



Full wwPDB X-ray Structure Validation Report ⓘ

May 15, 2020 – 04:35 am BST

PDB ID : 6SKJ
Title : DeltaC2 C-terminal truncation of HsNMT1 in complex with MyrCoA and GNCFSKPR substrates
Authors : Dian, C.; Riviere, F.B.; Asensio, T.; Giglione, C.; Meinnel, T.
Deposited on : 2019-08-15
Resolution : 2.80 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 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 : 2.11
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) : 2.11

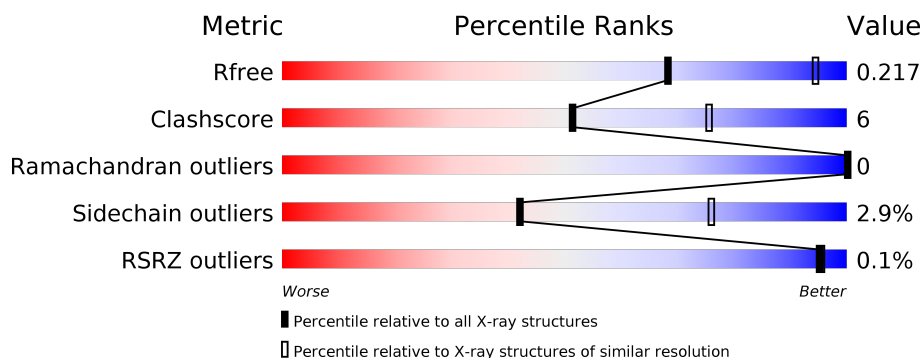
1 Overall quality at a glance ⓘ

The following experimental techniques were used to determine the structure:

X-RAY DIFFRACTION

The reported resolution of this entry is 2.80 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	3140 (2.80-2.80)
Clashscore	141614	3569 (2.80-2.80)
Ramachandran outliers	138981	3498 (2.80-2.80)
Sidechain outliers	138945	3500 (2.80-2.80)
RSRZ outliers	127900	3078 (2.80-2.80)

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 on 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	400	<div> <div>82%</div> <div>14%</div> <div>••</div> </div>
1	B	400	<div> <div>82%</div> <div>15%</div> <div>••</div> </div>
2	C	8	<div> <div>88%</div> <div>13%</div> </div>
2	D	8	<div> <div>50%</div> <div>50%</div> </div>

2 Entry composition

There are 8 unique types of molecules in this entry. The entry contains 6773 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	387	Total	C	N	O	S	0	3	0
			3144	2035	525	567	17			
1	B	390	Total	C	N	O	S	0	1	0
			3140	2034	526	563	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

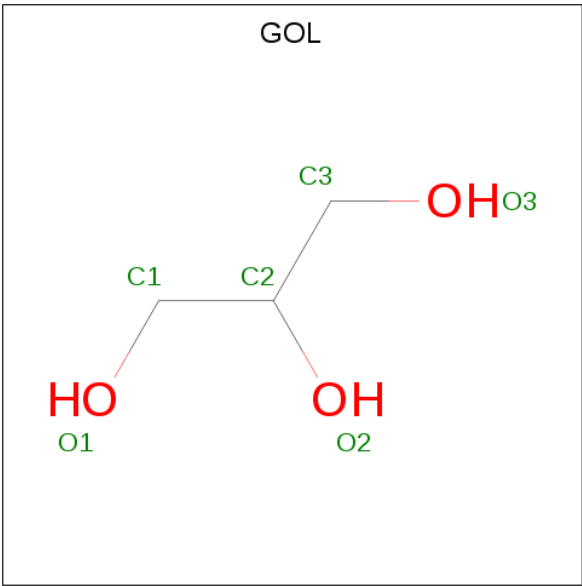
- Molecule 2 is a protein called Apoptosis-inducing factor 3.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
2	C	8	Total	C	N	O	S	0	1	0
			61	37	11	12	1			
2	D	8	Total	C	N	O	S	0	1	0
			67	40	14	12	1			

There are 4 discrepancies between the modelled and reference sequences:

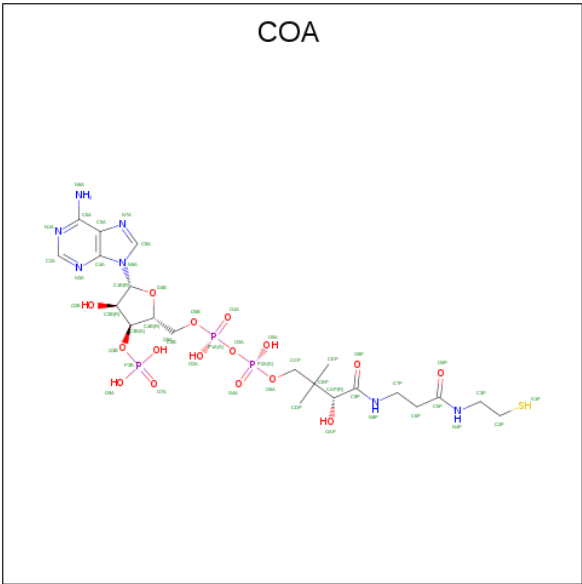
Chain	Residue	Modelled	Actual	Comment	Reference
C	3	ASN	GLY	engineered mutation	UNP Q96NN9
C	9	ARG	LYS	conflict	UNP Q96NN9
D	3	ASN	GLY	engineered mutation	UNP Q96NN9
D	9	ARG	LYS	conflict	UNP Q96NN9

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



Mol	Chain	Residues	Atoms			ZeroOcc	AltConf
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 COENZYME A (three-letter code: COA) (formula: C₂₁H₃₆N₇O₁₆P₃S).

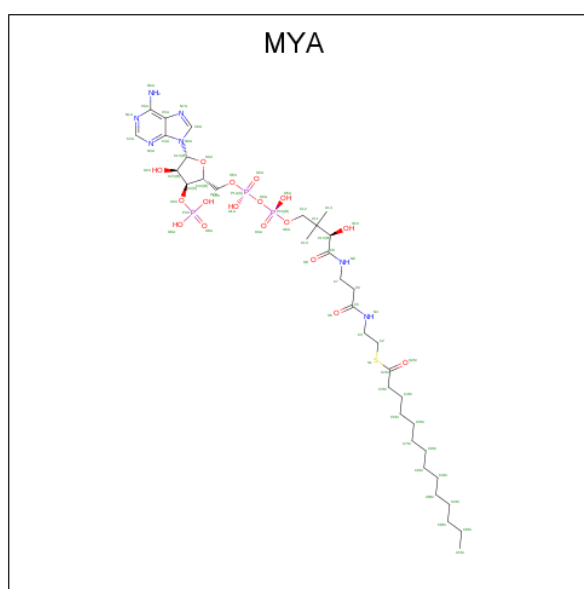


Mol	Chain	Residues	Atoms					ZeroOcc	AltConf
4	B	1	Total	C	N	O	P	S	
			48	21	7	16	3	1	
								0	1

- Molecule 5 is MAGNESIUM ION (three-letter code: MG) (formula: Mg).

