



Full wwPDB X-ray Structure Validation Report ⓘ

Oct 8, 2024 – 07:09 AM EDT

PDB ID : 4LXA
Title : Crystal Structure of Human Beta Secretase in Complex with Compound 11a
Authors : Rondeau, J.M.; Bourgier, E.
Deposited on : 2013-07-29
Resolution : 1.95 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 : 2022.3.0, CSD as543be (2022)
Xtrriage (Phenix) : 1.20.1
EDS : 3.0
buster-report : 1.1.7 (2018)
Percentile statistics : 20231227.v01 (using entries in the PDB archive December 27th 2023)
CCP4 : 9.0.003 (Gargrove)
Density-Fitness : 1.0.11
Ideal geometry (proteins) : Engh & Huber (2001)
Ideal geometry (DNA, RNA) : Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP) : 2.39

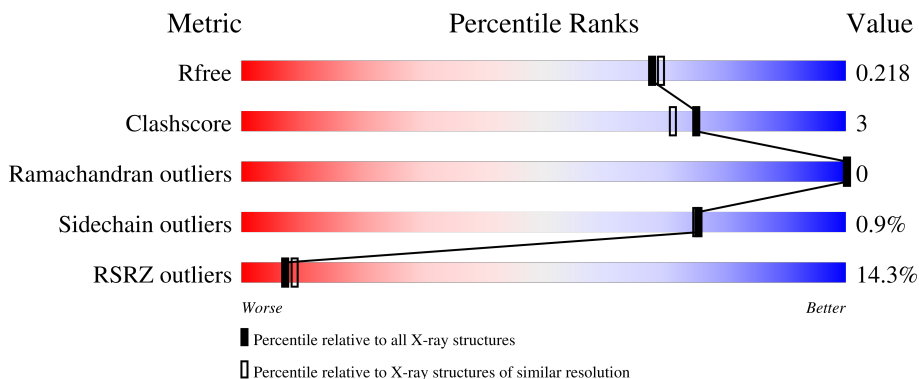
1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

X-RAY DIFFRACTION

The reported resolution of this entry is 1.95 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	3187 (1.96-1.96)
Clashscore	180529	3412 (1.96-1.96)
Ramachandran outliers	177936	3390 (1.96-1.96)
Sidechain outliers	177891	3390 (1.96-1.96)
RSRZ outliers	164620	3186 (1.96-1.96)

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	402	 12% 86% 7% 6%
1	B	402	 16% 86% 8% 6%
1	C	402	 12% 88% 7% 5%

2 Entry composition

There are 5 unique types of molecules in this entry. The entry contains 9566 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.

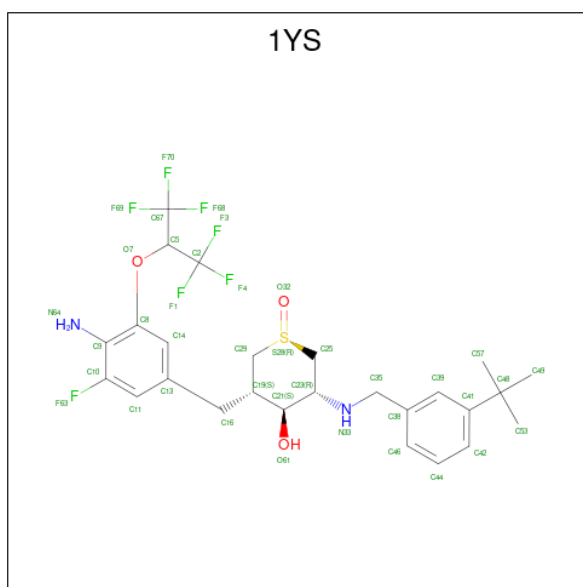
- Molecule 1 is a protein called Beta-secretase 1.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
1	A	376	2961	1895	492	560	14	0	0	0
1	B	378	2971	1901	494	562	14	0	0	0
1	C	381	2993	1917	497	565	14	0	0	0

There are 6 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
A	33P	GLY	-	expression tag	UNP P56817
A	34P	PRO	-	expression tag	UNP P56817
B	33P	GLY	-	expression tag	UNP P56817
B	34P	PRO	-	expression tag	UNP P56817
C	33P	GLY	-	expression tag	UNP P56817
C	34P	PRO	-	expression tag	UNP P56817

- Molecule 2 is (1R,3S,4S,5R)-3-{4-amino-3-fluoro-5-[(1,1,1,3,3,3-hexafluoropropan-2-yl)oxy]benzyl}-5-[(3-tert-butylbenzyl)amino]tetrahydro-2H-thiopyran-4-ol 1-oxide (three-letter code: 1YS) (formula: C₂₆H₃₁F₇N₂O₃S).



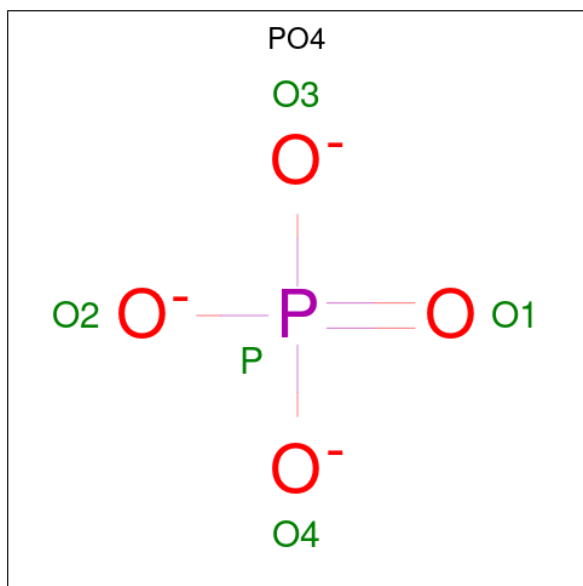
Mol	Chain	Residues	Atoms					ZeroOcc	AltConf		
			Total	C	F	N	O			S	
2	A	1	Total	39	26	7	2	3	1	0	0
2	B	1	Total	39	26	7	2	3	1	0	0
2	C	1	Total	39	26	7	2	3	1	0	0

- Molecule 3 is GLYCEROL (three-letter code: GOL) (formula: C₃H₈O₃).



