



Full wwPDB X-ray Structure Validation Report ⓘ

Mar 5, 2026 – 12:41 PM UTC

PDB ID : 6D49 / pdb_00006d49
Title : Cell Surface Receptor in Complex with Ligand at 1.80-Å Resolution
Authors : Hermans, S.J.; Miles, L.A.; Parker, M.W.
Deposited on : 2018-04-17
Resolution : 1.80 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

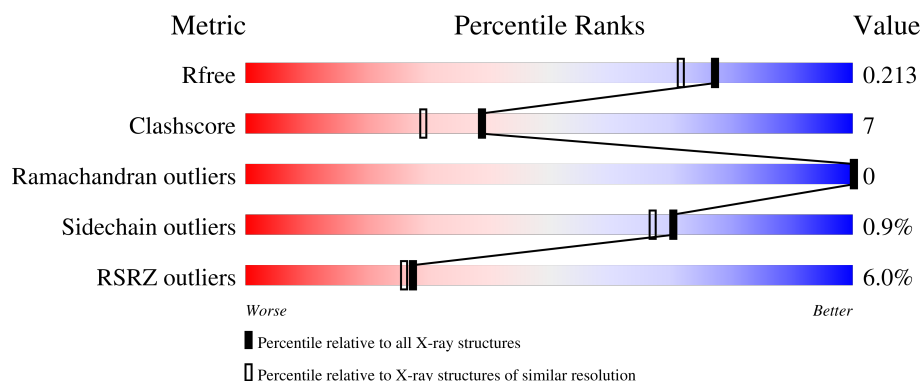
1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

X-RAY DIFFRACTION

The reported resolution of this entry is 1.80 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	7662 (1.80-1.80)
Clashscore	190562	8479 (1.80-1.80)
Ramachandran outliers	187476	8391 (1.80-1.80)
Sidechain outliers	187428	8390 (1.80-1.80)
RSRZ outliers	180081	7663 (1.80-1.80)

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	127	7% 88% 11% .
1	B	127	5% 87% 11% ..

2 Entry composition [i](#)

There are 4 unique types of molecules in this entry. The entry contains 2498 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.

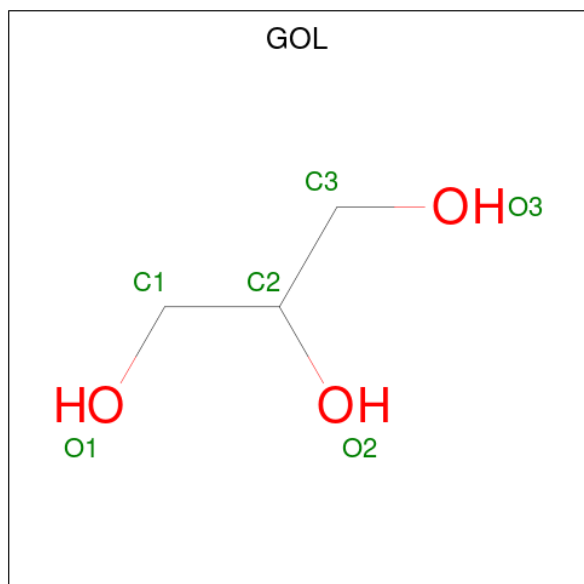
- Molecule 1 is a protein called Myeloid cell surface antigen CD33.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
1	A	126	Total	C	N	O	S	0	1	0
			1029	648	183	194	4			
1	B	126	Total	C	N	O	S	0	1	0
			1026	645	183	194	4			

There are 2 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
A	17	GLY	-	expression tag	UNP P20138
B	17	GLY	-	expression tag	UNP P20138

- Molecule 2 is GLYCEROL (CCD ID: GOL) (formula: C₃H₈O₃).



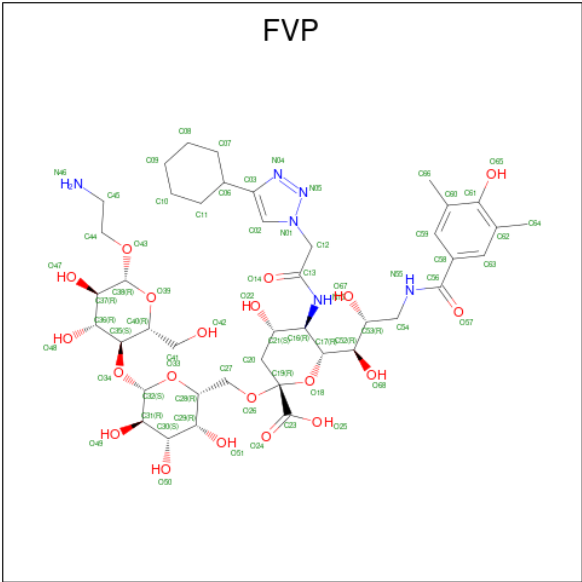
Mol	Chain	Residues	Atoms			ZeroOcc	AltConf
2	A	1	Total	C	O	0	0
			6	3	3		

