



# wwPDB X-ray Structure Validation Summary Report ⓘ

May 15, 2020 – 06:26 pm BST

PDB ID : 3ZRC  
Title : pVHL54-213-EloB-EloC complex (4R)-4-HYDROXY-1-[(3-METHYLISOXAZOL-5-YL)ACETYL]-N-[4-(1,3-OXAZOL-5-YL)BENZYL]-L-PROLINAMID  
E bound  
Authors : Van Molle, I.; Buckley, D.L.; Crews, C.M.; Ciulli, A.  
Deposited on : 2011-06-15  
Resolution : 2.90 Å(reported)

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

We welcome your comments at [validation@mail.wwpdb.org](mailto: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.

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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 : 2.11  
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) : 2.11

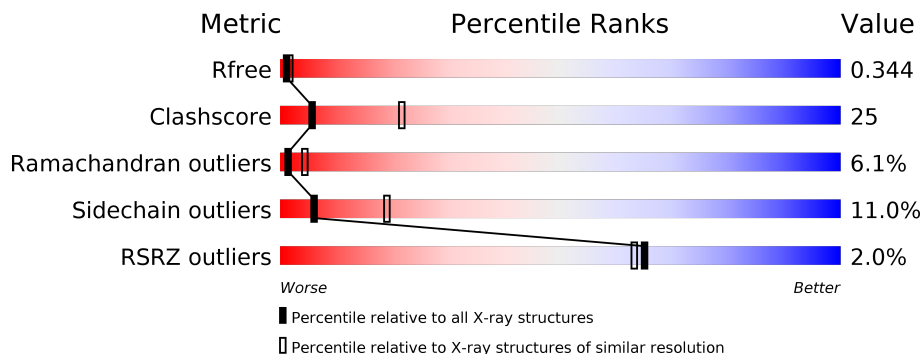
# 1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

*X-RAY DIFFRACTION*

The reported resolution of this entry is 2.90 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	1957 (2.90-2.90)
Clashscore	141614	2172 (2.90-2.90)
Ramachandran outliers	138981	2115 (2.90-2.90)
Sidechain outliers	138945	2117 (2.90-2.90)
RSRZ outliers	127900	1906 (2.90-2.90)

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 on the lower bar indicate the fraction of residues that contain outliers for  $\geq 3$ , 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	118	
1	D	118	
1	G	118	
1	J	118	
2	B	97	
2	E	97	

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Mol	Chain	Length	Quality of chain
2	H	97	<p>2% 33% 39% 14% 11%</p>
2	K	97	<p>2% 45% 35% 9% 10%</p>
3	C	163	<p>% 52% 28% 7% 13%</p>
3	F	163	<p>2% 42% 39% 6% 13%</p>
3	I	163	<p>% 44% 40% 6% 11%</p>
3	L	163	<p>% 44% 35% 9% 12%</p>

## 2 Entry composition i

There are 5 unique types of molecules in this entry. The entry contains 10340 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 TRANSCRIPTION ELONGATION FACTOR B POLYPEPTIDE 2.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
1	A	99	733	465	122	142	4	0	0	0
1	D	98	716	454	119	139	4	0	0	0
1	G	107	819	518	138	158	5	0	0	0
1	J	103	801	506	136	154	5	0	0	0

- Molecule 2 is a protein called TRANSCRIPTION ELONGATION FACTOR B POLYPEPTIDE 1.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
2	B	86	663	429	104	124	6	0	0	0
2	E	87	683	442	110	125	6	0	0	0
2	H	86	679	440	109	124	6	0	0	0
2	K	87	687	444	110	127	6	0	0	0

There are 4 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
B	16	MET	-	expression tag	UNP Q15369
E	16	MET	-	expression tag	UNP Q15369
H	16	MET	-	expression tag	UNP Q15369
K	16	MET	-	expression tag	UNP Q15369

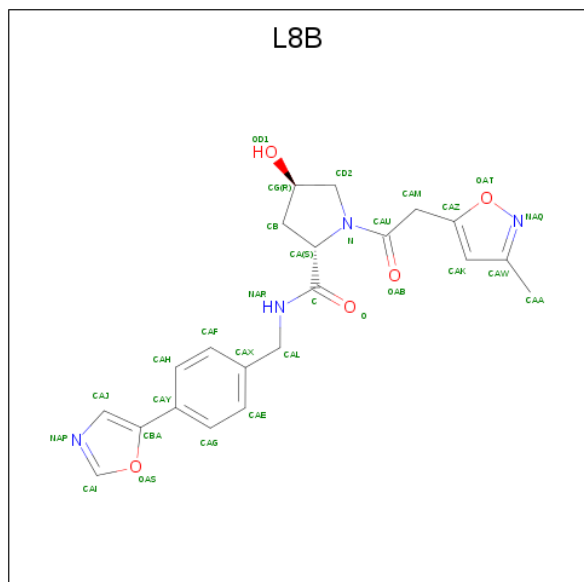
- Molecule 3 is a protein called VON HIPPEL-LINDAU DISEASE TUMOR SUPPRESSOR.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
3	C	142	Total 1043	C 666	N 186	O 189	S 2	0	0	0
3	F	142	Total 1113	C 713	N 193	O 205	S 2	0	0	0
3	I	145	Total 1136	C 727	N 201	O 206	S 2	0	0	0
3	L	143	Total 1137	C 726	N 204	O 205	S 2	0	0	0

There are 12 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
C	51	GLY	-	expression tag	UNP P40337
C	52	SER	-	expression tag	UNP P40337
C	53	HIS	-	expression tag	UNP P40337
F	51	GLY	-	expression tag	UNP P40337
F	52	SER	-	expression tag	UNP P40337
F	53	HIS	-	expression tag	UNP P40337
I	51	GLY	-	expression tag	UNP P40337
I	52	SER	-	expression tag	UNP P40337
I	53	HIS	-	expression tag	UNP P40337
L	51	GLY	-	expression tag	UNP P40337
L	52	SER	-	expression tag	UNP P40337
L	53	HIS	-	expression tag	UNP P40337

- Molecule 4 is (4R)-4-HYDROXY-1-[(3-METHYLISOXAZOL-5-YL)ACETYL]-N-[4-(1,3-OXAZOL-5-YL)BENZYL]-L-PROLINAMIDE (three-letter code: L8B) (formula: C<sub>21</sub>H<sub>22</sub>N<sub>4</sub>O<sub>5</sub>).



