



Full wwPDB X-ray Structure Validation Report ⓘ

Nov 13, 2023 – 08:37 PM JST

PDB ID : 5Y2T
Title : Structure of PPARgamma ligand binding domain - lobeglitazone complex
Authors : Im, Y.J.; Lee, M.
Deposited on : 2017-07-27
Resolution : 1.70 Å(reported)

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

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

A user guide is available at

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

with specific help available everywhere you see the ⓘ symbol.

The types of validation reports are described at

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

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

MolProbity : 4.02b-467
Mogul : 1.8.5 (274361), CSD as541be (2020)
Xtriage (Phenix) : 1.13
EDS : 2.36
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) : 2.36

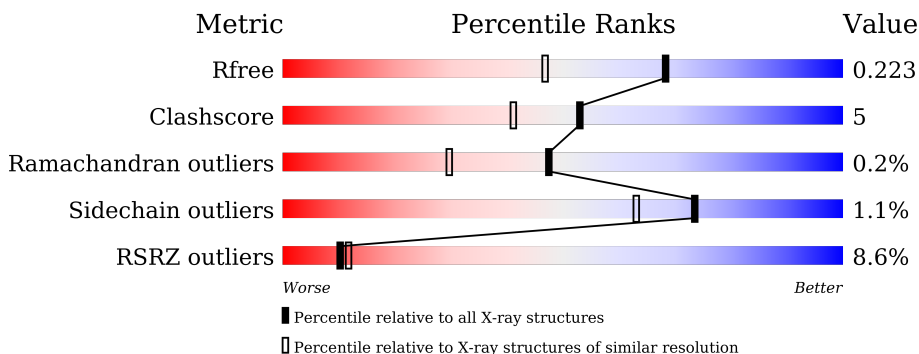
1 Overall quality at a glance i

The following experimental techniques were used to determine the structure:

X-RAY DIFFRACTION

The reported resolution of this entry is 1.70 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	4298 (1.70-1.70)
Clashscore	141614	4695 (1.70-1.70)
Ramachandran outliers	138981	4610 (1.70-1.70)
Sidechain outliers	138945	4610 (1.70-1.70)
RSRZ outliers	127900	4222 (1.70-1.70)

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	294	<div style="display: flex; align-items: center;"> <div style="width: 6%; height: 10px; background-color: red; margin-right: 5px;"></div> <div style="width: 75%; height: 10px; background-color: green; margin-right: 5px;"></div> <div style="width: 11%; height: 10px; background-color: yellow; margin-right: 5px;"></div> <div style="width: 11%; height: 10px; background-color: grey;"></div> </div> <p style="margin-left: 20px;">6% 75% 11% • 11%</p>
1	B	294	<div style="display: flex; align-items: center;"> <div style="width: 9%; height: 10px; background-color: red; margin-right: 5px;"></div> <div style="width: 78%; height: 10px; background-color: green; margin-right: 5px;"></div> <div style="width: 11%; height: 10px; background-color: yellow; margin-right: 5px;"></div> <div style="width: 11%; height: 10px; background-color: grey;"></div> </div> <p style="margin-left: 20px;">9% 78% 11% • 11%</p>

2 Entry composition i

There are 3 unique types of molecules in this entry. The entry contains 4704 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 Peroxisome proliferator-activated receptor gamma.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
1	A	261	2087	1345	341	391	10	0	0	0
1	B	263	2096	1353	343	389	11	0	0	0

There are 46 discrepancies between the modelled and reference sequences:

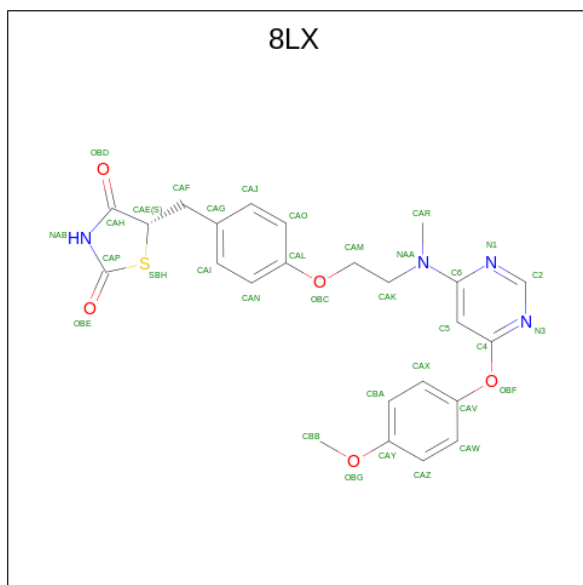
Chain	Residue	Modelled	Actual	Comment	Reference
A	184	MET	-	expression tag	UNP P37231
A	185	GLY	-	expression tag	UNP P37231
A	186	SER	-	expression tag	UNP P37231
A	187	SER	-	expression tag	UNP P37231
A	188	HIS	-	expression tag	UNP P37231
A	189	HIS	-	expression tag	UNP P37231
A	190	HIS	-	expression tag	UNP P37231
A	191	HIS	-	expression tag	UNP P37231
A	192	HIS	-	expression tag	UNP P37231
A	193	HIS	-	expression tag	UNP P37231
A	194	SER	-	expression tag	UNP P37231
A	195	SER	-	expression tag	UNP P37231
A	196	GLY	-	expression tag	UNP P37231
A	197	LEU	-	expression tag	UNP P37231
A	198	VAL	-	expression tag	UNP P37231
A	199	PRO	-	expression tag	UNP P37231
A	200	ARG	-	expression tag	UNP P37231
A	201	GLY	-	expression tag	UNP P37231
A	202	SER	-	expression tag	UNP P37231
A	203	ALA	-	expression tag	UNP P37231
A	204	MET	-	expression tag	UNP P37231
A	205	GLY	-	expression tag	UNP P37231
A	206	SER	-	expression tag	UNP P37231
B	184	MET	-	expression tag	UNP P37231
B	185	GLY	-	expression tag	UNP P37231

