



Full wwPDB X-ray Structure Validation Report ⓘ

Mar 9, 2026 – 12:41 PM UTC

PDB ID : 5GXD / pdb_00005gxd
Title : Structure of acryloyl-CoA lyase PrpE from Dinoroseobacter shibae DFL 12
Authors : Zhang, Y.Z.; Wang, P.; Cao, H.Y.
Deposited on : 2016-09-17
Resolution : 2.00 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 : 4-5-2 with Phenix2.0
Mogul : 2022.3.0, CSD as543be (2022)
Xtriage (Phenix) : 2.0
EDS : 3.0
Buster-report : wwPDB partial adaption of 1.1.7 (2018)
Percentile statistics : 20250101.v01 (using entries in the PDB archive January 1st 2025)
CCP4 : 9.0.010 (Gargrove)
Density-Fitness : 1.0.12
Ideal geometry (proteins) : Engh & Huber (2001)
Ideal geometry (DNA, RNA) : Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP) : 2.49

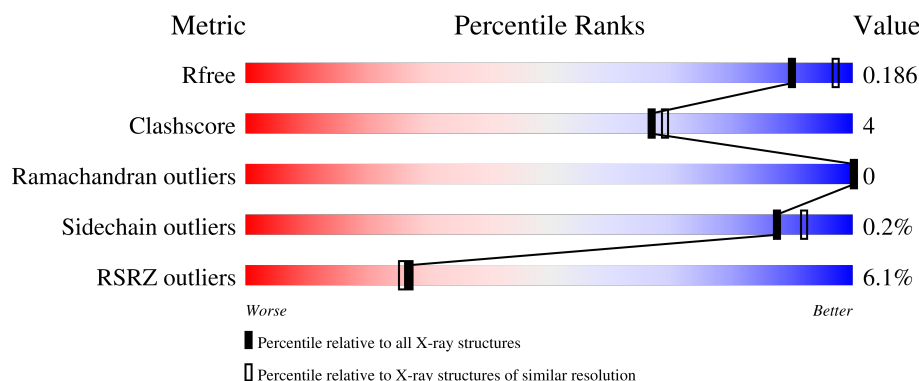
1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

X-RAY DIFFRACTION

The reported resolution of this entry is 2.00 Å.

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



Metric	Whole archive (#Entries)	Similar resolution (#Entries, resolution range(Å))
R_{free}	180053	10052 (2.00-2.00)
Clashscore	190562	11152 (2.00-2.00)
Ramachandran outliers	187476	11031 (2.00-2.00)
Sidechain outliers	187428	11029 (2.00-2.00)
RSRZ outliers	180081	10067 (2.00-2.00)

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 $\leq 5\%$. 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	630	6% 91% 8%

The following table lists non-polymeric compounds, carbohydrate monomers and non-standard residues in protein, DNA, RNA chains that are outliers for geometric or electron-density-fit criteria:

Mol	Type	Chain	Res	Chirality	Geometry	Clashes	Electron density
3	AKR	A	702[A]	-	X	-	-

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Mol	Type	Chain	Res	Chirality	Geometry	Clashes	Electron density
3	AKR	A	702[B]	-	X	X	-

2 Entry composition [i](#)

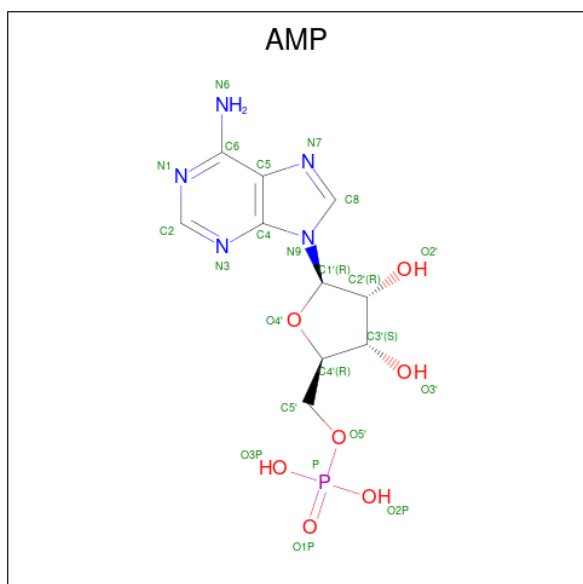
There are 6 unique types of molecules in this entry. The entry contains 5450 atoms, of which 0 are hydrogens and 0 are deuteriums.