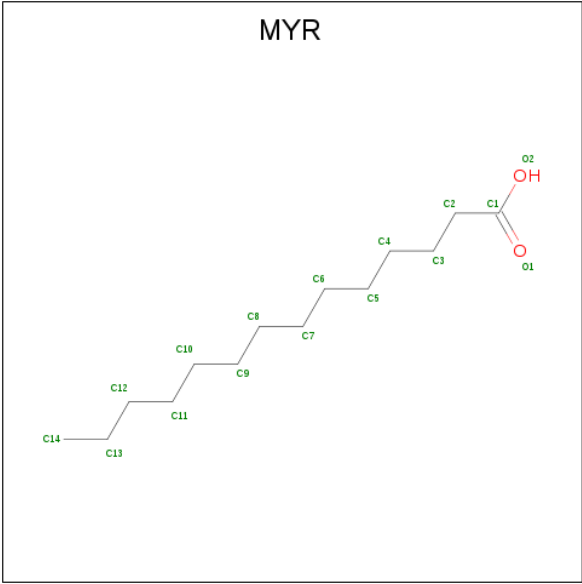
Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
5	B	1	Total	Mg		
			1	1	0	0

- Molecule 6 is TETRADECANOYL-COA (three-letter code: MYA) (formula: C₃₅H₆₂N₇O₁₇P₃S) (labeled as "Ligand of Interest" by author).



Mol	Chain	Residues	Atoms					ZeroOcc	AltConf
6	C	1	Total	C	N	O	P	S	
			126	70	14	34	6	2	
6	D	1	Total	C	N	O	P	S	
			63	35	7	17	3	1	
								0	1

- Molecule 7 is MYRISTIC ACID (three-letter code: MYR) (formula: C₁₄H₂₈O₂).



Mol	Chain	Residues	Atoms			ZeroOcc	AltConf
7	D	1	Total	C	O	0	1
			15	14	1		

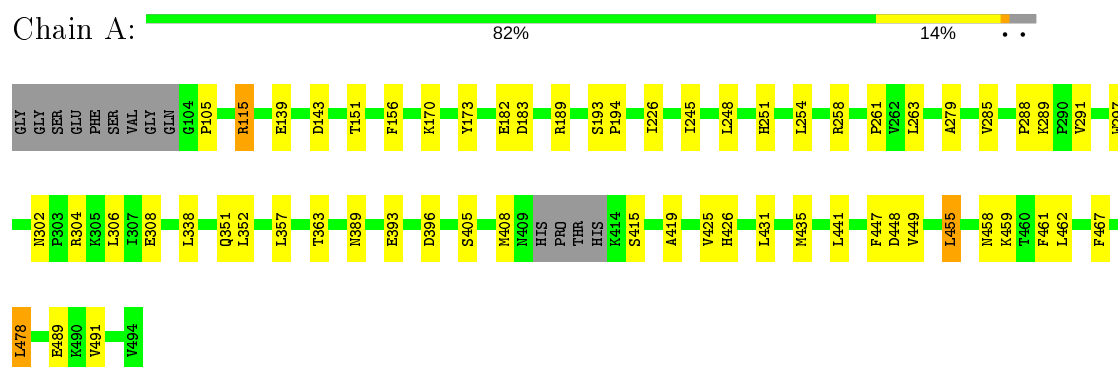
- Molecule 8 is water.

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
8	A	49	Total	O	0	1
			49	49		
8	B	37	Total	O	0	0
			37	37		
8	C	3	Total	O	0	0
			3	3		
8	D	1	Total	O	0	0
			1	1		

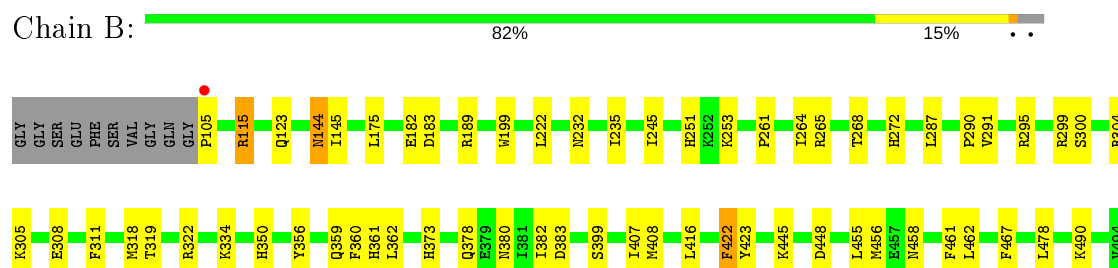
3 Residue-property plots [i](#)

These plots are drawn for all protein, RNA and DNA 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 ($\text{RSRZ} > 2$). 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.

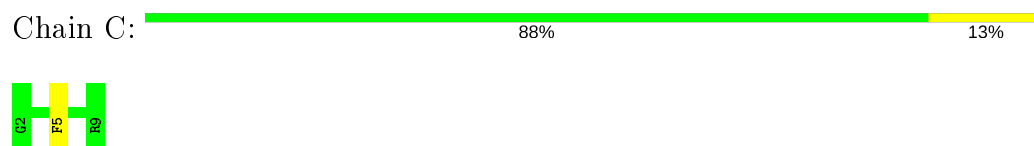
- Molecule 1: Glycylpeptide N-tetradecanoyltransferase 1



- Molecule 1: Glycylpeptide N-tetradecanoyltransferase 1



- Molecule 2: Apoptosis-inducing factor 3



- Molecule 2: Apoptosis-inducing factor 3



4 Data and refinement statistics

Property	Value	Source
Space group	C 1 2 1	Depositor
Cell constants a, b, c, α , β , γ	92.97Å 58.27Å 154.13Å 90.00° 90.92° 90.00°	Depositor
Resolution (Å)	49.37 – 2.80 49.37 – 2.60	Depositor EDS
% Data completeness (in resolution range)	88.8 (49.37-2.80) 80.5 (49.37-2.60)	Depositor EDS
R_{merge}	0.14	Depositor
R_{sym}	(Not available)	Depositor
$\langle I/\sigma(I) \rangle$ ¹	1.81 (at 2.61Å)	Xtriage
Refinement program	PHENIX	Depositor
R, R_{free}	0.189 , 0.219 0.190 , 0.217	Depositor DCC
R_{free} test set	1086 reflections (5.27%)	wwPDB-VP
Wilson B-factor (Å ²)	38.1	Xtriage
Anisotropy	0.029	Xtriage
Bulk solvent k_{sol} (e/Å ³), B_{sol} (Å ²)	0.32 , 20.3	EDS
L-test for twinning ²	$\langle L \rangle = 0.49$, $\langle L^2 \rangle = 0.33$	Xtriage
Estimated twinning fraction	0.021 for -h,-k,l	Xtriage
F_o, F_c correlation	0.93	EDS
Total number of atoms	6773	wwPDB-VP
Average B, all atoms (Å ²)	27.0	wwPDB-VP

Xtriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 5.91% 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: COA, GOL, MG, MYR, 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	0.27	0/3234	0.47	0/4397
1	B	0.27	1/3230 (0.0%)	0.45	0/4397
2	C	0.28	0/62	0.46	0/80
2	D	0.28	0/68	0.40	0/87
All	All	0.27	1/6594 (0.0%)	0.46	0/8961

All (1) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
1	B	123	GLN	C-N	5.89	1.45	1.34

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	3144	0	3086	37	0
1	B	3140	0	3079	36	0
2	C	61	0	50	3	0
2	D	67	0	61	2	0
3	A	6	0	8	2	0
3	B	12	0	16	2	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
4	B	48	0	28	2	0
5	B	1	0	0	0	0
6	C	126	0	116	3	0
6	D	63	0	53	2	0
7	D	15	0	27	2	0
8	A	49	0	0	0	0
8	B	37	0	0	2	0
8	C	3	0	0	0	0
8	D	1	0	0	0	0
All	All	6773	0	6524	74	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 (74) 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)
4:B:503[B]:COA:O4B	4:B:503[B]:COA:C1B	1.66	1.26
1:B:251:HIS:HD2	1:B:253:LYS:H	1.27	0.83
1:A:291:VAL:HB	3:A:501:GOL:H11	1.70	0.71
1:B:245:ILE:HG13	6:D:202[A]:MYA:HAMA	1.72	0.70
1:A:351:GLN:NE2	1:B:144:ASN:OD1	2.25	0.69
1:A:115:ARG:HB3	1:A:115:ARG:HH11	1.59	0.68
1:A:338:LEU:HD21	1:A:441:LEU:HD11	1.75	0.67
1:A:143:ASP:O	1:B:350:HIS:ND1	2.26	0.65
1:A:459:LYS:NZ	1:A:489:GLU:OE1	2.26	0.64
1:B:291:VAL:HB	3:B:501:GOL:H11	1.80	0.64
1:A:302:ASN:HD22	1:A:448:ASP:HA	1.62	0.64
1:A:170:LYS:HA	1:A:173:TYR:CE2	2.35	0.62
1:B:182:GLU:OE2	1:B:189:ARG:NH1	2.33	0.61
1:B:183:ASP:OD2	2:D:7:LYS:NZ	2.33	0.61
1:A:405:SER:HG	2:C:5:PHE:HE2	1.50	0.59
1:A:226:ILE:HD12	1:A:248:LEU:HD13	1.85	0.59
1:A:105:PRO:HB3	1:A:285:VAL:HG11	1.86	0.58
1:A:458:ASN:HA	1:A:461:PHE:CE2	2.39	0.58
1:B:251:HIS:CD2	1:B:253:LYS:H	2.15	0.57
1:B:305:LYS:NZ	1:B:448:ASP:OD2	2.38	0.56
1:B:380:ASN:ND2	8:B:601:HOH:O	2.37	0.56
1:B:478:LEU:HB2	3:B:501:GOL:H12	1.87	0.55
6:C:101[A]:MYA:H2AA	6:C:101[A]:MYA:H6MA	1.87	0.55
1:B:318:MET:HE3	1:B:322:ARG:HB3	1.88	0.55

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:251:HIS:HB3	1:A:254:LEU:HD13	1.90	0.53
1:B:407:ILE:HD11	1:B:416:LEU:HB2	1.90	0.53
1:A:173:TYR:CE2	1:A:194:PRO:HG3	2.43	0.53
1:A:245:ILE:HG13	6:C:101[B]:MYA:HAMA	1.90	0.53
1:A:258[B]:ARG:HG2	1:A:261:PRO:HG2	1.90	0.52
1:A:389:ASN:HD21	1:A:393[B]:GLU:HG2	1.75	0.52
1:B:360:PHE:CE1	1:B:456:MET:HA	2.45	0.51
1:B:268:THR:HG23	6:D:202[A]:MYA:HEMA	1.92	0.51
1:A:462:LEU:O	1:A:467:PHE:HB2	2.11	0.51
1:A:279:ALA:HB2	6:C:101[A]:MYA:HEM	1.92	0.51
1:A:182:GLU:OE2	1:A:189:ARG:NH2	2.38	0.50
1:B:264:ILE:HG23	7:D:201[B]:MYR:H72	1.93	0.50
1:A:426:HIS:CD2	1:A:431:LEU:HB2	2.47	0.50
1:A:435:MET:HG3	1:A:461:PHE:CE2	2.47	0.49
1:B:356:TYR:O	1:B:359:GLN:HG2	2.13	0.49
1:A:458:ASN:O	1:A:462:LEU:HG	2.13	0.48
1:B:458:ASN:HA	1:B:461:PHE:CE2	2.48	0.48
1:B:299:ARG:HB2	1:B:467:PHE:CE2	2.48	0.48
1:A:455:LEU:HB2	1:A:491:VAL:O	2.14	0.48
1:A:183:ASP:HB3	2:C:5:PHE:CD1	2.49	0.47
1:A:297:TRP:CG	1:A:462:LEU:HD13	2.49	0.47
1:A:156:PHE:CE1	1:A:254:LEU:HD21	2.50	0.47
1:B:304:ARG:O	1:B:308:GLU:HG3	2.15	0.47
1:B:105:PRO:O	1:B:115[A]:ARG:NH1	2.49	0.46
4:B:503[B]:COA:S1P	4:B:503[B]:COA:N6A	2.88	0.45
1:B:399:SER:OG	1:B:422:PHE:HB3	2.16	0.45
1:B:235:ILE:HD13	1:B:362:LEU:HD13	1.98	0.44
1:B:145:ILE:HG12	1:B:272:HIS:HB3	2.00	0.44
1:B:199:TRP:O	1:B:373:HIS:NE2	2.46	0.43
1:A:304:ARG:O	1:A:308:GLU:HG3	2.18	0.43
1:A:357:LEU:O	1:A:363:THR:HG21	2.18	0.43
1:B:462:LEU:O	1:B:467:PHE:HB2	2.18	0.43
1:B:287:LEU:O	1:B:290:PRO:HD3	2.19	0.43
1:A:419:ALA:HB2	1:A:447:PHE:CD1	2.55	0.42
1:B:245:ILE:HG13	7:D:201[B]:MYR:H101	2.02	0.42
1:A:302:ASN:ND2	1:A:447:PHE:O	2.53	0.42
1:B:232:ASN:ND2	8:B:602:HOH:O	2.44	0.42
1:A:226:ILE:HG22	1:A:263:LEU:HD22	2.01	0.41
1:A:478:LEU:HB2	3:A:501:GOL:H12	2.01	0.41
1:A:288:PRO:HA	1:A:289:LYS:HA	1.87	0.41
1:B:383:ASP:OD1	1:B:445:LYS:NZ	2.33	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:311:PHE:O	2:D:8:PRO:HD2	2.20	0.41
1:B:261:PRO:O	1:B:265:ARG:HG3	2.20	0.41
1:B:422:PHE:HB3	1:B:423:TYR:H	1.64	0.41
1:B:361:HIS:CE1	1:B:490:LYS:HD2	2.56	0.41
1:A:352:LEU:HB3	1:A:425:VAL:HG11	2.01	0.41
1:A:306:LEU:HD11	1:A:449:VAL:HB	2.02	0.41
1:B:175:LEU:HD22	1:B:222:LEU:HG	2.03	0.41
1:B:378:GLN:H	1:B:382:ILE:HG23	1.86	0.40
1:A:405:SER:OG	2:C:5:PHE:HE2	2.04	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	386/400 (96%)	370 (96%)	16 (4%)	0	100	100
1	B	389/400 (97%)	368 (95%)	21 (5%)	0	100	100
2	C	6/8 (75%)	6 (100%)	0	0	100	100
2	D	6/8 (75%)	6 (100%)	0	0	100	100
All	All	787/816 (96%)	750 (95%)	37 (5%)	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	342/360 (95%)	333 (97%)	9 (3%)	46	79
1	B	341/360 (95%)	331 (97%)	10 (3%)	42	76
2	C	6/7 (86%)	6 (100%)	0	100	100
2	D	7/7 (100%)	5 (71%)	2 (29%)	0	1
All	All	696/734 (95%)	675 (97%)	21 (3%)	42	75

