



# Full wwPDB X-ray Structure Validation Report ⓘ

May 15, 2020 – 01:32 pm BST

PDB ID : 6SK3  
Title : C-terminal HsNMT1 deltaC3 truncation in complex with both MyrCoA and GNCFSKPR substrates  
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Deposited on : 2019-08-14  
Resolution : 2.70 Å(reported)

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

We welcome your comments at [validation@mail.wwpdb.org](mailto: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.

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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

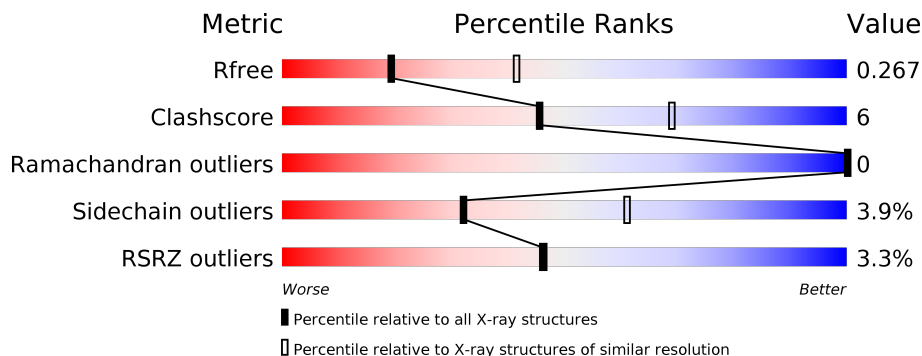
# 1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

*X-RAY DIFFRACTION*

The reported resolution of this entry is 2.70 Å.

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



Metric	Whole archive (#Entries)	Similar resolution (#Entries, resolution range(Å))
$R_{free}$	130704	2808 (2.70-2.70)
Clashscore	141614	3122 (2.70-2.70)
Ramachandran outliers	138981	3069 (2.70-2.70)
Sidechain outliers	138945	3069 (2.70-2.70)
RSRZ outliers	127900	2737 (2.70-2.70)

The table below summarises the geometric issues observed across the polymeric chains and their fit to the electron density. The red, orange, yellow and green segments on the lower bar indicate the fraction of residues that contain outliers for  $\geq 3$ , 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	399	 4% 80% 15% ..
1	B	399	 3% 80% 17% ..
2	C	8	 50% 38% 13%
2	D	8	 63% 38%

## 2 Entry composition i

There are 6 unique types of molecules in this entry. The entry contains 6514 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	387	Total	C	N	O	S	0	0	0
			3094	2010	515	552	17			
1	B	390	Total	C	N	O	S	0	0	0
			3140	2032	525	566	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.

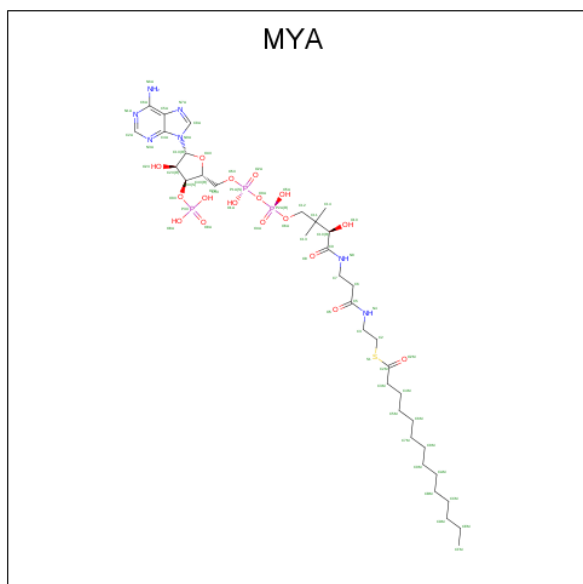
Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
2	C	8	Total	C	N	O	S	0	0	0
			63	38	13	11	1			
2	D	8	Total	C	N	O	S	0	0	0
			63	38	13	11	1			

- Molecule 3 is GLYCEROL (three-letter code: GOL) (formula: C<sub>3</sub>H<sub>8</sub>O<sub>3</sub>).



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		

- Molecule 4 is TETRADECANOYL-COA (three-letter code: MYA) (formula:  $C_{35}H_{62}N_7O_{17}P_3S$ ) (labeled as "Ligand of Interest" by author).



Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	
4	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	
			Total	C	N	O	P			S
4	B	1	63	35	7	17	3	1	0	0

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

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

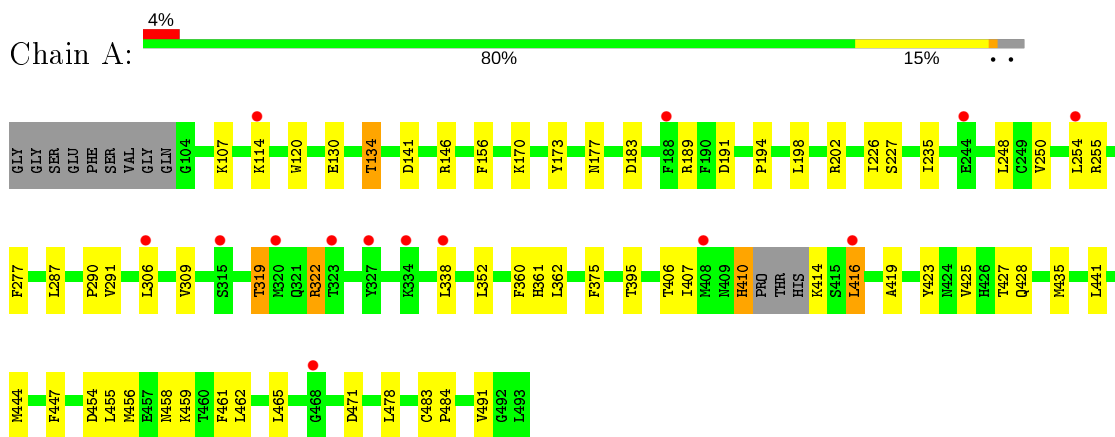
- Molecule 6 is water.

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
6	A	9	Total	O	0	0
			9	9		
6	B	4	Total	O	0	0
			4	4		
6	C	1	Total	O	0	0
			1	1		
6	D	1	Total	O	0	0
			1	1		

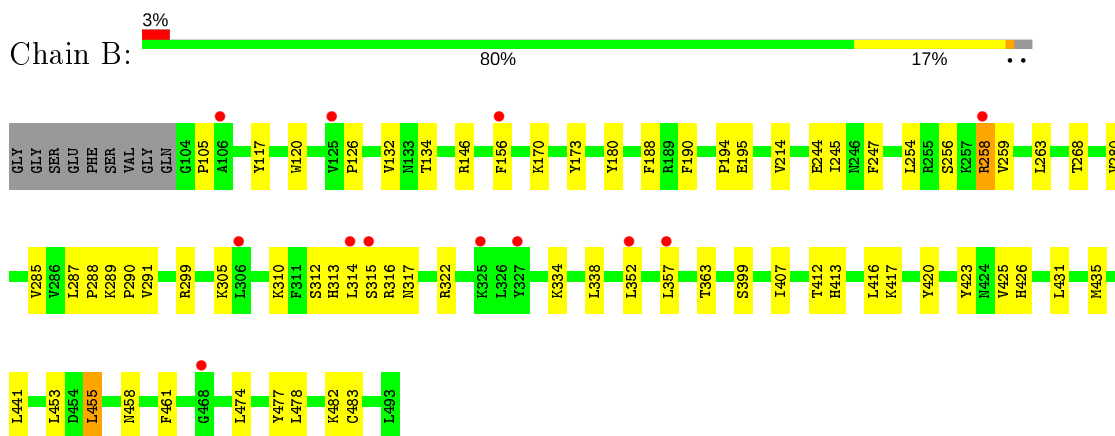
### 3 Residue-property plots [i](#)

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 ( $RSRZ > 2$ ). 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, $\alpha$ , $\beta$ , $\gamma$	91.81Å 58.07Å 148.21Å 90.00° 92.25° 90.00°	Depositor
Resolution (Å)	46.87 – 2.70 46.87 – 2.70	Depositor EDS
% Data completeness (in resolution range)	98.9 (46.87-2.70) 92.9 (46.87-2.70)	Depositor EDS
$R_{merge}$	0.17	Depositor
$R_{sym}$	(Not available)	Depositor
$\langle I/\sigma(I) \rangle$ <sup>1</sup>	2.11 (at 2.69Å)	Xtrriage
Refinement program	PHENIX	Depositor
R, $R_{free}$	0.246 , 0.269 0.247 , 0.267	Depositor DCC
$R_{free}$ test set	1142 reflections (5.31%)	wwPDB-VP
Wilson B-factor (Å <sup>2</sup> )	34.3	Xtrriage
Anisotropy	1.196	Xtrriage
Bulk solvent $k_{sol}$ (e/Å <sup>3</sup> ), $B_{sol}$ (Å <sup>2</sup> )	0.34 , 22.9	EDS
L-test for twinning <sup>2</sup>	$\langle  L  \rangle = 0.44$ , $\langle L^2 \rangle = 0.27$	Xtrriage
Estimated twinning fraction	0.042 for -h,-k,l	Xtrriage
$F_o, F_c$ correlation	0.90	EDS
Total number of atoms	6514	wwPDB-VP
Average B, all atoms (Å <sup>2</sup> )	39.0	wwPDB-VP

Xtrriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 13.55% of the height of the origin peak. No significant pseudotranslation is detected.*

<sup>1</sup>Intensities estimated from amplitudes.

