Full wwPDB X-ray Structure Validation Report (i)

Nov 16, 2026 – 06:14 pm GMT

PDB ID	:	9QY0 / pdb_00009qy0
Title	:	Human N-myristoyltransferase (NMT1) with Myristoyl-CoA and photoactive arylazopyrazole inhibitor LD162
Authors	:	Perrett, S.; Van thor, J.J.
Deposited on	:	2025-04-16
Resolution	:	2.28 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 (i) 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 (i)) were used in the production of this report:

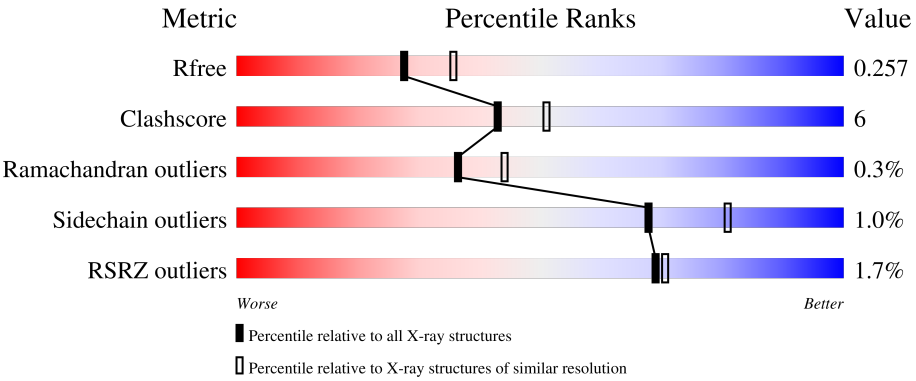
MolProbity	:	4-5-2 with Phenix2.2
Mogul	:	1.8.4, CSD as541be (2020)
Xtriage (Phenix)	:	2.2
EDS	:	3.0
Buster-report	:	wwPDB partial adaption of 1.1.7 (2018)
Percentile statistics	:	20250101.v01 (using entries in the PDB archive January 1st 2025)
CCP4	:	9.0.015 (Gargrove)
Density-Fitness	:	1.0.12
Ideal geometry (proteins)	:	Engh & Huber (2001)
Ideal geometry (DNA, RNA)	:	Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP)	:	2.51

1 Overall quality at a glance (i)

The following experimental techniques were used to determine the structure:
X-RAY DIFFRACTION

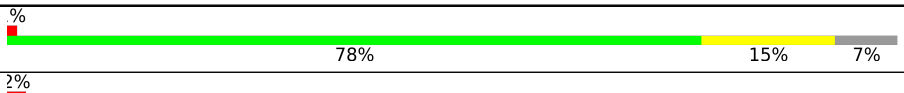
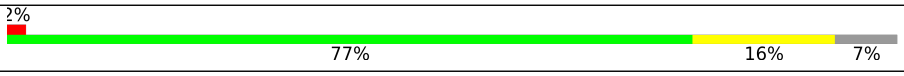
The reported resolution of this entry is 2.28 Å.

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}	180053	9078 (2.30-2.26)
Clashscore	190562	9802 (2.30-2.26)
Ramachandran outliers	187476	9690 (2.30-2.26)
Sidechain outliers	187428	9691 (2.30-2.26)
RSRZ outliers	180081	9085 (2.30-2.26)

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 <=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	410	
1	B	410	

2 Entry composition (i)

There are 5 unique types of molecules in this entry. The entry contains 6911 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
1	A	382	Total	C	N	O	S	0	1	0
			3139	2033	533	557	16			
1	B	382	Total	C	N	O	S	0	3	0
			3149	2040	534	559	16			

There are 44 discrepancies between the modelled and reference sequences:

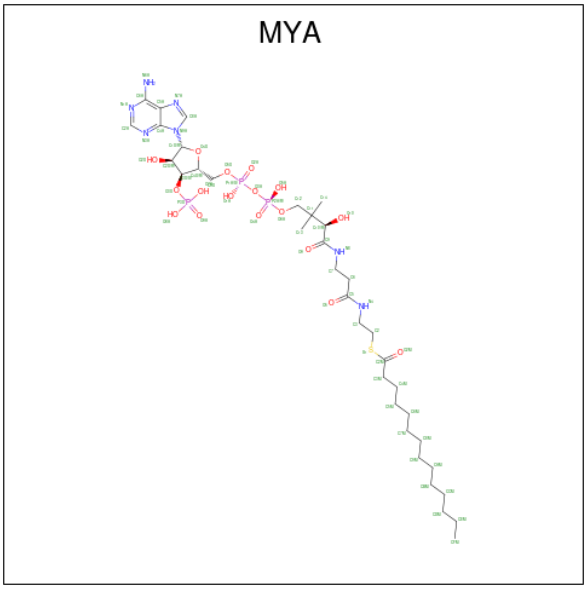
Chain	Residue	Modelled	Actual	Comment	Reference
A	87	MET	-	initiating methionine	UNP P30419
A	88	GLY	-	expression tag	UNP P30419
A	89	SER	-	expression tag	UNP P30419
A	90	SER	-	expression tag	UNP P30419
A	91	HIS	-	expression tag	UNP P30419
A	92	HIS	-	expression tag	UNP P30419
A	93	HIS	-	expression tag	UNP P30419
A	94	HIS	-	expression tag	UNP P30419
A	95	HIS	-	expression tag	UNP P30419
A	96	HIS	-	expression tag	UNP P30419
A	97	SER	-	expression tag	UNP P30419
A	98	SER	-	expression tag	UNP P30419
A	99	GLY	-	expression tag	UNP P30419
A	100	LEU	-	expression tag	UNP P30419
A	101	GLU	-	expression tag	UNP P30419
A	102	VAL	-	expression tag	UNP P30419
A	103	LEU	-	expression tag	UNP P30419
A	104	PHE	-	expression tag	UNP P30419
A	105	GLN	-	expression tag	UNP P30419
A	106	GLY	-	expression tag	UNP P30419
A	107	PRO	-	expression tag	UNP P30419
A	108	HIS	-	expression tag	UNP P30419
B	87	MET	-	initiating methionine	UNP P30419
B	88	GLY	-	expression tag	UNP P30419
B	89	SER	-	expression tag	UNP P30419

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Chain	Residue	Modelled	Actual	Comment	Reference
B	90	SER	-	expression tag	UNP P30419
B	91	HIS	-	expression tag	UNP P30419
B	92	HIS	-	expression tag	UNP P30419
B	93	HIS	-	expression tag	UNP P30419
B	94	HIS	-	expression tag	UNP P30419
B	95	HIS	-	expression tag	UNP P30419
B	96	HIS	-	expression tag	UNP P30419
B	97	SER	-	expression tag	UNP P30419
B	98	SER	-	expression tag	UNP P30419
B	99	GLY	-	expression tag	UNP P30419
B	100	LEU	-	expression tag	UNP P30419
B	101	GLU	-	expression tag	UNP P30419
B	102	VAL	-	expression tag	UNP P30419
B	103	LEU	-	expression tag	UNP P30419
B	104	PHE	-	expression tag	UNP P30419
B	105	GLN	-	expression tag	UNP P30419
B	106	GLY	-	expression tag	UNP P30419
B	107	PRO	-	expression tag	UNP P30419
B	108	HIS	-	expression tag	UNP P30419

- Molecule 2 is TETRADECANOYL-COA (CCD ID: MYA) (formula: $C_{35}H_{62}N_7O_{17}P_3S$) (labeled as "Ligand of Interest" by depositor).



