



Full wwPDB X-ray Structure Validation Report ⓘ

Mar 5, 2026 – 03:30 PM UTC

PDB ID : 5UTE / pdb_00005ute
Title : Kaposi's Sarcoma Herpesvirus Protease in Complex with Allosteric Inhibitor
Authors : Acker, T.M.; Gable, J.; Bohn, M.-F.; Craik, C.S.
Deposited on : 2017-02-14
Resolution : 2.05 Å(reported)

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

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

A user guide is available at

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

with specific help available everywhere you see the ⓘ symbol.

The types of validation reports are described at

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

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

MolProbity : 4-5-2 with Phenix2.0
Mogul : 2022.3.0, CSD as543be (2022)
Xtriage (Phenix) : 2.0
EDS : 3.0
Buster-report : wwPDB partial adaption of 1.1.7 (2018)
Percentile statistics : 20250101.v01 (using entries in the PDB archive January 1st 2025)
CCP4 : 9.0.010 (Gargrove)
Density-Fitness : 1.0.12
Ideal geometry (proteins) : Engh & Huber (2001)
Ideal geometry (DNA, RNA) : Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP) : 2.49

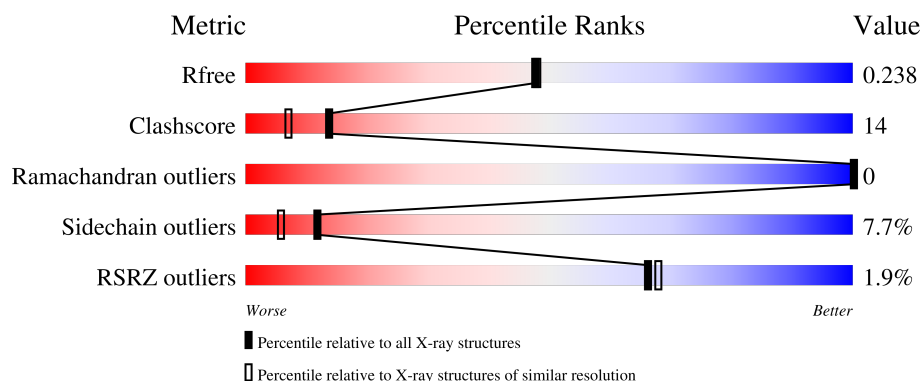
1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

X-RAY DIFFRACTION



The reported resolution of this entry is 2.05 Å.

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



Metric	Whole archive (#Entries)	Similar resolution (#Entries, resolution range(Å))
R_{free}	180053	2260 (2.04-2.04)
Clashscore	190562	2333 (2.04-2.04)
Ramachandran outliers	187476	2318 (2.04-2.04)
Sidechain outliers	187428	2318 (2.04-2.04)
RSRZ outliers	180081	2260 (2.04-2.04)

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	193	 77% 19% • •
1	B	193	 4% 67% 26% • 5%

2 Entry composition [i](#)

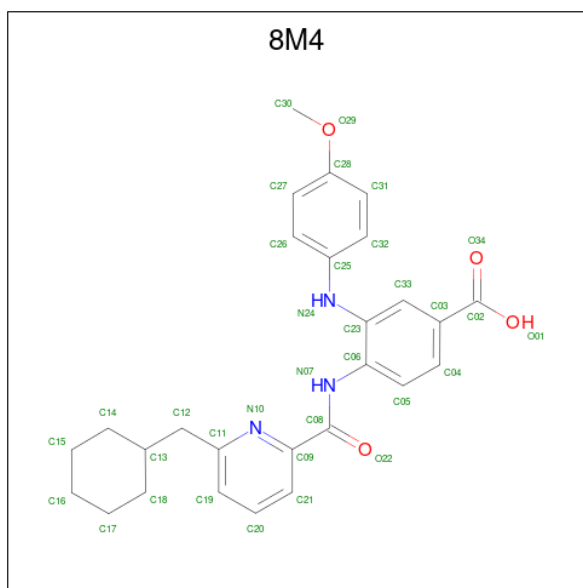
There are 3 unique types of molecules in this entry. The entry contains 3334 atoms, of which 44 are hydrogens and 0 are deuteriums.

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 ORF 17.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
1	A	191	Total	C	N	O	S	0	0	0
			1429	916	241	268	4			
1	B	184	Total	C	N	O	S	0	0	0
			1398	900	234	260	4			

- Molecule 2 is 4-{{6-(cyclohexylmethyl)pyridine-2-carbonyl}amino}-3-[(4-methoxyphenyl)amino]benzoic acid (CCD ID: 8M4) (formula: C₂₇H₂₉N₃O₄).