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



## 5 Model quality

### 5.1 Standard geometry

Bond lengths and bond angles in the following residue types are not validated in this section: MYA, GOL, MG

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	0.31	0/3181	0.50	0/4329
1	B	0.30	0/3230	0.49	0/4396
2	C	0.31	0/64	0.47	0/82
2	D	0.38	0/64	0.56	0/82
All	All	0.30	0/6539	0.50	0/8889

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	B	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	B	316	ARG	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	3094	0	3031	40	0
1	B	3140	0	3079	39	0
2	C	63	0	60	3	0
2	D	63	0	60	3	0
3	A	6	0	8	2	0
3	B	6	0	8	2	0
4	A	63	0	58	1	0
4	B	63	0	58	3	0
5	B	1	0	0	0	0
6	A	9	0	0	0	0
6	B	4	0	0	0	0
6	C	1	0	0	1	0
6	D	1	0	0	1	0
All	All	6514	0	6362	82	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 (82) 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:291:VAL:HB	3:B:501:GOL:H11	1.58	0.86
1:A:362:LEU:HD23	1:A:491:VAL:HG13	1.70	0.73
1:A:306:LEU:HD23	1:A:416:LEU:HD21	1.72	0.70
1:A:291:VAL:HB	3:A:501:GOL:H11	1.74	0.70
1:B:478:LEU:HB2	3:B:501:GOL:H12	1.74	0.68
1:B:458:ASN:HA	1:B:461:PHE:CE2	2.34	0.62
2:C:3:ASN:ND2	6:C:101:HOH:O	2.33	0.61
1:B:407:ILE:HD11	1:B:416:LEU:HG	1.82	0.60
1:B:312:SER:HB3	2:D:8:PRO:HG2	1.82	0.60
1:B:313:HIS:H	1:B:313:HIS:CD2	2.19	0.59
2:D:2:GLY:N	6:D:101:HOH:O	2.36	0.58
1:A:309:VAL:HG11	1:A:407:ILE:HD13	1.85	0.58
1:A:478:LEU:HB2	3:A:501:GOL:H12	1.84	0.57
1:B:268:THR:HA	4:B:502:MYA:HEMA	1.85	0.57
1:B:173:TYR:CE2	1:B:194:PRO:HG3	2.40	0.56
1:B:352:LEU:HB3	1:B:425:VAL:HG11	1.88	0.56
1:A:375:PHE:HE1	1:A:423:TYR:HB2	1.71	0.55
1:B:190:PHE:HE1	1:B:420:TYR:HH	1.53	0.55
1:A:454:ASP:HB2	1:A:459:LYS:HG3	1.88	0.55
1:B:170:LYS:HA	1:B:173:TYR:CE2	2.42	0.55
1:A:360:PHE:CZ	1:A:456:MET:HG2	2.43	0.54