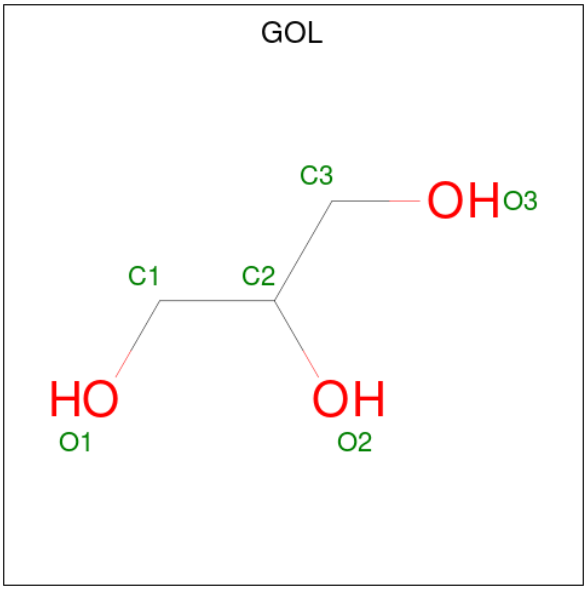
Mol	Chain	Residues	Atoms						ZeroOcc	AltConf
2	A	1	Total	C	N	O	P	S	0	0
			63	35	7	17	3	1		

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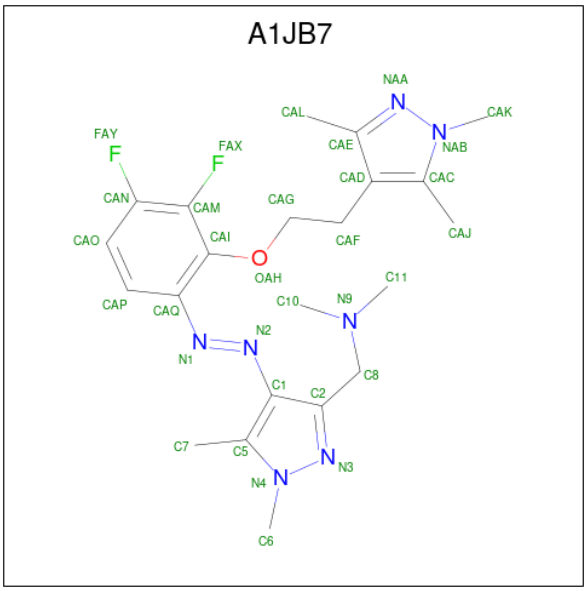
Mol	Chain	Residues	Atoms						ZeroOcc	AltConf
2	B	1	Total	C	N	O	P	S	0	0
			63	35	7	17	3	1		

- Molecule 3 is GLYCEROL (CCD ID: GOL) (formula: $C_3H_8O_3$).



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

- Molecule 4 is 1-[4-[({E})-[3,4-bis(fluoranyl)-2-[2-(1,3,5-trimethylpyrazol-4-yl)ethoxy]phenyl]diazenyl]-1,5-dimethyl-pyrazol-3-yl]- {N}, {N}-dimethyl-methanamine (CCD ID: A1JB7) (formula: $C_{22}H_{29}F_2N_7O$) (labeled as "Ligand of Interest" by depositor).



Mol	Chain	Residues	Atoms					ZeroOcc	AltConf
4	A	1	Total	C	F	N	O	0	0
			32	22	2	7	1		
4	B	1	Total	C	F	N	O	0	0
			32	22	2	7	1		

- Molecule 5 is water.

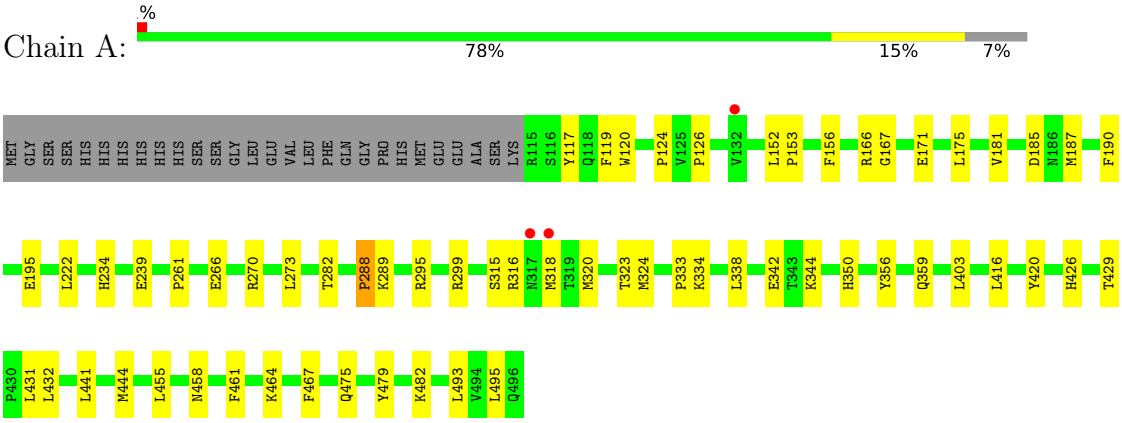
Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
5	A	194	Total	O	0	0
			194	194		
5	B	215	Total	O	0	0
			215	215		

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.

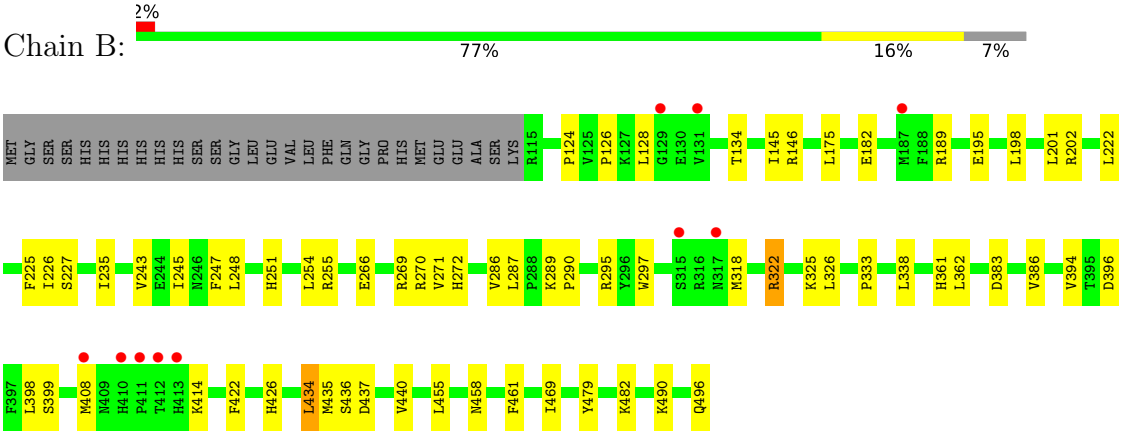
• Molecule 1: Glycylpeptide N-tetradecanoyltransferase 1

Chain A:



• Molecule 1: Glycylpeptide N-tetradecanoyltransferase 1

Chain B:



4 Data and refinement statistics (i)

Property	Value	Source
Space group	P 21 21 2	Depositor
Cell constants a, b, c, α, β, γ	79.38Å 176.56Å 58.00Å 90.00° 90.00° 90.00°	Depositor
Resolution (Å)	48.47 – 2.28 48.47 – 2.28	Depositor EDS
% Data completeness (in resolution range)	99.7 (48.47-2.28) 99.7 (48.47-2.28)	Depositor EDS
R_{merge}	(Not available)	Depositor
R_{sym}	(Not available)	Depositor
$< I/\sigma(I) >$ [1]	1.22 (at 2.29Å)	Xtriage
Refinement program	PHENIX 2.1_6048	Depositor
R, R_{free}	0.188 , 0.257 0.188 , 0.257	Depositor DCC
R_{free} test set	7591 reflections (19.94%)	wwPDB-VP
Wilson B-factor (Å^2)	33.6	Xtriage
Anisotropy	0.632	Xtriage
Bulk solvent k_{sol}(e/Å^3), B_{sol}(Å^2)	0.37 , 42.8	EDS
L-test for twinning[2]	$< \|L\| > = 0.49$, $< L^2 > = 0.32$	Xtriage
Estimated twinning fraction	No twinning to report.	Xtriage
F_o,F_c correlation	0.95	EDS
Total number of atoms	6911	wwPDB-VP
Average B, all atoms (Å^2)	39.0	wwPDB-VP

Xtriage's analysis on translational NCS is as follows: *The analyses of the Patterson function reveals a significant off-origin peak that is 23.93 % of the origin peak, indicating pseudo-translational symmetry. The chance of finding a peak of this or larger height randomly in a structure without pseudo-translational symmetry is equal to 4.2311e-03. The detected translational NCS is most likely also responsible for the elevated intensity ratio.*

[1] Intensities estimated from amplitudes.

[2] Theoretical values of $< |L| >$, $< L^2 >$ 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: MYA, GOL, A1JB7

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	0.34	0/3231	0.52	0/4389
1	B	0.34	0/3247	0.51	0/4412
All	All	0.34	0/6478	0.51	0/8801

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

There are no bond length outliers.

There are no bond angle outliers.

There are no chirality outliers.

All (1) planarity outliers are listed below:

Mol	Chain	Res	Type	Group
1	A	288	PRO	Peptide

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	3139	0	3138	39	0
1	B	3149	0	3153	41	0
2	A	63	0	58	0	0
2	B	63	0	58	2	0
3	A	12	0	16	1	0
3	B	12	0	16	1	0
4	A	32	0	0	0	0
4	B	32	0	0	0	0
5	A	194	0	0	3	0
5	B	215	0	0	1	0
All	All	6911	0	6439	80	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 6.

All (80) 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:251:HIS:HB3	1:B:254:LEU:HD13	1.63	0.79
1:B:318:MET:HE3	1:B:322:ARG:HD3	1.71	0.71
1:A:289:LYS:HG3	3:A:502:GOL:H31	1.73	0.69
1:A:120:TRP:HB3	1:A:288:PRO:HG2	1.75	0.67
1:B:295:ARG:HB3	1:B:469:ILE:HD11	1.74	0.67
1:A:234:HIS:HD2	1:A:239:GLU:HG2	1.59	0.67
1:A:270:ARG:HA	1:A:273:LEU:HD12	1.79	0.65
1:B:297:TRP:NE1	1:B:469:ILE:HD13	2.12	0.65
1:B:318:MET:HE1	1:B:326:LEU:HD22	1.80	0.64
1:B:198:LEU:HD22	1:B:202:ARG:HD2	1.82	0.61
1:A:320:MET:HE2	1:A:324:MET:HG3	1.85	0.59
1:A:458:ASN:HA	1:A:461:PHE:CE2	2.39	0.58
1:A:334:LYS:HE3	5:A:779:HOH:O	2.02	0.58
1:B:297:TRP:CE2	1:B:469:ILE:HD13	2.39	0.57
1:A:315:SER:HB2	1:A:318:MET:HE2	1.88	0.55
1:B:235:ILE:HD13	1:B:362:LEU:HD13	1.88	0.55
1:B:182:GLU:HG2	1:B:189:ARG:HG2	1.89	0.55
1:A:234:HIS:CD2	1:A:239:GLU:HG2	2.42	0.54
1:B:195:GLU:H	1:B:195:GLU:CD	2.17	0.52
1:A:333:PRO:HD3	1:A:444:MET:HE1	1.91	0.52
1:A:166:ARG:HA	1:A:166:ARG:HE	1.75	0.51
1:B:399:SER:OG	1:B:422:PHE:HB3	2.11	0.51
1:B:146:ARG:HB3	1:B:269:ARG:HD2	1.94	0.50
1:B:458:ASN:HA	1:B:461:PHE:CE2	2.46	0.50

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:398:LEU:HB3	1:B:434:LEU:HD22	1.92	0.49
1:A:185:ASP:HB2	1:A:187:MET:HG3	1.95	0.48
1:A:403:LEU:HB3	1:A:420:TYR:CE1	2.49	0.47
1:B:145:ILE:HD12	1:B:272:HIS:HB3	1.96	0.47
1:A:195:GLU:H	1:A:195:GLU:CD	2.22	0.47
1:B:436:SER:O	1:B:440:VAL:HG23	2.15	0.47
1:B:175:LEU:HD22	1:B:222:LEU:HG	1.95	0.47
1:A:117:TYR:HB3	1:A:120:TRP:HB2	1.96	0.47
1:A:266:GLU:O	1:A:270:ARG:HG3	2.16	0.46
1:B:182:GLU:HG2	1:B:189:ARG:CG	2.45	0.46
1:A:282:THR:HA	1:A:475:GLN:O	2.14	0.46
1:B:383:ASP:O	1:B:399:SER:HA	2.16	0.46
1:A:299:ARG:HB2	1:A:467:PHE:CE2	2.51	0.46
1:B:287:LEU:O	1:B:290:PRO:HD3	2.16	0.46
1:A:175:LEU:HD22	1:A:222:LEU:HG	1.97	0.45
1:B:361:HIS:CE1	1:B:490:LYS:HE2	2.51	0.45
1:B:225:PHE:CE2	1:B:227:SER:HB3	2.51	0.45
1:B:226:ILE:HD12	1:B:248:LEU:HD13	1.97	0.45
1:B:266:GLU:O	1:B:270:ARG:HG3	2.17	0.45
1:A:338:LEU:HD21	1:A:441:LEU:HD11	1.98	0.45
1:B:245:ILE:HD11	2:B:501:MYA:HCM	1.98	0.45
1:A:334:LYS:HD3	1:A:334:LYS:HA	1.68	0.45
1:A:426:HIS:CD2	1:A:431:LEU:HB2	2.52	0.45
1:B:243:VAL:HG21	1:B:271:VAL:HG21	1.98	0.44
1:A:152:LEU:HD23	1:A:152:LEU:HA	1.88	0.44
1:A:167:GLY:O	1:A:171:GLU:HG3	2.18	0.43
1:B:396:ASP:OD1	1:B:426:HIS:HA	2.17	0.43
1:B:201:LEU:HD21	1:B:247:PHE:CD2	2.54	0.43
1:A:126:PRO:HG3	1:A:482:LYS:HG3	2.00	0.43
1:A:426:HIS:HB2	1:A:429:THR:O	2.19	0.43
1:A:320:MET:HE3	1:A:323:THR:HB	2.00	0.43
1:B:128:LEU:HD11	1:B:286:VAL:HG12	2.01	0.43
1:A:181:VAL:HB	1:A:190:PHE:CD2	2.54	0.42
1:A:356:TYR:O	1:A:359:GLN:HG2	2.19	0.42
1:A:153:PRO:HG2	1:A:156:PHE:CD1	2.54	0.42
1:B:325:LYS:HD2	1:B:325:LYS:C	2.45	0.42
1:B:386:VAL:HB	1:B:394:VAL:HG13	2.01	0.42
1:B:426:HIS:HB3	1:B:434:LEU:HD12	2.02	0.42
1:A:126:PRO:HB2	1:A:289:LYS:HG2	2.01	0.42
1:B:333:PRO:HB3	1:B:437:ASP:CG	2.44	0.42
1:B:435:MET:HG3	1:B:461:PHE:CZ	2.54	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:126:PRO:HD3	5:B:685:HOH:O	2.20	0.42
1:B:134:THR:OG1	1:B:482:LYS:HE3	2.20	0.42
1:B:496:GLN:HE22	3:B:503:GOL:H31	1.84	0.42
1:A:315:SER:CB	1:A:318:MET:HE2	2.50	0.42
1:B:128:LEU:HD23	1:B:289:LYS:HG3	2.02	0.42
1:A:295:ARG:HB3	1:A:295:ARG:NH1	2.34	0.41
1:B:338:LEU:HA	1:B:386:VAL:O	2.21	0.41
1:A:119:PHE:CD1	1:A:261:PRO:HB3	2.55	0.41
1:B:124:PRO:HD2	1:B:479:TYR:CZ	2.56	0.41
1:A:342:GLU:OE2	1:A:344:LYS:HE2	2.21	0.41
1:A:350:HIS:HE1	5:A:701:HOH:O	2.04	0.41
1:A:493:LEU:HD21	1:A:495:LEU:HD21	2.03	0.41
1:A:124:PRO:HD2	1:A:479:TYR:CZ	2.56	0.41
1:A:464:LYS:HG3	5:A:763:HOH:O	2.21	0.41
1:B:255:ARG:HA	2:B:501:MYA:O4A	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	381/410 (93%)	364 (96%)	17 (4%)	0	100	100
1	B	383/410 (93%)	361 (94%)	20 (5%)	2 (0%)	24	29
All	All	764/820 (93%)	725 (95%)	37 (5%)	2 (0%)	36	44

