



Full wwPDB X-ray Structure Validation Report ⓘ

Jun 24, 2024 – 02:55 PM EDT

PDB ID : 6TTZ
Title : Structure of the ClpP:ADEP4-complex from Staphylococcus aureus (open state)
Authors : Malik, I.T.; Pereira, R.; Vielberg, M.-T.; Mayer, C.; Straetener, J.; Thomy, D.; Famulla, K.; Castro, H.C.; Sass, P.; Groll, M.; Broetz-Oesterheldt, H.
Deposited on : 2019-12-30
Resolution : 2.20 Å(reported)

This is a Full wwPDB X-ray Structure Validation Report for a publicly released PDB entry.

We welcome your comments at validation@mail.wwpdb.org

A user guide is available at

<https://www.wwpdb.org/validation/2017/XrayValidationReportHelp>

with specific help available everywhere you see the ⓘ symbol.

The types of validation reports are described at

<http://www.wwpdb.org/validation/2017/FAQs#types>.

The following versions of software and data (see [references ⓘ](#)) were used in the production of this report:

MolProbity : 4.02b-467
Mogul : 2022.3.0, CSD as543be (2022)
Xtriage (Phenix) : 1.20.1
EDS : 2.37.1
buster-report : 1.1.7 (2018)
Percentile statistics : 20191225.v01 (using entries in the PDB archive December 25th 2019)
Refmac : 5.8.0158
CCP4 : 7.0.044 (Gargrove)
Ideal geometry (proteins) : Engh & Huber (2001)
Ideal geometry (DNA, RNA) : Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP) : 2.37.1

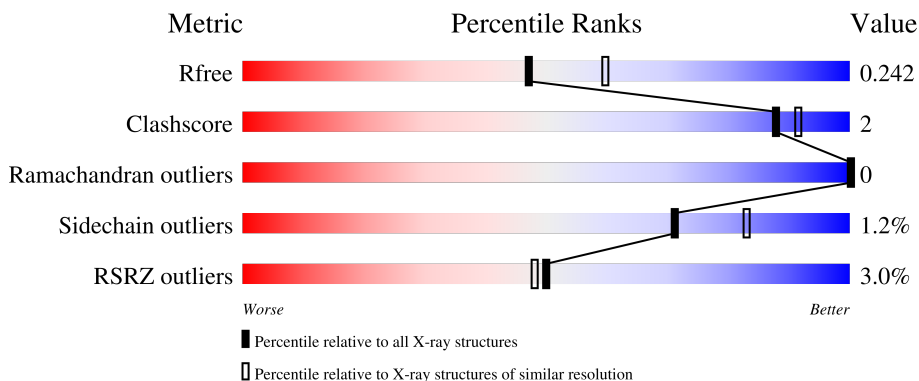
1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

X-RAY DIFFRACTION

The reported resolution of this entry is 2.20 Å.

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



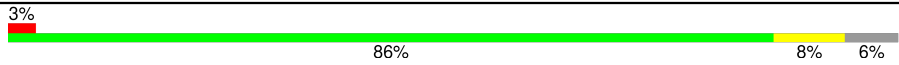


Metric	Whole archive (#Entries)	Similar resolution (#Entries, resolution range(Å))
R_{free}	130704	4898 (2.20-2.20)
Clashscore	141614	5594 (2.20-2.20)
Ramachandran outliers	138981	5503 (2.20-2.20)
Sidechain outliers	138945	5504 (2.20-2.20)
RSRZ outliers	127900	4800 (2.20-2.20)

The table below summarises the geometric issues observed across the polymeric chains and their fit to the electron density. The red, orange, yellow and green segments of the lower bar indicate the fraction of residues that contain outliers for ≥ 3 , 2, 1 and 0 types of geometric quality criteria respectively. A grey segment represents the fraction of residues that are not modelled. The numeric value for each fraction is indicated below the corresponding segment, with a dot representing fractions $\leq 5\%$. The upper red bar (where present) indicates the fraction of residues that have poor fit to the electron density. The numeric value is given above the bar.

Mol	Chain	Length	Quality of chain
1	A	203	 3% 88% 6% 6%
1	B	203	 % 87% 8%
1	C	203	 3% 87% 8%
1	D	203	 2% 89% 7%

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Mol	Chain	Length	Quality of chain
1	E	203	 3% 86% 8% 6%
1	F	203	 4% 88% 6% 6%
1	G	203	 3% 88% 5% 7%

2 Entry composition

There are 3 unique types of molecules in this entry. The entry contains 10935 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 ATP-dependent Clp protease proteolytic subunit.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
1	A	190	1467	922	252	287	6	0	0	0
1	B	186	1441	907	244	284	6	0	1	0
1	C	186	1438	907	244	281	6	0	1	0
1	D	189	1456	916	248	286	6	0	0	0
1	E	191	1476	927	253	290	6	0	0	0
1	F	191	1476	927	253	290	6	0	0	0
1	G	189	1457	917	247	287	6	0	0	0

There are 56 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
A	196	TRP	-	expression tag	UNP A0A077UUA2
A	197	SER	-	expression tag	UNP A0A077UUA2
A	198	HIS	-	expression tag	UNP A0A077UUA2
A	199	PRO	-	expression tag	UNP A0A077UUA2
A	200	GLN	-	expression tag	UNP A0A077UUA2
A	201	PHE	-	expression tag	UNP A0A077UUA2
A	202	GLU	-	expression tag	UNP A0A077UUA2
A	203	LYS	-	expression tag	UNP A0A077UUA2
B	196	TRP	-	expression tag	UNP A0A077UUA2
B	197	SER	-	expression tag	UNP A0A077UUA2
B	198	HIS	-	expression tag	UNP A0A077UUA2
B	199	PRO	-	expression tag	UNP A0A077UUA2
B	200	GLN	-	expression tag	UNP A0A077UUA2
B	201	PHE	-	expression tag	UNP A0A077UUA2
B	202	GLU	-	expression tag	UNP A0A077UUA2

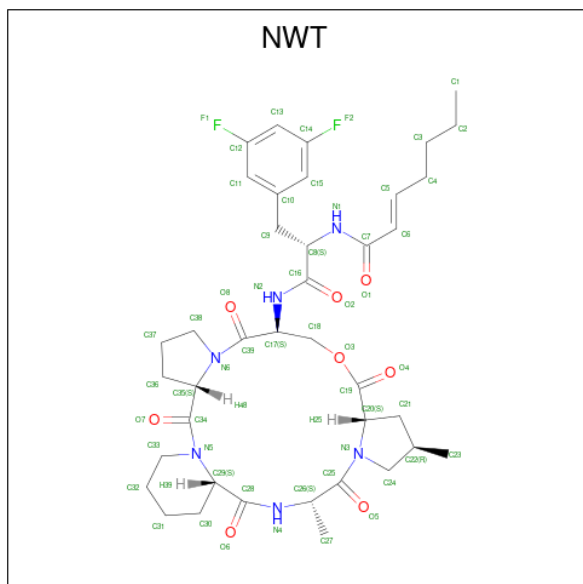
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Chain	Residue	Modelled	Actual	Comment	Reference
B	203	LYS	-	expression tag	UNP A0A077UUA2
C	196	TRP	-	expression tag	UNP A0A077UUA2
C	197	SER	-	expression tag	UNP A0A077UUA2
C	198	HIS	-	expression tag	UNP A0A077UUA2
C	199	PRO	-	expression tag	UNP A0A077UUA2
C	200	GLN	-	expression tag	UNP A0A077UUA2
C	201	PHE	-	expression tag	UNP A0A077UUA2
C	202	GLU	-	expression tag	UNP A0A077UUA2
C	203	LYS	-	expression tag	UNP A0A077UUA2
D	196	TRP	-	expression tag	UNP A0A077UUA2
D	197	SER	-	expression tag	UNP A0A077UUA2
D	198	HIS	-	expression tag	UNP A0A077UUA2
D	199	PRO	-	expression tag	UNP A0A077UUA2
D	200	GLN	-	expression tag	UNP A0A077UUA2
D	201	PHE	-	expression tag	UNP A0A077UUA2
D	202	GLU	-	expression tag	UNP A0A077UUA2
D	203	LYS	-	expression tag	UNP A0A077UUA2
E	196	TRP	-	expression tag	UNP A0A077UUA2
E	197	SER	-	expression tag	UNP A0A077UUA2
E	198	HIS	-	expression tag	UNP A0A077UUA2
E	199	PRO	-	expression tag	UNP A0A077UUA2
E	200	GLN	-	expression tag	UNP A0A077UUA2
E	201	PHE	-	expression tag	UNP A0A077UUA2
E	202	GLU	-	expression tag	UNP A0A077UUA2
E	203	LYS	-	expression tag	UNP A0A077UUA2
F	196	TRP	-	expression tag	UNP A0A077UUA2
F	197	SER	-	expression tag	UNP A0A077UUA2
F	198	HIS	-	expression tag	UNP A0A077UUA2
F	199	PRO	-	expression tag	UNP A0A077UUA2
F	200	GLN	-	expression tag	UNP A0A077UUA2
F	201	PHE	-	expression tag	UNP A0A077UUA2
F	202	GLU	-	expression tag	UNP A0A077UUA2
F	203	LYS	-	expression tag	UNP A0A077UUA2
G	196	TRP	-	expression tag	UNP A0A077UUA2
G	197	SER	-	expression tag	UNP A0A077UUA2
G	198	HIS	-	expression tag	UNP A0A077UUA2
G	199	PRO	-	expression tag	UNP A0A077UUA2
G	200	GLN	-	expression tag	UNP A0A077UUA2
G	201	PHE	-	expression tag	UNP A0A077UUA2
G	202	GLU	-	expression tag	UNP A0A077UUA2
G	203	LYS	-	expression tag	UNP A0A077UUA2

- Molecule 2 is N-[(2S)-3-(3,5-difluorophenyl)-1-[[[(3S,9S,13S,15R,19S,22S)-15,19-dimethyl-2

,8,12,18,21-pentaoxo-11-oxa-1,7,17,20-tetrazatetracyclo[20.4.0.03,7.013,17]hexacosan-9-yl]amino]-1-oxopropan-2-yl]heptanamide (three-letter code: NWT) (formula: C₃₉H₅₂F₂N₆O₈) (labeled as "Ligand of Interest" by depositor).



Mol	Chain	Residues	Atoms				ZeroOcc	AltConf	
			Total	C	F	N			O
2	A	1	Total	C	F	N	O	0	0
			55	39	2	6	8		
2	B	1	Total	C	F	N	O	0	0
			55	39	2	6	8		
2	C	1	Total	C	F	N	O	0	0
			55	39	2	6	8		
2	D	1	Total	C	F	N	O	0	0
			55	39	2	6	8		
2	E	1	Total	C	F	N	O	0	0
			55	39	2	6	8		
2	F	1	Total	C	F	N	O	0	0
			55	39	2	6	8		
2	G	1	Total	C	F	N	O	0	0
			55	39	2	6	8		

- Molecule 3 is water.

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
3	A	42	Total	O	0	0
			42	42		
3	B	38	Total	O	0	0
			38	38		
3	C	42	Total	O	0	0
			42	42		

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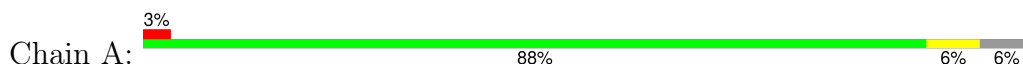
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Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
3	D	63	Total O 63 63	0	0
3	E	58	Total O 58 58	0	0
3	F	39	Total O 39 39	0	0
3	G	57	Total O 57 57	0	0

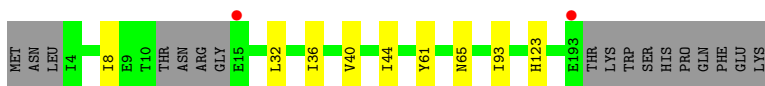
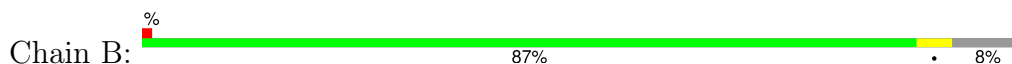
3 Residue-property plots [i](#)

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.

