



# Full wwPDB X-ray Structure Validation Report ⓘ

Nov 12, 2025 – 12:11 PM JST

PDB ID : 9L3S / pdb\_00009l3s  
Title : Staphylococcus aureus lipase-Penfluridol complex (in space)  
Authors : Kitadokoro, J.; Hirokawa, T.; Kamo, M.; Furubayasi, N.; Inaka, K.; Kamitani, S.; Kitadokoro, K.  
Deposited on : 2024-12-19  
Resolution : 2.57 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](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.

The types of validation reports are described at

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

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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 : 1.8.5 (274361), CSD as541be (2020)  
Xtriage (Phenix) : 2.0  
EDS : 3.0  
buster-report : 1.1.7 (2018)  
Percentile statistics : 20231227.v01 (using entries in the PDB archive December 27th 2023)  
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) : 2.46

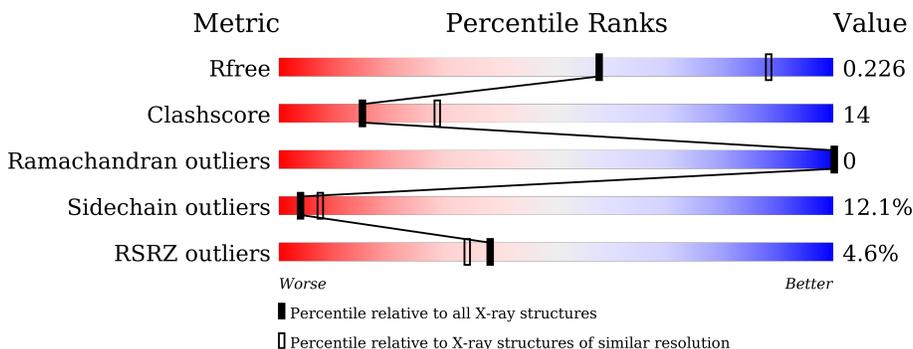
# 1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

*X-RAY DIFFRACTION*

The reported resolution of this entry is 2.57 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))
$R_{free}$	164625	4456 (2.60-2.56)
Clashscore	180529	4905 (2.60-2.56)
Ramachandran outliers	177936	4847 (2.60-2.56)
Sidechain outliers	177891	4847 (2.60-2.56)
RSRZ outliers	164620	4456 (2.60-2.56)

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  $\geq 3$ , 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	408	 3% 68% 21% •• 6%
1	B	408	 5% 68% 21% •• 6%

The following table lists non-polymeric compounds, carbohydrate monomers and non-standard residues in protein, DNA, RNA chains that are outliers for geometric or electron-density-fit criteria:

Mol	Type	Chain	Res	Chirality	Geometry	Clashes	Electron density
12	11A	B	404	-	-	-	X
2	OCA	A	413	-	-	-	X
3	PPI	A	402	-	-	-	X
6	FMT	B	407	-	-	X	-

## 2 Entry composition i

There are 12 unique types of molecules in this entry. The entry contains 6269 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 Lipase 2.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
1	A	382	3024	1925	527	563	9	0	0	0
1	B	382	3024	1925	527	563	9	0	0	0

There are 26 discrepancies between the modelled and reference sequences:

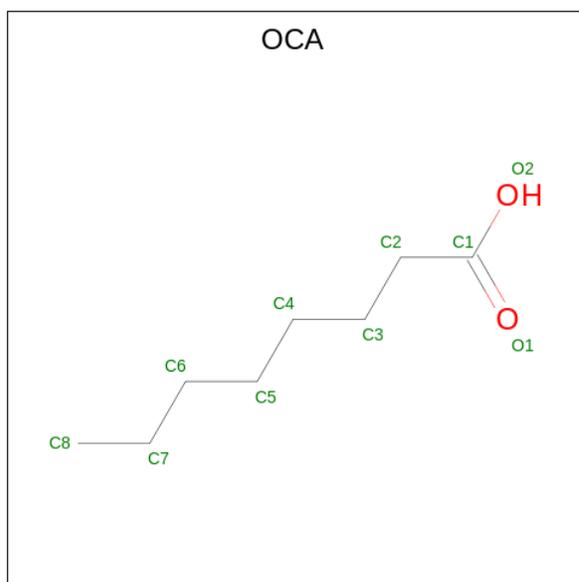
Chain	Residue	Modelled	Actual	Comment	Reference
A	-13	MET	-	expression tag	UNP A0A0U1MWF9
A	-12	ASN	-	expression tag	UNP A0A0U1MWF9
A	-11	HIS	-	expression tag	UNP A0A0U1MWF9
A	-10	LYS	-	expression tag	UNP A0A0U1MWF9
A	-9	VAL	-	expression tag	UNP A0A0U1MWF9
A	-8	HIS	-	expression tag	UNP A0A0U1MWF9
A	-7	HIS	-	expression tag	UNP A0A0U1MWF9
A	-6	HIS	-	expression tag	UNP A0A0U1MWF9
A	-5	HIS	-	expression tag	UNP A0A0U1MWF9
A	-4	HIS	-	expression tag	UNP A0A0U1MWF9
A	-3	HIS	-	expression tag	UNP A0A0U1MWF9
A	-2	MET	-	expression tag	UNP A0A0U1MWF9
A	68	GLN	GLU	conflict	UNP A0A0U1MWF9
B	-13	MET	-	expression tag	UNP A0A0U1MWF9
B	-12	ASN	-	expression tag	UNP A0A0U1MWF9
B	-11	HIS	-	expression tag	UNP A0A0U1MWF9
B	-10	LYS	-	expression tag	UNP A0A0U1MWF9
B	-9	VAL	-	expression tag	UNP A0A0U1MWF9
B	-8	HIS	-	expression tag	UNP A0A0U1MWF9
B	-7	HIS	-	expression tag	UNP A0A0U1MWF9
B	-6	HIS	-	expression tag	UNP A0A0U1MWF9
B	-5	HIS	-	expression tag	UNP A0A0U1MWF9
B	-4	HIS	-	expression tag	UNP A0A0U1MWF9
B	-3	HIS	-	expression tag	UNP A0A0U1MWF9
B	-2	MET	-	expression tag	UNP A0A0U1MWF9

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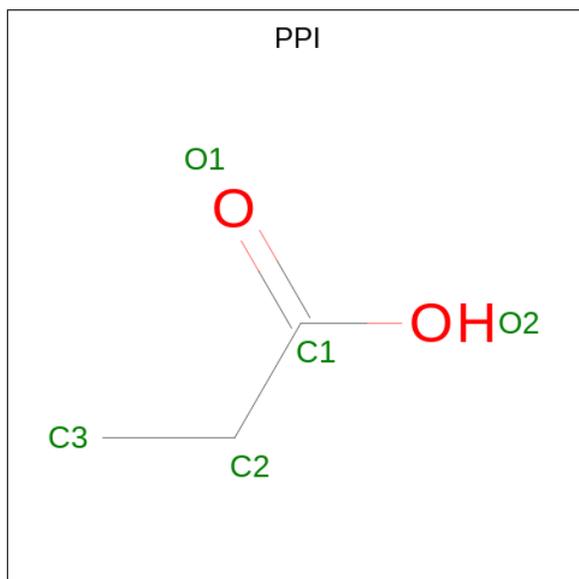
Chain	Residue	Modelled	Actual	Comment	Reference
B	68	GLN	GLU	conflict	UNP A0A0U1MWF9

- Molecule 2 is OCTANOIC ACID (CAPRYLIC ACID) (CCD ID: OCA) (formula:  $C_8H_{16}O_2$ ).



