



Full wwPDB X-ray Structure Validation Report ⓘ

Feb 4, 2024 – 03:25 AM EST

PDB ID : 1QR0
Title : CRYSTAL STRUCTURE OF THE 4'-PHOSPHOPANTETHEINYL TRANSFERASE SFP-COENZYME A COMPLEX
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Deposited on : 1999-06-17
Resolution : 1.90 Å(reported)

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

We welcome your comments at validation@mail.wwpdb.org

A user guide is available at

<https://www.wwpdb.org/validation/2017/XrayValidationReportHelp>

with specific help available everywhere you see the ⓘ symbol.

The types of validation reports are described at

<http://www.wwpdb.org/validation/2017/FAQs#types>.

The following versions of software and data (see [references ⓘ](#)) were used in the production of this report:

MolProbity : 4.02b-467
Mogul : 1.8.5 (274361), CSD as541be (2020)
Xtriage (Phenix) : 1.13
EDS : 2.36
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) : 2.36

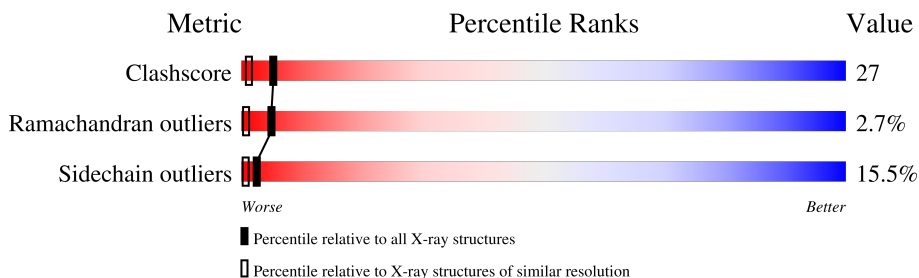
1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

X-RAY DIFFRACTION


The reported resolution of this entry is 1.90 Å.

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



Metric	Whole archive (#Entries)	Similar resolution (#Entries, resolution range(Å))
Clashscore	141614	6847 (1.90-1.90)
Ramachandran outliers	138981	6760 (1.90-1.90)
Sidechain outliers	138945	6760 (1.90-1.90)

The table below summarises the geometric issues observed across the polymeric chains and their fit to the electron density. The red, orange, yellow and green segments of the lower bar indicate the fraction of residues that contain outliers for ≥ 3 , 2, 1 and 0 types of geometric quality criteria respectively. A grey segment represents the fraction of residues that are not modelled. The numeric value for each fraction is indicated below the corresponding segment, with a dot representing fractions $\leq 5\%$.

Mol	Chain	Length	Quality of chain
1	A	228	

2 Entry composition

There are 4 unique types of molecules in this entry. The entry contains 2188 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 4'-PHOSPHOPANTETHEINYL TRANSFERASE SFP.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
1	A	228	1867	1189	313	355	10	0	0	0

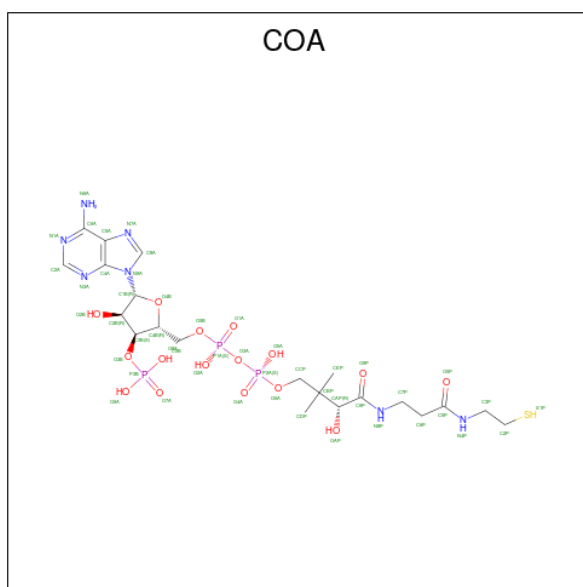
There are 4 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
A	225	ARG	-	conflict	UNP P39135
A	226	ALA	-	conflict	UNP P39135
A	227	ALA	-	conflict	UNP P39135
A	228	ALA	-	conflict	UNP P39135

- Molecule 2 is MAGNESIUM ION (three-letter code: MG) (formula: Mg).