Mol	Chain	Residues	Atoms				ZeroOcc	AltConf
4	C	1	Total	C	N	O	0	0
			30	21	4	5		
4	F	1	Total	C	N	O	0	0
			30	21	4	5		
4	I	1	Total	C	N	O	0	0
			30	21	4	5		
4	L	1	Total	C	N	O	0	0
			30	21	4	5		

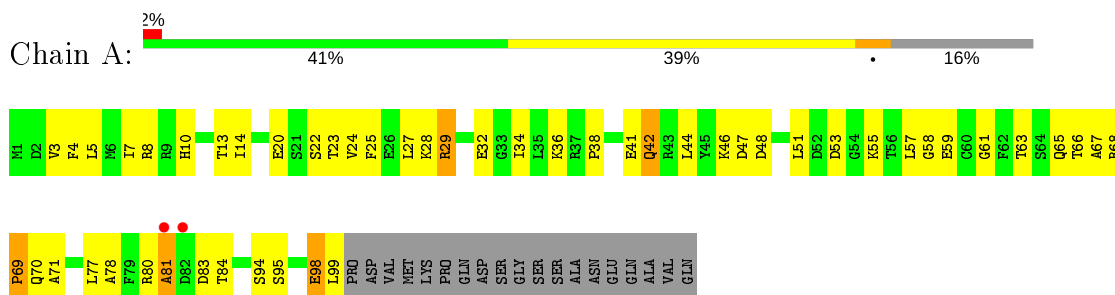
- Molecule 5 is water.

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
5	A	1	Total	O	0	0
			1	1		
5	C	2	Total	O	0	0
			2	2		
5	D	2	Total	O	0	0
			2	2		
5	G	1	Total	O	0	0
			1	1		
5	H	2	Total	O	0	0
			2	2		
5	I	1	Total	O	0	0
			1	1		
5	L	1	Total	O	0	0
			1	1		

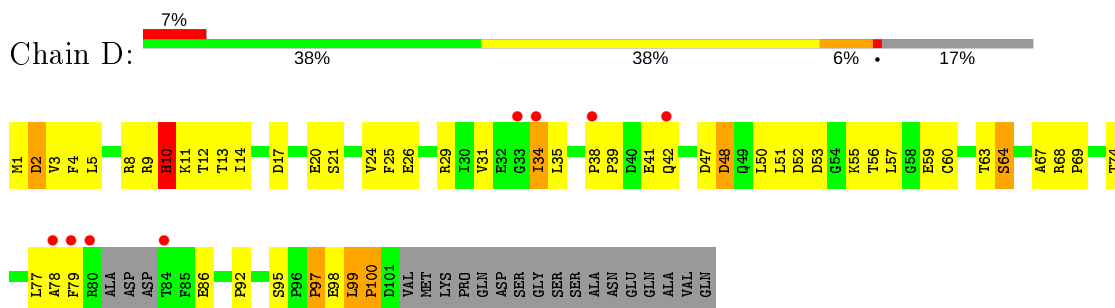
### 3 Residue-property plots [i](#)

These plots are drawn for all protein, RNA and DNA 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.

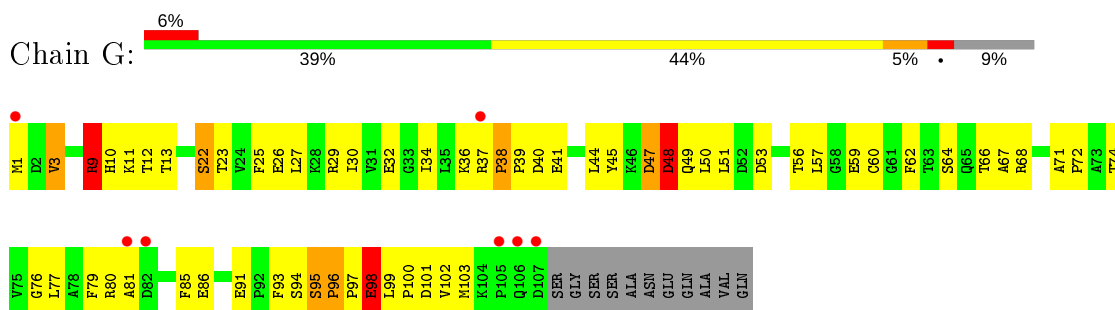
- Molecule 1: TRANSCRIPTION ELONGATION FACTOR B POLYPEPTIDE 2



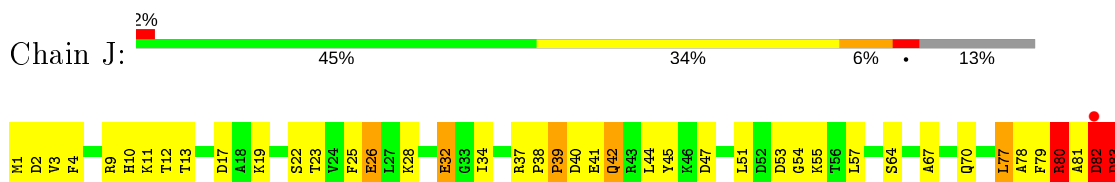
- Molecule 1: TRANSCRIPTION ELONGATION FACTOR B POLYPEPTIDE 2