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Chain	Residue	Modelled	Actual	Comment	Reference
B	186	SER	-	expression tag	UNP P37231
B	187	SER	-	expression tag	UNP P37231
B	188	HIS	-	expression tag	UNP P37231
B	189	HIS	-	expression tag	UNP P37231
B	190	HIS	-	expression tag	UNP P37231
B	191	HIS	-	expression tag	UNP P37231
B	192	HIS	-	expression tag	UNP P37231
B	193	HIS	-	expression tag	UNP P37231
B	194	SER	-	expression tag	UNP P37231
B	195	SER	-	expression tag	UNP P37231
B	196	GLY	-	expression tag	UNP P37231
B	197	LEU	-	expression tag	UNP P37231
B	198	VAL	-	expression tag	UNP P37231
B	199	PRO	-	expression tag	UNP P37231
B	200	ARG	-	expression tag	UNP P37231
B	201	GLY	-	expression tag	UNP P37231
B	202	SER	-	expression tag	UNP P37231
B	203	ALA	-	expression tag	UNP P37231
B	204	MET	-	expression tag	UNP P37231
B	205	GLY	-	expression tag	UNP P37231
B	206	SER	-	expression tag	UNP P37231

- Molecule 2 is (5S)-5-[[4-[2-[[6-(4-methoxyphenoxy)pyrimidin-4-yl]-methyl-amino]ethoxy]phenyl]methyl]-1,3-thiazolidine-2,4-dione (three-letter code: 8LX) (formula: C₂₄H₂₄N₄O₅S) (labeled as "Ligand of Interest" by depositor).



Mol	Chain	Residues	Atoms					ZeroOcc	AltConf
2	A	1	Total	C	N	O	S	0	0
			34	24	4	5	1		
2	B	1	Total	C	N	O	S	0	0
			34	24	4	5	1		

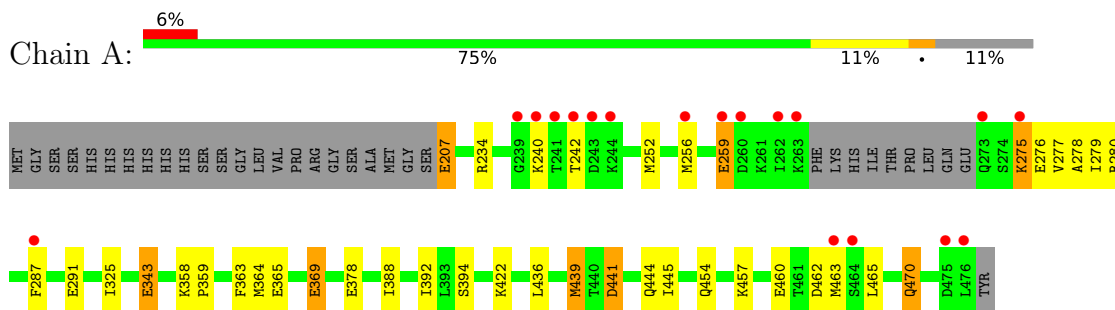
- Molecule 3 is water.

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
3	A	225	Total	O	0	0
			225	225		
3	B	228	Total	O	0	0
			228	228		

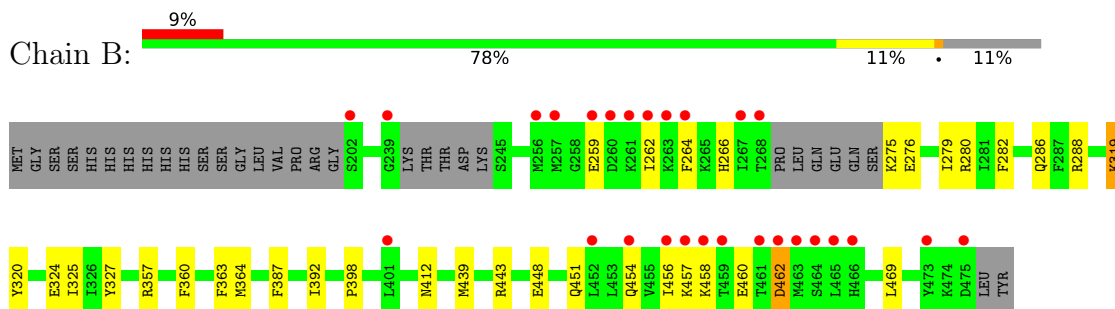
3 Residue-property plots [i](#)