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Mol	Chain	Residues	Atoms			ZeroOcc	AltConf
2	A	1	Total	C	O	0	0
			6	3	3		
2	A	1	Total	C	O	0	0
			6	3	3		
2	A	1	Total	C	O	0	0
			6	3	3		
2	B	1	Total	C	O	0	0
			6	3	3		
2	B	1	Total	C	O	0	0
			6	3	3		
2	B	1	Total	C	O	0	0
			6	3	3		
2	B	1	Total	C	O	0	0
			6	3	3		

- Molecule 3 is 2-aminoethyl 5-[[[(4-cyclohexyl-1H-1,2,3-triazol-1-yl)acetyl]amino}-3,5,9-trideoxy-9-[(4-hydroxy-3,5-dimethylbenzene-1-carbonyl)amino]-D-glycero- α -D-galacto-non-2-ulopyranonosyl-(2->6)- β -D-galactopyranosyl-(1->4)- β -D-glucopyranoside (CCD ID: FVP) (formula: C₄₂H₆₄N₆O₂₀) (labeled as "Ligand of Interest" by depositor).



Mol	Chain	Residues	Atoms				ZeroOcc	AltConf
3	A	1	Total	C	N	O	0	0
			68	42	6	20		
3	B	1	Total	C	N	O	0	0
			68	42	6	20		

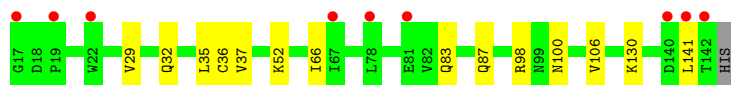
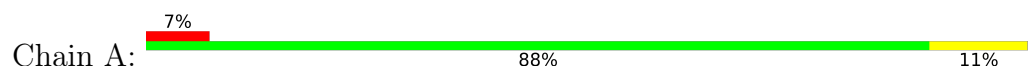
- Molecule 4 is water.

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
4	A	126	Total 126	O 126	0	0
4	B	127	Total 127	O 127	0	0

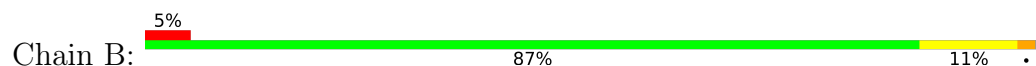
3 Residue-property plots [i](#)

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: Myeloid cell surface antigen CD33



- Molecule 1: Myeloid cell surface antigen CD33



4 Data and refinement statistics

Property	Value	Source
Space group	P 1 21 1	Depositor
Cell constants a, b, c, α , β , γ	29.37Å 68.77Å 73.47Å 90.00° 96.97° 90.00°	Depositor
Resolution (Å)	36.46 – 1.80 36.46 – 1.80	Depositor EDS
% Data completeness (in resolution range)	99.2 (36.46-1.80) 99.3 (36.46-1.80)	Depositor EDS
R_{merge}	0.07	Depositor
R_{sym}	(Not available)	Depositor
$\langle I/\sigma(I) \rangle$ ¹	2.33 (at 1.81Å)	Xtriage
Refinement program	PHENIX 1.11.1-2575_1496	Depositor
R, R_{free}	0.183 , 0.211 0.185 , 0.213	Depositor DCC
R_{free} test set	1296 reflections (4.81%)	wwPDB-VP
Wilson B-factor (Å ²)	21.3	Xtriage
Anisotropy	0.815	Xtriage
Bulk solvent k_{sol} (e/Å ³), B_{sol} (Å ²)	0.37 , 44.8	EDS
L-test for twinning ²	$\langle L \rangle = 0.50$, $\langle L^2 \rangle = 0.33$	Xtriage
Estimated twinning fraction	No twinning to report.	Xtriage
F_o, F_c correlation	0.96	EDS
Total number of atoms	2498	wwPDB-VP
Average B, all atoms (Å ²)	29.0	wwPDB-VP

Xtriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 7.85% 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: FVP, GOL

The Z score for a bond length (or angle) is the number of standard deviations the observed value is removed from the expected value. A bond length (or angle) with $|Z| > 5$ is considered an outlier worth inspection. RMSZ is the root-mean-square of all Z scores of the bond lengths (or angles).

Mol	Chain	Bond lengths		Bond angles	
		RMSZ	$\# Z > 5$	RMSZ	$\# Z > 5$
1	A	0.28	0/1060	0.52	0/1439
1	B	0.28	0/1056	0.49	0/1434
All	All	0.28	0/2116	0.51	0/2873

There are no bond length outliers.

There are no bond angle outliers.

There are no chirality outliers.

There are no planarity outliers.