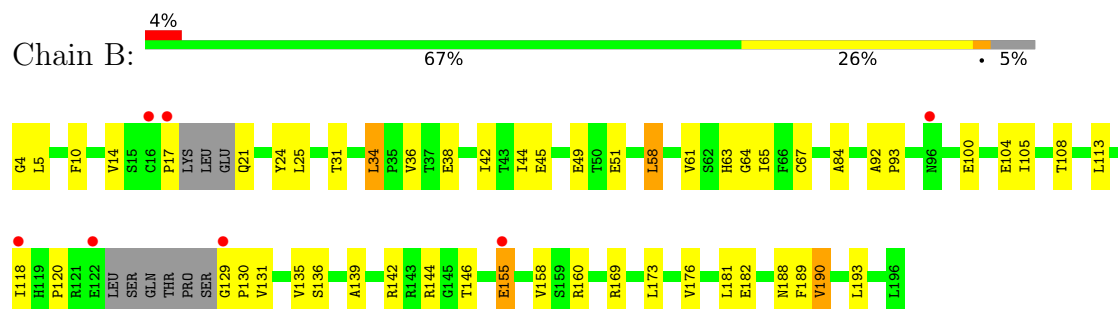


Mol	Chain	Residues	Atoms					ZeroOcc	AltConf
2	A	1	Total	C	H	N	O	0	0
			56	27	22	3	4		
2	A	1	Total	C	N	O		0	0
			34	27	3	4			
2	B	1	Total	C	H	N	O	0	0
			56	27	22	3	4		

- Molecule 3 is water.

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
3	A	172	Total 172	O 172	0	0
3	B	189	Total 189	O 189	0	0

- Molecule 1: ORF 17



4 Data and refinement statistics

Property	Value	Source
Space group	I 2 2 2	Depositor
Cell constants a, b, c, α , β , γ	68.33Å 93.33Å 119.15Å 90.00° 90.00° 90.00°	Depositor
Resolution (Å)	73.47 – 2.05 73.47 – 2.05	Depositor EDS
% Data completeness (in resolution range)	99.6 (73.47-2.05) 99.6 (73.47-2.05)	Depositor EDS
R_{merge}	0.37	Depositor
R_{sym}	(Not available)	Depositor
$\langle I/\sigma(I) \rangle$ ¹	2.20 (at 2.05Å)	Xtriage
Refinement program	PHENIX 1.10pre_2100	Depositor
R, R_{free}	0.183 , 0.236 0.183 , 0.238	Depositor DCC
R_{free} test set	1287 reflections (5.29%)	wwPDB-VP
Wilson B-factor (Å ²)	21.7	Xtriage
Anisotropy	0.858	Xtriage
Bulk solvent k_{sol} (e/Å ³), B_{sol} (Å ²)	0.33 , 44.9	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	3334	wwPDB-VP
Average B, all atoms (Å ²)	23.0	wwPDB-VP

Xtriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 6.00% 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: 8M4

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	0.61	0/1470	0.78	1/2022 (0.0%)
1	B	0.60	0/1436	0.76	1/1969 (0.1%)
All	All	0.60	0/2906	0.77	2/3991 (0.1%)

Chiral center outliers are detected by calculating the chiral volume of a chiral center and verifying if the center is modelled as a planar moiety or with the opposite hand. A planarity outlier is detected by checking planarity of atoms in a peptide group, atoms in a mainchain group or atoms of a sidechain that are expected to be planar.

Mol	Chain	#Chirality outliers	#Planarity outliers
1	A	0	1

There are no bond length outliers.

All (2) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed($^{\circ}$)	Ideal($^{\circ}$)
1	B	64	GLY	N-CA-C	5.52	124.92	112.01
1	A	91	ARG	NE-CZ-NH2	-5.47	114.28	119.20

There are no chirality outliers.

All (1) planarity outliers are listed below:

Mol	Chain	Res	Type	Group
1	A	11	VAL	Peptide

5.2 Too-close contacts

In the following table, the Non-H and H(model) columns list the number of non-hydrogen atoms and hydrogen atoms in the chain respectively. The H(added) column lists the number of hydrogen

atoms added and optimized by MolProbity. The Clashes column lists the number of clashes within the asymmetric unit, whereas Symm-Clashes lists symmetry-related clashes.

Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
1	A	1429	0	1373	38	0
1	B	1398	0	1366	45	0
2	A	68	22	0	1	0
2	B	34	22	0	0	0
3	A	172	0	0	2	1
3	B	189	0	0	11	0
All	All	3290	44	2739	82	1

The all-atom clashscore is defined as the number of clashes found per 1000 atoms (including hydrogen atoms). The all-atom clashscore for this structure is 14.

All (82) close contacts within the same asymmetric unit are listed below, sorted by their clash magnitude.

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:113:LEU:H	1:B:146:THR:HG21	1.19	1.01
1:B:10:PHE:O	1:B:146:THR:HG23	1.66	0.94
1:A:118:ILE:HD12	1:A:122:GLU:HB2	1.52	0.89
1:B:49:GLU:OE1	3:B:301:HOH:O	1.95	0.83
1:A:120:PRO:HA	1:A:123:LEU:HD12	1.59	0.83
1:B:113:LEU:H	1:B:146:THR:CG2	1.92	0.81
1:B:113:LEU:N	1:B:146:THR:HG21	1.95	0.81
1:A:145:GLY:O	1:A:146:THR:HB	1.82	0.79
1:B:49:GLU:HB3	1:B:190:VAL:HG13	1.63	0.79
1:A:5:LEU:HD13	1:A:77:LEU:HD22	1.65	0.78
1:B:104:GLU:O	1:B:108:THR:HG23	1.84	0.77
1:B:4:GLY:N	3:B:302:HOH:O	2.18	0.76
1:B:155:GLU:HG3	1:B:173:LEU:CD1	2.15	0.76
1:A:5:LEU:HD13	1:A:77:LEU:CD2	2.15	0.75
1:A:63:HIS:ND1	1:A:163:SER:HB2	2.03	0.74
1:B:118:ILE:HD11	1:B:130:PRO:O	1.88	0.74
1:B:25:LEU:HD21	1:B:120:PRO:HG3	1.69	0.73
1:A:58:LEU:HD13	1:A:67:CYS:HB2	1.69	0.73
1:B:173:LEU:HA	1:B:176:VAL:HG22	1.72	0.69
1:A:104:GLU:O	1:A:108:THR:HG23	1.93	0.69
1:A:126:THR:O	1:A:126:THR:HG23	1.92	0.69
1:B:24:TYR:CE1	1:B:142:ARG:HD2	2.29	0.68
1:A:118:ILE:HD12	1:A:122:GLU:CB	2.24	0.67
1:B:155:GLU:HG3	1:B:173:LEU:HD13	1.76	0.66
1:B:92:ALA:HB3	1:B:93:PRO:HD3	1.77	0.66

