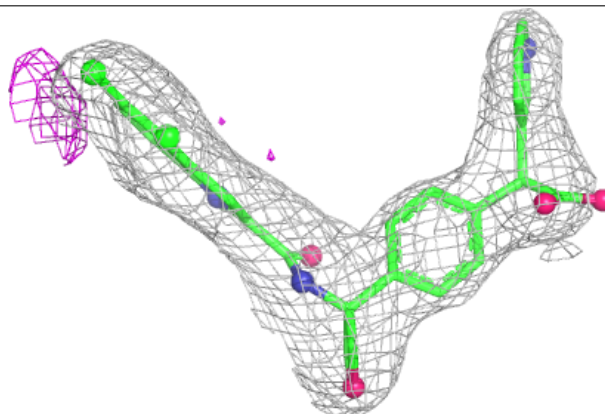


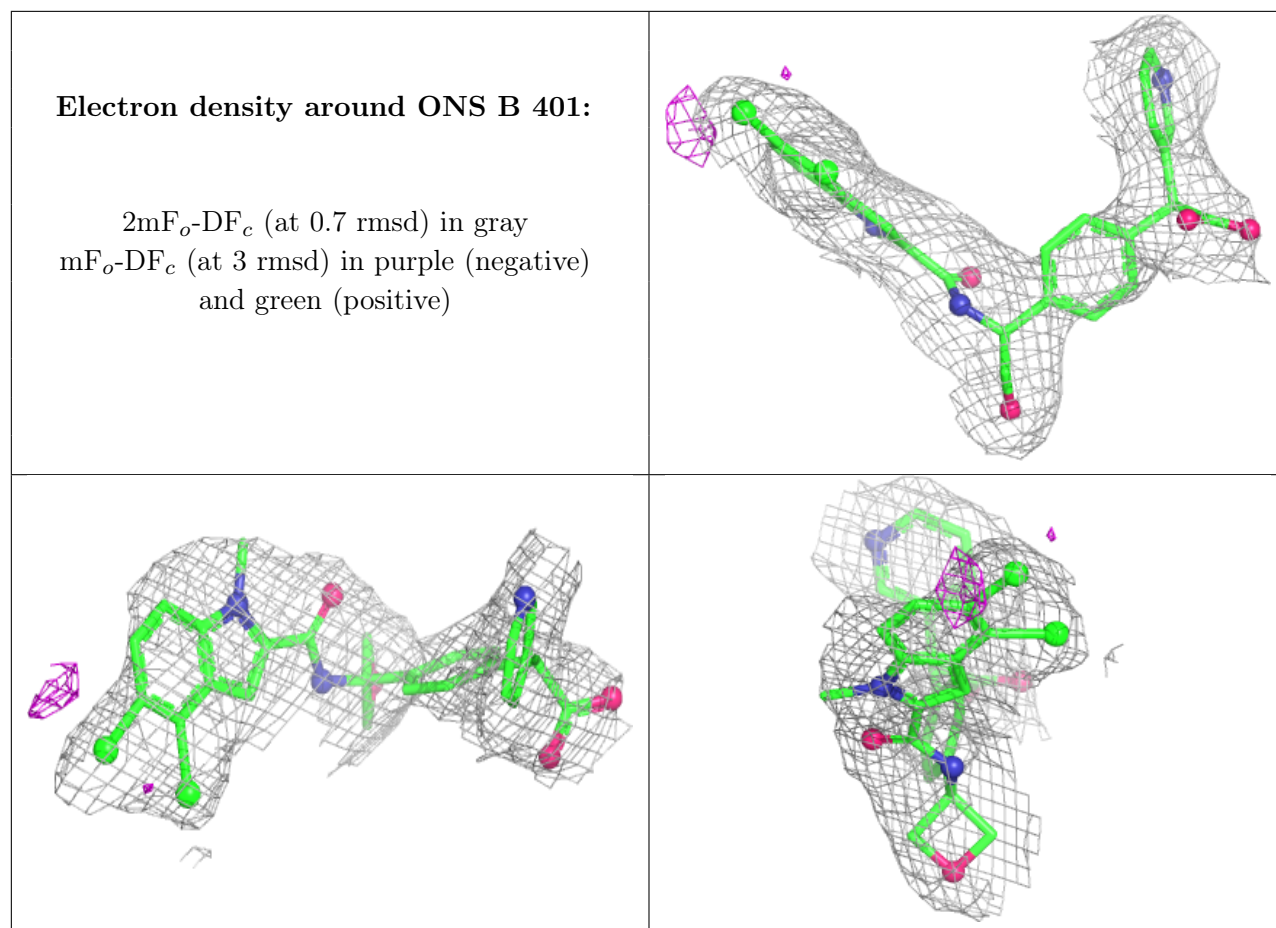
Electron density around ONS H 401:

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

**Electron density around ONS A 401:**

$2mF_o-DF_c$ (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.