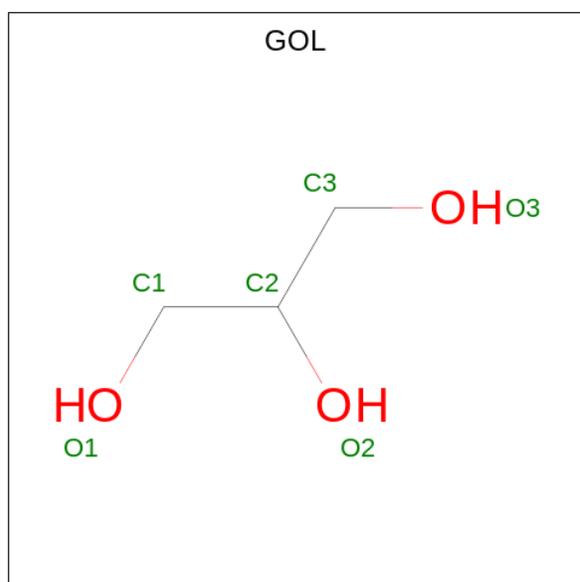
Mol	Chain	Residues	Atoms			ZeroOcc	AltConf
			Total	C	O		
2	A	1	10	8	2	0	0
2	A	1	10	8	2	0	0

- Molecule 3 is PROPANOIC ACID (CCD ID: PPI) (formula:  $C_3H_6O_2$ ).



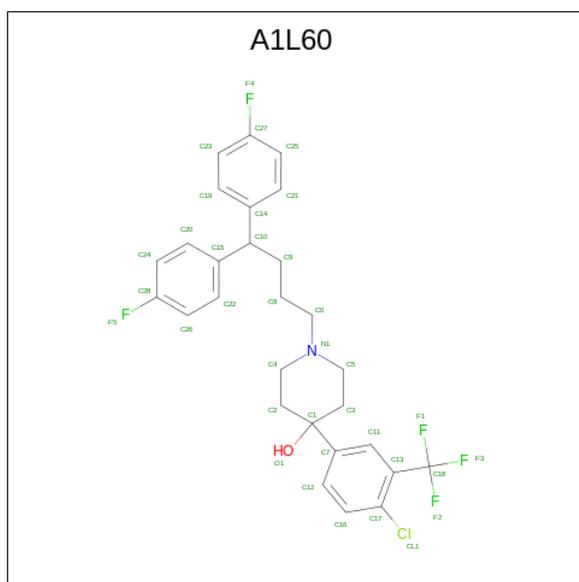
Mol	Chain	Residues	Atoms			ZeroOcc	AltConf
3	A	1	Total	C	O	0	0
			5	3	2		
3	A	1	Total	C	O	0	0
			5	3	2		
3	A	1	Total	C	O	0	0
			5	3	2		
3	B	1	Total	C	O	0	0
			5	3	2		

- Molecule 4 is GLYCEROL (CCD ID: GOL) (formula:  $C_3H_8O_3$ ).



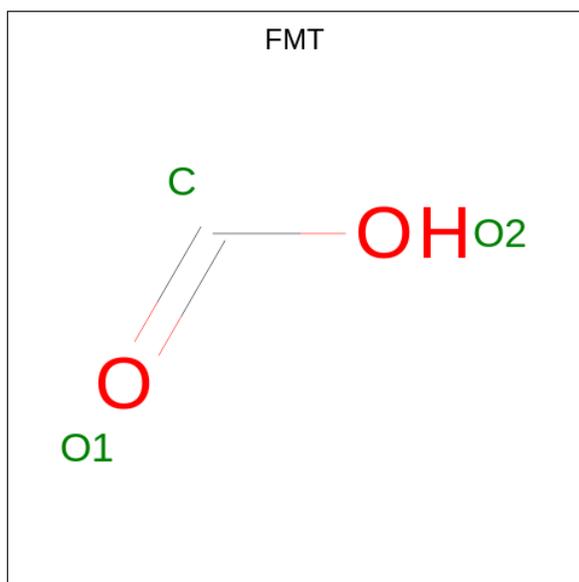
Mol	Chain	Residues	Atoms			ZeroOcc	AltConf
4	A	1	Total	C	O	0	0
			6	3	3		
4	B	1	Total	C	O	0	0
			6	3	3		

- Molecule 5 is Penfluridol (CCD ID: A1L60) (formula:  $C_{28}H_{27}ClF_5NO$ ).



Mol	Chain	Residues	Atoms					ZeroOcc	AltConf		
			Total	C	Cl	F	N			O	
5	A	1	Total	36	28	1	5	1	1	0	0
5	B	1	Total	36	28	1	5	1	1	0	0

- Molecule 6 is FORMIC ACID (CCD ID: FMT) (formula: CH<sub>2</sub>O<sub>2</sub>).



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

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

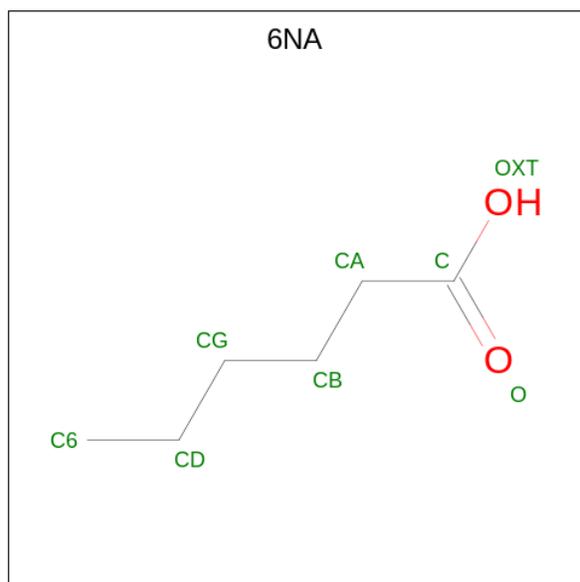
- Molecule 7 is ZINC ION (CCD ID: ZN) (formula: Zn).

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
7	A	1	Total	Zn	0	0
			1	1		
7	B	1	Total	Zn	0	0
			1	1		

- Molecule 8 is CALCIUM ION (CCD ID: CA) (formula: Ca).

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
8	A	1	Total	Ca	0	0
			1	1		
8	B	1	Total	Ca	0	0
			1	1		

- Molecule 9 is HEXANOIC ACID (CCD ID: 6NA) (formula: C<sub>6</sub>H<sub>12</sub>O<sub>2</sub>).



Mol	Chain	Residues	Atoms			ZeroOcc	AltConf
9	A	1	Total	C	O	0	0
			8	6	2		

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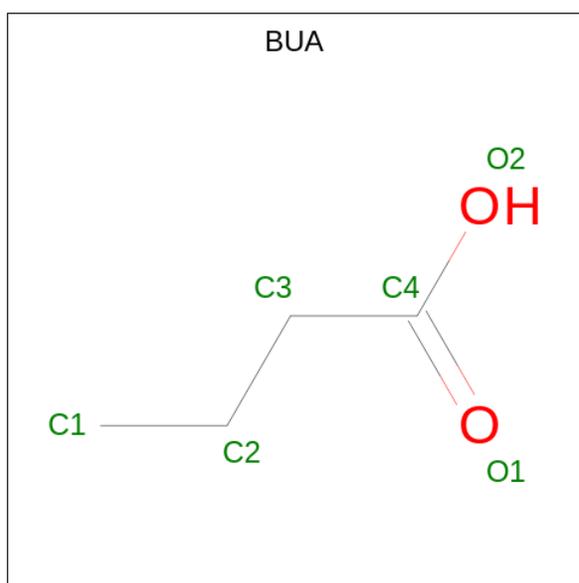
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Mol	Chain	Residues	Atoms			ZeroOcc	AltConf
9	B	1	Total	C	O	0	0
			8	6	2		

- Molecule 10 is CHLORIDE ION (CCD ID: CL) (formula: Cl).

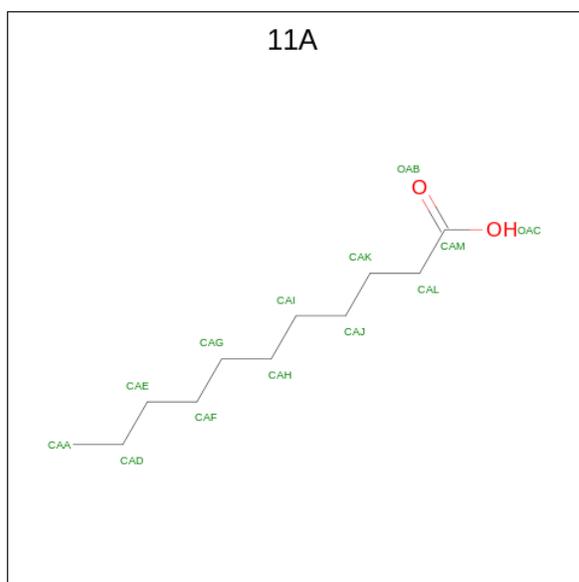
Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
10	A	3	Total	Cl	0	0
			3	3		
10	B	1	Total	Cl	0	0
			1	1		

- Molecule 11 is butanoic acid (CCD ID: BUA) (formula: C<sub>4</sub>H<sub>8</sub>O<sub>2</sub>).