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 AMP-dependent synthetase and ligase.

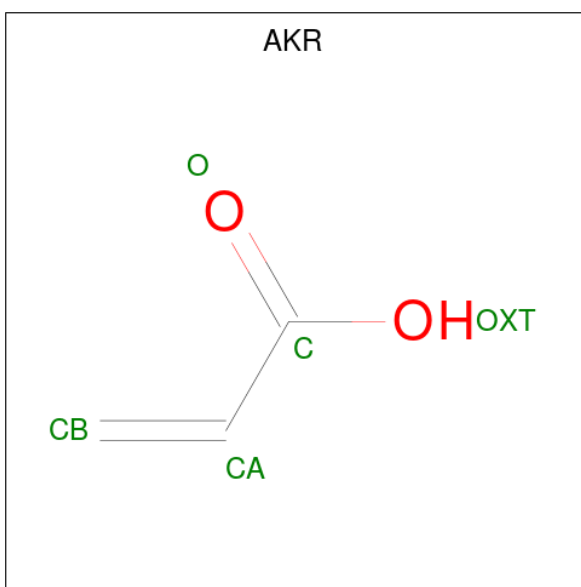
Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
1	A	627	4803	3073	812	895	23	0	0	0

- Molecule 2 is ADENOSINE MONOPHOSPHATE (CCD ID: AMP) (formula: $C_{10}H_{14}N_5O_7P$).



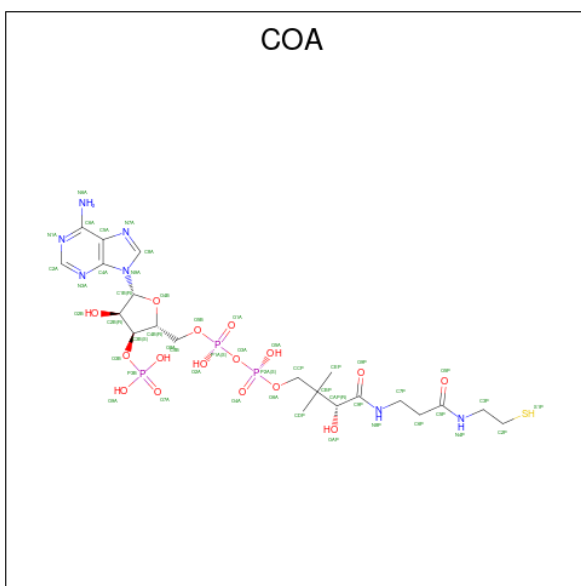
Mol	Chain	Residues	Atoms					ZeroOcc	AltConf
			Total	C	N	O	P		
2	A	1	23	10	5	7	1	0	0

- Molecule 3 is ACRYLIC ACID (CCD ID: AKR) (formula: $C_3H_4O_2$).



Mol	Chain	Residues	Atoms			ZeroOcc	AltConf
3	A	1	Total	C	O	0	1
			10	6	4		

- Molecule 4 is COENZYME A (CCD ID: COA) (formula: $C_{21}H_{36}N_7O_{16}P_3S$).



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

- Molecule 5 is GLYCEROL (CCD ID: GOL) (formula: $\text{C}_3\text{H}_8\text{O}_3$).



