



Full wwPDB X-ray Structure Validation Report ⓘ

Jul 14, 2025 – 10:12 AM JST

PDB ID : 9IUD / pdb_00009iud
Title : High resolution structure of Lectin-Like ox-LDL Receptor 1 with BI-0115 in space group P 21 21 21
Authors : Khan, M.A.; Arulandu, A.
Deposited on : 2024-07-20
Resolution : 1.98 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:

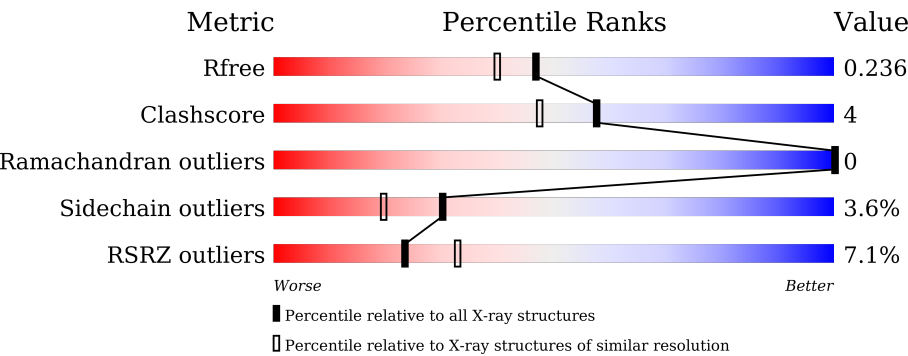
MolProbity : 4-5-2 with Phenix2.0rc1
Mogul : 1.8.5 (274361), CSD as541be (2020)
Xtriage (Phenix) : 2.0rc1
EDS : 3.0
buster-report : 1.1.7 (2018)
Percentile statistics : 20231227.v01 (using entries in the PDB archive December 27th 2023)
CCP4 : 9.0.006 (Gargrove)
Density-Fitness : 1.0.12
Ideal geometry (proteins) : Engh & Huber (2001)
Ideal geometry (DNA, RNA) : Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP) : 2.44

1 Overall quality at a glance i

The following experimental techniques were used to determine the structure:
X-RAY DIFFRACTION

The reported resolution of this entry is 1.98 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}	164625	1356 (1.98-1.98)
Clashscore	180529	1437 (1.98-1.98)
Ramachandran outliers	177936	1426 (1.98-1.98)
Sidechain outliers	177891	1426 (1.98-1.98)
RSRZ outliers	164620	1356 (1.98-1.98)

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	138	<div><div>7%</div><div>86%</div><div>9%</div><div>.</div><div>.</div></div>
1	B	138	<div><div>15%</div><div>83%</div><div>11%</div><div>.</div><div>.</div></div>
1	C	138	<div><div>3%</div><div>84%</div><div>9%</div><div>.</div><div>.</div></div>
1	D	138	<div><div>4%</div><div>84%</div><div>11%</div><div>.</div><div>.</div></div>
1	E	138	<div><div>6%</div><div>85%</div><div>10%</div><div>.</div><div>.</div></div>
1	F	138	<div><div>8%</div><div>81%</div><div>14%</div><div>.</div></div>

Continued on next page...

Continued from previous page...

Mol	Chain	Length	Quality of chain
1	G	138	<div><div></div><div>7%</div><div>84%</div><div>11%</div><div></div><div></div></div>
1	H	138	<div><div></div><div>4%</div><div>83%</div><div>12%</div><div></div><div></div></div>

2 Entry composition

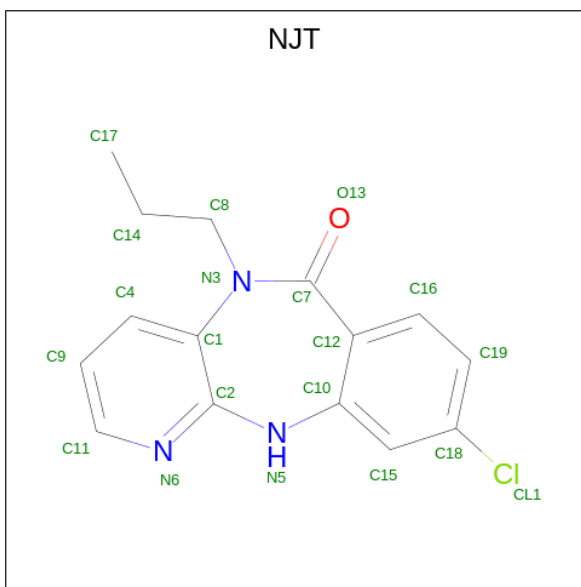
There are 4 unique types of molecules in this entry. The entry contains 9286 atoms, of which 0 are hydrogens and 0 are deuteriums.

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 Oxidized low-density lipoprotein receptor 1.

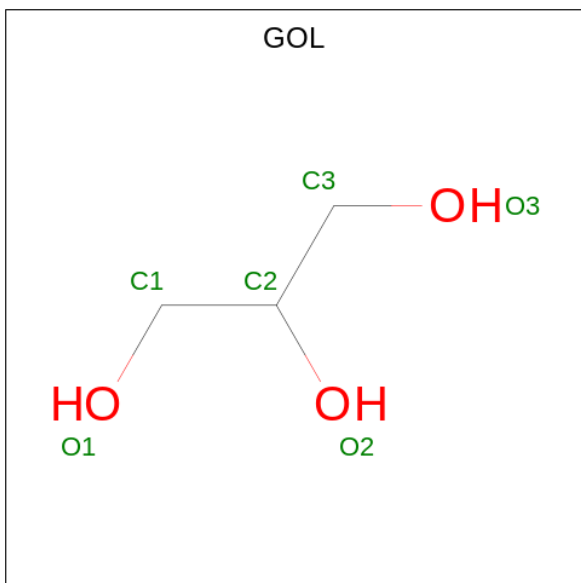
Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
1	A	132	Total	C	N	O	S	3	0	0
			1056	678	179	190	9			
1	B	132	Total	C	N	O	S	6	1	0
			1061	682	179	190	10			
1	C	132	Total	C	N	O	S	1	0	0
			1056	678	179	190	9			
1	D	132	Total	C	N	O	S	1	0	0
			1056	678	179	190	9			
1	E	132	Total	C	N	O	S	4	0	0
			1056	678	179	190	9			
1	F	132	Total	C	N	O	S	0	0	0
			1056	678	179	190	9			
1	G	132	Total	C	N	O	S	2	0	0
			1056	678	179	190	9			
1	H	132	Total	C	N	O	S	0	0	0
			1056	678	179	190	9			

- Molecule 2 is 9-chloranyl-5-propyl-11 {H}-pyrido[2,3-b][1,4]benzodiazepin-6-one (CCD ID: NJT) (formula: C₁₅H₁₄ClN₃O) (labeled as "Ligand of Interest" by depositor).



Mol	Chain	Residues	Atoms					ZeroOcc	AltConf
2	A	1	Total	C	Cl	N	O	0	0
			20	15	1	3	1		
2	A	1	Total	C	Cl	N	O	0	0
			20	15	1	3	1		
2	E	1	Total	C	Cl	N	O	0	0
			20	15	1	3	1		
2	H	1	Total	C	Cl	N	O	0	0
			20	15	1	3	1		

- Molecule 3 is GLYCEROL (CCD ID: GOL) (formula: $C_3H_8O_3$).



Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
3	A	1	Total C O 6 3 3	0	0
3	A	1	Total C O 6 3 3	0	0
3	A	1	Total C O 6 3 3	0	0
3	C	1	Total C O 6 3 3	0	0
3	D	1	Total C O 6 3 3	0	0
3	D	1	Total C O 6 3 3	0	0
3	E	1	Total C O 6 3 3	0	0
3	E	1	Total C O 6 3 3	0	0
3	F	1	Total C O 6 3 3	0	0

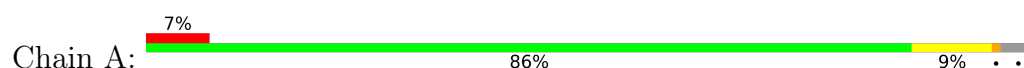
- Molecule 4 is water.

Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
4	A	91	Total O 91 91	0	0
4	B	52	Total O 52 52	0	0
4	C	83	Total O 83 83	0	0
4	D	124	Total O 124 124	0	0
4	E	112	Total O 112 112	0	0
4	F	67	Total O 67 67	0	0
4	G	67	Total O 67 67	0	0
4	H	103	Total O 103 103	0	0

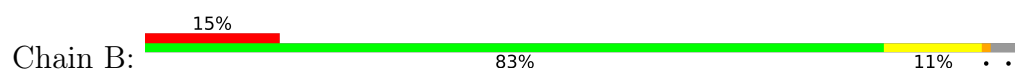
3 Residue-property plots [i](#)

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.

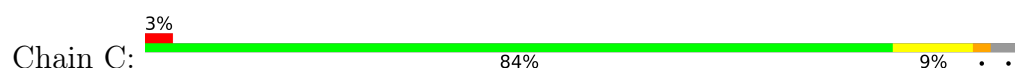
- Molecule 1: Oxidized low-density lipoprotein receptor 1



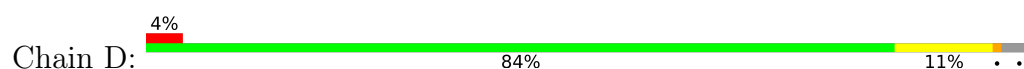
- Molecule 1: Oxidized low-density lipoprotein receptor 1



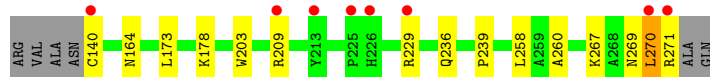
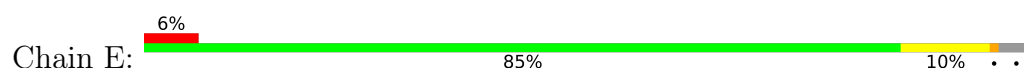
- Molecule 1: Oxidized low-density lipoprotein receptor 1



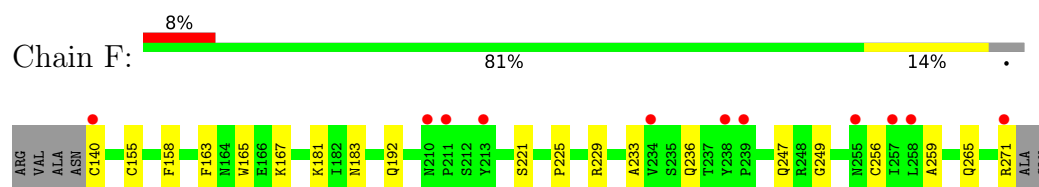
- Molecule 1: Oxidized low-density lipoprotein receptor 1



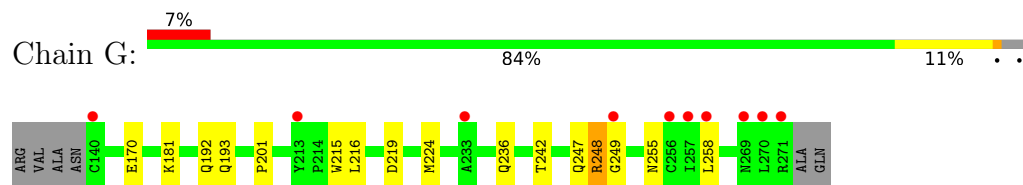
- Molecule 1: Oxidized low-density lipoprotein receptor 1



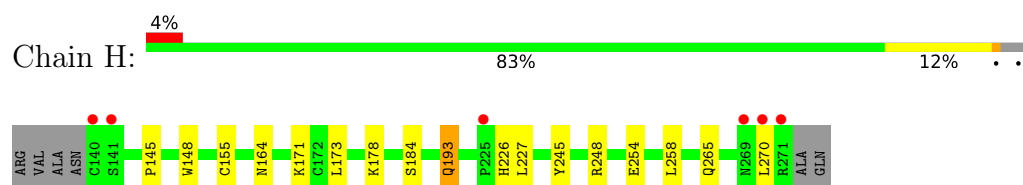
- Molecule 1: Oxidized low-density lipoprotein receptor 1



- Molecule 1: Oxidized low-density lipoprotein receptor 1



- Molecule 1: Oxidized low-density lipoprotein receptor 1



4 Data and refinement statistics

Property	Value	Source
Space group	P 21 21 21	Depositor
Cell constants a, b, c, α , β , γ	82.55Å 110.25Å 117.06Å 90.00° 90.00° 90.00°	Depositor
Resolution (Å)	41.27 – 1.98 41.27 – 1.98	Depositor EDS
% Data completeness (in resolution range)	94.7 (41.27-1.98) 94.8 (41.27-1.98)	Depositor EDS
R_{merge}	0.12	Depositor
R_{sym}	(Not available)	Depositor
$\langle I/\sigma(I) \rangle$ ¹	2.38 (at 1.98Å)	Xtriage
Refinement program	PHENIX (1.18.2-3874)	Depositor
R, R_{free}	0.203 , 0.241 0.207 , 0.236	Depositor DCC
R_{free} test set	3870 reflections (5.18%)	wwPDB-VP
Wilson B-factor (Å ²)	29.8	Xtriage
Anisotropy	0.100	Xtriage
Bulk solvent k_{sol} (e/Å ³), B_{sol} (Å ²)	0.34 , 36.0	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	0.95	EDS
Total number of atoms	9286	wwPDB-VP
Average B, all atoms (Å ²)	33.0	wwPDB-VP

Xtriage's analysis on translational NCS is as follows: *The analyses of the Patterson function reveals a significant off-origin peak that is 53.70 % of the origin peak, indicating pseudo-translational symmetry. The chance of finding a peak of this or larger height randomly in a structure without pseudo-translational symmetry is equal to 4.0600e-05. The detected translational NCS is most likely also responsible for the elevated intensity ratio.*

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: NJT, GOL

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	0.55	0/1090	0.77	0/1481
1	B	0.56	0/1098	0.77	0/1491
1	C	0.54	0/1090	0.80	0/1481
1	D	0.57	0/1090	0.83	0/1481
1	E	0.48	0/1090	0.73	2/1481 (0.1%)
1	F	0.52	0/1090	0.77	0/1481
1	G	0.49	0/1090	0.77	0/1481
1	H	0.48	0/1090	0.71	2/1481 (0.1%)
All	All	0.53	0/8728	0.77	4/11858 (0.0%)

There are no bond length outliers.

