



Full wwPDB X-ray Structure Validation Report ⓘ

Aug 5, 2024 – 02:28 pm BST

PDB ID : 8Q24
Title : HsNMT1 in complex with both MyrCoA and (DAB)SFSKPR inhibitor peptide
Authors : Dian, C.; Giglione, C.; Meinnel, T.
Deposited on : 2023-08-01
Resolution : 1.90 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 : 1.8.4, CSD as541be (2020)
Xtriage (Phenix) : 1.13
EDS : 2.37.1
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) : 2.37.1

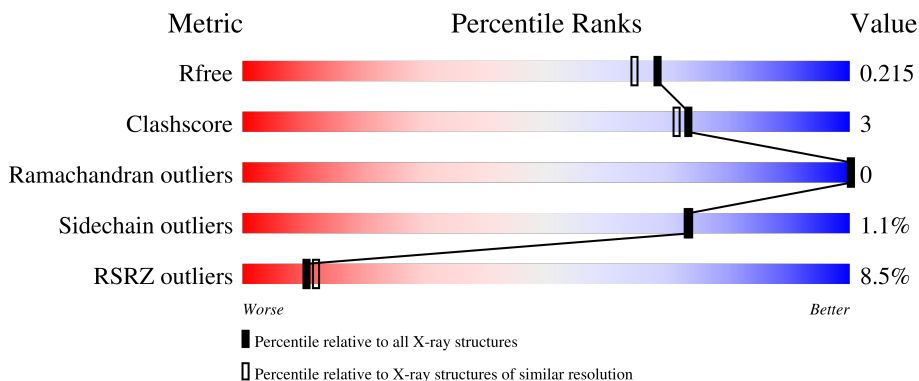
1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

X-RAY DIFFRACTION

The reported resolution of this entry is 1.90 Å.

Percentile scores (ranging between 0-100) for global validation metrics of the entry are shown in the following graphic. The table shows the number of entries on which the scores are based.



Metric	Whole archive (#Entries)	Similar resolution (#Entries, resolution range(Å))
R_{free}	130704	6207 (1.90-1.90)
Clashscore	141614	6847 (1.90-1.90)
Ramachandran outliers	138981	6760 (1.90-1.90)
Sidechain outliers	138945	6760 (1.90-1.90)
RSRZ outliers	127900	6082 (1.90-1.90)

The table below summarises the geometric issues observed across the polymeric chains and their fit to the electron density. The red, orange, yellow and green segments 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	 7% 87% 9%
1	B	402	 7% 90% 7%
2	C	7	 29% 71% 14% 14%
2	E	7	 29% 71% 29%

2 Entry composition

There are 6 unique types of molecules in this entry. The entry contains 7129 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 Glycylpeptide N-tetradecanoyltransferase 1.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
1	A	386	Total	C	N	O	S	0	3	0
			3145	2038	529	562	16			
1	B	392	Total	C	N	O	S	0	6	0
			3223	2087	540	579	17			

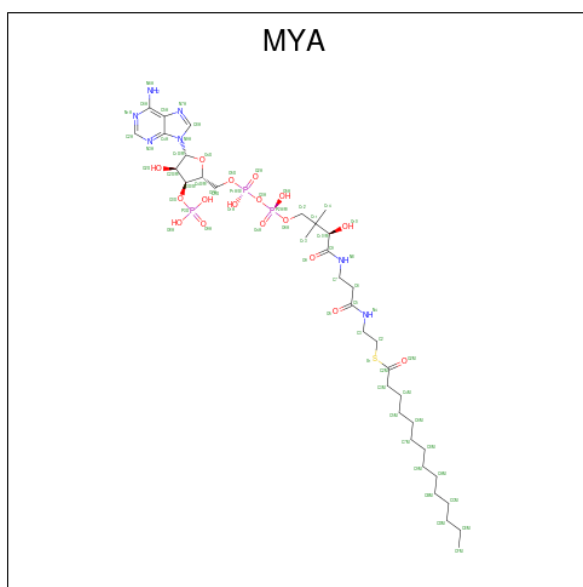
There are 8 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
A	95	GLY	-	expression tag	UNP P30419
A	96	GLY	-	expression tag	UNP P30419
A	97	SER	-	expression tag	UNP P30419
A	98	GLU	-	expression tag	UNP P30419
B	95	GLY	-	expression tag	UNP P30419
B	96	GLY	-	expression tag	UNP P30419
B	97	SER	-	expression tag	UNP P30419
B	98	GLU	-	expression tag	UNP P30419

- Molecule 2 is a protein called DAB-SER-PHE-SER-LYS-PRO-ARG.

Mol	Chain	Residues	Atoms				ZeroOcc	AltConf	Trace
			Total	C	N	O			
2	E	7	Total	C	N	O	0	0	0
			58	36	12	10			
2	C	7	Total	C	N	O	0	0	0
			58	36	12	10			

- Molecule 3 is TETRADECANOYL-COA (three-letter code: MYA) (formula: C₃₅H₆₂N₇O₁₇P₃S) (labeled as "Ligand of Interest" by depositor).



Mol	Chain	Residues	Atoms					ZeroOcc	AltConf		
			Total	C	N	O	P			S	
3	A	1	Total	63	35	7	17	3	1	0	0
3	B	1	Total	63	35	7	17	3	1	0	0

- Molecule 4 is GLYCEROL (three-letter code: GOL) (formula: $C_3H_8O_3$).