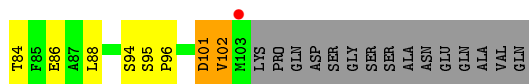


- Molecule 1: TRANSCRIPTION ELONGATION FACTOR B POLYPEPTIDE 2

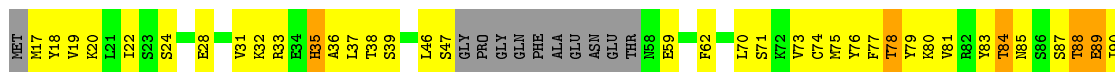


- Molecule 1: TRANSCRIPTION ELONGATION FACTOR B POLYPEPTIDE 2

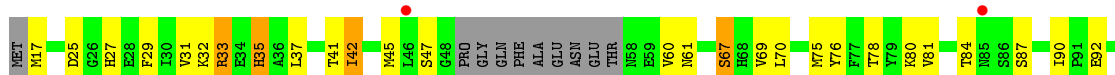




• Molecule 2: TRANSCRIPTION ELONGATION FACTOR B POLYPEPTIDE 1



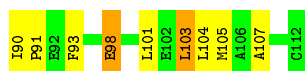
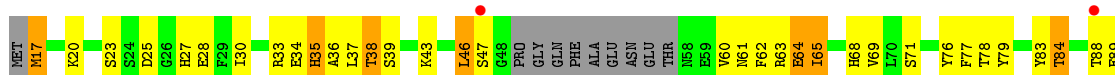
• Molecule 2: TRANSCRIPTION ELONGATION FACTOR B POLYPEPTIDE 1



• Molecule 2: TRANSCRIPTION ELONGATION FACTOR B POLYPEPTIDE 1



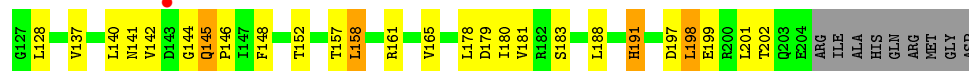
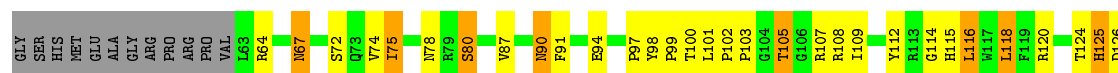
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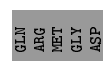
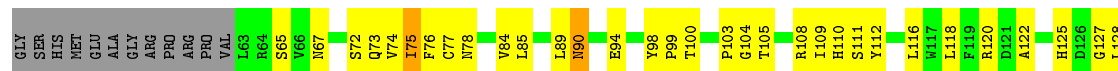
• Molecule 3: VON HIPPEL-LINDAU DISEASE TUMOR SUPPRESSOR



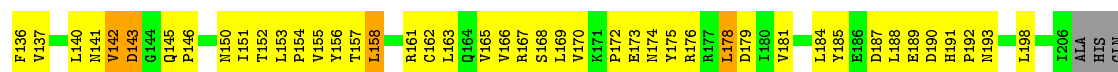
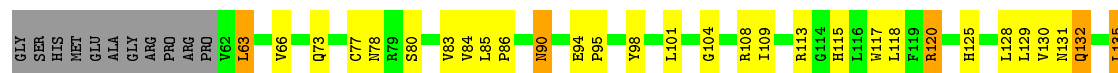




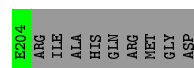
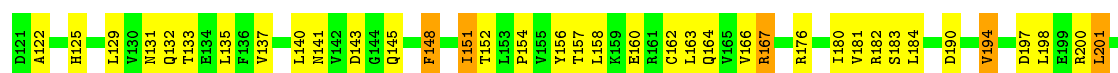
- Molecule 3: VON HIPPEL-LINDAU DISEASE TUMOR SUPPRESSOR



- Molecule 3: VON HIPPEL-LINDAU DISEASE TUMOR SUPPRESSOR



- Molecule 3: VON HIPPEL-LINDAU DISEASE TUMOR SUPPRESSOR



## 4 Data and refinement statistics

Property	Value	Source
Space group	P 41 2 2	Depositor
Cell constants a, b, c, $\alpha$ , $\beta$ , $\gamma$	93.74Å 93.74Å 363.18Å 90.00° 90.00° 90.00°	Depositor
Resolution (Å)	41.92 – 2.90 41.92 – 2.90	Depositor EDS
% Data completeness (in resolution range)	91.8 (41.92-2.90) 92.0 (41.92-2.90)	Depositor EDS
$R_{merge}$	0.12	Depositor
$R_{sym}$	(Not available)	Depositor
$\langle I/\sigma(I) \rangle$ <sup>1</sup>	2.19 (at 2.90Å)	Xtrriage
Refinement program	REFMAC 5.5.0109	Depositor
R, $R_{free}$	0.242 , 0.350 0.239 , 0.344	Depositor DCC
$R_{free}$ test set	1742 reflections (5.10%)	wwPDB-VP
Wilson B-factor (Å <sup>2</sup> )	51.0	Xtrriage
Anisotropy	0.276	Xtrriage
Bulk solvent $k_{sol}$ (e/Å <sup>3</sup> ), $B_{sol}$ (Å <sup>2</sup> )	0.34 , 59.5	EDS
L-test for twinning <sup>2</sup>	$\langle  L  \rangle = 0.40$ , $\langle L^2 \rangle = 0.22$	Xtrriage
Estimated twinning fraction	No twinning to report.	Xtrriage
$F_o, F_c$ correlation	0.90	EDS
Total number of atoms	10340	wwPDB-VP
Average B, all atoms (Å <sup>2</sup> )	39.0	wwPDB-VP

Xtrriage's analysis on translational NCS is as follows: *The analyses of the Patterson function reveals a significant off-origin peak that is 25.80 % of the origin peak, indicating pseudo-translational symmetry. The chance of finding a peak of this or larger height randomly in a structure without pseudo-translational symmetry is equal to 2.9627e-03. The detected translational NCS is most likely also responsible for the elevated intensity ratio.*

<sup>1</sup>Intensities estimated from amplitudes.