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
2	A	1	Total	Mg	0	0
			1	1		

- Molecule 3 is COENZYME A (three-letter code: COA) (formula: C₂₁H₃₆N₇O₁₆P₃S).



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

- Molecule 4 is water.

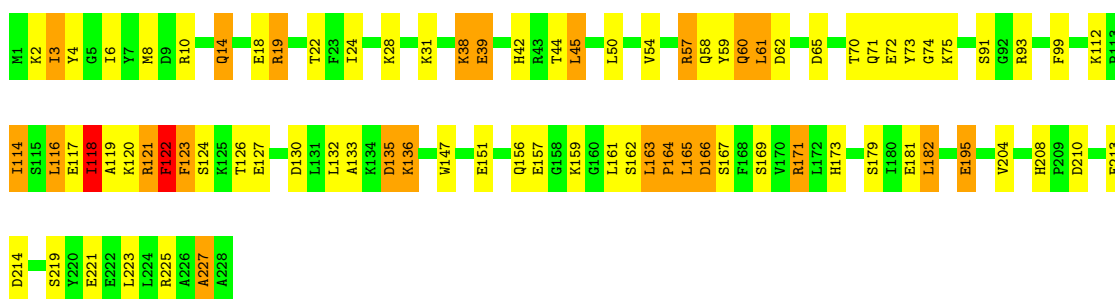
Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
			Total	O		
4	A	272	272	272	0	0

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. 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. 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: 4'-PHOSPHOPANTETHEINYL TRANSFERASE SFP

Chain A: 



4 Data and refinement statistics

Property	Value	Source
Space group	P 43 21 2	Depositor
Cell constants a, b, c, α , β , γ	65.30Å 65.30Å 150.30Å 90.00° 90.00° 90.00°	Depositor
Resolution (Å)	20.00 – 1.90 59.89 – 2.00	Depositor EDS
% Data completeness (in resolution range)	91.1 (20.00-1.90) 95.5 (59.89-2.00)	Depositor EDS
R_{merge}	0.07	Depositor
R_{sym}	(Not available)	Depositor
$\langle I/\sigma(I) \rangle$ ¹	3.92 (at 2.00Å)	Xtrriage
Refinement program	X-PLOR 3.851	Depositor
R, R_{free}	0.216 , 0.278 0.290 , (Not available)	Depositor DCC
R_{free} test set	No test flags present.	wwPDB-VP
Wilson B-factor (Å ²)	29.2	Xtrriage
Anisotropy	0.513	Xtrriage
Bulk solvent k_{sol} (e/Å ³), B_{sol} (Å ²)	0.36 , 89.1	EDS
L-test for twinning ²	$\langle L \rangle = 0.48$, $\langle L^2 \rangle = 0.32$	Xtrriage
Estimated twinning fraction	No twinning to report.	Xtrriage
F_o, F_c correlation	0.90	EDS
Total number of atoms	2188	wwPDB-VP
Average B, all atoms (Å ²)	29.0	wwPDB-VP

Xtrriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 6.11% 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: MG, COA

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	0.57	0/1915	0.73	0/2582

There are no bond length outliers.

There are no bond angle outliers.

There are no chirality outliers.

There are no planarity outliers.

5.2 Too-close contacts [i](#)

In the following table, the Non-H and H(model) columns list the number of non-hydrogen atoms and hydrogen atoms in the chain respectively. The H(added) column lists the number of hydrogen atoms added and optimized by MolProbity. The Clashes column lists the number of clashes within the asymmetric unit, whereas Symm-Clashes lists symmetry-related clashes.

Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
1	A	1867	0	1818	99	0
2	A	1	0	0	0	0
3	A	48	0	31	2	0
4	A	272	0	0	22	1
All	All	2188	0	1849	100	1

The all-atom clashscore is defined as the number of clashes found per 1000 atoms (including hydrogen atoms). The all-atom clashscore for this structure is 27.