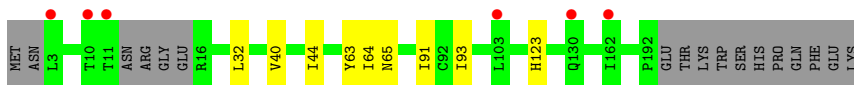
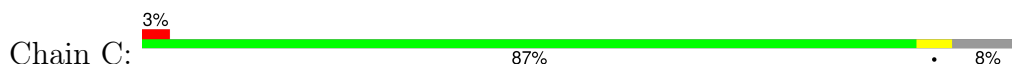
- Molecule 1: ATP-dependent Clp protease proteolytic subunit



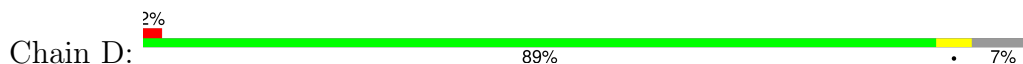
- Molecule 1: ATP-dependent Clp protease proteolytic subunit



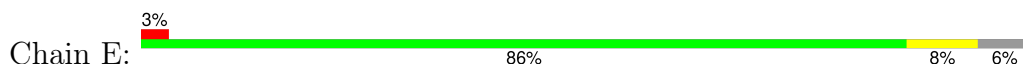
- Molecule 1: ATP-dependent Clp protease proteolytic subunit



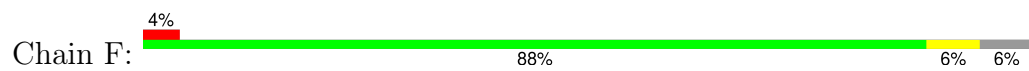
- Molecule 1: ATP-dependent Clp protease proteolytic subunit



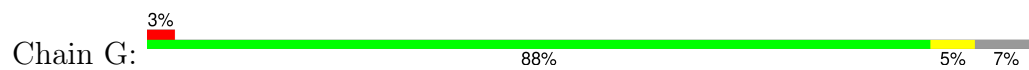
- Molecule 1: ATP-dependent Clp protease proteolytic subunit



- Molecule 1: ATP-dependent Clp protease proteolytic subunit



- Molecule 1: ATP-dependent Clp protease proteolytic subunit



4 Data and refinement statistics

Property	Value	Source
Space group	P 65 2 2	Depositor
Cell constants a, b, c, α , β , γ	96.52Å 96.52Å 586.82Å 90.00° 90.00° 120.00°	Depositor
Resolution (Å)	30.00 – 2.20 29.60 – 2.20	Depositor EDS
% Data completeness (in resolution range)	95.8 (30.00-2.20) 95.9 (29.60-2.20)	Depositor EDS
R_{merge}	0.09	Depositor
R_{sym}	(Not available)	Depositor
$\langle I/\sigma(I) \rangle$ ¹	2.16 (at 2.20Å)	Xtrriage
Refinement program	REFMAC 5.8.0158	Depositor
R, R_{free}	0.203 , 0.238 0.208 , 0.242	Depositor DCC
R_{free} test set	4021 reflections (5.00%)	wwPDB-VP
Wilson B-factor (Å ²)	38.0	Xtrriage
Anisotropy	0.214	Xtrriage
Bulk solvent k_{sol} (e/Å ³), B_{sol} (Å ²)	0.35 , 28.3	EDS
L-test for twinning ²	$\langle L \rangle = 0.43$, $\langle L^2 \rangle = 0.26$	Xtrriage
Estimated twinning fraction	No twinning to report.	Xtrriage
F_o, F_c correlation	0.94	EDS
Total number of atoms	10935	wwPDB-VP
Average B, all atoms (Å ²)	41.0	wwPDB-VP

Xtrriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 2.70% of the height of the origin peak. No significant pseudotranslation is detected.*

¹Intensities estimated from amplitudes.

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

5 Model quality [i](#)

5.1 Standard geometry [i](#)

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

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	0.40	0/1486	0.60	0/2007
1	B	0.39	0/1462	0.60	0/1973
1	C	0.41	0/1459	0.61	0/1970
1	D	0.39	0/1474	0.60	0/1990
1	E	0.48	0/1495	0.61	0/2019
1	F	0.48	0/1495	0.65	0/2019
1	G	0.40	0/1475	0.61	1/1991 (0.1%)
All	All	0.42	0/10346	0.61	1/13969 (0.0%)

There are no bond length outliers.

All (1) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed($^{\circ}$)	Ideal($^{\circ}$)
1	G	24	LEU	CB-CG-CD2	5.16	119.77	111.00

There are no chirality outliers.

There are no planarity outliers.

5.2 Too-close contacts [i](#)

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

Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
1	A	1467	0	1485	7	0
1	B	1441	0	1455	4	1
1	C	1438	0	1461	4	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
1	D	1456	0	1471	4	1
1	E	1476	0	1491	6	1
1	F	1476	0	1491	6	0
1	G	1457	0	1471	5	0
2	A	55	0	0	2	0
2	B	55	0	0	1	0
2	C	55	0	0	1	0
2	D	55	0	0	1	0
2	E	55	0	0	1	0
2	F	55	0	0	1	0
2	G	55	0	0	1	0
3	A	42	0	0	0	0
3	B	38	0	0	0	0
3	C	42	0	0	0	0
3	D	63	0	0	0	0
3	E	58	0	0	0	1
3	F	39	0	0	0	0
3	G	57	0	0	0	0
All	All	10935	0	10325	41	3

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 2.

All (41) 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:F:3:LEU:O	1:F:3:LEU:HD12	1.80	0.82
1:G:93:ILE:HG22	1:G:115:LEU:HD12	1.82	0.59
1:E:32:LEU:HD23	1:E:64:ILE:HG12	1.92	0.51
1:C:32:LEU:HD23	1:C:64:ILE:HG12	1.93	0.51
1:D:91:ILE:HD11	2:D:901:NWT:C27	2.40	0.51
1:F:122:ILE:HG13	1:F:173:ASN:HB3	1.93	0.50
1:A:65:ASN:HB2	1:A:93:ILE:HG13	1.94	0.49
1:E:152:ARG:O	1:E:156:GLU:HG3	2.13	0.49
1:A:10:THR:HG22	1:A:15:GLU:HG2	1.95	0.48
1:A:16:ARG:HH21	1:B:8:ILE:HD12	1.78	0.48
1:F:63:TYR:CE1	1:F:91:ILE:HD13	2.49	0.47
1:C:65:ASN:HB2	1:C:93:ILE:HG13	1.96	0.47
1:E:40:VAL:O	1:E:44:ILE:HG12	2.14	0.47
1:D:40:VAL:O	1:D:44:ILE:HG12	2.15	0.47
1:B:40:VAL:O	1:B:44:ILE:HG12	2.15	0.46

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:F:40:VAL:O	1:F:44:ILE:HG12	2.15	0.46
1:G:32:LEU:HD11	1:G:36:ILE:HG12	1.98	0.46
1:C:63:TYR:CE1	1:C:91:ILE:HD13	2.52	0.45
1:F:4:ILE:HA	1:F:5:PRO:HD3	1.83	0.44
1:F:67:PRO:HA	1:F:97:ALA:HB3	1.99	0.44
1:E:9:GLU:CD	1:E:23:ARG:HE	2.20	0.44
1:A:28:ARG:HG2	1:A:51:LEU:HD22	2.00	0.43
1:A:115:LEU:HD13	1:G:79:ASP:HB3	2.01	0.43
1:B:65:ASN:HB2	1:B:93:ILE:HG13	2.00	0.43
1:C:40:VAL:O	1:C:44:ILE:HG12	2.18	0.43
1:B:32:LEU:HD11	1:B:36:ILE:HG12	2.00	0.43
1:D:181:LYS:HA	1:D:186:ILE:HG13	2.01	0.42
2:G:901:NWT:O3	2:G:901:NWT:C22	2.68	0.42
1:E:63:TYR:CE1	1:E:91:ILE:HD13	2.55	0.41
1:G:40:VAL:O	1:G:44:ILE:HG12	2.20	0.41
2:A:901:NWT:C34	2:A:901:NWT:C17	2.97	0.41
2:E:901:NWT:O3	2:E:901:NWT:C22	2.68	0.41
2:F:901:NWT:O3	2:F:901:NWT:C22	2.69	0.41
1:G:154:LEU:HB3	1:G:165:ILE:HD13	2.02	0.41
2:C:901:NWT:O3	2:C:901:NWT:C22	2.68	0.41
1:A:115:LEU:HD23	1:A:190:MET:HB3	2.03	0.40
1:E:32:LEU:HD11	1:E:36:ILE:HG12	2.04	0.40
2:A:901:NWT:O3	2:A:901:NWT:C22	2.68	0.40
2:B:901:NWT:O3	2:B:901:NWT:C22	2.69	0.40
1:D:63:TYR:CE1	1:D:91:ILE:HD12	2.57	0.40
1:A:122:ILE:HG13	1:A:173:ASN:HB3	2.03	0.40

All (3) 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:B:61:TYR:OH	1:E:13:ARG:NH1[8_445]	1.65	0.55
3:E:1046:HOH:O	3:E:1046:HOH:O[12_544]	1.68	0.52
1:D:167:LYS:NZ	1:D:167:LYS:NZ[12_534]	2.18	0.02

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	188/203 (93%)	184 (98%)	4 (2%)	0	100	100
1	B	183/203 (90%)	179 (98%)	4 (2%)	0	100	100
1	C	183/203 (90%)	177 (97%)	6 (3%)	0	100	100
1	D	185/203 (91%)	179 (97%)	6 (3%)	0	100	100
1	E	189/203 (93%)	184 (97%)	5 (3%)	0	100	100
1	F	189/203 (93%)	184 (97%)	5 (3%)	0	100	100
1	G	185/203 (91%)	182 (98%)	3 (2%)	0	100	100
All	All	1302/1421 (92%)	1269 (98%)	33 (2%)	0	100	100

There are no Ramachandran outliers to report.

5.3.2 Protein sidechains [i](#)

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

The Analysed column shows the number of residues for which the sidechain conformation was analysed, and the total number of residues.

Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
1	A	158/171 (92%)	157 (99%)	1 (1%)	86	93
1	B	156/171 (91%)	155 (99%)	1 (1%)	86	93
1	C	156/171 (91%)	155 (99%)	1 (1%)	86	93
1	D	157/171 (92%)	156 (99%)	1 (1%)	86	93
1	E	159/171 (93%)	154 (97%)	5 (3%)	40	51
1	F	159/171 (93%)	156 (98%)	3 (2%)	57	71
1	G	157/171 (92%)	156 (99%)	1 (1%)	86	93

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Mol	Chain	Analysed	Rotameric	Outliers	Percentiles
All	All	1102/1197 (92%)	1089 (99%)	13 (1%)	71 83

All (13) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	123	HIS
1	B	123	HIS
1	C	123	HIS
1	D	123	HIS
1	E	3	LEU
1	E	11	THR
1	E	93	ILE
1	E	123	HIS
1	E	157	ARG
1	F	3	LEU
1	F	13	ARG
1	F	123	HIS
1	G	123	HIS

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. There are no such sidechains identified.

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 monosaccharides in this entry.

5.6 Ligand geometry [i](#)

7 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	NWT	E	901	-	58,59,59	3.22	17 (29%)	79,83,83	3.00	37 (46%)
2	NWT	A	901	-	58,59,59	3.13	16 (27%)	79,83,83	3.25	39 (49%)
2	NWT	D	901	-	58,59,59	3.65	18 (31%)	79,83,83	3.03	39 (49%)
2	NWT	B	901	-	58,59,59	3.36	17 (29%)	79,83,83	3.10	40 (50%)
2	NWT	G	901	-	58,59,59	3.49	15 (25%)	79,83,83	2.98	39 (49%)
2	NWT	C	901	-	58,59,59	3.78	17 (29%)	79,83,83	2.88	37 (46%)
2	NWT	F	901	-	58,59,59	3.94	17 (29%)	79,83,83	2.95	39 (49%)

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	NWT	E	901	-	-	11/63/96/96	0/4/5/5
2	NWT	A	901	-	-	10/63/96/96	0/4/5/5
2	NWT	D	901	-	-	10/63/96/96	0/4/5/5
2	NWT	B	901	-	-	9/63/96/96	0/4/5/5
2	NWT	G	901	-	-	10/63/96/96	0/4/5/5
2	NWT	C	901	-	-	10/63/96/96	0/4/5/5
2	NWT	F	901	-	-	10/63/96/96	0/4/5/5

All (117) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
2	F	901	NWT	F2-C14	-17.66	0.94	1.36
2	D	901	NWT	F1-C12	-17.00	0.95	1.36
2	C	901	NWT	F1-C12	-16.43	0.96	1.36
2	B	901	NWT	F2-C14	-14.46	1.01	1.36
2	F	901	NWT	F1-C12	-14.39	1.01	1.36
2	C	901	NWT	F2-C14	-13.68	1.03	1.36
2	E	901	NWT	F2-C14	-13.30	1.04	1.36
2	G	901	NWT	F1-C12	-13.18	1.04	1.36

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
2	G	901	NWT	F2-C14	-10.92	1.10	1.36
2	D	901	NWT	F2-C14	-10.81	1.10	1.36
2	A	901	NWT	F1-C12	-10.35	1.11	1.36
2	B	901	NWT	F1-C12	-9.62	1.13	1.36
2	G	901	NWT	C17-C39	-9.61	1.35	1.53
2	A	901	NWT	F2-C14	-8.56	1.15	1.36
2	E	901	NWT	C17-C39	-7.90	1.38	1.53
2	D	901	NWT	C17-C39	-7.85	1.38	1.53
2	B	901	NWT	C17-C39	-7.67	1.38	1.53
2	A	901	NWT	C17-C39	-7.50	1.39	1.53
2	F	901	NWT	C29-C28	-7.12	1.36	1.52
2	E	901	NWT	F1-C12	-7.12	1.19	1.36
2	G	901	NWT	C29-C28	-7.12	1.36	1.52
2	E	901	NWT	C6-C5	7.11	1.51	1.32
2	C	901	NWT	C17-C39	-6.95	1.40	1.53
2	F	901	NWT	C6-C5	6.84	1.51	1.32
2	G	901	NWT	C26-C25	-6.70	1.39	1.53
2	C	901	NWT	C26-C25	-6.62	1.40	1.53
2	B	901	NWT	C29-C28	-6.60	1.37	1.52
2	A	901	NWT	C29-C28	-6.56	1.37	1.52
2	B	901	NWT	C6-C5	6.53	1.50	1.32
2	F	901	NWT	C26-C25	-6.50	1.40	1.53
2	E	901	NWT	C29-C28	-6.40	1.37	1.52
2	D	901	NWT	C24-N3	-6.38	1.37	1.47
2	B	901	NWT	C26-C25	-6.34	1.40	1.53
2	C	901	NWT	C6-C5	6.25	1.49	1.32
2	A	901	NWT	C24-N3	-6.24	1.38	1.47
2	C	901	NWT	C29-C28	-6.23	1.38	1.52
2	A	901	NWT	C35-C34	-6.20	1.38	1.53
2	G	901	NWT	C6-C5	6.18	1.49	1.32
2	D	901	NWT	C6-C5	6.11	1.49	1.32
2	A	901	NWT	C6-C5	6.10	1.49	1.32
2	E	901	NWT	C26-C25	-6.06	1.41	1.53
2	G	901	NWT	C38-N6	-5.91	1.36	1.47
2	C	901	NWT	C24-N3	-5.89	1.38	1.47
2	G	901	NWT	C9-C10	-5.87	1.37	1.51
2	A	901	NWT	C26-C25	-5.84	1.41	1.53
2	D	901	NWT	C29-C28	-5.74	1.39	1.52
2	F	901	NWT	C17-C39	-5.71	1.42	1.53
2	A	901	NWT	C20-C19	-5.71	1.41	1.52
2	D	901	NWT	C26-C25	-5.68	1.41	1.53
2	B	901	NWT	C20-C19	-5.68	1.42	1.52

