Full wwPDB X-ray Structure Validation Report (i)

Jun 18, 2024 – 02:23 PM EDT

PDB ID : 4I56

Title : HMG-CoA reductase from pseudomonas mevalonii complexed with dithio-HMG-coa

Authors : Steussy, C.N.; Stauffacher, C.V.; Schmidt, T.; Crichelow, C.J.; Rodwell, V.W.; Wrensford, L.V.; Min, J.; Burgner II, J.W.

Deposited on : 2012-11-28

Resolution : 1.50 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:

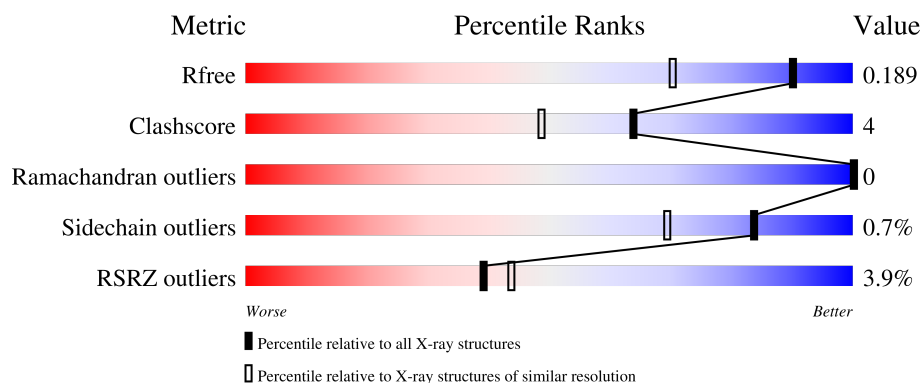|		
MolProbity	:	4.02b-467
Mogul	:	2022.3.0, CSD as543be (2022)
Xtriage (Phenix)	:	1.20.1
EDS	:	2.37.1
buster-report	:	1.1.7 (2018)
Percentile statistics	:	20191225.v01 (using entries in the PDB archive December 25th 2019)
Refmac	:	5.8.0158
CCP4	:	7.0.044 (Gargrove)
Ideal geometry (proteins)	:	Engh & Huber (2001)
Ideal geometry (DNA, RNA)	:	Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP)	:	2.37.1

1 Overall quality at a glance ⓘ

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

The reported resolution of this entry is 1.50 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	Percentile Ranks	Value
Rfree		0.189
Clashscore		4
Ramachandran outliers		0
Sidechain outliers		0.7%
RSRZ outliers		3.9%

Worse ... Better

▮ Percentile relative to all X-ray structures
▯ Percentile relative to X-ray structures of similar resolution

Metric	Whole archive (#Entries)	Similar resolution (#Entries, resolution range(Å))
R_{free}	130704	2936 (1.50-1.50)
Clashscore	141614	3144 (1.50-1.50)
Ramachandran outliers	138981	3066 (1.50-1.50)
Sidechain outliers	138945	3064 (1.50-1.50)
RSRZ outliers	127900	2884 (1.50-1.50)

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.

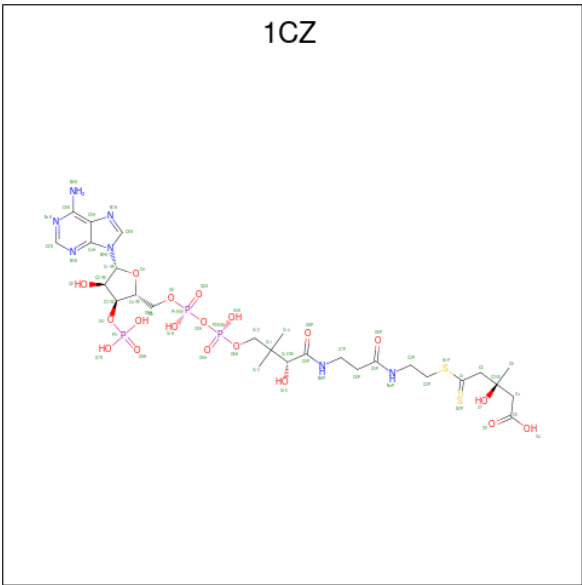| Mol	Chain	Length	Quality of chain
1	A	428	3% / 77% / 10% / 13%
1	B	428	4% / 80% / 7% / 12%

