



# Full wwPDB X-ray Structure Validation Report ⓘ

Mar 26, 2019 – 07:09 PM EDT

PDB ID : 4CLU  
Title : Crystal structure of human soluble Adenylyl Cyclase with pyrophosphate  
Authors : Kleinboelting, S.; Weyand, M.; Steegborn, C.  
Deposited on : 2014-01-15  
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](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.

---

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

MolProbity : 4.02b-467  
Mogul : 1.8.0 (224370), CSD as540be (2019)  
Xtriage (Phenix) : 1.13  
EDS : rb-20031633  
Percentile statistics : 20171227.v01 (using entries in the PDB archive December 27th 2017)  
Refmac : 5.8.0158  
CCP4 : 7.0 (Gargrove)  
Ideal geometry (proteins) : Engh & Huber (2001)  
Ideal geometry (DNA, RNA) : Parkinson et al. (1996)  
Validation Pipeline (wwPDB-VP) : rb-20031633

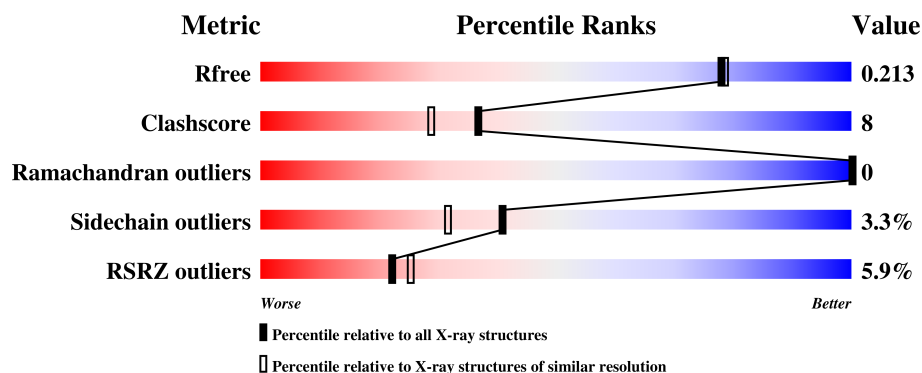
# 1 Overall quality at a glance

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))
$R_{free}$	111664	5502 (1.90-1.90)
Clashscore	122126	6115 (1.90-1.90)
Ramachandran outliers	120053	6048 (1.90-1.90)
Sidechain outliers	120020	6048 (1.90-1.90)
RSRZ outliers	108989	5379 (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 on the lower bar indicate the fraction of residues that contain outliers for  $\geq 3$ , 2, 1 and 0 types of geometric quality criteria. 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	475	

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
5	EDO	A	1472	-	-	X	-

*Continued on next page...*

*Continued from previous page...*

Mol	Type	Chain	Res	Chirality	Geometry	Clashes	Electron density
5	EDO	A	1473	-	-	X	-

## 2 Entry composition

There are 8 unique types of molecules in this entry. The entry contains 3924 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 ADENYLATE CYCLASE TYPE 10.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
1	A	460	Total	C	N	O	S	0	7	0
			3684	2389	596	664	35			

There are 6 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
A	470	HIS	-	expression tag	UNP Q96PN6
A	471	HIS	-	expression tag	UNP Q96PN6
A	472	HIS	-	expression tag	UNP Q96PN6
A	473	HIS	-	expression tag	UNP Q96PN6
A	474	HIS	-	expression tag	UNP Q96PN6
A	475	HIS	-	expression tag	UNP Q96PN6

- Molecule 2 is CHLORIDE ION (three-letter code: CL) (formula: Cl).