All (2) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	B	408	MET
1	B	414	LYS

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	349/372 (94%)	345 (99%)	4 (1%)	65 79
1	B	351/372 (94%)	348 (99%)	3 (1%)	70 82
All	All	700/744 (94%)	693 (99%)	7 (1%)	68 81

All (7) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	316	ARG
1	A	416	LEU
1	A	432	LEU
1	A	455	LEU
1	B	322	ARG
1	B	434	LEU
1	B	455	LEU

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (11) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	359	GLN
1	A	378	GLN
1	B	177	ASN
1	B	186	ASN
1	B	234	HIS
1	B	361	HIS
1	B	378	GLN
1	B	389	ASN
1	B	428	GLN
1	B	473	ASN
1	B	496	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)

8 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	MYA	A	501	-	60,65,65	0.37	0	81,91,91	0.73	2 (2%)
2	MYA	B	501	-	60,65,65	0.38	0	81,91,91	0.72	1 (1%)
3	GOL	B	503	-	5,5,5	0.25	0	5,5,5	0.93	0
4	A1JB7	A	504	-	34,34,34	2.46	15 (44%)	42,49,49	2.10	13 (30%)
3	GOL	B	502	-	5,5,5	0.48	0	5,5,5	0.57	0
4	A1JB7	B	504	-	34,34,34	2.29	11 (32%)	42,49,49	2.04	14 (33%)
3	GOL	A	503	-	5,5,5	0.27	0	5,5,5	0.84	0
3	GOL	A	502	-	5,5,5	0.34	0	5,5,5	0.67	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	MYA	A	501	-	-	2/64/80/80	0/3/3/3
2	MYA	B	501	-	-	1/64/80/80	0/3/3/3
3	GOL	B	503	-	-	4/4/4/4	-
4	A1JB7	A	504	-	-	2/15/15/15	0/3/3/3
3	GOL	B	502	-	-	0/4/4/4	-

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Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
4	A1JB7	B	504	-	-	2/15/15/15	0/3/3/3
3	GOL	A	503	-	-	3/4/4/4	-
3	GOL	A	502	-	-	4/4/4/4	-

All (26) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
4	A	504	A1JB7	C5-N4	6.17	1.41	1.34
4	B	504	A1JB7	C5-N4	5.88	1.41	1.34
4	A	504	A1JB7	C1-C5	5.84	1.44	1.37
4	B	504	A1JB7	CAC-NAB	5.83	1.41	1.34
4	A	504	A1JB7	CAC-NAB	5.43	1.40	1.34
4	B	504	A1JB7	C1-C5	5.12	1.43	1.37
4	A	504	A1JB7	C2-N3	3.23	1.39	1.32
4	A	504	A1JB7	C6-N4	3.20	1.52	1.46
4	B	504	A1JB7	C2-N3	3.14	1.39	1.32
4	A	504	A1JB7	C8-N9	3.04	1.54	1.47
4	B	504	A1JB7	CAE-NAA	2.95	1.38	1.32
4	A	504	A1JB7	CAE-NAA	2.84	1.38	1.32
4	B	504	A1JB7	CAI-CAM	2.70	1.44	1.39
4	A	504	A1JB7	C11-N9	2.63	1.54	1.46
4	B	504	A1JB7	C8-N9	2.53	1.53	1.47
4	A	504	A1JB7	CAI-CAM	2.53	1.43	1.39
4	A	504	A1JB7	C1-C2	2.43	1.43	1.42
4	A	504	A1JB7	CAI-CAQ	2.41	1.44	1.40
4	B	504	A1JB7	C11-N9	2.33	1.53	1.46
4	B	504	A1JB7	C1-C2	2.29	1.43	1.42
4	B	504	A1JB7	CAD-CAE	2.21	1.45	1.40
4	A	504	A1JB7	CAF-CAG	2.21	1.57	1.51
4	A	504	A1JB7	CAD-CAE	2.20	1.45	1.40
4	A	504	A1JB7	CAK-NAB	2.20	1.50	1.46
4	B	504	A1JB7	C10-N9	2.19	1.52	1.46
4	A	504	A1JB7	N2-N1	-2.01	1.22	1.27

All (30) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
4	B	504	A1JB7	C8-C2-N3	6.34	125.75	119.74
4	A	504	A1JB7	CAQ-N1-N2	6.05	129.24	114.67
4	A	504	A1JB7	C8-C2-N3	5.77	125.21	119.74
4	B	504	A1JB7	CAQ-N1-N2	4.61	125.76	114.67

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
2	B	501	MYA	C2-S1-C2M	4.17	114.84	101.87
2	A	501	MYA	C2-S1-C2M	4.06	114.52	101.87
4	B	504	A1JB7	C6-N4-C5	-4.02	124.42	128.22
4	A	504	A1JB7	C6-N4-C5	-3.82	124.62	128.22
4	A	504	A1JB7	OAH-CAG-CAF	3.41	115.75	107.42
4	B	504	A1JB7	OAH-CAG-CAF	3.20	115.23	107.42
4	A	504	A1JB7	C6-N4-N3	3.03	123.61	119.35
4	B	504	A1JB7	CAK-NAB-NAA	2.99	123.56	119.35
4	A	504	A1JB7	CAK-NAB-NAA	2.98	123.54	119.35
4	B	504	A1JB7	C6-N4-N3	2.87	123.39	119.35
4	A	504	A1JB7	CAC-NAB-NAA	-2.75	110.47	112.96
4	B	504	A1JB7	CAK-NAB-CAC	-2.73	125.65	128.22
4	B	504	A1JB7	CAO-CAP-CAQ	2.57	124.35	120.02
4	A	504	A1JB7	CAD-CAE-NAA	-2.52	108.75	111.54
4	B	504	A1JB7	C1-N2-N1	2.49	124.92	115.70
4	A	504	A1JB7	CAO-CAP-CAQ	2.48	124.21	120.02
4	B	504	A1JB7	CAD-CAE-NAA	-2.41	108.87	111.54
4	B	504	A1JB7	CAC-NAB-NAA	-2.40	110.79	112.96
4	A	504	A1JB7	CAK-NAB-CAC	-2.37	125.99	128.22
4	B	504	A1JB7	CAQ-CAI-CAM	-2.34	116.64	120.70
4	A	504	A1JB7	C1-N2-N1	2.14	123.63	115.70
4	A	504	A1JB7	CAQ-CAI-CAM	-2.14	116.98	120.70
4	A	504	A1JB7	CAE-NAA-NAB	2.13	108.02	105.53
4	B	504	A1JB7	CAL-CAE-NAA	2.09	123.49	119.33
4	B	504	A1JB7	C8-C2-C1	-2.06	125.92	128.49
2	A	501	MYA	O6A-C12-C11	-2.04	107.27	110.55

There are no chirality outliers.