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

- Molecule 4 is PHOSPHATE ION (three-letter code: PO4) (formula: O₄P).



Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
4	C	1	Total	O P	0	0
			5	4 1		

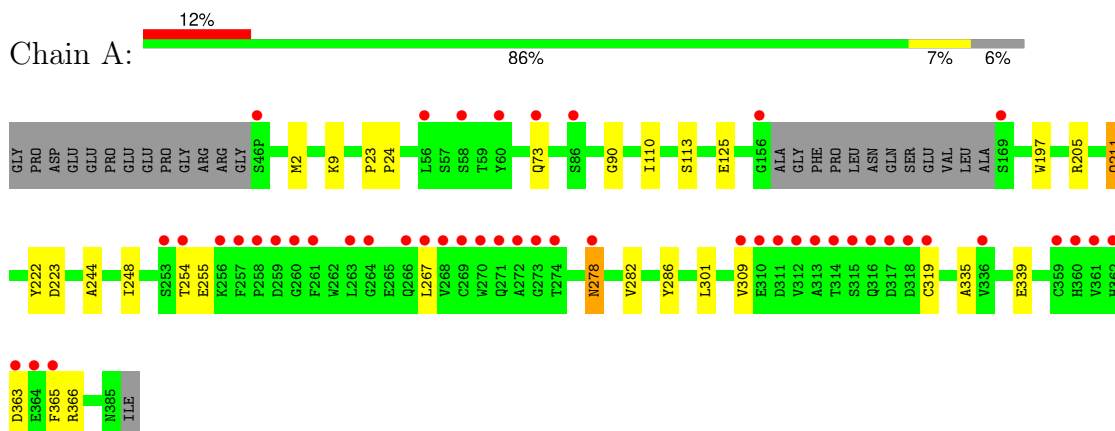
- Molecule 5 is water.

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
5	A	172	Total	O	0	0
			172	172		
5	B	168	Total	O	0	0
			168	168		
5	C	173	Total	O	0	0
			173	173		

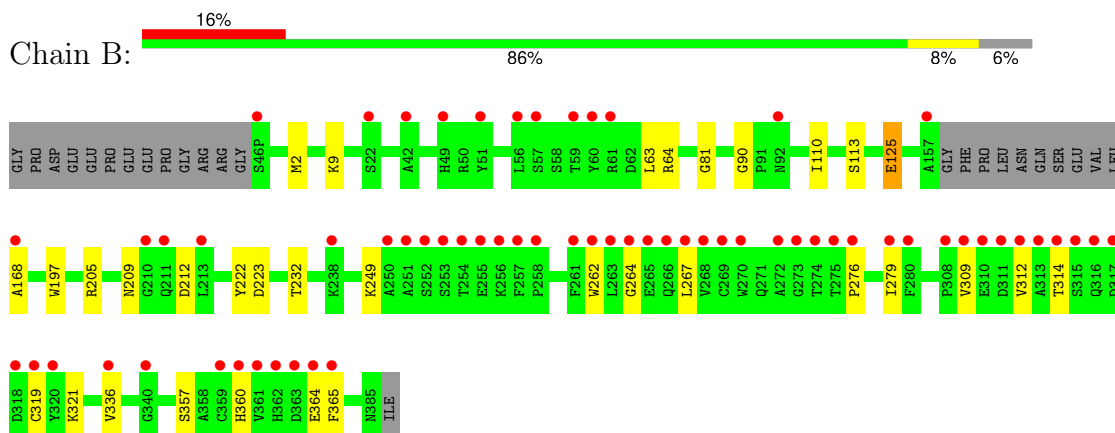
3 Residue-property plots [i](#)

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.

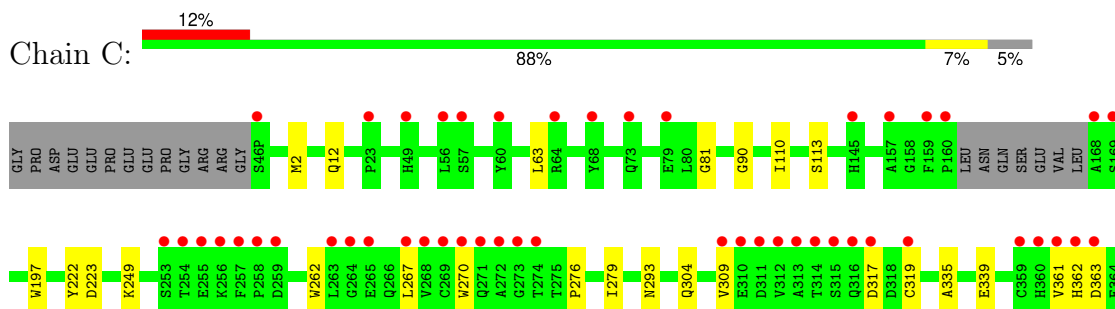
- Molecule 1: Beta-secretase 1



- Molecule 1: Beta-secretase 1



- Molecule 1: Beta-secretase 1





4 Data and refinement statistics

Property	Value	Source
Space group	P 1 21 1	Depositor
Cell constants a, b, c, α , β , γ	81.93Å 103.07Å 100.23Å 90.00° 104.33° 90.00°	Depositor
Resolution (Å)	37.65 – 1.95 37.65 – 1.95	Depositor EDS
% Data completeness (in resolution range)	99.4 (37.65-1.95) 99.5 (37.65-1.95)	Depositor EDS
R_{merge}	0.09	Depositor
R_{sym}	(Not available)	Depositor
$\langle I/\sigma(I) \rangle$ ¹	2.24 (at 1.95Å)	Xtrriage
Refinement program	CNS, CNX	Depositor
R, R_{free}	0.199 , 0.222 0.194 , 0.218	Depositor DCC
R_{free} test set	5880 reflections (5.05%)	wwPDB-VP
Wilson B-factor (Å ²)	34.3	Xtrriage
Anisotropy	0.208	Xtrriage
Bulk solvent k_{sol} (e/Å ³), B_{sol} (Å ²)	0.38 , 38.4	EDS
L-test for twinning ²	$\langle L \rangle = 0.50$, $\langle L^2 \rangle = 0.33$	Xtrriage
Estimated twinning fraction	No twinning to report.	Xtrriage
F_o, F_c correlation	0.96	EDS
Total number of atoms	9566	wwPDB-VP
Average B, all atoms (Å ²)	42.0	wwPDB-VP

Xtrriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 4.36% of the height of the origin peak. No significant pseudotranslation is detected.*

¹Intensities estimated from amplitudes.