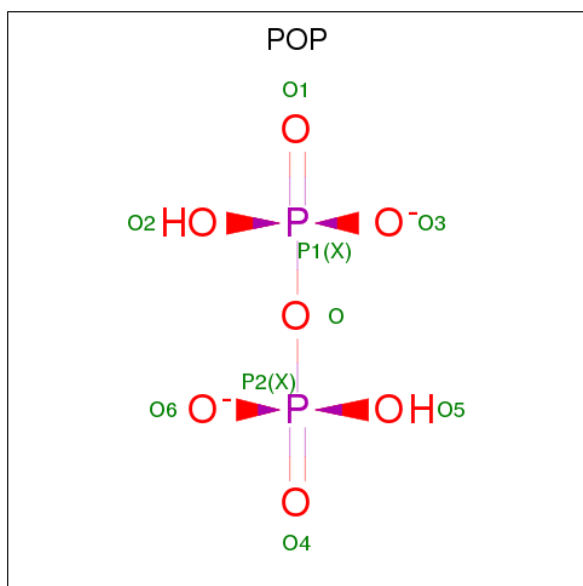
Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
2	A	2	Total	Cl	0	0
			2	2		

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



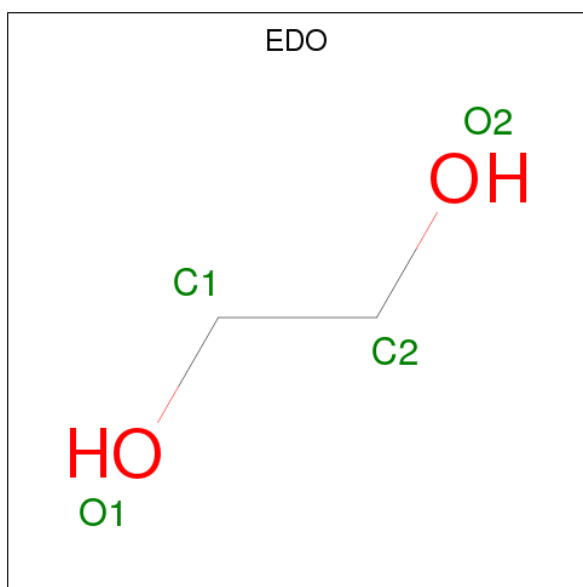
Mol	Chain	Residues	Atoms			ZeroOcc	AltConf
3	A	1	Total	C	O	0	0
			6	3	3		

- Molecule 4 is PYROPHOSPHATE 2- (three-letter code: POP) (formula:  $\text{H}_2\text{O}_7\text{P}_2$ ).



Mol	Chain	Residues	Atoms			ZeroOcc	AltConf
4	A	1	Total	O	P	0	0
			9	7	2		

- Molecule 5 is 1,2-ETHANEDIOL (three-letter code: EDO) (formula:  $\text{C}_2\text{H}_6\text{O}_2$ ).

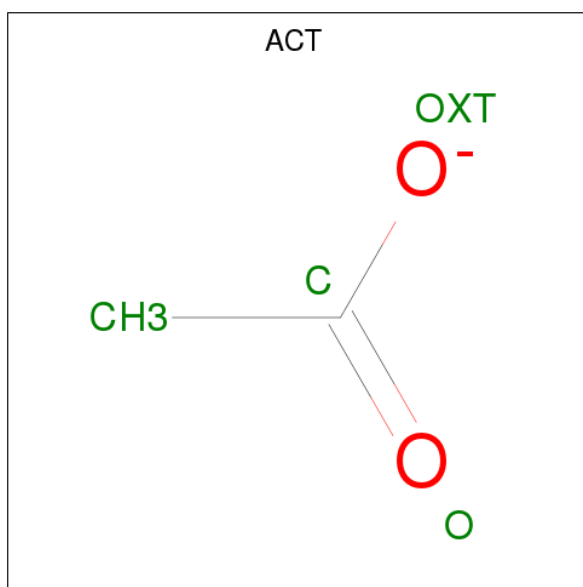


Mol	Chain	Residues	Atoms			ZeroOcc	AltConf
5	A	1	Total	C	O	0	0
			4	2	2		
5	A	1	Total	C	O	0	0
			4	2	2		
5	A	1	Total	C	O	0	0
			4	2	2		
5	A	1	Total	C	O	0	0
			4	2	2		

- Molecule 6 is MAGNESIUM ION (three-letter code: MG) (formula: Mg).