All (18) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
3	A	502	GOL	C1-C2-C3-O3
3	A	503	GOL	O1-C1-C2-C3
4	A	504	A1JB7	CAD-CAF-CAG-OAH
4	B	504	A1JB7	CAD-CAF-CAG-OAH
3	A	503	GOL	O2-C2-C3-O3
3	B	503	GOL	O1-C1-C2-O2
3	A	502	GOL	O1-C1-C2-C3
3	A	503	GOL	C1-C2-C3-O3
3	B	503	GOL	O1-C1-C2-C3
3	B	503	GOL	C1-C2-C3-O3
3	A	502	GOL	O2-C2-C3-O3

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Mol	Chain	Res	Type	Atoms
3	B	503	GOL	O2-C2-C3-O3
2	B	501	MYA	C3X-O3X-P3X-O8A
4	B	504	A1JB7	C5-C1-N2-N1
3	A	502	GOL	O1-C1-C2-O2
2	A	501	MYA	C6-C7-N8-C9
2	A	501	MYA	C3X-O3X-P3X-O8A
4	A	504	A1JB7	C5-C1-N2-N1

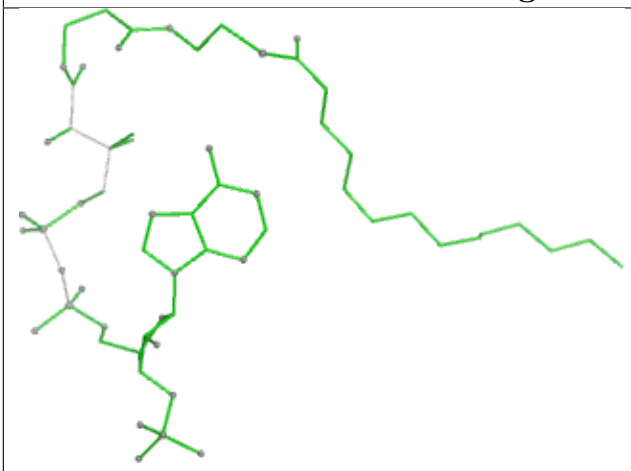
There are no ring outliers.

3 monomers are involved in 4 short contacts:

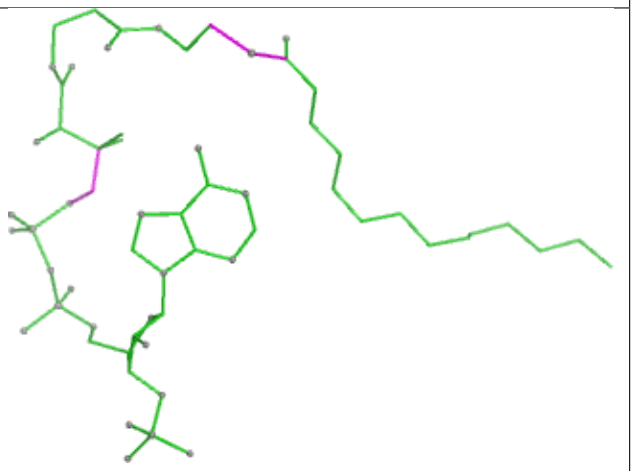
Mol	Chain	Res	Type	Clashes	Symm-Clashes
2	B	501	MYA	2	0
3	B	503	GOL	1	0
3	A	502	GOL	1	0

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 then 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.