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

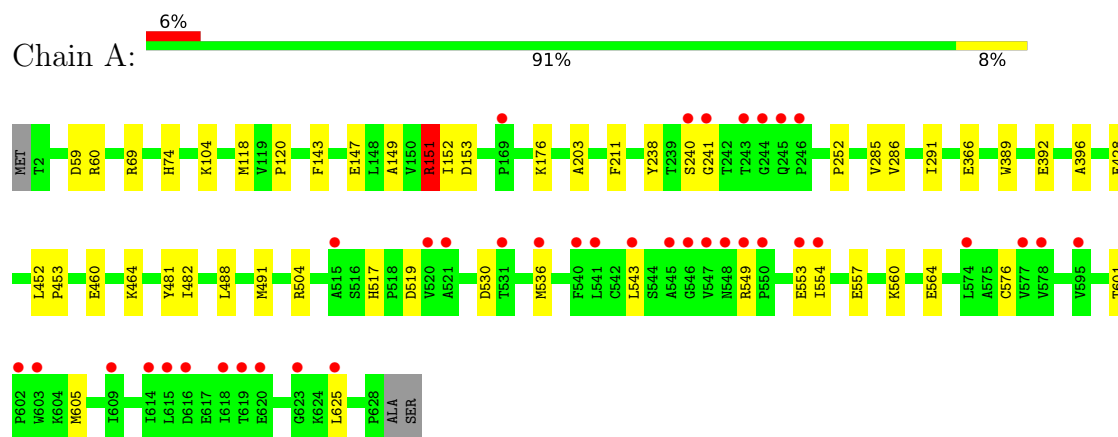
- Molecule 6 is water.

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
6	A	536	Total	O	0	0
			536	536		

3 Residue-property plots [i](#)

These plots are drawn for all protein, RNA, DNA and oligosaccharide chains in the entry. The first graphic for a chain summarises the proportions of the various outlier classes displayed in the second graphic. The second graphic shows the sequence view annotated by issues in geometry and electron density. Residues are color-coded according to the number of geometric quality criteria for which they contain at least one outlier: green = 0, yellow = 1, orange = 2 and red = 3 or more. A red dot above a residue indicates a poor fit to the electron density ($RSRZ > 2$). Stretches of 2 or more consecutive residues without any outlier are shown as a green connector. Residues present in the sample, but not in the model, are shown in grey.

- Molecule 1: AMP-dependent synthetase and ligase



4 Data and refinement statistics

Property	Value	Source
Space group	C 1 2 1	Depositor
Cell constants a, b, c, α , β , γ	147.10Å 58.42Å 113.26Å 90.00° 128.45° 90.00°	Depositor
Resolution (Å)	31.32 – 2.00 31.32 – 2.00	Depositor EDS
% Data completeness (in resolution range)	99.4 (31.32-2.00) 99.4 (31.32-2.00)	Depositor EDS
R_{merge}	0.07	Depositor
R_{sym}	(Not available)	Depositor
$\langle I/\sigma(I) \rangle$ ¹	8.44 (at 2.00Å)	Xtriage
Refinement program	PHENIX (1.10.1_2155: ???)	Depositor
R, R_{free}	0.166 , 0.194 (Not available) , 0.186	Depositor DCC
R_{free} test set	2472 reflections (4.83%)	wwPDB-VP
Wilson B-factor (Å ²)	20.0	Xtriage
Anisotropy	0.878	Xtriage
Bulk solvent k_{sol} (e/Å ³), B_{sol} (Å ²)	0.37 , 45.8	EDS
L-test for twinning ²	$\langle L \rangle = 0.49$, $\langle L^2 \rangle = 0.32$	Xtriage
Estimated twinning fraction	0.014 for h,-k,-h-l	Xtriage
F_o, F_c correlation	0.96	EDS
Total number of atoms	5450	wwPDB-VP
Average B, all atoms (Å ²)	26.0	wwPDB-VP

Xtriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 5.84% 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

5.1 Standard geometry

Bond lengths and bond angles in the following residue types are not validated in this section: GOL, AKR, AMP, 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	0.52	8/4936 (0.2%)	0.55	1/6747 (0.0%)

All (8) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
1	A	152	ILE	C-O	-5.93	1.17	1.24
1	A	238	TYR	C-O	-5.73	1.16	1.23
1	A	59	ASP	C-O	-5.71	1.17	1.24
1	A	153	ASP	C-O	-5.69	1.17	1.24
1	A	60	ARG	C-O	-5.67	1.17	1.24
1	A	149	ALA	C-O	-5.37	1.17	1.24
1	A	151	ARG	C-O	-5.30	1.18	1.24
1	A	366	GLU	C-O	-5.04	1.18	1.23

All (1) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	A	241	GLY	N-CA-C	5.28	119.32	110.56

There are no chirality outliers.

There are no planarity outliers.