Mol	Chain	Residues	Atoms			ZeroOcc	AltConf
11	A	1	Total	C	O	0	0
			6	4	2		
11	B	1	Total	C	O	0	0
			6	4	2		
11	B	1	Total	C	O	0	0
			6	4	2		
11	B	1	Total	C	O	0	0
			6	4	2		
11	B	1	Total	C	O	0	0
			6	4	2		

- Molecule 12 is UNDECANOIC ACID (CCD ID: 11A) (formula: C<sub>11</sub>H<sub>22</sub>O<sub>2</sub>).

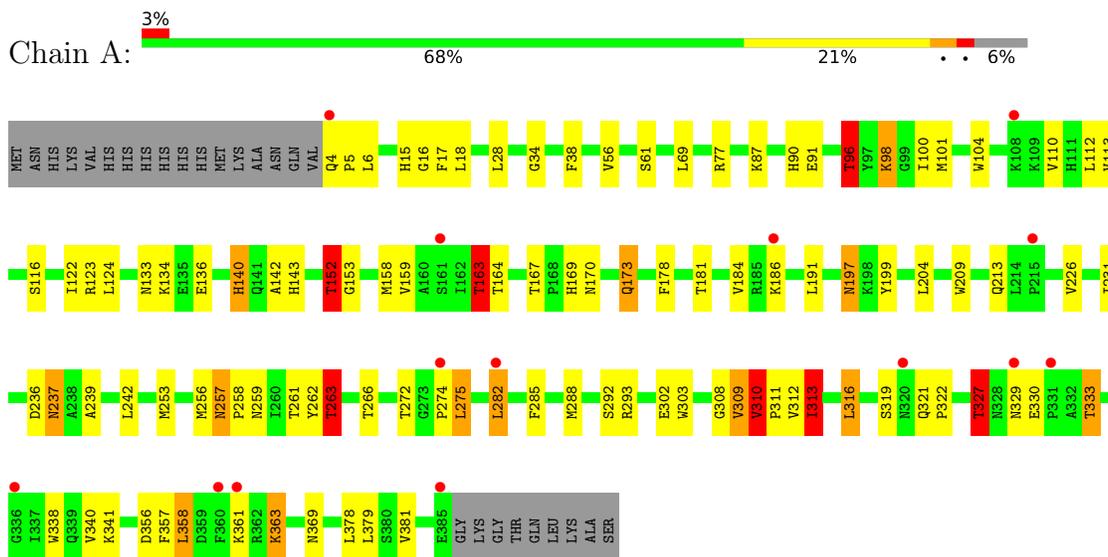


Mol	Chain	Residues	Atoms			ZeroOcc	AltConf
12	B	1	Total	C	O	0	0
			13	11	2		
12	B	1	Total	C	O	0	0
			13	11	2		

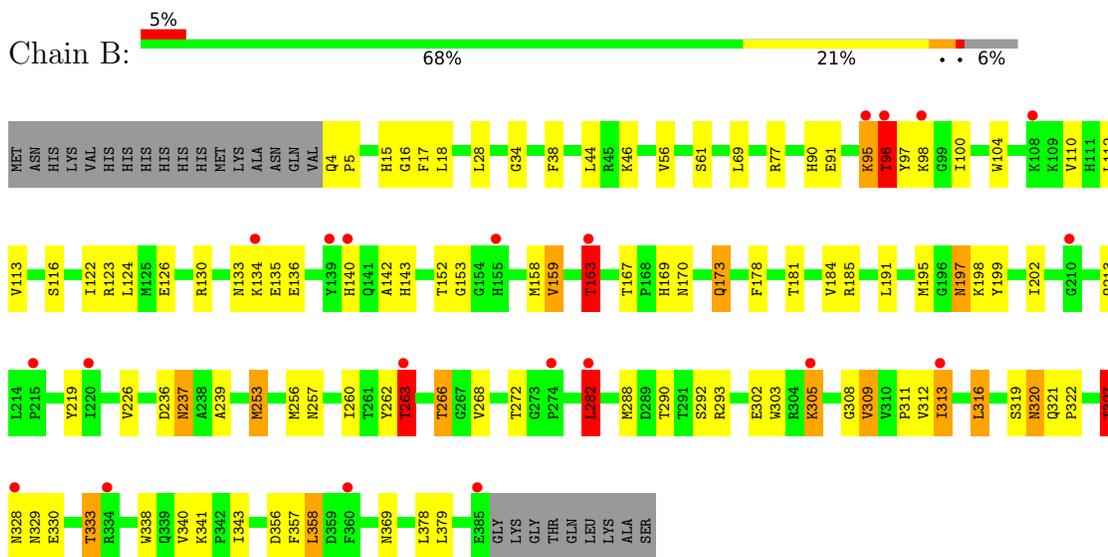
### 3 Residue-property plots [i](#)

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: Lipase 2



- Molecule 1: Lipase 2



## 4 Data and refinement statistics

Property	Value	Source
Space group	P 41 2 2	Depositor
Cell constants a, b, c, $\alpha$ , $\beta$ , $\gamma$	127.30Å 127.30Å 255.41Å 90.00° 90.00° 90.00°	Depositor
Resolution (Å)	47.41 – 2.57 47.41 – 2.57	Depositor EDS
% Data completeness (in resolution range)	99.2 (47.41-2.57) 99.3 (47.41-2.57)	Depositor EDS
$R_{merge}$	0.06	Depositor
$R_{sym}$	(Not available)	Depositor
$\langle I/\sigma(I) \rangle$ <sup>1</sup>	1.37 (at 2.58Å)	Xtrriage
Refinement program	REFMAC 5.8.0419	Depositor
R, $R_{free}$	0.198 , 0.227 0.198 , 0.226	Depositor DCC
$R_{free}$ test set	3358 reflections (5.00%)	wwPDB-VP
Wilson B-factor (Å <sup>2</sup> )	86.9	Xtrriage
Anisotropy	0.121	Xtrriage
Bulk solvent $k_{sol}$ (e/Å <sup>3</sup> ), $B_{sol}$ (Å <sup>2</sup> )	0.37 , 75.0	EDS
L-test for twinning <sup>2</sup>	$\langle  L  \rangle = 0.50$ , $\langle L^2 \rangle = 0.33$	Xtrriage
Estimated twinning fraction	No twinning to report.	Xtrriage
$F_o, F_c$ correlation	0.96	EDS
Total number of atoms	6269	wwPDB-VP
Average B, all atoms (Å <sup>2</sup> )	91.0	wwPDB-VP

Xtrriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 2.43% of the height of the origin peak. No significant pseudotranslation is detected.*

<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: CA, ZN, 6NA, PPI, BUA, GOL, 11A, CL, FMT, OCA, A1L60

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	0.56	0/3106	1.24	18/4212 (0.4%)
1	B	0.53	0/3106	1.19	17/4212 (0.4%)
All	All	0.55	0/6212	1.22	35/8424 (0.4%)

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
1	B	0	2
All	All	0	3

There are no bond length outliers.