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: Peroxisome proliferator-activated receptor gamma



- Molecule 1: Peroxisome proliferator-activated receptor gamma



4 Data and refinement statistics i

Property	Value	Source
Space group	P 1 21 1	Depositor
Cell constants a, b, c, α , β , γ	56.27Å 88.48Å 58.00Å 90.00° 89.83° 90.00°	Depositor
Resolution (Å)	36.79 – 1.70 36.78 – 1.70	Depositor EDS
% Data completeness (in resolution range)	99.6 (36.79-1.70) 99.6 (36.78-1.70)	Depositor EDS
R_{merge}	0.08	Depositor
R_{sym}	(Not available)	Depositor
$\langle I/\sigma(I) \rangle$ ¹	4.39 (at 1.70Å)	Xtriage
Refinement program	PHENIX (1.10.1_2155: ???)	Depositor
R, R_{free}	0.192 , 0.224 0.192 , 0.223	Depositor DCC
R_{free} test set	3148 reflections (5.06%)	wwPDB-VP
Wilson B-factor (Å ²)	23.4	Xtriage
Anisotropy	0.030	Xtriage
Bulk solvent k_{sol} (e/Å ³), B_{sol} (Å ²)	0.35 , 48.4	EDS
L-test for twinning ²	$\langle L \rangle = 0.49$, $\langle L^2 \rangle = 0.32$	Xtriage
Estimated twinning fraction	0.006 for -l,k,h 0.028 for h,-k,-l 0.018 for -l,-k,-h	Xtriage
F_o, F_c correlation	0.96	EDS
Total number of atoms	4704	wwPDB-VP
Average B, all atoms (Å ²)	30.0	wwPDB-VP

Xtriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 5.53% 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 i

5.1 Standard geometry i

Bond lengths and bond angles in the following residue types are not validated in this section: 8LX

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	1.22	20/2120 (0.9%)	0.64	3/2854 (0.1%)
1	B	0.81	11/2130 (0.5%)	0.57	0/2865
All	All	1.04	31/4250 (0.7%)	0.60	3/5719 (0.1%)

All (31) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
1	A	378	GLU	CD-OE1	-21.78	1.01	1.25
1	A	207	GLU	CD-OE1	-20.36	1.03	1.25
1	A	378	GLU	CD-OE2	-18.27	1.05	1.25
1	A	207	GLU	CD-OE2	-16.43	1.07	1.25
1	A	280	ARG	CZ-NH2	-11.69	1.17	1.33
1	A	280	ARG	NE-CZ	-11.40	1.18	1.33
1	A	343	GLU	CD-OE1	-11.13	1.13	1.25
1	B	327	TYR	CE1-CZ	-11.09	1.24	1.38
1	B	327	TYR	CE2-CZ	-11.01	1.24	1.38
1	A	280	ARG	CD-NE	-10.92	1.27	1.46
1	B	288	ARG	NE-CZ	-10.73	1.19	1.33
1	B	327	TYR	CG-CD1	-10.69	1.25	1.39
1	B	327	TYR	CG-CD2	-9.79	1.26	1.39
1	B	288	ARG	CZ-NH1	-9.64	1.20	1.33
1	B	288	ARG	CZ-NH2	-9.52	1.20	1.33
1	A	343	GLU	CD-OE2	-9.16	1.15	1.25
1	A	280	ARG	CZ-NH1	-8.73	1.21	1.33
1	B	288	ARG	CD-NE	-8.19	1.32	1.46
1	B	319	LYS	CD-CE	-7.57	1.32	1.51
1	A	259	GLU	CD-OE1	-7.14	1.17	1.25
1	A	207	GLU	CG-CD	-7.07	1.41	1.51
1	A	259	GLU	CD-OE2	-6.65	1.18	1.25
1	A	378	GLU	CG-CD	-6.36	1.42	1.51
1	A	470	GLN	CD-OE1	-6.02	1.10	1.24

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
1	B	319	LYS	CE-NZ	-5.88	1.34	1.49
1	A	462	ASP	CG-OD1	-5.82	1.11	1.25
1	A	444	GLN	CD-OE1	-5.77	1.11	1.24
1	A	439	MET	CG-SD	-5.66	1.66	1.81
1	B	327	TYR	CB-CG	-5.53	1.43	1.51
1	A	275	LYS	CD-CE	-5.47	1.37	1.51
1	A	369	GLU	CD-OE1	-5.08	1.20	1.25

All (3) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	A	280	ARG	NE-CZ-NH2	-6.58	117.01	120.30
1	A	378	GLU	OE1-CD-OE2	-5.57	116.62	123.30
1	A	234	ARG	NE-CZ-NH2	-5.13	117.74	120.30

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	2087	0	2152	24	0
1	B	2096	0	2153	22	0
2	A	34	0	0	0	0
2	B	34	0	0	0	0
3	A	225	0	0	4	0
3	B	228	0	0	4	0
All	All	4704	0	4305	46	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 5.