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
2	F	901	NWT	C38-N6	-5.46	1.37	1.47
2	C	901	NWT	C9-C10	-5.41	1.38	1.51
2	B	901	NWT	C35-C34	-5.12	1.41	1.53
2	E	901	NWT	C35-C34	-5.09	1.41	1.53
2	G	901	NWT	C20-C19	-5.07	1.43	1.52
2	F	901	NWT	C9-C10	-5.03	1.39	1.51
2	E	901	NWT	C9-C10	-4.93	1.39	1.51
2	E	901	NWT	C20-C19	-4.87	1.43	1.52
2	F	901	NWT	C20-C19	-4.84	1.43	1.52
2	D	901	NWT	C9-C10	-4.80	1.40	1.51
2	F	901	NWT	C24-N3	-4.79	1.40	1.47
2	B	901	NWT	C9-C10	-4.71	1.40	1.51
2	F	901	NWT	C21-C22	-4.70	1.38	1.52
2	C	901	NWT	C21-C22	-4.60	1.39	1.52
2	D	901	NWT	C21-C22	-4.59	1.39	1.52
2	D	901	NWT	C20-C19	-4.52	1.44	1.52
2	C	901	NWT	C38-N6	-4.51	1.38	1.47
2	D	901	NWT	C35-C34	-4.36	1.43	1.53
2	G	901	NWT	C21-C22	-4.36	1.39	1.52
2	E	901	NWT	C21-C22	-4.35	1.39	1.52
2	A	901	NWT	C21-C22	-4.26	1.40	1.52
2	A	901	NWT	C9-C10	-4.23	1.41	1.51
2	C	901	NWT	C35-C34	-4.20	1.43	1.53
2	B	901	NWT	C21-C22	-4.12	1.40	1.52
2	E	901	NWT	C24-N3	-4.07	1.41	1.47
2	F	901	NWT	C35-C34	-3.96	1.44	1.53
2	D	901	NWT	C38-N6	-3.89	1.40	1.47
2	E	901	NWT	C38-N6	-3.73	1.40	1.47
2	C	901	NWT	C20-C19	-3.69	1.45	1.52
2	G	901	NWT	O3-C18	-3.64	1.37	1.45
2	A	901	NWT	C37-C36	-3.54	1.37	1.51
2	F	901	NWT	C29-N5	-3.45	1.43	1.47
2	G	901	NWT	C35-C34	-3.37	1.45	1.53
2	B	901	NWT	C24-N3	-3.33	1.42	1.47
2	A	901	NWT	C35-N6	-3.21	1.40	1.47
2	E	901	NWT	O3-C18	-3.04	1.38	1.45
2	E	901	NWT	C28-N4	2.86	1.40	1.34
2	A	901	NWT	C38-N6	-2.84	1.42	1.47
2	A	901	NWT	C29-N5	-2.76	1.43	1.47
2	D	901	NWT	C21-C20	-2.75	1.48	1.53
2	B	901	NWT	C28-N4	2.73	1.39	1.34
2	C	901	NWT	C37-C36	-2.67	1.41	1.51

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
2	G	901	NWT	C29-N5	-2.58	1.44	1.47
2	F	901	NWT	C37-C36	-2.55	1.41	1.51
2	D	901	NWT	C28-N4	2.53	1.39	1.34
2	G	901	NWT	C24-N3	-2.50	1.43	1.47
2	C	901	NWT	C28-N4	2.46	1.39	1.34
2	C	901	NWT	O3-C18	-2.42	1.39	1.45
2	C	901	NWT	C29-N5	-2.41	1.44	1.47
2	B	901	NWT	C37-C36	-2.41	1.42	1.51
2	D	901	NWT	O3-C18	-2.41	1.39	1.45
2	E	901	NWT	C29-N5	-2.38	1.44	1.47
2	F	901	NWT	C28-N4	2.36	1.39	1.34
2	B	901	NWT	O1-C7	-2.34	1.19	1.24
2	D	901	NWT	C37-C36	-2.33	1.42	1.51
2	F	901	NWT	C20-N3	-2.20	1.42	1.47
2	B	901	NWT	C38-N6	-2.18	1.43	1.47
2	B	901	NWT	C29-N5	-2.18	1.44	1.47
2	C	901	NWT	O1-C7	-2.17	1.20	1.24
2	F	901	NWT	C31-C30	-2.15	1.47	1.53
2	E	901	NWT	C39-N6	-2.12	1.29	1.34
2	G	901	NWT	C35-N6	2.10	1.51	1.47
2	D	901	NWT	C29-N5	-2.05	1.44	1.47
2	B	901	NWT	C35-N6	-2.04	1.42	1.47
2	D	901	NWT	O3-C19	2.04	1.37	1.33
2	A	901	NWT	O2-C16	-2.03	1.19	1.23
2	E	901	NWT	C37-C36	-2.03	1.43	1.51

All (270) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
2	A	901	NWT	C24-N3-C20	-9.59	99.12	111.83
2	E	901	NWT	C24-N3-C20	-8.92	100.01	111.83
2	D	901	NWT	C24-N3-C20	-8.88	100.07	111.83
2	G	901	NWT	C24-N3-C20	-8.77	100.21	111.83
2	F	901	NWT	C24-N3-C20	-8.69	100.32	111.83
2	B	901	NWT	C24-N3-C20	-8.45	100.64	111.83
2	C	901	NWT	C24-N3-C20	-7.89	101.38	111.83
2	A	901	NWT	O3-C19-C20	7.54	126.16	110.58
2	A	901	NWT	C38-N6-C35	-7.50	100.24	112.01
2	B	901	NWT	O3-C19-C20	7.18	125.41	110.58
2	B	901	NWT	C23-C22-C21	-7.13	96.38	114.00
2	A	901	NWT	C30-C29-N5	-7.07	101.08	110.55
2	D	901	NWT	C30-C29-N5	-6.95	101.25	110.55

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
2	B	901	NWT	C38-N6-C35	-6.87	101.23	112.01
2	D	901	NWT	O3-C19-C20	6.79	124.60	110.58
2	B	901	NWT	C19-C20-N3	-6.75	98.76	112.08
2	F	901	NWT	O3-C19-C20	6.72	124.47	110.58
2	E	901	NWT	O3-C19-C20	6.72	124.46	110.58
2	C	901	NWT	O3-C19-C20	6.61	124.23	110.58
2	D	901	NWT	C19-C20-N3	-6.47	99.31	112.08
2	E	901	NWT	C23-C22-C21	-6.42	98.13	114.00
2	E	901	NWT	C19-C20-N3	-6.27	99.72	112.08
2	A	901	NWT	C36-C37-C38	-6.24	87.54	104.90
2	F	901	NWT	C19-C20-N3	-6.11	100.02	112.08
2	G	901	NWT	C30-C29-N5	-6.10	102.39	110.55
2	G	901	NWT	C19-C20-N3	-6.09	100.07	112.08
2	G	901	NWT	C4-C5-C6	-6.05	113.31	125.92
2	A	901	NWT	O4-C19-C20	-6.03	111.17	124.46
2	F	901	NWT	C30-C29-N5	-5.97	102.56	110.55
2	G	901	NWT	O3-C19-C20	5.97	122.90	110.58
2	E	901	NWT	C30-C29-N5	-5.91	102.64	110.55
2	C	901	NWT	C4-C5-C6	-5.88	113.67	125.92
2	B	901	NWT	O4-C19-C20	-5.80	111.67	124.46
2	D	901	NWT	C4-C5-C6	-5.79	113.85	125.92
2	E	901	NWT	O4-C19-C20	-5.74	111.80	124.46
2	F	901	NWT	C23-C22-C21	-5.68	99.96	114.00
2	C	901	NWT	C23-C22-C21	-5.67	99.99	114.00
2	F	901	NWT	C38-N6-C35	-5.66	103.13	112.01
2	A	901	NWT	C4-C5-C6	-5.65	114.14	125.92
2	B	901	NWT	C35-C34-N5	5.55	131.51	117.71
2	D	901	NWT	C10-C15-C14	5.52	123.56	118.75
2	C	901	NWT	C36-C37-C38	-5.45	89.73	104.90
2	A	901	NWT	C22-C24-N3	5.43	108.95	103.54
2	E	901	NWT	C38-N6-C35	-5.42	103.50	112.01
2	D	901	NWT	C38-N6-C35	-5.42	103.51	112.01
2	D	901	NWT	O4-C19-C20	-5.40	112.54	124.46
2	C	901	NWT	C10-C15-C14	5.39	123.44	118.75
2	C	901	NWT	C19-C20-N3	-5.36	101.50	112.08
2	G	901	NWT	O4-C19-C20	-5.36	112.64	124.46
2	F	901	NWT	C36-C37-C38	-5.32	90.09	104.90
2	F	901	NWT	O4-C19-C20	-5.29	112.79	124.46
2	C	901	NWT	C30-C29-N5	-5.26	103.52	110.55
2	B	901	NWT	C30-C29-N5	-5.26	103.52	110.55
2	F	901	NWT	C4-C5-C6	-5.24	115.01	125.92
2	C	901	NWT	C38-N6-C35	-5.18	103.88	112.01

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
2	B	901	NWT	O3-C18-C17	5.15	122.71	108.26
2	E	901	NWT	C36-C37-C38	-5.10	90.69	104.90
2	G	901	NWT	C38-N6-C35	-5.08	104.04	112.01
2	B	901	NWT	C36-C37-C38	-5.07	90.77	104.90
2	A	901	NWT	C19-C20-N3	-5.05	102.13	112.08
2	D	901	NWT	C23-C22-C21	-5.05	101.53	114.00
2	D	901	NWT	C36-C37-C38	-5.03	90.89	104.90
2	C	901	NWT	O4-C19-C20	-4.95	113.55	124.46
2	E	901	NWT	C4-C5-C6	-4.94	115.64	125.92
2	B	901	NWT	C4-C5-C6	-4.92	115.67	125.92
2	C	901	NWT	C15-C14-C13	-4.88	117.57	123.50
2	F	901	NWT	C21-C20-C19	4.85	119.88	111.38
2	D	901	NWT	C15-C14-C13	-4.78	117.69	123.50
2	A	901	NWT	C21-C20-C19	4.77	119.73	111.38
2	A	901	NWT	O3-C18-C17	4.75	121.60	108.26
2	D	901	NWT	C21-C20-C19	4.71	119.63	111.38
2	A	901	NWT	C35-C34-N5	4.71	129.41	117.71
2	A	901	NWT	C20-N3-C25	4.68	137.91	121.45
2	G	901	NWT	C36-C37-C38	-4.67	91.90	104.90
2	E	901	NWT	C15-C14-C13	-4.66	117.83	123.50
2	G	901	NWT	C23-C22-C21	-4.62	102.58	114.00
2	G	901	NWT	C15-C14-C13	-4.61	117.90	123.50
2	G	901	NWT	O3-C18-C17	4.59	121.14	108.26
2	A	901	NWT	C10-C15-C14	4.55	122.71	118.75
2	A	901	NWT	C23-C22-C21	-4.43	103.06	114.00
2	E	901	NWT	C21-C20-C19	4.41	119.10	111.38
2	B	901	NWT	C10-C15-C14	4.40	122.59	118.75
2	E	901	NWT	C22-C24-N3	4.40	107.92	103.54
2	G	901	NWT	C22-C24-N3	4.38	107.90	103.54
2	C	901	NWT	O3-C19-O4	-4.38	116.14	124.14
2	G	901	NWT	C17-N2-C16	4.35	130.99	121.65
2	G	901	NWT	O3-C19-O4	-4.34	116.21	124.14
2	F	901	NWT	C15-C14-C13	-4.33	118.24	123.50
2	E	901	NWT	O3-C18-C17	4.26	120.21	108.26
2	G	901	NWT	C21-C20-C19	4.25	118.83	111.38
2	A	901	NWT	O3-C19-O4	-4.23	116.41	124.14
2	A	901	NWT	C15-C14-C13	-4.22	118.37	123.50
2	A	901	NWT	C17-N2-C16	4.21	130.69	121.65
2	D	901	NWT	C34-C35-N6	-4.15	101.13	110.83
2	E	901	NWT	C10-C15-C14	4.14	122.36	118.75
2	F	901	NWT	C22-C24-N3	4.14	107.66	103.54
2	B	901	NWT	C21-C20-C19	4.13	118.62	111.38

