



Full wwPDB X-ray Structure Validation Report ⓘ

Jun 26, 2024 – 12:08 AM EDT

PDB ID : 6TNP
Title : Crystal structure of the ScFv-5E5 in complex with a Tn glycopeptide
Authors : Macias-Leon, J.; Corzana, F.; Hurtado-Guerrero, R.
Deposited on : 2019-12-09
Resolution : 3.00 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 : 1.8.5 (274361), CSD as541be (2020)
Xtriage (Phenix) : 1.13
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

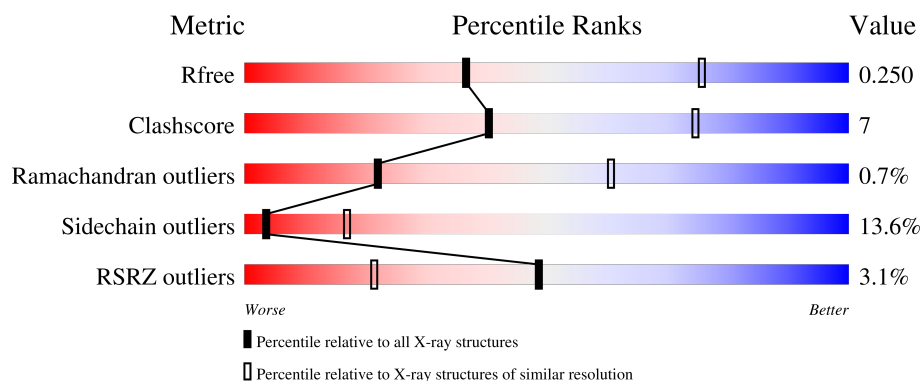
1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

X-RAY DIFFRACTION

The reported resolution of this entry is 3.00 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	2092 (3.00-3.00)
Clashscore	141614	2416 (3.00-3.00)
Ramachandran outliers	138981	2333 (3.00-3.00)
Sidechain outliers	138945	2336 (3.00-3.00)
RSRZ outliers	127900	1990 (3.00-3.00)

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	113	<div> <div style="width: 100%; height: 10px; background-color: red; position: relative;"> 6% </div> <div style="width: 100%; height: 10px; background-color: green; position: relative;"> 81% 16% </div> </div>
1	C	113	<div> <div style="width: 100%; height: 10px; background-color: green; position: relative;"> 81% 17% </div> </div>
1	E	113	<div> <div style="width: 100%; height: 10px; background-color: red; position: relative;"> 6% </div> <div style="width: 100%; height: 10px; background-color: green; position: relative;"> 85% 13% </div> </div>
1	G	113	<div> <div style="width: 100%; height: 10px; background-color: red; position: relative;"> 4% </div> <div style="width: 100%; height: 10px; background-color: green; position: relative;"> 80% 17% </div> </div>
1	J	113	<div> <div style="width: 100%; height: 10px; background-color: red; position: relative;"> 6% </div> <div style="width: 100%; height: 10px; background-color: green; position: relative;"> 81% 18% </div> </div>

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Mol	Chain	Length	Quality of chain
1	L	113	<div><div><div></div><div></div><div></div></div><div><div></div><div></div><div></div></div><div>%83%14%...</div></div>
2	B	116	<div><div><div></div><div></div><div></div></div><div><div></div><div></div><div></div></div><div>2%67%28%. .</div></div>
2	D	116	<div><div><div></div><div></div><div></div></div><div><div></div><div></div><div></div></div><div>2%65%28%7%. .</div></div>
2	F	116	<div><div><div></div><div></div><div></div></div><div><div></div><div></div><div></div></div><div>5%69%22%9%. .</div></div>
2	H	116	<div><div><div></div><div></div><div></div></div><div><div></div><div></div><div></div></div><div>%64%29%6%. .</div></div>
2	I	116	<div><div><div></div><div></div><div></div></div><div><div></div><div></div><div></div></div><div>7%65%26%. 6%</div></div>
2	K	116	<div><div><div></div><div></div><div></div></div><div><div></div><div></div><div></div></div><div>2%59%25%. 13%</div></div>

2 Entry composition

There are 4 unique types of molecules in this entry. The entry contains 10657 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 Light chain of our ScFv-5E5.

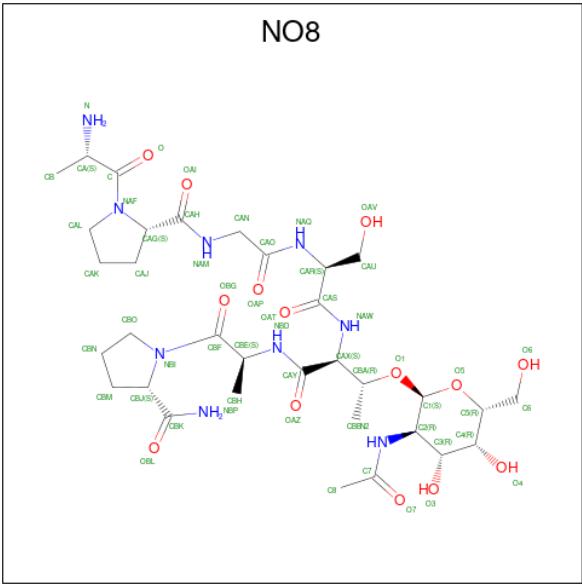
Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
1	A	112	Total	C	N	O	S	0	0	0
			862	547	138	173	4			
1	C	112	Total	C	N	O	S	0	0	0
			862	547	138	173	4			
1	E	112	Total	C	N	O	S	0	0	0
			862	547	138	173	4			
1	G	112	Total	C	N	O	S	0	0	0
			862	547	138	173	4			
1	J	112	Total	C	N	O	S	0	0	0
			862	547	138	173	4			
1	L	112	Total	C	N	O	S	0	0	0
			862	547	138	173	4			

- Molecule 2 is a protein called Heavy chain of our ScFv-5E5.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
2	B	115	Total	C	N	O	S	0	0	0
			906	576	148	179	3			
2	D	115	Total	C	N	O	S	0	0	0
			906	576	148	179	3			
2	F	115	Total	C	N	O	S	0	0	0
			906	576	148	179	3			
2	H	115	Total	C	N	O	S	0	0	0
			906	576	148	179	3			
2	I	109	Total	C	N	O	S	0	0	0
			866	554	141	168	3			
2	K	101	Total	C	N	O	S	0	0	0
			788	496	130	159	3			

- Molecule 3 is (2 {S})- {N}-[2-[[(2 {S})-1-[[(2 {S},3 {R})-3-[(2 {S},3 {R},4 {R},5 {R},6 {R})-3-acetamido-6-(hydroxymethyl)-4,5-bis(oxidanyl)oxan-2-yl]oxy-1-[[(2 {S})-1-[(2 {S})-2-aminocarbonylpyrrolidin-1-yl]-1-oxidanylidene-propan-2-yl]amino]-1-oxidanylidene-butan-2-yl]amino]-3-oxidanyl-1-oxidanylidene-propan-2-yl]amino]-2-oxidanylidene-ethyl]-1-[(2 {S})-2-az

anylpropanoyl]pyrrolidine-2-carboxamide (three-letter code: NO8) (formula: C₃₃H₅₅N₉O₁₄) (labeled as "Ligand of Interest" by depositor).



Mol	Chain	Residues	Atoms				ZeroOcc	AltConf
3	B	1	Total	C	N	O	0	0
			43	25	6	12		
3	D	1	Total	C	N	O	0	0
			56	33	9	14		
3	F	1	Total	C	N	O	0	0
			36	21	5	10		
3	H	1	Total	C	N	O	0	0
			40	23	6	11		
3	I	1	Total	C	N	O	0	0
			23	13	3	7		

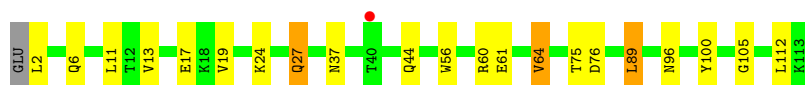
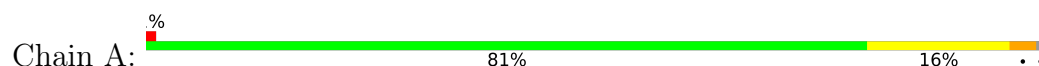
- Molecule 4 is water.

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
4	A	1	Total	O	0	0
			1	1		
4	E	2	Total	O	0	0
			2	2		
4	F	1	Total	O	0	0
			1	1		
4	H	4	Total	O	0	0
			4	4		
4	L	1	Total	O	0	0
			1	1		

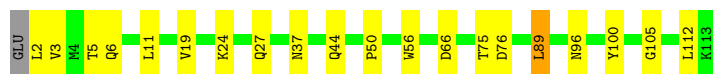
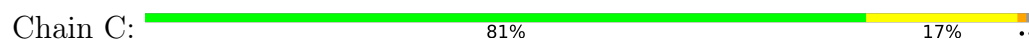
3 Residue-property plots [i](#)

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.

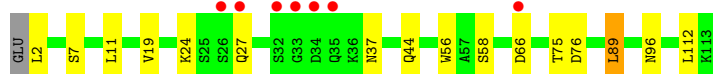
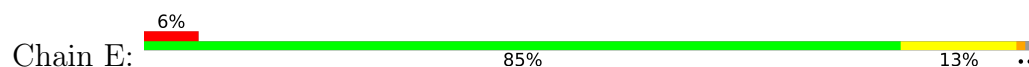
- Molecule 1: Light chain of our ScFv-5E5



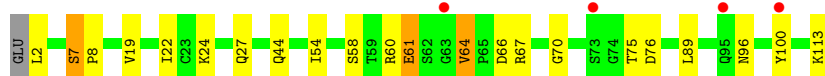
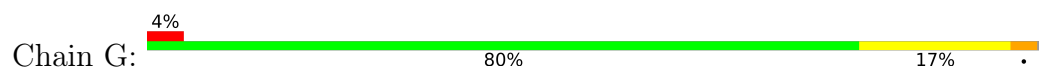
- Molecule 1: Light chain of our ScFv-5E5



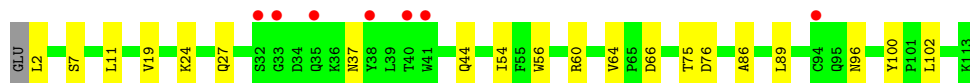
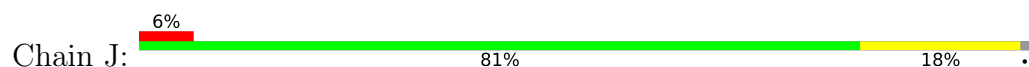
- Molecule 1: Light chain of our ScFv-5E5



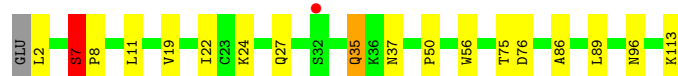
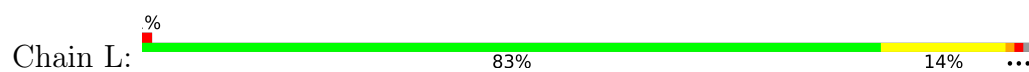
- Molecule 1: Light chain of our ScFv-5E5