All (46) 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:259:GLU:OE2	1:B:280:ARG:NH2	1.94	1.00
1:B:275:LYS:NZ	1:B:462:ASP:OD2	1.99	0.95
1:A:465:LEU:HD23	1:A:470:GLN:HG2	1.58	0.85
1:A:358:LYS:HD2	1:A:359:PRO:HA	1.63	0.81
1:A:252:MET:O	1:A:256:MET:HG3	1.83	0.77
1:B:357:ARG:NH2	1:B:460:GLU:OE1	2.16	0.74
1:B:456:ILE:HG22	1:B:457:LYS:HD3	1.71	0.73
1:B:448:GLU:OE1	3:B:601:HOH:O	2.10	0.70
1:A:436:LEU:O	1:A:439:MET:HG2	1.98	0.64
1:B:456:ILE:O	1:B:460:GLU:HB3	1.99	0.63
1:A:242:THR:O	1:A:242:THR:HG22	2.03	0.57
1:B:387:PHE:HE1	1:B:439:MET:HG3	1.71	0.56
1:B:387:PHE:CE1	1:B:439:MET:HG3	2.42	0.55
1:A:365:GLU:O	1:A:369:GLU:HG3	2.07	0.55
1:A:460:GLU:HG3	1:A:463:MET:HE2	1.90	0.53
1:A:422:LYS:HG3	3:A:648:HOH:O	2.09	0.52
1:A:276:GLU:OE2	1:A:279:ILE:HG12	2.10	0.51
1:A:394:SER:OG	3:A:601:HOH:O	2.19	0.51
1:A:277:VAL:HG23	1:A:278:ALA:N	2.26	0.51
1:A:439:MET:HE3	1:A:439:MET:HA	1.92	0.50
1:A:422:LYS:NZ	3:A:605:HOH:O	2.43	0.50
1:B:320:TYR:CZ	1:B:398:PRO:HG2	2.46	0.50
1:A:277:VAL:HG23	1:A:278:ALA:H	1.78	0.49
1:A:287:PHE:HE1	1:A:291:GLU:OE2	1.96	0.48
1:B:412:ASN:HB3	3:B:729:HOH:O	2.14	0.48
1:A:454:GLN:HE22	1:A:457:LYS:NZ	2.12	0.48
1:A:363:PHE:CE1	1:A:364:MET:HG2	2.50	0.47
1:B:262:ILE:HB	1:B:264:PHE:CE1	2.49	0.47
1:A:441:ASP:O	1:A:445:ILE:HG12	2.15	0.47
1:A:325:ILE:HD11	1:A:392:ILE:HG13	1.98	0.46
1:A:252:MET:SD	1:A:277:VAL:HG11	2.55	0.46
1:B:363:PHE:CD2	1:B:364:MET:HG2	2.51	0.45
1:A:325:ILE:HD11	1:A:392:ILE:CG1	2.46	0.45
1:A:275:LYS:HA	1:A:275:LYS:HD2	1.83	0.45
1:B:319:LYS:HD3	1:B:320:TYR:CE2	2.52	0.44
1:B:454:GLN:O	1:B:458:LYS:HG2	2.18	0.43
1:B:451:GLN:HG3	3:B:707:HOH:O	2.17	0.43
1:A:207:GLU:OE1	3:A:602:HOH:O	2.21	0.43
1:B:279:ILE:HD13	1:B:360:PHE:CZ	2.53	0.43
1:B:282:PHE:CE2	1:B:286:GLN:OE1	2.73	0.42
1:B:325:ILE:HD11	1:B:392:ILE:CG1	2.50	0.42
1:A:325:ILE:HG12	1:A:388:ILE:HG23	2.01	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:266:HIS:ND1	3:B:605:HOH:O	2.36	0.42
1:B:275:LYS:HD3	1:B:279:ILE:HG21	2.02	0.42
1:B:469:LEU:HD12	1:B:469:LEU:HA	1.74	0.41
1:B:324:GLU:OE2	1:B:443:ARG:HD3	2.21	0.40

There are no symmetry-related clashes.

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	257/294 (87%)	256 (100%)	1 (0%)	0	100	100
1	B	257/294 (87%)	253 (98%)	3 (1%)	1 (0%)	34	18
All	All	514/588 (87%)	509 (99%)	4 (1%)	1 (0%)	47	30

All (1) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	B	462	ASP

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	234/262 (89%)	230 (98%)	4 (2%)	60	46

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Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
1	B	233/262 (89%)	232 (100%)	1 (0%)	91	87
All	All	467/524 (89%)	462 (99%)	5 (1%)	73	63

All (5) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	240	LYS
1	A	259	GLU
1	A	343	GLU
1	A	441	ASP
1	B	276	GLU

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (1) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	454	GLN

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 monosaccharides in this entry.