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

## 5 Model quality [i](#)

### 5.1 Standard geometry [i](#)

Bond lengths and bond angles in the following residue types are not validated in this section: L8B

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	0.77	0/747	0.90	0/1014
1	D	0.66	0/730	0.81	0/993
1	G	0.61	0/836	0.81	0/1134
1	J	0.74	0/817	1.00	2/1105 (0.2%)
2	B	0.76	0/677	0.88	1/917 (0.1%)
2	E	0.75	0/697	0.82	0/940
2	H	0.67	0/693	0.80	0/935
2	K	0.82	0/701	0.88	0/945
3	C	0.77	0/1071	0.96	2/1474 (0.1%)
3	F	0.78	0/1143	0.96	2/1566 (0.1%)
3	I	0.74	0/1166	0.92	0/1599
3	L	0.79	0/1167	0.95	3/1597 (0.2%)
All	All	0.74	0/10445	0.90	10/14219 (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	J	0	1
2	H	0	2
3	I	0	1
All	All	0	4

There are no bond length outliers.

The worst 5 of 10 bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	J	83	ASP	N-CA-C	-8.29	88.61	111.00

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
3	F	178	LEU	CA-CB-CG	6.83	131.01	115.30
3	F	140	LEU	CA-CB-CG	6.16	129.46	115.30
3	C	198	LEU	CA-CB-CG	-6.04	101.41	115.30
3	C	116	LEU	CA-CB-CG	5.76	128.56	115.30

There are no chirality outliers.

All (4) planarity outliers are listed below:

Mol	Chain	Res	Type	Group
2	H	111	ASP	Peptide
2	H	87	SER	Peptide
3	I	104	GLY	Peptide
1	J	82	ASP	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	733	0	701	31	0
1	D	716	0	667	38	0
1	G	819	0	791	57	1
1	J	801	0	789	42	0
2	B	663	0	637	39	0
2	E	683	0	680	30	0
2	H	679	0	677	54	0
2	K	687	0	684	37	1
3	C	1043	0	950	53	0
3	F	1113	0	1066	53	0
3	I	1136	0	1096	74	0
3	L	1137	0	1107	50	0
4	C	30	0	21	4	0
4	F	30	0	22	2	0
4	I	30	0	22	1	0
4	L	30	0	22	1	0
5	A	1	0	0	0	0
5	C	2	0	0	0	0
5	D	2	0	0	0	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
5	G	1	0	0	0	0
5	H	2	0	0	1	0
5	I	1	0	0	0	0
5	L	1	0	0	0	0
All	All	10340	0	9932	516	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 25.

The worst 5 of 516 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)
2:K:62:PHE:HB3	2:K:65:ILE:HD13	1.19	1.11
2:H:42:ILE:HG22	2:H:46:LEU:HD23	1.32	1.11
1:J:41:GLU:HG2	1:J:81:ALA:HB2	1.16	1.10
3:L:68:SER:O	3:L:69:ARG:HB2	1.60	1.01
3:C:78:ASN:ND2	3:C:103:PRO:HA	1.78	0.99

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)
1:G:101:ASP:OD2	2:K:33:ARG:NH1[1_655]	2.18	0.02

## 5.3 Torsion angles [i](#)

### 5.3.1 Protein backbone [i](#)

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

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

Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles
1	A	97/118 (82%)	79 (81%)	9 (9%)	9 (9%)	<b>0</b>   <b>1</b>
1	D	94/118 (80%)	80 (85%)	7 (7%)	7 (7%)	<b>1</b>   <b>2</b>

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
1	G	105/118 (89%)	76 (72%)	22 (21%)	7 (7%)	1	3
1	J	101/118 (86%)	82 (81%)	12 (12%)	7 (7%)	1	3
2	B	82/97 (84%)	70 (85%)	9 (11%)	3 (4%)	3	13
2	E	83/97 (86%)	64 (77%)	15 (18%)	4 (5%)	2	8
2	H	82/97 (84%)	65 (79%)	10 (12%)	7 (8%)	1	2
2	K	83/97 (86%)	64 (77%)	15 (18%)	4 (5%)	2	8
3	C	140/163 (86%)	110 (79%)	20 (14%)	10 (7%)	1	3
3	F	140/163 (86%)	115 (82%)	18 (13%)	7 (5%)	2	7
3	I	143/163 (88%)	113 (79%)	24 (17%)	6 (4%)	3	10
3	L	141/163 (86%)	108 (77%)	25 (18%)	8 (6%)	1	5
All	All	1291/1512 (85%)	1026 (80%)	186 (14%)	79 (6%)	1	4

5 of 79 Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	A	81	ALA
1	A	83	ASP
1	A	84	THR
1	A	98	GLU
2	B	37	LEU

### 5.3.2 Protein sidechains [i](#)

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

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

Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
1	A	75/103 (73%)	68 (91%)	7 (9%)	9	27
1	D	72/103 (70%)	64 (89%)	8 (11%)	6	19
1	G	87/103 (84%)	76 (87%)	11 (13%)	4	13
1	J	87/103 (84%)	76 (87%)	11 (13%)	4	13
2	B	71/86 (83%)	67 (94%)	4 (6%)	21	52
2	E	75/86 (87%)	68 (91%)	7 (9%)	9	27