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

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

- Molecule 5 is CHLORIDE ION (three-letter code: CL) (formula: Cl).

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
5	A	2	Total	Cl	0	0
			2	2		

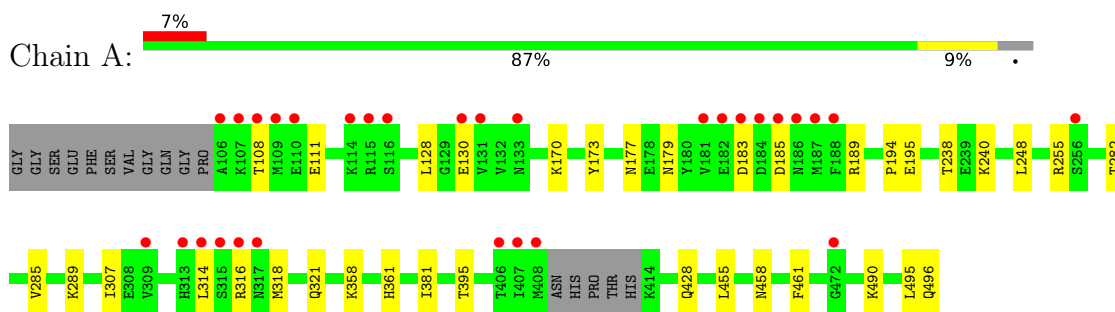
- Molecule 6 is water.

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
6	A	238	Total	O	0	0
			238	238		
6	B	246	Total	O	0	0
			246	246		
6	E	3	Total	O	0	0
			3	3		

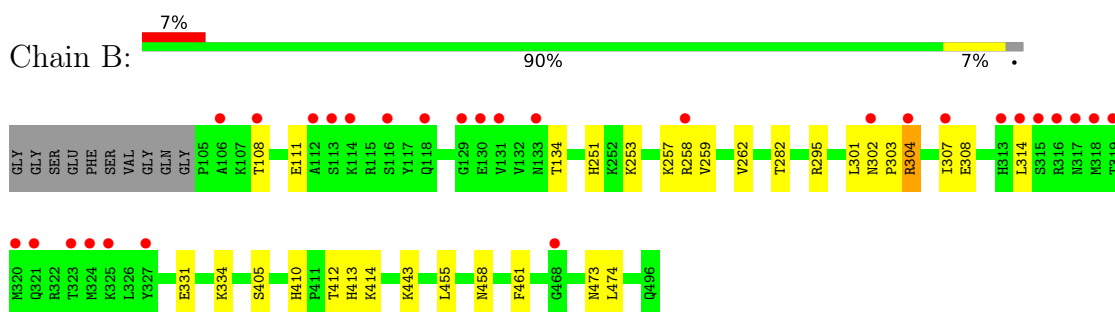
3 Residue-property plots [i](#)

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.

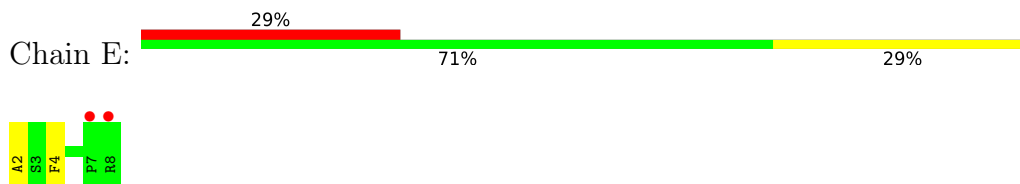
- Molecule 1: Glycylpeptide N-tetradecanoyltransferase 1



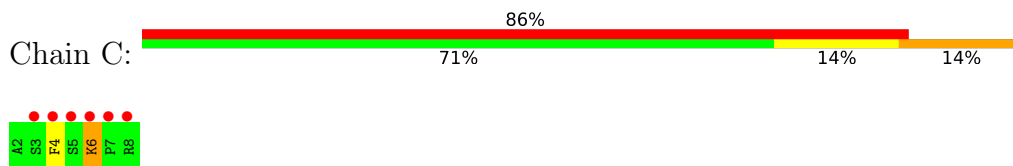
- Molecule 1: Glycylpeptide N-tetradecanoyltransferase 1



- Molecule 2: DAB-SER-PHE-SER-LYS-PRO-ARG



- Molecule 2: DAB-SER-PHE-SER-LYS-PRO-ARG



4 Data and refinement statistics

Property	Value	Source
Space group	P 21 21 2	Depositor
Cell constants a, b, c, α , β , γ	78.74Å 177.99Å 58.27Å 90.00° 90.00° 90.00°	Depositor
Resolution (Å)	48.75 – 1.90 48.75 – 1.90	Depositor EDS
% Data completeness (in resolution range)	99.8 (48.75-1.90) 99.9 (48.75-1.90)	Depositor EDS
R_{merge}	(Not available)	Depositor
R_{sym}	0.06	Depositor
$\langle I/\sigma(I) \rangle$ ¹	2.90 (at 1.90Å)	Xtrriage
Refinement program	PHENIX 1.17_3644	Depositor
R, R_{free}	0.172 , 0.215 0.172 , 0.215	Depositor DCC
R_{free} test set	3244 reflections (4.96%)	wwPDB-VP
Wilson B-factor (Å ²)	29.7	Xtrriage
Anisotropy	0.784	Xtrriage
Bulk solvent k_{sol} (e/Å ³), B_{sol} (Å ²)	0.35 , 47.2	EDS
L-test for twinning ²	$\langle L \rangle = 0.49$, $\langle L^2 \rangle = 0.32$	Xtrriage
Estimated twinning fraction	No twinning to report.	Xtrriage
F_o, F_c correlation	0.96	EDS
Total number of atoms	7129	wwPDB-VP
Average B, all atoms (Å ²)	37.0	wwPDB-VP

Xtrriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 15.83% 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: GOL, DAB, CL, MYA

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	0.35	0/3230	0.54	0/4389
1	B	0.36	0/3314	0.52	0/4507
2	C	0.35	0/52	0.55	0/66
2	E	0.36	0/52	0.55	0/66
All	All	0.36	0/6648	0.53	0/9028

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 [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	3145	0	3110	22	0
1	B	3223	0	3176	20	1
2	C	58	0	61	3	0
2	E	58	0	61	2	0
3	A	63	0	58	1	0
3	B	63	0	58	1	0
4	A	12	0	16	1	0
4	B	18	0	24	2	0
5	A	2	0	0	0	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
6	A	238	0	0	2	0
6	B	246	0	0	1	0
6	E	3	0	0	0	0
All	All	7129	0	6564	43	1

The all-atom clashscore is defined as the number of clashes found per 1000 atoms (including hydrogen atoms). The all-atom clashscore for this structure is 3.

All (43) 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:414:LYS:H	4:B:504:GOL:H32	1.62	0.64
1:A:173:TYR:CE2	1:A:194:PRO:HG3	2.34	0.63
1:A:361:HIS:CD2	1:A:490:LYS:HE2	2.35	0.62
1:B:410:HIS:HD2	1:B:412:THR:H	1.46	0.62
2:E:2:DAB:HD1	2:E:2:DAB:H2	1.48	0.61
1:B:410:HIS:CD2	1:B:413:HIS:H	2.20	0.59
1:A:179:ASN:O	1:A:255:ARG:NH2	2.37	0.58
1:A:170:LYS:HA	1:A:173:TYR:CE2	2.39	0.57
1:A:108:THR:HG23	1:A:111:GLU:H	1.69	0.57
1:B:304:ARG:O	1:B:308:GLU:HG3	2.04	0.57
1:B:258:ARG:NH2	3:B:501:MYA:O9A	2.37	0.57
1:B:108:THR:HG23	1:B:111:GLU:H	1.71	0.56
1:B:334:LYS:NZ	6:B:603:HOH:O	2.40	0.55
1:A:282:THR:HG23	1:A:495:LEU:HD12	1.90	0.54
1:B:302:ASN:OD1	1:B:443:LYS:NZ	2.27	0.53
1:A:195:GLU:HB3	1:A:381:ILE:HD11	1.90	0.53
1:A:458:ASN:HA	1:A:461:PHE:CE2	2.44	0.53
1:A:307:ILE:HD13	1:A:314:LEU:HD13	1.92	0.52
1:A:185:ASP:HB2	2:C:6:LYS:HE3	1.92	0.52
1:A:496:GLN:HE22	4:A:503:GOL:H31	1.75	0.51
1:B:259:VAL:O	1:B:262[B]:VAL:HG22	2.11	0.51
1:B:303:PRO:O	1:B:307:ILE:HG12	2.11	0.51
1:B:458:ASN:HA	1:B:461:PHE:CE2	2.46	0.51
1:B:301:LEU:O	1:B:443:LYS:NZ	2.40	0.49
1:A:130:GLU:O	1:A:289:LYS:HE3	2.14	0.48
1:A:183:ASP:HB2	2:C:6:LYS:NZ	2.29	0.47
1:A:395:THR:HB	1:A:428[B]:GLN:HB2	1.96	0.47
1:A:358:LYS:NZ	6:A:612:HOH:O	2.48	0.47
1:B:414:LYS:N	4:B:504:GOL:H32	2.29	0.46
1:A:183:ASP:HB2	2:C:6:LYS:HZ2	1.80	0.46

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:295:ARG:NH1	1:B:473:ASN:HD21	2.13	0.46
1:B:405:SER:OG	2:E:4:PHE:HE2	1.99	0.46
1:A:128:LEU:HD23	1:A:128:LEU:HA	1.86	0.45
1:A:238:THR:HG22	1:A:240:LYS:HG2	2.00	0.44
1:B:251:HIS:ND1	1:B:253:LYS:HG2	2.33	0.44
1:A:177:ASN:O	1:A:189:ARG:HD2	2.18	0.43
1:A:248:LEU:HG	3:A:501:MYA:H14	2.01	0.43
1:A:285:VAL:HG21	6:A:625:HOH:O	2.21	0.41
1:A:321:GLN:H	1:A:321:GLN:NE2	2.19	0.41
1:B:282:THR:HB	1:B:474:LEU:HD11	2.03	0.40
1:B:410:HIS:CD2	1:B:412:THR:H	2.31	0.40

All (1) symmetry-related close contacts are listed below. The label for Atom-2 includes the symmetry operator and encoded unit-cell translations to be applied.