5.6 Ligand geometry [i](#)

2 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	8LX	B	501	-	37,37,37	3.22	5 (13%)	49,50,50	2.24	13 (26%)
2	8LX	A	501	-	37,37,37	3.25	5 (13%)	49,50,50	2.50	11 (22%)

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	8LX	B	501	-	-	2/20/32/32	0/4/4/4
2	8LX	A	501	-	-	0/20/32/32	0/4/4/4

All (10) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
2	B	501	8LX	CAE-CAH	-16.55	1.42	1.52
2	A	501	8LX	CAE-CAH	-15.74	1.42	1.52
2	A	501	8LX	CAP-SBH	-9.03	1.68	1.76
2	B	501	8LX	CAP-SBH	-6.65	1.70	1.76
2	B	501	8LX	CAF-CAG	-4.71	1.40	1.51
2	B	501	8LX	C2-N1	3.95	1.41	1.33
2	A	501	8LX	CAF-CAG	-3.90	1.41	1.51
2	A	501	8LX	C2-N3	3.81	1.41	1.33
2	A	501	8LX	C2-N1	3.18	1.39	1.33
2	B	501	8LX	C2-N3	3.18	1.39	1.33

All (24) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
2	A	501	8LX	C2-N1-C6	7.48	121.47	114.94
2	A	501	8LX	C2-N3-C4	7.18	119.88	114.48
2	B	501	8LX	C2-N1-C6	6.63	120.73	114.94
2	A	501	8LX	CAE-CAH-NAB	6.48	117.64	112.01
2	A	501	8LX	N3-C2-N1	-6.35	118.66	128.60
2	A	501	8LX	CAH-NAB-CAP	-6.20	114.05	118.24
2	B	501	8LX	C2-N3-C4	5.81	118.85	114.48
2	B	501	8LX	N3-C2-N1	-5.36	120.22	128.60
2	B	501	8LX	CAE-CAH-NAB	4.88	116.26	112.01

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
2	B	501	8LX	CAH-NAB-CAP	-4.86	114.96	118.24
2	A	501	8LX	OBD-CAH-NAB	-4.46	119.54	124.94
2	B	501	8LX	CBB-OBG-CAY	-4.14	108.52	117.51
2	A	501	8LX	CAH-CAE-SBH	-3.78	102.67	105.90
2	B	501	8LX	CAF-CAE-SBH	3.72	116.90	113.04
2	B	501	8LX	CAG-CAF-CAE	-2.87	109.21	113.32
2	B	501	8LX	OBD-CAH-NAB	-2.78	121.58	124.94
2	A	501	8LX	CBB-OBG-CAY	-2.78	111.48	117.51
2	B	501	8LX	C5-C4-N3	-2.52	121.03	124.57
2	A	501	8LX	C5-C4-N3	-2.26	121.39	124.57
2	B	501	8LX	C5-C6-N1	-2.23	118.88	122.73
2	B	501	8LX	N1-C6-NAA	2.12	119.09	116.39
2	A	501	8LX	CAM-OBC-CAL	-2.12	112.39	117.93
2	A	501	8LX	CAE-SBH-CAP	2.10	93.99	92.86
2	B	501	8LX	CAR-NAA-CAK	2.04	120.99	115.42

There are no chirality outliers.