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Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
2	H	75/86 (87%)	60 (80%)	15 (20%)	1	4
2	K	76/86 (88%)	63 (83%)	13 (17%)	2	6
3	C	103/149 (69%)	94 (91%)	9 (9%)	10	30
3	F	121/149 (81%)	109 (90%)	12 (10%)	8	24
3	I	124/149 (83%)	112 (90%)	12 (10%)	8	25
3	L	125/149 (84%)	114 (91%)	11 (9%)	10	30
All	All	1091/1352 (81%)	971 (89%)	120 (11%)	6	19

5 of 120 residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	G	68	ARG
2	H	63	ARG
3	L	72	SER
1	G	74	THR
2	H	21	LEU

Some sidechains can be flipped to improve hydrogen bonding and reduce clashes. 5 of 15 such sidechains are listed below:

Mol	Chain	Res	Type
2	H	27	HIS
2	H	35	HIS
3	L	132	GLN
3	F	174	ASN
2	K	27	HIS

### 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 carbohydrates in this entry.

## 5.6 Ligand geometry

4 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$
4	L8B	C	1205	-	28,33,33	2.65	10 (35%)	35,46,46	2.07	11 (31%)
4	L8B	F	1205	-	28,33,33	2.36	9 (32%)	35,46,46	1.58	7 (20%)
4	L8B	L	1205	-	28,33,33	1.85	5 (17%)	35,46,46	2.82	13 (37%)
4	L8B	I	1207	-	28,33,33	2.43	7 (25%)	35,46,46	1.88	10 (28%)

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
4	L8B	C	1205	-	-	0/17/33/33	0/4/4/4
4	L8B	F	1205	-	-	0/17/33/33	0/4/4/4
4	L8B	L	1205	-	-	0/17/33/33	0/4/4/4
4	L8B	I	1207	-	-	1/17/33/33	0/4/4/4

The worst 5 of 31 bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
4	L	1205	L8B	CAY-CBA	-7.00	1.34	1.46
4	C	1205	L8B	CAK-CAZ	-6.95	1.30	1.39
4	I	1207	L8B	CAK-CAZ	-6.84	1.30	1.39
4	F	1205	L8B	CAK-CAZ	-6.18	1.31	1.39
4	I	1207	L8B	CAY-CBA	-5.56	1.36	1.46

The worst 5 of 41 bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
4	L	1205	L8B	CAH-CAY-CBA	8.27	130.87	120.42
4	L	1205	L8B	CAG-CAY-CBA	-7.78	110.59	120.42

*Continued on next page...*



*Continued from previous page...*

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
4	L	1205	L8B	CAZ-CAM-CAU	-7.64	101.47	112.33
4	I	1207	L8B	CD2-N-CAU	-4.81	119.73	129.33
4	C	1205	L8B	CAZ-CAM-CAU	-4.45	106.00	112.33

There are no chirality outliers.

All (1) torsion outliers are listed below:

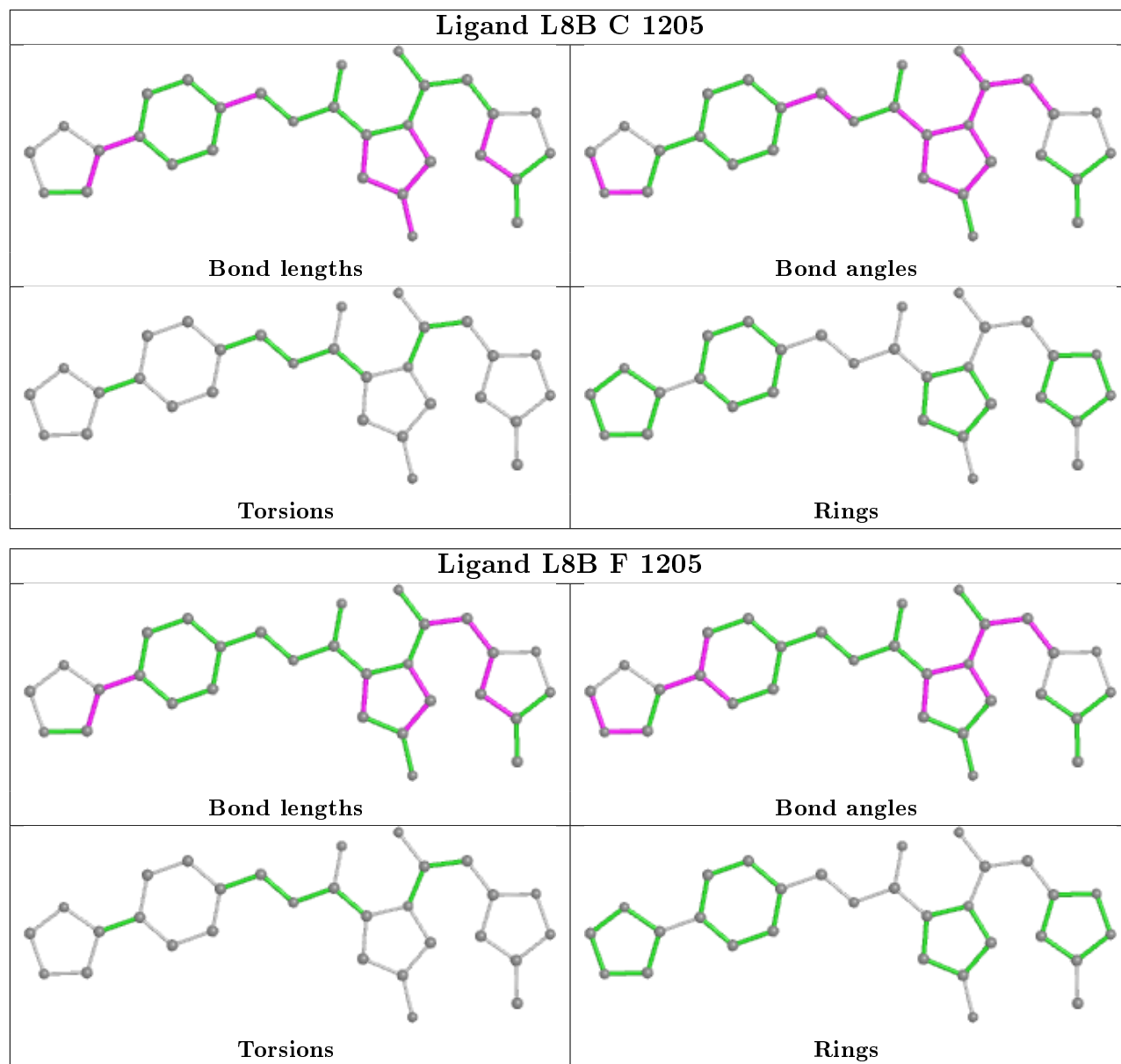
Mol	Chain	Res	Type	Atoms
4	I	1207	L8B	CAZ-CAM-CAU-OAB