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

- Molecule 7 is ACETATE ION (three-letter code: ACT) (formula: C<sub>2</sub>H<sub>3</sub>O<sub>2</sub>).



Mol	Chain	Residues	Atoms			ZeroOcc	AltConf
7	A	1	Total	C	O	0	0
			4	2	2		

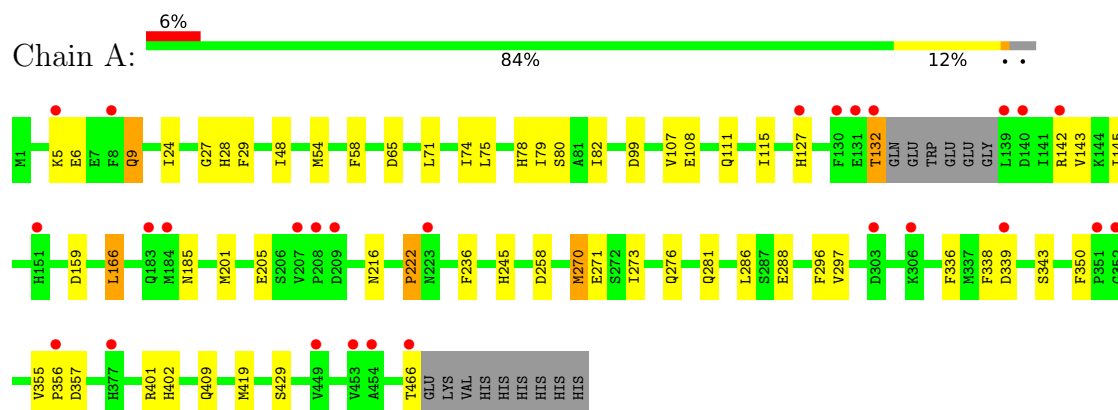
- Molecule 8 is water.

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
8	A	202	Total	O	0	0
			202	202		

### 3 Residue-property plots

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: ADENYLATE CYCLASE TYPE 10





## 4 Data and refinement statistics

Property	Value	Source
Space group	P 63	Depositor
Cell constants a, b, c, $\alpha$ , $\beta$ , $\gamma$	100.70Å 100.70Å 97.15Å 90.00° 90.00° 120.00°	Depositor
Resolution (Å)	87.21 – 1.90 48.58 – 1.90	Depositor EDS
% Data completeness (in resolution range)	99.9 (87.21-1.90) 100.0 (48.58-1.90)	Depositor EDS
$R_{merge}$	0.08	Depositor
$R_{sym}$	(Not available)	Depositor
$\langle I/\sigma(I) \rangle$ <sup>1</sup>	2.37 (at 1.90Å)	Xtriage
Refinement program	REFMAC 5.8.0049	Depositor
R, $R_{free}$	0.160 , 0.205 0.171 , 0.213	Depositor DCC
$R_{free}$ test set	2214 reflections (5.03%)	wwPDB-VP
Wilson B-factor (Å <sup>2</sup> )	25.6	Xtriage
Anisotropy	0.251	Xtriage
Bulk solvent $k_{sol}$ (e/Å <sup>3</sup> ), $B_{sol}$ (Å <sup>2</sup> )	0.37 , 49.9	EDS
L-test for twinning <sup>2</sup>	$\langle  L  \rangle = 0.49$ , $\langle L^2 \rangle = 0.32$	Xtriage
Estimated twinning fraction	0.048 for h,-h-k,-l	Xtriage
$F_o, F_c$ correlation	0.96	EDS
Total number of atoms	3924	wwPDB-VP
Average B, all atoms (Å <sup>2</sup> )	35.0	wwPDB-VP

Xtriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 3.41% 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: GOL, MG, CL, CME, EDO, POP, ACT

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	0.91	1/3784 (0.0%)	0.93	8/5122 (0.2%)

All (1) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
1	A	80	SER	CB-OG	-7.36	1.32	1.42