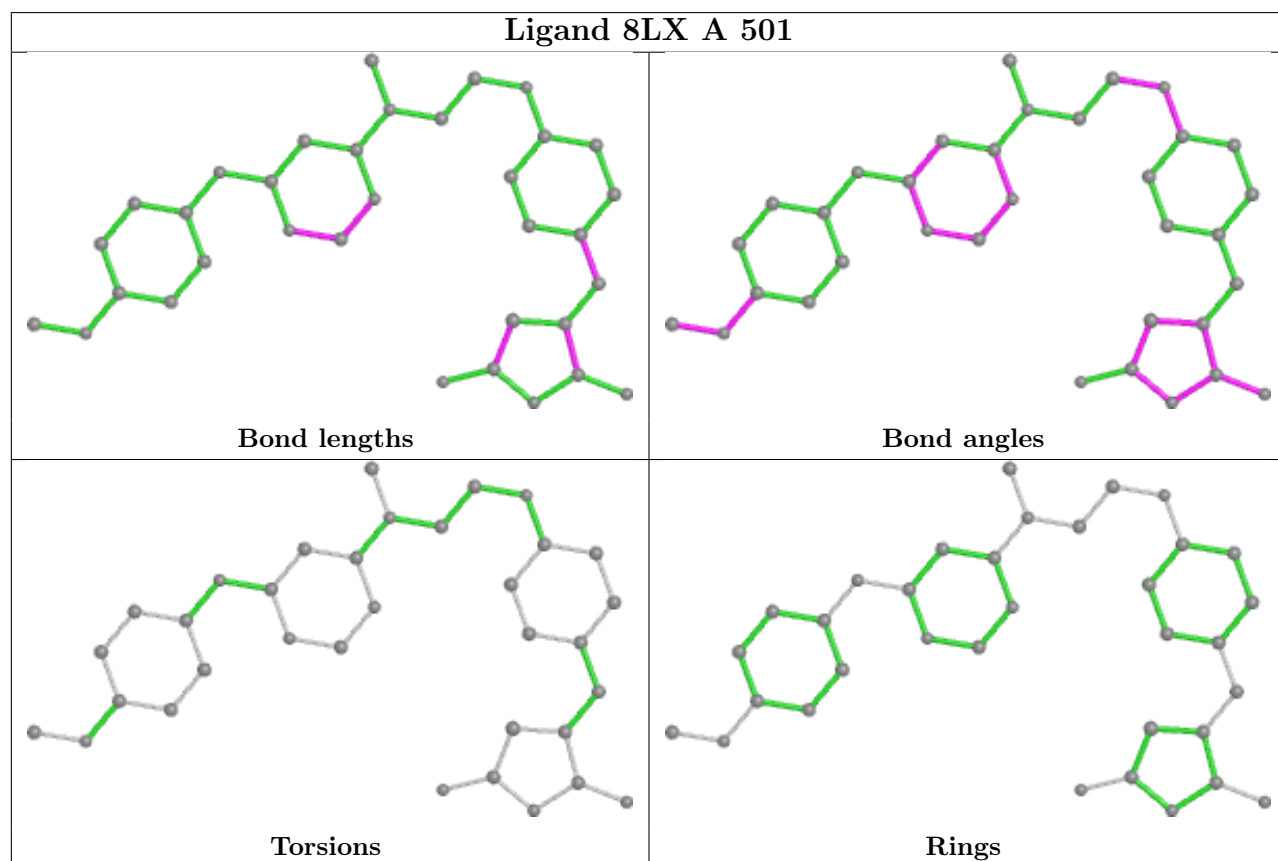
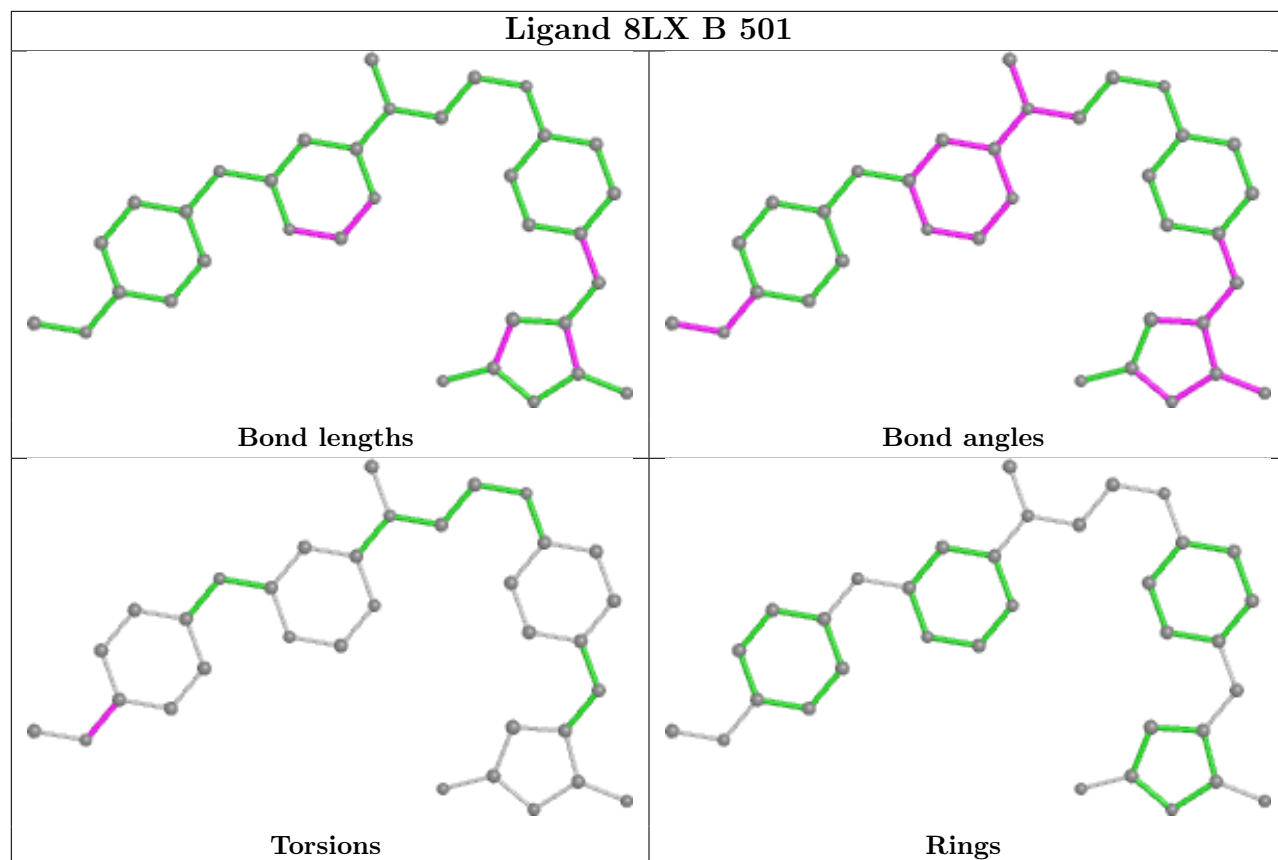
All (2) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
2	B	501	8LX	CAZ-CAY-OBG-CBB
2	B	501	8LX	CBA-CAY-OBG-CBB