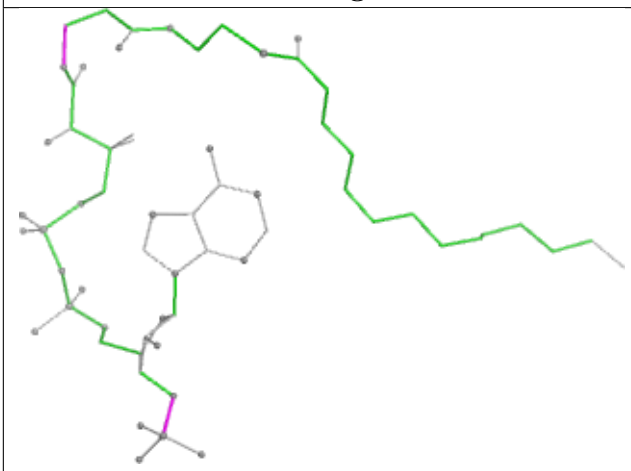
Ligand MYA A 501



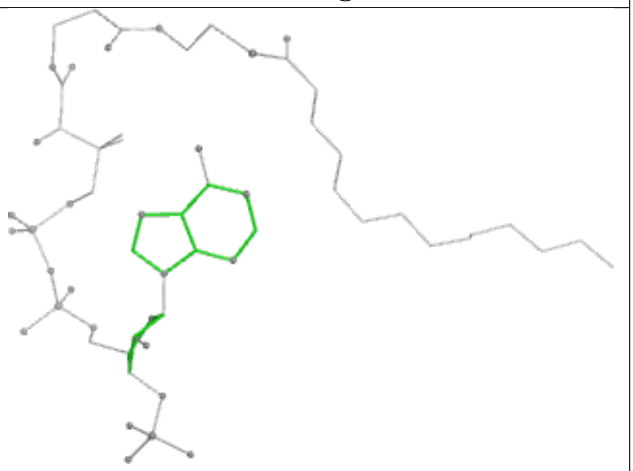
Bond lengths



Bond angles

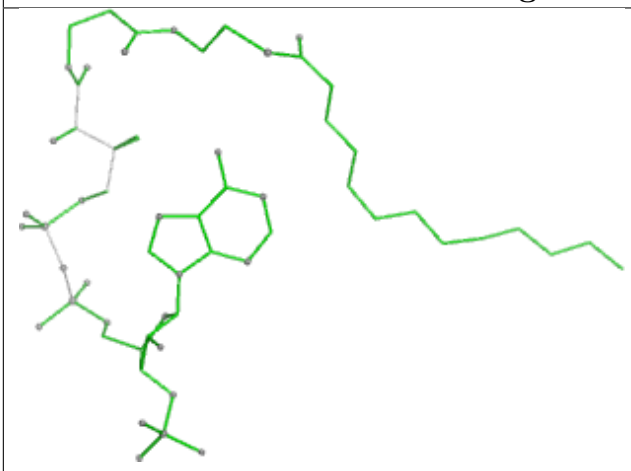


Torsions

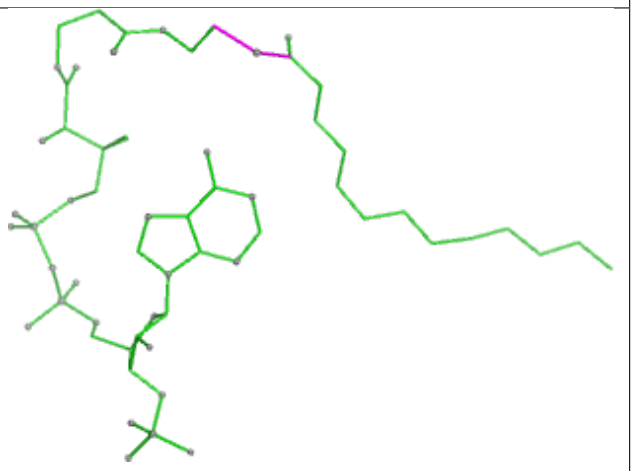


Rings

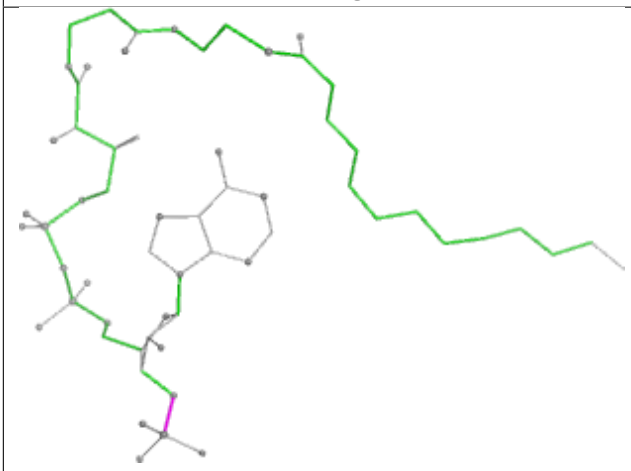
Ligand MYA B 501



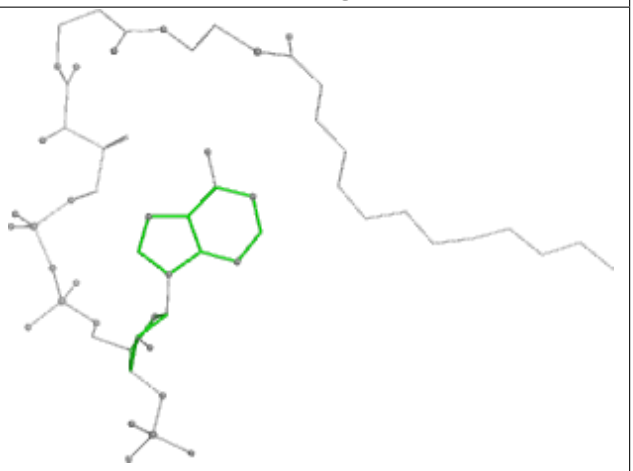
Bond lengths



Bond angles

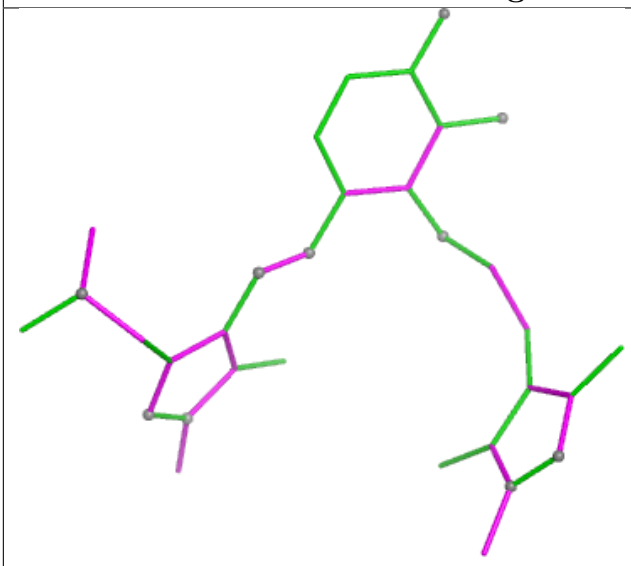


Torsions

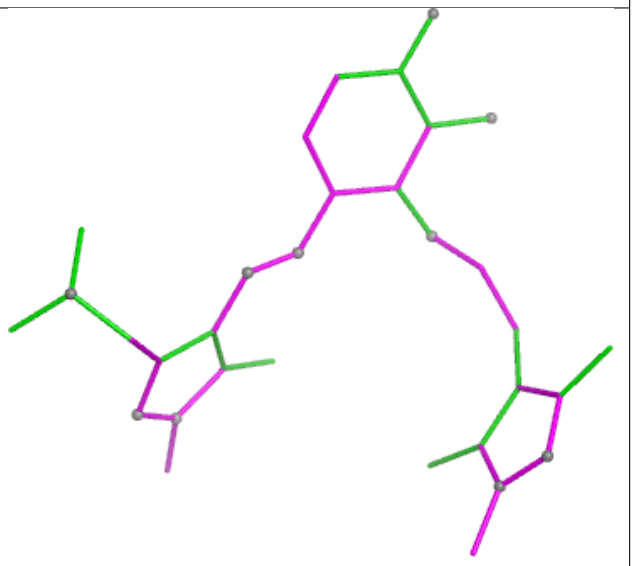


Rings

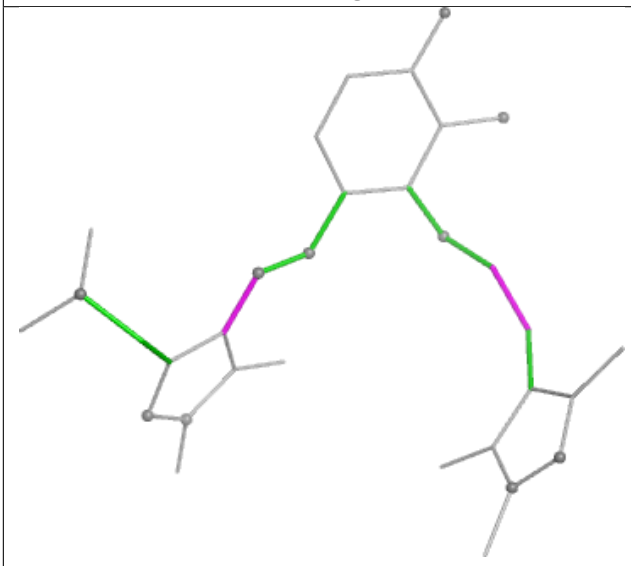
Ligand A1JB7 A 504



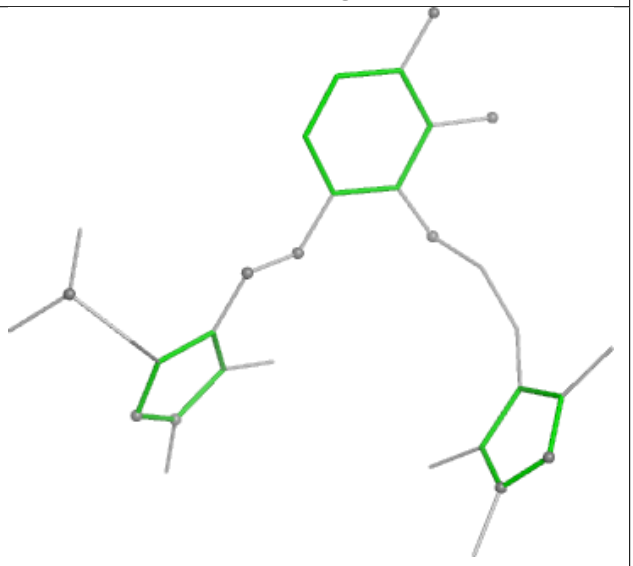
Bond lengths



Bond angles

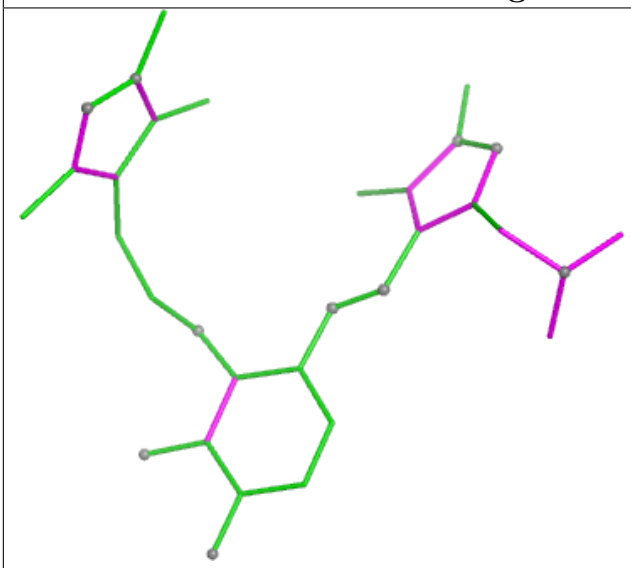


Torsions

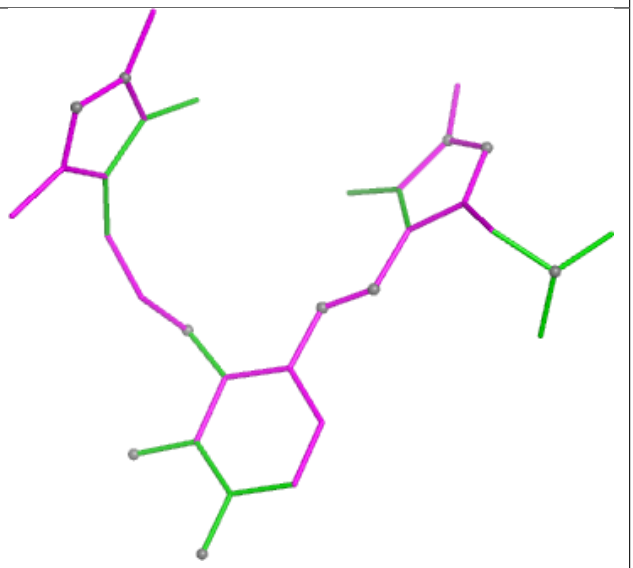


Rings

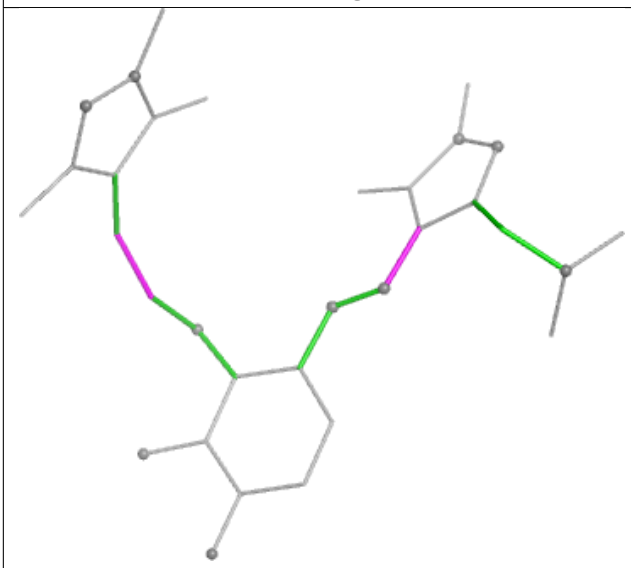
Ligand A1JB7 B 504



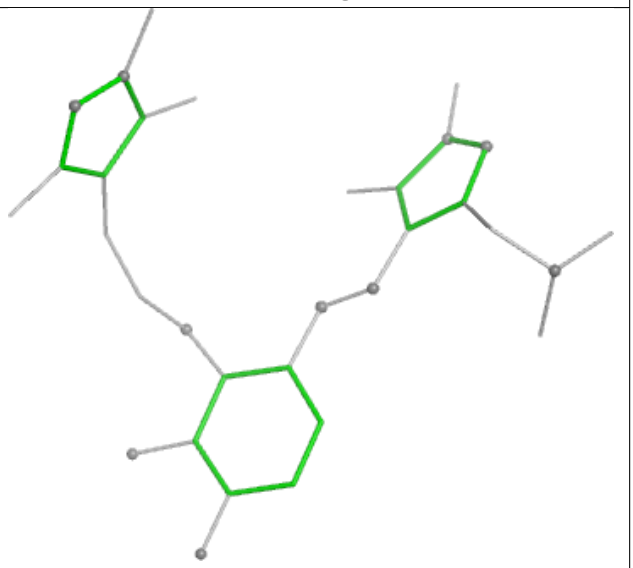
Bond lengths



Bond angles



Torsions



Rings

5.7 Other polymers

There are no such residues in this entry.

5.8 Polymer linkage issues

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^{th} 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	382/410 (93%)	0.07	3 (0%)	82	84	21, 37, 66, 92	1 (0%)