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	4803	0	4703	30	0
2	A	23	0	12	0	0
3	A	10	0	6	6	0
4	A	48	0	31	3	0
5	A	30	0	40	2	0
6	A	536	0	0	5	1
All	All	5450	0	4792	36	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 4.

All (36) 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:A:703:COA:H62	6:A:1170:HOH:O	1.67	0.95
3:A:702[B]:AKR:O	4:A:703:COA:H22	1.71	0.90
1:A:69:ARG:HE	5:A:704:GOL:H2	1.42	0.85
1:A:285:VAL:HG12	3:A:702[B]:AKR:HB3	1.65	0.78
1:A:147:GLU:OE2	1:A:151:ARG:NH2	2.18	0.73
1:A:481:TYR:HE1	1:A:491:MET:HE3	1.65	0.62
1:A:460:GLU:O	1:A:464:LYS:HG2	2.01	0.59
1:A:176:LYS:HG2	1:A:203:ALA:HB1	1.85	0.58
1:A:560:LYS:HE3	1:A:564:GLU:OE2	2.05	0.57
1:A:286:VAL:HG23	3:A:702[B]:AKR:HA1	1.87	0.57
1:A:428:GLU:H	1:A:428:GLU:CD	2.11	0.56
1:A:576:CYS:HB3	1:A:625:LEU:HD11	1.87	0.56
1:A:481:TYR:CE1	1:A:491:MET:HE3	2.43	0.54
5:A:708:GOL:H32	6:A:1085:HOH:O	2.08	0.53
1:A:143:PHE:CD1	1:A:147:GLU:HG2	2.45	0.52
1:A:118:MET:HE1	1:A:291:ILE:HD13	1.92	0.52
1:A:543:LEU:HD22	1:A:543:LEU:N	2.25	0.52
1:A:519:ASP:OD2	1:A:549:ARG:HD3	2.12	0.50
1:A:392:GLU:HB3	1:A:452:LEU:HD22	1.93	0.50
1:A:240:SER:HB3	1:A:504:ARG:HG2	1.94	0.50
1:A:252:PRO:HG3	1:A:453:PRO:HD3	1.95	0.49
1:A:543:LEU:HD22	1:A:543:LEU:H	1.78	0.49
1:A:517:HIS:CE1	1:A:554:ILE:HG23	2.48	0.49
1:A:74:HIS:CG	1:A:120:PRO:HD3	2.48	0.48
3:A:702[A]:AKR:HA1	6:A:1002:HOH:O	2.13	0.48
3:A:702[B]:AKR:CB	6:A:1002:HOH:O	2.63	0.46
1:A:553:GLU:O	1:A:557:GLU:HG3	2.16	0.46
1:A:536:MET:HE2	1:A:536:MET:HB3	1.77	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:104:LYS:HE2	1:A:211:PHE:CG	2.52	0.44
1:A:389:TRP:HB3	1:A:396:ALA:HA	2.00	0.43
3:A:702[B]:AKR:C	4:A:703:COA:H22	2.44	0.43
1:A:605:MET:HE2	1:A:605:MET:HB2	1.64	0.42
1:A:143:PHE:CG	1:A:147:GLU:HG2	2.55	0.41
1:A:530:ASP:HB2	1:A:536:MET:HG3	2.02	0.41
1:A:482:ILE:HG12	1:A:488:LEU:HD13	2.03	0.41
1:A:601:THR:O	6:A:801:HOH:O	2.22	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)
6:A:1203:HOH:O	6:A:1209:HOH:O[4_555]	2.09	0.11

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	625/630 (99%)	608 (97%)	17 (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	500/502 (100%)	499 (100%)	1 (0%)	87 92

All (1) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	151	ARG

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (2) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	214	HIS
1	A	357	HIS

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 oligosaccharides in this entry.