All (100) 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:A:19:ARG:HG3	1:A:19:ARG:HH11	1.04	1.11
1:A:2:LYS:HG3	1:A:4:TYR:CE1	2.05	0.92
1:A:19:ARG:HG3	1:A:19:ARG:NH1	1.82	0.92
1:A:14:GLN:HE21	1:A:14:GLN:H	1.02	0.92
1:A:2:LYS:HG3	1:A:4:TYR:HE1	1.34	0.90
1:A:163:LEU:HD22	1:A:182:LEU:HD11	1.52	0.89
1:A:38:LYS:HZ3	1:A:39:GLU:H	1.22	0.86
1:A:219:SER:OG	1:A:221:GLU:HG2	1.77	0.85
1:A:124:SER:HB3	4:A:545:HOH:O	1.78	0.84
1:A:214:ASP:HB2	4:A:660:HOH:O	1.77	0.84
1:A:14:GLN:H	1:A:14:GLN:NE2	1.78	0.79
1:A:121:ARG:HB2	4:A:504:HOH:O	1.86	0.74
1:A:19:ARG:HH11	1:A:19:ARG:CG	1.92	0.73
1:A:59:TYR:O	1:A:61:LEU:HD13	1.90	0.72
1:A:122:PHE:HE2	1:A:161:LEU:HD21	1.55	0.71
1:A:38:LYS:HE2	1:A:39:GLU:HG2	1.72	0.71
1:A:171:ARG:HH11	1:A:171:ARG:HG3	1.55	0.71
1:A:126:THR:O	4:A:566:HOH:O	2.09	0.70
1:A:171:ARG:HG3	1:A:171:ARG:NH1	2.05	0.70
1:A:221:GLU:HB2	4:A:652:HOH:O	1.92	0.68
1:A:38:LYS:HD3	1:A:38:LYS:H	1.59	0.67
1:A:221:GLU:H	1:A:221:GLU:CD	1.97	0.67
1:A:122:PHE:CE2	1:A:161:LEU:HD21	2.30	0.67
1:A:130:ASP:O	1:A:133:ALA:HB3	1.96	0.66
1:A:167:SER:O	1:A:182:LEU:HD12	1.95	0.65
1:A:38:LYS:NZ	1:A:39:GLU:H	1.94	0.65
1:A:135:ASP:OD2	1:A:135:ASP:N	2.30	0.65
1:A:38:LYS:HD3	1:A:38:LYS:N	2.12	0.65
1:A:28:LYS:HD3	4:A:654:HOH:O	1.96	0.65
1:A:126:THR:HG23	4:A:520:HOH:O	1.97	0.63
1:A:2:LYS:HD2	4:A:483:HOH:O	1.98	0.63
1:A:59:TYR:O	1:A:60:GLN:HG2	1.99	0.63
1:A:70:THR:HG23	1:A:74:GLY:HA2	1.81	0.62
1:A:72:GLU:HG2	1:A:73:TYR:CD1	2.35	0.61
1:A:71:GLN:HG3	1:A:75:LYS:O	2.02	0.59
1:A:38:LYS:NZ	1:A:39:GLU:HB2	2.18	0.58
1:A:219:SER:HB2	1:A:221:GLU:OE1	2.03	0.58
1:A:136:LYS:NZ	4:A:647:HOH:O	2.37	0.58
1:A:116:LEU:HB3	1:A:120:LYS:HE3	1.86	0.57
1:A:166:ASP:OD1	1:A:166:ASP:N	2.23	0.57
1:A:8:MET:HE3	1:A:93:ARG:HA	1.87	0.56
1:A:163:LEU:CD2	1:A:182:LEU:HD11	2.31	0.56