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
2	C	901	NWT	C21-C20-C19	4.13	118.61	111.38
2	G	901	NWT	C20-N3-C25	4.13	135.97	121.45
2	B	901	NWT	O3-C19-O4	-4.09	116.66	124.14
2	B	901	NWT	C34-C35-N6	4.08	120.37	110.83
2	F	901	NWT	O3-C18-C17	4.08	119.70	108.26
2	F	901	NWT	C10-C15-C14	4.07	122.30	118.75
2	B	901	NWT	C13-C12-C11	-4.07	118.56	123.50
2	B	901	NWT	C18-C17-C39	-4.06	101.61	110.31
2	F	901	NWT	O7-C34-N5	-4.05	114.10	121.38
2	A	901	NWT	O6-C28-N4	-4.01	115.77	122.96
2	E	901	NWT	C34-C35-N6	-3.99	101.51	110.83
2	G	901	NWT	C34-C35-N6	-3.98	101.52	110.83
2	E	901	NWT	C17-N2-C16	3.95	130.13	121.65
2	E	901	NWT	C20-N3-C25	3.94	135.30	121.45
2	D	901	NWT	C22-C24-N3	3.91	107.44	103.54
2	G	901	NWT	O7-C34-N5	-3.90	114.38	121.38
2	C	901	NWT	C22-C24-N3	3.89	107.42	103.54
2	C	901	NWT	O7-C34-N5	-3.89	114.40	121.38
2	D	901	NWT	O3-C18-C17	3.89	119.17	108.26
2	B	901	NWT	C37-C36-C35	-3.88	96.06	104.14
2	F	901	NWT	C17-N2-C16	3.86	129.94	121.65
2	D	901	NWT	O3-C19-O4	-3.86	117.09	124.14
2	F	901	NWT	O3-C19-O4	-3.85	117.09	124.14
2	D	901	NWT	C20-N3-C25	3.84	134.95	121.45
2	A	901	NWT	C36-C35-C34	-3.82	103.31	110.83
2	F	901	NWT	C20-N3-C25	3.82	134.89	121.45
2	D	901	NWT	O7-C34-N5	-3.82	114.52	121.38
2	A	901	NWT	C18-C17-C39	-3.82	102.13	110.31
2	A	901	NWT	C39-C17-N2	3.81	118.84	108.97
2	G	901	NWT	O1-C7-N1	3.79	127.39	122.44
2	C	901	NWT	C34-C35-N6	-3.77	102.01	110.83
2	D	901	NWT	C32-C33-N5	-3.75	104.86	110.65
2	G	901	NWT	C14-C13-C12	3.75	121.54	116.08
2	A	901	NWT	C13-C12-C11	-3.73	118.97	123.50
2	G	901	NWT	C10-C15-C14	3.72	121.99	118.75
2	C	901	NWT	O3-C18-C17	3.70	118.66	108.26
2	D	901	NWT	C5-C6-C7	-3.68	113.58	122.94
2	E	901	NWT	C39-C17-N2	3.67	118.50	108.97
2	F	901	NWT	C34-C35-N6	-3.67	102.25	110.83
2	F	901	NWT	C14-C13-C12	3.64	121.39	116.08
2	C	901	NWT	C17-N2-C16	3.61	129.40	121.65
2	D	901	NWT	O7-C34-C35	3.58	127.78	120.28

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
2	G	901	NWT	C37-C36-C35	-3.57	96.69	104.14
2	D	901	NWT	O1-C7-N1	3.57	127.10	122.44
2	A	901	NWT	C37-C36-C35	-3.54	96.77	104.14
2	B	901	NWT	O7-C34-N5	-3.53	115.04	121.38
2	E	901	NWT	O7-C34-C35	3.50	127.60	120.28
2	B	901	NWT	C15-C14-C13	-3.49	119.26	123.50
2	E	901	NWT	C14-C13-C12	3.47	121.14	116.08
2	E	901	NWT	C25-C26-N4	3.44	117.59	109.03
2	F	901	NWT	C13-C12-C11	-3.44	119.32	123.50
2	C	901	NWT	F2-C14-C15	3.42	123.15	118.28
2	F	901	NWT	C5-C6-C7	-3.41	114.26	122.94
2	A	901	NWT	C14-C13-C12	3.39	121.02	116.08
2	C	901	NWT	O7-C34-C35	3.38	127.36	120.28
2	A	901	NWT	C34-C35-N6	3.38	118.74	110.83
2	B	901	NWT	C10-C11-C12	3.38	121.70	118.75
2	B	901	NWT	O7-C34-C35	-3.36	113.26	120.28
2	G	901	NWT	C5-C6-C7	-3.34	114.45	122.94
2	E	901	NWT	O3-C19-O4	-3.34	118.04	124.14
2	C	901	NWT	C25-C26-N4	3.31	117.27	109.03
2	G	901	NWT	C13-C12-C11	-3.30	119.48	123.50
2	E	901	NWT	C5-C6-C7	-3.28	114.61	122.94
2	B	901	NWT	C20-N3-C25	3.27	132.95	121.45
2	E	901	NWT	C13-C12-C11	-3.26	119.54	123.50
2	A	901	NWT	O7-C34-C35	-3.21	113.57	120.28
2	C	901	NWT	C20-N3-C25	3.20	132.69	121.45
2	D	901	NWT	C14-C13-C12	3.11	120.61	116.08
2	D	901	NWT	C37-C36-C35	-3.10	97.69	104.14
2	F	901	NWT	C25-C26-N4	3.07	116.68	109.03
2	B	901	NWT	C5-C6-C7	-3.07	115.13	122.94
2	C	901	NWT	C21-C20-N3	-3.03	99.57	103.17
2	B	901	NWT	C25-C26-N4	3.01	116.53	109.03
2	A	901	NWT	C31-C32-C33	-2.99	105.66	111.19
2	A	901	NWT	C25-C26-N4	2.98	116.46	109.03
2	B	901	NWT	C14-C13-C12	2.98	120.43	116.08
2	B	901	NWT	C9-C10-C11	2.96	125.52	120.43
2	E	901	NWT	O8-C39-N6	-2.96	116.07	121.38
2	E	901	NWT	C37-C36-C35	-2.96	97.98	104.14
2	G	901	NWT	C21-C20-N3	-2.96	99.66	103.17
2	C	901	NWT	C36-C35-N6	-2.92	98.73	103.02
2	B	901	NWT	C22-C24-N3	2.92	106.45	103.54
2	D	901	NWT	C17-N2-C16	2.89	127.85	121.65
2	C	901	NWT	C27-C26-N4	-2.88	105.09	110.38

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
2	A	901	NWT	C5-C6-C7	-2.87	115.64	122.94
2	F	901	NWT	C36-C35-N6	-2.85	98.83	103.02
2	F	901	NWT	C37-C36-C35	-2.85	98.19	104.14
2	E	901	NWT	O8-C39-C17	2.83	124.79	119.61
2	C	901	NWT	O6-C28-N4	-2.83	117.89	122.96
2	A	901	NWT	C10-C11-C12	2.83	121.21	118.75
2	E	901	NWT	O5-C25-N3	-2.81	116.33	121.38
2	G	901	NWT	O7-C34-C35	2.81	126.17	120.28
2	D	901	NWT	C13-C12-C11	-2.78	120.13	123.50
2	E	901	NWT	F2-C14-C15	2.75	122.19	118.28
2	E	901	NWT	C32-C33-N5	-2.73	106.42	110.65
2	B	901	NWT	C17-N2-C16	2.72	127.49	121.65
2	G	901	NWT	C39-C17-N2	2.71	115.99	108.97
2	D	901	NWT	C9-C10-C11	2.65	124.97	120.43
2	B	901	NWT	C31-C32-C33	-2.64	106.31	111.19
2	B	901	NWT	C39-C17-N2	2.64	115.82	108.97
2	B	901	NWT	F1-C12-C11	2.63	122.01	118.28
2	F	901	NWT	O8-C39-N6	-2.62	116.67	121.38
2	C	901	NWT	C37-C36-C35	-2.61	98.70	104.14
2	B	901	NWT	O5-C25-N3	-2.59	116.73	121.38
2	C	901	NWT	C5-C6-C7	-2.55	116.45	122.94
2	C	901	NWT	C14-C13-C12	2.54	119.78	116.08
2	B	901	NWT	C26-N4-C28	-2.52	116.02	121.32
2	B	901	NWT	C30-C29-C28	-2.51	107.46	112.17
2	G	901	NWT	C16-C8-N1	-2.51	104.33	111.11
2	E	901	NWT	C27-C26-N4	-2.50	105.78	110.38
2	E	901	NWT	C31-C32-C33	-2.50	106.56	111.19
2	D	901	NWT	O5-C25-N3	-2.49	116.91	121.38
2	A	901	NWT	O7-C34-N5	-2.49	116.91	121.38
2	E	901	NWT	C35-N6-C39	2.48	130.19	121.45
2	D	901	NWT	O6-C28-N4	-2.47	118.53	122.96
2	G	901	NWT	O5-C25-N3	-2.45	116.99	121.38
2	F	901	NWT	O8-C39-C17	2.44	124.07	119.61
2	D	901	NWT	C25-C26-N4	2.43	115.07	109.03
2	A	901	NWT	O1-C7-N1	2.43	125.60	122.44
2	C	901	NWT	C29-C28-N4	2.42	121.84	116.52
2	B	901	NWT	C21-C20-N3	-2.41	100.31	103.17
2	G	901	NWT	C36-C35-N6	-2.39	99.50	103.02
2	A	901	NWT	C32-C33-N5	-2.39	106.95	110.65
2	C	901	NWT	C30-C29-C28	-2.38	107.69	112.17
2	G	901	NWT	C26-N4-C28	-2.38	116.31	121.32
2	C	901	NWT	O8-C39-N6	-2.37	117.12	121.38

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
2	C	901	NWT	C31-C32-C33	-2.37	106.81	111.19
2	G	901	NWT	C25-C26-N4	2.37	114.92	109.03
2	F	901	NWT	C27-C26-N4	-2.36	106.05	110.38
2	G	901	NWT	C35-N6-C39	2.36	129.73	121.45
2	D	901	NWT	O8-C39-N6	-2.35	117.17	121.38
2	D	901	NWT	C10-C11-C12	2.34	120.79	118.75
2	A	901	NWT	C9-C10-C11	2.33	124.43	120.43
2	G	901	NWT	C17-C39-N6	-2.31	114.19	118.71
2	E	901	NWT	O7-C34-N5	-2.28	117.29	121.38
2	F	901	NWT	C26-N4-C28	-2.27	116.53	121.32
2	F	901	NWT	C9-C10-C11	2.25	124.30	120.43
2	D	901	NWT	C36-C35-N6	-2.25	99.71	103.02
2	A	901	NWT	F1-C12-C11	2.25	121.48	118.28
2	A	901	NWT	C38-N6-C39	2.24	133.79	125.85
2	F	901	NWT	O5-C25-N3	-2.22	117.39	121.38
2	E	901	NWT	C21-C20-N3	-2.22	100.53	103.17
2	F	901	NWT	C31-C32-C33	-2.21	107.10	111.19
2	G	901	NWT	C32-C33-N5	-2.20	107.25	110.65
2	D	901	NWT	F2-C14-C15	2.20	121.40	118.28
2	F	901	NWT	C30-C29-C28	-2.18	108.07	112.17
2	A	901	NWT	O8-C39-C17	2.18	123.60	119.61
2	G	901	NWT	C18-C17-C39	-2.17	105.64	110.31
2	C	901	NWT	O1-C7-N1	2.17	125.27	122.44
2	E	901	NWT	O1-C7-N1	2.17	125.27	122.44
2	F	901	NWT	C35-N6-C39	2.16	129.06	121.45
2	B	901	NWT	O1-C7-N1	2.14	125.24	122.44
2	D	901	NWT	C16-C8-N1	-2.14	105.31	111.11
2	C	901	NWT	O5-C25-N3	-2.14	117.54	121.38
2	C	901	NWT	C39-C17-N2	2.14	114.52	108.97
2	F	901	NWT	O7-C34-C35	2.14	124.76	120.28
2	D	901	NWT	C21-C20-N3	-2.12	100.65	103.17
2	F	901	NWT	F2-C14-C13	2.12	121.30	118.28
2	D	901	NWT	C35-N6-C39	2.12	128.91	121.45
2	C	901	NWT	C26-N4-C28	-2.10	116.91	121.32
2	F	901	NWT	C16-C8-N1	-2.10	105.44	111.11
2	F	901	NWT	C32-C33-N5	-2.08	107.43	110.65
2	D	901	NWT	F1-C12-C11	2.07	121.22	118.28
2	D	901	NWT	O8-C39-C17	2.05	123.36	119.61
2	G	901	NWT	O6-C28-N4	-2.04	119.30	122.96
2	B	901	NWT	C38-N6-C39	2.04	133.09	125.85
2	G	901	NWT	F2-C14-C13	2.04	121.18	118.28
2	B	901	NWT	C9-C10-C15	-2.04	116.93	120.43

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
2	A	901	NWT	F2-C14-C13	2.03	121.17	118.28
2	G	901	NWT	C32-C31-C30	-2.03	107.25	111.42
2	E	901	NWT	C16-C8-N1	-2.03	105.62	111.11
2	F	901	NWT	C36-C35-C34	2.02	114.80	110.83
2	B	901	NWT	O6-C28-N4	-2.01	119.37	122.96

There are no chirality outliers.