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:257:LYS:NZ	1:B:331:GLU:OE1[1_556]	2.19	0.01

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	385/402 (96%)	378 (98%)	7 (2%)	0	100	100
1	B	397/402 (99%)	386 (97%)	11 (3%)	0	100	100
2	C	5/7 (71%)	5 (100%)	0	0	100	100
2	E	5/7 (71%)	5 (100%)	0	0	100	100
All	All	792/818 (97%)	774 (98%)	18 (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	342/362 (94%)	339 (99%)	3 (1%)	78	79
1	B	353/362 (98%)	350 (99%)	3 (1%)	81	82
2	C	6/6 (100%)	4 (67%)	2 (33%)	0	0
2	E	6/6 (100%)	6 (100%)	0	100	100
All	All	707/736 (96%)	699 (99%)	8 (1%)	73	73

All (8) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	316	ARG
1	A	318	MET
1	A	455	LEU
1	B	134	THR
1	B	304	ARG
1	B	455	LEU
2	C	4	PHE
2	C	6	LYS

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (8) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	154	GLN
1	A	232	ASN
1	A	234	HIS
1	A	321	GLN
1	B	118	GLN
1	B	234	HIS
1	B	410	HIS
1	B	473	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](#)

2 non-standard protein/DNA/RNA residues 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	DAB	E	2	2	5,6,7	0.91	0	1,6,8	0.31	0
2	DAB	C	2	2	5,6,7	0.89	0	1,6,8	0.39	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	DAB	E	2	2	-	0/4/5/7	-
2	DAB	C	2	2	-	1/4/5/7	-

There are no bond length outliers.

There are no bond angle outliers.

There are no chirality outliers.

All (1) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
2	C	2	DAB	N-CA-CB-CG

There are no ring outliers.

1 monomer is involved in 1 short contact:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
2	E	2	DAB	1	0

5.5 Carbohydrates [i](#)

There are no monosaccharides in this entry.

5.6 Ligand geometry [i](#)

Of 9 ligands modelled in this entry, 2 are monoatomic - leaving 7 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
4	GOL	A	503	-	5,5,5	0.74	0	5,5,5	1.14	0
3	MYA	A	501	-	57,65,65	1.39	7 (12%)	68,91,91	1.46	7 (10%)
4	GOL	B	504	-	5,5,5	1.02	0	5,5,5	0.92	0
4	GOL	A	502	-	5,5,5	1.01	0	5,5,5	0.82	0
3	MYA	B	501	-	57,65,65	1.33	6 (10%)	68,91,91	1.41	8 (11%)
4	GOL	B	502	-	5,5,5	1.10	0	5,5,5	0.95	0
4	GOL	B	503	-	5,5,5	1.05	0	5,5,5	0.89	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
4	GOL	A	503	-	-	4/4/4/4	-
3	MYA	A	501	-	-	4/60/80/80	0/3/3/3
4	GOL	B	504	-	-	4/4/4/4	-
4	GOL	A	502	-	-	0/4/4/4	-
3	MYA	B	501	-	-	4/60/80/80	0/3/3/3
4	GOL	B	502	-	-	0/4/4/4	-
4	GOL	B	503	-	-	4/4/4/4	-

All (13) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
3	A	501	MYA	C2A-N3A	5.33	1.40	1.32
3	B	501	MYA	C2A-N3A	5.09	1.40	1.32
3	A	501	MYA	O4X-C1X	3.48	1.45	1.41
3	A	501	MYA	C3M-C2M	3.46	1.54	1.50
3	B	501	MYA	C2A-N1A	3.19	1.39	1.33
3	A	501	MYA	C2A-N1A	3.15	1.39	1.33
3	B	501	MYA	C3M-C2M	2.79	1.53	1.50
3	B	501	MYA	O4X-C1X	2.40	1.44	1.41
3	A	501	MYA	P3X-O3X	2.38	1.63	1.59
3	A	501	MYA	C6A-C5A	-2.35	1.34	1.43
3	A	501	MYA	C5A-C4A	-2.26	1.35	1.40
3	B	501	MYA	C6A-C5A	-2.21	1.35	1.43
3	B	501	MYA	C5A-C4A	-2.12	1.35	1.40

All (15) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
3	A	501	MYA	N3A-C2A-N1A	-6.82	118.02	128.68
3	B	501	MYA	N3A-C2A-N1A	-6.71	118.19	128.68
3	A	501	MYA	C2X-C3X-C4X	-4.35	95.50	103.22
3	B	501	MYA	O4X-C1X-C2X	-3.49	101.82	106.93
3	B	501	MYA	O5A-P2A-O4A	2.76	125.87	112.24
3	B	501	MYA	C2X-C3X-C4X	-2.75	98.34	103.22
3	A	501	MYA	O4X-C1X-C2X	-2.63	103.09	106.93
3	A	501	MYA	P2A-O3A-P1A	-2.47	124.36	132.83
3	B	501	MYA	O2M-C2M-C3M	-2.36	121.21	123.99
3	A	501	MYA	O2M-C2M-C3M	-2.32	121.25	123.99
3	B	501	MYA	C4A-C5A-N7A	-2.30	107.00	109.40
3	B	501	MYA	O6A-P2A-O4A	2.29	118.00	109.07
3	A	501	MYA	C4M-C3M-C2M	-2.22	107.41	112.33
3	A	501	MYA	C3M-C2M-S1	2.11	115.92	113.46
3	B	501	MYA	C4M-C3M-C2M	-2.01	107.87	112.33

There are no chirality outliers.