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:170:LYS:HA	1:A:173:TYR:CE2	2.42	0.54
1:B:399:SER:OG	1:B:423:TYR:O	2.22	0.54
1:A:177:ASN:O	1:A:189:ARG:HD2	2.10	0.52
1:A:338:LEU:HD21	1:A:441:LEU:HD11	1.92	0.52
1:B:338:LEU:HD21	1:B:441:LEU:HD11	1.91	0.52
1:A:173:TYR:CE2	1:A:194:PRO:HG3	2.45	0.51
1:A:458:ASN:O	1:A:462:LEU:HG	2.10	0.51
1:B:126:PRO:HB2	1:B:289:LYS:HD2	1.92	0.51
1:B:258:ARG:NH2	4:B:502:MYA:O9A	2.45	0.50
1:B:426:HIS:CD2	1:B:431:LEU:HB2	2.46	0.50
1:B:195:GLU:N	1:B:195:GLU:OE1	2.42	0.50
1:B:244:GLU:HG2	1:B:280:VAL:HG13	1.94	0.49
1:A:226:ILE:HD12	1:A:248:LEU:HD13	1.94	0.49
1:A:471:ASP:OD2	2:C:7:LYS:NZ	2.45	0.49
1:A:287:LEU:O	1:A:290:PRO:HD3	2.13	0.48
1:A:461:PHE:CD1	1:A:465:LEU:HD12	2.49	0.48
1:A:458:ASN:HA	1:A:461:PHE:CE2	2.49	0.47
1:B:287:LEU:O	1:B:290:PRO:HD3	2.14	0.47
1:A:250:VAL:O	1:A:255:ARG:NH1	2.47	0.47
1:B:188:PHE:CE1	1:B:407:ILE:HG12	2.50	0.46
2:D:7:LYS:HB2	2:D:7:LYS:HE2	1.61	0.46
1:B:132:VAL:HG13	1:B:482:LYS:HG2	1.97	0.46
1:B:180:TYR:CE1	1:B:247:PHE:HA	2.51	0.46
1:A:410:HIS:NE2	1:A:414:LYS:O	2.48	0.46
1:B:117:TYR:HB3	1:B:120:TRP:HB2	1.97	0.46
1:A:156:PHE:CE1	1:A:254:LEU:HD21	2.51	0.45
1:B:314:LEU:HA	1:B:314:LEU:HD12	1.57	0.45
1:A:134:THR:O	1:A:484:PRO:HD3	2.17	0.45
1:B:245:ILE:HG13	4:B:502:MYA:HAMA	1.99	0.45
1:A:177:ASN:ND2	1:A:191:ASP:OD1	2.50	0.45
1:B:435:MET:HG3	1:B:461:PHE:CE2	2.52	0.44
1:A:395:THR:O	1:A:427:THR:OG1	2.26	0.44
1:A:375:PHE:CE1	1:A:423:TYR:HB2	2.53	0.44
1:A:141:ASP:HB3	1:A:277:PHE:CE2	2.52	0.44
1:A:352:LEU:HB3	1:A:425:VAL:HG11	1.99	0.43
1:B:134:THR:O	1:B:483:CYS:HA	2.18	0.43
1:B:105:PRO:HB3	1:B:285:VAL:HG11	2.00	0.43
1:A:322:ARG:HD3	1:A:322:ARG:HA	1.85	0.43
1:B:435:MET:HG3	1:B:461:PHE:CZ	2.54	0.43
1:B:214:VAL:HG23	1:B:263:LEU:HD21	2.01	0.43
1:A:360:PHE:CE2	1:A:456:MET:HG2	2.54	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:357:LEU:O	1:B:363:THR:HG21	2.19	0.42
1:B:417:LYS:HB3	1:B:417:LYS:HE2	1.84	0.42
1:B:453:LEU:HB2	1:B:455:LEU:HG	2.01	0.42
1:B:254:LEU:HD23	1:B:259:VAL:HG21	2.00	0.42
1:B:156:PHE:CE1	1:B:254:LEU:HD21	2.55	0.42
1:A:177:ASN:O	1:A:189:ARG:NH1	2.48	0.42
1:A:198:LEU:HD22	1:A:202:ARG:HD2	2.02	0.42
1:A:319:THR:HG23	1:A:322:ARG:HB2	2.02	0.42
1:B:474:LEU:HA	1:B:474:LEU:HD12	1.87	0.42
1:A:183:ASP:OD2	2:C:7:LYS:HE3	2.20	0.41
1:B:305:LYS:HE2	1:B:413:HIS:HE1	1.86	0.41
1:A:435:MET:HG3	1:A:461:PHE:CE2	2.56	0.41
1:A:235:ILE:HA	1:A:361:HIS:O	2.20	0.41
1:B:285:VAL:O	1:B:477:TYR:OH	2.37	0.41
1:A:444:MET:HB3	1:A:444:MET:HE3	1.86	0.41
1:A:120:TRP:HZ2	4:A:502:MYA:H2AA	1.85	0.41
1:A:435:MET:HG3	1:A:461:PHE:CZ	2.56	0.40
1:A:419:ALA:HB2	1:A:447:PHE:CD1	2.56	0.40
1:A:134:THR:O	1:A:483:CYS:HA	2.22	0.40
1:B:288:PRO:HA	1:B:289:LYS:HA	1.89	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	383/399 (96%)	374 (98%)	9 (2%)	0	100	100
1	B	388/399 (97%)	379 (98%)	9 (2%)	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	783/814 (96%)	765 (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	332/359 (92%)	319 (96%)	13 (4%)	32	61
1	B	342/359 (95%)	331 (97%)	11 (3%)	39	68
2	C	7/7 (100%)	4 (57%)	3 (43%)	0	0
2	D	7/7 (100%)	7 (100%)	0	100	100
All	All	688/732 (94%)	661 (96%)	27 (4%)	32	61

All (27) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	107	LYS
1	A	114	LYS
1	A	130	GLU
1	A	134	THR
1	A	146	ARG
1	A	227	SER
1	A	319	THR
1	A	322	ARG
1	A	406	THR
1	A	410	HIS
1	A	416	LEU
1	A	428	GLN
1	A	455	LEU
1	B	146	ARG
1	B	256	SER
1	B	258	ARG
1	B	299	ARG
1	B	310	LYS
1	B	315	SER
1	B	317	ASN
1	B	322	ARG
1	B	334	LYS

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Mol	Chain	Res	Type
1	B	412	THR
1	B	455	LEU
2	C	5	PHE
2	C	7	LYS
2	C	9	ARG

Some sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (7) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	278	GLN
1	A	380	ASN
1	B	144	ASN
1	B	313	HIS
1	B	413	HIS
1	B	451	ASN
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](#)

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

## 5.5 Carbohydrates [i](#)

There are no carbohydrates in this entry.