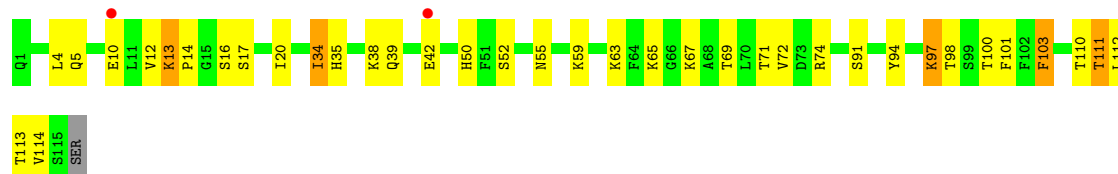
- Molecule 1: Light chain of our ScFv-5E5



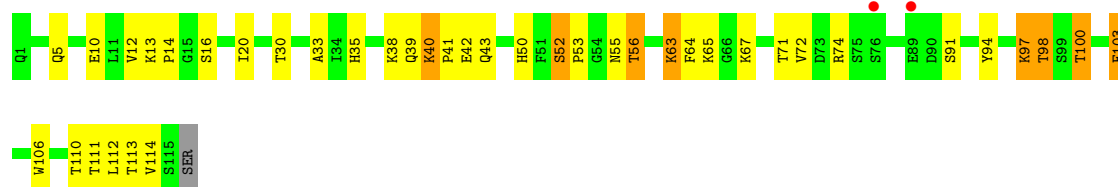
- Molecule 1: Light chain of our ScFv-5E5



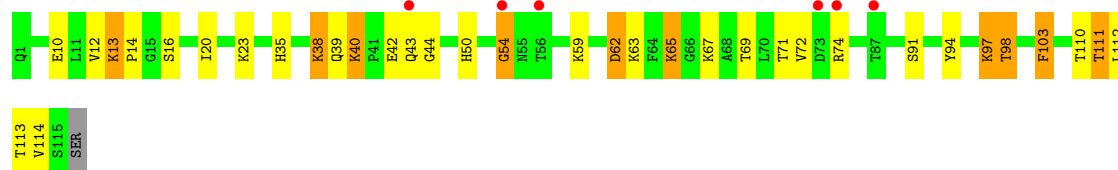
- Molecule 2: Heavy chain of our ScFv-5E5



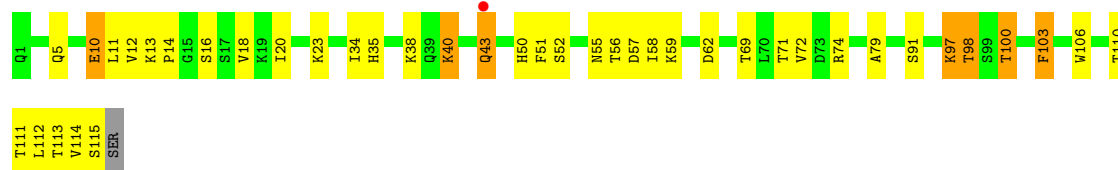
- Molecule 2: Heavy chain of our ScFv-5E5



- Molecule 2: Heavy chain of our ScFv-5E5

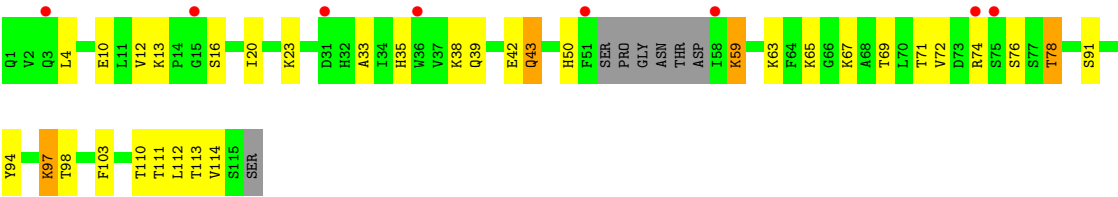


- Molecule 2: Heavy chain of our ScFv-5E5



- Molecule 2: Heavy chain of our ScFv-5E5





● Molecule 2: Heavy chain of our ScFv-5E5



4 Data and refinement statistics

Property	Value	Source
Space group	P 21 21 21	Depositor
Cell constants a, b, c, α , β , γ	86.57Å 113.19Å 151.20Å 90.00° 90.00° 90.00°	Depositor
Resolution (Å)	19.90 – 3.00 19.89 – 3.00	Depositor EDS
% Data completeness (in resolution range)	99.5 (19.90-3.00) 99.9 (19.89-3.00)	Depositor EDS
R_{merge}	(Not available)	Depositor
R_{sym}	(Not available)	Depositor
$\langle I/\sigma(I) \rangle$ ¹	1.93 (at 2.98Å)	Xtriage
Refinement program	REFMAC 5.8.0258	Depositor
R, R_{free}	0.203 , 0.251 0.204 , 0.250	Depositor DCC
R_{free} test set	1245 reflections (4.10%)	wwPDB-VP
Wilson B-factor (Å ²)	83.4	Xtriage
Anisotropy	0.528	Xtriage
Bulk solvent k_{sol} (e/Å ³), B_{sol} (Å ²)	0.33 , 59.9	EDS
L-test for twinning ²	$\langle L \rangle = 0.49$, $\langle L^2 \rangle = 0.32$	Xtriage
Estimated twinning fraction	No twinning to report.	Xtriage
F_o, F_c correlation	0.95	EDS
Total number of atoms	10657	wwPDB-VP
Average B, all atoms (Å ²)	101.0	wwPDB-VP

Xtriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 3.60% 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: NO8

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	0.71	0/881	0.92	2/1197 (0.2%)
1	C	0.72	0/881	0.87	0/1197
1	E	0.69	0/881	0.83	0/1197
1	G	0.75	0/881	0.94	0/1197
1	J	0.66	0/881	0.85	0/1197
1	L	0.73	0/881	0.91	0/1197
2	B	0.67	0/929	0.91	0/1258
2	D	0.71	0/929	0.97	0/1258
2	F	0.68	0/929	0.92	0/1258
2	H	0.73	0/929	0.96	0/1258
2	I	0.69	0/887	0.92	0/1198
2	K	0.70	0/802	0.93	1/1081 (0.1%)
All	All	0.70	0/10691	0.91	3/14493 (0.0%)

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
2	D	0	1
2	F	0	1
2	H	0	1
All	All	0	3

There are no bond length outliers.

All (3) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
2	K	42	GLU	CB-CA-C	5.77	121.93	110.40

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	A	60	ARG	NE-CZ-NH1	-5.55	117.53	120.30
1	A	27	GLN	CB-CG-CD	5.01	124.64	111.60

There are no chirality outliers.

All (3) planarity outliers are listed below:

Mol	Chain	Res	Type	Group
2	D	64	PHE	Peptide
2	F	54	GLY	Peptide
2	H	55	ASN	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	862	0	845	10	0
1	C	862	0	845	11	0
1	E	862	0	845	5	0
1	G	862	0	845	16	0
1	J	862	0	845	12	0
1	L	862	0	845	16	0
2	B	906	0	868	19	0
2	D	906	0	868	21	0
2	F	906	0	868	15	0
2	H	906	0	868	15	0
2	I	866	0	835	13	0
2	K	788	0	759	15	0
3	B	43	0	0	2	0
3	D	56	0	0	6	0
3	F	36	0	0	0	0
3	H	40	0	0	0	0
3	I	23	0	0	1	0
4	A	1	0	0	0	0
4	E	2	0	0	0	0
4	F	1	0	0	0	0
4	H	4	0	0	0	0
4	L	1	0	0	0	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
All	All	10657	0	10136	150	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 7.

All (150) 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:J:44:GLN:HE22	2:K:39:GLN:NE2	1.68	0.92
1:J:44:GLN:HE22	2:K:39:GLN:HE22	1.21	0.87
1:L:7:SER:HB3	1:L:8:PRO:HD3	1.57	0.85
1:G:61:GLU:O	1:G:64:VAL:HG13	1.78	0.83
1:G:7:SER:HB2	1:G:22:ILE:HB	1.60	0.81
1:L:7:SER:HB2	1:L:22:ILE:HB	1.62	0.81
2:D:56:THR:HG22	2:D:74:ARG:HH22	1.44	0.81
2:H:100:THR:O	2:H:100:THR:CG2	2.28	0.80
1:J:44:GLN:NE2	2:K:39:GLN:HE22	1.80	0.80
2:D:100:THR:HG22	2:D:100:THR:O	1.81	0.79
2:D:100:THR:O	2:D:100:THR:CG2	2.32	0.78
1:A:61:GLU:O	1:A:64:VAL:HG13	1.84	0.77
1:G:61:GLU:O	1:G:64:VAL:CG1	2.33	0.75
3:D:201:NO8:OAI	3:D:201:NO8:OAP	2.04	0.75
1:J:44:GLN:NE2	2:K:39:GLN:NE2	2.36	0.71
1:A:61:GLU:O	1:A:64:VAL:CG1	2.39	0.70
2:F:111:THR:HG22	1:L:86:ALA:HB2	1.73	0.69
1:L:7:SER:HB3	1:L:8:PRO:CD	2.21	0.69
1:G:7:SER:HB3	1:G:8:PRO:CD	2.22	0.69
2:D:63:LYS:O	2:D:65:LYS:HG2	1.93	0.68
2:F:20:ILE:HD12	2:F:110:THR:HG21	1.76	0.67
2:B:103:PHE:HE1	1:L:35:GLN:HB2	1.60	0.66
2:B:13:LYS:O	2:B:16:SER:HB3	1.96	0.66
2:H:13:LYS:O	2:H:16:SER:HB3	1.94	0.66
2:B:103:PHE:HE1	1:L:35:GLN:CB	2.08	0.66
2:D:56:THR:HG22	2:D:74:ARG:NH2	2.11	0.66
2:K:20:ILE:HD12	2:K:110:THR:HG21	1.77	0.65
2:D:20:ILE:HD12	2:D:110:THR:HG21	1.79	0.65
2:B:103:PHE:CE1	1:L:35:GLN:HB2	2.31	0.65
2:H:100:THR:O	2:H:100:THR:HG22	1.97	0.64
2:D:33:ALA:HB3	3:D:201:NO8:O7	1.96	0.64
2:F:98:THR:HG23	2:F:103:PHE:HB3	1.80	0.64
2:I:20:ILE:HD12	2:I:110:THR:HG21	1.81	0.63