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:66:PHE:HE1	1:A:68:THR:HG22	1.63	0.64
1:A:144:ARG:HD3	1:A:145:GLY:O	1.98	0.63
1:B:188:ASN:HB2	3:B:309:HOH:O	1.99	0.62
1:B:155:GLU:HG3	1:B:173:LEU:HD11	1.81	0.61
1:B:158:VAL:HG12	1:B:169:ARG:HG2	1.81	0.61
1:B:58:LEU:HD13	1:B:67:CYS:HB2	1.84	0.59
1:A:125:GLN:HG2	1:A:126:THR:H	1.68	0.59
1:B:25:LEU:HD21	1:B:120:PRO:CG	2.33	0.59
1:A:82:ARG:NH2	2:A:202:8M4:O01	2.34	0.59
1:B:25:LEU:CD2	1:B:120:PRO:HG3	2.33	0.58
1:A:10:PHE:HD2	1:A:146:THR:HG21	1.68	0.57
1:A:126:THR:O	1:A:126:THR:CG2	2.53	0.57
1:A:145:GLY:O	1:A:146:THR:CB	2.53	0.57
1:A:125:GLN:O	1:A:126:THR:HG22	2.06	0.56
1:B:142:ARG:HD3	3:B:303:HOH:O	2.06	0.55
1:A:51:GLU:HB2	1:A:188:ASN:H	1.72	0.55
1:A:124:SER:HA	1:A:125:GLN:HB2	1.90	0.54
1:B:49:GLU:HB3	1:B:190:VAL:CG1	2.35	0.53
1:A:144:ARG:CD	1:A:145:GLY:O	2.56	0.53
1:A:124:SER:HA	1:A:125:GLN:CB	2.39	0.52
1:A:5:LEU:CD1	1:A:77:LEU:HD22	2.38	0.52
1:B:14:VAL:HG13	1:B:17:PRO:HG3	1.93	0.51
1:B:129:GLY:N	3:B:306:HOH:O	2.44	0.50
1:B:188:ASN:CG	3:B:309:HOH:O	2.54	0.50
1:B:51:GLU:O	1:B:189:PHE:HB2	2.12	0.50
1:B:84:ALA:HA	1:B:105:ILE:HG13	1.93	0.50
1:A:33:TYR:OH	1:A:125:GLN:HG3	2.11	0.50
1:A:119:HIS:CG	1:A:120:PRO:HD2	2.47	0.49
1:A:79:LEU:HD13	1:A:82:ARG:HH12	1.77	0.49
1:B:63:HIS:H	1:B:63:HIS:CD2	2.29	0.48
1:A:158:VAL:CG1	1:A:169:ARG:HG3	2.43	0.48
1:B:155:GLU:CG	1:B:173:LEU:HD13	2.43	0.48
1:A:94:VAL:HG22	1:A:108:THR:HG21	1.96	0.47
1:B:118:ILE:HD11	3:B:306:HOH:O	2.14	0.47
1:A:121:ARG:NH2	3:A:310:HOH:O	2.48	0.46
1:B:42:ILE:HA	1:B:135:VAL:O	2.16	0.46
1:B:144:ARG:NE	3:B:308:HOH:O	2.48	0.46
1:A:123:LEU:O	1:A:125:GLN:HG3	2.16	0.46
1:B:100:GLU:HB3	3:B:379:HOH:O	2.15	0.46
1:B:118:ILE:CD1	1:B:130:PRO:O	2.63	0.45
1:A:63:HIS:HB3	3:A:429:HOH:O	2.16	0.45

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:38:GLU:CB	3:B:449:HOH:O	2.65	0.44
1:B:113:LEU:CA	1:B:146:THR:HG21	2.47	0.44
1:B:34:LEU:HD21	1:B:65:ILE:HG12	2.00	0.44
1:A:101:PRO:O	1:A:105:ILE:HD13	2.17	0.44
1:B:118:ILE:HD12	1:B:131:VAL:HA	1.99	0.44
1:A:77:LEU:O	1:A:81:SER:HB2	2.17	0.44
1:B:188:ASN:CB	3:B:309:HOH:O	2.63	0.44
1:B:155:GLU:CD	1:B:173:LEU:HD13	2.43	0.43
1:B:169:ARG:HH11	1:B:169:ARG:HD3	1.66	0.43
1:B:182:GLU:H	1:B:182:GLU:CD	2.27	0.43
1:A:128:SER:HB3	1:B:36:VAL:HG22	2.00	0.43
1:A:33:TYR:OH	1:A:125:GLN:CG	2.66	0.43
1:B:45:GLU:OE2	1:B:139:ALA:N	2.52	0.42
1:A:120:PRO:HA	1:A:123:LEU:CD1	2.39	0.42
1:A:42:ILE:HA	1:A:135:VAL:O	2.20	0.41
1:A:119:HIS:CE1	1:A:120:PRO:HD2	2.57	0.40