All (4) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	H	270	LEU	CB-CA-C	-6.32	108.27	115.79
1	H	193	GLN	CB-CG-CD	5.96	122.74	112.60
1	E	269	ASN	CA-C-N	-5.14	114.17	122.81
1	E	269	ASN	C-N-CA	-5.14	114.17	122.81

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	1056	0	1004	9	0
1	B	1061	0	1013	11	0
1	C	1056	0	1004	13	0
1	D	1056	0	1004	9	0
1	E	1056	0	1004	10	0
1	F	1056	0	1004	10	0
1	G	1056	0	1004	14	0
1	H	1056	0	1004	10	0
2	A	40	0	0	1	0
2	E	20	0	0	0	0
2	H	20	0	0	0	0
3	A	18	0	24	0	0
3	C	6	0	8	0	0
3	D	12	0	16	0	0
3	E	12	0	16	2	0
3	F	6	0	8	2	0
4	A	91	0	0	1	0
4	B	52	0	0	1	0
4	C	83	0	0	3	0
4	D	124	0	0	2	0
4	E	112	0	0	2	0
4	F	67	0	0	2	0
4	G	67	0	0	2	0
4	H	103	0	0	1	0
All	All	9286	0	8113	74	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 (74) 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:C:192:GLN:HG2	1:C:249:GLY:HA2	1.67	0.76
1:C:247:GLN:NE2	1:C:248:ARG:HG2	2.05	0.71
1:G:192:GLN:HG2	1:G:249:GLY:HA2	1.75	0.68
1:E:236:GLN:HE21	1:G:201:PRO:HD2	1.59	0.67
1:D:193:GLN:NE2	4:D:401:HOH:O	2.29	0.64
1:B:175:LEU:O	1:B:266:LYS:NZ	2.27	0.63
1:C:271:ARG:HD2	1:G:224:MET:HG2	1.84	0.59
1:C:247:GLN:HE22	1:C:248:ARG:HG2	1.68	0.59
1:G:247:GLN:HG2	1:G:248:ARG:HG3	1.84	0.58
1:B:258:LEU:HD21	1:D:237:THR:OG1	2.02	0.58

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:F:233:ALA:HB1	1:F:236:GLN:NE2	2.19	0.58
1:B:190:PHE:O	1:B:193:GLN:HG3	2.03	0.57
1:G:248:ARG:HA	4:G:337:HOH:O	2.04	0.56
1:C:270:LEU:O	1:C:271:ARG:C	2.50	0.54
3:E:302:GOL:H31	1:H:248:ARG:HH22	1.73	0.54
1:F:192:GLN:HG2	1:F:249:GLY:HA2	1.89	0.53
1:C:236:GLN:OE1	1:C:236:GLN:N	2.42	0.53
1:G:236:GLN:OE1	1:G:236:GLN:N	2.37	0.52
1:E:236:GLN:NE2	4:E:704:HOH:O	2.40	0.52
1:A:178:LYS:HD2	1:A:179:LEU:O	2.10	0.52
1:C:266:LYS:NZ	4:C:401:HOH:O	2.05	0.52
1:H:254:GLU:CG	1:H:258:LEU:HD12	2.41	0.51
1:B:247:GLN:HE22	1:D:255:ASN:HD21	1.60	0.50
1:F:158:PHE:H	3:F:301:GOL:H11	1.77	0.49
3:F:301:GOL:H12	4:F:431:HOH:O	2.13	0.49
1:E:267:LYS:NZ	4:E:708:HOH:O	2.46	0.48
1:H:164:ASN:HA	1:H:258:LEU:O	2.14	0.47
1:C:199:SER:O	1:C:247:GLN:NE2	2.48	0.47
1:A:140:CYS:HA	1:B:140:CYS:N	2.31	0.46
1:B:236:GLN:N	1:B:236:GLN:OE1	2.49	0.46
1:H:184:SER:C	1:H:227:LEU:HD11	2.41	0.46
1:D:248:ARG:HA	4:D:456:HOH:O	2.16	0.45
1:E:236:GLN:NE2	1:G:201:PRO:HD2	2.30	0.45
1:B:248:ARG:HA	4:B:317:HOH:O	2.15	0.44
1:F:155:CYS:O	1:F:265:GLN:HA	2.17	0.44
1:F:181:LYS:HE3	1:F:221:SER:OG	2.16	0.44
1:D:203:TRP:CD1	1:D:260:ALA:HB3	2.52	0.44
1:F:163:PHE:C	1:F:259:ALA:HA	2.42	0.44
1:A:164:ASN:HA	1:A:258:LEU:O	2.18	0.43
1:G:247:GLN:O	1:G:248:ARG:C	2.61	0.43
1:H:173:LEU:HD23	4:H:457:HOH:O	2.18	0.43
1:B:210:ASN:HD21	1:B:212:SER:HB2	1.83	0.43
1:A:178:LYS:HG3	4:A:435:HOH:O	2.19	0.43
1:B:209:ARG:HH21	1:B:210:ASN:CG	2.27	0.43
1:D:164:ASN:H	1:D:167:LYS:NZ	2.16	0.43
1:A:208:ARG:NH1	1:A:234:VAL:O	2.52	0.43
1:D:171:LYS:HE3	1:D:175:LEU:HD11	2.01	0.43
1:A:149:ILE:HG12	1:B:149:ILE:HG12	2.01	0.42
1:F:183:ASN:ND2	4:F:402:HOH:O	2.43	0.42
1:G:215:TRP:HH2	1:G:242:THR:HG22	1.84	0.42
1:G:181:LYS:NZ	1:G:219:ASP:OD2	2.50	0.42

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:248:ARG:HA	4:C:457:HOH:O	2.20	0.42
1:H:155:CYS:O	1:H:265:GLN:HA	2.20	0.42
1:G:216:LEU:HB2	4:G:330:HOH:O	2.19	0.41
1:H:145:PRO:HG2	1:H:148:TRP:CD1	2.55	0.41
1:C:229:ARG:HD3	1:H:171:LYS:HA	2.01	0.41
1:E:140:CYS:N	1:F:140:CYS:HB2	2.36	0.41
1:A:237:THR:HB	1:C:258:LEU:HD21	2.03	0.41
1:C:141:SER:HB3	1:C:269:ASN:ND2	2.35	0.41
1:D:210:ASN:HA	1:D:211:PRO:HD3	1.93	0.41
1:G:255:ASN:HB3	1:G:258:LEU:HD13	2.02	0.41
1:H:245:TYR:HE1	1:H:254:GLU:HB2	1.86	0.41
3:E:302:GOL:C3	1:H:248:ARG:HH22	2.33	0.41
1:A:259:ALA:O	2:A:301:NJT:N5	2.54	0.41
1:E:239:PRO:HD2	1:G:247:GLN:HE22	1.86	0.41
1:F:165:TRP:HB3	1:F:256:CYS:HB3	2.02	0.41
1:A:175:LEU:HD23	1:F:225:PRO:HB2	2.02	0.41
1:E:203:TRP:CD1	1:E:260:ALA:HB3	2.56	0.41
1:B:192:GLN:HG2	1:B:249:GLY:HA2	2.02	0.40
1:D:163:PHE:HB3	1:D:167:LYS:HE2	2.02	0.40
1:E:236:GLN:HE21	1:G:201:PRO:CD	2.30	0.40
1:C:267:LYS:NZ	4:C:408:HOH:O	2.44	0.40
1:E:164:ASN:HA	1:E:258:LEU:O	2.20	0.40
1:E:270:LEU:HD13	1:E:270:LEU:HA	1.77	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	130/138 (94%)	127 (98%)	3 (2%)	0	100	100
1	B	131/138 (95%)	128 (98%)	3 (2%)	0	100	100

Continued on next page...