All (70) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
2	C	901	NWT	C17-C18-O3-C19
2	G	901	NWT	O4-C19-O3-C18
2	B	901	NWT	O3-C19-C20-C21
2	C	901	NWT	O3-C19-C20-C21
2	D	901	NWT	O3-C19-C20-C21
2	E	901	NWT	O3-C19-C20-C21
2	F	901	NWT	O3-C19-C20-C21
2	G	901	NWT	O3-C19-C20-C21
2	A	901	NWT	C17-C18-O3-C19
2	B	901	NWT	C17-C18-O3-C19
2	D	901	NWT	C17-C18-O3-C19
2	E	901	NWT	C17-C18-O3-C19
2	F	901	NWT	C17-C18-O3-C19
2	G	901	NWT	C17-C18-O3-C19
2	A	901	NWT	O4-C19-O3-C18
2	B	901	NWT	O4-C19-O3-C18
2	C	901	NWT	O4-C19-O3-C18
2	A	901	NWT	O3-C19-C20-N3
2	C	901	NWT	O3-C19-C20-N3
2	D	901	NWT	O3-C19-C20-N3
2	E	901	NWT	O3-C19-C20-N3
2	F	901	NWT	O3-C19-C20-N3
2	G	901	NWT	O3-C19-C20-N3
2	A	901	NWT	O3-C19-C20-C21
2	D	901	NWT	O4-C19-O3-C18
2	E	901	NWT	O4-C19-O3-C18
2	F	901	NWT	O4-C19-O3-C18
2	B	901	NWT	O3-C19-C20-N3
2	B	901	NWT	N2-C16-C8-N1
2	B	901	NWT	O2-C16-C8-N1
2	F	901	NWT	O2-C16-C8-N1
2	C	901	NWT	N2-C16-C8-N1

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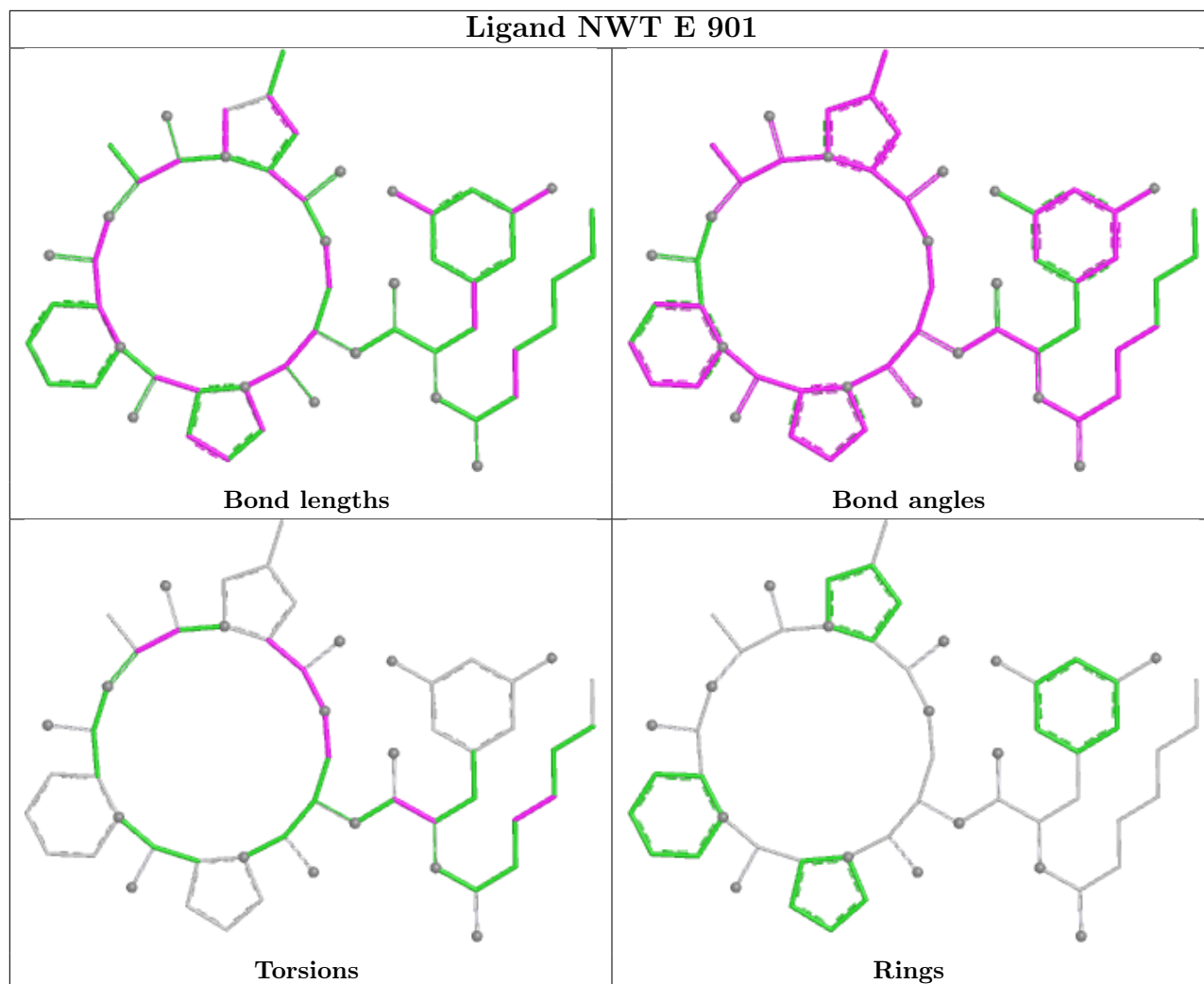
Mol	Chain	Res	Type	Atoms
2	F	901	NWT	N2-C16-C8-N1
2	E	901	NWT	N2-C16-C8-N1
2	A	901	NWT	N2-C16-C8-N1
2	A	901	NWT	O2-C16-C8-N1
2	C	901	NWT	O2-C16-C8-N1
2	G	901	NWT	O2-C16-C8-N1
2	E	901	NWT	O2-C16-C8-N1
2	G	901	NWT	N2-C16-C8-N1
2	D	901	NWT	O2-C16-C8-N1
2	E	901	NWT	C3-C4-C5-C6
2	D	901	NWT	N2-C16-C8-N1
2	B	901	NWT	O4-C19-C20-N3
2	E	901	NWT	O4-C19-C20-N3
2	D	901	NWT	O2-C16-C8-C9
2	B	901	NWT	C3-C4-C5-C6
2	D	901	NWT	O4-C19-C20-N3
2	F	901	NWT	O4-C19-C20-N3
2	G	901	NWT	O2-C16-C8-C9
2	F	901	NWT	C3-C4-C5-C6
2	G	901	NWT	C3-C4-C5-C6
2	A	901	NWT	C3-C4-C5-C6
2	A	901	NWT	O5-C25-C26-N4
2	G	901	NWT	N2-C16-C8-C9
2	D	901	NWT	N2-C16-C8-C9
2	E	901	NWT	O2-C16-C8-C9
2	C	901	NWT	O2-C16-C8-C9
2	D	901	NWT	C3-C4-C5-C6
2	C	901	NWT	O4-C19-C20-N3
2	A	901	NWT	O2-C16-C8-C9
2	F	901	NWT	O2-C16-C8-C9
2	B	901	NWT	O2-C16-C8-C9
2	C	901	NWT	O5-C25-C26-C27
2	E	901	NWT	O5-C25-C26-C27
2	A	901	NWT	N2-C16-C8-C9
2	G	901	NWT	O5-C25-C26-N4
2	C	901	NWT	N2-C16-C8-C9
2	E	901	NWT	N2-C16-C8-C9
2	F	901	NWT	N2-C16-C8-C9

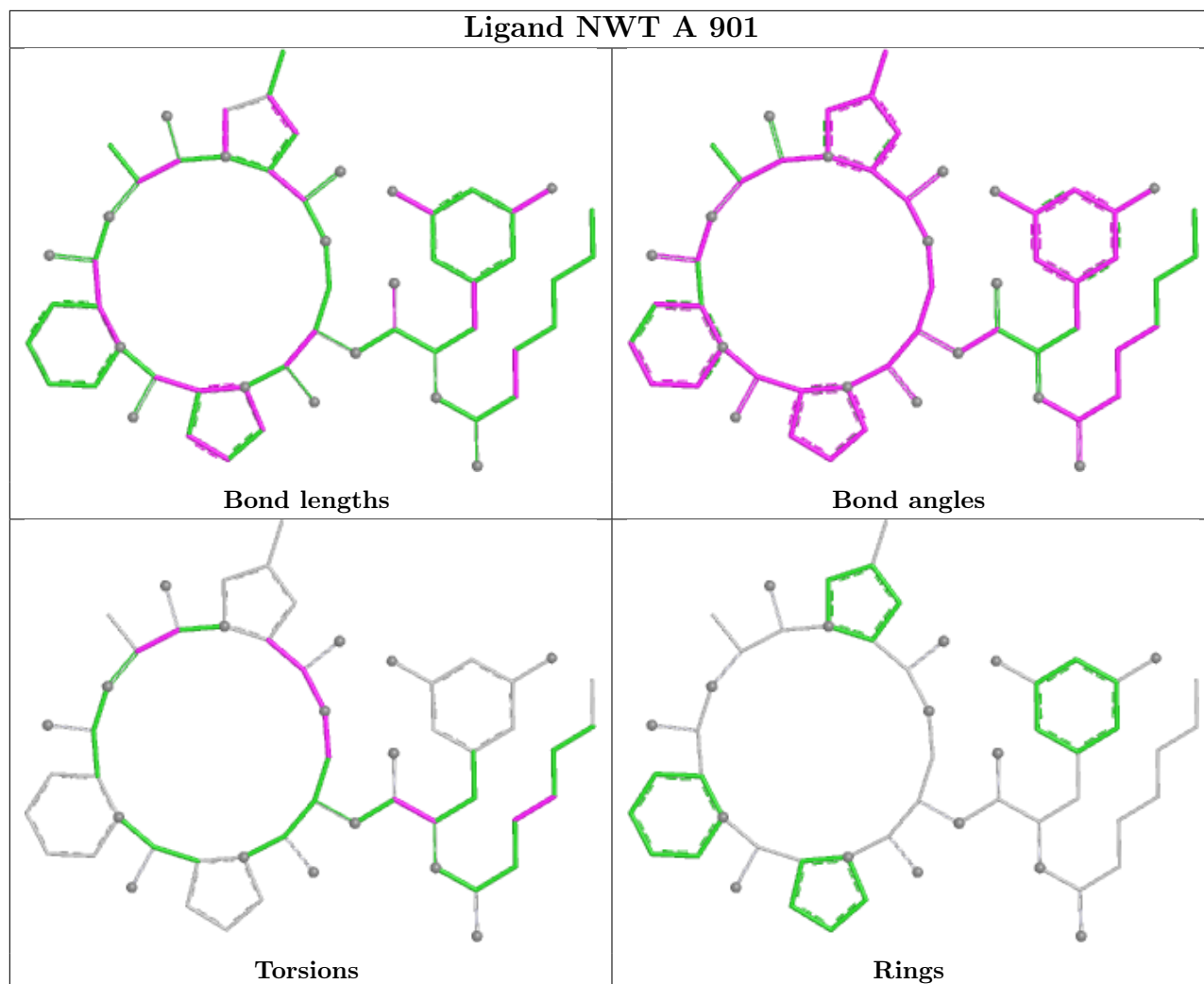
There are no ring outliers.

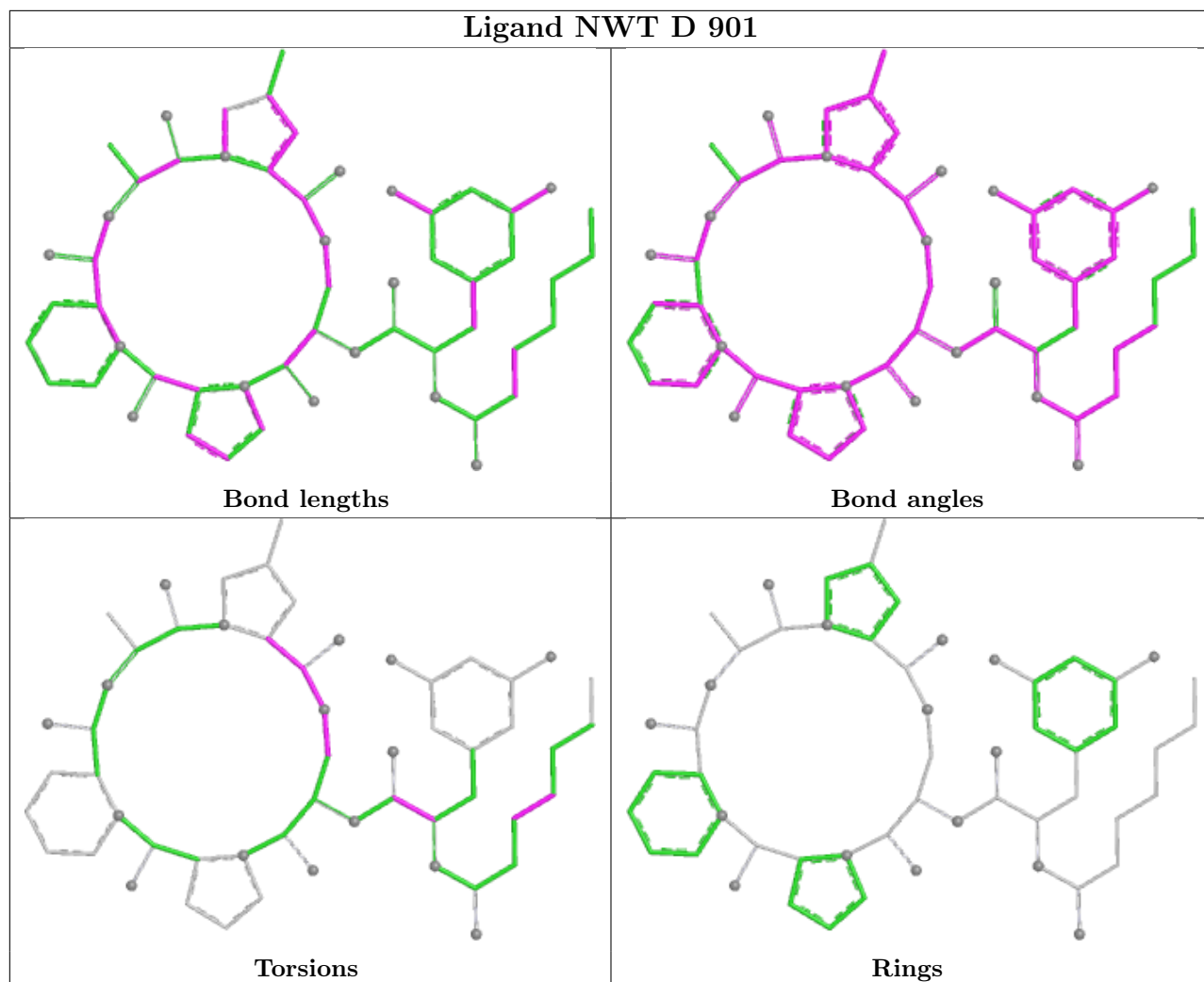
7 monomers are involved in 8 short contacts:

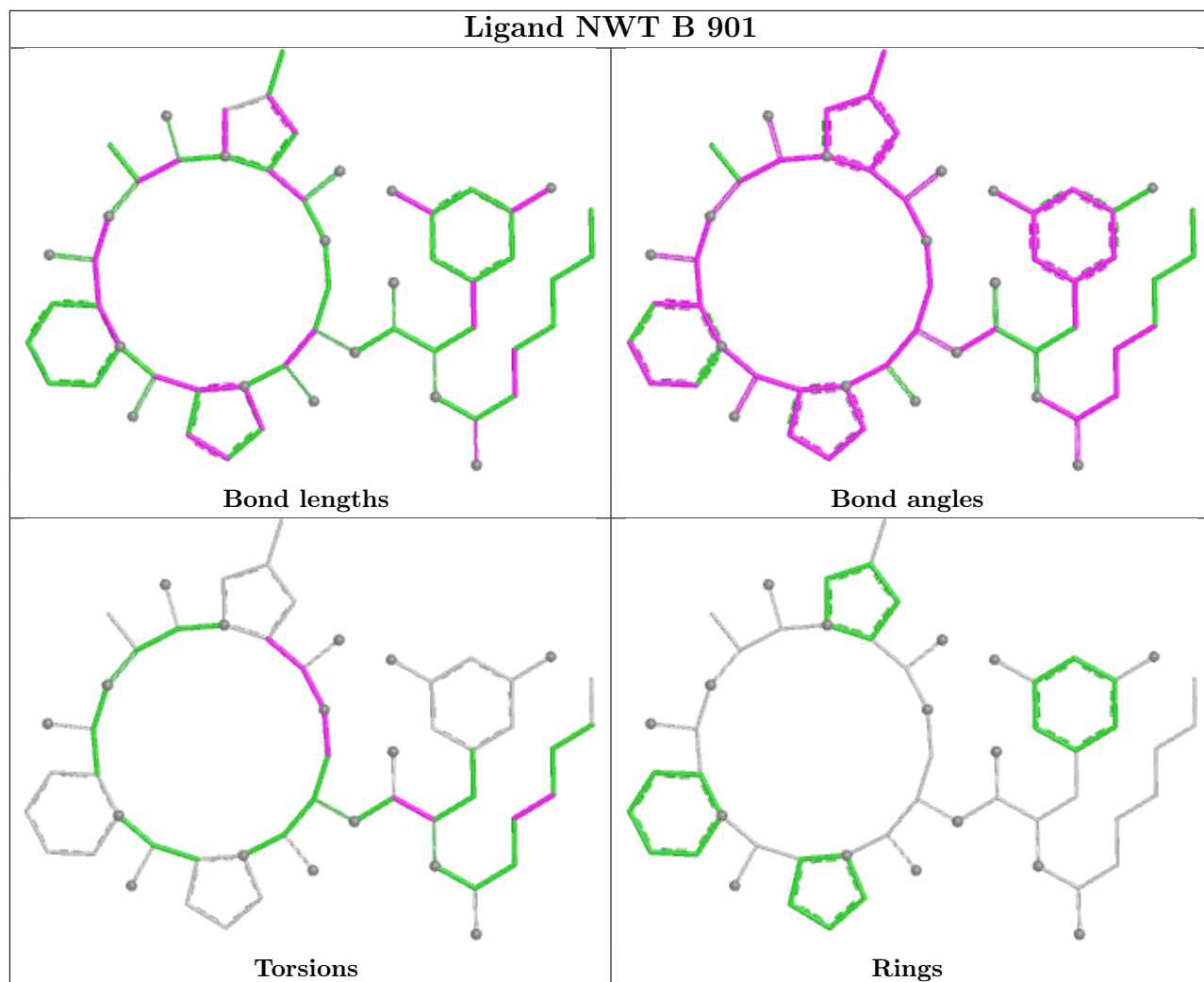
Mol	Chain	Res	Type	Clashes	Symm-Clashes
2	E	901	NWT	1	0
2	A	901	NWT	2	0
2	D	901	NWT	1	0
2	B	901	NWT	1	0
2	G	901	NWT	1	0
2	C	901	NWT	1	0
2	F	901	NWT	1	0

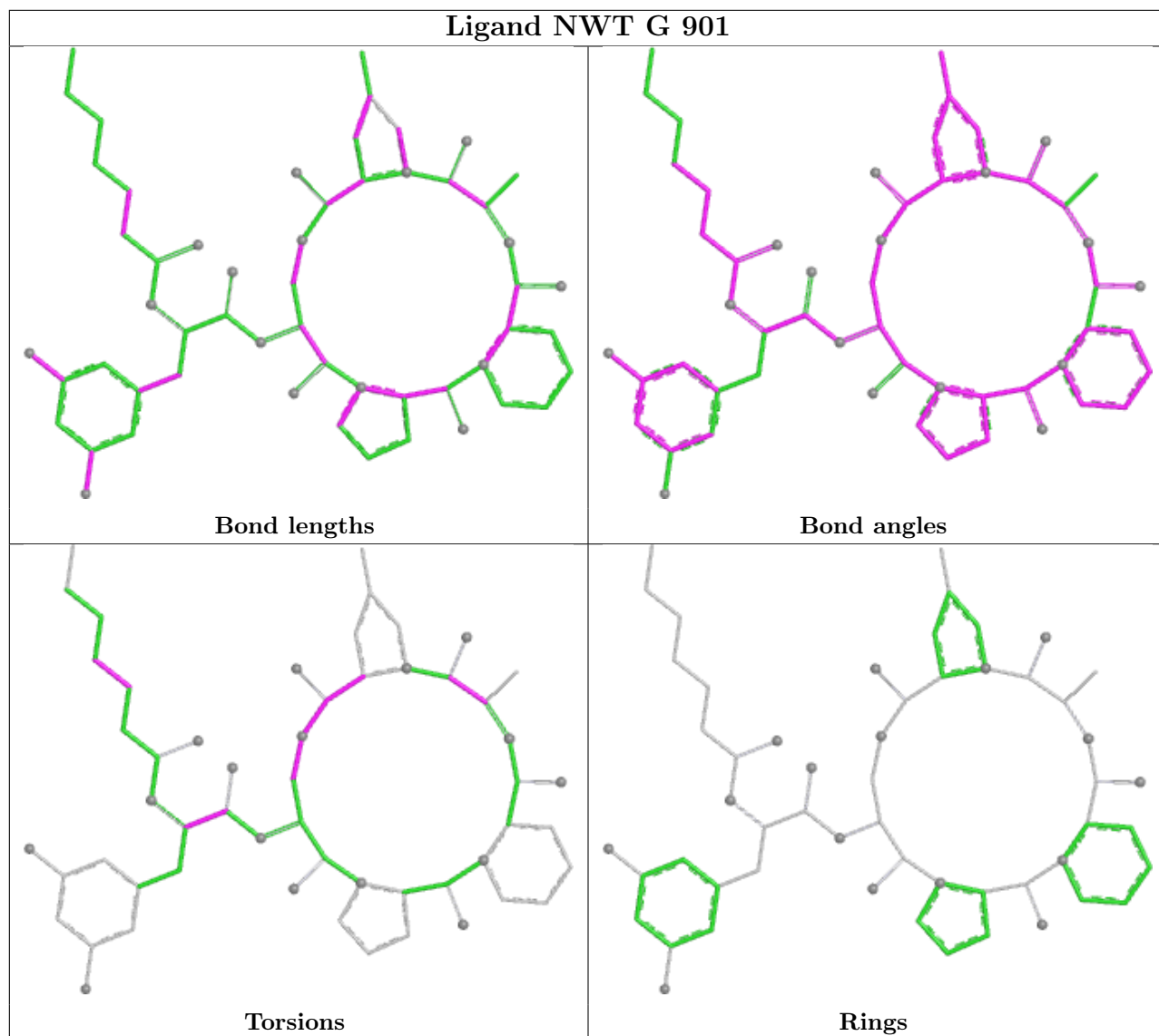
The following is a two-dimensional graphical depiction of Mogul quality analysis of bond lengths, bond angles, torsion angles, and ring geometry for all instances of the Ligand of Interest. In addition, ligands with molecular weight > 250 and outliers as shown on the validation Tables will also be included.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

