



Full wwPDB X-ray Structure Validation Report ⓘ

Mar 5, 2026 – 04:29 AM UTC

PDB ID : 4CYD / pdb_00004cyd
Title : GlxR bound to cAMP
Authors : Townsend, P.D.; Bott, M.; Cann, M.J.; Pohl, E.
Deposited on : 2014-04-10
Resolution : 1.82 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

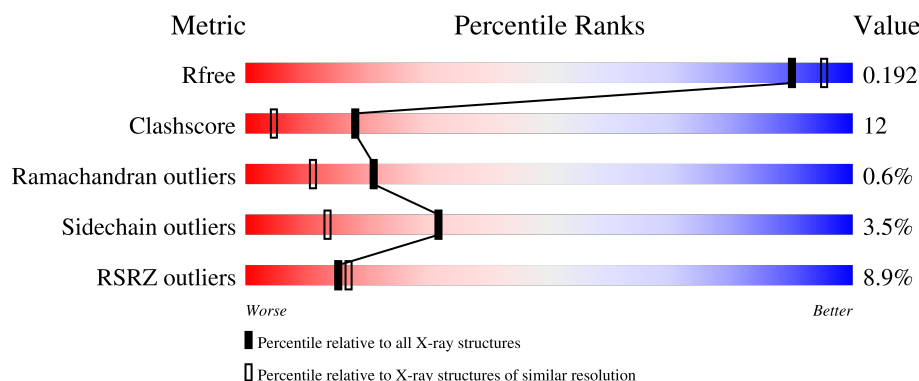
1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

X-RAY DIFFRACTION

The reported resolution of this entry is 1.82 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	1112 (1.82-1.82)
Clashscore	190562	1148 (1.82-1.82)
Ramachandran outliers	187476	1140 (1.82-1.82)
Sidechain outliers	187428	1140 (1.82-1.82)
RSRZ outliers	180081	1112 (1.82-1.82)

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	225	8% 83% 14% ..
1	B	225	3% 82% 17% .
1	C	225	% 80% 19% .
1	D	225	24% 72% 20% 5%
2	F	21	10% 76% 24%

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Mol	Chain	Length	Quality of chain
2	H	21	10% 38% 43% 10% 5% 5%

2 Entry composition

There are 5 unique types of molecules in this entry. The entry contains 7729 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.

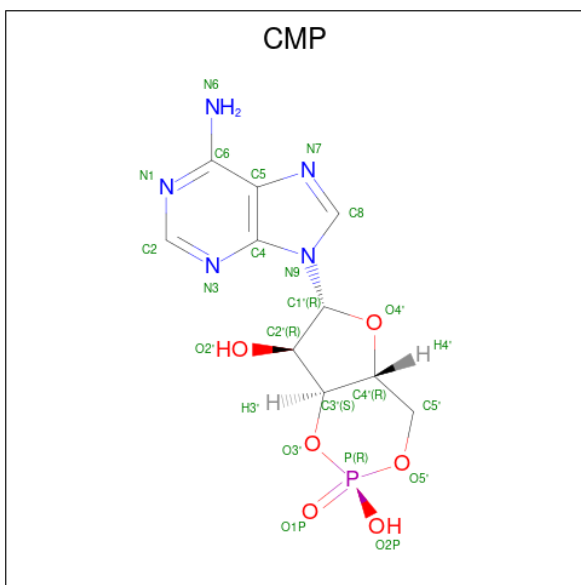
- Molecule 1 is a protein called PROBABLE TRANSCRIPTION REGULATOR.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
1	A	223	Total	C	N	O	S	0	7	0
			1752	1098	323	324	7			
1	B	225	Total	C	N	O	S	0	3	0
			1758	1096	331	324	7			
1	C	225	Total	C	N	O	S	0	7	0
			1766	1103	327	327	9			
1	D	214	Total	C	N	O	S	0	1	0
			1595	994	300	294	7			

- Molecule 2 is a protein called PROBABLE EXPRESSION TAG.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
2	F	21	Total	C	N	O	S	0	0	0
			181	114	33	33	1			
2	H	20	Total	C	N	O		0	0	0
			168	106	30	32				

- Molecule 3 is ADENOSINE-3',5'-CYCLIC-MONOPHOSPHATE (CCD ID: CMP) (formula: C₁₀H₁₂N₅O₆P).