5.2 Too-close contacts

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

Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
1	A	1029	0	979	11	0
1	B	1026	0	974	14	0
2	A	24	0	32	1	0
2	B	30	0	40	3	0
3	A	68	0	0	4	0
3	B	68	0	0	0	0
4	A	126	0	0	6	1
4	B	127	0	0	6	1
All	All	2498	0	2025	29	2

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 (29) 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:82:VAL:HG23	1:B:87:GLN:HG2	1.62	0.82
3:A:205:FVP:O48	4:A:301:HOH:O	2.03	0.76
1:A:100:ASN:ND2	4:A:305:HOH:O	2.22	0.73
3:A:205:FVP:O42	4:A:302:HOH:O	2.11	0.67
2:B:203:GOL:O1	4:B:301:HOH:O	2.12	0.66
1:A:52:LYS:NZ	4:A:304:HOH:O	2.19	0.65
2:B:201:GOL:O1	4:B:302:HOH:O	2.14	0.64
3:A:205:FVP:O49	4:A:303:HOH:O	2.16	0.59
1:B:81:GLU:H	1:B:81:GLU:CD	2.15	0.55
1:A:130:LYS:HG3	3:A:205:FVP:C61	2.39	0.53
1:A:32:GLN:HB2	1:A:35:LEU:HD12	1.91	0.53
1:B:17:GLY:N	4:B:307:HOH:O	2.42	0.51
1:B:18:ASP:HB3	1:B:21:PHE:HD1	1.77	0.50
1:A:32:GLN:OE1	1:A:141:LEU:HD12	2.12	0.49
1:A:29:VAL:HG21	1:A:37:VAL:HG21	1.96	0.48
1:B:71:SER:OG	2:B:204:GOL:H11	2.13	0.47
1:A:83:GLN:O	1:A:87:GLN:HG3	2.14	0.47
1:B:83:GLN:O	1:B:87:GLN:HG3	2.14	0.47
1:A:66:ILE:HG12	4:A:313:HOH:O	2.16	0.45
1:A:106:VAL:HG11	4:B:377:HOH:O	2.17	0.44
1:B:29:VAL:HG21	1:B:37:VAL:HG21	1.98	0.44
1:A:36:CYS:HB2	2:A:202:GOL:H12	2.01	0.42
1:B:84:GLU:HG3	4:B:369:HOH:O	2.20	0.42
1:B:131:SER:HA	1:B:132:PRO:C	2.44	0.42
1:B:41:CYS:HB3	1:B:101:CYS:C	2.45	0.42
1:B:18:ASP:HB3	1:B:21:PHE:CD1	2.54	0.42
1:B:81:GLU:CD	1:B:81:GLU:N	2.78	0.41
1:B:87:GLN:NE2	4:B:312:HOH:O	2.53	0.41
1:A:98:ARG:NH2	1:B:98[A]:ARG:HG3	2.36	0.40

All (2) 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)
4:A:311:HOH:O	4:A:354:HOH:O[1_655]	1.67	0.53
4:B:414:HOH:O	4:B:419:HOH:O[1_655]	2.19	0.01

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	125/127 (98%)	121 (97%)	4 (3%)	0	100	100
1	B	125/127 (98%)	125 (100%)	0	0	100	100
All	All	250/254 (98%)	246 (98%)	4 (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	116/116 (100%)	116 (100%)	0	100	100
1	B	115/116 (99%)	112 (97%)	3 (3%)	40	28
All	All	231/232 (100%)	228 (99%)	3 (1%)	70	54

All (3) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	B	18	ASP
1	B	98[A]	ARG
1	B	98[B]	ARG

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (4) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	24	GLN
1	B	26	GLN
1	B	45	HIS
1	B	99	ASN

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](#)

11 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	GOL	A	202	-	5,5,5	0.37	0	5,5,5	0.43	0
2	GOL	B	204	-	5,5,5	0.34	0	5,5,5	0.45	0
2	GOL	B	202	-	5,5,5	0.44	0	5,5,5	0.16	0
3	FVP	B	206	-	73,73,73	2.20	21 (28%)	100,106,106	1.67	27 (27%)
2	GOL	A	203	-	5,5,5	0.33	0	5,5,5	0.24	0
2	GOL	B	205	-	5,5,5	0.43	0	5,5,5	1.42	1 (20%)
2	GOL	B	203	-	5,5,5	0.35	0	5,5,5	0.46	0
2	GOL	B	201	-	5,5,5	0.28	0	5,5,5	0.59	0
2	GOL	A	201	-	5,5,5	0.38	0	5,5,5	0.65	0
3	FVP	A	205	-	73,73,73	2.27	20 (27%)	100,106,106	1.62	22 (22%)

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	# Z > 2	Counts	RMSZ	# Z > 2
2	GOL	A	204	-	5,5,5	0.29	0	5,5,5	0.70	0

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

Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
2	GOL	A	202	-	-	3/4/4/4	-
2	GOL	B	204	-	-	4/4/4/4	-
2	GOL	B	202	-	-	2/4/4/4	-
3	FVP	B	206	-	-	13/51/117/117	0/6/6/6
2	GOL	A	203	-	-	2/4/4/4	-
2	GOL	B	205	-	-	2/4/4/4	-
2	GOL	B	203	-	-	2/4/4/4	-
2	GOL	B	201	-	-	2/4/4/4	-
2	GOL	A	201	-	-	4/4/4/4	-
3	FVP	A	205	-	-	13/51/117/117	0/6/6/6
2	GOL	A	204	-	-	0/4/4/4	-