All (8) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	A	258	ASP	CB-CG-OD2	-5.84	113.04	118.30
1	A	270[A]	MET	CG-SD-CE	5.84	109.55	100.20
1	A	270[B]	MET	CG-SD-CE	5.84	109.55	100.20
1	A	159	ASP	CB-CG-OD1	5.73	123.46	118.30
1	A	222	PRO	C-N-CA	-5.46	108.05	121.70
1	A	201	MET	CB-CA-C	-5.40	99.60	110.40
1	A	401	ARG	NE-CZ-NH2	-5.29	117.65	120.30
1	A	166	LEU	CB-CA-C	-5.28	100.18	110.20

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	3684	0	3657	53	0
2	A	2	0	0	0	0
3	A	6	0	8	3	0
4	A	9	0	0	1	0
5	A	16	0	24	11	0
6	A	1	0	0	0	0
7	A	4	0	3	0	0
8	A	202	0	0	19	0
All	All	3924	0	3692	63	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 8.

All (63) 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:65:ASP:HA	5:A:1473:EDO:H22	1.35	1.08
1:A:166:LEU:CD2	1:A:336:PHE:HA	2.07	0.83
1:A:65:ASP:CA	5:A:1473:EDO:H22	2.13	0.77
1:A:65:ASP:HA	5:A:1473:EDO:C2	2.13	0.77
1:A:58:PHE:CD2	1:A:71[A]:LEU:HD13	2.21	0.75
1:A:339:ASP:CG	1:A:419[A]:MET:HG2	2.10	0.72
1:A:288:GLU:HG3	8:A:2146:HOH:O	1.88	0.72
5:A:1473:EDO:H11	8:A:2052:HOH:O	1.92	0.69
1:A:286:LEU:HB2	8:A:2139:HOH:O	1.93	0.67
1:A:99:ASP:OD2	4:A:1470:POP:O4	2.14	0.66
1:A:28[A]:HIS:HE1	8:A:2022:HOH:O	1.79	0.65
1:A:166:LEU:HD21	1:A:336:PHE:HA	1.80	0.62
1:A:245:HIS:HE1	8:A:2121:HOH:O	1.81	0.62
5:A:1471:EDO:H21	8:A:2202:HOH:O	1.99	0.62
1:A:24:ILE:O	3:A:1469:GOL:H31	1.99	0.62
1:A:58:PHE:CE2	1:A:71[A]:LEU:HD13	2.35	0.61
1:A:75:LEU:HD11	1:A:79:ILE:HD11	1.83	0.61
1:A:409:GLN:HG2	8:A:2087:HOH:O	2.03	0.59
5:A:1471:EDO:C2	8:A:2202:HOH:O	2.52	0.58
5:A:1472:EDO:H21	8:A:2026:HOH:O	2.03	0.58
3:A:1469:GOL:C1	8:A:2133:HOH:O	2.51	0.58
1:A:127[B]:HIS:CD2	1:A:185:ASN:O	2.57	0.57
1:A:9:GLN:HA	1:A:9:GLN:HE21	1.70	0.56
3:A:1469:GOL:H12	8:A:2133:HOH:O	2.05	0.56
1:A:273:ILE:HD13	1:A:286:LEU:CD1	2.37	0.55
1:A:205:GLU:HG3	1:A:216:ASN:HD21	1.72	0.55