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

5 Model quality

5.1 Standard geometry

Bond lengths and bond angles in the following residue types are not validated in this section: PO4, 1YS, GOL

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

Mol	Chain	Bond lengths		Bond angles	
		RMSZ	# Z >5	RMSZ	# Z >5
1	A	0.27	0/3036	0.46	0/4126
1	B	0.27	0/3046	0.46	0/4140
1	C	0.26	0/3070	0.46	0/4173
All	All	0.27	0/9152	0.46	0/12439

There are no bond length outliers.

There are no bond angle outliers.

There are no chirality outliers.

There are no planarity outliers.

5.2 Too-close contacts

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

Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
1	A	2961	0	2870	17	0
1	B	2971	0	2880	19	0
1	C	2993	0	2899	16	0
2	A	39	0	31	0	0
2	B	39	0	31	0	0
2	C	39	0	31	0	0
3	B	6	0	8	0	0
4	C	5	0	0	0	0
5	A	172	0	0	2	0
5	B	168	0	0	0	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
5	C	173	0	0	0	0
All	All	9566	0	8750	52	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 3.

All (52) 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:267:LEU:HD13	1:B:319:CYS:HB3	1.71	0.71
1:A:267:LEU:HD13	1:A:319:CYS:HB3	1.75	0.67
1:A:254:THR:HG23	1:A:255:GLU:HG3	1.81	0.62
1:B:267:LEU:HD22	1:B:309:VAL:HG21	1.82	0.62
1:A:2:MET:HG2	1:A:90:GLY:HA2	1.83	0.61
1:B:357:SER:O	1:B:360:HIS:HB3	2.01	0.60
1:B:9:LYS:HZ1	1:B:168:ALA:N	1.99	0.60
1:C:335:ALA:O	1:C:339:GLU:HG3	2.02	0.60
1:B:264:GLY:O	1:B:321:LYS:HE3	2.03	0.58
1:B:64:ARG:HH11	1:B:64:ARG:HB3	1.69	0.58
1:B:232:THR:O	1:B:336:VAL:HG13	2.03	0.58
1:A:278:ASN:HD22	1:A:278:ASN:H	1.52	0.57
1:A:125:GLU:HG3	5:A:744:HOH:O	2.05	0.56
1:B:276:PRO:O	1:B:279:ILE:HG12	2.06	0.56
1:C:249:LYS:HE2	1:C:262:TRP:CD1	2.41	0.55
1:C:267:LEU:HD13	1:C:319:CYS:HB3	1.88	0.55
1:C:363:ASP:HB3	1:C:366:ARG:O	2.05	0.55
1:A:335:ALA:O	1:A:339:GLU:HG3	2.08	0.54
1:C:267:LEU:HD22	1:C:309:VAL:HG21	1.89	0.54
1:B:63:LEU:HG	1:B:81:GLY:HA2	1.92	0.52
1:A:365:PHE:HB2	5:A:768:HOH:O	2.08	0.52
1:C:63:LEU:HG	1:C:81:GLY:HA2	1.93	0.50
1:A:267:LEU:HD22	1:A:309:VAL:HG21	1.94	0.49
1:B:205:ARG:NH2	1:B:212:ASP:HB2	2.28	0.49
1:C:110:ILE:HB	1:C:113:SER:HB3	1.94	0.49
1:B:267:LEU:HD21	1:B:312:VAL:HG13	1.94	0.49
1:C:304:GLN:HG3	1:C:361:VAL:HG21	1.94	0.49
1:B:267:LEU:HD22	1:B:309:VAL:CG2	2.42	0.48
1:B:2:MET:HG2	1:B:90:GLY:HA2	1.96	0.48
1:A:363:ASP:HB3	1:A:366:ARG:O	2.14	0.48
1:B:110:ILE:HB	1:B:113:SER:HB3	1.96	0.47
1:C:12:GLN:OE1	1:C:113:SER:HA	2.15	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:267:LEU:HD22	1:C:309:VAL:CG2	2.44	0.47
1:A:205:ARG:HB3	1:A:286:TYR:HB2	1.98	0.46
1:B:222:TYR:HA	1:B:223:ASP:HA	1.62	0.45
1:C:276:PRO:O	1:C:279:ILE:HG12	2.17	0.45
1:A:282:VAL:HG12	1:A:301:LEU:HD23	1.99	0.44
1:A:244:ALA:O	1:A:248:ILE:HG13	2.17	0.44
1:C:293:ASN:HA	1:C:375:VAL:HA	1.99	0.43
1:A:110:ILE:HB	1:A:113:SER:HB3	2.01	0.43
1:A:211:GLN:HE21	1:A:211:GLN:HB2	1.62	0.43
1:C:2:MET:HG2	1:C:90:GLY:HA2	2.00	0.43
1:C:222:TYR:HA	1:C:223:ASP:HA	1.65	0.43
1:A:222:TYR:HA	1:A:223:ASP:HA	1.70	0.43
1:A:9:LYS:HE2	1:A:9:LYS:HB3	1.83	0.42
1:B:249:LYS:HE2	1:B:262:TRP:CD1	2.54	0.42
1:B:364:GLU:HG3	1:B:365:PHE:CD2	2.55	0.42
1:B:314:THR:O	1:B:314:THR:HG23	2.20	0.41
1:C:304:GLN:CG	1:C:361:VAL:HG21	2.50	0.41
1:C:270:TRP:O	1:C:317:ASP:HB3	2.21	0.41
1:A:23:PRO:HA	1:A:24:PRO:HD3	1.93	0.40
1:B:125:GLU:O	1:B:125:GLU:HG3	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	372/402 (92%)	366 (98%)	6 (2%)	0	100	100
1	B	374/402 (93%)	366 (98%)	8 (2%)	0	100	100
1	C	377/402 (94%)	368 (98%)	9 (2%)	0	100	100
All	All	1123/1206 (93%)	1100 (98%)	23 (2%)	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	322/342 (94%)	318 (99%)	4 (1%)	67	65
1	B	322/342 (94%)	319 (99%)	3 (1%)	75	75
1	C	324/342 (95%)	322 (99%)	2 (1%)	84	83
All	All	968/1026 (94%)	959 (99%)	9 (1%)	75	75