All (41) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
3	A	205	FVP	C13-N15	7.43	1.49	1.34
3	B	206	FVP	C56-N55	6.95	1.49	1.33
3	A	205	FVP	C56-N55	6.94	1.49	1.33
3	A	205	FVP	C06-C03	6.74	1.56	1.49
3	B	206	FVP	C13-N15	6.56	1.47	1.34
3	B	206	FVP	C06-C03	5.99	1.55	1.49
3	B	206	FVP	O18-C17	4.79	1.51	1.44
3	A	205	FVP	O18-C17	4.39	1.50	1.44
3	A	205	FVP	C64-C62	4.24	1.59	1.51
3	A	205	FVP	C16-N15	4.17	1.52	1.45
3	B	206	FVP	C16-N15	3.83	1.51	1.45
3	B	206	FVP	C64-C62	3.83	1.58	1.51
3	B	206	FVP	O39-C38	3.76	1.51	1.41
3	B	206	FVP	C21-C16	-3.73	1.49	1.53
3	A	205	FVP	O39-C38	3.45	1.50	1.41
3	A	205	FVP	C58-C56	3.42	1.57	1.50
3	A	205	FVP	N04-N05	3.42	1.37	1.32

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
3	A	205	FVP	O33-C32	3.27	1.50	1.41
3	A	205	FVP	C21-C16	-3.11	1.50	1.53
3	B	206	FVP	N04-N05	3.10	1.37	1.32
3	A	205	FVP	O65-C61	3.01	1.43	1.36
3	B	206	FVP	C61-C60	2.92	1.43	1.40
3	B	206	FVP	O18-C19	2.88	1.46	1.42
3	A	205	FVP	C02-C03	2.84	1.40	1.36
3	B	206	FVP	C58-C56	2.75	1.56	1.50
3	A	205	FVP	C59-C58	2.69	1.43	1.39
3	B	206	FVP	O33-C32	2.68	1.48	1.41
3	B	206	FVP	C66-C60	2.56	1.55	1.51
3	B	206	FVP	O65-C61	2.55	1.42	1.36
3	B	206	FVP	C02-C03	2.54	1.40	1.36
3	A	205	FVP	O39-C40	2.45	1.50	1.44
3	A	205	FVP	C61-C62	2.37	1.43	1.40
3	A	205	FVP	O18-C19	2.33	1.45	1.42
3	B	206	FVP	O43-C38	-2.29	1.36	1.40
3	A	205	FVP	O48-C36	2.17	1.48	1.43
3	B	206	FVP	O26-C19	-2.16	1.37	1.40
3	B	206	FVP	C36-C35	-2.15	1.46	1.52
3	A	205	FVP	O50-C30	2.10	1.48	1.43
3	B	206	FVP	C12-C13	2.09	1.56	1.52
3	A	205	FVP	C12-C13	2.07	1.56	1.52
3	B	206	FVP	O50-C30	2.01	1.47	1.43

All (50) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
3	A	205	FVP	O47-C37-C36	-4.09	100.75	110.38
3	A	205	FVP	C17-C16-N15	-4.04	104.47	110.91
3	B	206	FVP	C32-O34-C35	-3.93	108.67	117.98
3	B	206	FVP	O33-C28-C27	3.64	113.92	106.69
3	B	206	FVP	C17-C16-N15	-3.63	105.11	110.91
3	A	205	FVP	O39-C40-C35	3.56	117.09	109.72
3	A	205	FVP	C32-O34-C35	-3.41	109.88	117.98
3	B	206	FVP	C30-C29-C28	-3.31	104.23	110.23
3	B	206	FVP	O39-C38-O43	-3.20	102.48	110.04
3	B	206	FVP	O47-C37-C36	-3.16	102.92	110.38
3	A	205	FVP	O48-C36-C37	-3.13	103.00	110.38
3	B	206	FVP	C44-O43-C38	2.96	118.74	113.68
3	B	206	FVP	O34-C32-O33	-2.93	102.99	110.69
3	A	205	FVP	C27-C28-C29	2.92	118.20	112.07

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
3	A	205	FVP	C32-C31-C30	2.92	116.15	110.01
3	B	206	FVP	C38-O39-C40	2.88	119.34	113.72
3	A	205	FVP	O26-C19-O18	-2.87	102.05	109.97
3	B	206	FVP	O49-C31-C30	-2.78	103.83	110.38
3	A	205	FVP	C31-C30-C29	2.76	115.67	110.83
3	A	205	FVP	C09-C10-C11	2.69	116.94	111.42
3	B	206	FVP	O39-C40-C35	2.62	115.15	109.72
3	A	205	FVP	O48-C36-C35	2.54	116.45	109.94
3	A	205	FVP	O26-C27-C28	2.53	113.15	107.69
3	A	205	FVP	C63-C62-C61	2.53	120.05	118.08
3	B	206	FVP	C19-O18-C17	-2.48	108.55	114.36
3	A	205	FVP	O51-C29-C28	2.48	115.42	109.32
3	B	206	FVP	C07-C06-C03	-2.47	106.86	112.02
3	B	206	FVP	C58-C63-C62	-2.38	118.81	121.74
3	B	206	FVP	C66-C60-C61	2.35	123.51	120.54
3	B	206	FVP	O18-C17-C52	2.34	110.30	106.65
3	B	206	FVP	C32-C31-C30	2.34	114.93	110.01
3	B	206	FVP	O50-C30-C31	-2.31	104.93	110.38
3	A	205	FVP	C53-C52-C17	-2.31	108.71	113.05
3	A	205	FVP	C32-O33-C28	-2.31	109.22	113.72
3	A	205	FVP	O57-C56-N55	-2.26	118.19	122.59
3	B	206	FVP	O18-C19-C20	2.25	114.37	111.35
3	B	206	FVP	C08-C07-C06	2.22	115.29	111.24
3	B	206	FVP	O14-C13-N15	-2.22	119.20	122.95
2	B	205	GOL	C3-C2-C1	-2.21	103.70	111.80
3	B	206	FVP	C63-C62-C61	2.20	119.79	118.08
3	B	206	FVP	O34-C35-C36	-2.19	101.68	107.23
3	B	206	FVP	C11-C06-C03	-2.18	107.47	112.02
3	B	206	FVP	O39-C38-C37	2.14	114.77	110.37
3	B	206	FVP	O51-C29-C28	2.12	114.55	109.32
3	A	205	FVP	C62-C61-C60	-2.10	120.25	121.70
3	B	206	FVP	C54-N55-C56	-2.09	118.70	122.54
3	A	205	FVP	C11-C06-C07	2.08	114.39	110.00
3	A	205	FVP	C41-C40-C35	-2.08	107.52	113.38
3	A	205	FVP	C10-C11-C06	2.06	115.00	111.24
3	A	205	FVP	O39-C38-O43	-2.01	105.30	110.04