Mol	Chain	Residues	Atoms					ZeroOcc	AltConf
3	A	1	Total	C	N	O	P	0	0
			22	10	5	6	1		
3	B	1	Total	C	N	O	P	0	0
			22	10	5	6	1		
3	C	1	Total	C	N	O	P	0	0
			22	10	5	6	1		
3	D	1	Total	C	N	O	P	0	0
			22	10	5	6	1		

- Molecule 4 is GLYCEROL (CCD ID: GOL) (formula: $C_3H_8O_3$).



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

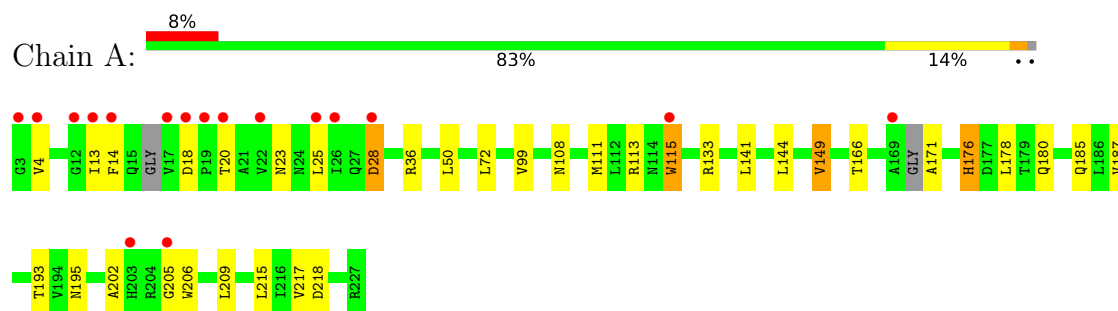
- Molecule 5 is water.

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
5	A	124	Total	O	0	0
			124	124		
5	B	91	Total	O	0	0
			91	91		
5	C	146	Total	O	0	0
			146	146		
5	D	38	Total	O	0	0
			38	38		
5	F	4	Total	O	0	0
			4	4		
5	H	6	Total	O	0	0
			6	6		

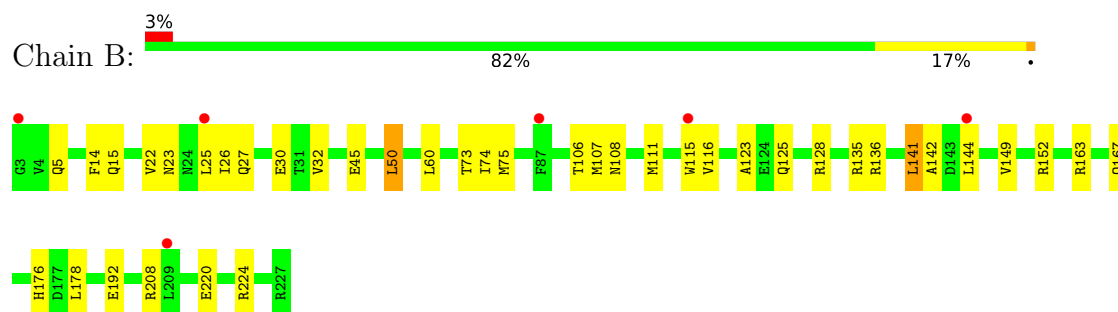
3 Residue-property plots [i](#)

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.