All (20) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
3	B	501	MYA	C12-O6A-P2A-O4A
4	A	503	GOL	O1-C1-C2-C3
4	A	503	GOL	O2-C2-C3-O3
4	B	503	GOL	O1-C1-C2-C3
4	B	504	GOL	O2-C2-C3-O3

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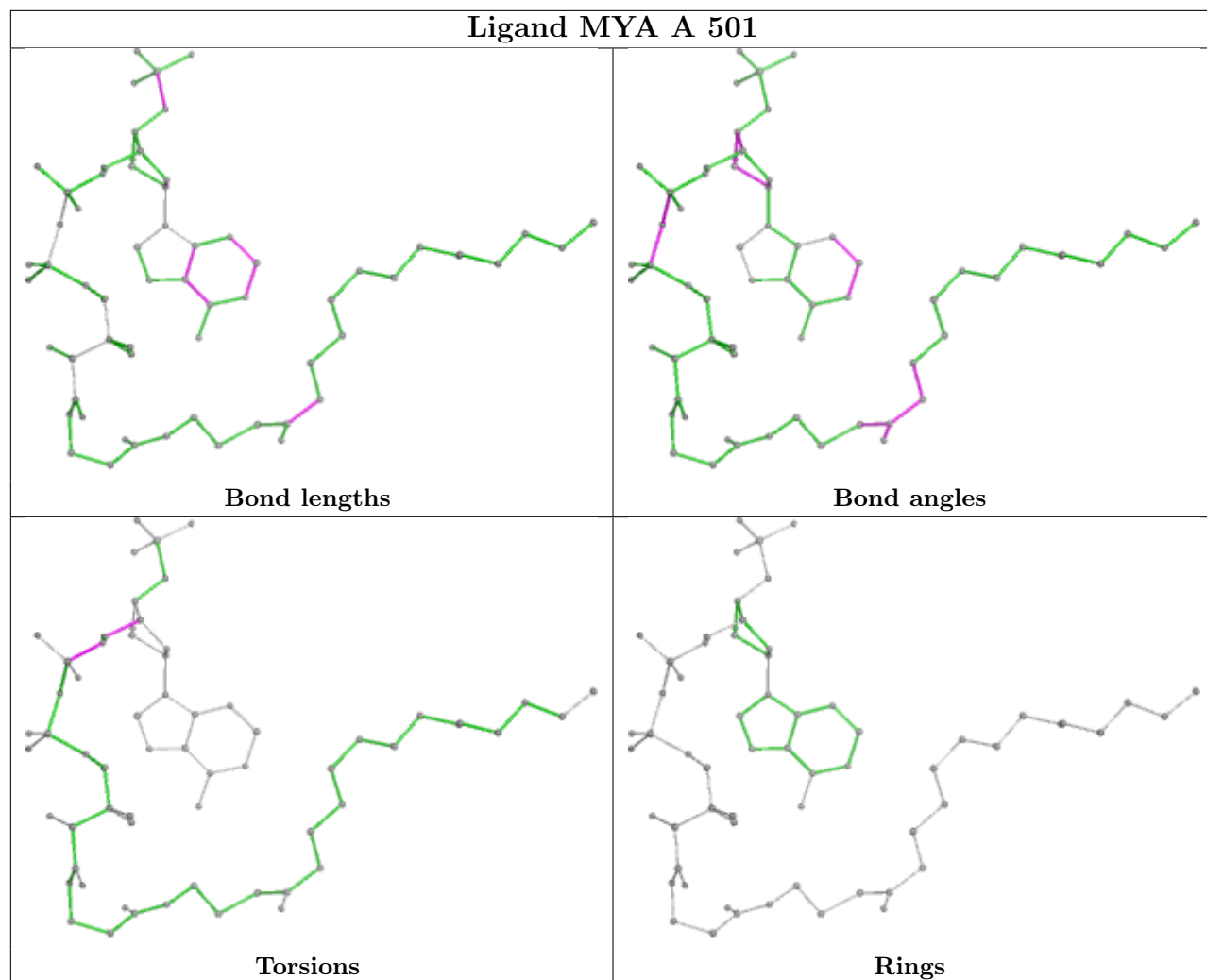
Mol	Chain	Res	Type	Atoms
4	A	503	GOL	C1-C2-C3-O3
4	B	503	GOL	C1-C2-C3-O3
4	B	504	GOL	O1-C1-C2-C3
4	B	504	GOL	C1-C2-C3-O3
4	A	503	GOL	O1-C1-C2-O2
4	B	503	GOL	O1-C1-C2-O2
4	B	503	GOL	O2-C2-C3-O3
4	B	504	GOL	O1-C1-C2-O2
3	A	501	MYA	C3X-C4X-C5X-O5X
3	B	501	MYA	P1A-O3A-P2A-O4A
3	A	501	MYA	O4X-C4X-C5X-O5X
3	B	501	MYA	P1A-O3A-P2A-O5A
3	A	501	MYA	C5X-O5X-P1A-O3A
3	B	501	MYA	C11-C12-O6A-P2A
3	A	501	MYA	C5X-O5X-P1A-O2A