Continued from previous page...

Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
1	C	130/138 (94%)	128 (98%)	2 (2%)	0	100	100
1	D	130/138 (94%)	128 (98%)	2 (2%)	0	100	100
1	E	130/138 (94%)	127 (98%)	3 (2%)	0	100	100
1	F	130/138 (94%)	123 (95%)	7 (5%)	0	100	100
1	G	130/138 (94%)	129 (99%)	1 (1%)	0	100	100
1	H	130/138 (94%)	127 (98%)	3 (2%)	0	100	100
All	All	1041/1104 (94%)	1017 (98%)	24 (2%)	0	100	100

There are no Ramachandran outliers to report.

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	114/118 (97%)	110 (96%)	4 (4%)	31	21
1	B	115/118 (98%)	111 (96%)	4 (4%)	31	21
1	C	114/118 (97%)	109 (96%)	5 (4%)	24	13
1	D	114/118 (97%)	110 (96%)	4 (4%)	31	21
1	E	114/118 (97%)	108 (95%)	6 (5%)	19	8
1	F	114/118 (97%)	110 (96%)	4 (4%)	31	21
1	G	114/118 (97%)	111 (97%)	3 (3%)	41	32
1	H	114/118 (97%)	111 (97%)	3 (3%)	41	32
All	All	913/944 (97%)	880 (96%)	33 (4%)	30	19

All (33) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	178	LYS
1	A	183	ASN
1	A	209	ARG
1	A	226	HIS

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type
1	B	174	SER
1	B	210	ASN
1	B	247	GLN
1	B	270	LEU
1	C	140	CYS
1	C	167	LYS
1	C	229	ARG
1	C	247	GLN
1	C	258	LEU
1	D	167	LYS
1	D	178	LYS
1	D	224	MET
1	D	271	ARG
1	E	173	LEU
1	E	178	LYS
1	E	209	ARG
1	E	229	ARG
1	E	270	LEU
1	E	271	ARG
1	F	167	LYS
1	F	229	ARG
1	F	247	GLN
1	F	271	ARG
1	G	170	GLU
1	G	193	GLN
1	G	248	ARG
1	H	178	LYS
1	H	193	GLN
1	H	226	HIS

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (17) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	154	ASN
1	A	183	ASN
1	A	193	GLN
1	A	269	ASN
1	B	210	ASN
1	B	247	GLN
1	B	269	ASN
1	C	247	GLN
1	C	269	ASN

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type
1	E	154	ASN
1	E	236	GLN
1	F	169	GLN
1	F	183	ASN
1	F	226	HIS
1	G	247	GLN
1	H	226	HIS
1	H	236	GLN

5.3.3 RNA [i](#)

There are no RNA molecules in this entry.

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

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

5.5 Carbohydrates [i](#)

There are no oligosaccharides in this entry.

5.6 Ligand geometry [i](#)

13 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	$\# Z > 2$
3	GOL	F	301	-	5,5,5	0.10	0	5,5,5	0.30	0
3	GOL	E	302	-	5,5,5	0.20	0	5,5,5	0.53	0
3	GOL	D	302	-	5,5,5	0.11	0	5,5,5	0.49	0
3	GOL	A	303	-	5,5,5	0.09	0	5,5,5	0.59	0
2	NJT	A	301	-	22,22,22	0.31	0	29,31,31	0.58	0
3	GOL	D	301	-	5,5,5	0.11	0	5,5,5	0.19	0

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	# Z > 2	Counts	RMSZ	# Z > 2
3	GOL	C	301	-	5,5,5	0.09	0	5,5,5	0.61	0
3	GOL	E	301	-	5,5,5	0.09	0	5,5,5	0.48	0
3	GOL	A	305	-	5,5,5	0.07	0	5,5,5	0.40	0
2	NJT	H	301	-	22,22,22	0.31	0	29,31,31	0.57	0
3	GOL	A	304	-	5,5,5	0.09	0	5,5,5	0.35	0
2	NJT	E	303	-	22,22,22	0.37	0	29,31,31	0.53	0
2	NJT	A	302	-	22,22,22	0.36	0	29,31,31	0.61	0

In the following table, the Chirals column lists the number of chiral outliers, the number of chiral centers analysed, the number of these observed in the model and the number defined in the Chemical Component Dictionary. Similar counts are reported in the Torsion and Rings columns. '-' means no outliers of that kind were identified.

Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
3	GOL	F	301	-	-	4/4/4/4	-
3	GOL	E	302	-	-	4/4/4/4	-
3	GOL	D	302	-	-	0/4/4/4	-
3	GOL	A	303	-	-	3/4/4/4	-
2	NJT	A	301	-	-	1/3/3/3	0/3/3/3
3	GOL	D	301	-	-	0/4/4/4	-
3	GOL	C	301	-	-	4/4/4/4	-
3	GOL	E	301	-	-	0/4/4/4	-
3	GOL	A	305	-	-	0/4/4/4	-
2	NJT	H	301	-	-	1/3/3/3	0/3/3/3
3	GOL	A	304	-	-	0/4/4/4	-
2	NJT	E	303	-	-	1/3/3/3	0/3/3/3
2	NJT	A	302	-	-	1/3/3/3	0/3/3/3

There are no bond length outliers.

There are no bond angle outliers.

There are no chirality outliers.

All (19) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
3	C	301	GOL	C1-C2-C3-O3
3	E	302	GOL	O1-C1-C2-C3
3	F	301	GOL	C1-C2-C3-O3
3	E	302	GOL	C1-C2-C3-O3
3	F	301	GOL	O1-C1-C2-C3
3	C	301	GOL	O2-C2-C3-O3

Continued on next page...

Continued from previous page...