All (35) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	A	152	THR	CA-CB-OG1	-11.78	91.93	109.60
1	A	327	THR	CA-CB-OG1	-7.70	98.05	109.60
1	A	310	VAL	CB-CA-C	7.55	117.45	110.13
1	A	309	VAL	CA-C-N	-7.46	116.84	123.33
1	A	309	VAL	C-N-CA	-7.46	116.84	123.33
1	B	163	THR	CB-CA-C	7.35	121.46	110.14
1	B	309	VAL	CA-C-N	-6.74	117.47	123.33
1	B	309	VAL	C-N-CA	-6.74	117.47	123.33
1	A	163	THR	CB-CA-C	6.64	121.28	109.65
1	A	333	THR	CB-CA-C	6.63	120.14	109.27
1	B	327	THR	CA-CB-OG1	-6.52	99.82	109.60
1	B	356	ASP	CA-CB-CG	6.47	119.07	112.60

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	B	333	THR	CB-CA-C	6.24	119.51	109.27
1	A	356	ASP	CA-CB-CG	6.05	118.66	112.60
1	A	96	THR	CB-CA-C	6.03	120.89	109.37
1	B	98	LYS	CB-CA-C	5.97	120.36	110.81
1	A	263	THR	CB-CA-C	5.90	121.35	109.38
1	B	290	THR	CA-CB-OG1	-5.78	100.94	109.60
1	A	266	THR	CA-C-N	-5.68	118.26	122.18
1	A	266	THR	C-N-CA	-5.68	118.26	122.18
1	A	263	THR	CA-CB-OG1	-5.56	101.27	109.60
1	B	95	LYS	CA-C-N	-5.52	115.21	122.99
1	B	95	LYS	C-N-CA	-5.52	115.21	122.99
1	B	282	LEU	CA-C-N	-5.50	117.47	123.30
1	B	282	LEU	C-N-CA	-5.50	117.47	123.30
1	B	263	THR	CB-CA-C	5.49	120.51	109.38
1	A	310	VAL	N-CA-CB	5.45	118.15	112.37
1	B	266	THR	CA-C-N	-5.38	118.47	122.18
1	B	266	THR	C-N-CA	-5.38	118.47	122.18
1	B	96	THR	CB-CA-C	5.38	119.55	109.71
1	A	140	HIS	CB-CA-C	5.22	121.22	110.31
1	A	282	LEU	CA-C-N	-5.20	117.25	123.44
1	A	282	LEU	C-N-CA	-5.20	117.25	123.44
1	B	263	THR	CA-CB-OG1	-5.14	101.89	109.60
1	A	313	ILE	N-CA-CB	5.12	116.87	110.47

There are no chirality outliers.

All (3) planarity outliers are listed below:

Mol	Chain	Res	Type	Group
1	A	293	ARG	Sidechain
1	B	185	ARG	Sidechain
1	B	293	ARG	Sidechain

## 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	3024	0	2919	77	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
1	B	3024	0	2919	85	0
2	A	20	0	30	2	0
3	A	20	0	20	0	0
3	B	5	0	5	0	0
4	A	6	0	8	0	0
4	B	6	0	8	0	0
5	A	36	0	0	1	0
5	B	36	0	0	1	0
6	A	6	0	4	0	0
6	B	6	0	2	3	0
7	A	1	0	0	0	0
7	B	1	0	0	0	0
8	A	1	0	0	0	0
8	B	1	0	0	0	0
9	A	8	0	11	0	0
9	B	8	0	11	1	0
10	A	3	0	0	0	0
10	B	1	0	0	0	0
11	A	6	0	7	0	0
11	B	24	0	28	0	0
12	B	26	0	42	7	0
All	All	6269	0	6014	166	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 14.

All (166) 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:A:313:ILE:H	1:A:313:ILE:HD13	1.02	1.15
1:B:313:ILE:HD13	1:B:313:ILE:H	1.04	1.12
1:A:173:GLN:HE22	1:A:311:PRO:HG3	1.22	1.01
1:B:268:VAL:HG23	1:B:343:ILE:HG21	1.44	0.99
1:A:173:GLN:HE21	1:A:173:GLN:H	0.99	0.97
1:A:313:ILE:H	1:A:313:ILE:CD1	1.77	0.97
1:B:173:GLN:HE22	1:B:311:PRO:HG3	1.26	0.97
1:B:282:LEU:H	1:B:282:LEU:HD22	1.31	0.96
1:B:313:ILE:H	1:B:313:ILE:CD1	1.78	0.95
1:B:313:ILE:HD13	1:B:313:ILE:N	1.81	0.94
1:B:173:GLN:HE21	1:B:173:GLN:H	0.98	0.94
1:A:313:ILE:HD13	1:A:313:ILE:N	1.80	0.94

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:197:ASN:HD22	1:A:199:TYR:H	1.25	0.85
1:B:268:VAL:HG23	1:B:343:ILE:CG2	2.08	0.84
1:B:197:ASN:HD22	1:B:199:TYR:H	1.24	0.83
1:A:257:ASN:ND2	1:A:259:ASN:H	1.78	0.82
1:A:327:THR:HB	1:A:330:GLU:HG2	1.62	0.81
1:B:173:GLN:H	1:B:173:GLN:NE2	1.79	0.80
1:A:173:GLN:H	1:A:173:GLN:NE2	1.79	0.80
1:A:257:ASN:C	1:A:257:ASN:HD22	1.92	0.78
1:A:327:THR:HG22	1:A:329:ASN:H	1.49	0.77
1:B:327:THR:HG22	1:B:329:ASN:H	1.49	0.77
1:A:133:ASN:ND2	1:A:136:GLU:HG2	2.01	0.75
1:B:282:LEU:HD22	1:B:282:LEU:N	2.01	0.74
1:A:302:GLU:O	1:A:313:ILE:HD12	1.88	0.74
1:B:170:ASN:HD21	1:B:319:SER:H	1.33	0.74
1:B:302:GLU:O	1:B:313:ILE:HD12	1.87	0.74
1:A:170:ASN:HD21	1:A:319:SER:H	1.34	0.73
1:B:15:HIS:HE1	1:B:56:VAL:H	1.36	0.73
1:A:256:MET:HE1	1:A:321:GLN:OE1	1.89	0.73
1:A:257:ASN:HD22	1:A:259:ASN:H	1.34	0.73
1:A:15:HIS:HE1	1:A:56:VAL:H	1.34	0.72
1:B:268:VAL:CG2	1:B:343:ILE:HG21	2.18	0.72
1:A:327:THR:HG22	1:A:330:GLU:H	1.55	0.72
1:B:133:ASN:ND2	1:B:136:GLU:HG2	2.05	0.71
1:A:123:ARG:HH11	1:A:169:HIS:HD2	1.37	0.71
1:B:197:ASN:ND2	1:B:199:TYR:H	1.89	0.70
1:A:173:GLN:NE2	1:A:311:PRO:HG3	2.04	0.70
1:B:327:THR:HG22	1:B:330:GLU:H	1.55	0.70
1:B:123:ARG:HH11	1:B:169:HIS:HD2	1.40	0.69
1:A:303:TRP:HA	1:A:313:ILE:HD11	1.75	0.69
1:B:303:TRP:HA	1:B:313:ILE:HD11	1.74	0.68
1:B:357:PHE:CE1	1:B:358:LEU:HD13	2.28	0.68
1:A:197:ASN:ND2	1:A:199:TYR:H	1.91	0.67
1:B:163:THR:HB	1:B:263:THR:HG23	1.75	0.67
1:A:163:THR:HB	1:A:263:THR:HG23	1.77	0.66
1:A:15:HIS:CE1	1:A:56:VAL:H	2.14	0.65
1:A:4:GLN:HB3	1:A:5:PRO:HD3	1.79	0.65
1:A:357:PHE:CE1	1:A:358:LEU:HD13	2.31	0.65
1:B:173:GLN:NE2	1:B:311:PRO:HG3	2.08	0.64
1:B:198:LYS:NZ	12:B:405:11A:HAA1	2.13	0.63
1:A:292:SER:HB2	1:A:308:GLY:HA2	1.79	0.63
1:A:173:GLN:HE21	1:A:173:GLN:N	1.83	0.62