2 Entry composition ⓘ

There are 5 unique types of molecules in this entry. The entry contains 6475 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 3-hydroxy-3-methylglutaryl-coenzyme A reductase.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
1	A	373	Total	C	N	O	S	0	5	0
			2793	1750	504	523	16			
1	B	376	Total	C	N	O	S	0	10	0
			2835	1781	507	529	18			

- Molecule 2 is (3S,5S,9R,21S)-1-[(2R,3S,4R,5R)-5-(6-amino-9H-purin-9-yl)-4-hydroxy-3-(phosphonooxy)tetrahydrofuran-2-yl]-3,5,9,21-tetrahydroxy-8,8,21-trimethyl-10,14-dioxo -19-thioxo-2,4,6-trioxa-18-thia-11,15-diaza-3,5-diphosphatricosan-23-oic acid 3,5-dioxide (three-letter code: 1CZ) (formula: $C_{27}H_{44}N_7O_{19}P_3S_2$).

Mol	Chain	Residues	Atoms						ZeroOcc	AltConf
2	A	1	Total	C	N	O	P	S	0	0
			58	27	7	19	3	2		

- Molecule 3 is SULFATE ION (three-letter code: SO4) (formula: O_4S).

SO4

O1

O

O3 O⁻ — S — O⁻ O4

S

O

O2

Mol	Chain	Residues	Atoms			ZeroOcc	AltConf
3	A	1	Total 5	O 4	S 1	0	0
3	B	1	Total 5	O 4	S 1	0	0

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

GOL

C3

OH O3

C1   C2

HO   OH

O1   O2

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

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W O R L D W I D E

PDB

PROTEIN DATA BANK

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

- Molecule 5 is water.

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
5	A	385	Total 385	O 385	0	4
5	B	374	Total 376	O 376	0	11

3 Residue-property plots ⓘ

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: 3-hydroxy-3-methylglutaryl-coenzyme A reductase
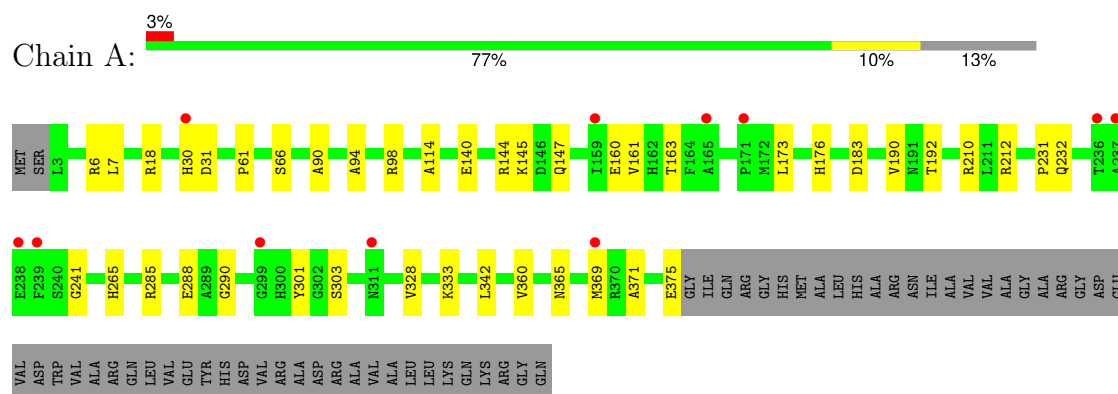
- Molecule 1: 3-hydroxy-3-methylglutaryl-coenzyme A reductase
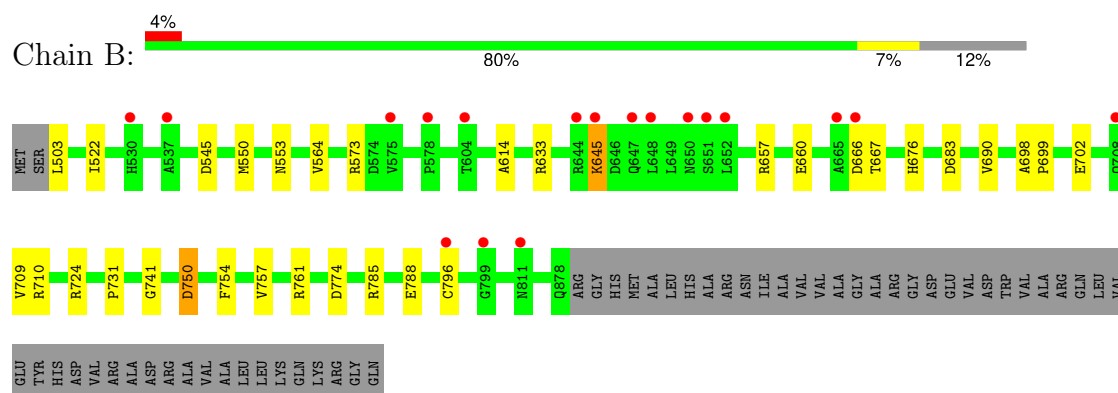
4 Data and refinement statistics ⓘ