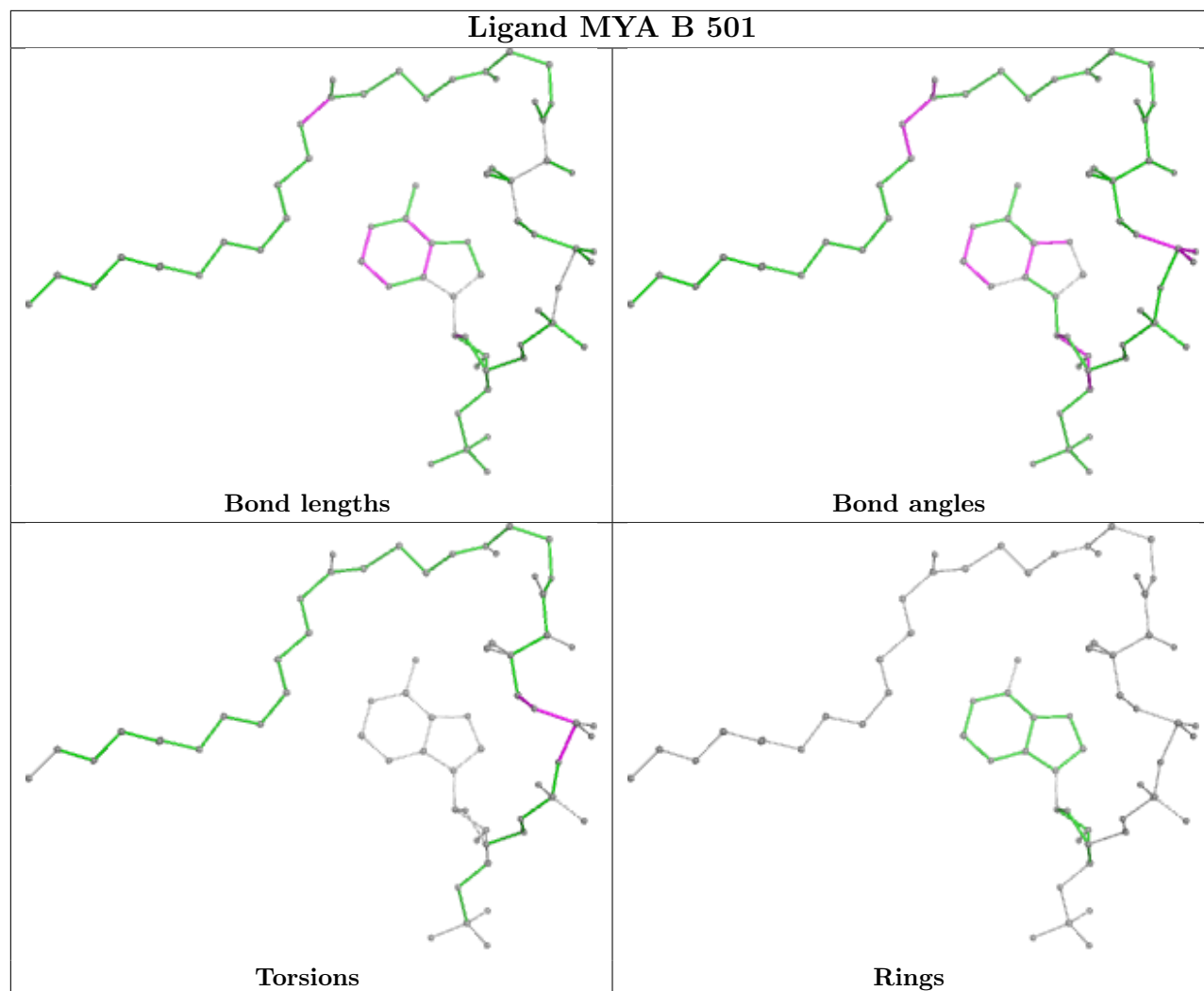
There are no ring outliers.

4 monomers are involved in 5 short contacts:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
4	A	503	GOL	1	0
3	A	501	MYA	1	0
4	B	504	GOL	2	0
3	B	501	MYA	1	0

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





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

There are no such residues in this entry.

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

There are no chain breaks in this entry.

6 Fit of model and data [i](#)

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

In the following table, the column labelled ‘#RSRZ > 2’ contains the number (and percentage) of RSRZ outliers, followed by percent RSRZ outliers for the chain as percentile scores relative to all X-ray entries and entries of similar resolution. The OWAB column contains the minimum, median, 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	386/402 (96%)	0.44	30 (7%) 13 14	21, 33, 69, 84	0
1	B	392/402 (97%)	0.34	29 (7%) 14 16	23, 34, 65, 94	0
2	C	6/7 (85%)	6.13	6 (100%) 0 0	68, 71, 75, 76	0
2	E	6/7 (85%)	1.96	2 (33%) 0 0	46, 49, 52, 73	0
All	All	790/818 (96%)	0.45	67 (8%) 10 12	21, 34, 69, 94	0

All (67) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	A	185	ASP	7.2
2	C	4	PHE	7.2
2	C	3	SER	6.4
1	A	184	ASP	6.2
2	C	6	LYS	6.1
2	C	8	ARG	6.0
2	C	7	PRO	5.8
2	C	5	SER	5.3
1	A	108	THR	5.2
2	E	8	ARG	5.1
1	B	114	LYS	5.0
1	A	106	ALA	4.8
1	A	187	MET	4.8
1	A	186	ASN	4.7
1	B	317	ASN	4.4
1	B	133	ASN	4.3
1	B	318	MET	4.3
1	A	183	ASP	4.2
1	A	472	GLY	4.2
1	B	113	SER	4.1
1	A	182	GLU	4.1