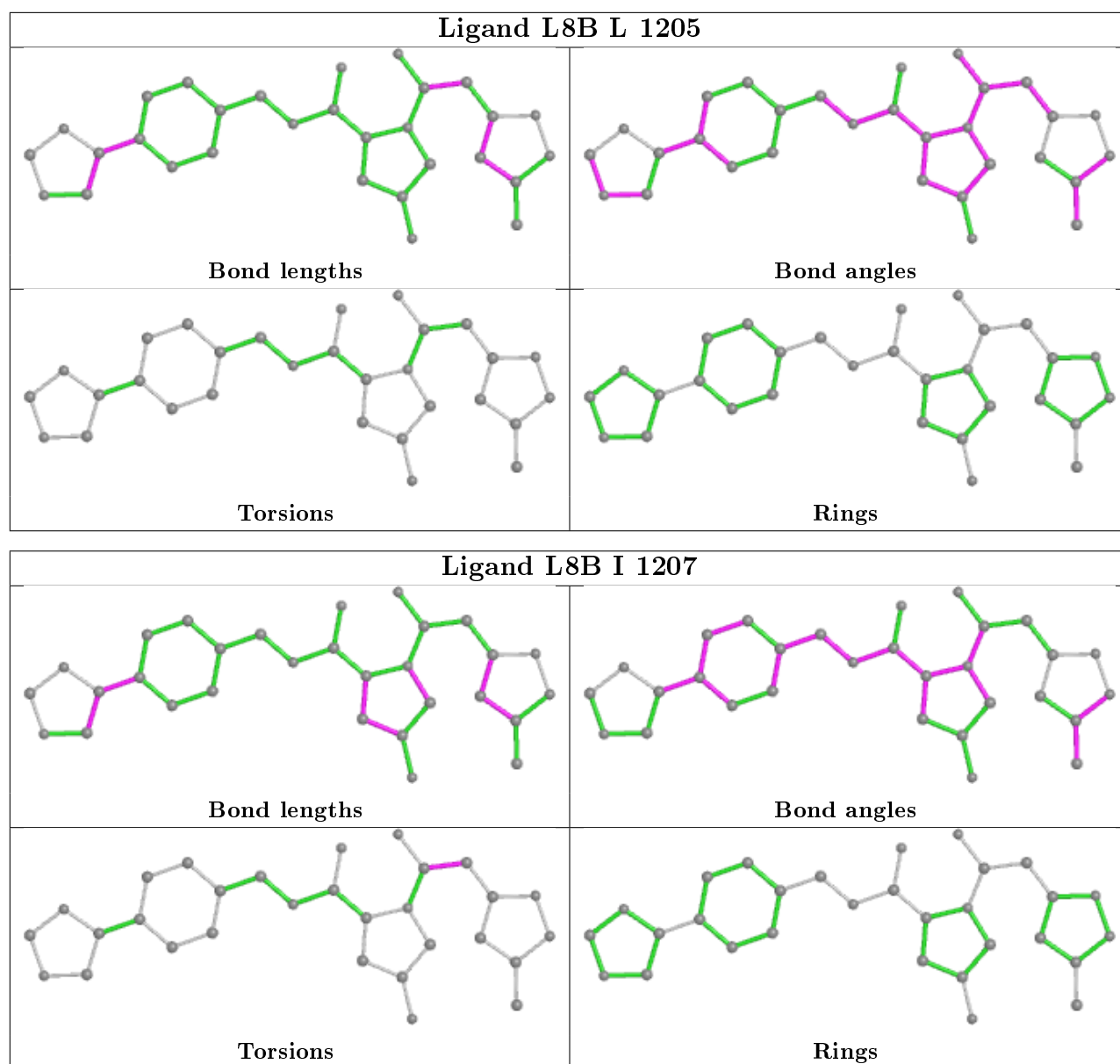
There are no ring outliers.

4 monomers are involved in 8 short contacts:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
4	C	1205	L8B	4	0
4	F	1205	L8B	2	0
4	L	1205	L8B	1	0
4	I	1207	L8B	1	0

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





## 5.7 Other polymers [i](#)

There are no such residues in this entry.

## 5.8 Polymer linkage issues [i](#)

There are no chain breaks in this entry.