There are no chirality outliers.

All (47) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
2	A	201	GOL	O1-C1-C2-C3

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Mol	Chain	Res	Type	Atoms
2	A	201	GOL	C1-C2-C3-O3
2	A	202	GOL	O1-C1-C2-C3
2	B	204	GOL	O1-C1-C2-C3
2	B	204	GOL	C1-C2-C3-O3
2	B	205	GOL	C1-C2-C3-O3
3	A	205	FVP	O26-C27-C28-C29
3	A	205	FVP	C13-C12-N01-C02
3	A	205	FVP	O26-C19-C23-O25
3	A	205	FVP	C20-C19-O26-C27
3	A	205	FVP	C23-C19-O26-C27
3	A	205	FVP	O18-C19-O26-C27
3	A	205	FVP	O39-C38-O43-C44
3	A	205	FVP	O43-C44-C45-N46
3	B	206	FVP	C02-C03-C06-C07
3	B	206	FVP	O26-C19-C23-O25
3	B	206	FVP	O43-C44-C45-N46
3	B	206	FVP	C35-C40-C41-O42
3	B	206	FVP	O39-C40-C41-O42
3	A	205	FVP	O26-C27-C28-O33
2	B	204	GOL	O2-C2-C3-O3
2	A	203	GOL	O1-C1-C2-C3
2	B	202	GOL	C1-C2-C3-O3
2	B	203	GOL	O1-C1-C2-C3
2	A	201	GOL	O2-C2-C3-O3
2	A	202	GOL	O1-C1-C2-O2
2	B	202	GOL	O2-C2-C3-O3
2	B	204	GOL	O1-C1-C2-O2
3	B	206	FVP	C36-C35-O34-C32
3	B	206	FVP	C40-C35-O34-C32
2	A	201	GOL	O1-C1-C2-O2
2	B	205	GOL	O2-C2-C3-O3
3	B	206	FVP	O26-C19-C23-O24
2	B	201	GOL	O2-C2-C3-O3
3	B	206	FVP	N01-C12-C13-N15
3	A	205	FVP	C13-C12-N01-N05
3	B	206	FVP	C23-C19-O26-C27
2	A	202	GOL	C1-C2-C3-O3
3	A	205	FVP	N01-C12-C13-O14
3	B	206	FVP	N01-C12-C13-O14
3	A	205	FVP	N01-C12-C13-N15
3	B	206	FVP	C13-C12-N01-C02
2	B	203	GOL	O1-C1-C2-O2