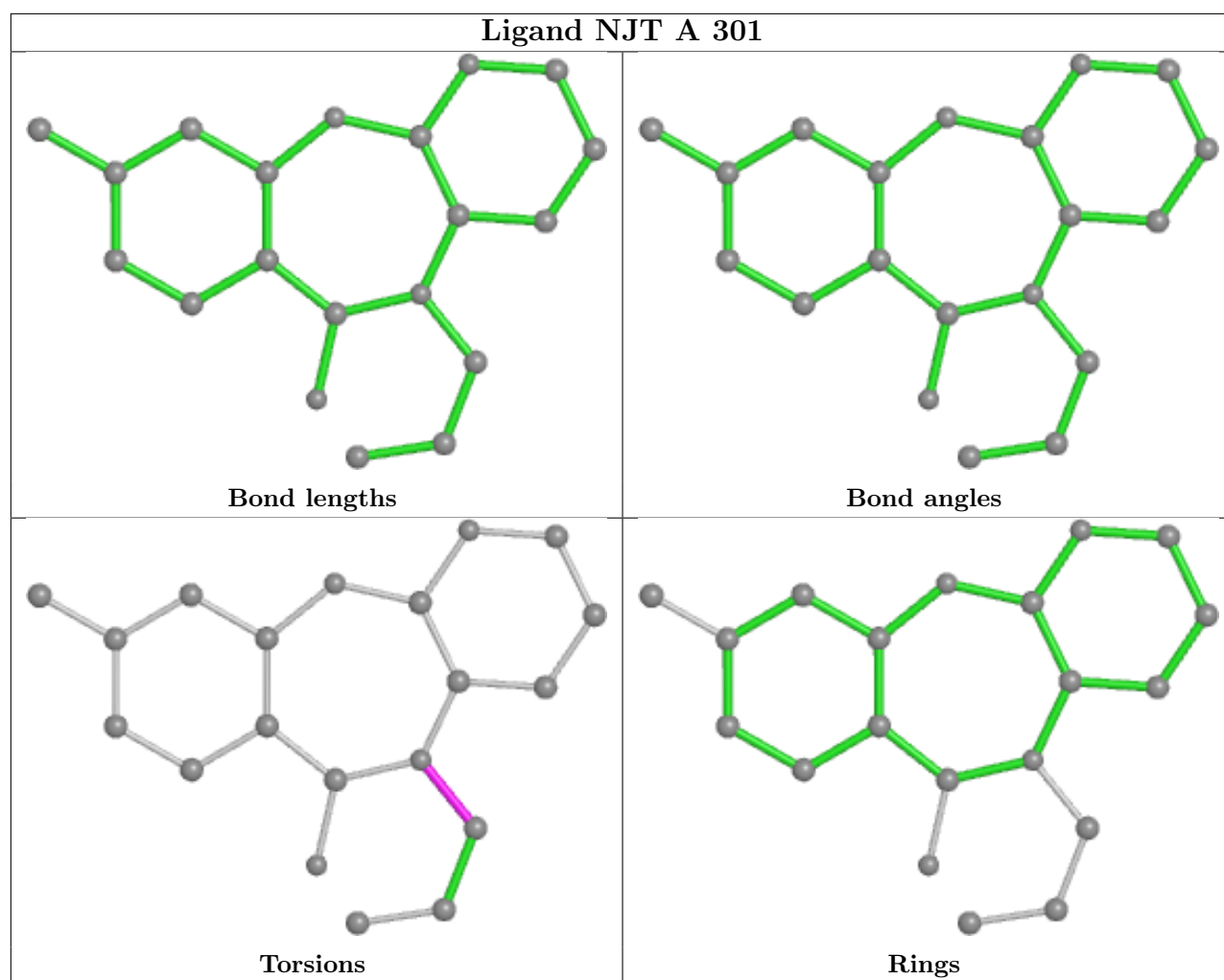
Mol	Chain	Res	Type	Atoms
3	E	302	GOL	O1-C1-C2-O2
3	F	301	GOL	O2-C2-C3-O3
2	A	301	NJT	C14-C8-N3-C1
2	A	302	NJT	C14-C8-N3-C1
2	H	301	NJT	C14-C8-N3-C1
3	A	303	GOL	O2-C2-C3-O3
3	C	301	GOL	O1-C1-C2-O2
2	E	303	NJT	C14-C8-N3-C1
3	A	303	GOL	O1-C1-C2-O2
3	F	301	GOL	O1-C1-C2-O2
3	E	302	GOL	O2-C2-C3-O3
3	A	303	GOL	C1-C2-C3-O3
3	C	301	GOL	O1-C1-C2-C3

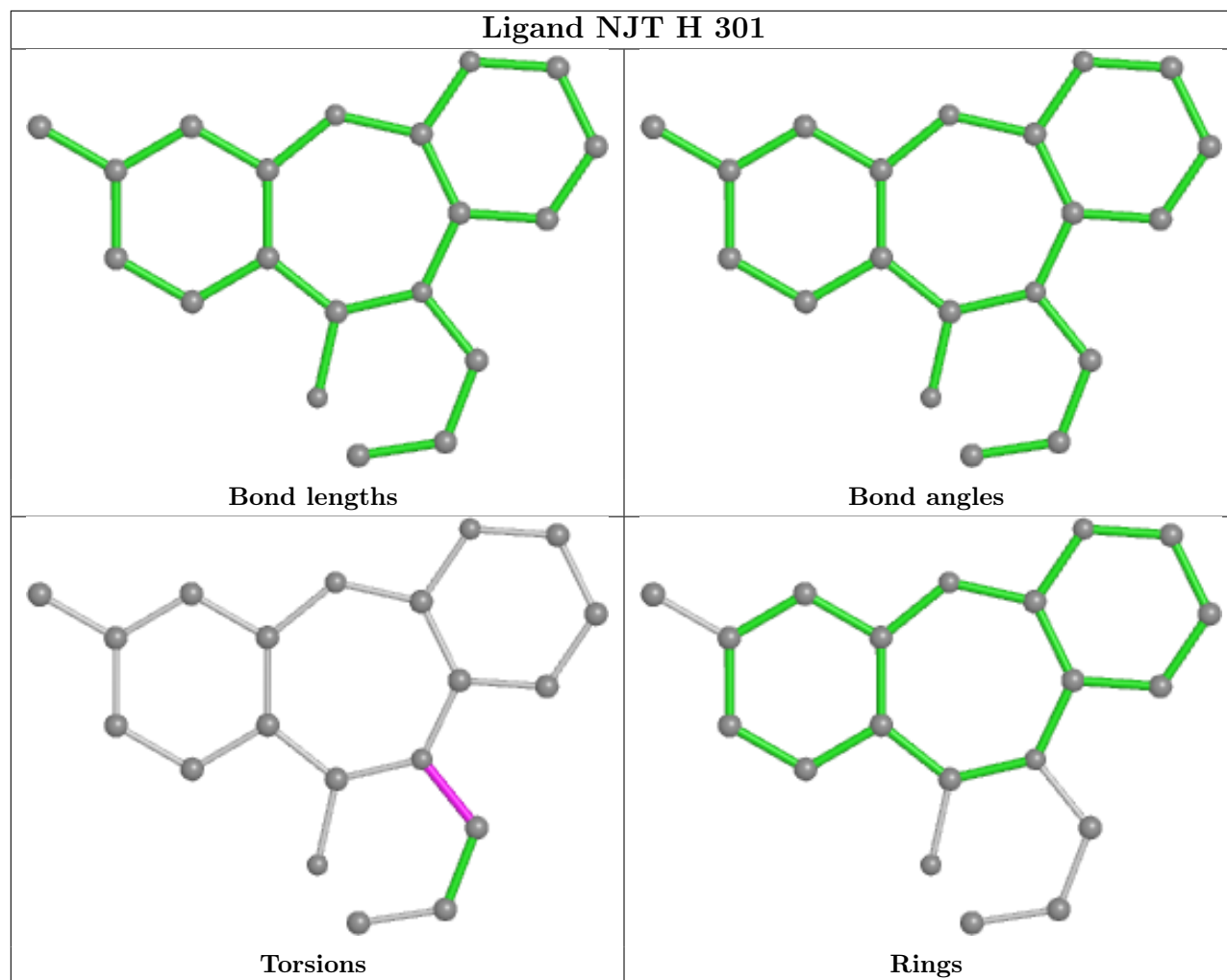
There are no ring outliers.