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:117:GLU:HB2	4:A:525:HOH:O	2.06	0.56
1:A:72:GLU:HG2	1:A:73:TYR:CE1	2.41	0.56
1:A:123:PHE:HA	1:A:127:GLU:OE1	2.06	0.56
1:A:117:GLU:C	1:A:119:ALA:H	2.09	0.55
1:A:119:ALA:O	1:A:123:PHE:HB2	2.08	0.53
1:A:28:LYS:HE2	1:A:44:THR:CG2	2.39	0.52
1:A:70:THR:CG2	1:A:74:GLY:HA2	2.40	0.52
1:A:14:GLN:HE21	1:A:14:GLN:N	1.87	0.52
1:A:58:GLN:NE2	4:A:653:HOH:O	2.42	0.52
1:A:121:ARG:O	1:A:122:PHE:HB2	2.10	0.51
1:A:124:SER:OG	1:A:126:THR:HB	2.10	0.51
1:A:171:ARG:HH11	1:A:171:ARG:CG	2.17	0.51
1:A:118:ILE:N	4:A:667:HOH:O	2.32	0.51
1:A:59:TYR:C	1:A:60:GLN:HG2	2.32	0.50
1:A:219:SER:HG	1:A:221:GLU:HG2	1.74	0.50
1:A:173:HIS:HE1	1:A:179:SER:OG	1.94	0.50
1:A:91:SER:HA	4:A:602:HOH:O	2.11	0.49
1:A:227:ALA:HB2	4:A:625:HOH:O	2.13	0.49
1:A:57:ARG:HH21	1:A:58:GLN:HB2	1.78	0.49
1:A:39:GLU:OE1	1:A:42:HIS:HD2	1.96	0.49
1:A:3:ILE:HD12	1:A:204:VAL:HG21	1.96	0.48
1:A:31:LYS:HE3	4:A:669:HOH:O	2.14	0.48
1:A:39:GLU:OE1	1:A:39:GLU:HA	2.13	0.48
1:A:6:ILE:HD11	1:A:223:LEU:HD11	1.95	0.48
1:A:39:GLU:OE1	1:A:42:HIS:CD2	2.67	0.47
3:A:300:COA:C8A	3:A:300:COA:HO1	2.26	0.47
1:A:54:VAL:O	1:A:57:ARG:NH2	2.48	0.47
1:A:62:ASP:O	1:A:65:ASP:HB2	2.14	0.47
1:A:114:ILE:H	1:A:114:ILE:HG13	1.36	0.47
1:A:173:HIS:CE1	1:A:179:SER:OG	2.68	0.47
1:A:126:THR:HA	4:A:520:HOH:O	2.13	0.47
1:A:70:THR:HG22	1:A:71:GLN:O	2.15	0.47
1:A:219:SER:CB	1:A:221:GLU:HG2	2.45	0.47
1:A:2:LYS:HE2	1:A:99:PHE:HB2	1.96	0.46
1:A:195:GLU:HG3	4:A:514:HOH:O	2.16	0.46
1:A:38:LYS:HZ1	1:A:39:GLU:HB2	1.79	0.46
1:A:24:ILE:HD13	1:A:45:LEU:HD23	1.98	0.45
1:A:38:LYS:CE	1:A:39:GLU:H	2.29	0.45
1:A:93:ARG:NE	4:A:509:HOH:O	2.41	0.45
1:A:136:LYS:O	1:A:136:LYS:HD2	2.16	0.45
1:A:163:LEU:HD22	1:A:182:LEU:CD1	2.36	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:117:GLU:O	1:A:118:ILE:HB	2.17	0.44
1:A:162:SER:O	1:A:164:PRO:N	2.51	0.43
1:A:132:LEU:HD23	1:A:132:LEU:HA	1.86	0.43
1:A:122:PHE:CZ	1:A:161:LEU:HD11	2.54	0.42
1:A:147:TRP:CZ2	1:A:151:GLU:HG3	2.55	0.42
1:A:135:ASP:HB3	4:A:621:HOH:O	2.19	0.42
1:A:208:HIS:ND1	1:A:210:ASP:OD1	2.47	0.42
1:A:151:GLU:OE1	3:A:300:COA:H121	2.19	0.41
1:A:136:LYS:HD2	1:A:136:LYS:C	2.40	0.41
1:A:165:LEU:C	1:A:167:SER:H	2.24	0.41
1:A:70:THR:HG23	1:A:74:GLY:CA	2.48	0.41
1:A:164:PRO:CD	1:A:165:LEU:H	2.33	0.41
1:A:157:GLU:HB2	4:A:561:HOH:O	2.19	0.41
1:A:227:ALA:CB	4:A:625:HOH:O	2.69	0.41
1:A:210:ASP:HA	4:A:659:HOH:O	2.20	0.41
1:A:164:PRO:HD2	1:A:165:LEU:H	1.85	0.40
1:A:118:ILE:O	1:A:122:PHE:CB	2.69	0.40