## 5.6 Ligand geometry [i](#)

Of 5 ligands modelled in this entry, 1 is monoatomic - leaving 4 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	MYA	B	502	5	54,65,65	1.22	6 (11%)	67,91,91	1.74	7 (10%)
3	GOL	B	501	-	5,5,5	0.36	0	5,5,5	0.17	0
3	GOL	A	501	-	5,5,5	0.36	0	5,5,5	0.23	0
4	MYA	A	502	-	54,65,65	1.27	7 (12%)	67,91,91	1.68	7 (10%)

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	MYA	B	502	5	-	9/59/80/80	0/3/3/3
3	GOL	B	501	-	-	0/4/4/4	-
3	GOL	A	501	-	-	2/4/4/4	-
4	MYA	A	502	-	-	9/59/80/80	0/3/3/3

All (13) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
4	A	502	MYA	C2A-N3A	5.00	1.40	1.32
4	B	502	MYA	C2A-N3A	4.82	1.39	1.32
4	A	502	MYA	C2A-N1A	3.11	1.39	1.33
4	B	502	MYA	C2A-N1A	3.09	1.39	1.33
4	B	502	MYA	C5A-C4A	-2.73	1.33	1.40
4	A	502	MYA	C6A-C5A	-2.68	1.33	1.43
4	A	502	MYA	C5A-C4A	-2.66	1.33	1.40
4	B	502	MYA	C6A-C5A	-2.61	1.33	1.43
4	A	502	MYA	O4X-C1X	2.45	1.44	1.41
4	B	502	MYA	C2X-C1X	-2.24	1.50	1.53
4	B	502	MYA	P3X-O8A	-2.06	1.46	1.54
4	A	502	MYA	C2X-C1X	-2.05	1.50	1.53
4	A	502	MYA	P3X-O8A	-2.04	1.47	1.54

All (14) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
4	B	502	MYA	O2M-C2M-C3M	6.76	121.06	109.02
4	A	502	MYA	O2M-C2M-C3M	6.71	120.97	109.02
4	A	502	MYA	N3A-C2A-N1A	-6.57	118.42	128.68
4	B	502	MYA	N3A-C2A-N1A	-6.47	118.56	128.68
4	B	502	MYA	O4X-C1X-C2X	-5.99	98.17	106.93

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
4	A	502	MYA	O4X-C1X-C2X	-4.41	100.49	106.93
4	A	502	MYA	P2A-O3A-P1A	-3.74	120.00	132.83
4	B	502	MYA	P2A-O3A-P1A	-3.41	121.11	132.83
4	A	502	MYA	C5A-C6A-N6A	-2.69	116.26	120.35
4	B	502	MYA	C5A-C6A-N6A	-2.59	116.41	120.35
4	A	502	MYA	C1X-N9A-C4A	2.36	130.78	126.64
4	A	502	MYA	C2X-C3X-C4X	-2.34	99.08	103.22
4	B	502	MYA	C2-C3-N4	-2.23	107.73	112.42
4	B	502	MYA	O4X-C4X-C5X	-2.21	102.10	109.37

There are no chirality outliers.

All (20) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
4	B	502	MYA	C4M-C5M-C6M-C7M
3	A	501	GOL	O1-C1-C2-C3
4	A	502	MYA	C4M-C5M-C6M-C7M
3	A	501	GOL	O1-C1-C2-O2
4	B	502	MYA	O2M-C2M-C3M-C4M
4	B	502	MYA	CAM-CBM-CCM-CDM
4	A	502	MYA	C7M-C8M-C9M-CAM
4	B	502	MYA	C8M-C9M-CAM-CBM
4	A	502	MYA	O2M-C2M-C3M-C4M
4	A	502	MYA	O5-C5-C6-C7
4	B	502	MYA	C2M-C3M-C4M-C5M
4	A	502	MYA	C2M-C3M-C4M-C5M
4	A	502	MYA	C5M-C6M-C7M-C8M
4	A	502	MYA	S1-C2M-C3M-C4M
4	A	502	MYA	N4-C5-C6-C7
4	B	502	MYA	O5-C5-C6-C7
4	B	502	MYA	C3M-C4M-C5M-C6M
4	B	502	MYA	N4-C5-C6-C7
4	B	502	MYA	P2A-O3A-P1A-O2A
4	A	502	MYA	CAM-CBM-CCM-CDM

There are no ring outliers.