All (21) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	115	ARG
1	A	139	GLU
1	A	151	THR
1	A	193	SER
1	A	396	ASP
1	A	408	MET
1	A	415	SER
1	A	455	LEU
1	A	478	LEU
1	B	115[A]	ARG
1	B	115[B]	ARG
1	B	144	ASN
1	B	295	ARG
1	B	300	SER
1	B	319	THR
1	B	334	LYS
1	B	408	MET
1	B	422	PHE
1	B	455	LEU
2	D	4	CYS
2	D	9	ARG

Some sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (4) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	177	ASN
1	A	302	ASN
1	B	251	HIS
1	B	351	GLN

5.3.3 RNA ⓘ

There are no RNA molecules in this entry.

5.4 Non-standard residues in protein, DNA, RNA chains ⓘ

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

5.5 Carbohydrates ⓘ

There are no carbohydrates in this entry.

5.6 Ligand geometry ⓘ

Of 9 ligands modelled in this entry, 1 is monoatomic - leaving 8 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
7	MYR	D	201[B]	2	14,14,15	0.46	0	13,13,15	0.83	0
4	COA	B	503[B]	-	41,50,50	4.30	12 (29%)	52,75,75	2.08	10 (19%)
3	GOL	A	501	-	5,5,5	0.38	0	5,5,5	0.32	0
6	MYA	D	202[A]	2	54,65,65	1.29	5 (9%)	67,91,91	1.51	6 (8%)
6	MYA	C	101[B]	2	54,65,65	1.34	5 (9%)	67,91,91	1.50	6 (8%)
3	GOL	B	501	-	5,5,5	0.36	0	5,5,5	0.31	0
6	MYA	C	101[A]	-	54,65,65	1.33	5 (9%)	67,91,91	1.65	7 (10%)
3	GOL	B	502	-	5,5,5	0.35	0	5,5,5	0.30	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
7	MYR	D	201[B]	2	-	6/11/12/13	-

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Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
4	COA	B	503[B]	-	-	9/44/64/64	0/3/3/3
3	GOL	A	501	-	-	4/4/4/4	-
6	MYA	D	202[A]	2	-	6/59/80/80	0/3/3/3
6	MYA	C	101[B]	2	-	13/59/80/80	0/3/3/3
3	GOL	B	501	-	-	2/4/4/4	-
6	MYA	C	101[A]	-	-	12/59/80/80	0/3/3/3
3	GOL	B	502	-	-	4/4/4/4	-

All (27) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
4	B	503[B]	COA	O4B-C1B	18.35	1.66	1.41
4	B	503[B]	COA	C2B-C1B	-13.94	1.32	1.53
4	B	503[B]	COA	C9P-N8P	6.72	1.48	1.33
4	B	503[B]	COA	C5P-N4P	6.46	1.48	1.33
4	B	503[B]	COA	O4B-C4B	-6.07	1.31	1.45
6	C	101[A]	MYA	C2A-N3A	5.15	1.40	1.32
6	D	202[A]	MYA	C2A-N3A	4.98	1.40	1.32
6	C	101[B]	MYA	C2A-N3A	4.95	1.40	1.32
4	B	503[B]	COA	C6A-N6A	4.65	1.51	1.34
4	B	503[B]	COA	P3B-O3B	4.47	1.67	1.59
6	C	101[B]	MYA	O4X-C1X	4.17	1.46	1.41
6	C	101[A]	MYA	O4X-C1X	4.02	1.46	1.41
6	C	101[A]	MYA	C2A-N1A	3.28	1.40	1.33
6	C	101[B]	MYA	C2A-N1A	3.17	1.39	1.33
6	D	202[A]	MYA	C2A-N1A	3.13	1.39	1.33
6	D	202[A]	MYA	O4X-C1X	2.78	1.45	1.41
4	B	503[B]	COA	O3B-C3B	-2.72	1.34	1.44
6	D	202[A]	MYA	C5A-C4A	-2.70	1.33	1.40
6	C	101[B]	MYA	C5A-C4A	-2.68	1.33	1.40
6	C	101[B]	MYA	C6A-C5A	-2.63	1.33	1.43
6	C	101[A]	MYA	C5A-C4A	-2.62	1.34	1.40
6	D	202[A]	MYA	C6A-C5A	-2.61	1.33	1.43
4	B	503[B]	COA	C2A-N3A	2.60	1.36	1.32
4	B	503[B]	COA	O9P-C9P	-2.58	1.18	1.23
6	C	101[A]	MYA	C6A-C5A	-2.52	1.33	1.43
4	B	503[B]	COA	C3B-C4B	2.17	1.58	1.52
4	B	503[B]	COA	P2A-O6A	2.13	1.67	1.59