## 6 Fit of model and data [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, 95<sup>th</sup> 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 <sup>2</sup> )	Q < 0.9
1	A	99/118 (83%)	-0.02	2 (2%) 65 63	16, 37, 53, 57	0
1	D	98/118 (83%)	0.33	8 (8%) 11 9	32, 50, 70, 74	0
1	G	107/118 (90%)	0.37	7 (6%) 18 14	31, 51, 68, 82	0
1	J	103/118 (87%)	0.02	2 (1%) 66 65	19, 38, 55, 75	0
2	B	86/97 (88%)	-0.14	0 100 100	18, 34, 46, 53	0
2	E	87/97 (89%)	0.10	2 (2%) 60 58	25, 40, 49, 57	0
2	H	86/97 (88%)	0.01	2 (2%) 60 58	30, 44, 55, 57	0
2	K	87/97 (89%)	-0.12	2 (2%) 60 58	20, 35, 53, 58	0
3	C	142/163 (87%)	-0.13	1 (0%) 87 87	16, 34, 54, 61	0
3	F	142/163 (87%)	-0.13	1 (0%) 87 87	16, 35, 57, 65	0
3	I	145/163 (88%)	-0.18	0 100 100	18, 36, 60, 64	0
3	L	143/163 (87%)	-0.15	0 100 100	9, 32, 53, 56	0
All	All	1325/1512 (87%)	-0.02	27 (2%) 65 63	9, 38, 60, 82	0

The worst 5 of 27 RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	G	107	ASP	7.3
1	G	106	GLN	5.0
1	G	82	ASP	4.5
1	D	38	PRO	3.7
1	J	103	MET	3.4

### 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](#)

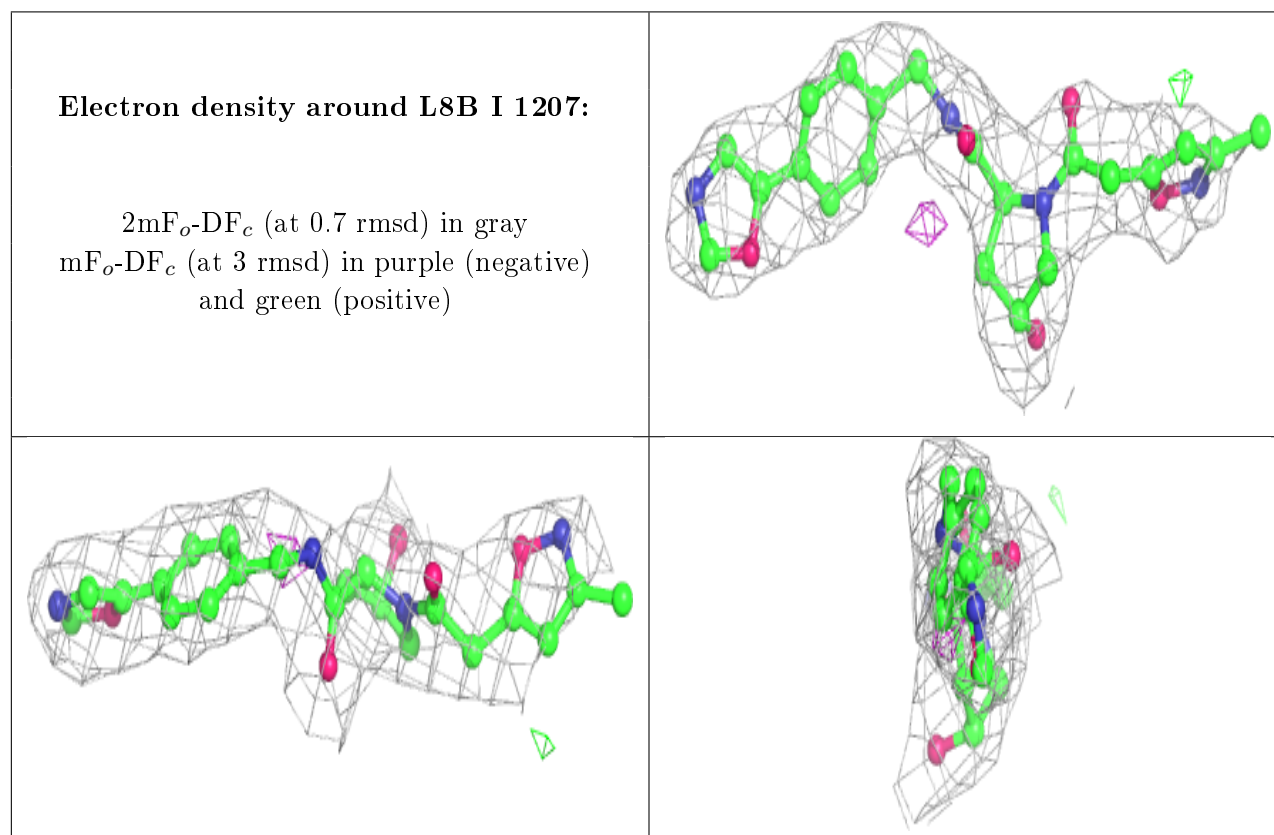
There are no carbohydrates in this entry.

### 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, 95<sup>th</sup> 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.

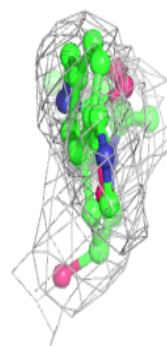
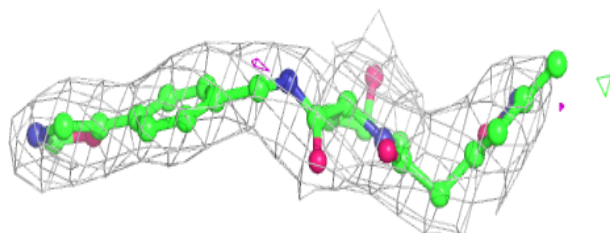
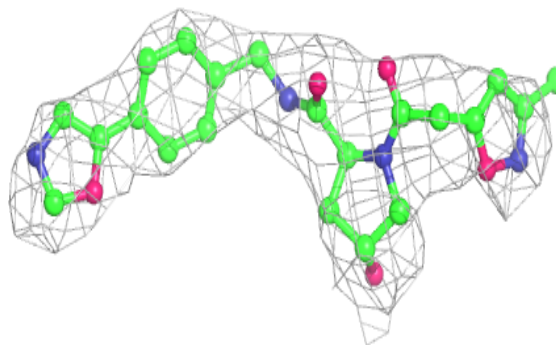
Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors( $\text{\AA}^2$ )	Q<0.9
4	L8B	I	1207	30/30	0.92	0.21	37,41,52,53	0
4	L8B	F	1205	30/30	0.93	0.20	39,43,52,53	0
4	L8B	C	1205	30/30	0.93	0.22	41,42,44,45	0
4	L8B	L	1205	30/30	0.95	0.20	22,28,38,38	0

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.