All (9) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	73	GLN
1	A	197	TRP
1	A	211	GLN
1	A	278	ASN
1	B	125	GLU
1	B	197	TRP
1	B	209	ASN
1	C	197	TRP
1	C	362	HIS

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (9) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	114	ASN
1	A	278	ASN
1	A	326	GLN
1	B	114	ASN
1	B	278	ASN
1	B	293	ASN
1	B	326	GLN
1	C	114	ASN
1	C	326	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 oligosaccharides in this entry.

5.6 Ligand geometry [i](#)

5 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	1YS	B	502	-	38,41,41	1.64	5 (13%)	52,63,63	1.23	6 (11%)
2	1YS	C	501	-	38,41,41	1.62	5 (13%)	52,63,63	1.19	6 (11%)
3	GOL	B	501	-	5,5,5	0.76	0	5,5,5	0.46	0
2	1YS	A	501	-	38,41,41	1.63	5 (13%)	52,63,63	1.25	5 (9%)
4	PO4	C	502	-	4,4,4	1.68	0	6,6,6	0.46	0

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

Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
2	1YS	B	502	-	-	2/31/47/47	0/3/3/3
2	1YS	A	501	-	-	2/31/47/47	0/3/3/3
3	GOL	B	501	-	-	2/4/4/4	-
2	1YS	C	501	-	-	1/31/47/47	0/3/3/3

All (15) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
2	A	501	1YS	C25-C23	4.08	1.56	1.52
2	B	502	1YS	C25-C23	3.93	1.56	1.52
2	C	501	1YS	C25-C23	3.81	1.56	1.52
2	A	501	1YS	C16-C19	3.32	1.57	1.53
2	C	501	1YS	C16-C19	3.07	1.57	1.53
2	B	502	1YS	C16-C19	3.03	1.57	1.53
2	B	502	1YS	C11-C10	2.61	1.42	1.37
2	C	501	1YS	C11-C10	2.57	1.42	1.37
2	A	501	1YS	C39-C41	2.56	1.43	1.39
2	B	502	1YS	C39-C41	2.54	1.43	1.39
2	C	501	1YS	C39-C41	2.53	1.43	1.39
2	C	501	1YS	C42-C41	2.37	1.43	1.39
2	A	501	1YS	C42-C41	2.36	1.43	1.39
2	B	502	1YS	C42-C41	2.35	1.43	1.39
2	A	501	1YS	C11-C10	2.24	1.41	1.37

All (17) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
2	B	502	1YS	C35-N33-C23	3.59	122.27	114.84
2	A	501	1YS	C35-N33-C23	3.50	122.10	114.84
2	A	501	1YS	C29-C19-C16	3.31	114.69	109.65
2	A	501	1YS	C13-C16-C19	-3.22	108.58	113.61
2	C	501	1YS	C29-C19-C16	3.21	114.55	109.65
2	B	502	1YS	C29-C19-C16	3.15	114.45	109.65
2	C	501	1YS	C35-N33-C23	3.13	121.32	114.84
2	B	502	1YS	C13-C16-C19	-2.78	109.27	113.61
2	C	501	1YS	C13-C16-C19	-2.65	109.47	113.61
2	A	501	1YS	C53-C48-C41	2.50	116.25	110.35
2	B	502	1YS	C25-C23-N33	2.24	113.16	109.23
2	C	501	1YS	C53-C48-C41	2.22	115.58	110.35
2	B	502	1YS	C8-C9-C10	2.17	119.46	116.08
2	C	501	1YS	C8-C9-C10	2.14	119.42	116.08
2	B	502	1YS	C53-C48-C41	2.12	115.36	110.35
2	C	501	1YS	C11-C10-C9	-2.05	120.34	123.36
2	A	501	1YS	C8-C9-C10	2.02	119.24	116.08

There are no chirality outliers.