All (29) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
4	B	503[B]	COA	C5A-C6A-N6A	8.89	133.86	120.35
6	D	202[A]	MYA	N3A-C2A-N1A	-6.83	118.00	128.68
6	C	101[B]	MYA	N3A-C2A-N1A	-6.76	118.11	128.68
6	C	101[A]	MYA	N3A-C2A-N1A	-6.60	118.36	128.68
6	C	101[A]	MYA	O2M-C2M-C3M	6.38	120.38	109.02
4	B	503[B]	COA	N6A-C6A-N1A	-6.03	106.05	118.57
4	B	503[B]	COA	N3A-C2A-N1A	-5.41	120.22	128.68
6	C	101[A]	MYA	P2A-O3A-P1A	-4.10	118.77	132.83
6	C	101[B]	MYA	P2A-O3A-P1A	-4.09	118.78	132.83
6	D	202[A]	MYA	O4X-C1X-C2X	-3.96	101.14	106.93
4	B	503[B]	COA	O6A-CCP-CBP	-3.88	104.31	110.55
6	C	101[B]	MYA	C2X-C3X-C4X	-3.83	96.43	103.22
6	D	202[A]	MYA	P2A-O3A-P1A	-3.79	119.81	132.83
6	C	101[A]	MYA	C2X-C3X-C4X	-3.76	96.55	103.22
6	D	202[A]	MYA	O6A-C12-C11	-3.08	105.60	110.55
6	C	101[B]	MYA	O6A-C12-C11	-2.93	105.84	110.55
4	B	503[B]	COA	P2A-O3A-P1A	-2.63	123.80	132.83
6	C	101[A]	MYA	C5A-C6A-N6A	-2.57	116.44	120.35
6	D	202[A]	MYA	C5A-C6A-N6A	-2.54	116.48	120.35
6	C	101[A]	MYA	O4X-C1X-C2X	-2.52	103.24	106.93
6	C	101[B]	MYA	C5A-C6A-N6A	-2.48	116.59	120.35
4	B	503[B]	COA	C5B-C4B-C3B	-2.45	106.30	114.40
6	D	202[A]	MYA	C2X-C3X-C4X	-2.31	99.13	103.22
4	B	503[B]	COA	CEP-CBP-CAP	2.29	112.79	108.82
4	B	503[B]	COA	C6P-C7P-N8P	-2.17	107.52	111.90
4	B	503[B]	COA	C6P-C5P-N4P	2.13	120.01	116.42
6	C	101[B]	MYA	O4X-C1X-C2X	-2.11	103.84	106.93
4	B	503[B]	COA	CDP-CBP-CAP	2.09	112.44	108.82
6	C	101[A]	MYA	C4M-C3M-C2M	-2.05	108.14	113.80

There are no chirality outliers.

All (56) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
4	B	503[B]	COA	C3B-O3B-P3B-O7A
4	B	503[B]	COA	CCP-O6A-P2A-O4A
6	C	101[B]	MYA	C10-C11-C12-O6A
6	C	101[B]	MYA	C13-C11-C12-O6A
6	C	101[B]	MYA	C12-O6A-P2A-O3A
6	C	101[B]	MYA	C12-O6A-P2A-O4A
6	C	101[B]	MYA	C12-O6A-P2A-O5A
6	C	101[A]	MYA	C10-C11-C12-O6A
6	C	101[A]	MYA	C13-C11-C12-O6A

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Mol	Chain	Res	Type	Atoms
6	C	101[A]	MYA	C14-C11-C12-O6A
6	C	101[A]	MYA	C12-O6A-P2A-O3A
3	B	502	GOL	C1-C2-C3-O3
6	C	101[B]	MYA	C3X-C4X-C5X-O5X
3	B	501	GOL	O1-C1-C2-O2
6	C	101[B]	MYA	C14-C11-C12-O6A
3	A	501	GOL	O1-C1-C2-C3
3	A	501	GOL	C1-C2-C3-O3
3	B	501	GOL	O1-C1-C2-C3
3	B	502	GOL	O1-C1-C2-C3
3	B	502	GOL	O2-C2-C3-O3
6	C	101[A]	MYA	C3X-C4X-C5X-O5X
6	D	202[A]	MYA	C8M-C9M-CAM-CBM
7	D	201[B]	MYR	C4-C5-C6-C7
6	C	101[B]	MYA	C8M-C9M-CAM-CBM
4	B	503[B]	COA	C3B-C4B-C5B-O5B
6	C	101[B]	MYA	O4X-C4X-C5X-O5X
6	C	101[A]	MYA	O4X-C4X-C5X-O5X
3	A	501	GOL	O1-C1-C2-O2
3	A	501	GOL	O2-C2-C3-O3
4	B	503[B]	COA	O4B-C4B-C5B-O5B
6	C	101[A]	MYA	CAM-CBM-CCM-CDM
7	D	201[B]	MYR	C5-C6-C7-C8
6	D	202[A]	MYA	CBM-CCM-CDM-CEM
7	D	201[B]	MYR	C9-C10-C11-C12
7	D	201[B]	MYR	C6-C7-C8-C9
6	C	101[A]	MYA	C8M-C9M-CAM-CBM
6	C	101[B]	MYA	C3-C2-S1-C2M
4	B	503[B]	COA	C3B-O3B-P3B-O8A
4	B	503[B]	COA	CCP-O6A-P2A-O3A
3	B	502	GOL	O1-C1-C2-O2
6	C	101[A]	MYA	C12-O6A-P2A-O4A
6	C	101[A]	MYA	C12-O6A-P2A-O5A
4	B	503[B]	COA	CAP-CBP-CCP-O6A
6	D	202[A]	MYA	C10-C11-C12-O6A
7	D	201[B]	MYR	C10-C11-C12-C13
6	C	101[A]	MYA	O2M-C2M-C3M-C4M
6	C	101[B]	MYA	CAM-CBM-CCM-CDM
4	B	503[B]	COA	CEP-CBP-CCP-O6A
6	D	202[A]	MYA	C14-C11-C12-O6A
4	B	503[B]	COA	CDP-CBP-CCP-O6A
6	D	202[A]	MYA	C13-C11-C12-O6A