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:292:SER:HB2	1:B:308:GLY:HA2	1.81	0.62
1:B:357:PHE:CD1	1:B:358:LEU:HD13	2.35	0.62
1:B:357:PHE:HE2	5:B:406:A1L60:F4	1.73	0.61
1:B:15:HIS:CE1	1:B:56:VAL:H	2.16	0.61
1:B:320:ASN:HD22	1:B:321:GLN:HG3	1.65	0.61
1:A:34:GLY:HA3	1:A:38:PHE:O	2.00	0.61
1:A:242:LEU:HD13	5:A:406:A1L60:CL1	2.38	0.60
1:B:34:GLY:HA3	1:B:38:PHE:O	2.02	0.60
1:A:357:PHE:CD1	1:A:358:LEU:HD13	2.37	0.59
1:A:327:THR:CG2	1:A:329:ASN:H	2.15	0.59
1:B:327:THR:CG2	1:B:329:ASN:H	2.15	0.59
1:B:305:LYS:HE3	1:B:305:LYS:H	1.67	0.58
1:B:123:ARG:NH1	1:B:169:HIS:HD2	2.02	0.58
1:B:320:ASN:ND2	1:B:321:GLN:HG3	2.18	0.58
1:B:130:ARG:NH1	1:B:257:ASN:HB2	2.19	0.58
1:B:4:GLN:HB2	1:B:5:PRO:HD3	1.86	0.58
1:A:170:ASN:HD21	1:A:319:SER:N	2.01	0.57
1:A:123:ARG:NH1	1:A:169:HIS:HD2	2.02	0.57
1:B:302:GLU:O	1:B:313:ILE:CD1	2.53	0.57
1:B:173:GLN:HE21	1:B:173:GLN:N	1.82	0.57
1:B:320:ASN:HD22	1:B:320:ASN:C	2.13	0.56
1:A:197:ASN:HA	1:A:213:GLN:HE21	1.72	0.55
1:B:126:GLU:OE1	1:B:130:ARG:NH1	2.39	0.55
1:A:98:LYS:O	1:A:98:LYS:HE2	2.07	0.55
1:B:17:PHE:H	6:B:407:FMT:H	1.72	0.55
1:A:90:HIS:HD2	1:A:91:GLU:O	1.90	0.55
1:B:142:ALA:HB3	1:B:143:HIS:HD2	1.72	0.55
1:B:90:HIS:HD2	1:B:91:GLU:O	1.90	0.55
1:B:15:HIS:HD2	1:B:16:GLY:O	1.91	0.54
12:B:404:11A:HAA1	9:B:412:6NA:H6C1	1.88	0.54
1:A:15:HIS:HD2	1:A:16:GLY:O	1.91	0.54
1:B:17:PHE:N	6:B:407:FMT:H	2.23	0.53
1:B:170:ASN:HD21	1:B:319:SER:N	2.04	0.53
1:B:327:THR:HG22	1:B:329:ASN:N	2.22	0.53
1:B:197:ASN:HA	1:B:213:GLN:HE21	1.72	0.53
1:B:262:TYR:HB3	1:B:338:TRP:CE3	2.44	0.53
1:B:312:VAL:HG12	1:B:316:LEU:CD2	2.39	0.53
1:A:152:THR:HG22	1:A:153:GLY:O	2.09	0.53
1:A:237:ASN:HD22	1:A:239:ALA:H	1.55	0.53
1:A:302:GLU:O	1:A:313:ILE:CD1	2.57	0.53
1:B:198:LYS:HZ1	12:B:405:11A:HAA1	1.73	0.53

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:170:ASN:ND2	1:B:319:SER:H	2.05	0.52
1:A:262:TYR:HB3	1:A:338:TRP:CE3	2.45	0.52
1:A:133:ASN:HD22	1:A:136:GLU:HG2	1.71	0.52
1:B:133:ASN:HD22	1:B:136:GLU:HG2	1.74	0.52
1:B:266:THR:HG21	1:B:312:VAL:HG13	1.92	0.51
1:B:312:VAL:HG12	1:B:316:LEU:HD22	1.92	0.51
1:A:257:ASN:ND2	1:A:257:ASN:C	2.64	0.51
1:A:142:ALA:HB3	1:A:143:HIS:HD2	1.74	0.51
1:B:321:GLN:HB3	1:B:322:PRO:HD2	1.93	0.51
1:B:17:PHE:H	6:B:407:FMT:C	2.24	0.50
1:B:104:TRP:CE2	1:B:158:MET:HE2	2.47	0.50
1:A:237:ASN:HD22	1:A:239:ALA:N	2.11	0.49
1:A:313:ILE:CD1	1:A:313:ILE:N	2.53	0.49
1:B:17:PHE:O	1:B:18:LEU:HB2	2.13	0.48
1:A:17:PHE:O	1:A:18:LEU:HB2	2.13	0.48
1:A:170:ASN:ND2	1:A:319:SER:H	2.06	0.48
1:B:237:ASN:HD22	1:B:239:ALA:N	2.11	0.48
1:B:178:PHE:O	1:B:181:THR:HG23	2.14	0.48
1:B:219:TYR:HB2	12:B:405:11A:HAA3	1.94	0.48
1:B:237:ASN:HD22	1:B:239:ALA:H	1.60	0.48
1:B:282:LEU:N	1:B:282:LEU:CD2	2.72	0.48
1:A:327:THR:CB	1:A:330:GLU:HG2	2.38	0.47
1:A:112:LEU:HD13	1:A:122:ILE:HG23	1.96	0.47
1:B:152:THR:HG22	1:B:153:GLY:O	2.14	0.47
1:A:104:TRP:CE2	1:A:158:MET:HE2	2.50	0.47
1:B:320:ASN:ND2	1:B:320:ASN:C	2.74	0.46
1:A:61:SER:HB3	1:A:236:ASP:C	2.42	0.45
1:A:256:MET:HE3	1:A:321:GLN:HB3	1.99	0.45
1:A:327:THR:HG22	1:A:329:ASN:N	2.23	0.45
1:B:253:MET:HE3	1:B:253:MET:HB2	1.85	0.45
1:B:61:SER:HB3	1:B:236:ASP:C	2.42	0.45
1:A:274:PRO:HB2	1:A:275:LEU:HD22	2.00	0.44
1:B:112:LEU:HD13	1:B:122:ILE:HG23	1.98	0.44
1:A:357:PHE:CE1	1:A:358:LEU:CD1	2.99	0.44
1:A:369:ASN:HD22	1:A:369:ASN:HA	1.63	0.44
1:A:197:ASN:HD21	1:A:199:TYR:HB2	1.83	0.43
1:A:256:MET:CE	1:A:321:GLN:OE1	2.61	0.43
1:B:357:PHE:CE1	1:B:358:LEU:CD1	2.98	0.43
1:B:95:LYS:HE3	1:B:97:TYR:OH	2.18	0.43
1:A:310:VAL:HA	1:A:311:PRO:HD3	1.91	0.43
1:A:312:VAL:HG12	1:A:316:LEU:CD2	2.49	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:363:LYS:HD2	1:A:363:LYS:H	1.84	0.42
1:A:116:SER:HA	1:A:167:THR:HA	2.00	0.42
1:A:261:THR:HG21	1:A:381:VAL:HG22	2.01	0.42
1:B:77:ARG:HA	1:B:96:THR:HB	2.01	0.42
1:B:116:SER:HA	1:B:167:THR:HA	2.01	0.42
1:B:195:MET:HE2	1:B:202:ILE:HG12	2.01	0.42
1:B:288:MET:HG2	1:B:309:VAL:HG13	1.99	0.42
1:A:237:ASN:ND2	1:A:237:ASN:C	2.78	0.42
1:B:198:LYS:HZ3	12:B:405:11A:HAA1	1.84	0.42
1:B:237:ASN:ND2	1:B:237:ASN:C	2.77	0.42
1:A:321:GLN:HB3	1:A:322:PRO:HD2	2.02	0.42
1:B:256:MET:SD	1:B:322:PRO:HD2	2.60	0.42
1:A:142:ALA:HB3	1:A:143:HIS:CD2	2.53	0.42
1:A:256:MET:CE	1:A:321:GLN:CD	2.93	0.42
1:B:305:LYS:H	1:B:305:LYS:CE	2.31	0.42
12:B:405:11A:HAF1	12:B:405:11A:HAI1	1.76	0.41
1:B:159:VAL:O	1:B:260:ILE:HG12	2.21	0.41
1:A:288:MET:HG2	1:A:309:VAL:HG13	2.03	0.41
1:A:312:VAL:O	1:A:316:LEU:HD22	2.20	0.41
1:A:285:PHE:HB3	1:A:288:MET:HE2	2.02	0.41
2:A:401:OCA:H61	2:A:401:OCA:H32	1.88	0.41
1:A:178:PHE:O	1:A:181:THR:HG23	2.20	0.41
2:A:401:OCA:H83	12:B:404:11A:HAL2	2.03	0.41
1:A:164:THR:HB	1:A:167:THR:OG1	2.21	0.41
1:A:257:ASN:HD22	1:A:258:PRO:N	2.16	0.41
1:B:46:LYS:HE2	1:B:46:LYS:HB3	1.82	0.41
1:B:197:ASN:HD21	1:B:199:TYR:HB2	1.85	0.41
1:A:209:TRP:CE2	1:A:231:ILE:HD13	2.56	0.40
1:A:77:ARG:HA	1:A:96:THR:HB	2.03	0.40
1:B:142:ALA:HB3	1:B:143:HIS:CD2	2.52	0.40
1:B:369:ASN:HD22	1:B:369:ASN:HA	1.64	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	380/408 (93%)	368 (97%)	12 (3%)	0	100	100
1	B	380/408 (93%)	366 (96%)	14 (4%)	0	100	100
All	All	760/816 (93%)	734 (97%)	26 (3%)	0	100	100

There are no Ramachandran outliers to report.