1	B	382/410 (93%)	0.06	10 (2%)	57	59	20, 35, 67, 150	3 (0%)
All	All	764/820 (93%)	0.06	13 (1%)	69	70	20, 36, 66, 150	4 (0%)

All (13) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	B	411	PRO	4.6
1	B	413	HIS	3.9
1	B	412	THR	3.1
1	B	408	MET	2.9
1	B	317	ASN	2.8
1	A	317	ASN	2.7
1	B	187	MET	2.7
1	A	132	VAL	2.6
1	A	318	MET	2.5
1	B	129	GLY	2.5
1	B	131	VAL	2.3
1	B	410	HIS	2.1
1	B	315	SER	2.0

6.2 Non-standard residues in protein, DNA, RNA chains

There are no non-standard protein/DNA/RNA residues in this entry.

6.3 Carbohydrates

There are no oligosaccharides in this entry.

6.4 Ligands (i)

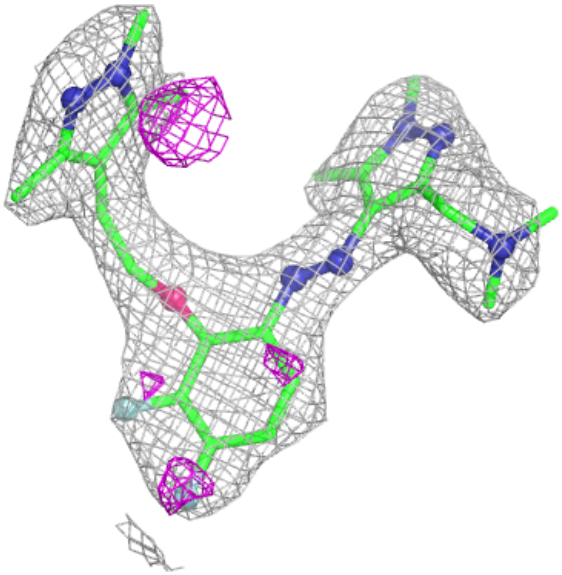
In the following table, the Atoms column lists the number of modelled atoms in the group and the number defined in the chemical component dictionary. The B-factors column lists the minimum, median, 95^{th} percentile and maximum values of B factors of atoms in the group. The column labelled 'Q< 0.9'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