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

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
4:A:461:HOH:O	4:A:569:HOH:O[4_555]	2.01	0.19

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	226/228 (99%)	209 (92%)	11 (5%)	6 (3%)	5 1

All (6) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	A	122	PHE
1	A	159	LYS
1	A	227	ALA
1	A	164	PRO
1	A	118	ILE
1	A	163	LEU

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	207/207 (100%)	175 (84%)	32 (16%)	2 1

All (32) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	3	ILE
1	A	10	ARG
1	A	14	GLN
1	A	18	GLU
1	A	19	ARG
1	A	22	THR
1	A	38	LYS
1	A	39	GLU
1	A	45	LEU
1	A	50	LEU
1	A	57	ARG
1	A	60	GLN
1	A	61	LEU
1	A	112	LYS
1	A	114	ILE
1	A	116	LEU
1	A	118	ILE
1	A	121	ARG
1	A	122	PHE
1	A	123	PHE
1	A	135	ASP

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Mol	Chain	Res	Type
1	A	136	LYS
1	A	156	GLN
1	A	165	LEU
1	A	166	ASP
1	A	169	SER
1	A	171	ARG
1	A	181	GLU
1	A	182	LEU
1	A	195	GLU
1	A	213	GLU
1	A	225	ARG

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

Mol	Chain	Res	Type
1	A	14	GLN
1	A	42	HIS
1	A	156	GLN
1	A	173	HIS

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 monosaccharides in this entry.

5.6 Ligand geometry [i](#)

Of 2 ligands modelled in this entry, 1 is monoatomic - leaving 1 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
3	COA	A	300	2	41,50,50	2.92	11 (26%)	52,75,75	2.21	13 (25%)

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
3	COA	A	300	2	-	13/44/64/64	0/3/3/3

All (11) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
3	A	300	COA	P3B-O3B	10.28	1.78	1.59
3	A	300	COA	C9P-N8P	8.18	1.51	1.33
3	A	300	COA	C4A-N3A	7.34	1.45	1.35
3	A	300	COA	C3B-C4B	-5.36	1.38	1.52
3	A	300	COA	C5P-N4P	4.08	1.42	1.33
3	A	300	COA	C2A-N3A	3.47	1.37	1.32
3	A	300	COA	C2A-N1A	2.82	1.39	1.33
3	A	300	COA	C3P-N4P	-2.42	1.40	1.46
3	A	300	COA	C2P-S1P	-2.37	1.72	1.80
3	A	300	COA	OAP-CAP	-2.29	1.38	1.42
3	A	300	COA	P2A-O6A	-2.10	1.50	1.59

All (13) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
3	A	300	COA	O6A-CCP-CBP	7.80	123.09	110.55
3	A	300	COA	O4B-C4B-C3B	6.73	119.30	104.87
3	A	300	COA	C2B-C3B-C4B	-6.03	92.53	103.22
3	A	300	COA	C3B-C2B-C1B	3.36	107.34	99.89
3	A	300	COA	C7P-C6P-C5P	2.93	117.24	112.36
3	A	300	COA	O5P-C5P-N4P	-2.72	117.88	123.01
3	A	300	COA	P2A-O6A-CCP	2.59	136.49	121.56
3	A	300	COA	O5B-C5B-C4B	2.19	116.54	108.99
3	A	300	COA	N3A-C2A-N1A	-2.19	125.26	128.68

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
3	A	300	COA	C2P-C3P-N4P	-2.18	107.33	112.31
3	A	300	COA	CEP-CBP-CAP	2.18	112.60	108.82
3	A	300	COA	C4A-C5A-N7A	2.17	111.66	109.40
3	A	300	COA	P1A-O5B-C5B	2.09	133.91	121.68

There are no chirality outliers.