5.6 Ligand geometry ⓘ

9 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	$\# Z > 2$
4	COA	A	703	-	47,50,50	2.07	10 (21%)	69,75,75	2.56	14 (20%)

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	# Z > 2	Counts	RMSZ	# Z > 2
5	GOL	A	704	-	5,5,5	0.35	0	5,5,5	0.82	0
5	GOL	A	705	-	5,5,5	0.46	0	5,5,5	0.43	0
5	GOL	A	708	-	5,5,5	0.33	0	5,5,5	0.52	0
2	AMP	A	701	-	25,25,25	1.00	2 (8%)	37,38,38	1.99	8 (21%)
5	GOL	A	707	-	5,5,5	0.30	0	5,5,5	0.27	0
5	GOL	A	706	-	5,5,5	0.39	0	5,5,5	0.42	0
3	AKR	A	702[A]	-	4,4,4	1.08	0	4,4,4	1.89	2 (50%)
3	AKR	A	702[B]	-	4,4,4	1.38	1 (25%)	4,4,4	1.65	1 (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
4	COA	A	703	-	-	15/48/64/64	0/3/3/3
5	GOL	A	704	-	-	4/4/4/4	-
5	GOL	A	705	-	-	4/4/4/4	-
5	GOL	A	708	-	-	2/4/4/4	-
2	AMP	A	701	-	-	0/10/26/26	0/3/3/3
5	GOL	A	707	-	-	4/4/4/4	-
5	GOL	A	706	-	-	2/4/4/4	-
3	AKR	A	702[A]	-	-	2/2/2/2	-
3	AKR	A	702[B]	-	-	2/2/2/2	-

All (13) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
4	A	703	COA	C9P-N8P	6.97	1.49	1.33
4	A	703	COA	C5P-N4P	5.16	1.45	1.33
4	A	703	COA	OAP-CAP	-4.40	1.34	1.42
4	A	703	COA	C6A-N6A	4.17	1.44	1.34
4	A	703	COA	C6P-C5P	-3.53	1.44	1.51
4	A	703	COA	C2B-C3B	-3.22	1.45	1.53
2	A	701	AMP	C6-N6	3.02	1.41	1.34
4	A	703	COA	P3B-O8A	-2.99	1.43	1.54
4	A	703	COA	C5B-C4B	-2.90	1.42	1.51
3	A	702[B]	AKR	OXT-C	-2.59	1.23	1.30
4	A	703	COA	C3B-C4B	-2.50	1.46	1.52
4	A	703	COA	C8A-N7A	2.27	1.36	1.31

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
2	A	701	AMP	C8-N7	2.12	1.35	1.31

All (25) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
4	A	703	COA	C4A-N9A-C1B	-9.89	103.51	126.63
4	A	703	COA	C4A-N9A-C8A	8.95	115.14	105.74
4	A	703	COA	N9A-C8A-N7A	-6.64	104.51	113.94
4	A	703	COA	N3A-C4A-N9A	6.33	137.93	127.17
4	A	703	COA	C1B-N9A-C8A	6.32	141.12	127.09
2	A	701	AMP	C5-C4-N3	-4.96	119.89	126.72
4	A	703	COA	C5A-C4A-N3A	-4.84	120.05	126.72
2	A	701	AMP	N3-C2-N1	-4.80	121.32	128.58
2	A	701	AMP	N9-C8-N7	-4.37	107.74	113.94
2	A	701	AMP	C4-N9-C8	3.97	109.90	105.74
2	A	701	AMP	N3-C4-N9	3.90	133.80	127.17
4	A	703	COA	C5A-N7A-C8A	3.80	109.43	103.45
4	A	703	COA	N3A-C2A-N1A	-3.73	122.93	128.58
4	A	703	COA	C5A-C4A-N9A	-3.48	102.02	105.81
2	A	701	AMP	C2-N3-C4	3.42	120.19	111.83
2	A	701	AMP	C5-N7-C8	3.35	108.72	103.45
4	A	703	COA	C3B-C2B-C1B	3.29	107.13	99.89
4	A	703	COA	C2A-N3A-C4A	3.05	119.29	111.83
2	A	701	AMP	C4-C5-N7	-2.85	107.32	110.58
3	A	702[A]	AKR	OXT-C-CA	2.83	121.91	114.19
4	A	703	COA	O6A-CCP-CBP	2.63	114.77	110.55
4	A	703	COA	C7P-N8P-C9P	-2.52	118.01	122.55
3	A	702[A]	AKR	O-C-CA	-2.47	114.55	122.21
4	A	703	COA	C2B-C1B-N9A	-2.32	107.54	113.30
3	A	702[B]	AKR	OXT-C-CA	2.17	120.08	114.19

There are no chirality outliers.