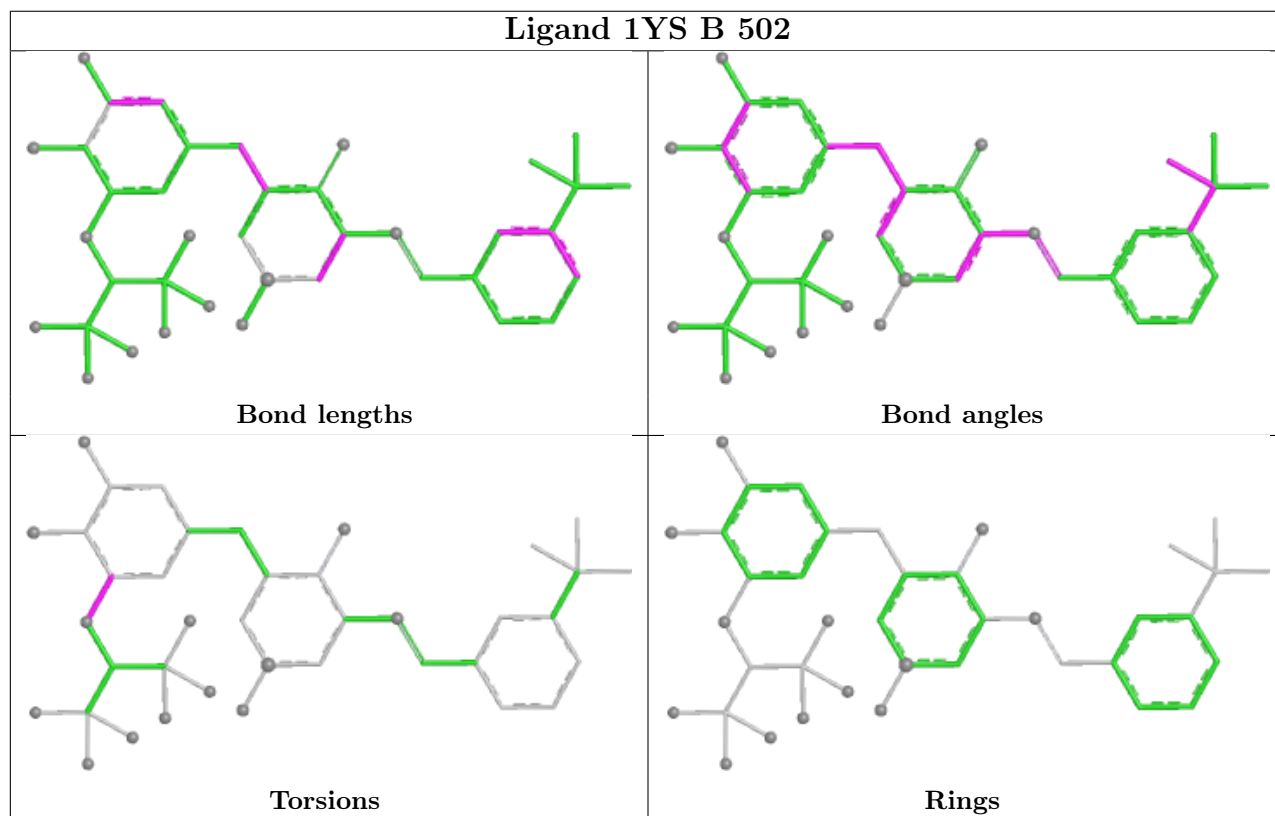
All (7) torsion outliers are listed below:

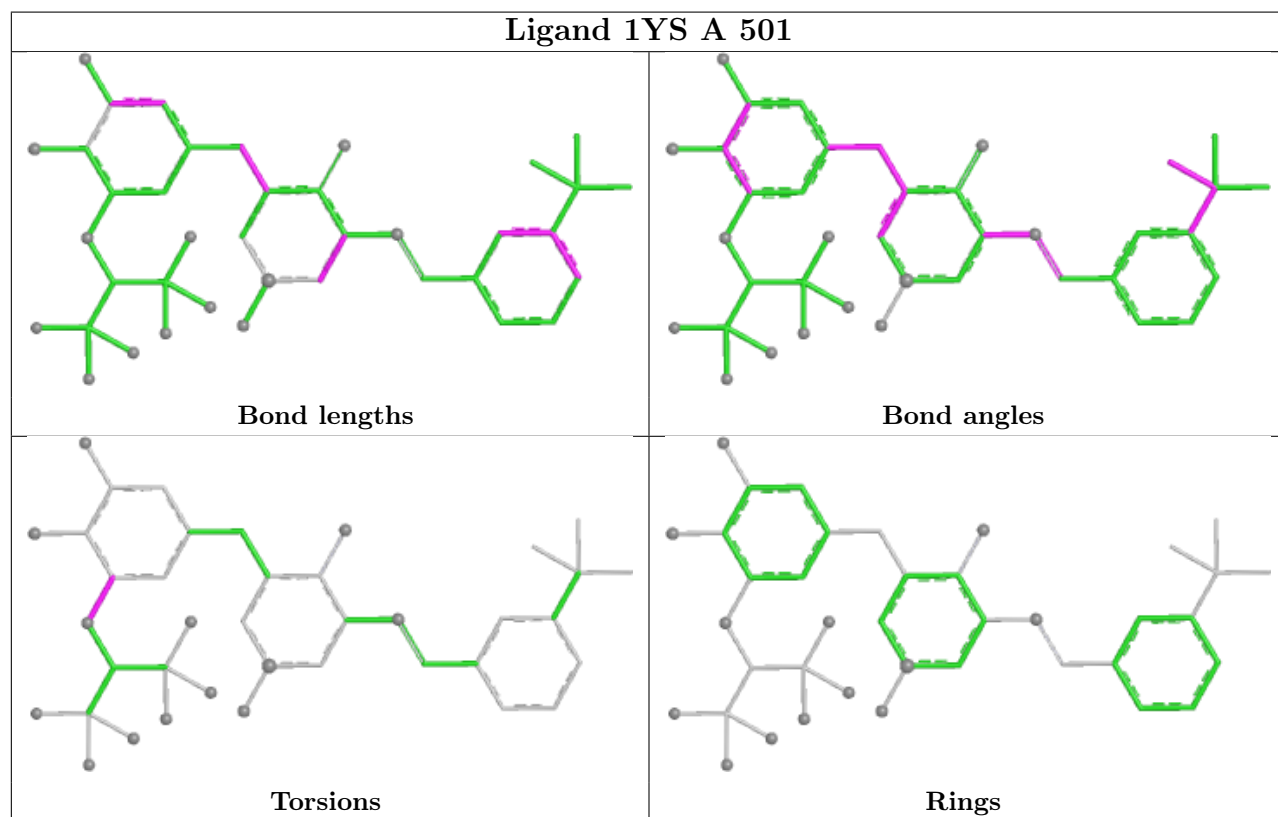
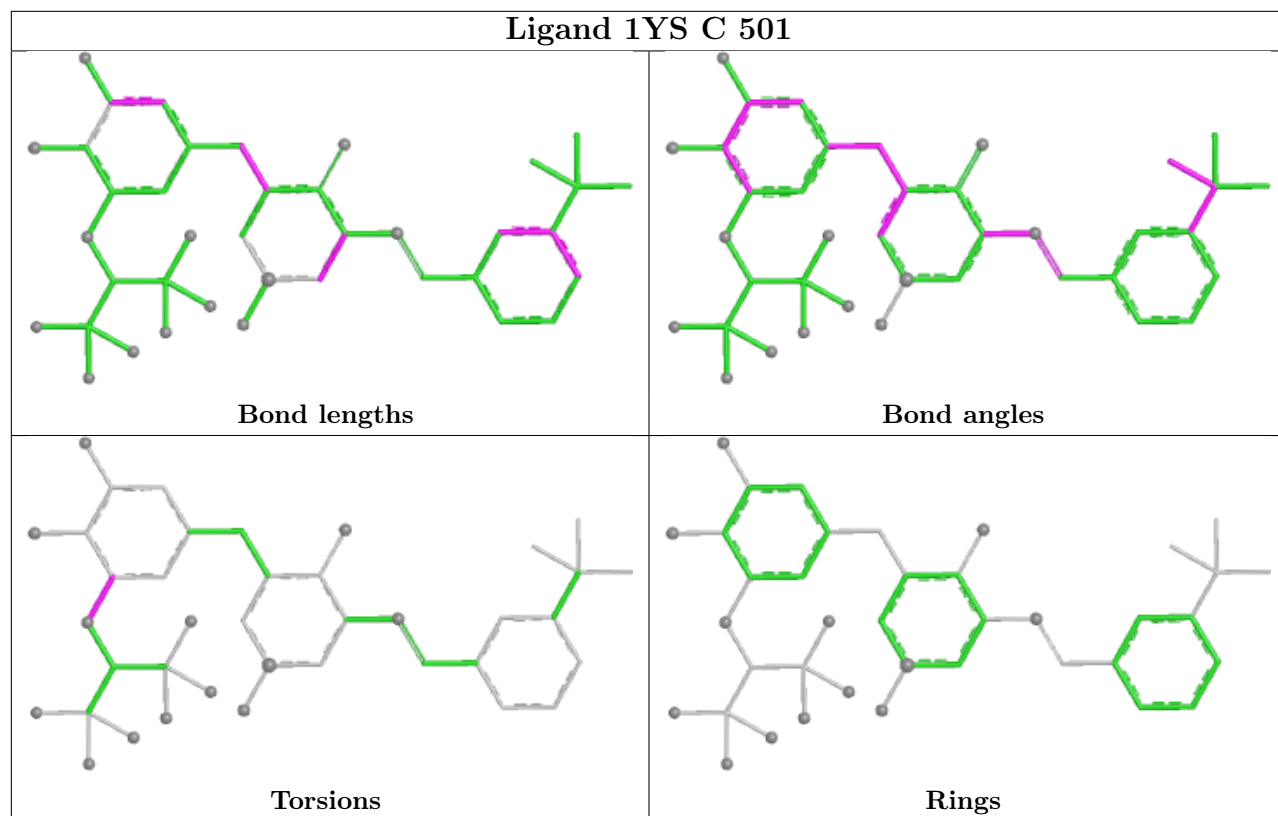
Mol	Chain	Res	Type	Atoms
3	B	501	GOL	O1-C1-C2-C3
3	B	501	GOL	O1-C1-C2-O2
2	A	501	1YS	C9-C8-O7-C5
2	B	502	1YS	C9-C8-O7-C5
2	A	501	1YS	C14-C8-O7-C5
2	B	502	1YS	C14-C8-O7-C5
2	C	501	1YS	C14-C8-O7-C5

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 [i](#)

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

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

Mol	Chain	Analysed	<RSRZ>	#RSRZ>2	OWAB(Å ²)	Q<0.9
1	A	376/402 (93%)	0.54	47 (12%) 9 11	24, 38, 71, 106	0
1	B	378/402 (94%)	0.73	65 (17%) 5 5	23, 39, 76, 110	0
1	C	381/402 (94%)	0.64	50 (13%) 8 10	26, 40, 73, 105	0
All	All	1135/1206 (94%)	0.64	162 (14%) 7 9	23, 39, 74, 110	0

All (162) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	B	314	THR	8.5
1	C	312	VAL	7.1
1	A	365	PHE	6.4
1	B	312	VAL	6.0
1	B	267	LEU	6.0
1	C	168	ALA	6.0
1	B	313	ALA	5.9
1	C	160	PRO	5.6
1	A	315	SER	5.5
1	A	272	ALA	5.4
1	B	361	VAL	5.2
1	A	312	VAL	5.1
1	B	258	PRO	5.1
1	B	272	ALA	4.9
1	C	313	ALA	4.9
1	A	314	THR	4.8
1	A	313	ALA	4.8
1	C	267	LEU	4.7
1	B	273	GLY	4.7
1	C	159	PHE	4.6
1	B	256	LYS	4.6
1	C	362	HIS	4.6
1	B	268	VAL	4.5