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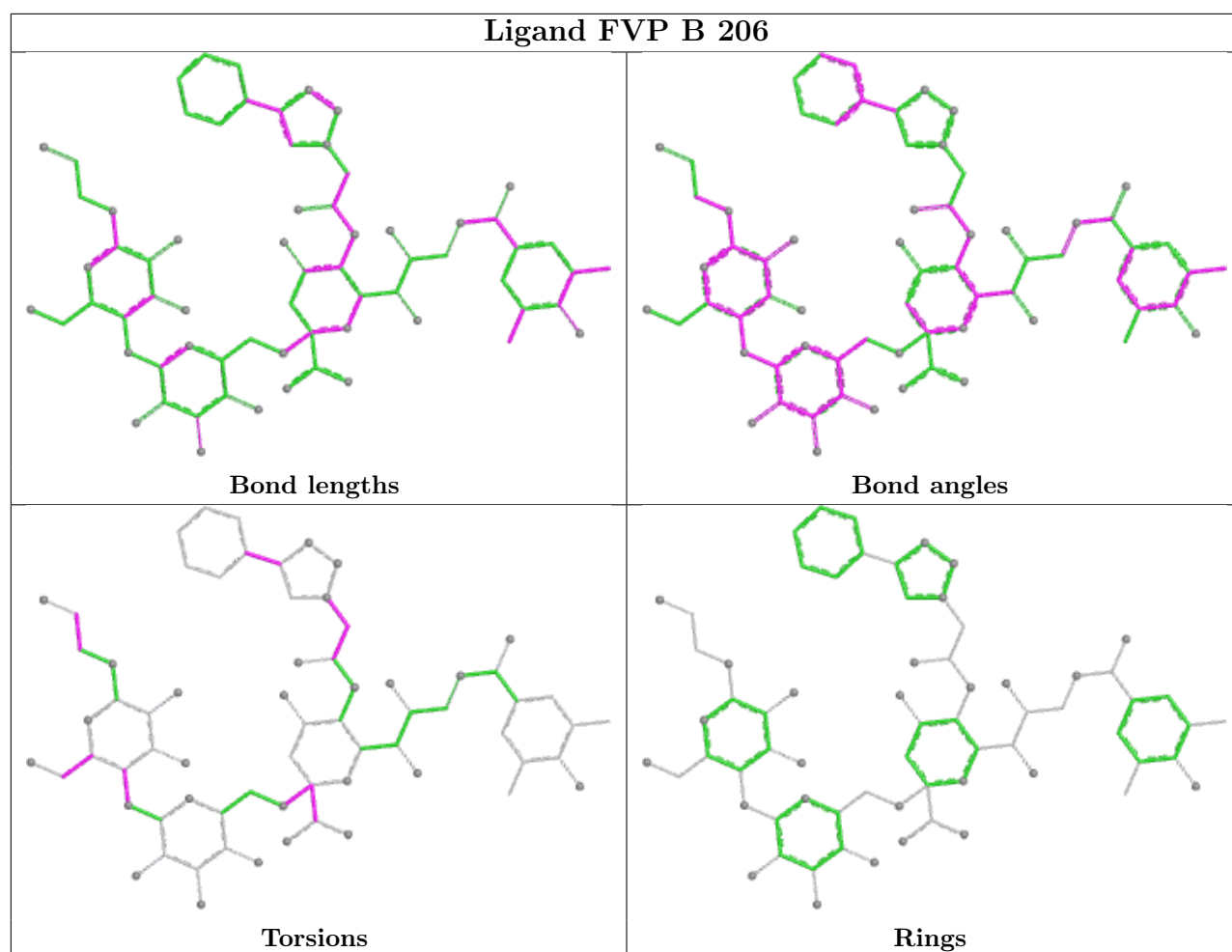
Mol	Chain	Res	Type	Atoms
2	A	203	GOL	O1-C1-C2-O2
2	B	201	GOL	O1-C1-C2-O2
3	A	205	FVP	C20-C19-C23-O24
3	B	206	FVP	C20-C19-C23-O24

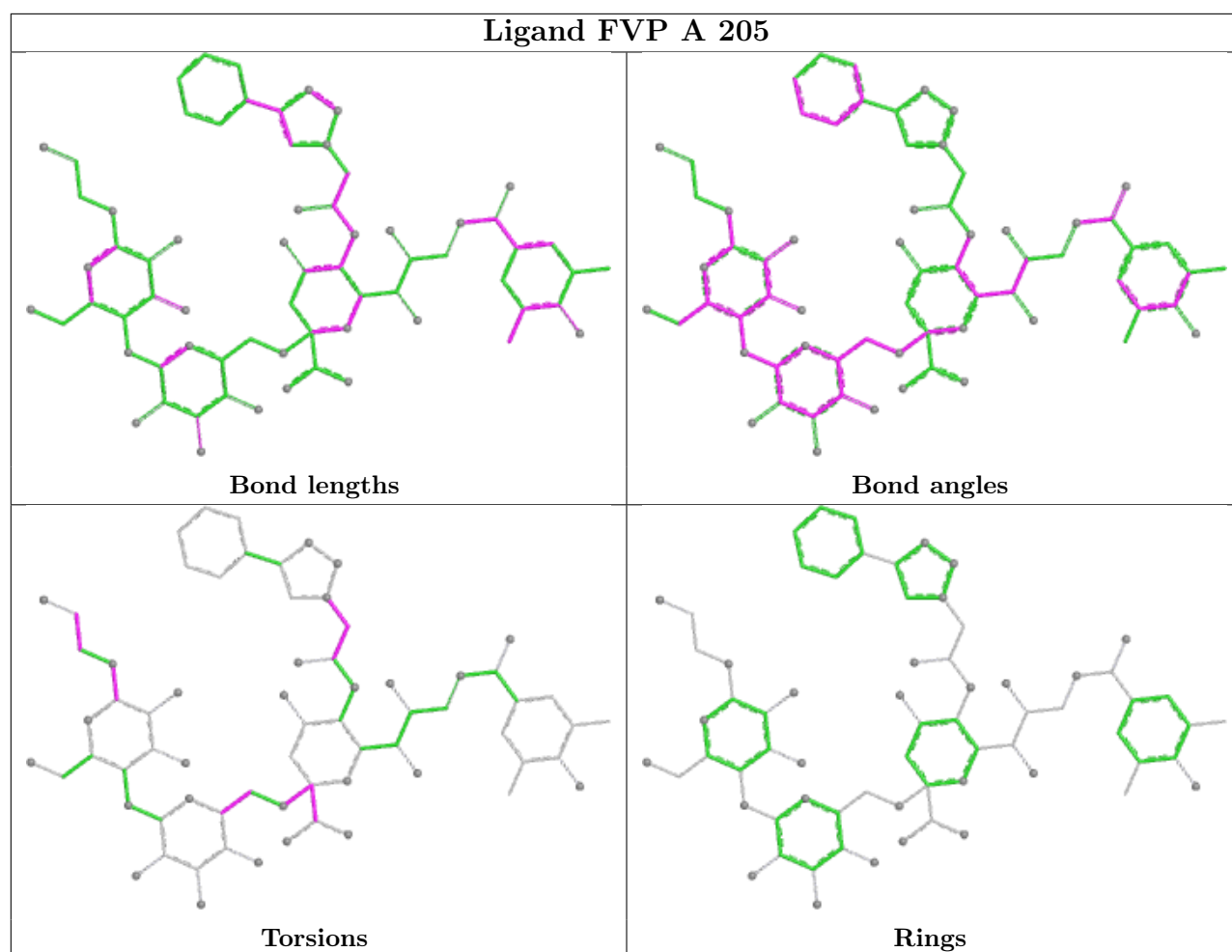
There are no ring outliers.