All (35) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
3	A	702[A]	AKR	OXT-C-CA-CB
3	A	702[B]	AKR	O-C-CA-CB
4	A	703	COA	C5B-O5B-P1A-O1A
4	A	703	COA	C5B-O5B-P1A-O2A
4	A	703	COA	C5B-O5B-P1A-O3A
4	A	703	COA	O9P-C9P-CAP-OAP
4	A	703	COA	N8P-C9P-CAP-OAP

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Mol	Chain	Res	Type	Atoms
4	A	703	COA	C5P-C6P-C7P-N8P
4	A	703	COA	S1P-C2P-C3P-N4P
5	A	704	GOL	O1-C1-C2-C3
5	A	705	GOL	O1-C1-C2-O2
5	A	705	GOL	O1-C1-C2-C3
5	A	705	GOL	C1-C2-C3-O3
5	A	707	GOL	C1-C2-C3-O3
5	A	708	GOL	O1-C1-C2-C3
4	A	703	COA	O5P-C5P-C6P-C7P
4	A	703	COA	N4P-C5P-C6P-C7P
5	A	705	GOL	O2-C2-C3-O3
5	A	706	GOL	O1-C1-C2-C3
5	A	704	GOL	O1-C1-C2-O2
5	A	707	GOL	O2-C2-C3-O3
5	A	706	GOL	O1-C1-C2-O2
5	A	708	GOL	O1-C1-C2-O2
4	A	703	COA	N8P-C9P-CAP-CBP
4	A	703	COA	P2A-O3A-P1A-O5B
5	A	704	GOL	O2-C2-C3-O3
5	A	707	GOL	O1-C1-C2-O2
5	A	707	GOL	O1-C1-C2-C3
3	A	702[B]	AKR	OXT-C-CA-CB
4	A	703	COA	C2P-C3P-N4P-C5P
3	A	702[A]	AKR	O-C-CA-CB
4	A	703	COA	O9P-C9P-CAP-CBP
4	A	703	COA	C3B-O3B-P3B-O8A
5	A	704	GOL	C1-C2-C3-O3
4	A	703	COA	CBP-CCP-O6A-P2A

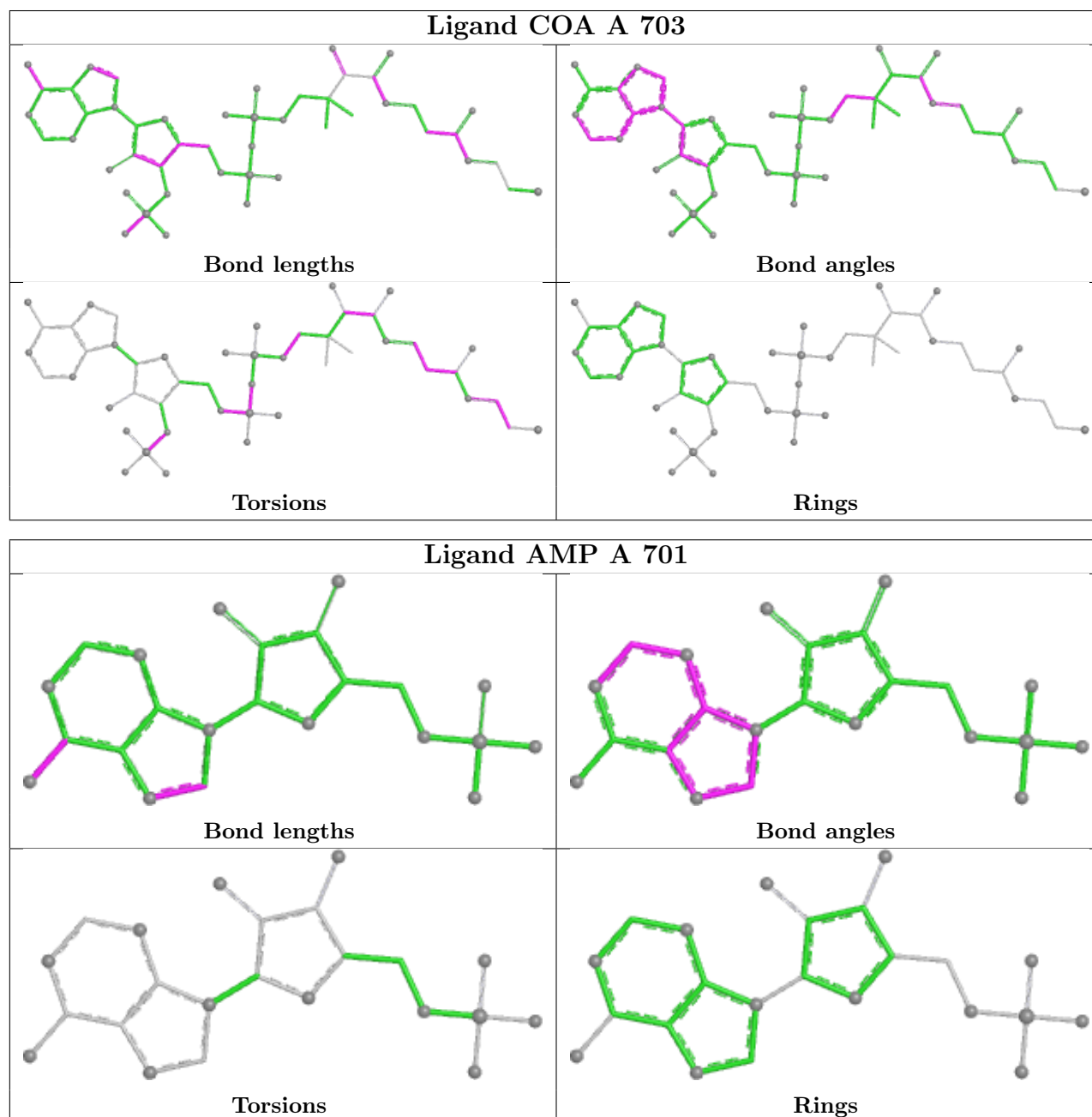
There are no ring outliers.