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:H:98:THR:HG23	2:H:103:PHE:HB3	1.80	0.63
2:H:20:ILE:HD12	2:H:110:THR:HG21	1.80	0.62
2:D:13:LYS:O	2:D:16:SER:HB3	2.00	0.61
2:I:13:LYS:O	2:I:16:SER:HB3	2.00	0.61
2:K:13:LYS:O	2:K:16:SER:HB3	2.02	0.60
1:L:7:SER:CB	1:L:22:ILE:HB	2.31	0.60
1:G:58:SER:HB2	1:G:70:GLY:O	2.02	0.60
2:F:13:LYS:O	2:F:16:SER:HB3	2.02	0.59
2:B:20:ILE:HD12	2:B:110:THR:HG21	1.84	0.59
3:D:201:NO8:OAI	3:D:201:NO8:CAO	2.52	0.58
2:B:100:THR:O	2:B:101:PHE:CD1	2.57	0.57
2:I:42:GLU:O	2:I:43:GLN:O	2.22	0.57
2:F:62:ASP:HA	2:F:65:LYS:HG2	1.88	0.56
1:C:3:VAL:HG21	2:K:13:LYS:HE2	1.88	0.56
2:I:4:LEU:HD11	2:I:98:THR:HG23	1.89	0.55
2:K:67:LYS:CE	2:K:90:ASP:OD2	2.55	0.55
1:A:44:GLN:NE2	2:B:39:GLN:OE1	2.40	0.54
1:G:44:GLN:NE2	2:I:39:GLN:OE1	2.40	0.54
2:B:4:LEU:HD11	2:B:98:THR:HG23	1.91	0.53
1:J:102:LEU:HD13	2:K:47:TRP:CE2	2.44	0.53
1:J:100:TYR:CD1	1:J:100:TYR:C	2.83	0.53
2:K:97:LYS:HD3	2:K:106:TRP:CZ2	2.45	0.52
1:C:37:ASN:O	1:C:56:TRP:HA	2.10	0.51
1:C:2:LEU:C	1:C:2:LEU:HD23	2.30	0.51
1:A:2:LEU:C	1:A:2:LEU:HD23	2.31	0.51
1:E:2:LEU:C	1:E:2:LEU:HD23	2.31	0.51
1:G:60:ARG:HD3	1:G:64:VAL:O	2.11	0.51
1:G:7:SER:CB	1:G:8:PRO:CD	2.87	0.51
2:K:4:LEU:HD11	2:K:98:THR:HG23	1.91	0.51
1:L:35:GLN:O	1:L:35:GLN:HG3	2.11	0.51
1:C:100:TYR:CZ	3:D:201:NO8:CBO	2.94	0.50
1:L:2:LEU:C	1:L:2:LEU:HD23	2.31	0.50
1:G:2:LEU:C	1:G:2:LEU:HD23	2.31	0.50
1:J:2:LEU:C	1:J:2:LEU:HD23	2.31	0.50
2:I:33:ALA:HB3	3:I:201:NO8:O7	2.12	0.50
2:H:100:THR:O	2:H:100:THR:HG23	2.11	0.50
2:F:40:LYS:HG2	2:F:44:GLY:O	2.11	0.50
2:D:98:THR:HG23	2:D:103:PHE:HB3	1.92	0.49
2:D:65:LYS:C	2:I:76:SER:HA	2.33	0.49
2:I:91:SER:HA	2:I:112:LEU:O	2.12	0.49
2:I:76:SER:OG	2:I:78:THR:CG2	2.61	0.49

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:F:91:SER:HA	2:F:112:LEU:O	2.13	0.49
2:B:91:SER:HA	2:B:112:LEU:O	2.13	0.49
1:E:89:LEU:HB2	1:E:112:LEU:HD12	1.95	0.48
2:D:91:SER:HA	2:D:112:LEU:O	2.13	0.48
1:A:17:GLU:HG2	1:C:5:THR:CG2	2.44	0.48
1:G:7:SER:HB3	1:G:8:PRO:HD3	1.95	0.48
1:G:58:SER:O	1:G:58:SER:OG	2.26	0.48
2:H:38:LYS:HE2	2:H:40:LYS:HE2	1.95	0.48
1:J:37:ASN:O	1:J:56:TRP:HA	2.14	0.48
2:K:91:SER:HA	2:K:112:LEU:O	2.13	0.48
1:E:44:GLN:NE2	2:F:39:GLN:OE1	2.44	0.48
2:D:12:VAL:O	2:D:114:VAL:HA	2.14	0.48
2:H:91:SER:HA	2:H:112:LEU:O	2.13	0.48
2:F:62:ASP:HA	2:F:65:LYS:CG	2.43	0.47
2:H:12:VAL:O	2:H:114:VAL:HA	2.14	0.47
2:I:12:VAL:O	2:I:114:VAL:HA	2.14	0.47
1:A:89:LEU:HB2	1:A:112:LEU:HD12	1.96	0.47
1:A:37:ASN:O	1:A:56:TRP:HA	2.14	0.47
2:H:10:GLU:HG2	2:H:18:VAL:HG21	1.97	0.47
1:L:113:LYS:HA	1:L:113:LYS:HE2	1.96	0.47
2:B:12:VAL:O	2:B:114:VAL:HA	2.15	0.46
1:J:100:TYR:CD1	1:J:100:TYR:O	2.68	0.46
2:K:12:VAL:O	2:K:114:VAL:HA	2.15	0.46
2:D:52:SER:HB3	2:D:55:ASN:OD1	2.16	0.46
2:F:12:VAL:O	2:F:114:VAL:HA	2.15	0.46
2:B:35:HIS:CE1	2:B:100:THR:HG22	2.51	0.46
2:B:103:PHE:CE1	1:L:35:GLN:CB	2.93	0.46
1:C:44:GLN:NE2	2:D:39:GLN:OE1	2.44	0.46
1:L:37:ASN:O	1:L:56:TRP:HA	2.16	0.46
1:E:37:ASN:O	1:E:56:TRP:HA	2.16	0.45
1:A:100:TYR:CZ	3:B:201:NO8:CBO	3.00	0.45
1:G:100:TYR:CE2	2:I:59:LYS:HG3	2.52	0.45
3:D:201:NO8:CAL	3:D:201:NO8:N	2.80	0.44
2:D:38:LYS:HG3	2:D:94:TYR:CE1	2.52	0.44
1:L:7:SER:O	1:L:8:PRO:C	2.54	0.44
2:B:35:HIS:HB2	2:B:97:LYS:HG3	1.99	0.44
2:B:34:ILE:N	2:B:34:ILE:CD1	2.80	0.44
2:D:40:LYS:HD3	2:D:41:PRO:HD2	2.00	0.44
2:F:35:HIS:HB2	2:F:97:LYS:HG3	1.99	0.44
1:J:60:ARG:HD3	1:J:64:VAL:O	2.17	0.44
2:D:35:HIS:HB2	2:D:97:LYS:HG3	2.00	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:J:24:LYS:HA	1:J:75:THR:O	2.19	0.43
2:K:38:LYS:HG3	2:K:94:TYR:CE1	2.53	0.43
1:L:24:LYS:HA	1:L:75:THR:O	2.19	0.43
1:C:50:PRO:HD2	2:D:106:TRP:CE3	2.54	0.43
1:E:24:LYS:HA	1:E:75:THR:O	2.19	0.43
1:G:7:SER:CB	1:G:22:ILE:HB	2.41	0.43
1:G:7:SER:HB3	1:G:8:PRO:HD2	1.98	0.43
2:I:38:LYS:HG3	2:I:94:TYR:CE1	2.54	0.42
1:C:6:GLN:HG3	1:C:105:GLY:HA3	2.01	0.42
2:F:38:LYS:HG3	2:F:94:TYR:CE1	2.54	0.42
2:H:35:HIS:HB2	2:H:97:LYS:HG3	2.02	0.42
2:I:35:HIS:HB2	2:I:97:LYS:HG3	2.02	0.42
2:B:38:LYS:HG3	2:B:94:TYR:CE1	2.54	0.42
2:B:111:THR:OG1	1:J:86:ALA:HB2	2.19	0.42
2:B:14:PRO:C	2:B:16:SER:H	2.22	0.42
2:H:34:ILE:HG13	2:H:79:ALA:HB2	2.01	0.42
1:G:24:LYS:HA	1:G:75:THR:O	2.20	0.42
2:H:106:TRP:CE3	1:L:50:PRO:HD2	2.55	0.42
2:D:30:THR:HA	2:D:53:PRO:HB2	2.01	0.42
2:F:54:GLY:N	2:F:74:ARG:HH22	2.17	0.42
2:K:14:PRO:C	2:K:16:SER:H	2.23	0.42
2:H:14:PRO:C	2:H:16:SER:H	2.23	0.42
2:D:40:LYS:HD3	2:D:40:LYS:HA	1.84	0.41
1:G:60:ARG:HG2	1:G:64:VAL:HG13	2.01	0.41
2:F:54:GLY:H	2:F:74:ARG:HH22	1.68	0.41
1:A:6:GLN:HG3	1:A:105:GLY:HA3	2.03	0.41
1:A:24:LYS:HA	1:A:75:THR:O	2.21	0.41
2:B:55:ASN:C	2:B:55:ASN:ND2	2.72	0.41
2:F:14:PRO:C	2:F:16:SER:H	2.24	0.41
1:C:89:LEU:HB2	1:C:112:LEU:HD12	2.01	0.41
1:C:24:LYS:HA	1:C:75:THR:O	2.20	0.41
2:B:100:THR:HG23	3:B:201:NO8:O7	2.21	0.40
1:C:100:TYR:OH	3:D:201:NO8:CBO	2.69	0.40
2:D:14:PRO:C	2:D:16:SER:H	2.22	0.40
2:H:51:PHE:CE2	2:H:58:ILE:HD11	2.57	0.40

There are no symmetry-related clashes.

5.3 Torsion angles

5.3.1 Protein backbone

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	110/113 (97%)	106 (96%)	4 (4%)	0	100	100
1	C	110/113 (97%)	107 (97%)	3 (3%)	0	100	100
1	E	110/113 (97%)	107 (97%)	3 (3%)	0	100	100
1	G	110/113 (97%)	106 (96%)	3 (3%)	1 (1%)	17	55
1	J	110/113 (97%)	107 (97%)	3 (3%)	0	100	100
1	L	110/113 (97%)	106 (96%)	3 (3%)	1 (1%)	17	55
2	B	113/116 (97%)	104 (92%)	9 (8%)	0	100	100
2	D	113/116 (97%)	104 (92%)	7 (6%)	2 (2%)	8	37
2	F	113/116 (97%)	104 (92%)	8 (7%)	1 (1%)	17	55
2	H	113/116 (97%)	104 (92%)	6 (5%)	3 (3%)	5	26
2	I	105/116 (90%)	96 (91%)	8 (8%)	1 (1%)	15	53
2	K	93/116 (80%)	90 (97%)	3 (3%)	0	100	100
All	All	1310/1374 (95%)	1241 (95%)	60 (5%)	9 (1%)	22	60

All (9) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
2	F	43	GLN
1	G	7	SER
2	H	56	THR
2	I	43	GLN
1	L	7	SER
2	D	56	THR
2	H	43	GLN
2	H	57	ASP
2	D	43	GLN

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	98/99 (99%)	90 (92%)	8 (8%)	11	39
1	C	98/99 (99%)	91 (93%)	7 (7%)	14	46
1	E	98/99 (99%)	89 (91%)	9 (9%)	9	34
1	G	98/99 (99%)	87 (89%)	11 (11%)	6	24
1	J	98/99 (99%)	89 (91%)	9 (9%)	9	34
1	L	98/99 (99%)	90 (92%)	8 (8%)	11	39
2	B	101/102 (99%)	81 (80%)	20 (20%)	1	7
2	D	101/102 (99%)	85 (84%)	16 (16%)	2	12
2	F	101/102 (99%)	81 (80%)	20 (20%)	1	7
2	H	101/102 (99%)	80 (79%)	21 (21%)	1	5
2	I	96/102 (94%)	80 (83%)	16 (17%)	2	11
2	K	88/102 (86%)	73 (83%)	15 (17%)	2	10
All	All	1176/1206 (98%)	1016 (86%)	160 (14%)	3	17