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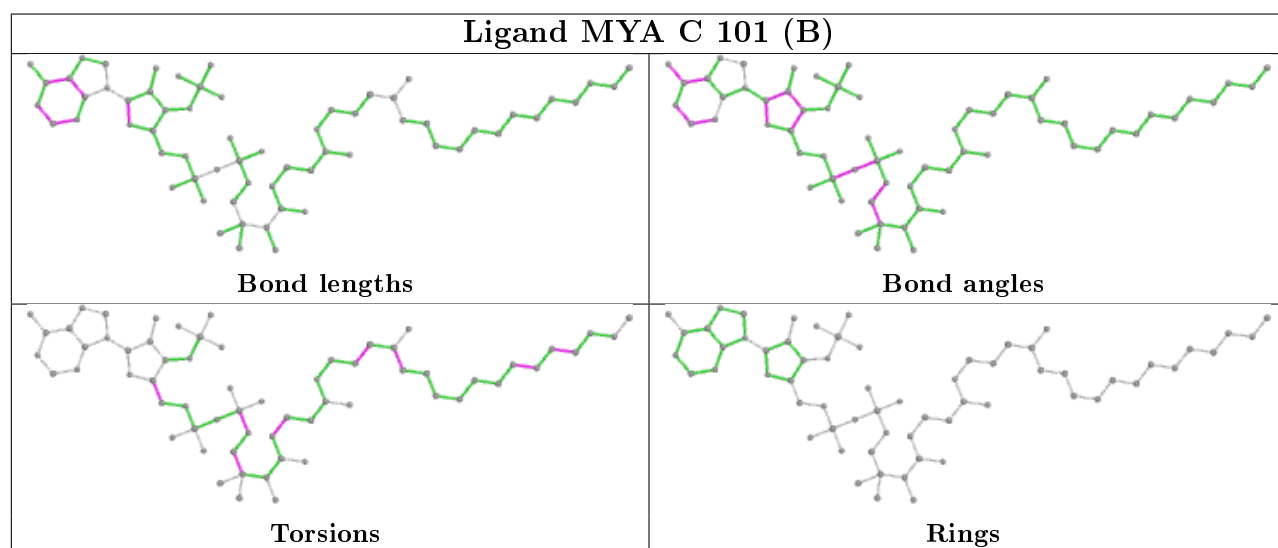
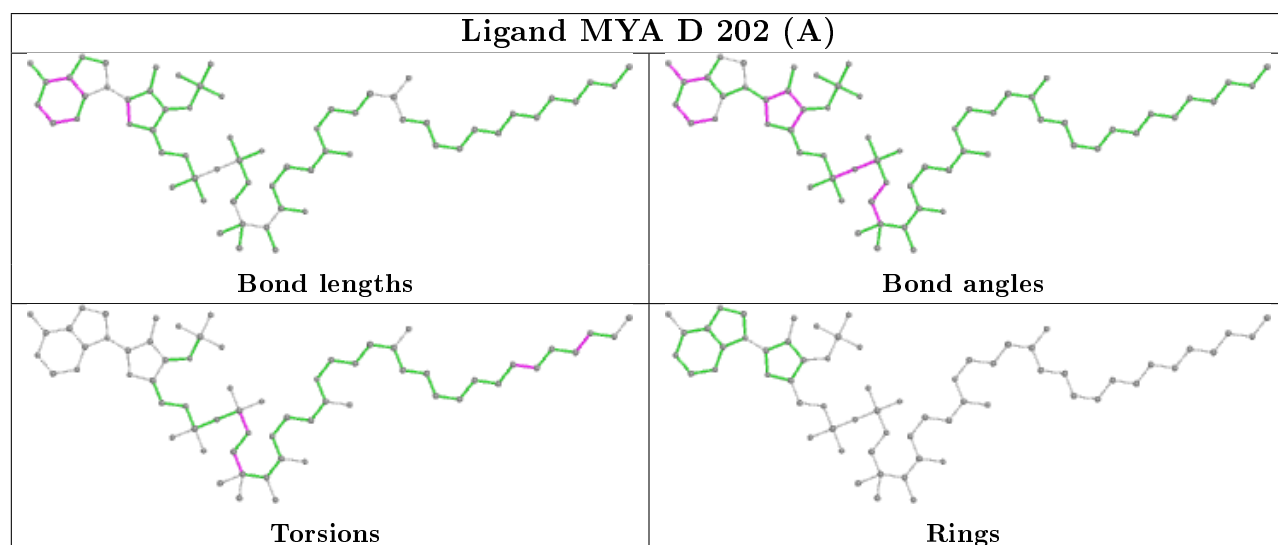
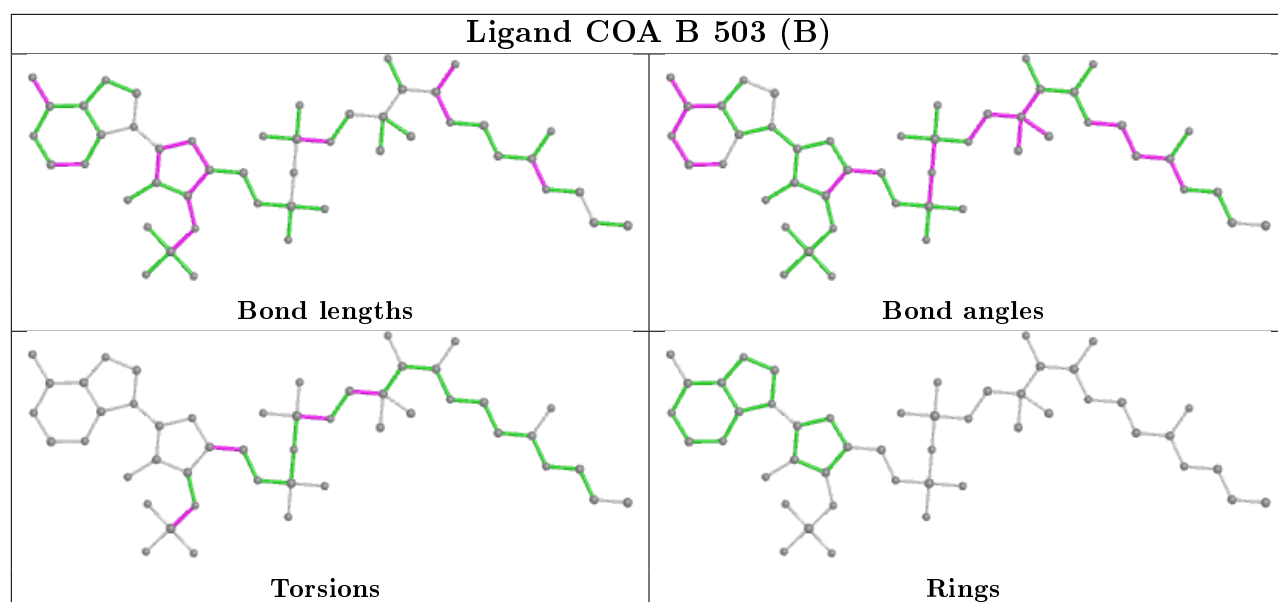
Mol	Chain	Res	Type	Atoms
6	C	101[A]	MYA	C6-C7-N8-C9
6	C	101[B]	MYA	C6-C7-N8-C9
7	D	201[B]	MYR	C7-C8-C9-C10
6	D	202[A]	MYA	C12-O6A-P2A-O4A
6	C	101[B]	MYA	S1-C2M-C3M-C4M