*Continued on next page...*

*Continued from previous page...*

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:205:GLU:CG	1:A:216:ASN:HD21	2.21	0.54
1:A:107:VAL:HG11	1:A:115:ILE:HG13	1.91	0.53
1:A:127[B]:HIS:NE2	1:A:143:VAL:O	2.41	0.52
1:A:355:VAL:HG12	1:A:356:PRO:O	2.09	0.52
1:A:75:LEU:HG	1:A:79:ILE:HD12	1.92	0.52
1:A:276:GLN:NE2	1:A:286:LEU:HD12	2.25	0.52
5:A:1472:EDO:C2	8:A:2026:HOH:O	2.58	0.52
1:A:338:PHE:CZ	1:A:419[B]:MET:CE	2.94	0.50
1:A:127[B]:HIS:ND1	1:A:145:ILE:HD12	2.28	0.49
1:A:108:GLU:HG3	8:A:2035:HOH:O	2.12	0.49
1:A:75:LEU:HD11	1:A:79:ILE:CD1	2.43	0.48
1:A:9:GLN:HA	1:A:9:GLN:NE2	2.29	0.48
1:A:28[A]:HIS:CE1	8:A:2022:HOH:O	2.62	0.48
1:A:127[A]:HIS:CD2	1:A:185:ASN:O	2.67	0.47
1:A:54:MET:HB3	1:A:58:PHE:HE2	1.78	0.47
1:A:132:THR:O	1:A:132:THR:OG1	2.33	0.47
5:A:1472:EDO:H11	8:A:2132:HOH:O	2.14	0.47
1:A:166:LEU:HD21	1:A:336:PHE:CA	2.45	0.46
1:A:27:GLY:O	1:A:28[B]:HIS:CG	2.69	0.46
1:A:54:MET:O	1:A:58:PHE:CD2	2.69	0.45
1:A:9:GLN:CA	1:A:9:GLN:HE21	2.28	0.45
1:A:54:MET:O	1:A:58:PHE:HD2	2.00	0.44
5:A:1473:EDO:C1	8:A:2052:HOH:O	2.60	0.44
1:A:127[B]:HIS:CE1	1:A:145:ILE:HD12	2.53	0.44
1:A:271:GLU:HG2	8:A:2136:HOH:O	2.16	0.43
1:A:205:GLU:HG3	1:A:216:ASN:ND2	2.33	0.43
1:A:297:VAL:O	1:A:343:SER:HA	2.18	0.43
1:A:357:ASP:HA	8:A:2166:HOH:O	2.19	0.42
1:A:273:ILE:HD13	1:A:286:LEU:HD13	2.01	0.42
1:A:111:GLN:HG3	1:A:236:PHE:CG	2.56	0.41
5:A:1472:EDO:C1	8:A:2132:HOH:O	2.68	0.41
1:A:6:GLU:CG	1:A:6:GLU:O	2.69	0.41
1:A:48:ILE:HD11	1:A:82:ILE:CD1	2.51	0.41
1:A:54:MET:HB3	1:A:58:PHE:CE2	2.54	0.41
1:A:74:ILE:O	1:A:78:HIS:HD2	2.03	0.40
1:A:273:ILE:HD13	1:A:286:LEU:HD11	2.02	0.40

There are no symmetry-related clashes.

## 5.3 Torsion angles

### 5.3.1 Protein backbone

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	462/475 (97%)	449 (97%)	13 (3%)	0	100	100

There are no Ramachandran outliers to report.

### 5.3.2 Protein sidechains

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	405/418 (97%)	391 (96%)	14 (4%)	39	29

All (14) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	5	LYS
1	A	9	GLN
1	A	29	PHE
1	A	132	THR
1	A	142	ARG
1	A	222	PRO
1	A	270[A]	MET
1	A	270[B]	MET
1	A	281	GLN
1	A	296	PHE
1	A	350	PHE
1	A	402	HIS
1	A	429	SER

*Continued on next page...*

*Continued from previous page...*

Mol	Chain	Res	Type
1	A	466	THR

Some sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (6) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	9	GLN
1	A	114	ASN
1	A	183	GLN
1	A	238	HIS
1	A	409	GLN
1	A	436	ASN

### 5.3.3 RNA ⓘ

There are no RNA molecules in this entry.

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

1 non-standard protein/DNA/RNA residue is 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	$\# Z  > 2$
1	CME	A	253	1	9,9,10	0.88	0	6,9,11	1.67	1 (16%)

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
1	CME	A	253	1	-	0/5/8/10	0/0/0/0

There are no bond length outliers.

All (1) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	A	253	CME	O-C-CA	-3.40	115.87	124.98

There are no chirality outliers.

There are no torsion outliers.

There are no ring outliers.

No monomer is involved in short contacts.