All (160) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	11	LEU
1	A	13	VAL
1	A	19	VAL
1	A	27	GLN
1	A	64	VAL
1	A	76	ASP
1	A	89	LEU
1	A	96	ASN
2	B	5	GLN
2	B	10	GLU
2	B	13	LYS
2	B	17	SER
2	B	34	ILE
2	B	42	GLU

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Mol	Chain	Res	Type
2	B	50	HIS
2	B	52	SER
2	B	59	LYS
2	B	63	LYS
2	B	65	LYS
2	B	67	LYS
2	B	69	THR
2	B	71	THR
2	B	72	VAL
2	B	74	ARG
2	B	97	LYS
2	B	103	PHE
2	B	111	THR
2	B	113	THR
1	C	11	LEU
1	C	19	VAL
1	C	27	GLN
1	C	66	ASP
1	C	76	ASP
1	C	89	LEU
1	C	96	ASN
2	D	5	GLN
2	D	10	GLU
2	D	40	LYS
2	D	42	GLU
2	D	50	HIS
2	D	52	SER
2	D	63	LYS
2	D	67	LYS
2	D	71	THR
2	D	72	VAL
2	D	97	LYS
2	D	98	THR
2	D	100	THR
2	D	103	PHE
2	D	111	THR
2	D	113	THR
1	E	7	SER
1	E	11	LEU
1	E	19	VAL
1	E	27	GLN
1	E	58	SER

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Mol	Chain	Res	Type
1	E	66	ASP
1	E	76	ASP
1	E	89	LEU
1	E	96	ASN
2	F	10	GLU
2	F	13	LYS
2	F	23	LYS
2	F	38	LYS
2	F	40	LYS
2	F	42	GLU
2	F	50	HIS
2	F	59	LYS
2	F	62	ASP
2	F	63	LYS
2	F	65	LYS
2	F	67	LYS
2	F	69	THR
2	F	71	THR
2	F	72	VAL
2	F	97	LYS
2	F	98	THR
2	F	103	PHE
2	F	111	THR
2	F	113	THR
1	G	19	VAL
1	G	27	GLN
1	G	54	ILE
1	G	61	GLU
1	G	64	VAL
1	G	66	ASP
1	G	67	ARG
1	G	76	ASP
1	G	89	LEU
1	G	96	ASN
1	G	113	LYS
2	H	5	GLN
2	H	10	GLU
2	H	11	LEU
2	H	23	LYS
2	H	40	LYS
2	H	43	GLN
2	H	50	HIS

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Mol	Chain	Res	Type
2	H	52	SER
2	H	59	LYS
2	H	62	ASP
2	H	69	THR
2	H	71	THR
2	H	72	VAL
2	H	74	ARG
2	H	97	LYS
2	H	98	THR
2	H	100	THR
2	H	103	PHE
2	H	111	THR
2	H	113	THR
2	H	115	SER
2	I	10	GLU
2	I	23	LYS
2	I	50	HIS
2	I	59	LYS
2	I	63	LYS
2	I	65	LYS
2	I	67	LYS
2	I	69	THR
2	I	71	THR
2	I	72	VAL
2	I	74	ARG
2	I	78	THR
2	I	97	LYS
2	I	103	PHE
2	I	111	THR
2	I	113	THR
1	J	7	SER
1	J	11	LEU
1	J	19	VAL
1	J	27	GLN
1	J	54	ILE
1	J	66	ASP
1	J	76	ASP
1	J	89	LEU
1	J	96	ASN
2	K	5	GLN
2	K	10	GLU
2	K	13	LYS

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Mol	Chain	Res	Type
2	K	31	ASP
2	K	40	LYS
2	K	42	GLU
2	K	50	HIS
2	K	69	THR
2	K	71	THR
2	K	72	VAL
2	K	74	ARG
2	K	97	LYS
2	K	111	THR
2	K	113	THR
2	K	115	SER
1	L	7	SER
1	L	11	LEU
1	L	19	VAL
1	L	27	GLN
1	L	35	GLN
1	L	76	ASP
1	L	89	LEU
1	L	96	ASN

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (5) such sidechains are listed below:

Mol	Chain	Res	Type
2	B	55	ASN
2	I	5	GLN
1	J	48	GLN
2	K	39	GLN
1	L	35	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 [i](#)

There are no monosaccharides in this entry.

5.6 Ligand geometry [i](#)

5 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	NO8	F	201	-	36,37,58	2.56	9 (25%)	48,52,82	2.37	17 (35%)
3	NO8	H	201	-	40,41,58	2.30	9 (22%)	54,58,82	2.06	19 (35%)
3	NO8	I	201	-	22,23,58	2.56	11 (50%)	27,32,82	2.38	12 (44%)
3	NO8	B	201	-	43,44,58	1.83	7 (16%)	59,62,82	1.55	10 (16%)
3	NO8	D	201	-	56,58,58	2.73	18 (32%)	78,82,82	2.40	32 (41%)

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	NO8	F	201	-	-	15/37/67/105	0/2/2/3
3	NO8	H	201	-	-	3/44/74/105	0/2/2/3
3	NO8	I	201	-	-	14/20/40/105	0/1/1/3
3	NO8	B	201	-	-	5/48/78/105	0/2/2/3
3	NO8	D	201	-	-	11/65/105/105	0/3/3/3

All (54) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
3	D	201	NO8	C3-C2	-13.30	1.27	1.53
3	H	201	NO8	CBJ-CBK	-7.76	1.37	1.53
3	F	201	NO8	O1-C1	7.56	1.63	1.41

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
3	F	201	NO8	CBJ-CBK	-6.66	1.39	1.53
3	H	201	NO8	C4-C5	6.30	1.66	1.53
3	B	201	NO8	CBJ-CBK	-6.09	1.40	1.53
3	D	201	NO8	O5-C5	-5.77	1.30	1.44
3	D	201	NO8	CBJ-CBK	-5.75	1.41	1.53
3	I	201	NO8	CAX-CAY	5.74	1.61	1.52
3	H	201	NO8	C1-C2	5.37	1.61	1.53
3	F	201	NO8	CAX-NAW	5.18	1.52	1.45
3	B	201	NO8	C4-C5	-5.07	1.42	1.53
3	F	201	NO8	C1-C2	4.93	1.61	1.53
3	F	201	NO8	CBA-CAX	4.67	1.64	1.53
3	I	201	NO8	O4-C4	4.45	1.53	1.43
3	D	201	NO8	CAG-NAF	4.24	1.55	1.47
3	D	201	NO8	OAI-CAH	3.92	1.31	1.23
3	D	201	NO8	CAG-CAH	-3.72	1.44	1.52
3	B	201	NO8	CBO-NBI	-3.68	1.40	1.47
3	I	201	NO8	C2-N2	3.48	1.51	1.45
3	B	201	NO8	C1-C2	-3.43	1.47	1.53
3	H	201	NO8	CAU-CAR	3.24	1.60	1.53
3	D	201	NO8	CBJ-NBI	-3.17	1.40	1.47
3	D	201	NO8	O7-C7	3.16	1.30	1.23
3	D	201	NO8	O5-C1	3.11	1.49	1.41
3	I	201	NO8	CBB-CBA	3.09	1.59	1.51
3	F	201	NO8	C4-C5	3.05	1.59	1.53
3	I	201	NO8	CAX-NAW	3.04	1.54	1.47
3	I	201	NO8	O5-C1	3.03	1.49	1.41
3	I	201	NO8	CAS-NAW	-3.02	1.38	1.46
3	B	201	NO8	O3-C3	2.94	1.49	1.43
3	H	201	NO8	CBO-NBI	-2.94	1.42	1.47
3	H	201	NO8	CAY-NBD	2.93	1.40	1.34
3	H	201	NO8	C3-C2	-2.85	1.47	1.53
3	I	201	NO8	C3-C2	2.85	1.58	1.53
3	I	201	NO8	C6-C5	2.64	1.60	1.51
3	B	201	NO8	CAN-CAO	2.61	1.56	1.50
3	F	201	NO8	C2-N2	2.59	1.50	1.45
3	D	201	NO8	O1-C1	2.52	1.48	1.41
3	D	201	NO8	C-NAF	2.48	1.40	1.34
3	B	201	NO8	C3-C4	2.42	1.58	1.52
3	D	201	NO8	C8-C7	2.39	1.55	1.50
3	H	201	NO8	O5-C5	2.38	1.50	1.44
3	I	201	NO8	C8-C7	2.36	1.55	1.50
3	I	201	NO8	O5-C5	2.33	1.50	1.44

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
3	D	201	NO8	CBB-CBA	2.31	1.57	1.51
3	D	201	NO8	O3-C3	-2.28	1.37	1.43
3	D	201	NO8	C4-C5	-2.24	1.48	1.53
3	D	201	NO8	O4-C4	-2.23	1.37	1.43
3	F	201	NO8	CAX-CAY	2.09	1.58	1.52
3	H	201	NO8	CBJ-NBI	2.05	1.51	1.47
3	D	201	NO8	CAU-CAR	-2.03	1.48	1.53
3	F	201	NO8	O5-C1	2.02	1.47	1.41
3	D	201	NO8	CBN-CBO	-2.01	1.44	1.51

All (90) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
3	F	201	NO8	CBO-NBI-CBJ	-7.26	100.48	112.00
3	H	201	NO8	C4-C3-C2	-6.85	100.31	110.34
3	D	201	NO8	O1-C1-C2	6.38	119.25	108.24
3	D	201	NO8	O3-C3-C2	-6.05	97.45	109.66
3	F	201	NO8	CBJ-NBI-CBF	5.68	141.03	121.41
3	D	201	NO8	CAL-NAF-CAG	-5.44	103.37	112.00
3	I	201	NO8	CBA-CAX-CAY	-5.10	100.36	110.98
3	F	201	NO8	O1-C1-O5	5.03	124.71	110.67
3	F	201	NO8	CBN-CBO-NBI	-4.92	94.62	103.25
3	D	201	NO8	CAU-CAR-NAQ	4.77	121.29	110.56
3	B	201	NO8	O1-C1-C2	4.59	116.16	108.24
3	I	201	NO8	O1-C1-C2	4.53	116.06	108.24
3	I	201	NO8	C3-C4-C5	-4.46	102.28	110.24
3	D	201	NO8	OAV-CAU-CAR	-4.46	99.88	111.03
3	D	201	NO8	OAP-CAO-NAQ	4.19	130.02	122.95
3	B	201	NO8	CBF-CBE-NBD	-4.10	98.87	109.14
3	D	201	NO8	O-C-CA	-3.79	112.40	120.20
3	D	201	NO8	O5-C5-C4	-3.78	102.83	109.69
3	D	201	NO8	CBE-CBF-NBI	-3.69	110.97	118.10
3	D	201	NO8	C1-C2-C3	-3.61	99.45	110.06
3	D	201	NO8	CAJ-CAG-NAF	3.59	108.36	103.03
3	H	201	NO8	O3-C3-C4	3.56	118.59	110.35
3	D	201	NO8	CBH-CBE-NBD	3.52	116.99	110.38
3	D	201	NO8	OAT-CAS-CAR	3.47	127.76	120.45
3	D	201	NO8	CBO-NBI-CBJ	-3.45	106.52	112.00
3	D	201	NO8	CAR-CAS-NAW	-3.45	109.13	116.70
3	H	201	NO8	CBN-CBM-CBJ	-3.43	97.01	104.18
3	D	201	NO8	CBA-CAX-NAW	-3.43	103.74	111.38
3	I	201	NO8	C3-C2-N2	3.36	116.95	110.62