There are no ring outliers.

No monomer is involved in short contacts.

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, 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	261/294 (88%)	0.41	18 (6%) 16 19	15, 27, 52, 70	0
1	B	263/294 (89%)	0.64	27 (10%) 6 7	14, 27, 58, 74	0
All	All	524/588 (89%)	0.53	45 (8%) 10 12	14, 27, 56, 74	0

All (45) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	A	476	LEU	13.5
1	B	464	SER	8.5
1	A	242	THR	8.1
1	B	264	PHE	7.9
1	B	463	MET	7.3
1	B	267	ILE	6.3
1	B	458	LYS	6.3
1	B	465	LEU	6.1
1	B	260	ASP	6.0
1	B	268	THR	5.3
1	A	241	THR	4.9
1	B	462	ASP	4.8
1	A	243	ASP	4.7
1	B	454	GLN	4.5
1	B	461	THR	4.4
1	B	239	GLY	4.3
1	B	459	THR	4.2
1	A	475	ASP	3.9
1	B	466	HIS	3.6
1	B	261	LYS	3.5
1	A	464	SER	3.5
1	B	262	ILE	3.4
1	B	456	ILE	3.4
1	A	273	GLN	3.4

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Mol	Chain	Res	Type	RSRZ
1	A	262	ILE	3.3
1	B	263	LYS	3.3
1	A	287	PHE	3.1
1	A	260	ASP	3.1
1	A	244	LYS	3.0
1	B	259	GLU	2.9
1	B	257	MET	2.9
1	A	259	GLU	2.8
1	A	463	MET	2.8
1	B	475	ASP	2.8
1	A	275	LYS	2.8
1	A	239	GLY	2.7
1	B	457	LYS	2.7
1	B	401	LEU	2.7
1	A	240	LYS	2.6
1	B	452	LEU	2.5
1	B	202	SER	2.3
1	B	256	MET	2.2
1	A	263	LYS	2.2
1	A	256	MET	2.1
1	B	473	TYR	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](#)

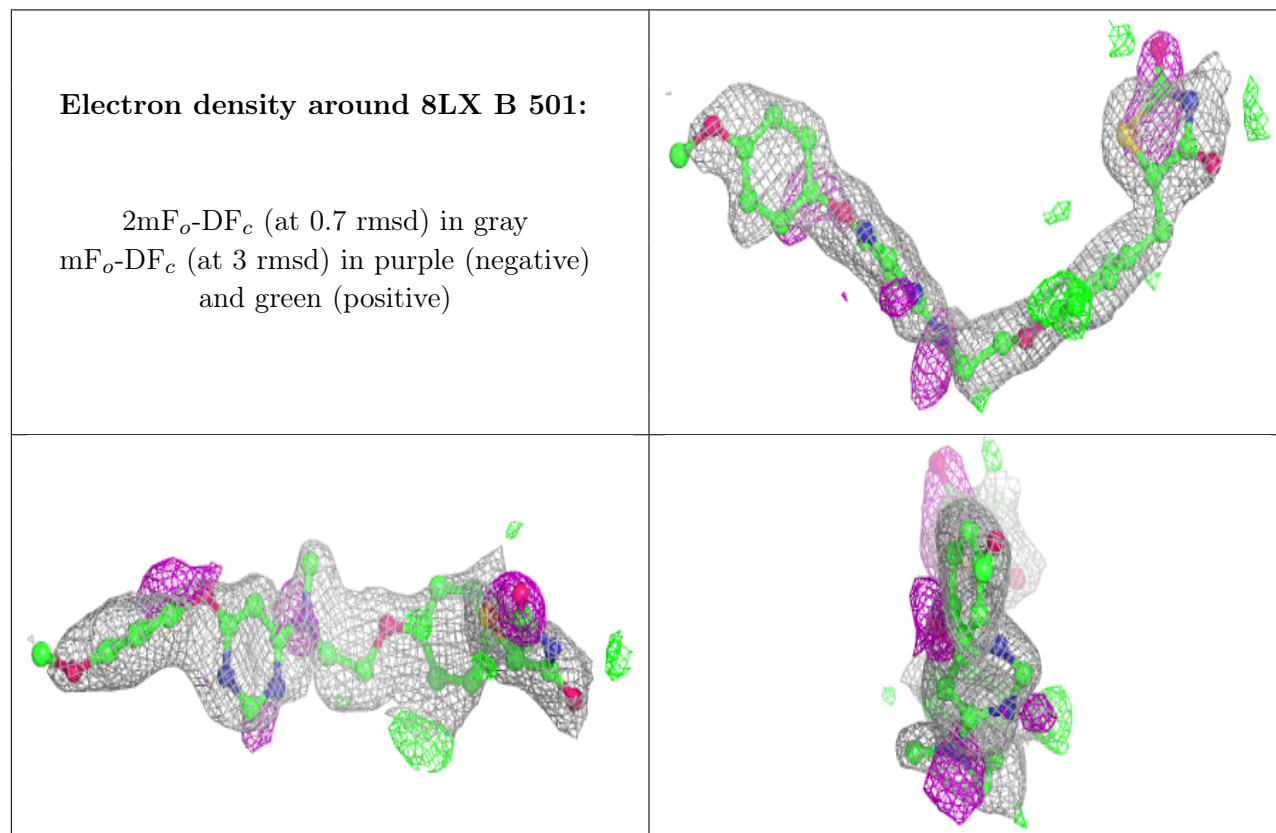
There are no monosaccharides in this entry.