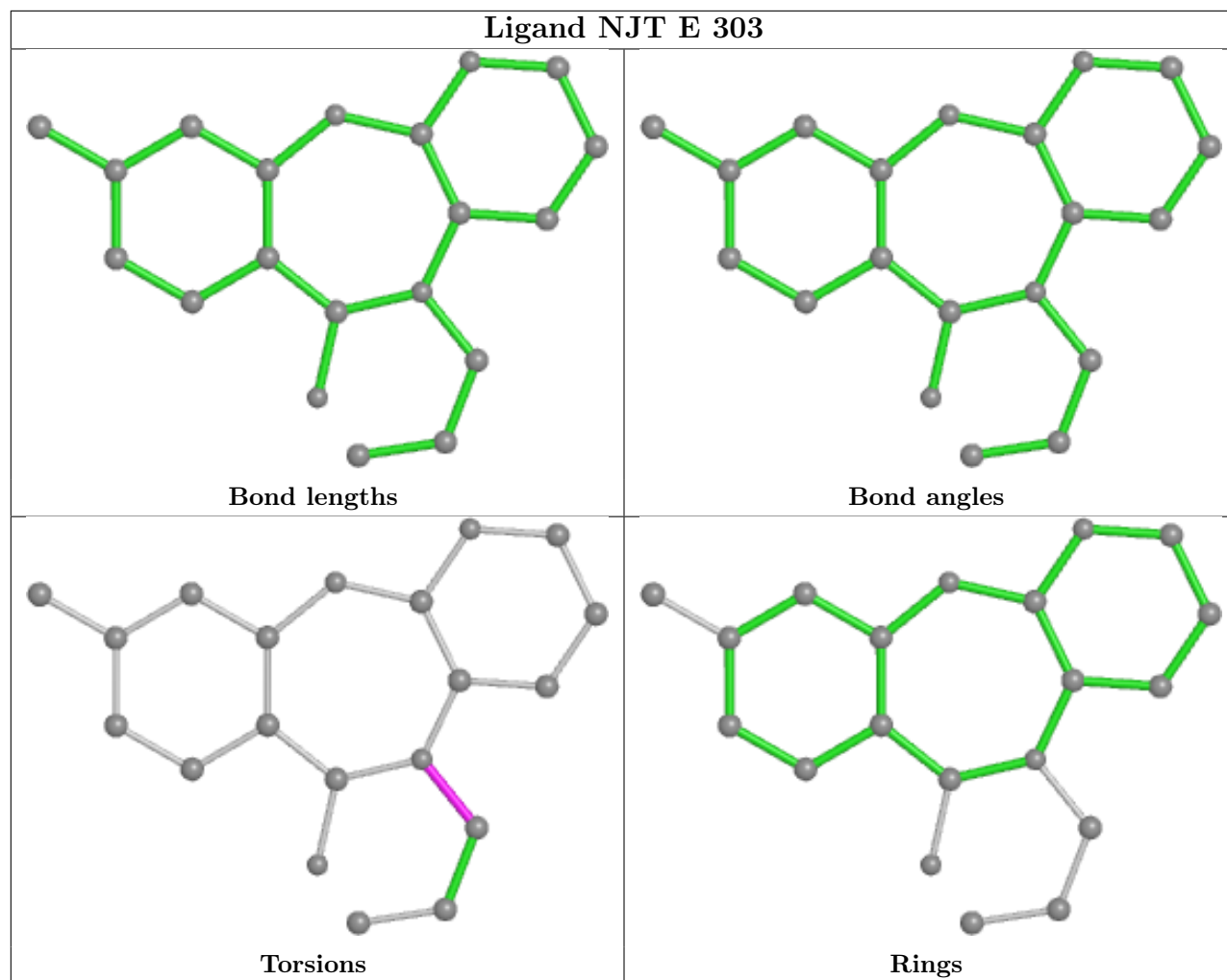
3 monomers are involved in 5 short contacts:

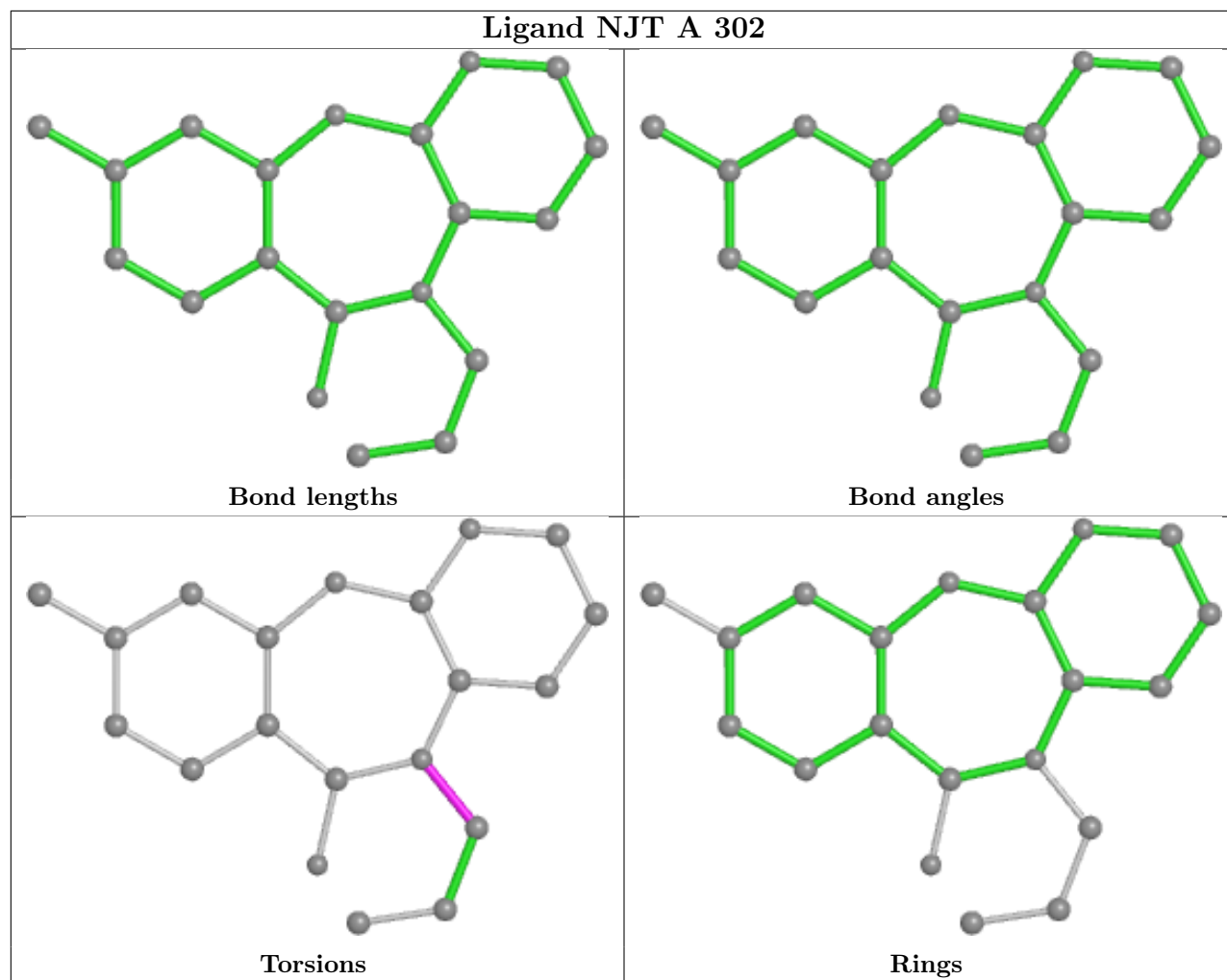
Mol	Chain	Res	Type	Clashes	Symm-Clashes
3	F	301	GOL	2	0
3	E	302	GOL	2	0
2	A	301	NJT	1	0

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.