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Mol	Chain	Res	Type	RSRZ
1	B	314	LEU	3.8
1	B	323	THR	3.8
1	A	313	HIS	3.8
1	A	317	ASN	3.8
1	A	115	ARG	3.6
1	B	315	SER	3.6
1	A	133	ASN	3.6
1	B	112	ALA	3.6
1	A	309	VAL	3.5
1	B	116	SER	3.5
1	B	106	ALA	3.4
1	B	320	MET	3.4
1	A	131	VAL	3.4
1	A	256	SER	3.4
1	A	181	VAL	3.3
1	A	107	LYS	3.3
1	B	319	THR	3.3
1	B	130	GLU	3.2
1	A	188	PHE	3.0
1	A	314	LEU	2.9
1	A	109	MET	2.9
1	A	408	MET	2.8
1	B	108	THR	2.8
1	B	304	ARG	2.7
1	B	129	GLY	2.6
1	B	118	GLN	2.6
1	B	468	GLY	2.6
1	B	313[A]	HIS	2.6
1	B	321	GLN	2.5
1	B	327	TYR	2.5
1	B	307	ILE	2.4
1	A	315	SER	2.4
1	B	316	ARG	2.4
1	A	116	SER	2.3
1	B	325	LYS	2.3
1	B	131	VAL	2.3
1	A	114	LYS	2.3
2	E	7	PRO	2.2
1	A	316	ARG	2.2
1	B	258	ARG	2.2
1	A	406	THR	2.2
1	A	130	GLU	2.2

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Mol	Chain	Res	Type	RSRZ
1	A	407	ILE	2.1
1	A	110	GLU	2.0
1	B	324	MET	2.0
1	B	302	ASN	2.0

6.2 Non-standard residues in protein, DNA, RNA chains [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	DAB	C	2	7/8	0.62	0.28	52,57,65,70	0
2	DAB	E	2	7/8	0.87	0.11	34,40,43,45	0

6.3 Carbohydrates [i](#)

There are no monosaccharides in this entry.

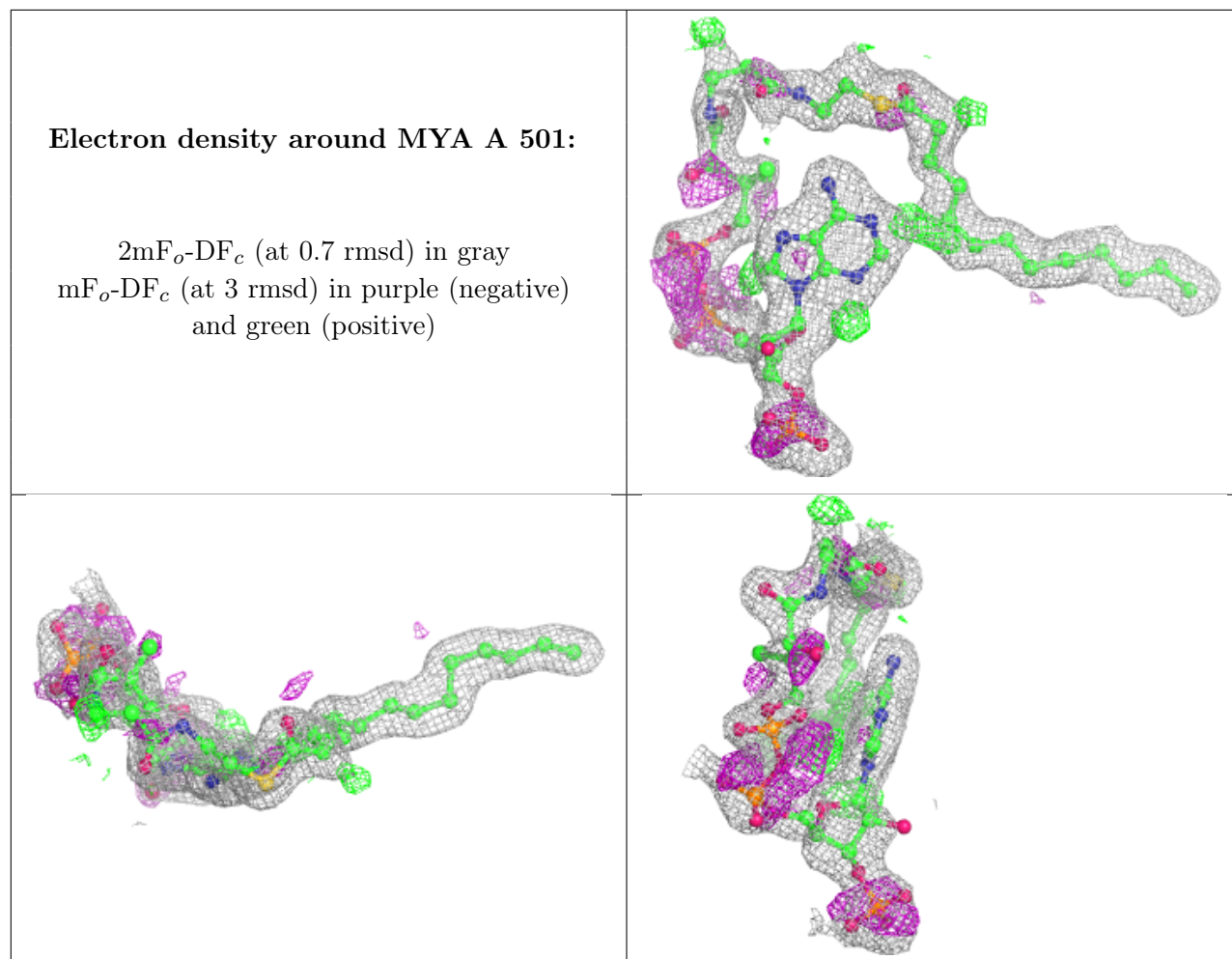
6.4 Ligands [i](#)