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

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
3:A:337:HOH:O	3:A:337:HOH:O[2_455]	1.80	0.40

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	189/193 (98%)	184 (97%)	5 (3%)	0	100	100
1	B	178/193 (92%)	175 (98%)	3 (2%)	0	100	100
All	All	367/386 (95%)	359 (98%)	8 (2%)	0	100	100

There are no Ramachandran outliers to report.

5.3.2 Protein sidechains ⓘ

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

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

Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
1	A	157/171 (92%)	146 (93%)	11 (7%)	14	7
1	B	156/171 (91%)	143 (92%)	13 (8%)	10	5
All	All	313/342 (92%)	289 (92%)	24 (8%)	12	6

All (24) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	14	VAL
1	A	34	LEU
1	A	38	GLU
1	A	58	LEU
1	A	95	LYS
1	A	105	ILE
1	A	108	THR
1	A	121	ARG
1	A	126	THR
1	A	144	ARG
1	A	146	THR
1	B	5	LEU
1	B	21	GLN
1	B	31	THR
1	B	34	LEU
1	B	44	ILE
1	B	58	LEU
1	B	61	VAL
1	B	136	SER
1	B	155	GLU
1	B	160	ARG
1	B	181	LEU
1	B	190	VAL
1	B	193	LEU

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 oligosaccharides in this entry.

5.6 Ligand geometry [i](#)

3 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	8M4	A	202	-	37,37,37	1.19	5 (13%)	49,50,50	2.18	17 (34%)
2	8M4	A	201	-	37,37,37	1.26	6 (16%)	49,50,50	1.21	4 (8%)
2	8M4	B	201	-	37,37,37	1.28	5 (13%)	49,50,50	1.18	6 (12%)

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	8M4	A	202	-	-	4/22/30/30	0/4/4/4
2	8M4	A	201	-	-	2/22/30/30	0/4/4/4

Continued on next page...

Continued from previous page...

Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
2	8M4	B	201	-	-	2/22/30/30	0/4/4/4

All (16) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
2	A	201	8M4	C25-N24	3.34	1.48	1.40
2	B	201	8M4	C09-N10	-2.94	1.30	1.34
2	B	201	8M4	C08-N07	2.78	1.43	1.35
2	B	201	8M4	O22-C08	-2.62	1.17	1.23
2	A	202	8M4	O22-C08	-2.56	1.17	1.23
2	A	202	8M4	C23-C06	-2.56	1.35	1.40
2	A	202	8M4	C23-N24	2.53	1.46	1.39
2	A	201	8M4	O29-C28	2.47	1.42	1.37
2	A	201	8M4	C08-N07	2.46	1.42	1.35
2	A	202	8M4	C08-N07	2.43	1.42	1.35
2	A	202	8M4	O29-C28	2.39	1.42	1.37
2	A	201	8M4	C03-C02	2.27	1.54	1.49
2	A	201	8M4	O22-C08	-2.24	1.18	1.23
2	A	201	8M4	C23-N24	2.21	1.46	1.39
2	B	201	8M4	C03-C02	2.20	1.54	1.49
2	B	201	8M4	C25-N24	2.08	1.45	1.40

All (27) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
2	A	202	8M4	C23-C06-N07	-6.16	107.64	119.43
2	A	202	8M4	C05-C06-C23	4.39	124.54	119.38
2	A	202	8M4	C06-C23-N24	-4.18	111.56	119.02
2	A	202	8M4	C09-N10-C11	3.97	122.95	118.11
2	A	202	8M4	C18-C13-C14	3.72	118.39	109.29
2	A	201	8M4	C23-C06-N07	-3.60	112.54	119.43
2	A	202	8M4	C04-C03-C33	3.29	123.05	119.25
2	A	201	8M4	C12-C11-N10	3.28	120.58	116.57
2	A	202	8M4	C15-C14-C13	3.19	118.79	112.08
2	A	202	8M4	C18-C13-C12	-3.15	103.74	112.01
2	A	202	8M4	C20-C21-C09	-3.14	114.88	118.63
2	A	202	8M4	C33-C23-N24	3.05	127.37	121.12
2	A	201	8M4	C09-N10-C11	3.03	121.80	118.11
2	A	202	8M4	C06-N07-C08	-2.78	119.17	126.90
2	A	202	8M4	C19-C11-N10	-2.76	118.91	122.40
2	B	201	8M4	C23-C06-N07	-2.75	114.16	119.43
2	B	201	8M4	C05-C06-C23	2.69	122.54	119.38

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
2	B	201	8M4	C09-N10-C11	2.61	121.29	118.11
2	A	202	8M4	O01-C02-C03	2.58	121.46	114.84
2	A	202	8M4	C05-C06-N07	2.49	127.58	121.82
2	B	201	8M4	C04-C03-C33	2.36	121.98	119.25
2	A	201	8M4	C25-N24-C23	-2.19	121.14	126.73
2	B	201	8M4	C18-C13-C14	2.15	114.55	109.29
2	A	202	8M4	O34-C02-C03	-2.10	115.94	121.46
2	B	201	8M4	C21-C20-C19	-2.05	117.61	120.24
2	A	202	8M4	C03-C33-C23	-2.04	115.64	119.43
2	A	202	8M4	C04-C05-C06	-2.01	115.69	119.57

There are no chirality outliers.