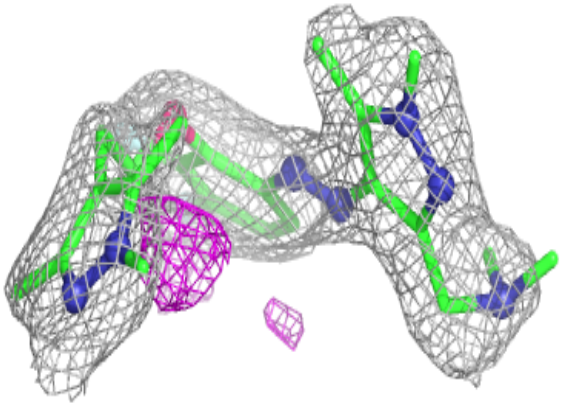
Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors(Å^2)	Q<0.9
4	A1JB7	B	504	32/32	0.86	0.11	35,44,51,53	0
3	GOL	B	503	6/6	0.89	0.12	43,43,44,49	0
4	A1JB7	A	504	32/32	0.90	0.10	30,41,48,51	0
3	GOL	A	503	6/6	0.91	0.08	32,36,43,49	0
3	GOL	A	502	6/6	0.91	0.09	36,37,41,43	0
2	MYA	B	501	63/63	0.92	0.09	23,38,46,48	0
2	MYA	A	501	63/63	0.92	0.09	24,37,47,49	0
3	GOL	B	502	6/6	0.94	0.07	30,33,37,40	0

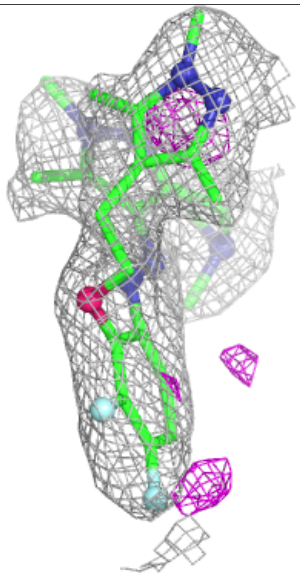
The following is a graphical depiction of the model fit to experimental electron density of all instances of the Ligand of Interest. In addition, ligands with molecular weight > 250 and outliers as shown on the geometry validation Tables will also be included. Each fit is shown from different orientation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

Electron density around A1JB7 B 504:

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

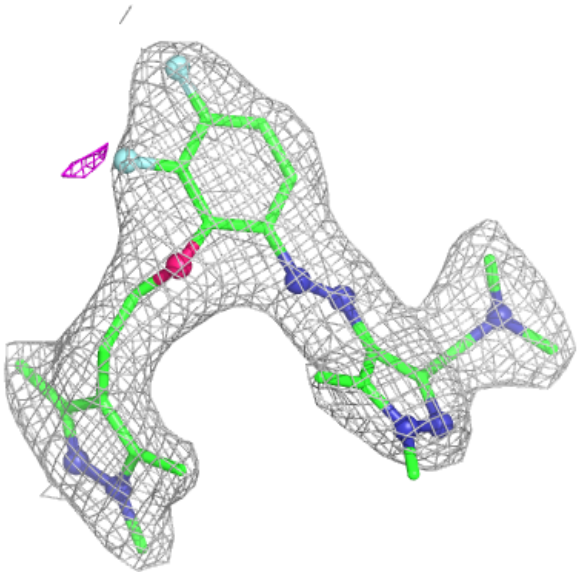


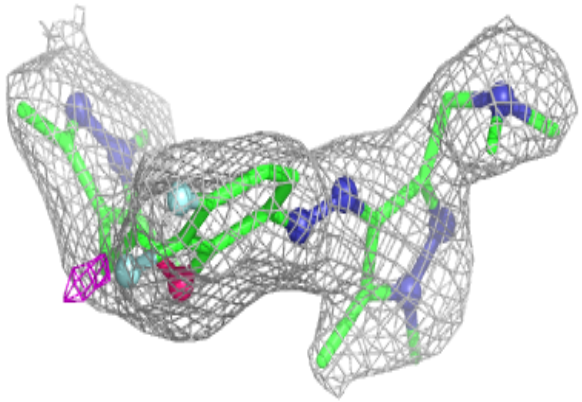


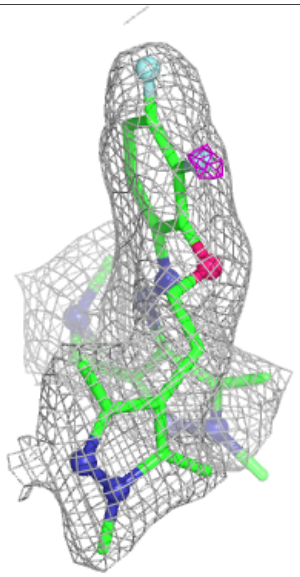


Electron density around A1JB7 A 504:

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

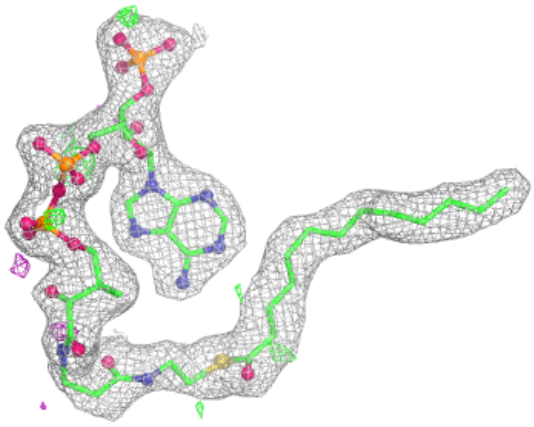


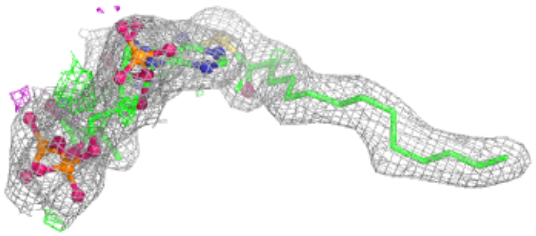


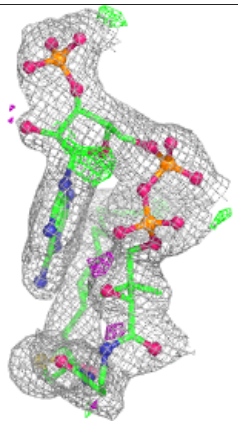


Electron density around MYA B 501:

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

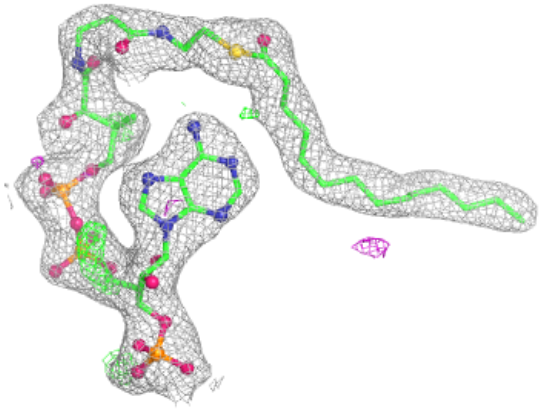


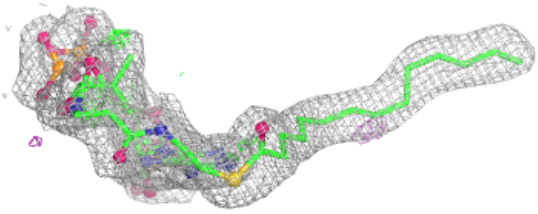


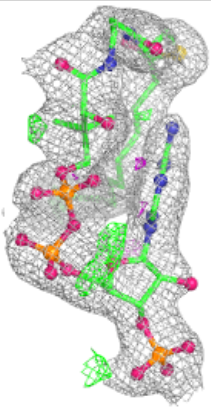


Electron density around MYA A 501:

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







6.5 Other polymers (i)

There are no such residues in this entry.