Property	Value	Source
Space group	I 41 3 2	Depositor
Cell constants a, b, c, α, β, γ	226.08Å 226.08Å 226.08Å 90.00° 90.00° 90.00°	Depositor
Resolution (Å)	28.71 – 1.50 28.71 – 1.50	Depositor EDS
% Data completeness (in resolution range)	97.3 (28.71-1.50) 97.3 (28.71-1.50)	Depositor EDS
R_{merge}	(Not available)	Depositor
R_{sym}	(Not available)	Depositor
$< I/\sigma(I) >$ [1]	2.31 (at 1.50Å)	Xtriage
Refinement program	REFMAC 5.5.0109, CNS	Depositor
R, R_{free}	0.168 , 0.189 0.168 , 0.189	Depositor DCC
R_{free} test set	10779 reflections (7.17%)	wwPDB-VP
Wilson B-factor (Å^2)	17.5	Xtriage
Anisotropy	0.000	Xtriage
Bulk solvent k_{sol}(e/Å^3), B_{sol}(Å^2)	0.40 , 60.3	EDS
L-test for twinning[2]	$< |L| > = 0.51, < L^2 > = 0.35$	Xtriage
Estimated twinning fraction	No twinning to report.	Xtriage
F_o, F_c correlation	0.96	EDS
Total number of atoms	6475	wwPDB-VP
Average B, all atoms (Å^2)	21.0	wwPDB-VP

Xtriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 2.05% of the height of the origin peak. No significant pseudotranslation is detected.*

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[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: GOL, 1CZ, SO4

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	0.97	2/2852 (0.1%)	0.89	3/3879 (0.1%)
1	B	1.05	3/2912 (0.1%)	0.95	12/3958 (0.3%)
All	All	1.01	5/5764 (0.1%)	0.92	15/7837 (0.2%)

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

All (5) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
1	B	545[A]	ASP	CB-CG	15.39	1.84	1.51
1	B	545[B]	ASP	CB-CG	15.39	1.84	1.51
1	A	301	TYR	CG-CD2	-5.80	1.31	1.39
1	A	288	GLU	CD-OE2	5.05	1.31	1.25
1	B	788	GLU	CD-OE2	5.02	1.31	1.25

All (15) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	B	545[A]	ASP	CB-CG-OD2	-11.96	107.54	118.30
1	B	545[B]	ASP	CB-CG-OD2	-11.96	107.54	118.30
1	B	545[A]	ASP	CB-CG-OD1	11.46	128.61	118.30
1	B	545[B]	ASP	CB-CG-OD1	11.46	128.61	118.30
1	B	545[A]	ASP	CA-CB-CG	-8.43	94.86	113.40
1	B	545[B]	ASP	CA-CB-CG	-8.43	94.86	113.40