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	132/138 (95%)	0.38	10 (7%)	21 30	17, 28, 47, 75	8 (6%)
1	B	132/138 (95%)	0.81	21 (15%)	6 9	16, 36, 58, 73	16 (12%)
1	C	132/138 (95%)	0.28	4 (3%)	52 63	20, 31, 48, 69	2 (1%)
1	D	132/138 (95%)	0.11	5 (3%)	44 55	16, 26, 44, 68	2 (1%)
1	E	132/138 (95%)	0.21	8 (6%)	28 39	17, 29, 43, 70	4 (3%)
1	F	132/138 (95%)	0.57	11 (8%)	19 27	20, 34, 65, 70	1 (0%)
1	G	132/138 (95%)	0.58	10 (7%)	21 30	20, 35, 52, 62	6 (4%)
1	H	132/138 (95%)	0.21	6 (4%)	39 50	18, 27, 42, 72	3 (2%)
All	All	1056/1104 (95%)	0.39	75 (7%)	23 33	16, 30, 53, 75	42 (3%)

All (75) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	D	224	MET	4.0
1	C	271	ARG	4.0
1	H	271	ARG	3.9
1	F	271	ARG	3.8
1	B	270	LEU	3.7
1	E	270	LEU	3.6
1	G	233	ALA	3.6
1	A	213	TYR	3.6
1	B	209	ARG	3.5
1	A	271	ARG	3.3
1	E	140	CYS	3.1
1	B	140	CYS	3.1
1	B	249	GLY	3.1
1	B	239	PRO	3.1
1	H	225	PRO	3.1
1	F	210	ASN	3.0

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type	RSRZ
1	F	234	VAL	3.0
1	E	271	ARG	3.0
1	A	225	PRO	3.0
1	H	270	LEU	3.0
1	D	225	PRO	2.9
1	B	173	LEU	2.9
1	G	256	CYS	2.9
1	G	257	ILE	2.8
1	G	270	LEU	2.8
1	B	213	TYR	2.8
1	E	213	TYR	2.8
1	B	257	ILE	2.8
1	E	225	PRO	2.7
1	F	213	TYR	2.7
1	H	140	CYS	2.7
1	G	269	ASN	2.7
1	A	140	CYS	2.6
1	B	241	GLY	2.6
1	D	226	HIS	2.6
1	A	270	LEU	2.6
1	B	268	ALA	2.6
1	D	140	CYS	2.6
1	F	257	ILE	2.6
1	A	142	ALA	2.6
1	E	226	HIS	2.5
1	B	258	LEU	2.5
1	B	177	ALA	2.5
1	B	269	ASN	2.5
1	B	256	CYS	2.4
1	C	213	TYR	2.4
1	D	271	ARG	2.3
1	H	141	SER	2.3
1	B	271	ARG	2.3
1	F	255	ASN	2.3
1	A	183	ASN	2.3
1	G	140	CYS	2.3
1	B	234	VAL	2.3
1	B	238	TYR	2.3
1	C	256	CYS	2.2
1	H	269	ASN	2.2
1	A	211	PRO	2.2
1	E	229	ARG	2.2

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type	RSRZ
1	C	140	CYS	2.2
1	F	211	PRO	2.2
1	B	255	ASN	2.1
1	B	233	ALA	2.1
1	B	165	TRP	2.1
1	A	224	MET	2.1
1	E	209	ARG	2.1
1	G	271	ARG	2.1
1	F	238	TYR	2.1
1	F	239	PRO	2.1
1	A	141	SER	2.1
1	B	210	ASN	2.1
1	G	213	TYR	2.0
1	G	249	GLY	2.0
1	F	140	CYS	2.0
1	F	258	LEU	2.0
1	G	258	LEU	2.0

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

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

6.3 Carbohydrates [i](#)

There are no oligosaccharides in this entry.

6.4 Ligands [i](#)

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

Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors(\AA^2)	Q<0.9
3	GOL	A	305	6/6	0.58	0.19	40,41,43,50	0
3	GOL	A	304	6/6	0.69	0.16	40,45,46,52	0
3	GOL	D	302	6/6	0.76	0.22	33,37,39,40	0
3	GOL	D	301	6/6	0.78	0.15	34,41,42,45	0
3	GOL	A	303	6/6	0.79	0.16	31,35,36,37	0
3	GOL	E	302	6/6	0.79	0.17	28,38,40,40	0

Continued on next page...

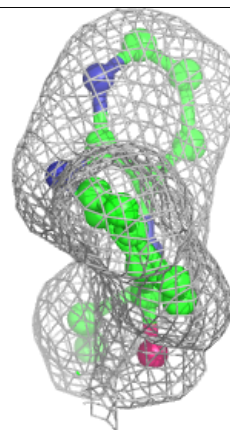
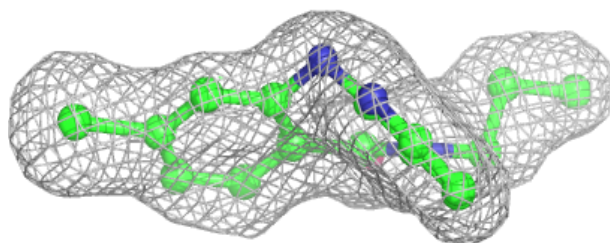
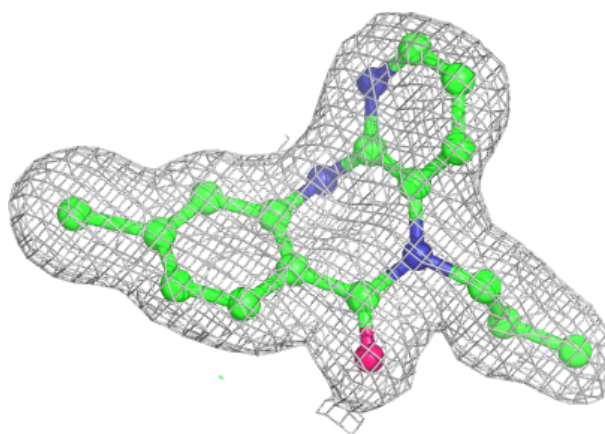
Continued from previous page...

Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors(\AA^2)	Q<0.9
3	GOL	E	301	6/6	0.81	0.20	27,34,37,41	0
3	GOL	F	301	6/6	0.81	0.16	31,32,36,42	0
3	GOL	C	301	6/6	0.84	0.13	28,29,35,37	0
2	NJT	A	301	20/20	0.96	0.07	15,20,24,28	0
2	NJT	A	302	20/20	0.97	0.06	15,19,22,25	0
2	NJT	E	303	20/20	0.97	0.06	17,20,24,25	0
2	NJT	H	301	20/20	0.97	0.06	17,20,25,26	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.