All (8) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
2	A	201	8M4	C11-C12-C13-C14
2	A	202	8M4	C31-C28-O29-C30
2	A	202	8M4	C27-C28-O29-C30
2	A	201	8M4	C11-C12-C13-C18
2	A	202	8M4	C11-C12-C13-C18
2	B	201	8M4	C32-C25-N24-C23
2	A	202	8M4	C11-C12-C13-C14
2	B	201	8M4	C26-C25-N24-C23

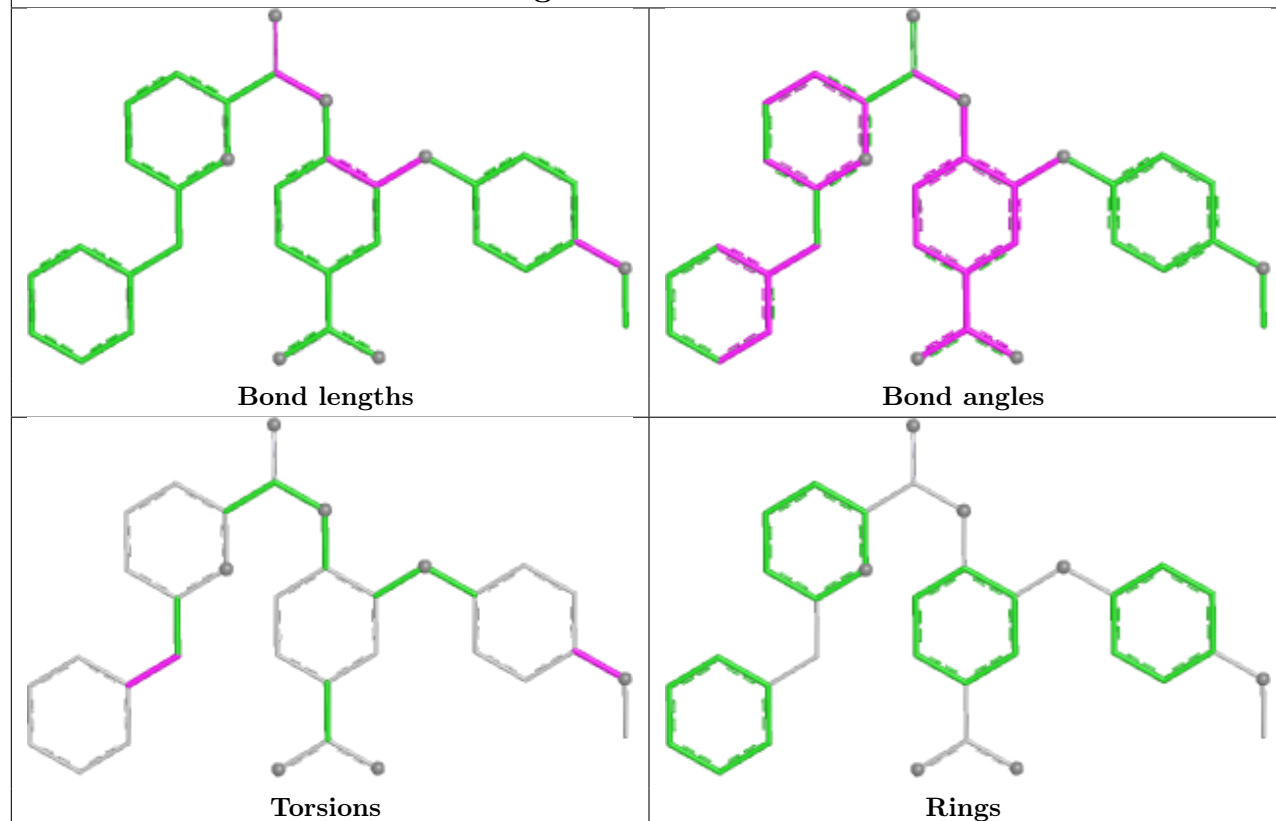
There are no ring outliers.

1 monomer is involved in 1 short contact:

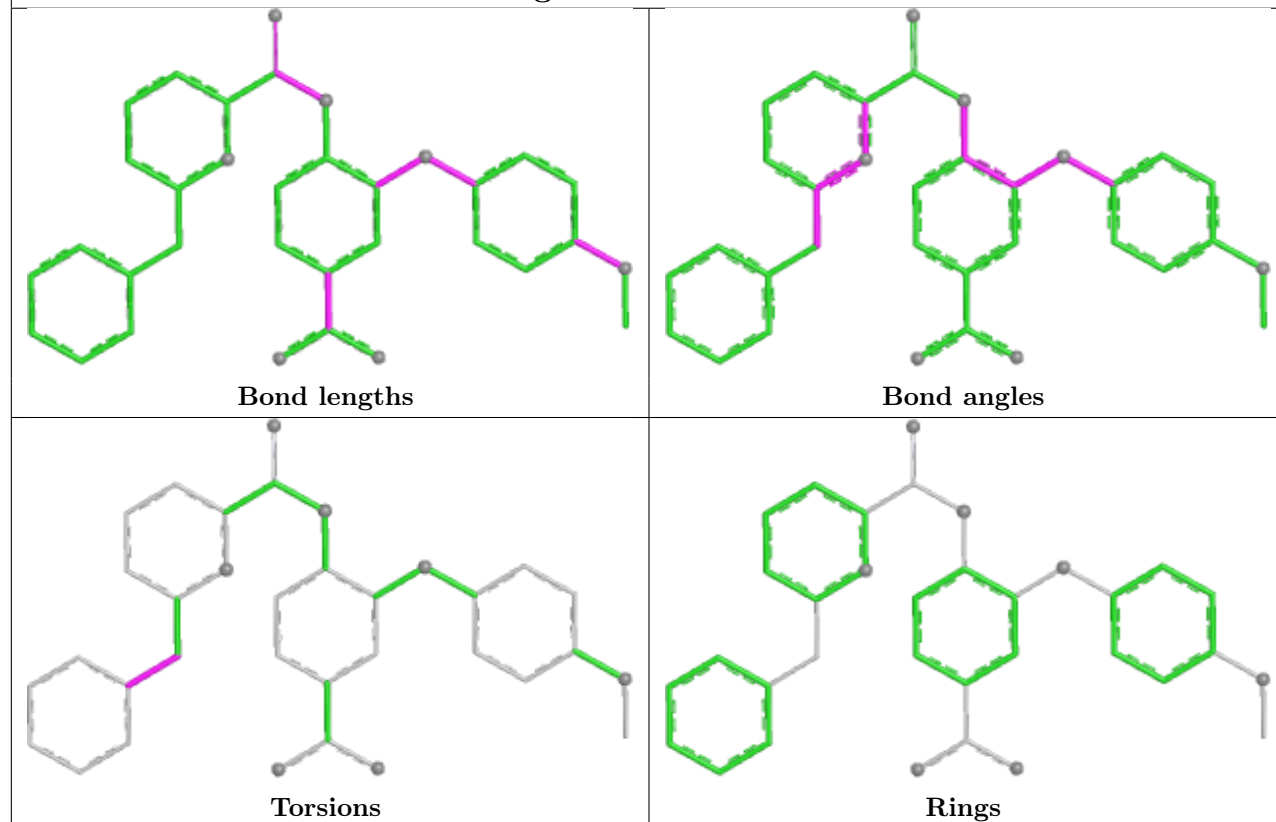
Mol	Chain	Res	Type	Clashes	Symm-Clashes
2	A	202	8M4	1	0

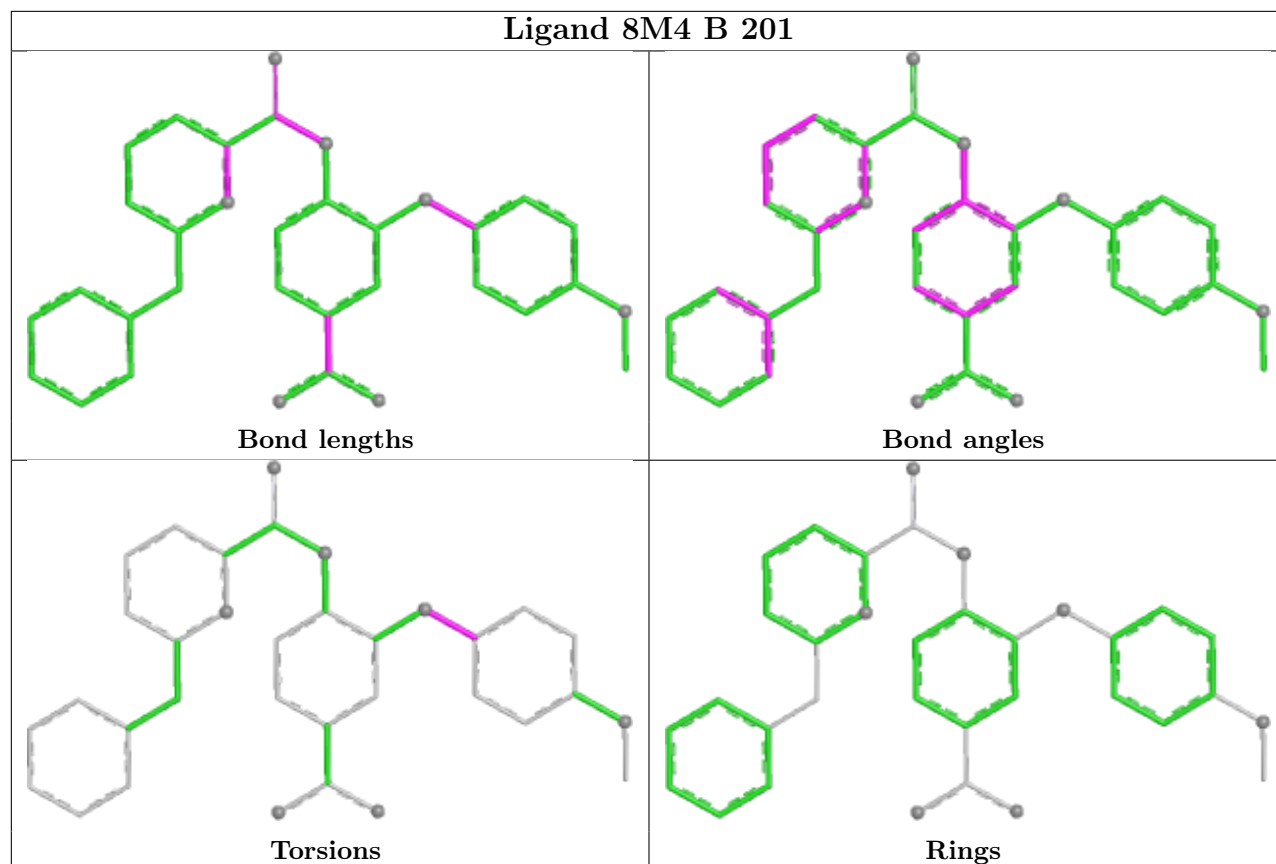
The following is a two-dimensional graphical depiction of Mogul quality analysis of bond lengths, bond angles, torsion angles, and ring geometry for all instances of the Ligand of Interest. In addition, ligands with molecular weight > 250 and outliers as shown on the validation Tables will also be included. For torsion angles, if less than 5% of the Mogul distribution of torsion angles is within 10 degrees of the torsion angle in question, then that torsion angle is considered an outlier. Any bond that is central to one or more torsion angles identified as an outlier by Mogul will be highlighted in the graph. For rings, the root-mean-square deviation (RMSD) between the ring in question and similar rings identified by Mogul is calculated over all ring torsion angles. If the average RMSD is greater than 60 degrees and the minimal RMSD between the ring in question and any Mogul-identified rings is also greater than 60 degrees, then that ring is considered an outlier. The outliers are highlighted in purple. The color gray indicates Mogul did not find sufficient equivalents in the CSD to analyse the geometry.