All (13) torsion outliers are listed below:

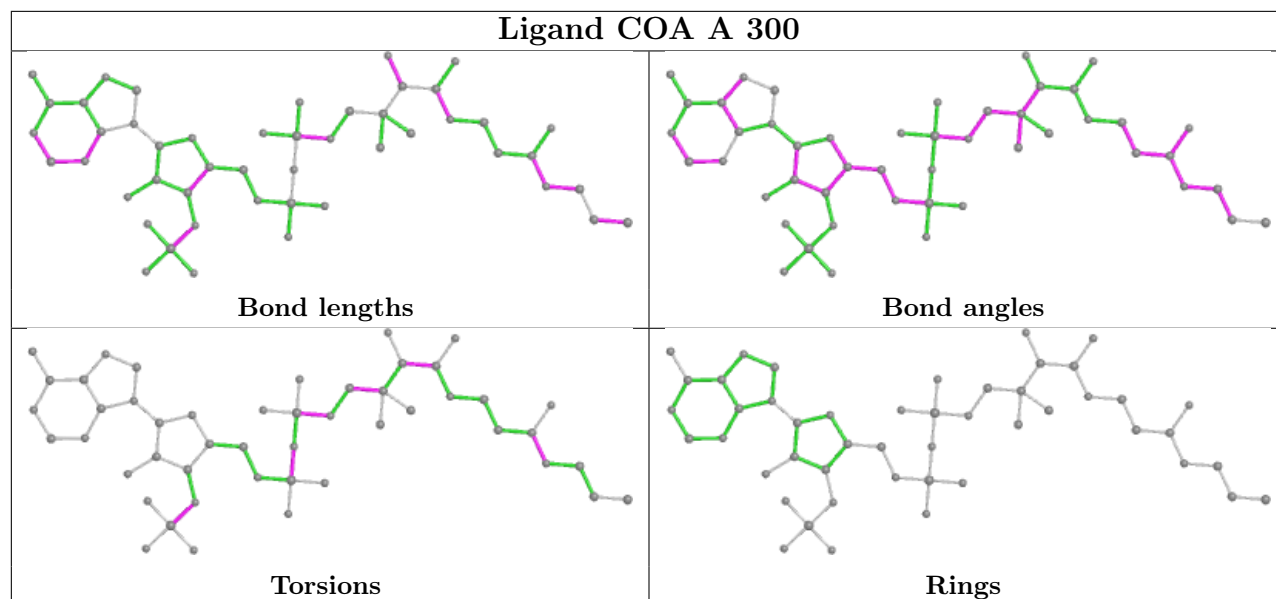
Mol	Chain	Res	Type	Atoms
3	A	300	COA	O9P-C9P-CAP-CBP
3	A	300	COA	N8P-C9P-CAP-CBP
3	A	300	COA	N8P-C9P-CAP-OAP
3	A	300	COA	C6P-C5P-N4P-C3P
3	A	300	COA	O5P-C5P-N4P-C3P
3	A	300	COA	O9P-C9P-CAP-OAP
3	A	300	COA	CEP-CBP-CCP-O6A
3	A	300	COA	C3B-O3B-P3B-O7A
3	A	300	COA	CDP-CBP-CCP-O6A
3	A	300	COA	C3B-O3B-P3B-O8A
3	A	300	COA	P2A-O3A-P1A-O2A
3	A	300	COA	P2A-O3A-P1A-O1A
3	A	300	COA	CCP-O6A-P2A-O4A

There are no ring outliers.

1 monomer is involved in 2 short contacts:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
3	A	300	COA	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

6.1 Protein, DNA and RNA chains

Unable to reproduce the depositors R factor - this section is therefore empty.

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

Unable to reproduce the depositors R factor - this section is therefore empty.