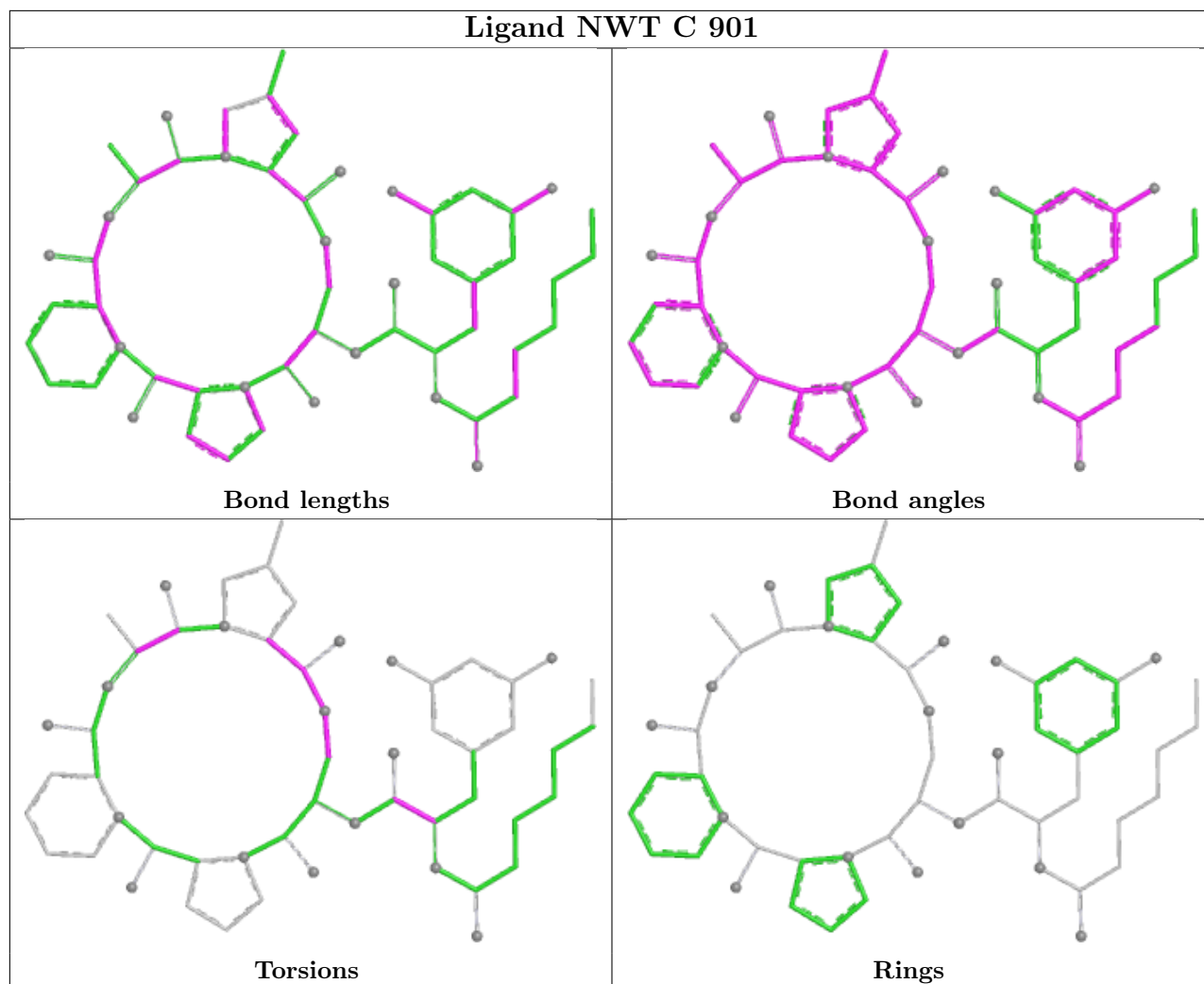


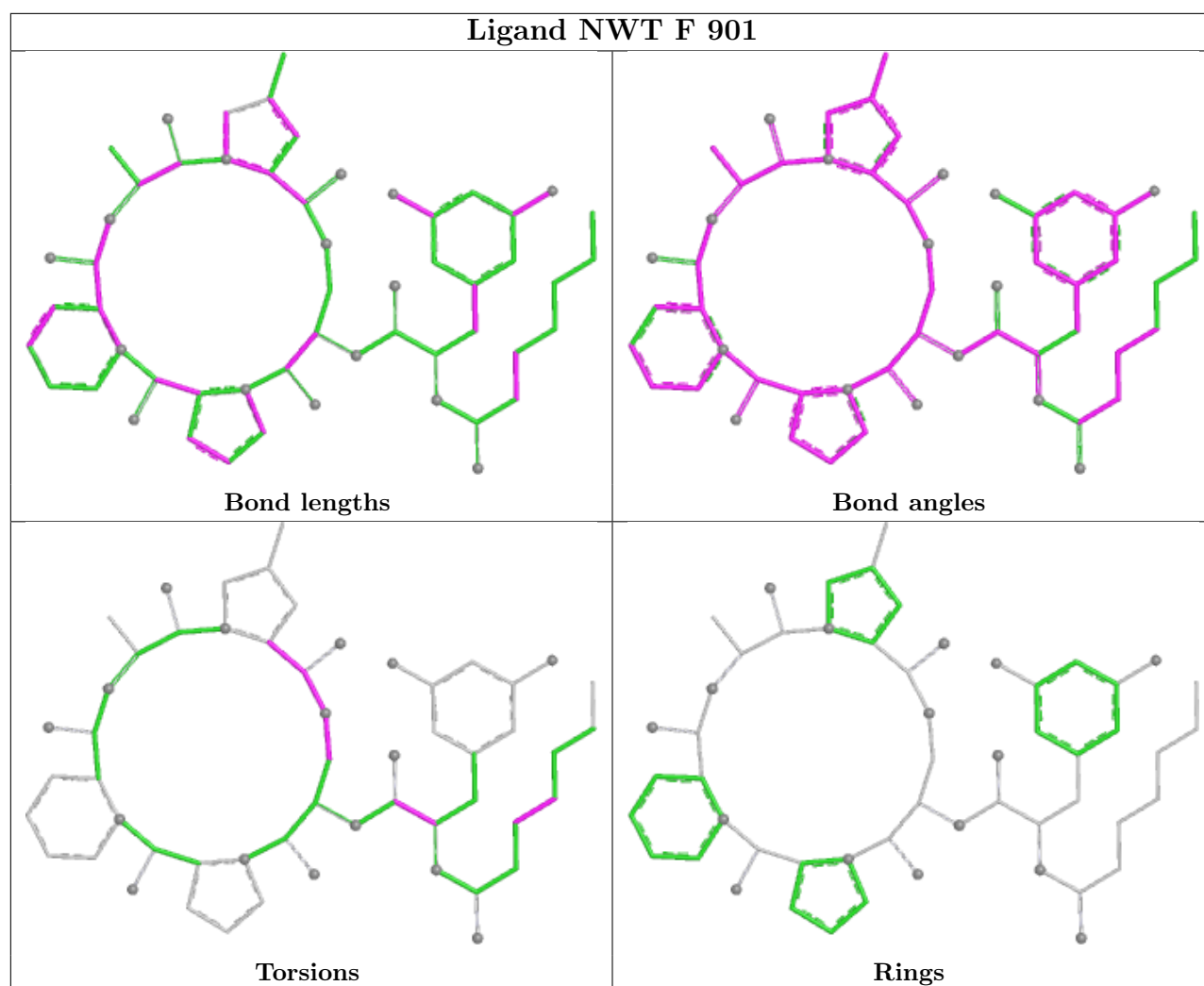












5.7 Other polymers [i](#)

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	190/203 (93%)	-0.25	6 (3%) 47 45	27, 38, 60, 85	0
1	B	186/203 (91%)	-0.20	2 (1%) 80 79	30, 39, 56, 94	0
1	C	186/203 (91%)	-0.10	6 (3%) 47 45	28, 38, 59, 83	0
1	D	189/203 (93%)	-0.24	5 (2%) 56 53	26, 36, 57, 93	0
1	E	191/203 (94%)	-0.17	6 (3%) 49 47	29, 37, 70, 94	0
1	F	191/203 (94%)	-0.11	9 (4%) 31 30	28, 38, 71, 111	0
1	G	189/203 (93%)	-0.20	6 (3%) 47 45	28, 36, 64, 104	0
All	All	1322/1421 (93%)	-0.18	40 (3%) 50 48	26, 37, 64, 111	0

All (40) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	D	14	GLY	6.9
1	F	193	GLU	5.6
1	G	14	GLY	4.6
1	G	11	THR	4.4
1	C	11	THR	4.2
1	E	12	ASN	4.2
1	G	193	GLU	4.2
1	B	193	GLU	4.0
1	G	10	THR	3.8
1	F	13	ARG	3.7
1	A	14	GLY	3.6
1	C	10	THR	3.4
1	A	11	THR	3.0
1	A	12	ASN	3.0
1	A	13	ARG	2.9
1	A	130	GLN	2.7
1	B	15	GLU	2.7

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Mol	Chain	Res	Type	RSRZ
1	F	4	ILE	2.7
1	F	3	LEU	2.6
1	G	15	GLU	2.6
1	D	11	THR	2.5
1	E	15	GLU	2.5
1	F	10	THR	2.5
1	D	12	ASN	2.5
1	E	3	LEU	2.4
1	E	191	VAL	2.4
1	F	11	THR	2.4
1	F	12	ASN	2.4
1	C	103	LEU	2.4
1	C	3	LEU	2.3
1	E	193	GLU	2.3
1	D	15	GLU	2.2
1	F	15	GLU	2.2
1	C	130	GLN	2.1
1	E	16	ARG	2.1
1	A	15	GLU	2.1
1	F	192	PRO	2.1
1	D	10	THR	2.1
1	C	162	ILE	2.1
1	G	3	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 monosaccharides in this entry.

6.4 Ligands [i](#)

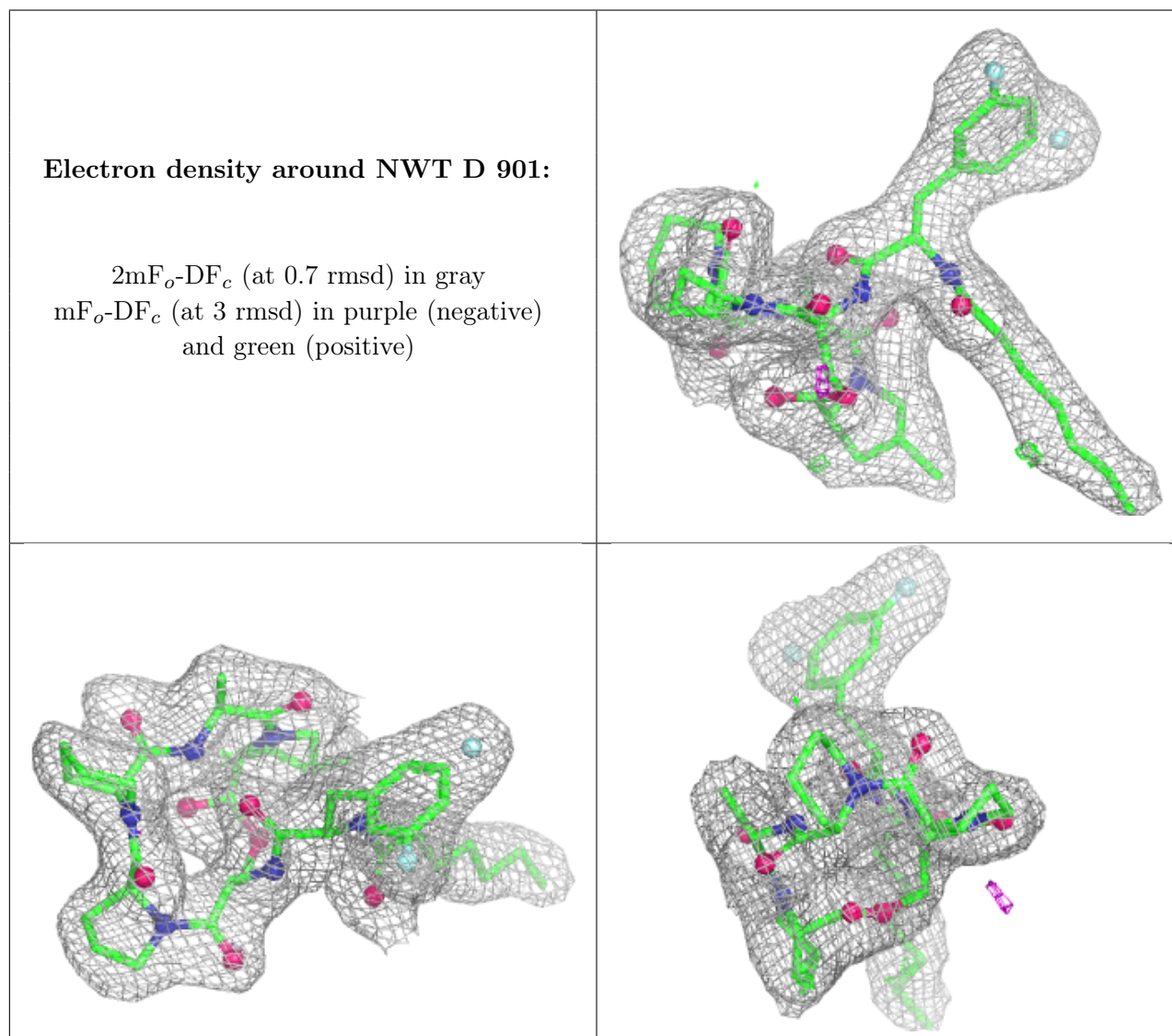
In the following table, the Atoms column lists the number of modelled atoms in the group and the number defined in the chemical component dictionary. The B-factors column lists the minimum, median, 95th percentile and maximum values of B factors of atoms in the group. The column labelled 'Q< 0.9' lists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

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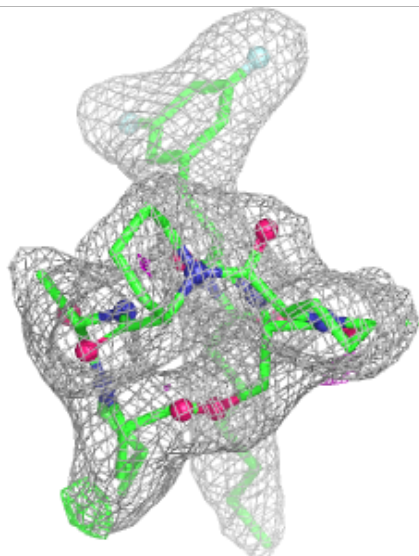
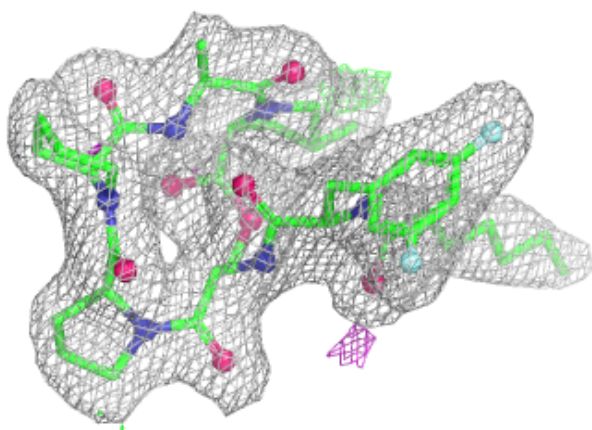
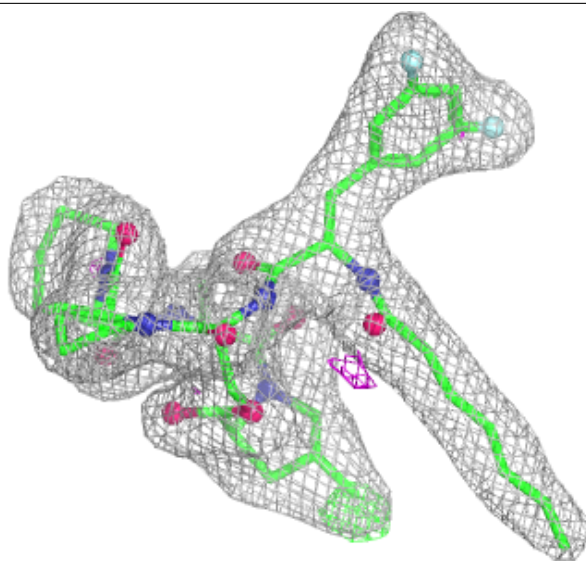
Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors(\AA^2)	Q<0.9
2	NWT	D	901	55/55	0.87	0.14	33,39,52,55	0
2	NWT	B	901	55/55	0.90	0.12	35,43,49,50	0
2	NWT	A	901	55/55	0.90	0.11	31,40,47,49	0
2	NWT	E	901	55/55	0.90	0.12	30,41,48,50	0
2	NWT	C	901	55/55	0.91	0.13	35,42,49,49	0
2	NWT	F	901	55/55	0.91	0.11	35,41,54,56	0
2	NWT	G	901	55/55	0.92	0.11	36,40,56,61	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.