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
3	D	201	NO8	OBL-CBK-CBJ	3.30	126.14	120.26
3	H	201	NO8	CBO-NBI-CBJ	-3.26	106.83	112.00
3	F	201	NO8	O1-C1-C2	3.18	113.73	108.24
3	F	201	NO8	O3-C3-C2	3.17	116.05	109.66
3	D	201	NO8	CBN-CBO-NBI	-3.11	97.79	103.25
3	F	201	NO8	O5-C1-C2	-3.09	104.53	110.58
3	D	201	NO8	CAU-CAR-CAS	-3.05	102.77	110.21
3	H	201	NO8	O7-C7-N2	3.05	127.56	121.95
3	D	201	NO8	CAL-NAF-C	3.05	136.52	125.88
3	H	201	NO8	O1-C1-C2	3.02	113.46	108.24
3	H	201	NO8	C8-C7-N2	-2.99	111.05	116.10
3	B	201	NO8	CBH-CBE-NBD	2.98	115.98	110.38
3	H	201	NO8	CAR-CAS-NAW	-2.98	112.03	116.15
3	I	201	NO8	O4-C4-C3	2.96	117.20	110.35
3	H	201	NO8	CBB-CBA-CAX	-2.95	107.31	113.17
3	I	201	NO8	C4-C3-C2	-2.95	106.02	110.34
3	F	201	NO8	CBA-CAX-CAY	-2.87	105.01	110.98
3	F	201	NO8	CBE-NBD-CAY	2.85	127.45	121.29
3	F	201	NO8	CBH-CBE-NBD	-2.85	105.03	110.38
3	D	201	NO8	C2-N2-C7	2.80	129.99	123.18
3	D	201	NO8	C8-C7-N2	2.79	120.82	116.10
3	H	201	NO8	OAV-CAU-CAR	2.77	118.17	110.85
3	D	201	NO8	CBJ-CBK-NBP	-2.77	109.82	116.55
3	H	201	NO8	CBK-CBJ-NBI	-2.70	107.95	112.29
3	D	201	NO8	C1-O5-C5	2.67	118.93	113.69
3	F	201	NO8	CAX-CAY-NBD	-2.66	110.73	116.48
3	B	201	NO8	O5-C1-C2	-2.59	105.53	110.58
3	H	201	NO8	O5-C5-C4	2.52	114.28	109.69
3	H	201	NO8	C1-O5-C5	-2.51	108.77	113.69
3	F	201	NO8	CBM-CBJ-CBK	-2.49	108.33	111.46
3	I	201	NO8	O5-C5-C6	2.49	112.62	106.44
3	F	201	NO8	O7-C7-C8	-2.46	117.49	122.06
3	F	201	NO8	CBN-CBM-CBJ	-2.44	99.07	104.18
3	B	201	NO8	CAU-CAR-CAS	-2.43	104.29	110.21
3	F	201	NO8	O4-C4-C5	2.41	115.29	109.30
3	H	201	NO8	CBN-CBO-NBI	-2.39	99.06	103.25
3	B	201	NO8	O5-C5-C6	-2.37	100.55	106.44
3	H	201	NO8	O1-C1-O5	-2.36	104.08	110.67
3	B	201	NO8	O4-C4-C5	-2.35	103.46	109.30
3	B	201	NO8	CBB-CBA-CAX	-2.34	108.53	113.17
3	D	201	NO8	O-C-NAF	2.34	125.54	121.38
3	B	201	NO8	CBN-CBO-NBI	-2.33	99.16	103.25

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
3	D	201	NO8	C4-C3-C2	-2.31	106.96	110.34
3	I	201	NO8	C1-O5-C5	-2.31	109.16	113.69
3	F	201	NO8	C1-O5-C5	2.31	118.21	113.69
3	I	201	NO8	CBA-CAX-NAW	2.28	116.54	111.42
3	D	201	NO8	CBF-CBE-NBD	-2.26	103.47	109.14
3	D	201	NO8	C3-C2-N2	2.25	114.86	110.62
3	D	201	NO8	CAR-NAQ-CAO	2.23	127.38	121.65
3	D	201	NO8	OBG-CBF-CBE	2.20	124.74	120.19
3	F	201	NO8	CBO-NBI-CBF	-2.19	118.24	125.88
3	I	201	NO8	O4-C4-C5	2.19	114.73	109.30
3	I	201	NO8	O5-C1-C2	2.17	114.82	110.58
3	I	201	NO8	C1-C2-N2	2.17	114.75	111.00
3	B	201	NO8	C2-N2-C7	-2.17	117.90	123.18
3	D	201	NO8	O7-C7-C8	-2.16	118.05	122.06
3	H	201	NO8	CAU-CAR-CAS	2.10	115.33	110.21
3	H	201	NO8	OAZ-CAY-NBD	2.07	126.77	122.93
3	D	201	NO8	CAH-CAG-NAF	-2.07	106.86	112.56
3	H	201	NO8	CBH-CBE-CBF	2.07	113.49	109.73
3	H	201	NO8	CBO-NBI-CBF	2.06	133.05	125.88

There are no chirality outliers.

All (48) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
3	D	201	NO8	NAF-C-CA-N
3	D	201	NO8	CAO-CAN-NAM-CAH
3	D	201	NO8	CAU-CAR-NAQ-CAO
3	F	201	NO8	CAY-CAX-CBA-CBB
3	F	201	NO8	CBB-CBA-O1-C1
3	F	201	NO8	CBH-CBE-CBF-OBG
3	F	201	NO8	NBI-CBJ-CBK-OBL
3	F	201	NO8	NBI-CBJ-CBK-NBP
3	H	201	NO8	NAQ-CAR-CAU-OAV
3	I	201	NO8	C1-C2-N2-C7
3	I	201	NO8	NAW-CAX-CBA-O1
3	I	201	NO8	CAX-CBA-O1-C1
3	I	201	NO8	C2-C1-O1-CBA
3	F	201	NO8	O5-C1-O1-CBA
3	B	201	NO8	O5-C5-C6-O6
3	F	201	NO8	C4-C5-C6-O6
3	I	201	NO8	C4-C5-C6-O6
3	F	201	NO8	CBH-CBE-CBF-NBI

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Mol	Chain	Res	Type	Atoms
3	F	201	NO8	CBA-CAX-CAY-OAZ
3	F	201	NO8	CBA-CAX-CAY-NBD
3	B	201	NO8	C4-C5-C6-O6
3	I	201	NO8	NAW-CAX-CAY-OAZ
3	I	201	NO8	NAW-CAX-CAY-NBD
3	F	201	NO8	O5-C5-C6-O6
3	B	201	NO8	CAS-CAR-CAU-OAV
3	I	201	NO8	O5-C1-O1-CBA
3	I	201	NO8	O5-C5-C6-O6
3	H	201	NO8	CAS-CAR-CAU-OAV
3	D	201	NO8	NAM-CAN-CAO-OAP
3	I	201	NO8	NAW-CAX-CBA-CBB
3	D	201	NO8	NAQ-CAR-CAS-OAT
3	I	201	NO8	CBA-CAX-CAY-NBD
3	D	201	NO8	O-C-CA-CB
3	I	201	NO8	CBB-CBA-O1-C1
3	I	201	NO8	CAY-CAX-CBA-O1
3	B	201	NO8	NAQ-CAR-CAU-OAV
3	B	201	NO8	CAX-CBA-O1-C1
3	F	201	NO8	CAX-CBA-O1-C1
3	F	201	NO8	NAW-CAX-CAY-OAZ
3	D	201	NO8	NAM-CAN-CAO-NAQ
3	F	201	NO8	NAW-CAX-CBA-CBB
3	D	201	NO8	NAQ-CAR-CAS-NAW
3	I	201	NO8	C3-C2-N2-C7
3	D	201	NO8	CAX-CBA-O1-C1
3	H	201	NO8	CAX-CBA-O1-C1
3	D	201	NO8	NAF-C-CA-CB
3	F	201	NO8	NAW-CAX-CAY-NBD
3	D	201	NO8	O5-C1-O1-CBA

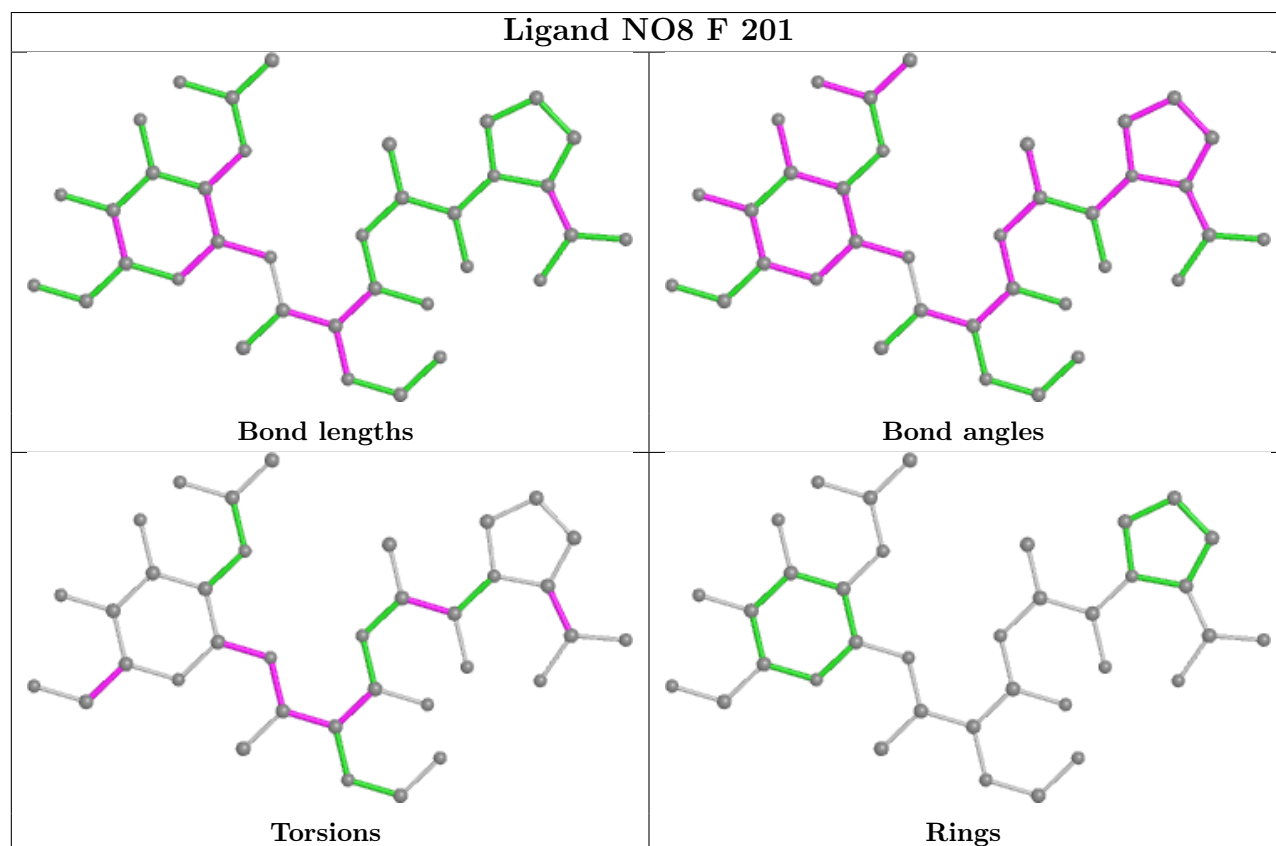
There are no ring outliers.