Ligand 8M4 A 202



Ligand 8M4 A 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 [i](#)

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

In the following table, the column labelled ‘#RSRZ> 2’ contains the number (and percentage) of RSRZ outliers, followed by percent RSRZ outliers for the chain as percentile scores relative to all X-ray entries and entries of similar resolution. The OWAB column contains the minimum, median, 95th percentile and maximum values of the occupancy-weighted average B-factor per residue. The column labelled ‘Q< 0.9’ lists the number of (and percentage) of residues with an average occupancy less than 0.9.

Mol	Chain	Analysed	<RSRZ>	#RSRZ>2	OWAB(Å ²)	Q<0.9
1	A	191/193 (98%)	-0.26	0 100 100	12, 19, 38, 50	0
1	B	184/193 (95%)	-0.13	7 (3%) 44 44	12, 22, 39, 56	0
All	All	375/386 (97%)	-0.20	7 (1%) 66 68	12, 21, 39, 56	0

All (7) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	B	129	GLY	2.9
1	B	122	GLU	2.8
1	B	155	GLU	2.6
1	B	17	PRO	2.5
1	B	16	CYS	2.1
1	B	96	ASN	2.0
1	B	118	ILE	2.0

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

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

6.3 Carbohydrates [i](#)

There are no oligosaccharides in this entry.

6.4 Ligands [i](#)

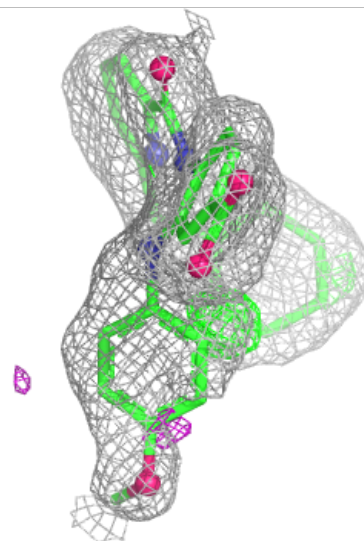
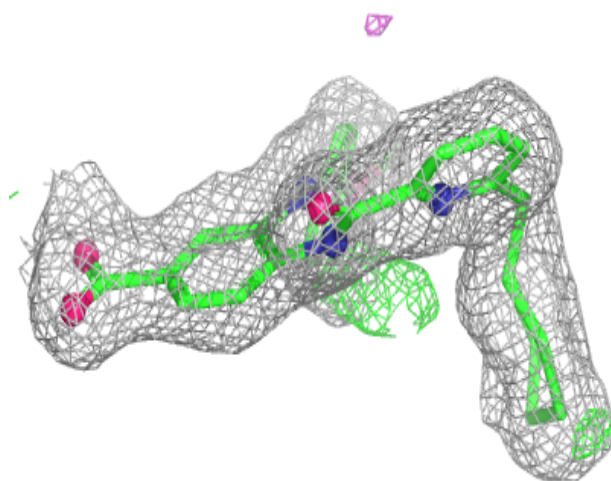
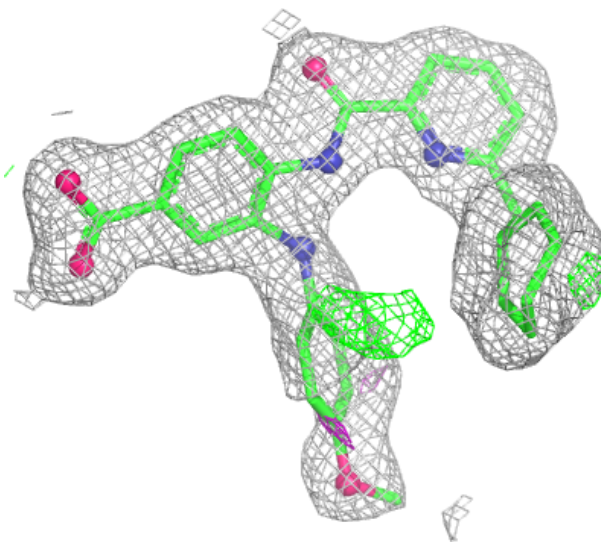
In the following table, the Atoms column lists the number of modelled atoms in the group and the number defined in the chemical component dictionary. The B-factors column lists the minimum, median, 95th percentile and maximum values of B factors of atoms in the group. The column labelled ‘Q< 0.9’ lists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

Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors(\AA^2)	Q<0.9
2	8M4	A	202	34/34	0.89	0.09	17,24,35,39	0
2	8M4	A	201	34/34	0.95	0.06	10,20,28,31	0
2	8M4	B	201	34/34	0.96	0.05	10,17,23,28	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.

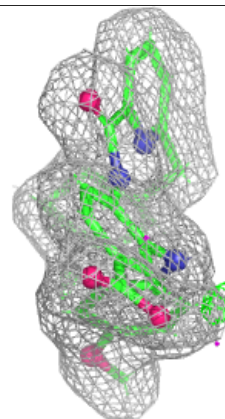
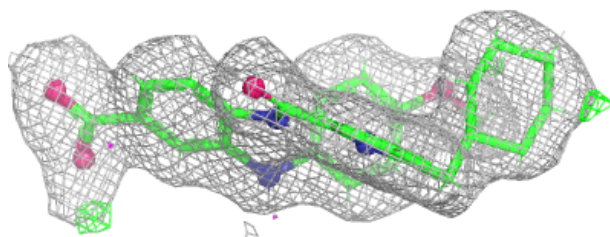
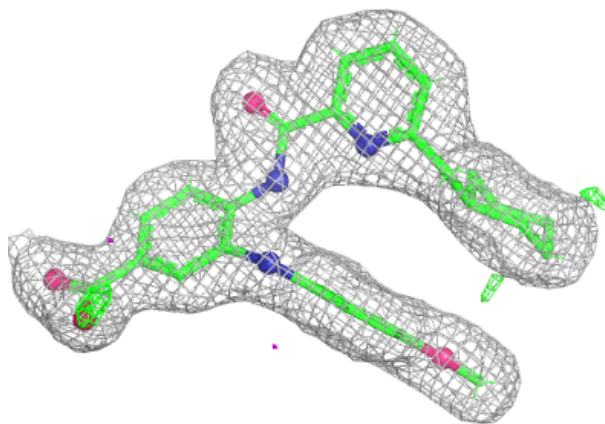
Electron density around 8M4 A 202:

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



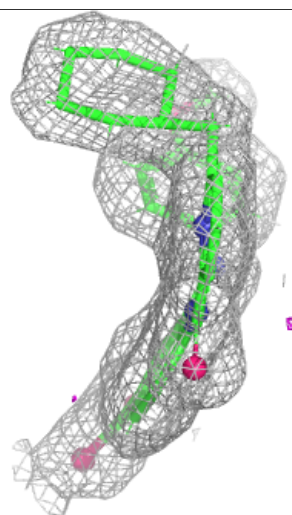
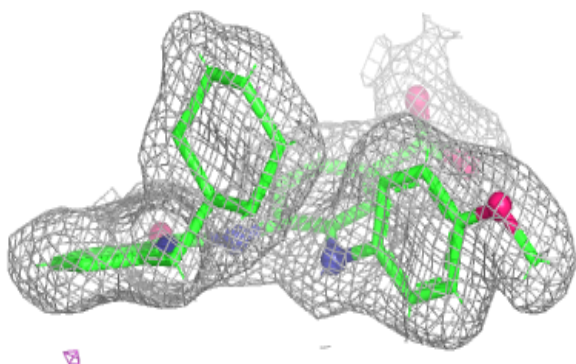
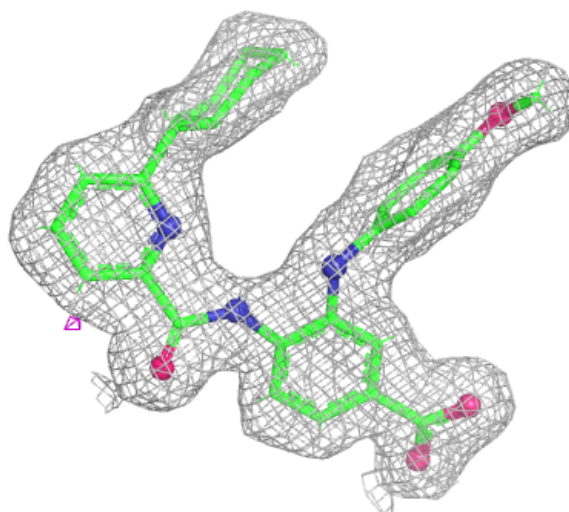
Electron density around 8M4 A 201:

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



Electron density around 8M4 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)



6.5 Other polymers [i](#)

There are no such residues in this entry.