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
1	B	750	ASP	CB-CG-OD2	-5.74	113.14	118.30
1	A	18	ARG	NE-CZ-NH1	5.68	123.14	120.30
1	B	683	ASP	CB-CG-OD1	5.46	123.22	118.30
1	B	750	ASP	CB-CG-OD1	5.21	122.99	118.30
1	A	183	ASP	CB-CG-OD1	5.19	122.97	118.30
1	B	754	PHE	CB-CG-CD1	5.19	124.43	120.80
1	B	761	ARG	NE-CZ-NH2	-5.08	117.76	120.30
1	A	31	ASP	CB-CG-OD1	5.04	122.84	118.30
1	B	774	ASP	CB-CG-OD2	-5.01	113.79	118.30

There are no chirality outliers.

All (1) planarity outliers are listed below:

Mol	Chain	Res	Type	Group
1	A	212	ARG	Sidechain

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	2793	0	2836	28	0
1	B	2835	0	2894	21	0
2	A	58	0	39	1	0
3	A	5	0	0	0	0
3	B	5	0	0	0	0
4	A	12	0	16	1	0
4	B	6	0	8	1	0
5	A	385	0	0	10	0
5	B	376	0	0	10	0
All	All	6475	0	5793	48	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 4.

All (48) 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:666:ASP:HA	5:B:1467:HOH:O	1.68	0.94
1:A:342:LEU:HD11	5:A:951:HOH:O	1.77	0.84
1:A:161:VAL:CG1	1:A:173:LEU:HD11	2.09	0.81
1:A:140:GLU:HG3	5:A:952:HOH:O	1.84	0.78
1:A:360:VAL:CG1	5:A:954:HOH:O	2.41	0.68
1:B:757:VAL:HG13	5:B:1455:HOH:O	1.92	0.67
1:A:163:THR:HG22	1:A:173:LEU:HD13	1.79	0.63
1:B:503:LEU:N	5:B:1462:HOH:O	2.31	0.63
1:A:371:ALA:O	1:A:375:GLU:HG2	1.97	0.63
1:A:210[A]:ARG:NH1	1:B:750:ASP:OD2	2.26	0.63
1:A:375:GLU:HG3	4:A:504:GOL:O2	2.00	0.61
1:A:7:LEU:N	5:A:970:HOH:O	2.33	0.60
1:A:161:VAL:HG12	1:A:173:LEU:HD11	1.84	0.59
1:B:660:GLU:HG3	1:B:676:HIS:HB2	1.85	0.59
4:B:1002:GOL:H12	5:B:1456:HOH:O	2.03	0.59
1:A:232:GLN:HG3	5:A:955:HOH:O	2.05	0.57
1:B:645:LYS:HD3	5:B:1450:HOH:O	2.05	0.56
1:B:614:ALA:HB2	1:B:690:VAL:HB	1.90	0.54
1:A:160:GLU:HG3	1:A:176:HIS:HB2	1.90	0.54
1:A:360:VAL:HG11	5:A:954:HOH:O	2.05	0.53
1:B:702:GLU:HG3	1:B:709:VAL:HG23	1.91	0.52
1:B:522[B]:ILE:CD1	1:B:564:VAL:HG21	2.40	0.51
1:B:710:ARG:HG2	1:B:710:ARG:HH11	1.76	0.51
1:A:365:ASN:O	1:A:369[B]:MET:HG2	2.12	0.50
1:A:144:ARG:HA	1:A:147:GLN:HE21	1.78	0.49
1:B:731:PRO:O	1:B:741:GLY:HA3	2.13	0.48
1:B:657:ARG:NH1	5:B:1459:HOH:O	2.36	0.47
1:A:328:VAL:HG23	1:A:333:LYS:HD2	1.96	0.47
1:A:61:PRO:HG2	1:B:550[A]:MET:HE2	1.97	0.47
1:A:114:ALA:HB2	1:A:190:VAL:HB	1.97	0.46
1:B:667:THR:N	5:B:1467:HOH:O	2.46	0.46
1:A:7:LEU:HD12	1:A:66:SER:HB3	1.98	0.46
1:A:6:ARG:HB2	5:A:970:HOH:O	2.17	0.45
1:A:290:GLY:HA3	5:A:969:HOH:O	2.17	0.45
1:A:265:HIS:HE2	1:A:303:SER:HG	1.65	0.44
1:B:757:VAL:CG1	5:B:1455:HOH:O	2.54	0.44
1:B:573:ARG:NE	5:B:1193:HOH:O	2.46	0.44
1:A:90:ALA:HB2	5:A:948:HOH:O	2.19	0.43
1:A:145:LYS:HG2	1:A:192:THR:HG22	2.02	0.42
1:B:724:ARG:NH1	5:B:1447:HOH:O	2.53	0.42
1:A:161:VAL:HG11	1:A:173:LEU:HD11	1.97	0.42
1:B:698:ALA:N	1:B:699:PRO:HD2	2.36	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:710:ARG:HG2	1:B:710:ARG:NH1	2.35	0.41
1:A:94:ALA:O	1:A:98:ARG:HG3	2.20	0.41
2:A:501:1CZ:H44	1:B:553:ASN:OD1	2.20	0.41
1:A:231:PRO:O	1:A:241:GLY:HA3	2.21	0.41
1:A:30:HIS:CD2	5:A:927:HOH:O	2.75	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	376/428 (88%)	365 (97%)	11 (3%)	0	100	100
1	B	384/428 (90%)	373 (97%)	11 (3%)	0	100	100
All	All	760/856 (89%)	738 (97%)	22 (3%)	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	291/327 (89%)	290 (100%)	1 (0%)	92	85
1	B	298/327 (91%)	295 (99%)	3 (1%)	76	57
All	All	589/654 (90%)	585 (99%)	4 (1%)	84	69