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Mol	Chain	Res	Type	RSRZ
1	C	361	VAL	4.4
1	C	254	THR	4.4
1	A	267	LEU	4.4
1	C	314	THR	4.3
1	B	365	PHE	4.2
1	A	258	PRO	4.2
1	B	257	PHE	4.2
1	B	270	TRP	4.2
1	A	309	VAL	4.2
1	B	316	GLN	4.1
1	B	362	HIS	4.0
1	B	46(P)	SER	4.0
1	C	315	SER	4.0
1	C	365	PHE	4.0
1	B	309	VAL	4.0
1	A	169	SER	4.0
1	C	311	ASP	3.9
1	A	361	VAL	3.9
1	C	317	ASP	3.9
1	B	254	THR	3.8
1	C	258	PRO	3.8
1	B	317	ASP	3.8
1	C	46(P)	SER	3.7
1	C	273	GLY	3.7
1	B	250	ALA	3.6
1	A	319	CYS	3.6
1	B	263	LEU	3.5
1	B	251	ALA	3.5
1	A	264	GLY	3.5
1	C	269	CYS	3.5
1	A	317	ASP	3.4
1	A	156	GLY	3.4
1	A	318	ASP	3.3
1	C	310	GLU	3.3
1	B	269	CYS	3.2
1	A	268	VAL	3.2
1	B	56	LEU	3.2
1	A	316	GLN	3.2
1	B	315	SER	3.1
1	C	309	VAL	3.1
1	A	362	HIS	3.1
1	B	168	ALA	3.1

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Mol	Chain	Res	Type	RSRZ
1	B	359	CYS	3.1
1	C	68	TYR	3.1
1	B	211	GLN	3.1
1	B	262	TRP	3.0
1	C	49	HIS	2.9
1	A	253	SER	2.9
1	A	256	LYS	2.9
1	C	169	SER	2.9
1	A	254	THR	2.9
1	B	340	GLY	2.9
1	C	272	ALA	2.9
1	A	311	ASP	2.8
1	A	360	HIS	2.8
1	C	360	HIS	2.8
1	C	264	GLY	2.8
1	B	51	TYR	2.7
1	B	363	ASP	2.7
1	A	257	PHE	2.7
1	A	266	GLN	2.7
1	C	359	CYS	2.7
1	A	263	LEU	2.7
1	B	213	LEU	2.7
1	C	56	LEU	2.7
1	C	270	TRP	2.7
1	B	360	HIS	2.7
1	C	316	GLN	2.7
1	B	308	PRO	2.7
1	B	274	THR	2.6
1	B	252	SER	2.6
1	B	266	GLN	2.6
1	C	64	ARG	2.6
1	A	270	TRP	2.6
1	A	269	CYS	2.6
1	A	364	GLU	2.6
1	C	268	VAL	2.6
1	A	259	ASP	2.6
1	A	56	LEU	2.6
1	B	276	PRO	2.5
1	C	257	PHE	2.5
1	B	255	GLU	2.5
1	B	61	ARG	2.5
1	B	364	GLU	2.5

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Mol	Chain	Res	Type	RSRZ
1	B	253	SER	2.5
1	C	363	ASP	2.5
1	C	271	GLN	2.5
1	A	271	GLN	2.4
1	A	336	VAL	2.4
1	B	261	PHE	2.4
1	B	210	GLY	2.4
1	C	274	THR	2.4
1	C	263	LEU	2.4
1	C	255	GLU	2.4
1	B	318	ASP	2.4
1	A	261	PHE	2.4
1	B	279	ILE	2.3
1	A	310	GLU	2.3
1	B	310	GLU	2.3
1	A	278	ASN	2.3
1	B	22	SER	2.3
1	B	319	CYS	2.3
1	C	73	GLN	2.3
1	A	273	GLY	2.3
1	B	264	GLY	2.3
1	B	265	GLU	2.3
1	C	253	SER	2.3
1	B	157	ALA	2.2
1	A	73	GLN	2.2
1	B	275	THR	2.2
1	B	42	ALA	2.2
1	C	265	GLU	2.2
1	A	274	THR	2.2
1	A	46(P)	SER	2.2
1	C	60	TYR	2.2
1	A	363	ASP	2.2
1	A	86	SER	2.2
1	C	256	LYS	2.2
1	C	259	ASP	2.1
1	B	59	THR	2.1
1	C	57	SER	2.1
1	C	79	GLU	2.1
1	C	145	HIS	2.1
1	B	49	HIS	2.1
1	B	311	ASP	2.1
1	B	60	TYR	2.1

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Mol	Chain	Res	Type	RSRZ
1	B	57	SER	2.1
1	A	260	GLY	2.1
1	A	359	CYS	2.1
1	C	157	ALA	2.1
1	C	23	PRO	2.1
1	B	320	TYR	2.1
1	C	319	CYS	2.0
1	B	280	PHE	2.0
1	A	58	SER	2.0
1	B	92	ASN	2.0
1	A	60	TYR	2.0
1	B	238	LYS	2.0
1	B	336	VAL	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](#)

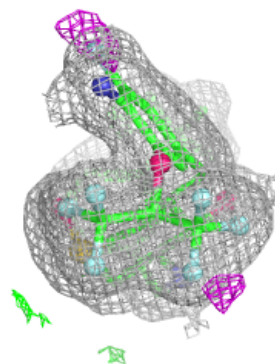
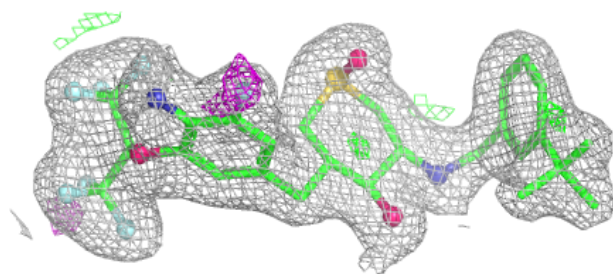
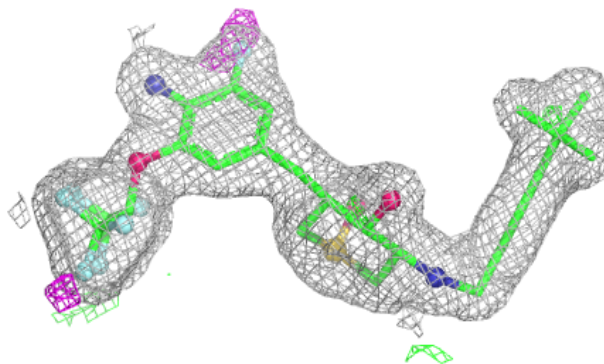
In the following table, the Atoms column lists the number of modelled atoms in the group and the number defined in the chemical component dictionary. The B-factors column lists the minimum, median, 95th percentile and maximum values of B factors of atoms in the group. The column labelled 'Q< 0.9' lists 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	1YS	A	501	39/39	0.95	0.08	27,33,41,44	0
2	1YS	B	502	39/39	0.96	0.07	26,32,44,46	0
2	1YS	C	501	39/39	0.96	0.08	28,34,44,46	0
3	GOL	B	501	6/6	0.96	0.08	40,43,44,46	0
4	PO4	C	502	5/5	0.96	0.14	45,46,47,49	0