3 monomers are involved in 9 short contacts:

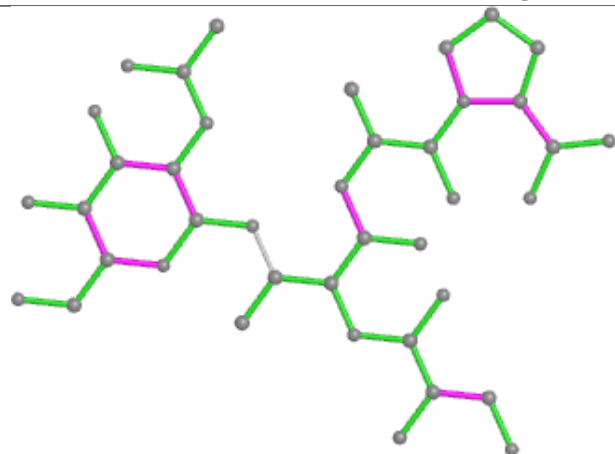
Mol	Chain	Res	Type	Clashes	Symm-Clashes
3	I	201	NO8	1	0
3	B	201	NO8	2	0
3	D	201	NO8	6	0

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

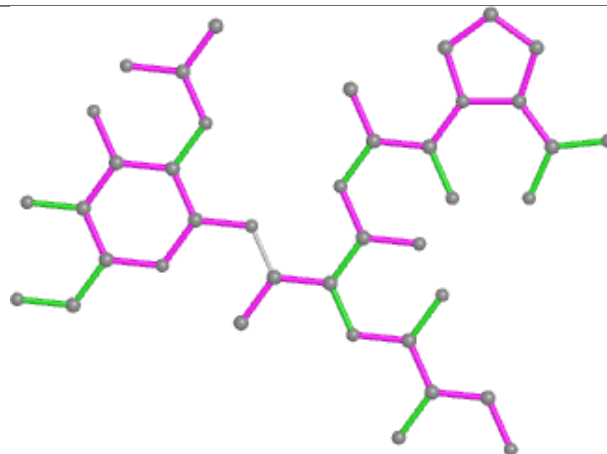
also be included. For torsion angles, if less than 5% of the Mogul distribution of torsion angles is within 10 degrees of the torsion angle in question, then that torsion angle is considered an outlier. Any bond that is central to one or more torsion angles identified as an outlier by Mogul will be highlighted 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.