All (4) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	285	ARG
1	B	633	ARG
1	B	645	LYS
1	B	785	ARG

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. There are no such sidechains identified.

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 monosaccharides in this entry.

5.6 Ligand geometry ⓘ

6 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	$\#|Z| > 2$
3	SO4	A	502	-	4,4,4	1.26	1 (25%)	6,6,6	0.71	0
4	GOL	B	1002	-	5,5,5	1.04	0	5,5,5	1.11	0
4	GOL	A	503	-	5,5,5	1.06	0	5,5,5	1.03	0
3	SO4	B	1001	-	4,4,4	0.45	0	6,6,6	0.43	0
2	1CZ	A	501	-	53,60,60	1.24	5 (9%)	66,90,90	1.60	13 (19%)
4	GOL	A	504	-	5,5,5	0.77	0	5,5,5	0.51	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	1CZ	A	501	-	-	5/55/77/77	0/3/3/3
4	GOL	B	1002	-	-	4/4/4/4	-
4	GOL	A	503	-	-	0/4/4/4	-
4	GOL	A	504	-	-	4/4/4/4	-

All (6) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
2	A	501	1CZ	P2A-O3A	4.05	1.63	1.59
2	A	501	1CZ	O4'-C1'	3.09	1.44	1.40
2	A	501	1CZ	P1A-O3A	2.65	1.62	1.59
2	A	501	1CZ	O4-C5	-2.57	1.22	1.30
3	A	502	SO4	O2-S	2.46	1.59	1.44
2	A	501	1CZ	C1'-N9A	-2.29	1.44	1.49