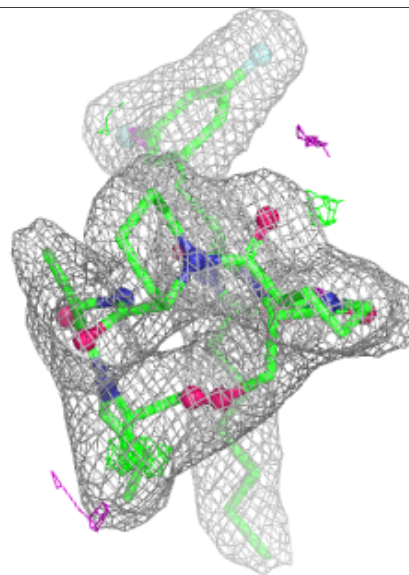
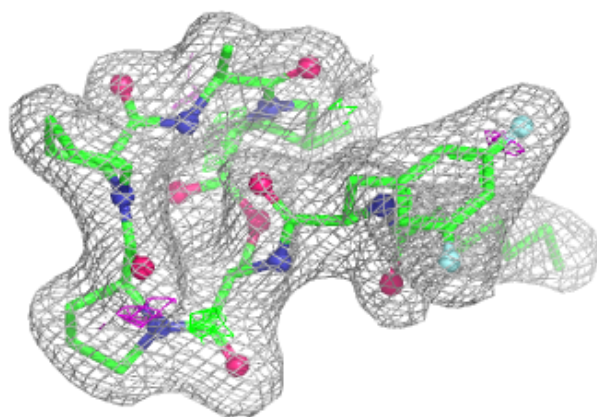
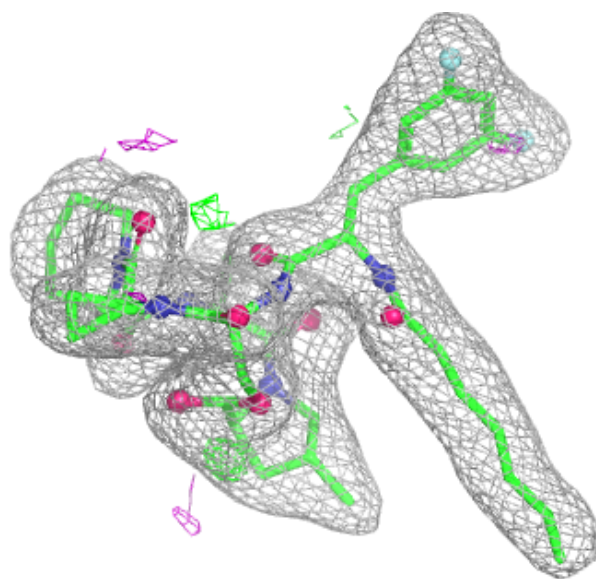
Electron density around NWT B 901:

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



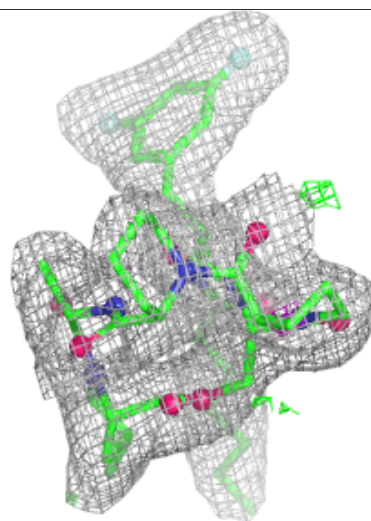
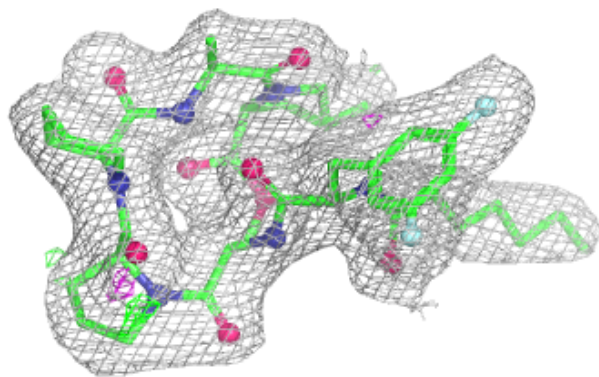
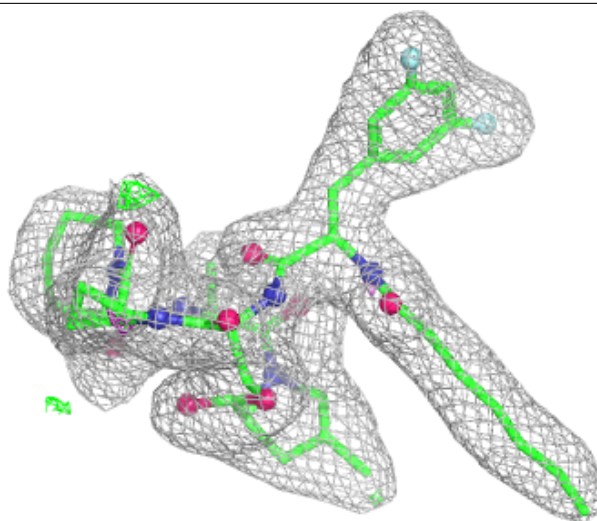
Electron density around NWT A 901:

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



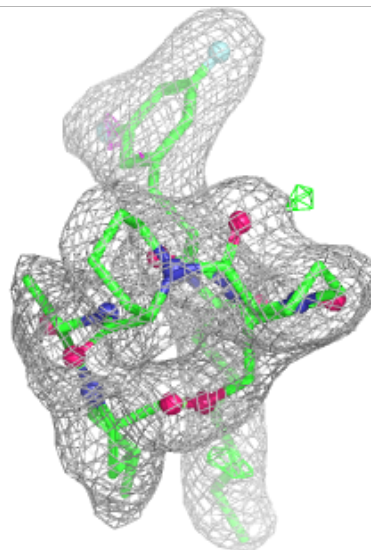
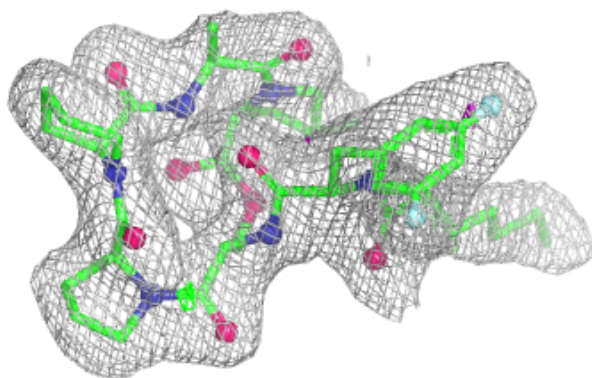
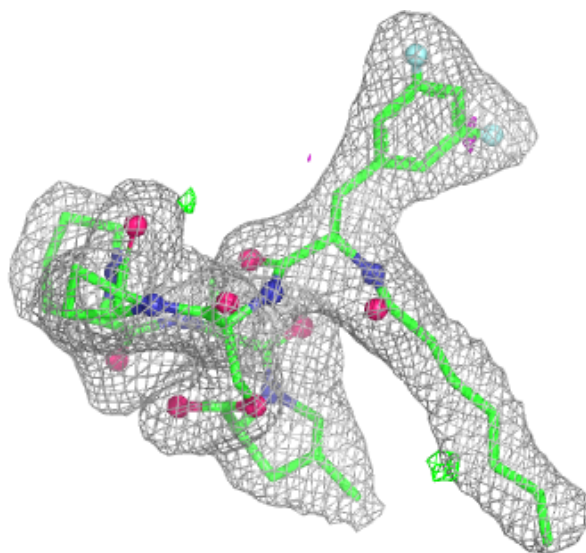
Electron density around NWT E 901:

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



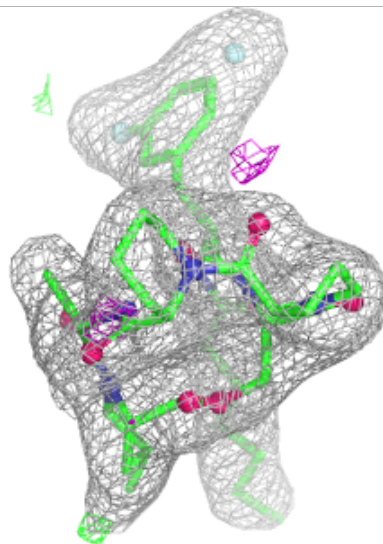
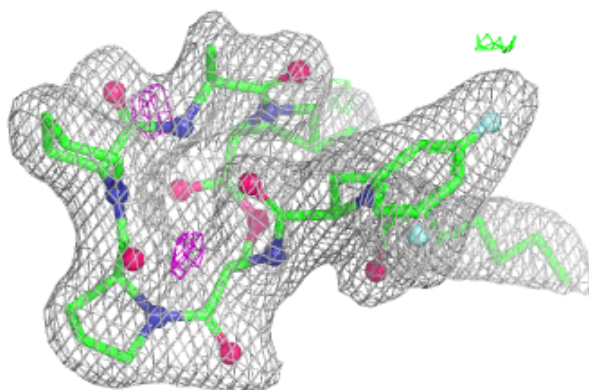
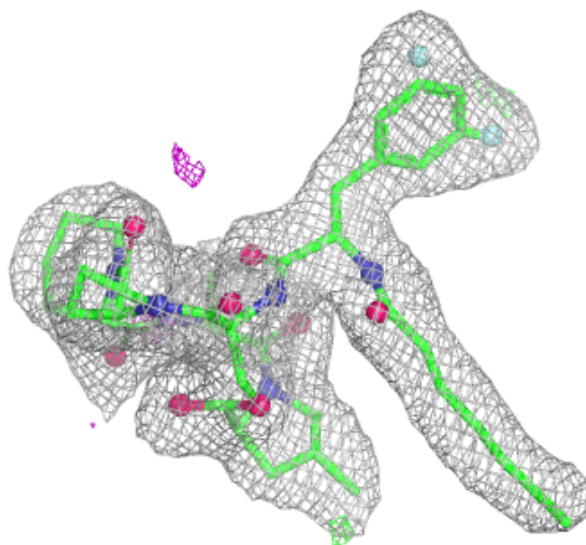
Electron density around NWT C 901:

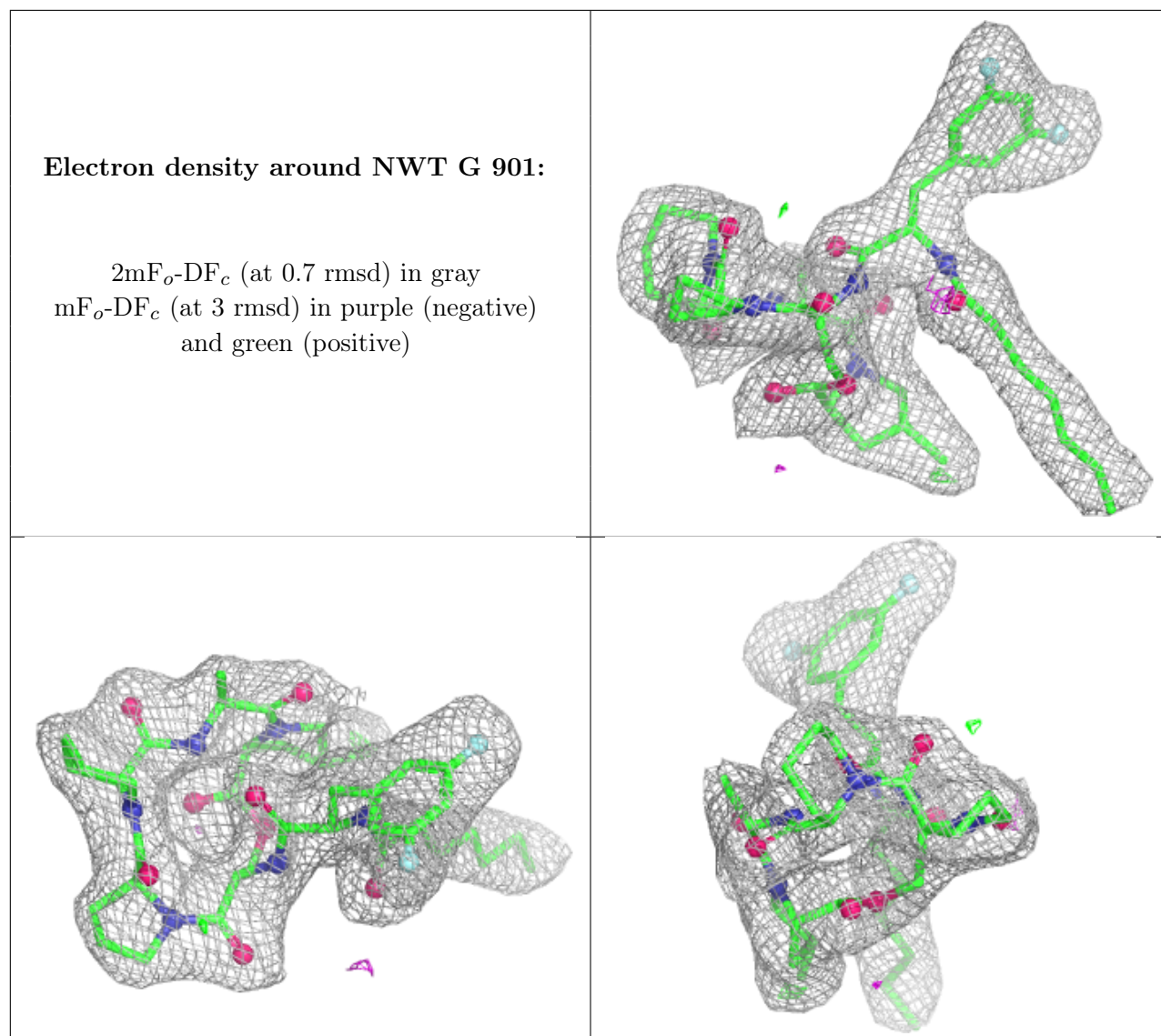
$2mF_o-DF_c$ (at 0.7 rmsd) in gray
 mF_o-DF_c (at 3 rmsd) in purple (negative)
and green (positive)



Electron density around NWT F 901:

$2mF_o-DF_c$ (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.