5 monomers are involved in 9 short contacts:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
4	A	703	COA	3	0
5	A	704	GOL	1	0
5	A	708	GOL	1	0
3	A	702[A]	AKR	1	0
3	A	702[B]	AKR	5	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, 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	627/630 (99%)	0.16	38 (6%) 27 26	12, 22, 49, 71	0

All (38) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	A	241	GLY	5.2
1	A	547	VAL	4.2
1	A	545	ALA	3.9
1	A	603	TRP	3.9
1	A	243	THR	3.9
1	A	546	GLY	3.8
1	A	244	GLY	3.7
1	A	245	GLN	3.6
1	A	548	ASN	3.5
1	A	550	PRO	3.4
1	A	169	PRO	3.4
1	A	543	LEU	3.4
1	A	240	SER	3.0
1	A	554	ILE	2.7
1	A	553	GLU	2.6
1	A	246	PRO	2.6
1	A	540	PHE	2.5
1	A	625	LEU	2.5
1	A	574	LEU	2.5
1	A	618	ILE	2.5
1	A	615	LEU	2.4
1	A	531	THR	2.4
1	A	521	ALA	2.4
1	A	520	VAL	2.4
1	A	619	THR	2.3
1	A	616	ASP	2.3
1	A	577	VAL	2.2

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Mol	Chain	Res	Type	RSRZ
1	A	602	PRO	2.2
1	A	620	GLU	2.1
1	A	515	ALA	2.1
1	A	614	ILE	2.1
1	A	623	GLY	2.1
1	A	541	LEU	2.1
1	A	549	ARG	2.1
1	A	609	ILE	2.1
1	A	578	VAL	2.1
1	A	536	MET	2.1
1	A	595	VAL	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 oligosaccharides in this entry.

6.4 Ligands [i](#)

In the following table, the Atoms column lists the number of modelled atoms in the group and the number defined in the chemical component dictionary. The B-factors column lists the minimum, median, 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.