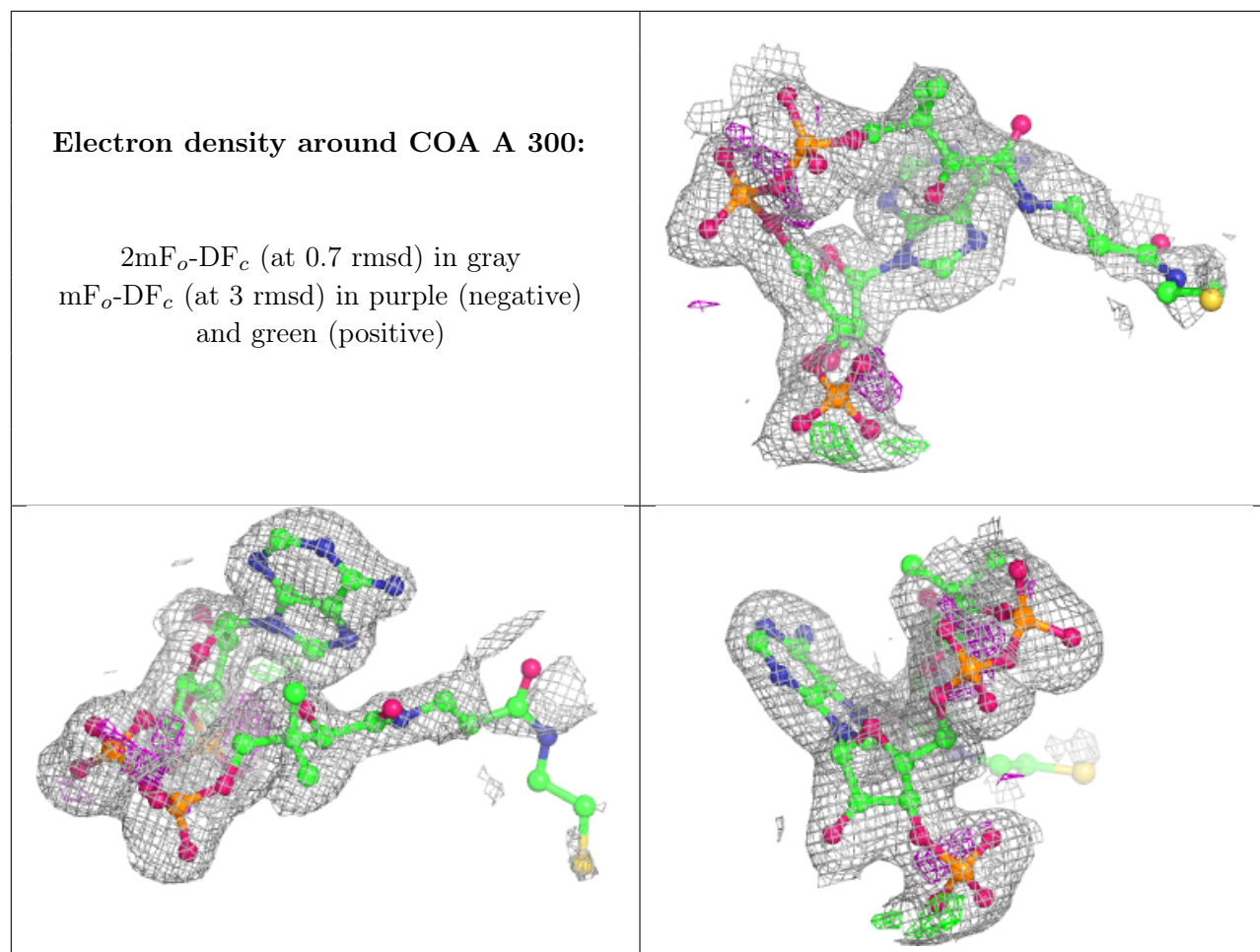
6.3 Carbohydrates

Unable to reproduce the depositors R factor - this section is therefore empty.

6.4 Ligands

Unable to reproduce the depositors R factor - this section is therefore empty.

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](#)

Unable to reproduce the depositors R factor - this section is therefore empty.