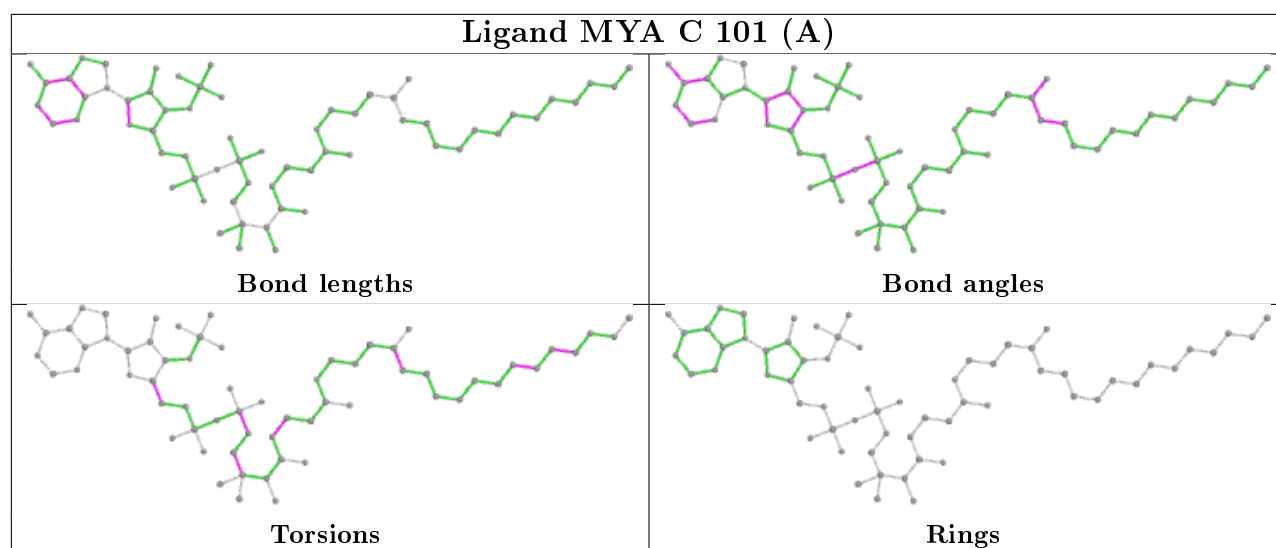
There are no ring outliers.

7 monomers are involved in 13 short contacts:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
7	D	201[B]	MYR	2	0
4	B	503[B]	COA	2	0
3	A	501	GOL	2	0
6	D	202[A]	MYA	2	0
6	C	101[B]	MYA	1	0
3	B	501	GOL	2	0
6	C	101[A]	MYA	2	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	387/400 (96%)	-0.56	0 100 100	14, 23, 45, 53	0
1	B	390/400 (97%)	-0.55	1 (0%) 94 93	13, 26, 53, 72	0
2	C	8/8 (100%)	-0.04	0 100 100	26, 30, 31, 34	0
2	D	8/8 (100%)	0.11	0 100 100	29, 32, 36, 42	0
All	All	793/816 (97%)	-0.54	1 (0%) 95 95	13, 25, 48, 72	0

All (1) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	B	105	PRO	2.6

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 carbohydrates 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
3	GOL	B	502	6/6	0.79	0.19	25,33,39,42	0

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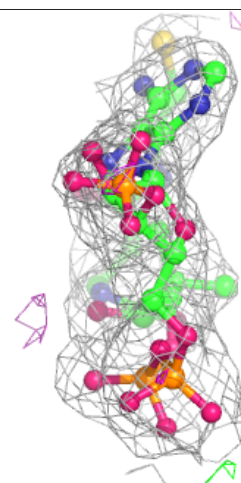
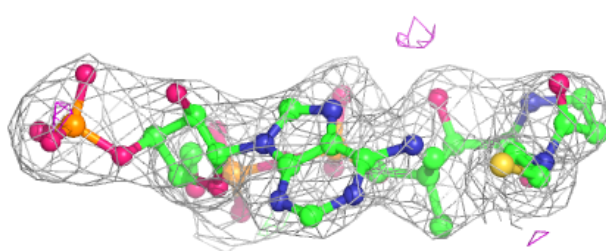
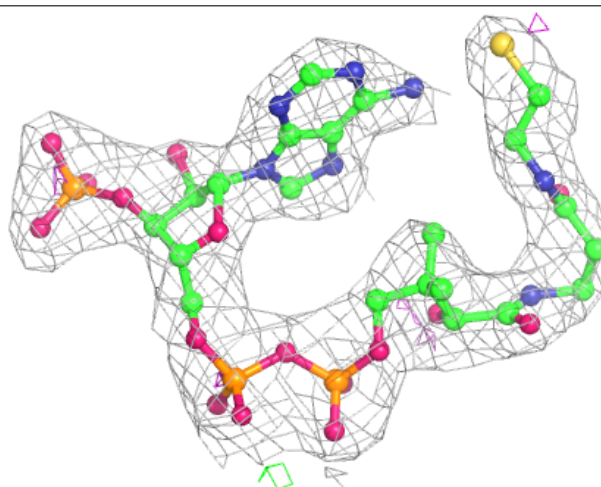
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Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors(\AA^2)	Q<0.9
4	COA	B	503[B]	48/48	0.94	0.16	31,36,39,41	48
6	MYA	D	202[A]	63/63	0.94	0.15	16,35,39,40	63
6	MYA	C	101[B]	63/63	0.94	0.17	15,24,28,31	63
3	GOL	B	501	6/6	0.94	0.15	23,24,26,28	0
6	MYA	C	101[A]	63/63	0.94	0.17	15,24,28,31	63
7	MYR	D	201[B]	15/16	0.94	0.17	16,20,26,28	15
3	GOL	A	501	6/6	0.96	0.17	23,26,27,28	0
5	MG	B	504	1/1	0.97	0.14	24,24,24,24	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.