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

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

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

Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
1	A	319/341 (94%)	277 (87%)	42 (13%)	3	6
1	B	319/341 (94%)	284 (89%)	35 (11%)	5	9
All	All	638/682 (94%)	561 (88%)	77 (12%)	4	7

All (77) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	6	LEU
1	A	28	LEU
1	A	69	LEU
1	A	87	LYS
1	A	96	THR
1	A	98	LYS
1	A	100	ILE
1	A	101	MET
1	A	110	VAL
1	A	113	VAL
1	A	124	LEU
1	A	134	LYS
1	A	140	HIS
1	A	152	THR
1	A	159	VAL

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<b>Mol</b>	<b>Chain</b>	<b>Res</b>	<b>Type</b>
1	A	163	THR
1	A	173	GLN
1	A	184	VAL
1	A	186	LYS
1	A	191	LEU
1	A	197	ASN
1	A	204	LEU
1	A	226	VAL
1	A	237	ASN
1	A	253	MET
1	A	257	ASN
1	A	263	THR
1	A	272	THR
1	A	275	LEU
1	A	282	LEU
1	A	310	VAL
1	A	313	ILE
1	A	316	LEU
1	A	327	THR
1	A	333	THR
1	A	340	VAL
1	A	341	LYS
1	A	358	LEU
1	A	361	LYS
1	A	363	LYS
1	A	378	LEU
1	A	379	LEU
1	B	28	LEU
1	B	44	LEU
1	B	69	LEU
1	B	96	THR
1	B	100	ILE
1	B	110	VAL
1	B	113	VAL
1	B	124	LEU
1	B	134	LYS
1	B	135	GLU
1	B	140	HIS
1	B	159	VAL
1	B	163	THR
1	B	173	GLN
1	B	184	VAL

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Mol	Chain	Res	Type
1	B	191	LEU
1	B	197	ASN
1	B	226	VAL
1	B	237	ASN
1	B	253	MET
1	B	263	THR
1	B	272	THR
1	B	282	LEU
1	B	305	LYS
1	B	313	ILE
1	B	316	LEU
1	B	320	ASN
1	B	327	THR
1	B	328	ASN
1	B	333	THR
1	B	340	VAL
1	B	341	LYS
1	B	358	LEU
1	B	378	LEU
1	B	379	LEU

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (33) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	15	HIS
1	A	31	ASN
1	A	47	GLN
1	A	52	HIS
1	A	90	HIS
1	A	143	HIS
1	A	169	HIS
1	A	170	ASN
1	A	173	GLN
1	A	197	ASN
1	A	213	GLN
1	A	237	ASN
1	A	257	ASN
1	A	259	ASN
1	A	320	ASN
1	A	328	ASN
1	A	329	ASN
1	A	369	ASN

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Mol	Chain	Res	Type
1	B	15	HIS
1	B	31	ASN
1	B	90	HIS
1	B	120	GLN
1	B	133	ASN
1	B	143	HIS
1	B	169	HIS
1	B	170	ASN
1	B	173	GLN
1	B	197	ASN
1	B	213	GLN
1	B	237	ASN
1	B	320	ASN
1	B	328	ASN
1	B	369	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](#)

Of 32 ligands modelled in this entry, 8 are monoatomic - leaving 24 for Mogul analysis.

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
11	BUA	B	403	-	5,5,5	1.04	0	5,5,5	1.13	0
6	FMT	B	407	-	2,2,2	1.07	0	1,1,1	0.16	0
9	6NA	B	412	-	7,7,7	0.81	0	7,7,7	1.28	0
2	OCA	A	413	-	9,9,9	0.71	0	9,9,9	0.95	0
3	PPI	A	403	-	4,4,4	0.86	0	4,4,4	0.89	0
3	PPI	A	402	-	4,4,4	0.70	0	4,4,4	0.87	0
11	BUA	B	414	-	5,5,5	1.18	0	5,5,5	1.12	0
12	11A	B	404	-	12,12,12	0.64	0	12,12,12	0.70	0
6	FMT	A	407	-	2,2,2	1.24	0	1,1,1	0.13	0
2	OCA	A	401	-	9,9,9	0.80	0	9,9,9	0.75	0
5	A1L60	B	406	-	39,39,39	0.44	0	56,57,57	1.22	7 (12%)
11	BUA	A	417	-	5,5,5	0.89	0	5,5,5	1.61	2 (40%)
4	GOL	B	402	-	5,5,5	0.17	0	5,5,5	0.46	0
3	PPI	B	409	-	4,4,4	1.13	0	4,4,4	0.77	0
9	6NA	A	412	-	7,7,7	0.87	0	7,7,7	1.02	0
5	A1L60	A	406	-	39,39,39	0.53	1 (2%)	56,57,57	1.28	5 (8%)
11	BUA	B	415	-	5,5,5	0.95	0	5,5,5	1.04	0
4	GOL	A	404	-	5,5,5	0.10	0	5,5,5	0.31	0
3	PPI	A	405	-	4,4,4	1.08	0	4,4,4	0.78	0
6	FMT	B	408	-	2,2,2	1.00	0	1,1,1	0.28	0
12	11A	B	405	-	12,12,12	0.71	0	12,12,12	0.87	1 (8%)
3	PPI	A	409	-	4,4,4	0.78	0	4,4,4	0.94	0
11	BUA	B	401	-	5,5,5	0.89	0	5,5,5	1.12	0
6	FMT	A	408	-	2,2,2	1.16	0	1,1,1	0.18	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
11	BUA	B	403	-	-	3/3/3/3	-
9	6NA	B	412	-	-	2/5/5/5	-
2	OCA	A	413	-	-	3/7/7/7	-
3	PPI	A	403	-	-	0/2/2/2	-
3	PPI	A	402	-	-	0/2/2/2	-
11	BUA	B	414	-	-	0/3/3/3	-
12	11A	B	404	-	-	9/10/10/10	-
2	OCA	A	401	-	-	6/7/7/7	-
5	A1L60	B	406	-	-	6/26/38/38	0/4/4/4

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Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
11	BUA	A	417	-	-	1/3/3/3	-
4	GOL	B	402	-	-	4/4/4/4	-
3	PPI	B	409	-	-	2/2/2/2	-
9	6NA	A	412	-	-	1/5/5/5	-
5	A1L60	A	406	-	-	12/26/38/38	0/4/4/4
11	BUA	B	415	-	-	0/3/3/3	-
4	GOL	A	404	-	-	0/4/4/4	-
3	PPI	A	405	-	-	2/2/2/2	-
12	11A	B	405	-	-	8/10/10/10	-
3	PPI	A	409	-	-	0/2/2/2	-
11	BUA	B	401	-	-	1/3/3/3	-

All (1) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
5	A	406	A1L60	C17-C13	2.31	1.43	1.39

All (15) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
5	A	406	A1L60	C18-C13-C17	6.41	126.06	121.88
5	B	406	A1L60	C18-C13-C17	4.96	125.12	121.88
5	B	406	A1L60	O1-C1-C2	3.27	115.11	107.69
5	A	406	A1L60	C13-C17-CL1	2.84	124.94	121.68
5	A	406	A1L60	O1-C1-C2	2.64	113.68	107.69
5	B	406	A1L60	C3-C5-N1	-2.63	108.64	111.23
5	B	406	A1L60	C13-C17-CL1	2.54	124.60	121.68
5	A	406	A1L60	C16-C17-CL1	-2.42	113.56	118.41
5	B	406	A1L60	C16-C17-CL1	-2.29	113.82	118.41
5	B	406	A1L60	O1-C1-C3	-2.10	102.92	107.69
11	A	417	BUA	O2-C4-C3	2.08	120.71	114.03
12	B	405	11A	CAK-CAL-CAM	2.04	119.63	114.47
5	A	406	A1L60	C9-C8-C6	-2.04	106.96	113.28
5	B	406	A1L60	C3-C1-C7	-2.03	106.98	111.06
11	A	417	BUA	C1-C2-C3	2.00	121.24	112.67

There are no chirality outliers.