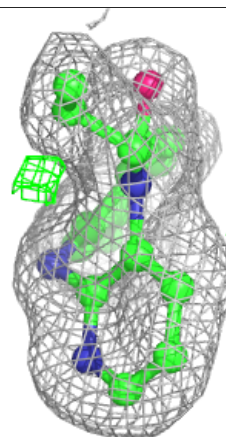
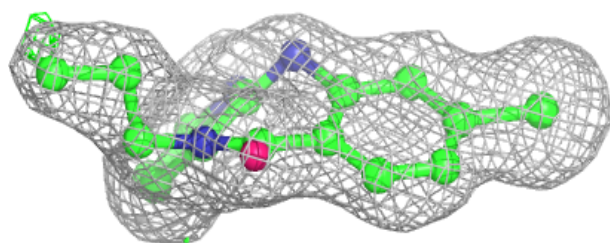
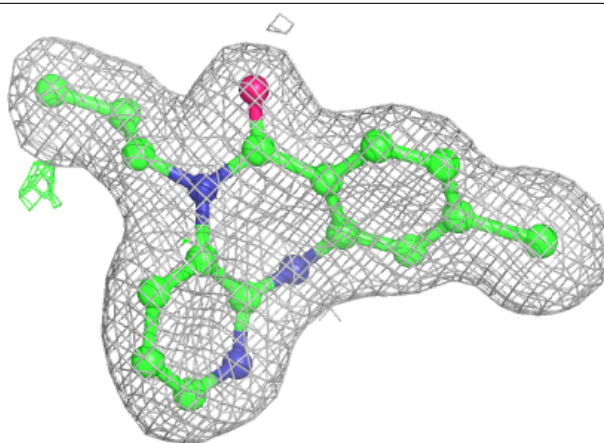
Electron density around NJT A 301:

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



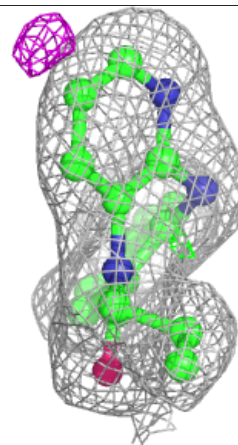
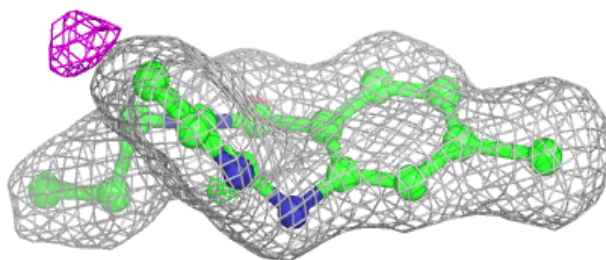
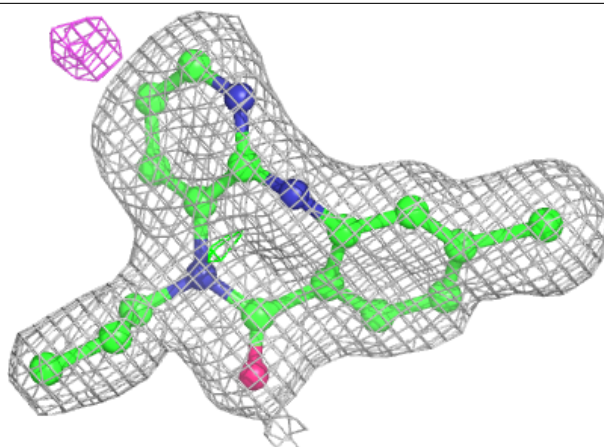
Electron density around NJT A 302:

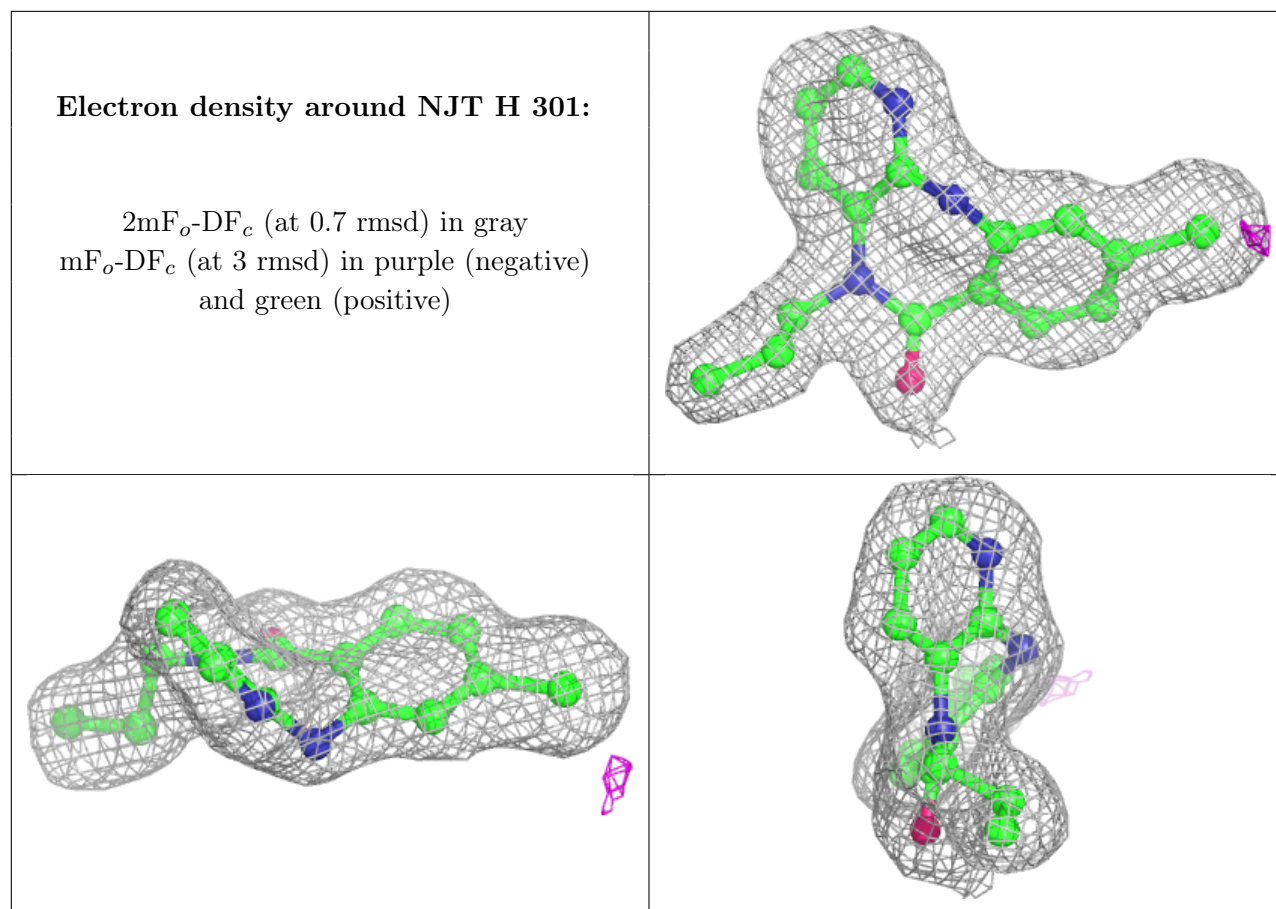
$2mF_o-DF_c$ (at 0.7 rmsd) in gray
 mF_o-DF_c (at 3 rmsd) in purple (negative)
and green (positive)



Electron density around NJT E 303:

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





6.5 Other polymers ⓘ

There are no such residues in this entry.