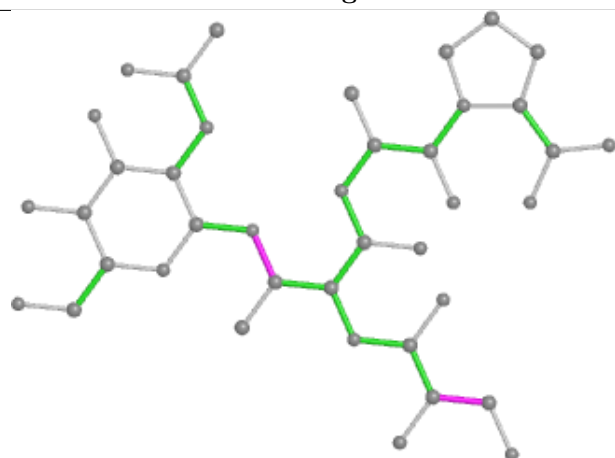
Ligand NO8 H 201



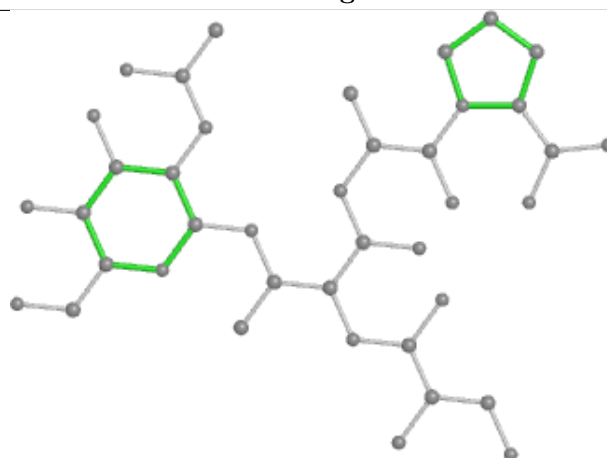
Bond lengths



Bond angles

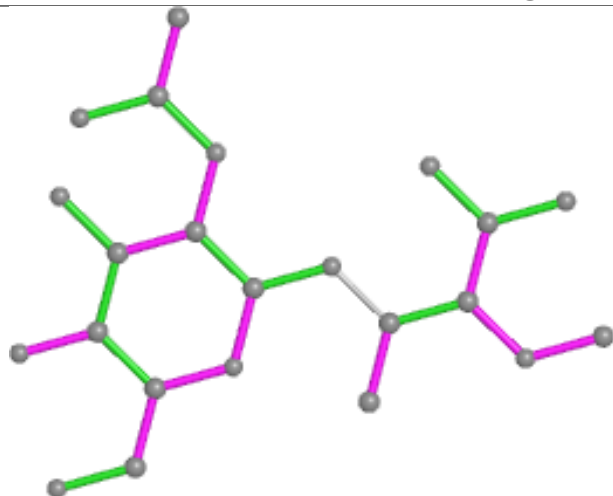


Torsions

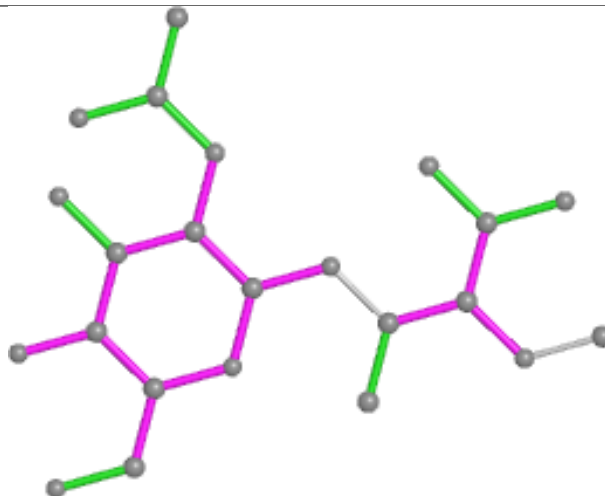


Rings

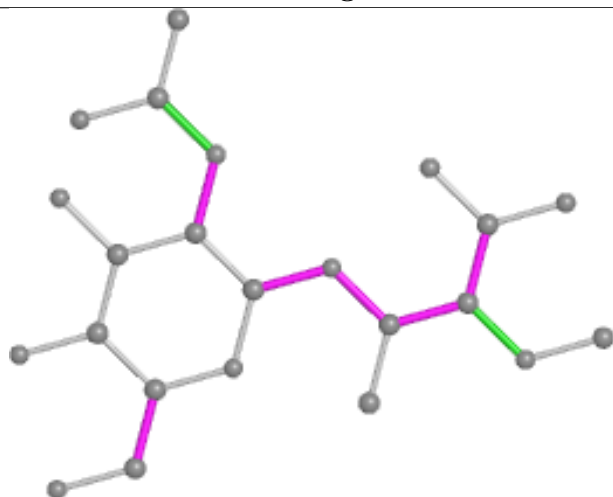
Ligand NO8 I 201



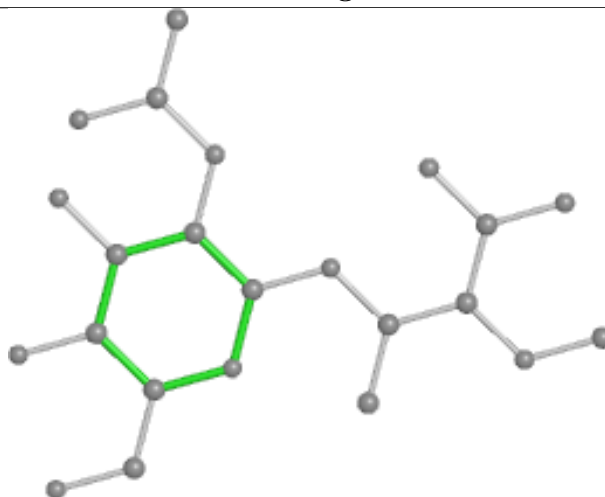
Bond lengths



Bond angles

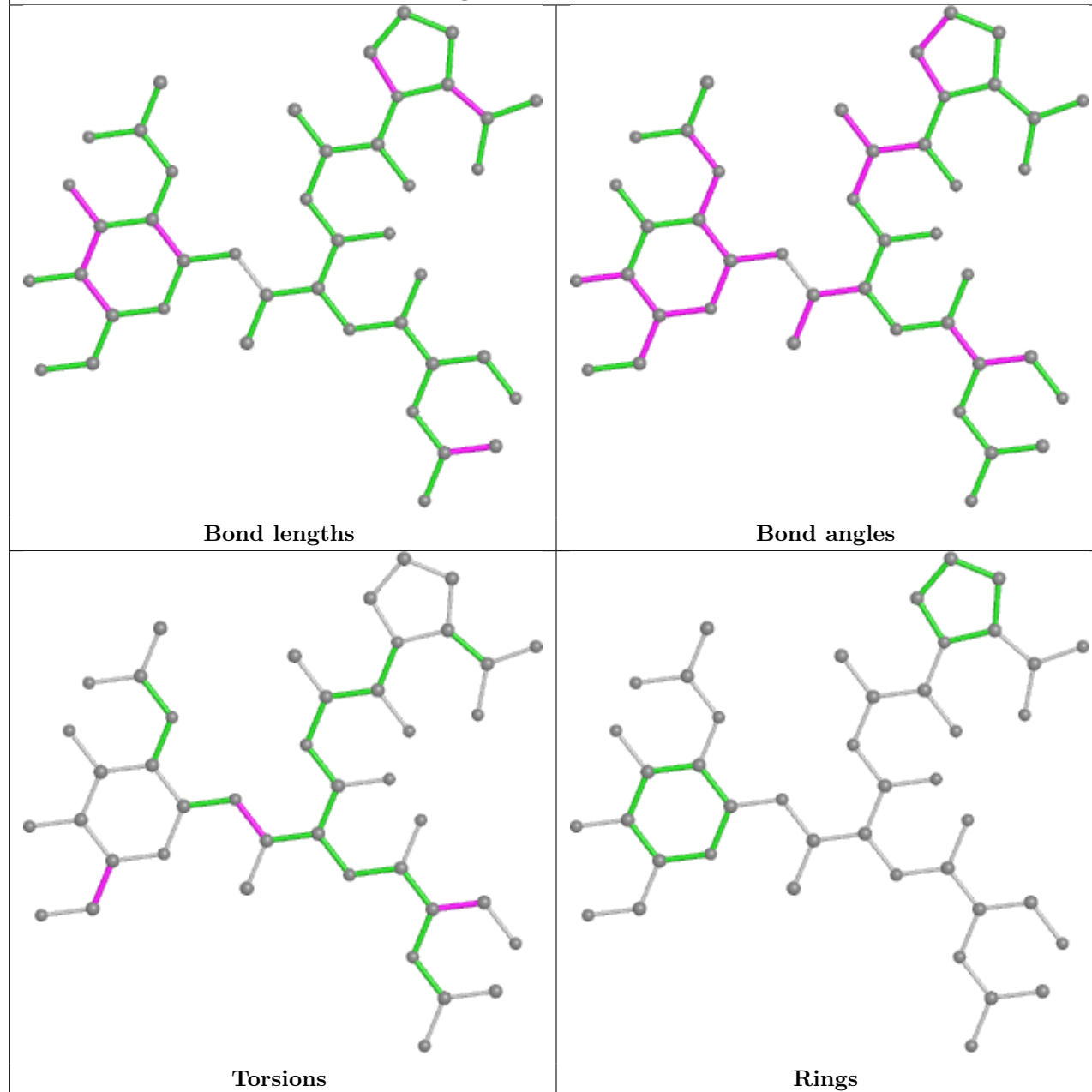


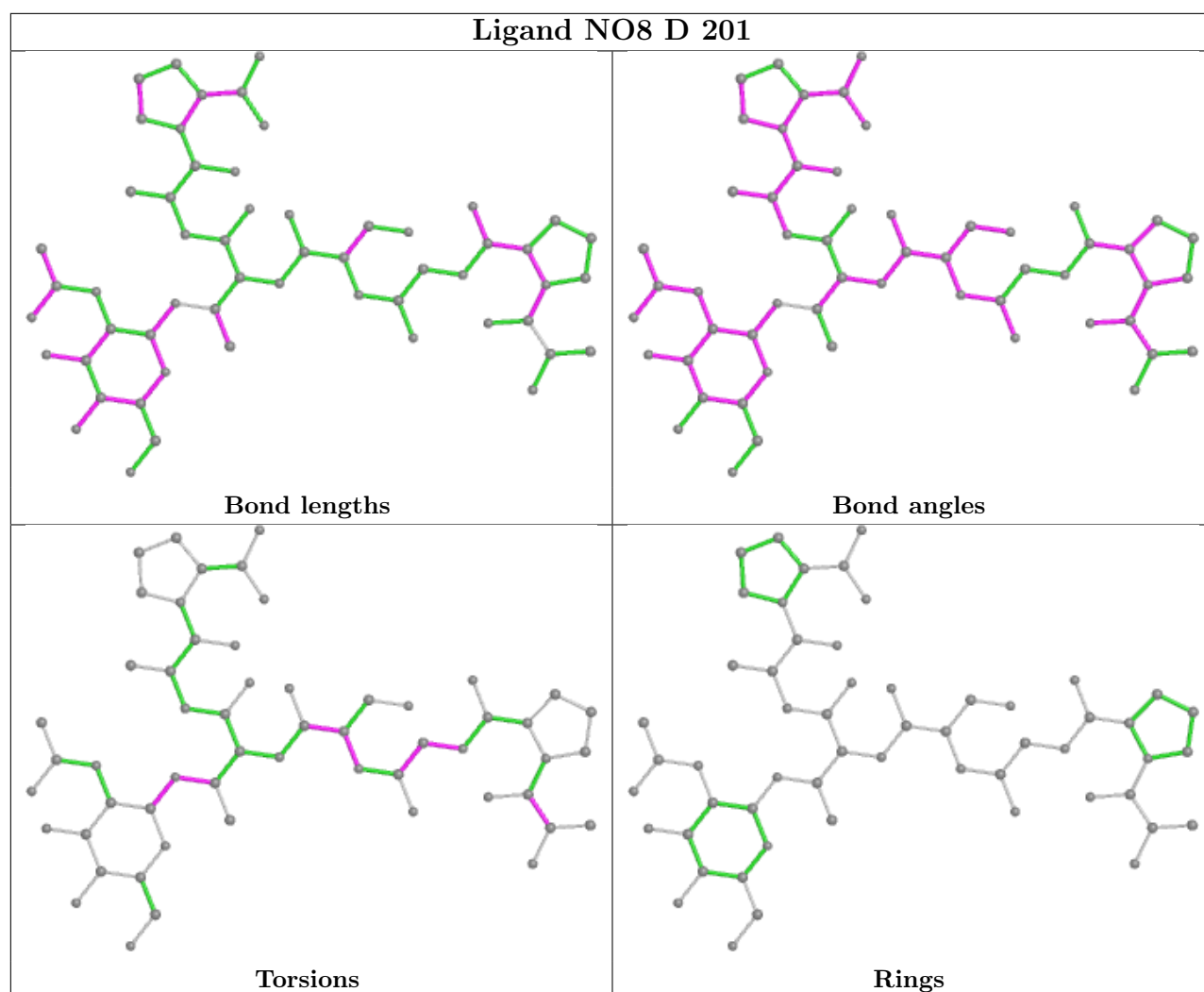
Torsions



Rings

Ligand NO8 B 201





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	112/113 (99%)	-0.25	1 (0%) 84 63	55, 77, 105, 112	0
1	C	112/113 (99%)	-0.35	0 100 100	62, 78, 96, 112	0
1	E	112/113 (99%)	0.07	7 (6%) 20 6	67, 101, 138, 155	0
1	G	112/113 (99%)	-0.05	4 (3%) 42 17	74, 108, 142, 165	0
1	J	112/113 (99%)	0.17	7 (6%) 20 6	69, 108, 154, 182	0
1	L	112/113 (99%)	-0.27	1 (0%) 84 63	61, 84, 112, 124	0
2	B	115/116 (99%)	-0.18	2 (1%) 70 41	72, 95, 121, 133	0
2	D	115/116 (99%)	-0.06	2 (1%) 70 41	69, 99, 133, 144	0
2	F	115/116 (99%)	0.28	6 (5%) 27 10	80, 112, 143, 163	0
2	H	115/116 (99%)	-0.34	1 (0%) 84 63	61, 81, 110, 134	0
2	I	109/116 (93%)	0.34	8 (7%) 15 4	78, 126, 158, 171	0
2	K	101/116 (87%)	0.11	2 (1%) 65 36	80, 130, 161, 177	0
All	All	1342/1374 (97%)	-0.05	41 (3%) 49 21	55, 97, 145, 182	0

All (41) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
2	I	31	ASP	3.6
2	K	42	GLU	3.5
2	F	54	GLY	3.4
1	E	32	SER	3.3
1	J	94	CYS	3.2
1	E	34	ASP	3.1
1	G	73	SER	3.0
1	J	35	GLN	2.9
1	E	26	SER	2.8
1	J	32	SER	2.8
1	J	40	THR	2.7

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Mol	Chain	Res	Type	RSRZ
2	F	87	THR	2.7
1	E	35	GLN	2.7
1	J	33	GLY	2.7
1	J	41	TRP	2.6
1	L	32	SER	2.6
1	G	95	GLN	2.5
2	I	3	GLN	2.5
2	I	58	ILE	2.5
2	I	75	SER	2.5
2	I	36	TRP	2.4
2	F	56	THR	2.4
2	F	74	ARG	2.4
1	A	40	THR	2.4
2	F	43	GLN	2.4
2	D	89	GLU	2.4
1	J	38	TYR	2.4
1	G	100	TYR	2.3
1	E	33	GLY	2.3
1	G	63	GLY	2.2
2	I	15	GLY	2.2
2	I	74	ARG	2.2
2	K	31	ASP	2.2
2	B	42	GLU	2.2
2	F	73	ASP	2.2
2	H	43	GLN	2.1
1	E	66	ASP	2.1
2	B	10	GLU	2.1
1	E	27	GLN	2.0
2	I	51	PHE	2.0
2	D	76	SER	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 monosaccharides in this entry.

6.4 Ligands [i](#)

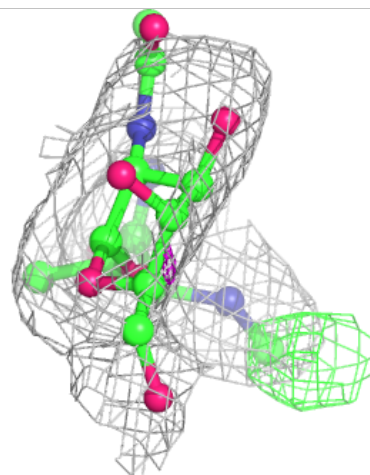
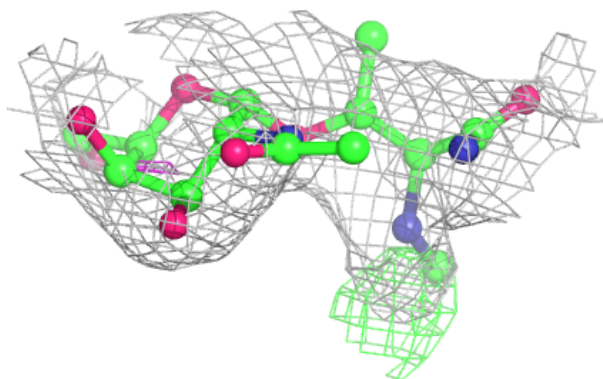
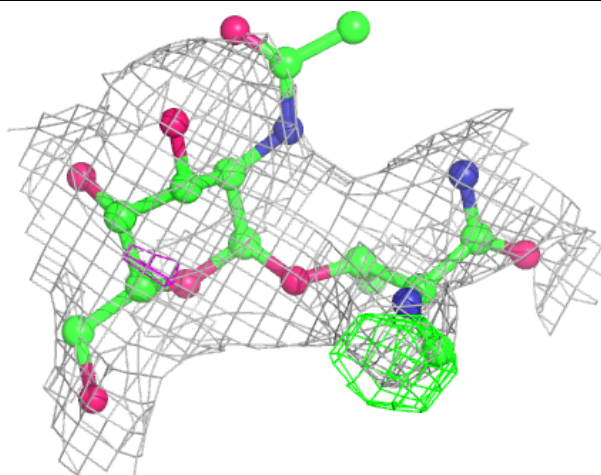
In the following table, the Atoms column lists the number of modelled atoms in the group and the number defined in the chemical component dictionary. The B-factors column lists the minimum, median, 95th percentile and maximum values of B factors of atoms in the group. The column labelled 'Q<0.9' lists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

Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors(\AA^2)	Q<0.9
3	NO8	I	201	23/56	0.78	0.28	125,131,149,149	0
3	NO8	F	201	36/56	0.84	0.26	96,127,143,145	0
3	NO8	B	201	43/56	0.89	0.24	78,98,116,122	0
3	NO8	H	201	40/56	0.91	0.20	76,89,102,104	0
3	NO8	D	201	56/56	0.93	0.21	70,81,98,105	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.