All (60) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
4	B	402	GOL	O1-C1-C2-C3
5	A	406	A1L60	C17-C13-C18-F1
5	A	406	A1L60	C17-C13-C18-F2
5	A	406	A1L60	C17-C13-C18-F3
5	B	406	A1L60	C15-C10-C9-C8
5	B	406	A1L60	C14-C10-C9-C8
5	A	406	A1L60	C8-C6-N1-C4
5	B	406	A1L60	C8-C6-N1-C4
5	A	406	A1L60	C15-C10-C9-C8
5	A	406	A1L60	C14-C10-C9-C8
5	B	406	A1L60	N1-C6-C8-C9
9	B	412	6NA	C-CA-CB-CG
4	B	402	GOL	O2-C2-C3-O3
5	B	406	A1L60	C8-C6-N1-C5
12	B	404	11A	CAG-CAH-CAI-CAJ
12	B	405	11A	CAH-CAI-CAJ-CAK
12	B	404	11A	CAI-CAJ-CAK-CAL
5	A	406	A1L60	C8-C6-N1-C5
2	A	401	OCA	C2-C3-C4-C5
12	B	405	11A	CAF-CAG-CAH-CAI
4	B	402	GOL	C1-C2-C3-O3
2	A	413	OCA	C4-C5-C6-C7
12	B	404	11A	CAH-CAI-CAJ-CAK
2	A	413	OCA	C2-C3-C4-C5
4	B	402	GOL	O1-C1-C2-O2
11	A	417	BUA	C1-C2-C3-C4
11	B	403	BUA	C1-C2-C3-C4
5	A	406	A1L60	N1-C6-C8-C9
12	B	405	11A	CAJ-CAK-CAL-CAM
12	B	404	11A	CAJ-CAK-CAL-CAM
3	A	405	PPI	O2-C1-C2-C3
2	A	401	OCA	C3-C4-C5-C6
12	B	405	11A	CAA-CAD-CAE-CAF
12	B	404	11A	CAA-CAD-CAE-CAF
5	A	406	A1L60	C11-C13-C18-F1
11	B	401	BUA	C1-C2-C3-C4
12	B	404	11A	CAD-CAE-CAF-CAG
9	A	412	6NA	C6-CD-CG-CB
2	A	401	OCA	C5-C6-C7-C8
5	A	406	A1L60	C11-C13-C18-F2
12	B	405	11A	CAI-CAJ-CAK-CAL
12	B	405	11A	CAE-CAF-CAG-CAH
3	A	405	PPI	O1-C1-C2-C3

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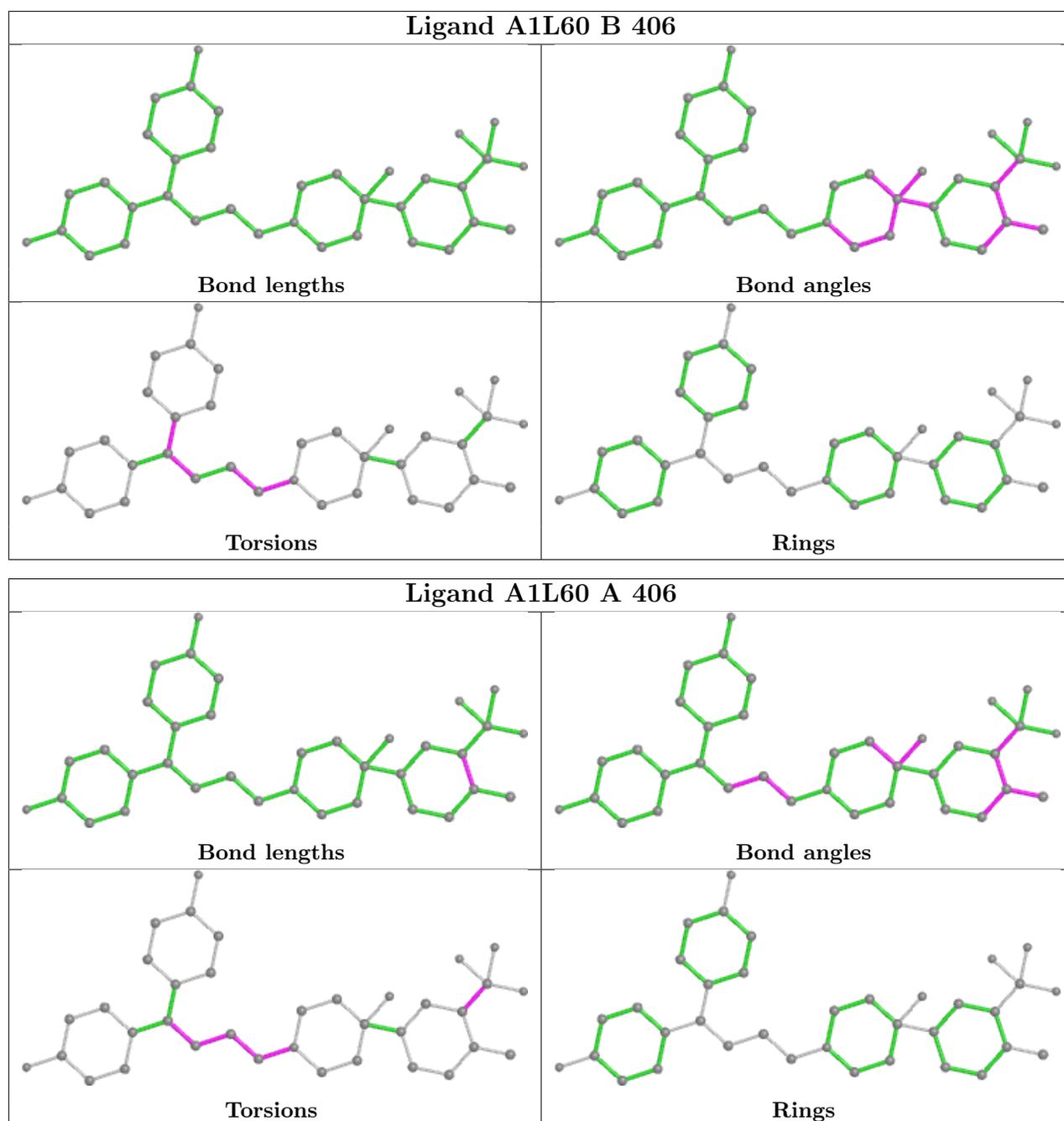
Mol	Chain	Res	Type	Atoms
5	A	406	A1L60	C11-C13-C18-F3
5	A	406	A1L60	C6-C8-C9-C10
11	B	403	BUA	C2-C3-C4-O1
2	A	401	OCA	O1-C1-C2-C3
11	B	403	BUA	C2-C3-C4-O2
2	A	413	OCA	C5-C6-C7-C8
2	A	401	OCA	O2-C1-C2-C3
12	B	405	11A	CAK-CAL-CAM-OAC
12	B	404	11A	CAK-CAL-CAM-OAC
3	B	409	PPI	O1-C1-C2-C3
3	B	409	PPI	O2-C1-C2-C3
12	B	405	11A	CAK-CAL-CAM-OAB
12	B	404	11A	CAK-CAL-CAM-OAB
2	A	401	OCA	C4-C5-C6-C7
9	B	412	6NA	CA-CB-CG-CD
12	B	404	11A	CAF-CAG-CAH-CAI
5	B	406	A1L60	C9-C10-C15-C22

There are no ring outliers.

7 monomers are involved in 13 short contacts:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
6	B	407	FMT	3	0
9	B	412	6NA	1	0
12	B	404	11A	2	0
2	A	401	OCA	2	0
5	B	406	A1L60	1	0
5	A	406	A1L60	1	0
12	B	405	11A	5	0

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



## 5.7 Other polymers [\(i\)](#)

There are no such residues in this entry.