All (13) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
2	A	501	1CZ	O6A-C12-C11	-4.41	103.46	110.55
2	A	501	1CZ	C10-C9P-N8P	4.07	124.20	116.48
2	A	501	1CZ	N3A-C2A-N1A	-3.79	123.53	128.67
2	A	501	1CZ	O1A-P1A-O2A	2.95	126.16	112.44
2	A	501	1CZ	C5A-C6A-N6A	2.80	124.57	120.31
2	A	501	1CZ	C4A-C5A-N7A	-2.78	106.40	109.34
2	A	501	1CZ	C14-C11-C10	2.64	113.27	108.77
2	A	501	1CZ	O3'-P3'-O9A	-2.53	100.33	109.33
2	A	501	1CZ	C2-C1-S1P	-2.45	110.17	113.44
2	A	501	1CZ	O10-C10-C11	-2.39	104.65	110.18
2	A	501	1CZ	C13-C11-C12	2.36	112.12	108.22
2	A	501	1CZ	C7P-C6P-C5P	-2.27	108.61	112.39
2	A	501	1CZ	O4A-P2A-O5A	2.08	122.14	112.44

There are no chirality outliers.

All (13) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
2	A	501	1CZ	C12-O6A-P2A-O4A

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Mol	Chain	Res	Type	Atoms
2	A	501	1CZ	C12-O6A-P2A-O3A
4	A	504	GOL	O1-C1-C2-O2
4	A	504	GOL	C1-C2-C3-O3
4	A	504	GOL	O1-C1-C2-C3
4	B	1002	GOL	O1-C1-C2-C3
4	B	1002	GOL	C1-C2-C3-O3
4	A	504	GOL	O2-C2-C3-O3
4	B	1002	GOL	O2-C2-C3-O3
2	A	501	1CZ	C12-O6A-P2A-O5A
4	B	1002	GOL	O1-C1-C2-O2
2	A	501	1CZ	O5P-C5P-C6P-C7P
2	A	501	1CZ	C3P-C2P-S1P-C1

There are no ring outliers.

3 monomers are involved in 3 short contacts:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
4	B	1002	GOL	1	0
2	A	501	1CZ	1	0
4	A	504	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 1CZ A 501	
Bond lengths	Bond angles
Torsions	Rings
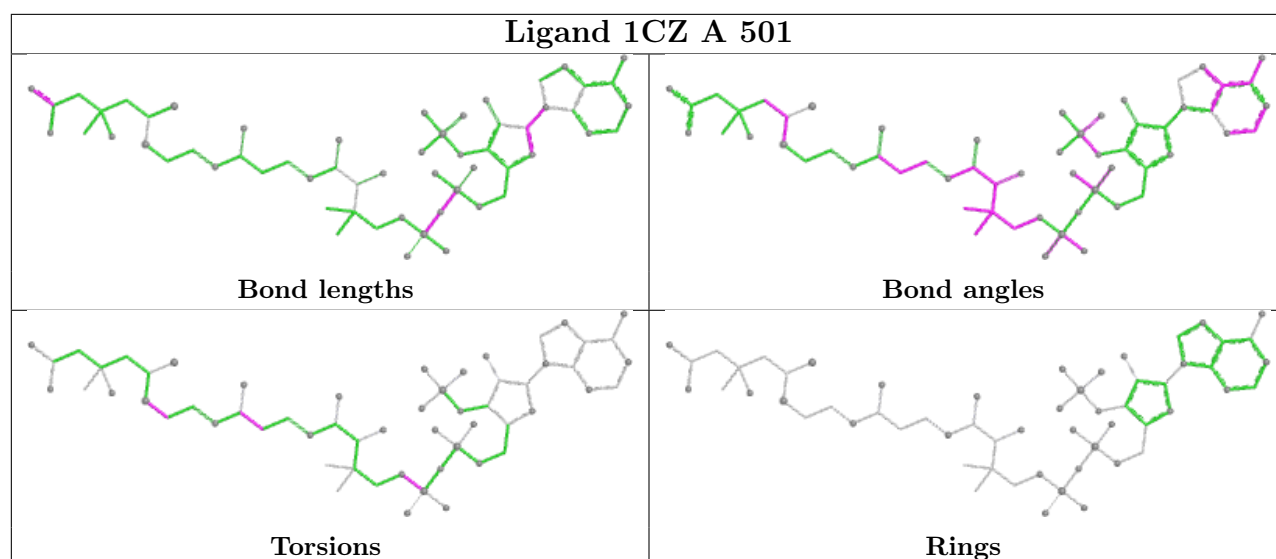
5.7 Other polymers ⓘ