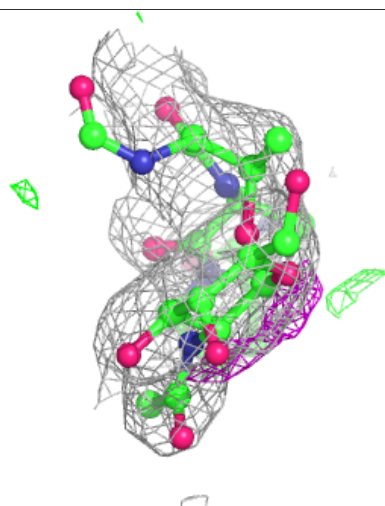
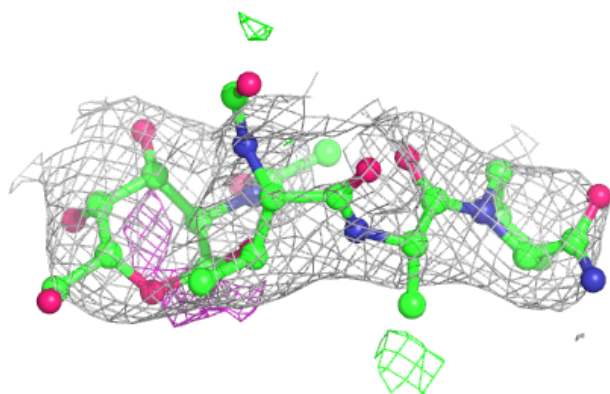
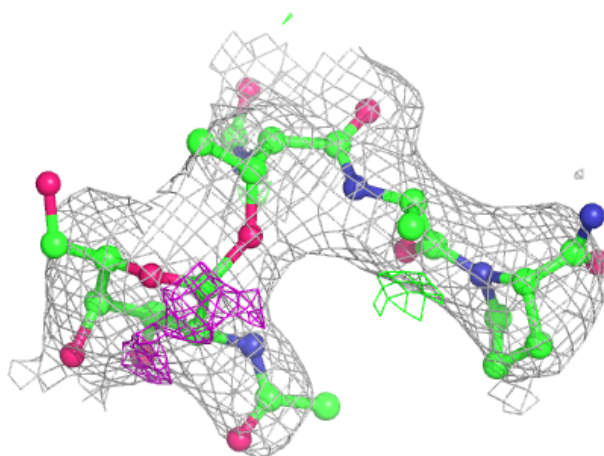
Electron density around NO8 I 201:

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



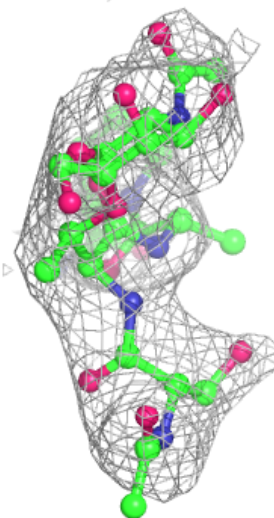
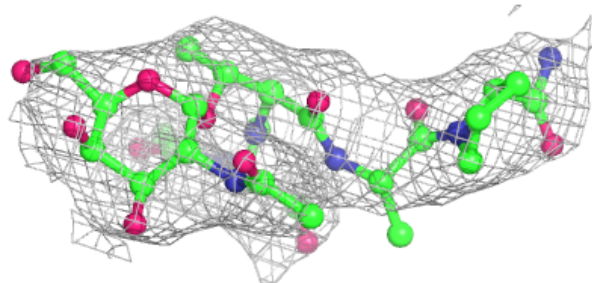
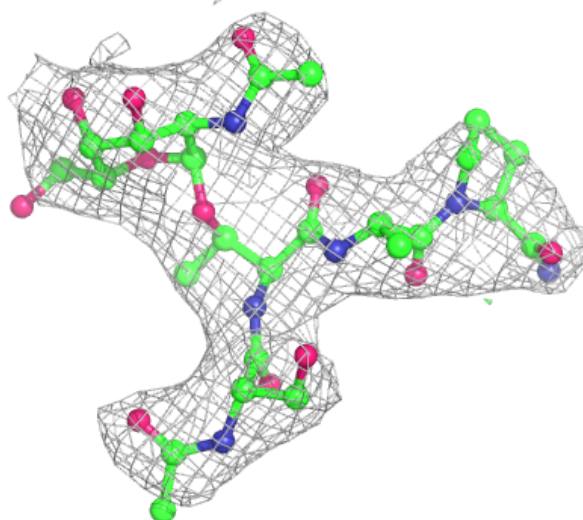
Electron density around NO8 F 201:

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



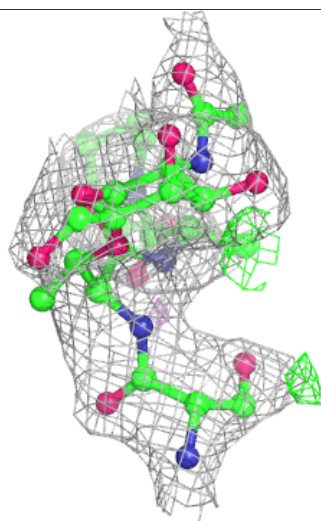
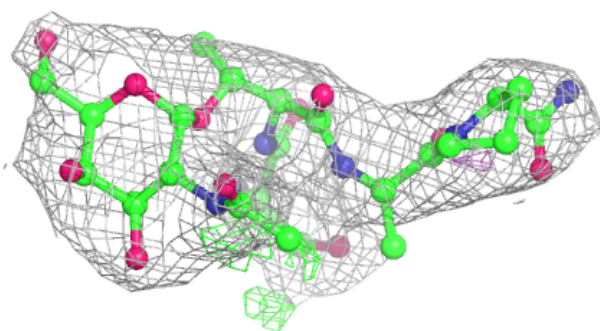
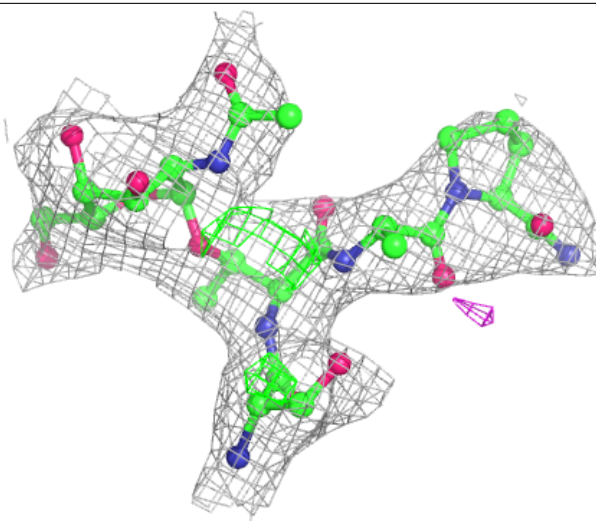
Electron density around NO8 B 201:

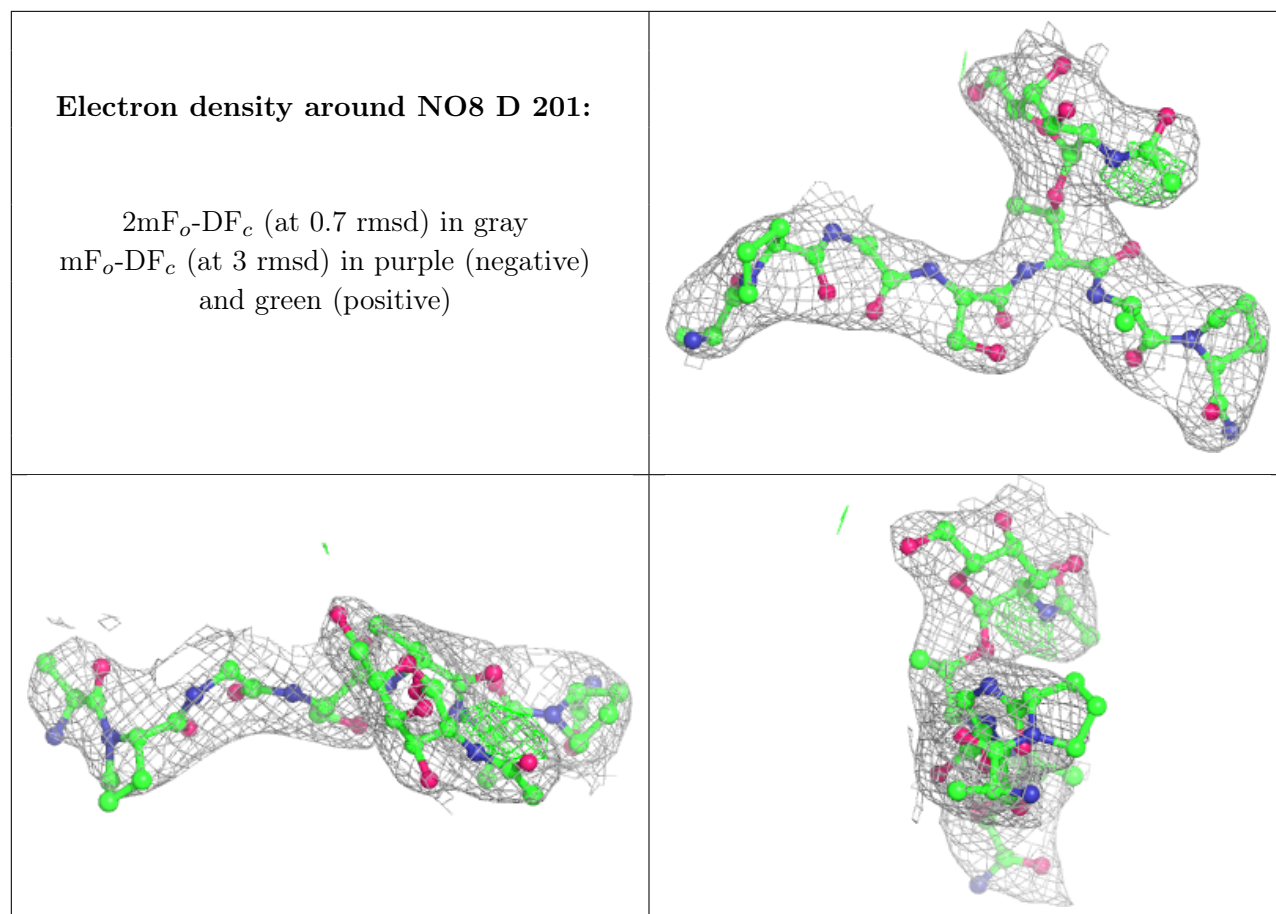
$2mF_o-DF_c$ (at 0.7 rmsd) in gray
 mF_o-DF_c (at 3 rmsd) in purple (negative)
and green (positive)



Electron density around NO8 H 201:

$2mF_o-DF_c$ (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.