4 monomers are involved in 8 short contacts:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
4	B	502	MYA	3	0
3	B	501	GOL	2	0

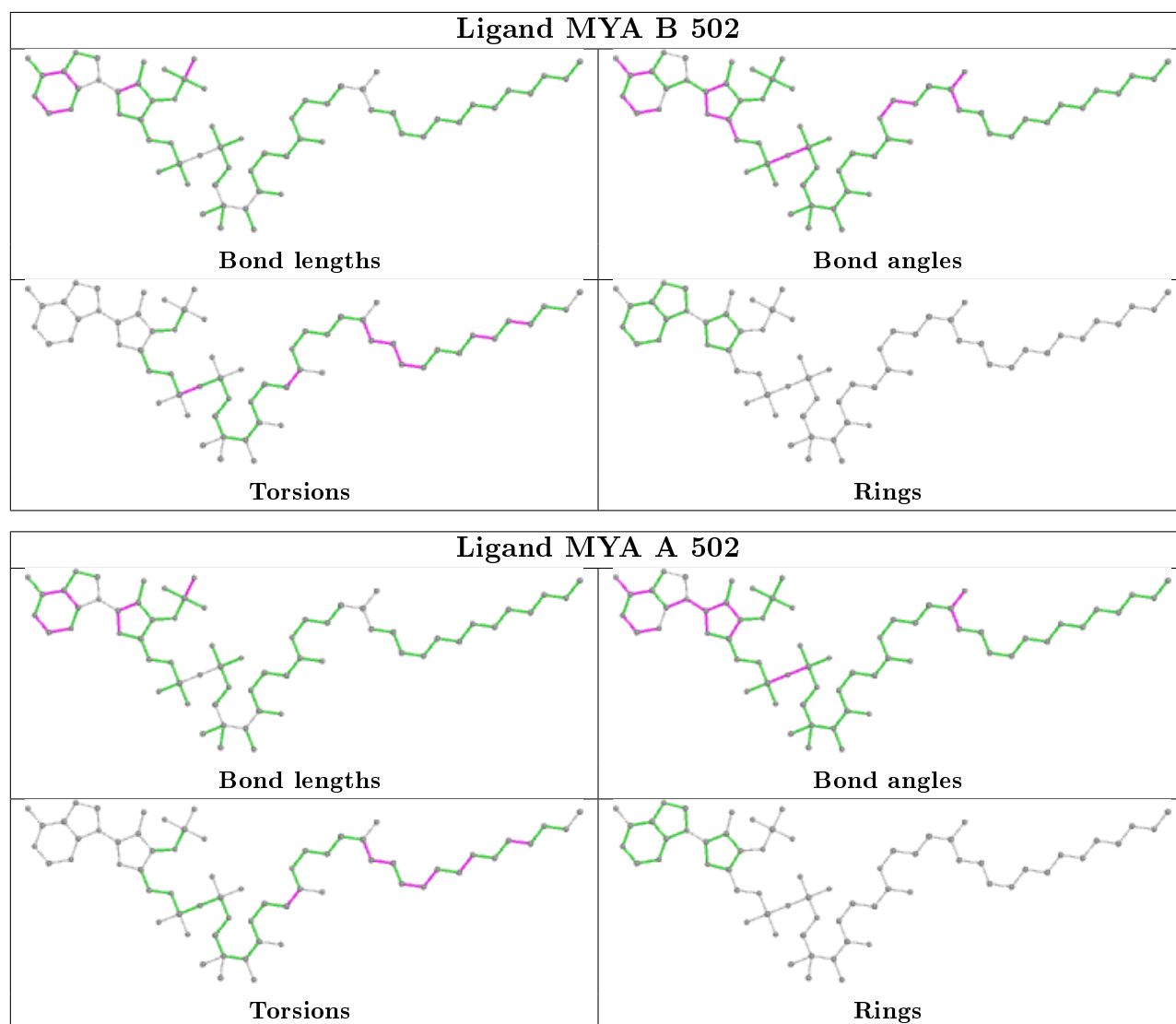
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Mol	Chain	Res	Type	Clashes	Symm-Clashes
3	A	501	GOL	2	0
4	A	502	MYA	1	0

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

### 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<sup>th</sup> 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 <sup>2</sup> )	Q<0.9
1	A	387/399 (96%)	0.47	14 (3%) 42 42	28, 38, 52, 60	0
1	B	390/399 (97%)	0.36	12 (3%) 49 49	28, 37, 53, 73	0
2	C	8/8 (100%)	0.66	0 100 100	35, 43, 46, 46	0
2	D	8/8 (100%)	0.56	0 100 100	38, 42, 44, 50	0
All	All	793/814 (97%)	0.42	26 (3%) 46 46	28, 38, 52, 73	0