5 monomers are involved in 8 short contacts:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
2	A	202	GOL	1	0
2	B	204	GOL	1	0
2	B	203	GOL	1	0
2	B	201	GOL	1	0
3	A	205	FVP	4	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 [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	126/127 (99%)	0.25	9 (7%)	22 20	16, 26, 45, 51	1 (0%)
1	B	126/127 (99%)	0.06	6 (4%)	35 34	15, 24, 42, 53	1 (0%)
All	All	252/254 (99%)	0.16	15 (5%)	27 26	15, 25, 44, 53	2 (0%)

All (15) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	A	19	PRO	4.2
1	A	17	GLY	3.5
1	A	78	LEU	3.5
1	A	142	THR	3.3
1	B	17	GLY	3.2
1	A	22	TRP	3.1
1	A	141	LEU	2.9
1	B	36	CYS	2.5
1	B	19	PRO	2.5
1	B	52	LYS	2.3
1	A	67	ILE	2.2
1	A	140	ASP	2.2
1	B	81	GLU	2.1
1	B	53	ASN	2.1
1	A	81	GLU	2.1

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](#)

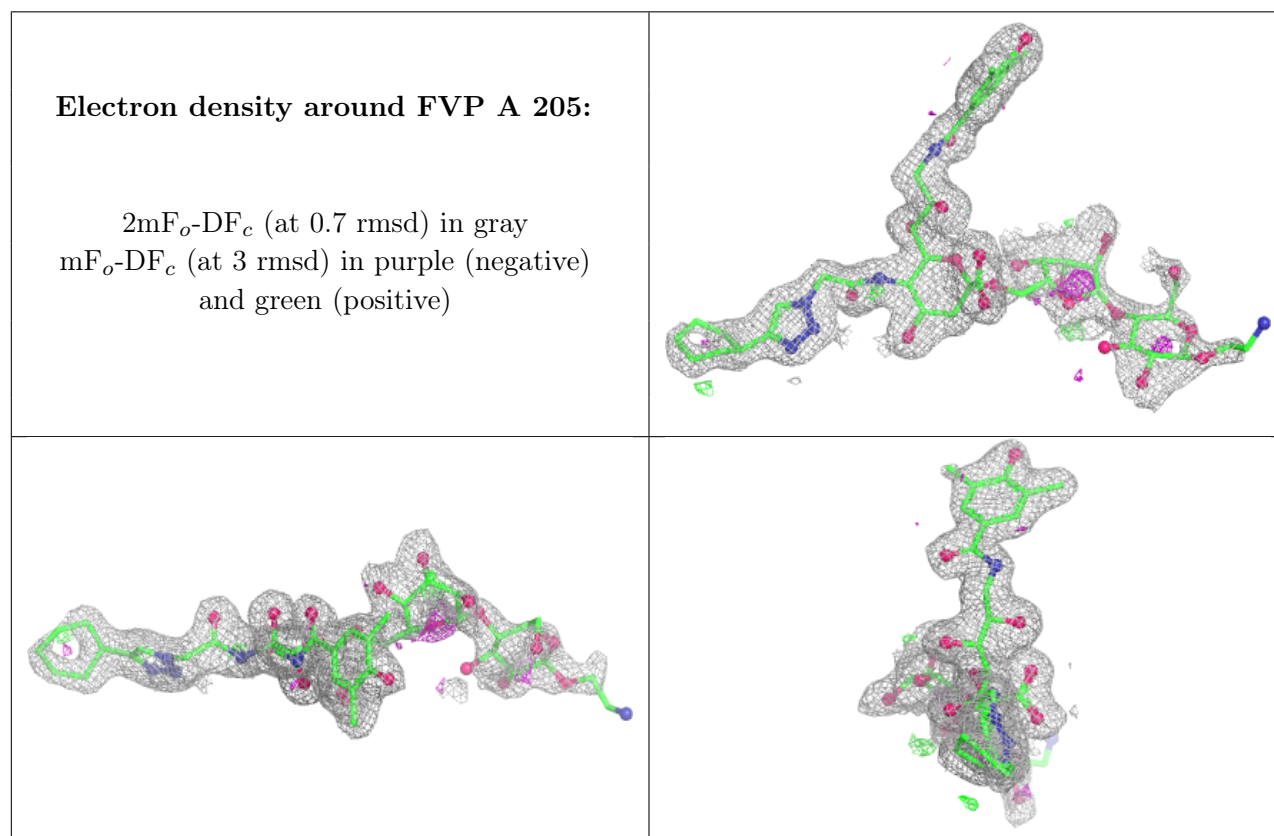
There are no oligosaccharides in this entry.