## 5.5 Carbohydrates [i](#)

There are no carbohydrates in this entry.

## 5.6 Ligand geometry [i](#)

Of 10 ligands modelled in this entry, 3 are monoatomic - leaving 7 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	GOL	A	1469	-	5,5,5	0.68	0	5,5,5	1.45	0
4	POP	A	1470	6	8,8,8	0.87	0	9,13,13	1.72	1 (11%)
5	EDO	A	1471	-	3,3,3	0.47	0	2,2,2	0.37	0
5	EDO	A	1472	-	3,3,3	0.71	0	2,2,2	0.45	0
5	EDO	A	1473	-	3,3,3	0.42	0	2,2,2	0.65	0
5	EDO	A	1474	-	3,3,3	0.76	0	2,2,2	0.09	0
7	ACT	A	1476	-	1,3,3	4.37	1 (100%)	0,3,3	0.00	-

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	GOL	A	1469	-	-	0/4/4/4	0/0/0/0
4	POP	A	1470	6	-	0/6/6/6	0/0/0/0
5	EDO	A	1471	-	-	0/1/1/1	0/0/0/0
5	EDO	A	1472	-	-	0/1/1/1	0/0/0/0
5	EDO	A	1473	-	-	0/1/1/1	0/0/0/0
5	EDO	A	1474	-	-	0/1/1/1	0/0/0/0
7	ACT	A	1476	-	-	0/0/0/0	0/0/0/0

All (1) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
7	A	1476	ACT	CH3-C	4.37	1.54	1.48

All (1) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
4	A	1470	POP	P2-O-P1	-3.28	122.16	132.57

There are no chirality outliers.

There are no torsion outliers.

There are no ring outliers.

5 monomers are involved in 15 short contacts:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
3	A	1469	GOL	3	0
4	A	1470	POP	1	0
5	A	1471	EDO	2	0
5	A	1472	EDO	4	0
5	A	1473	EDO	5	0

## 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	459/475 (96%)	0.00	27 (5%) 22 25	16, 31, 64, 103	0

All (27) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	A	454	ALA	6.8
1	A	377	HIS	5.7
1	A	184	MET	5.6
1	A	132	THR	5.4
1	A	352	GLY	4.2
1	A	130	PHE	4.2
1	A	449	VAL	4.0
1	A	140	ASP	3.6
1	A	209	ASP	3.3
1	A	339	ASP	3.2
1	A	303	ASP	3.0
1	A	131	GLU	2.9
1	A	5	LYS	2.8
1	A	351	PRO	2.7
1	A	8	PHE	2.6
1	A	127[A]	HIS	2.5
1	A	151	HIS	2.5
1	A	183	GLN	2.5
1	A	139	LEU	2.5
1	A	223	ASN	2.5
1	A	306	LYS	2.4
1	A	466	THR	2.4
1	A	207	VAL	2.3
1	A	208	PRO	2.3
1	A	356	PRO	2.3
1	A	142	ARG	2.1
1	A	453	VAL	2.0

## 6.2 Non-standard residues in protein, DNA, RNA chains [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
1	CME	A	253	10/11	0.98	0.06	20,22,30,30	0

## 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
5	EDO	A	1474	4/4	0.63	0.16	55,60,61,64	0
7	ACT	A	1476	4/4	0.84	0.12	48,48,51,54	0
6	MG	A	1475	1/1	0.84	0.09	56,56,56,56	0
5	EDO	A	1472	4/4	0.84	0.15	44,48,51,56	0
3	GOL	A	1469	6/6	0.87	0.17	34,43,47,47	0
4	POP	A	1470	9/9	0.91	0.23	63,75,77,84	0
5	EDO	A	1471	4/4	0.91	0.12	39,48,52,56	0
5	EDO	A	1473	4/4	0.93	0.22	31,42,46,53	0
2	CL	A	1468	1/1	0.98	0.06	33,33,33,33	0
2	CL	A	1467	1/1	1.00	0.10	24,24,24,24	0

## 6.5 Other polymers [i](#)

There are no such residues in this entry.