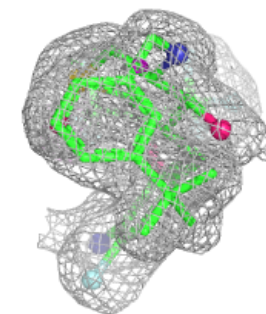
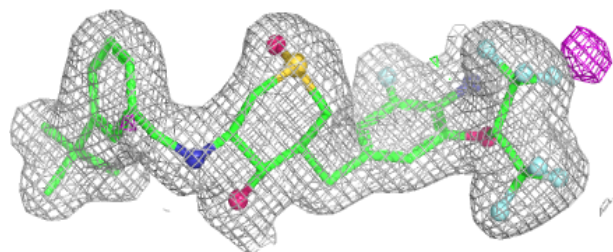
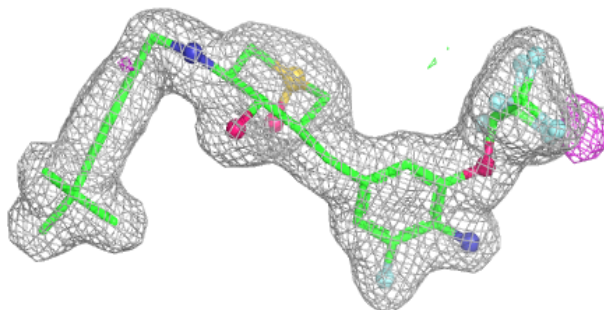
The following is a graphical depiction of the model fit to experimental electron density of all instances of the Ligand of Interest. In addition, ligands with molecular weight > 250 and outliers as shown on the geometry validation Tables will also be included. Each fit is shown from different orientation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

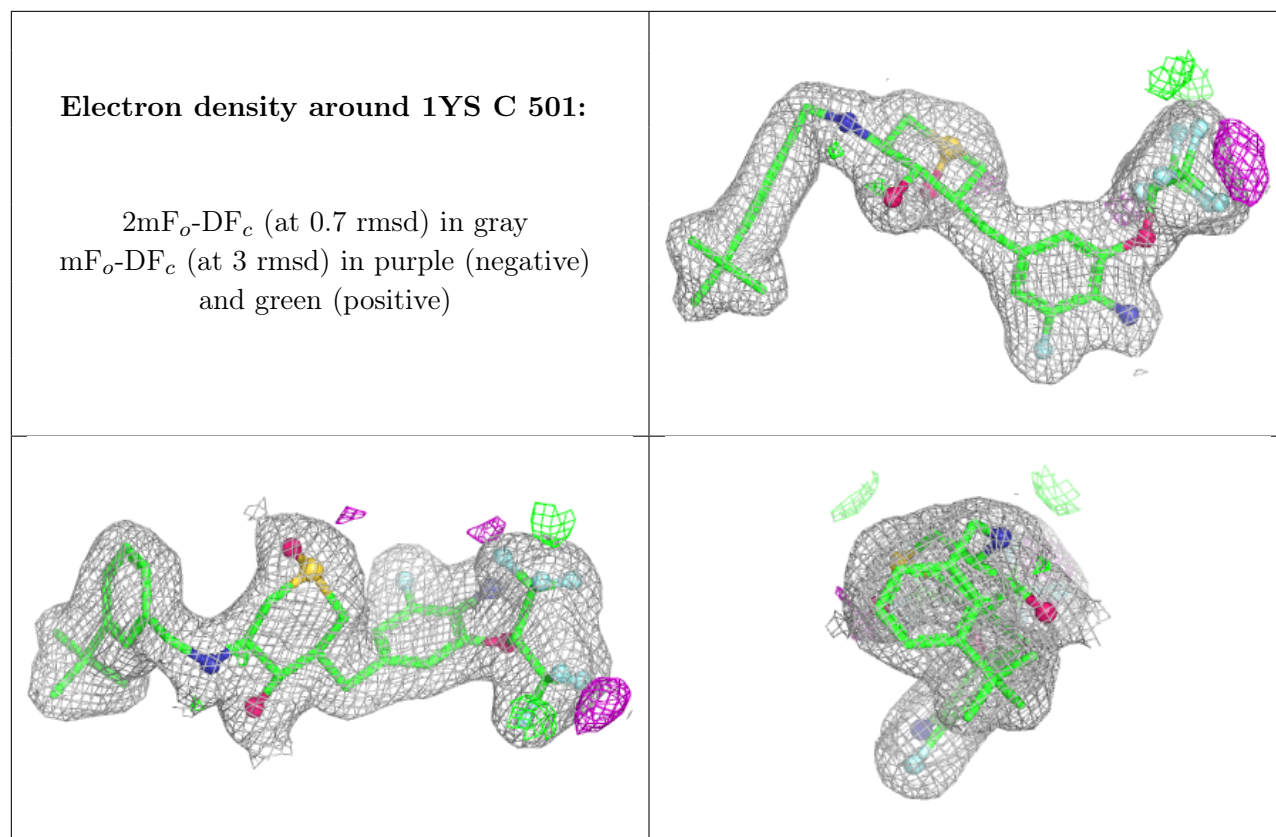
Electron density around 1YS A 501:

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

**Electron density around 1YS B 502:**

$2mF_o-DF_c$ (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.