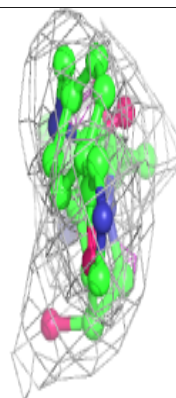
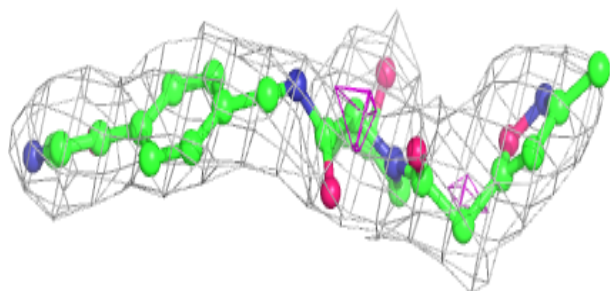
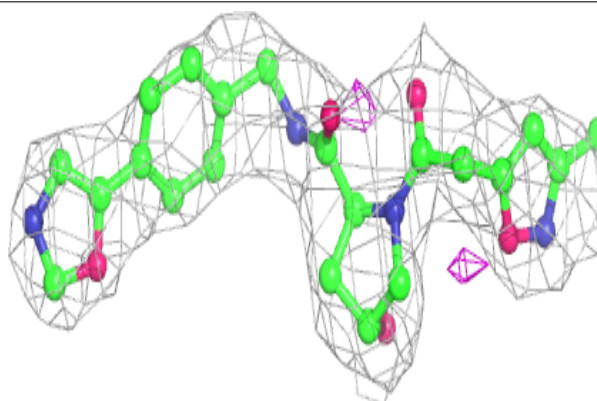


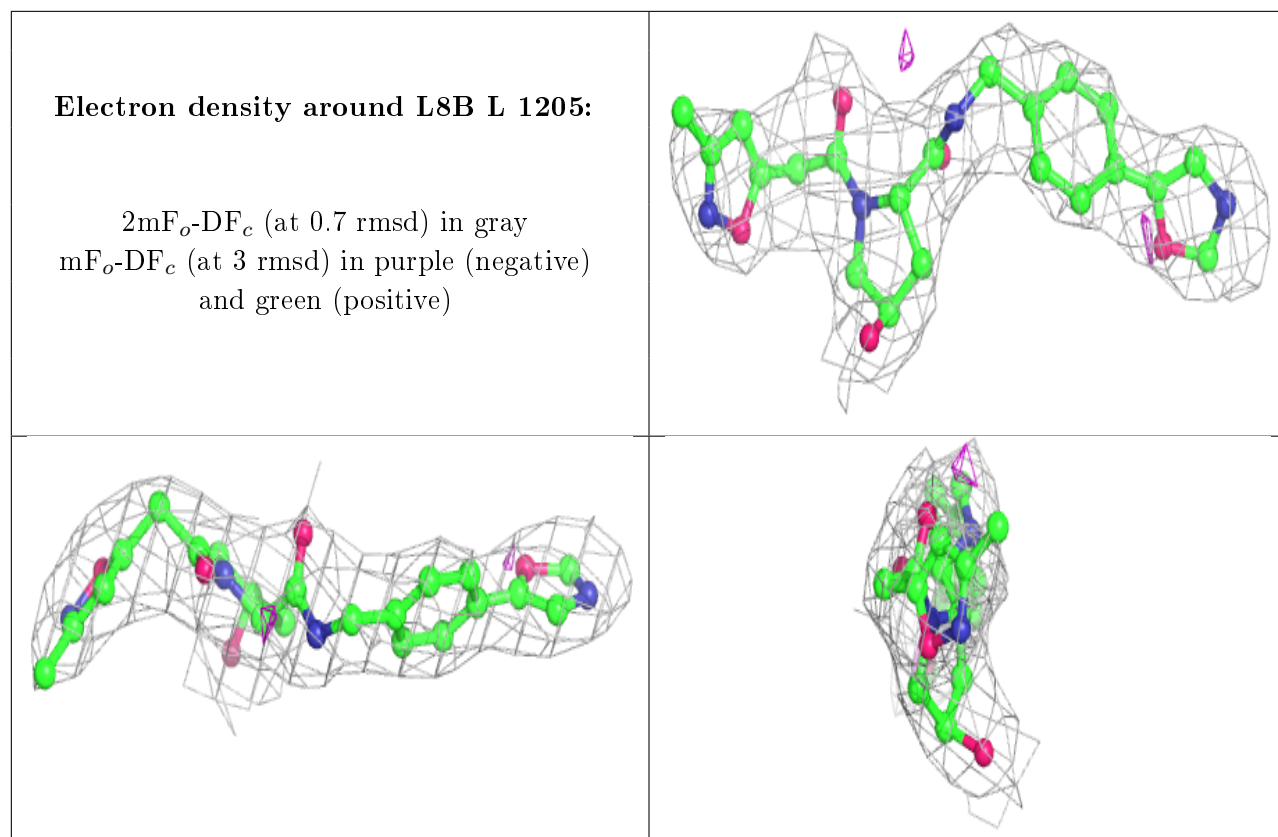
**Electron density around L8B F 1205:**

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

**Electron density around L8B C 1205:**

$2mF_o-DF_c$  (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.