All (26) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	B	327	TYR	3.7
1	B	306	LEU	3.5
1	A	114	LYS	3.4
1	A	327	TYR	3.4
1	B	315	SER	3.4
1	A	468	GLY	3.3
1	A	323	THR	3.2
1	B	314	LEU	3.0
1	A	188	PHE	3.0
1	A	416	LEU	2.7
1	B	156	PHE	2.5
1	B	258	ARG	2.5
1	B	106	ALA	2.4
1	B	325	LYS	2.4
1	A	408	MET	2.4
1	B	468	GLY	2.3
1	A	315	SER	2.3
1	B	352	LEU	2.3
1	A	338	LEU	2.3
1	A	254	LEU	2.2
1	B	125	VAL	2.2

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Mol	Chain	Res	Type	RSRZ
1	A	244	GLU	2.2
1	A	334	LYS	2.1
1	B	357	LEU	2.1
1	A	306	LEU	2.0
1	A	320	MET	2.0

## 6.2 Non-standard residues in protein, DNA, RNA chains [i](#)

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

## 6.3 Carbohydrates [i](#)

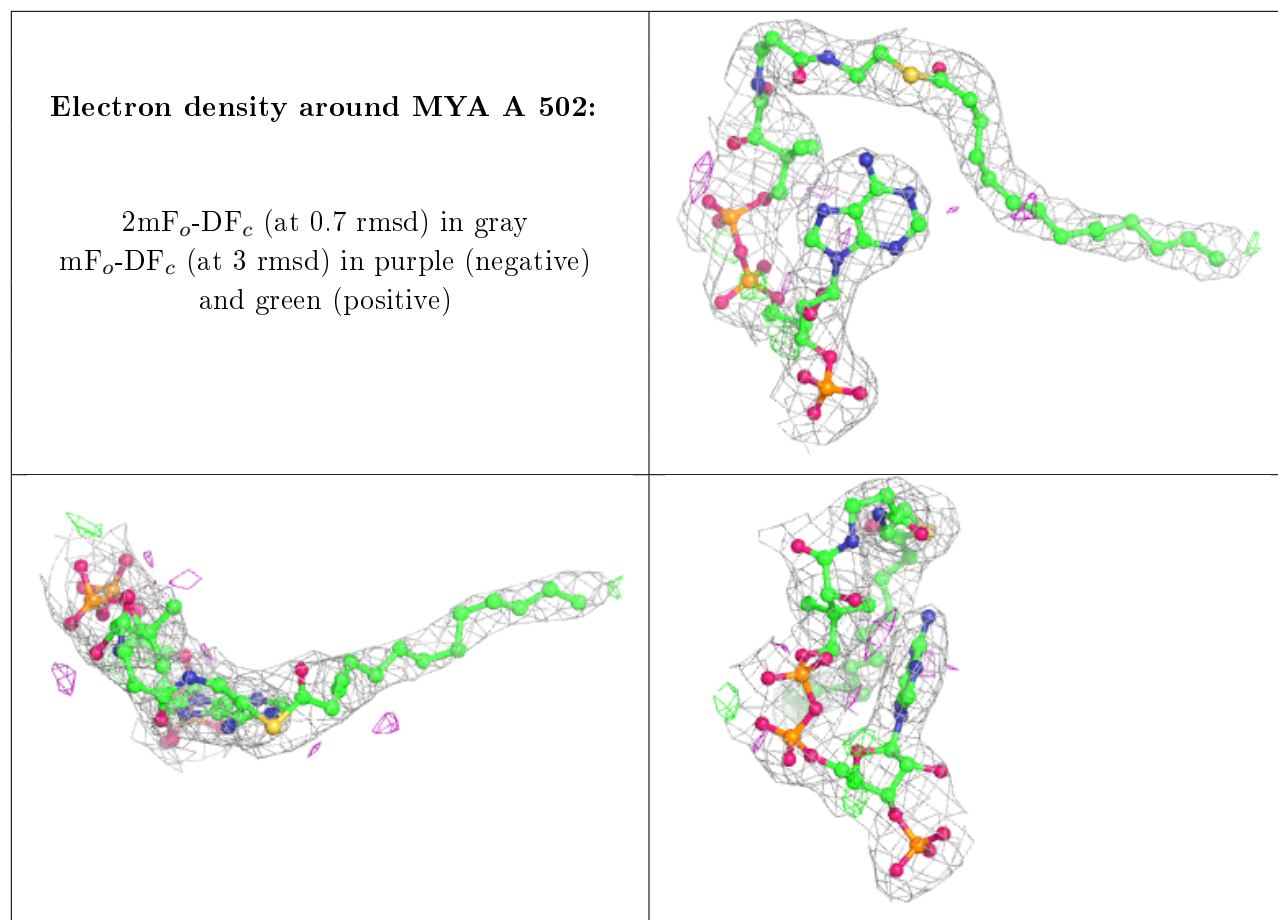
There are no carbohydrates in this entry.