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, 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	373/428 (87%)	-0.11	11 (2%) 51	56	12, 17, 30, 50	15 (4%)
1	B	376/428 (87%)	0.04	18 (4%) 30	33	12, 19, 34, 46	23 (6%)
All	All	749/856 (87%)	-0.03	29 (3%) 39	44	12, 18, 32, 50	38 (5%)

All (29) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	A	237	ALA	5.1
1	B	648	LEU	5.0
1	B	644	ARG	4.7
1	B	575	VAL	4.0
1	A	159	ILE	3.5
1	B	604	THR	3.3
1	A	311	ASN	3.3
1	A	299	GLY	3.3
1	B	530	HIS	3.1
1	B	665	ALA	3.0
1	B	651	SER	2.9
1	B	799	GLY	2.8
1	B	708	GLN	2.8
1	B	796[A]	CYS	2.7
1	B	666	ASP	2.7
1	B	578[A]	PRO	2.6
1	A	369[A]	MET	2.5
1	A	238	GLU	2.4
1	A	165	ALA	2.4
1	B	645	LYS	2.4
1	A	236	THR	2.3
1	B	811	ASN	2.3
1	A	239	PHE	2.3
1	B	537	ALA	2.2

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Mol	Chain	Res	Type	RSRZ
1	B	652	LEU	2.1
1	A	30	HIS	2.1
1	B	647	GLN	2.1
1	B	650	ASN	2.0
1	A	171	PRO	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 ⓘ

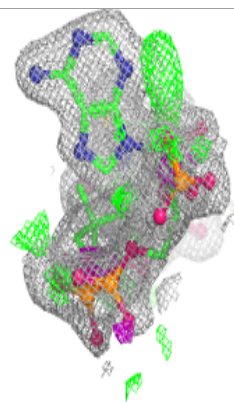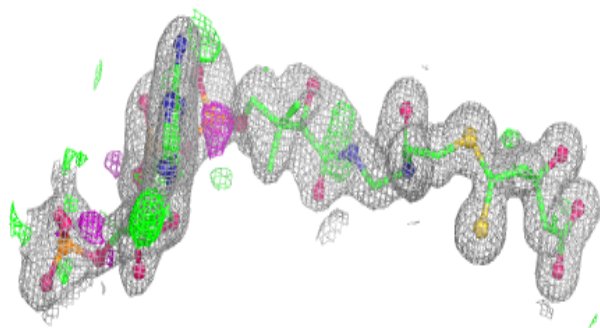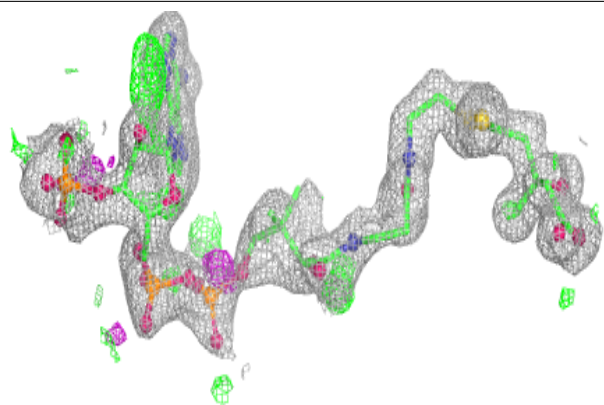There are no monosaccharides in this entry.

6.4 Ligands ⓘ

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

Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors(Å^2)	Q<0.9
4	GOL	A	504	6/6	0.58	0.24	29,36,45,45	0
2	1CZ	A	501	58/58	0.90	0.13	14,32,55,67	0
4	GOL	B	1002	6/6	0.92	0.12	18,31,38,38	0
4	GOL	A	503	6/6	0.93	0.10	20,30,37,42	0
3	SO4	B	1001	5/5	0.97	0.10	23,23,26,30	0
3	SO4	A	502	5/5	0.98	0.07	16,18,20,20	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 1CZ 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 ⓘ

There are no such residues in this entry.