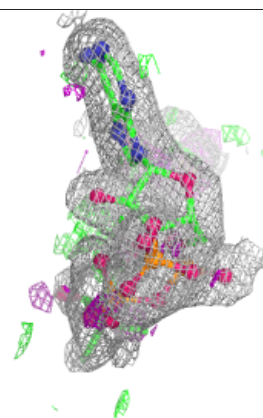
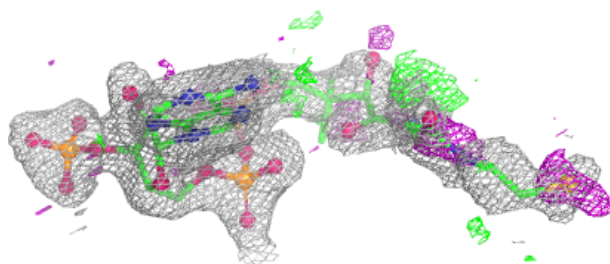
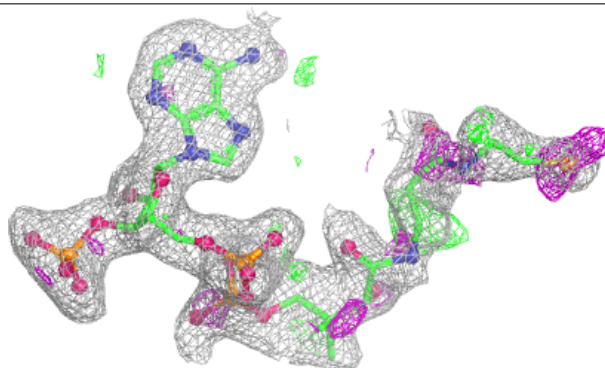
Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors(Å ²)	Q<0.9
3	AKR	A	702[A]	5/5	0.73	0.17	19,20,23,29	5
3	AKR	A	702[B]	5/5	0.73	0.17	20,22,24,28	5
5	GOL	A	708	6/6	0.76	0.19	37,41,42,49	0
5	GOL	A	707	6/6	0.80	0.17	38,41,47,49	0
5	GOL	A	704	6/6	0.80	0.15	28,31,41,42	0
5	GOL	A	706	6/6	0.85	0.13	40,43,44,45	0
5	GOL	A	705	6/6	0.87	0.14	35,38,40,44	0
4	COA	A	703	48/48	0.87	0.13	23,38,47,52	0
2	AMP	A	701	23/23	0.98	0.05	17,20,22,22	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.

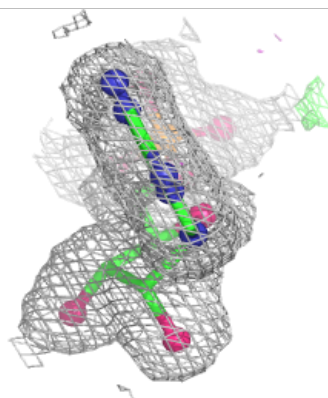
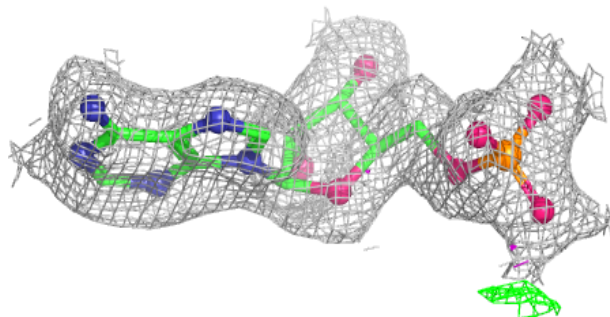
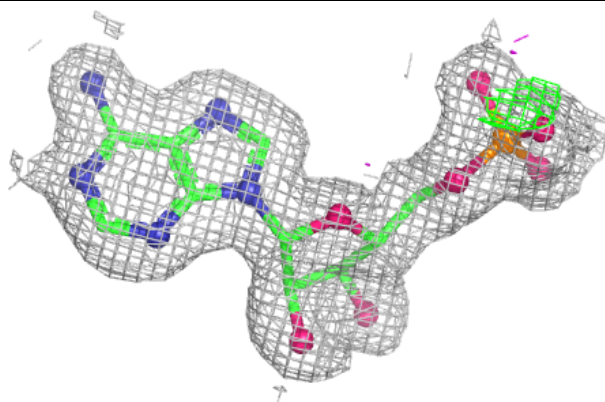
Electron density around COA A 703:

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



Electron density around AMP A 701:

$2mF_o-DF_c$ (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.