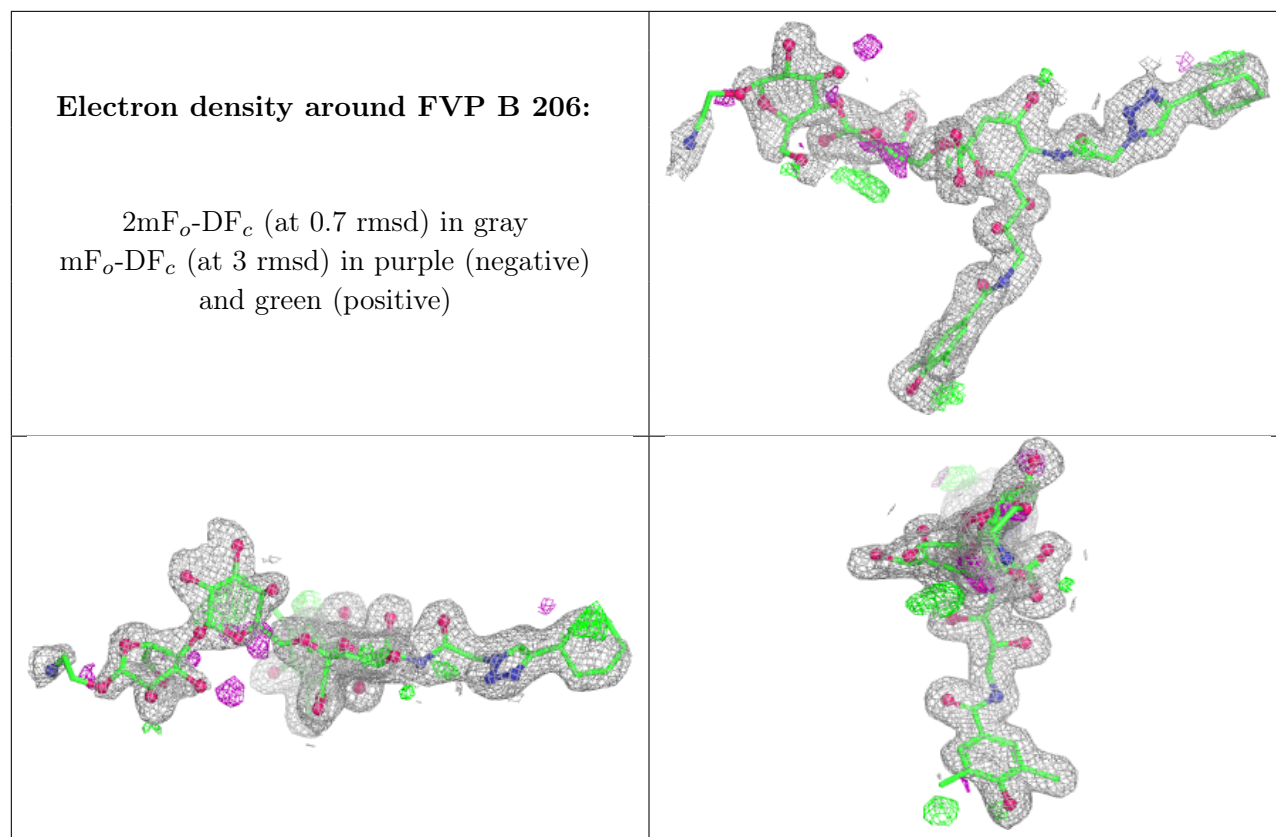
6.4 Ligands ⓘ

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(Å ²)	Q<0.9
2	GOL	B	204	6/6	0.76	0.14	39,46,52,56	0
2	GOL	A	201	6/6	0.77	0.15	36,41,48,58	0
2	GOL	B	203	6/6	0.79	0.12	46,47,50,56	0
2	GOL	A	204	6/6	0.79	0.12	45,50,53,57	0
2	GOL	B	205	6/6	0.79	0.17	26,44,50,59	0
2	GOL	B	202	6/6	0.80	0.14	34,41,47,47	0
2	GOL	A	203	6/6	0.82	0.12	39,46,48,53	0
2	GOL	A	202	6/6	0.85	0.12	28,34,35,43	0
3	FVP	A	205	68/68	0.90	0.12	21,39,65,69	0
2	GOL	B	201	6/6	0.91	0.09	29,37,46,50	0
3	FVP	B	206	68/68	0.91	0.12	16,35,60,69	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.





6.5 Other polymers [i](#)

There are no such residues in this entry.