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

There are no chain breaks in this entry.

## 6 Fit of model and data

### 6.1 Protein, DNA and RNA chains

In the following table, the column labelled ‘#RSRZ > 2’ contains the number (and percentage) of RSRZ outliers, followed by percent RSRZ outliers for the chain as percentile scores relative to all X-ray entries and entries of similar resolution. The OWAB column contains the minimum, median, 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	382/408 (93%)	-0.05	14 (3%) 45 41	61, 80, 112, 156	0
1	B	382/408 (93%)	0.27	21 (5%) 32 28	68, 92, 134, 156	0
All	All	764/816 (93%)	0.11	35 (4%) 38 34	61, 86, 127, 156	0

All (35) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	A	360	PHE	7.9
1	B	360	PHE	5.6
1	B	282	LEU	4.7
1	B	96	THR	4.6
1	B	155	HIS	4.1
1	A	336	GLY	3.8
1	A	361	LYS	3.7
1	B	215	PRO	3.6
1	A	274	PRO	3.5
1	A	331	PRO	3.4
1	B	134	LYS	3.3
1	B	210	GLY	3.3
1	B	263	THR	3.2
1	A	385	GLU	3.1
1	B	334	ARG	3.1
1	B	385	GLU	3.1
1	B	95	LYS	3.0
1	B	220	ILE	2.8
1	B	305	LYS	2.7
1	A	4	GLN	2.7
1	A	186	LYS	2.7
1	B	139	TYR	2.6
1	B	163	THR	2.6
1	A	108	LYS	2.5

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Mol	Chain	Res	Type	RSRZ
1	B	328	ASN	2.5
1	B	108	LYS	2.4
1	A	215	PRO	2.3
1	B	274	PRO	2.2
1	A	320	ASN	2.2
1	A	161	SER	2.1
1	B	98	LYS	2.1
1	A	329	ASN	2.1
1	B	313	ILE	2.1
1	A	282	LEU	2.0
1	B	140	HIS	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, 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(Å <sup>2</sup> )	Q<0.9
3	PPI	A	402	5/5	0.55	0.60	108,110,149,181	0
3	PPI	A	405	5/5	0.71	0.39	94,140,156,174	0
2	OCA	A	413	10/10	0.75	0.43	95,130,162,177	0
11	BUA	B	415	6/6	0.75	0.30	117,127,131,141	0
11	BUA	A	417	6/6	0.77	0.35	87,109,120,125	0
3	PPI	A	403	5/5	0.79	0.31	98,118,121,132	0
12	11A	B	404	13/13	0.79	0.46	105,121,176,185	0
9	6NA	A	412	8/8	0.80	0.36	103,133,153,154	0
9	6NA	B	412	8/8	0.81	0.39	95,134,147,160	0
11	BUA	B	414	6/6	0.83	0.35	97,113,125,131	0
3	PPI	B	409	5/5	0.84	0.36	115,130,154,169	0
11	BUA	B	403	6/6	0.85	0.36	100,141,155,171	0

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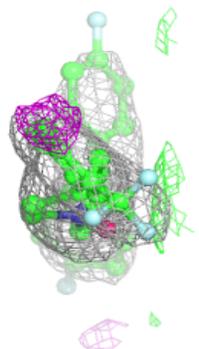
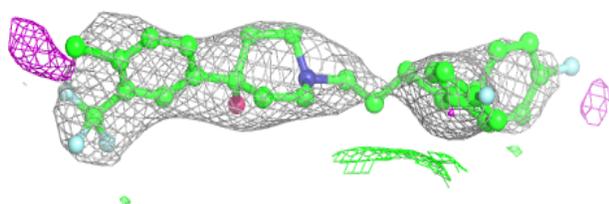
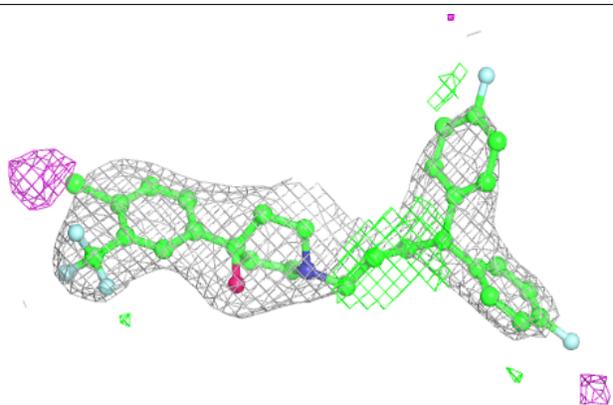
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Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors( $\text{\AA}^2$ )	Q<0.9
3	PPI	A	409	5/5	0.89	0.22	99,102,134,137	0
2	OCA	A	401	10/10	0.89	0.22	91,100,114,117	0
4	GOL	A	404	6/6	0.89	0.15	115,143,150,157	0
11	BUA	B	401	6/6	0.89	0.31	96,135,165,175	0
4	GOL	B	402	6/6	0.90	0.20	110,130,133,148	0
12	11A	B	405	13/13	0.91	0.24	90,105,141,153	0
5	A1L60	B	406	36/36	0.94	0.17	92,127,154,167	0
5	A1L60	A	406	36/36	0.94	0.14	89,112,159,169	0
10	CL	A	416	1/1	0.96	0.32	104,104,104,104	0
6	FMT	A	408	3/3	0.96	0.19	117,117,132,141	0
10	CL	A	415	1/1	0.97	0.10	108,108,108,108	0
6	FMT	A	407	3/3	0.97	0.12	103,103,105,126	0
10	CL	A	414	1/1	0.97	0.15	85,85,85,85	0
6	FMT	B	407	3/3	0.98	0.11	117,117,132,137	0
10	CL	B	413	1/1	0.98	0.11	95,95,95,95	0
6	FMT	B	408	3/3	0.98	0.14	127,127,128,130	0
8	CA	B	411	1/1	0.99	0.04	83,83,83,83	0
8	CA	A	411	1/1	0.99	0.03	87,87,87,87	0
7	ZN	B	410	1/1	1.00	0.02	93,93,93,93	0
7	ZN	A	410	1/1	1.00	0.01	73,73,73,73	0

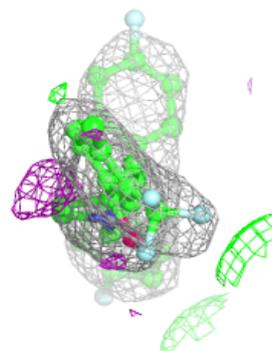
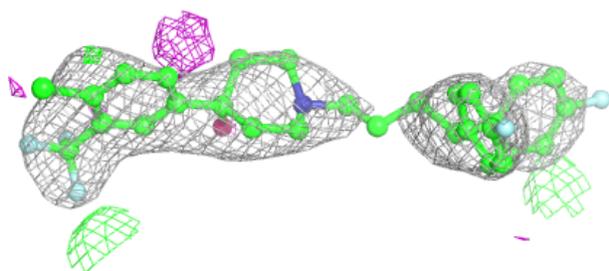
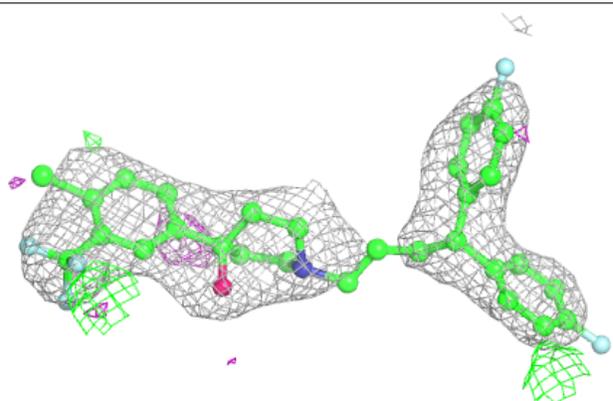
The following is a graphical depiction of the model fit to experimental electron density of all instances of the Ligand of Interest. In addition, ligands with molecular weight > 250 and outliers as shown on the geometry validation Tables will also be included. Each fit is shown from different orientation to approximate a three-dimensional view.

**Electron density around A1L60 B 406:**

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

**Electron density around A1L60 A 406:**

$2mF_o-DF_c$  (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.