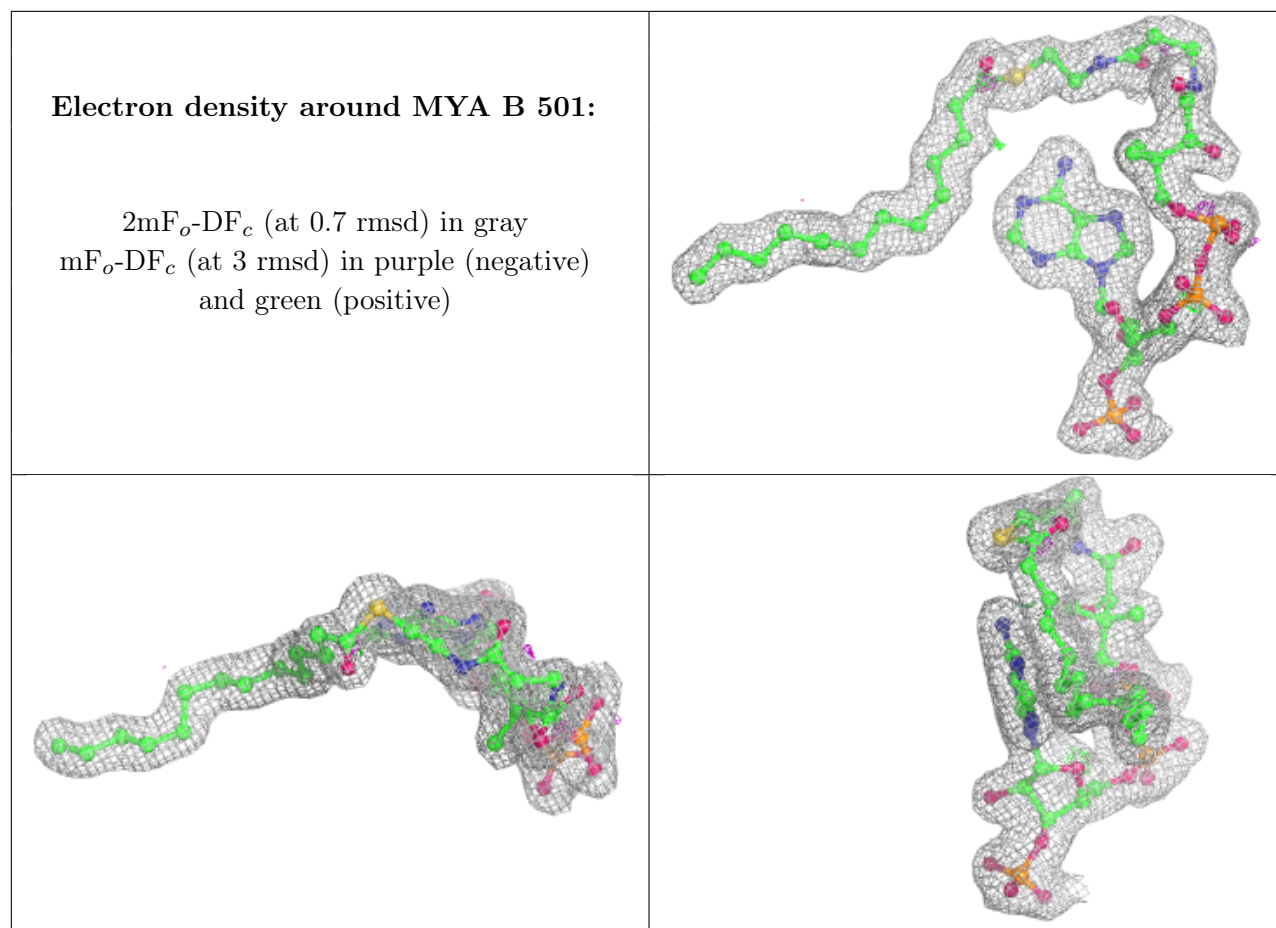
In the following table, the Atoms column lists the number of modelled atoms in the group and the number defined in the chemical component dictionary. The B-factors column lists the minimum, median, 95th percentile and maximum values of B factors of atoms in the group. The column labelled 'Q< 0.9' lists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

Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors(Å ²)	Q<0.9
4	GOL	B	504	6/6	0.68	0.40	50,55,61,65	0
3	MYA	A	501	63/63	0.77	0.25	21,51,64,76	0
4	GOL	B	503	6/6	0.85	0.14	33,42,46,46	0
4	GOL	A	503	6/6	0.87	0.14	41,45,47,47	0
3	MYA	B	501	63/63	0.92	0.11	21,34,43,47	0
4	GOL	A	502	6/6	0.95	0.12	26,30,32,36	0
4	GOL	B	502	6/6	0.95	0.10	31,35,39,44	0
5	CL	A	504	1/1	0.97	0.08	49,49,49,49	0
5	CL	A	505	1/1	0.98	0.08	49,49,49,49	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.





6.5 Other polymers [i](#)

There are no such residues in this entry.