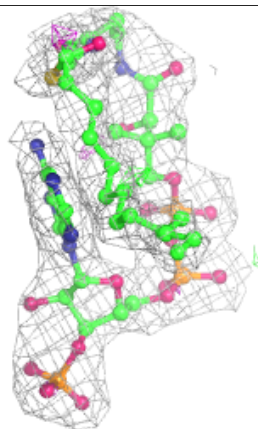
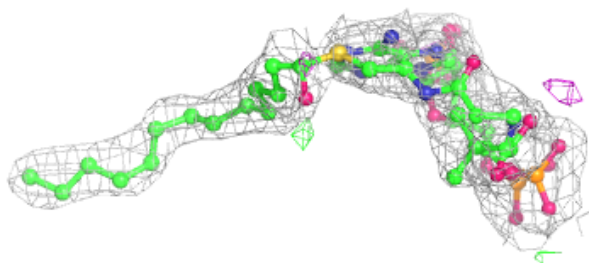
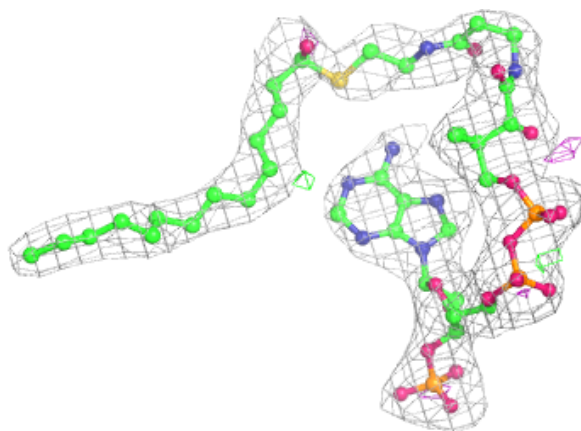
Electron density around COA B 503 (B):

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



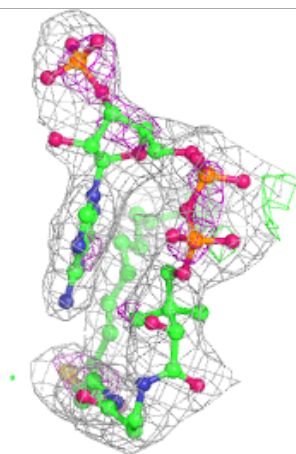
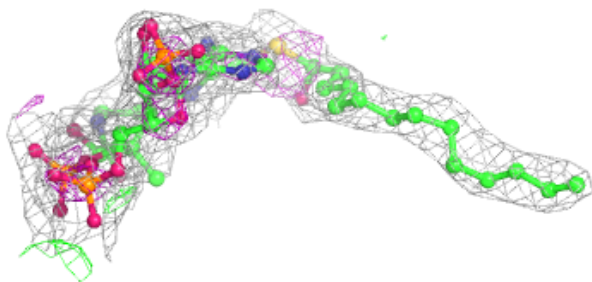
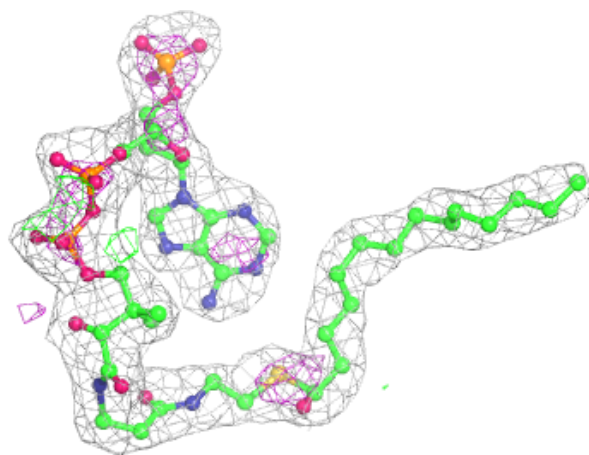
Electron density around MYA D 202 (A):

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



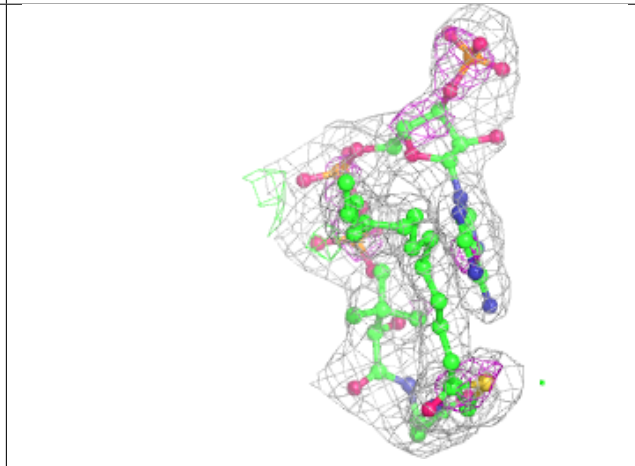
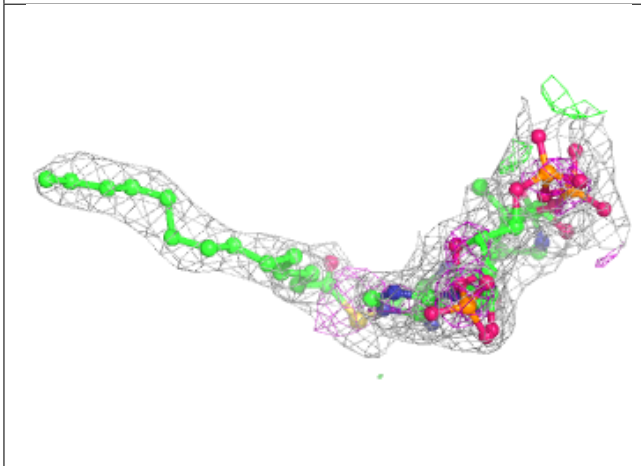
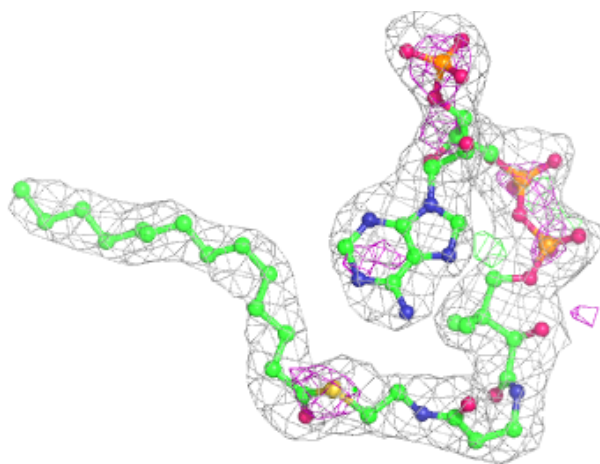
Electron density around MYA C 101 (B):

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



Electron density around MYA C 101 (A):

$2mF_o-DF_c$ (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.