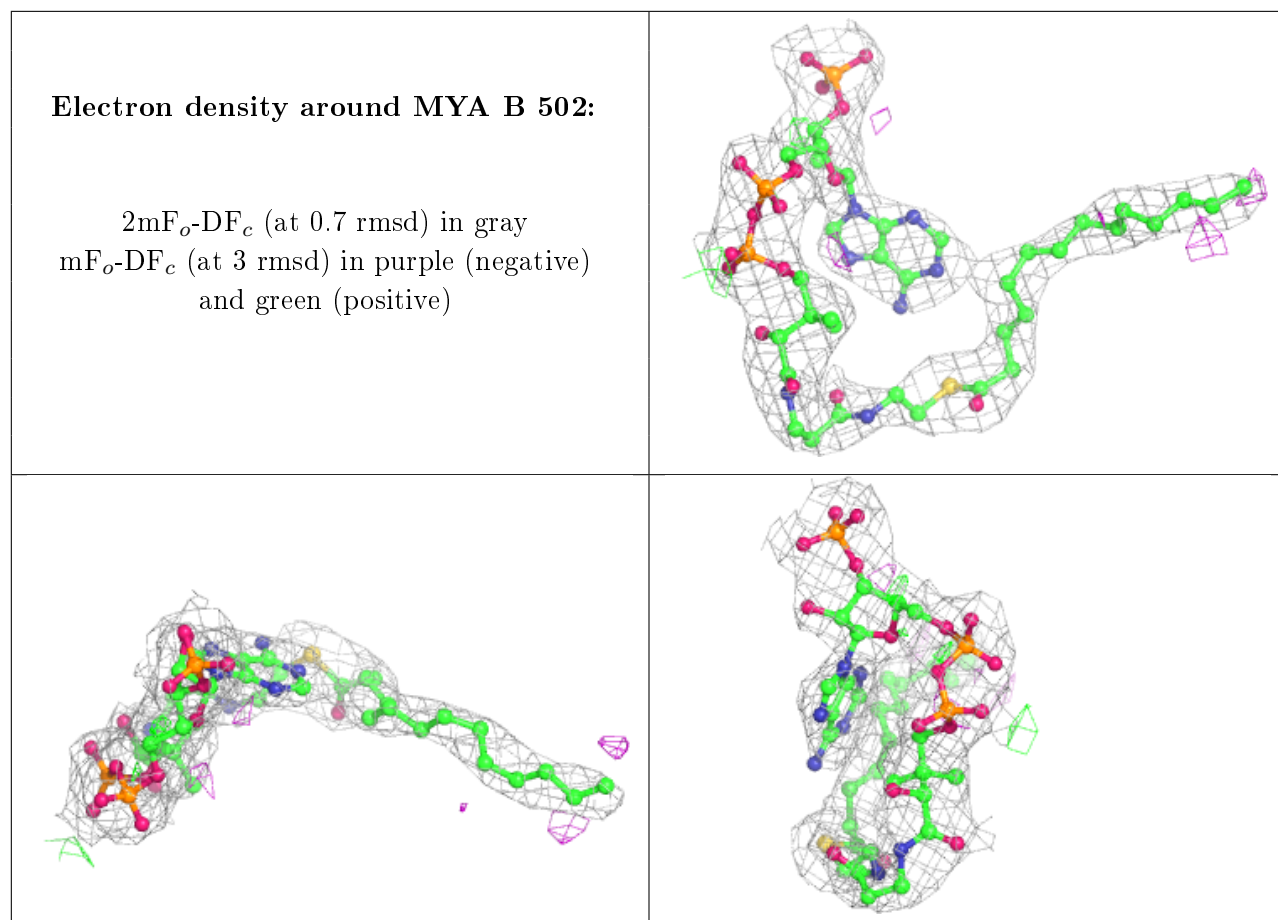
## 6.4 Ligands [i](#)

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, 95<sup>th</sup> 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 <sup>2</sup> )	Q<0.9
3	GOL	B	501	6/6	0.76	0.30	36,40,46,56	0
5	MG	B	503	1/1	0.83	0.15	41,41,41,41	0
4	MYA	A	502	63/63	0.91	0.20	31,38,46,53	0
3	GOL	A	501	6/6	0.93	0.18	40,42,42,42	0
4	MYA	B	502	63/63	0.93	0.20	28,39,43,62	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.