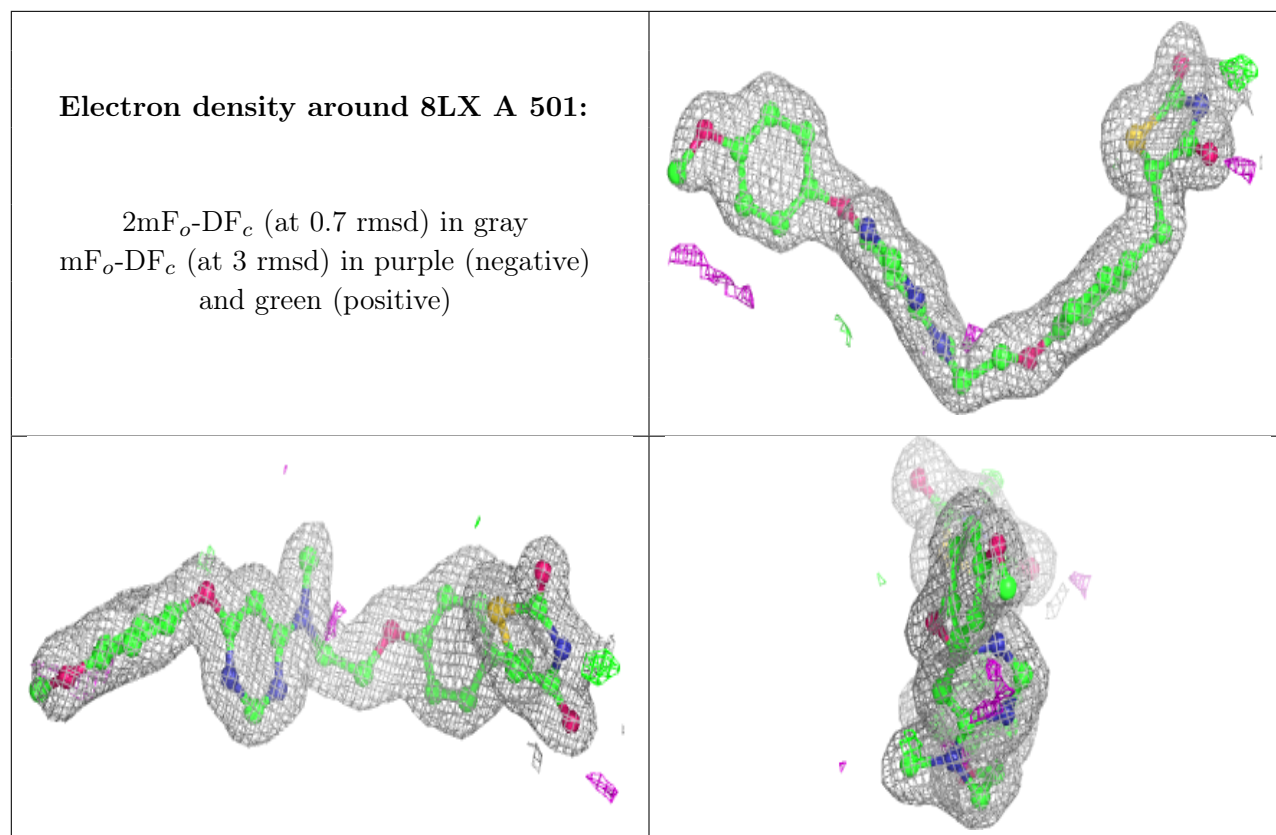
6.4 Ligands [i](#)

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

Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors(Å ²)	Q<0.9
2	8LX	B	501	34/34	0.75	0.25	34,45,56,60	0
2	8LX	A	501	34/34	0.93	0.10	23,27,39,43	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.