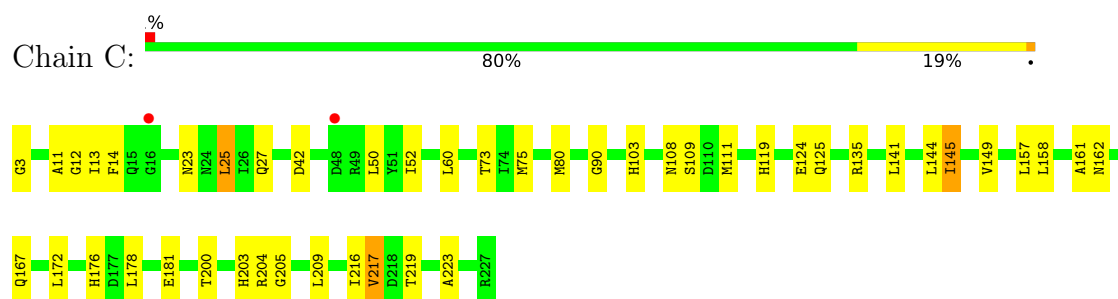
• Molecule 1: PROBABLE TRANSCRIPTION REGULATOR



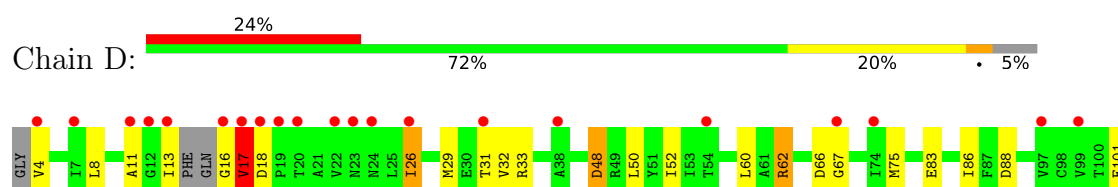
• Molecule 1: PROBABLE TRANSCRIPTION REGULATOR

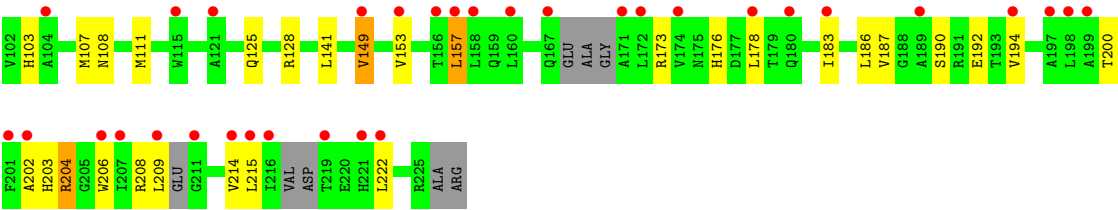


• Molecule 1: PROBABLE TRANSCRIPTION REGULATOR

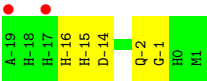
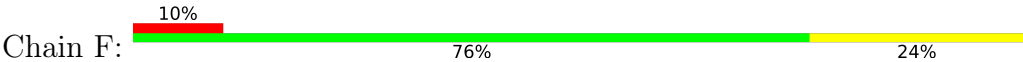


• Molecule 1: PROBABLE TRANSCRIPTION REGULATOR





● Molecule 2: PROBABLE EXPRESSION TAG



● Molecule 2: PROBABLE EXPRESSION TAG



4 Data and refinement statistics

Property	Value	Source
Space group	P 1 21 1	Depositor
Cell constants a, b, c, α , β , γ	63.93Å 102.66Å 82.22Å 90.00° 108.49° 90.00°	Depositor
Resolution (Å)	29.41 – 1.82 29.41 – 1.82	Depositor EDS
% Data completeness (in resolution range)	98.3 (29.41-1.82) 98.3 (29.41-1.82)	Depositor EDS
R_{merge}	0.04	Depositor
R_{sym}	(Not available)	Depositor
$\langle I/\sigma(I) \rangle$ ¹	2.11 (at 1.82Å)	Xtriage
Refinement program	REFMAC 5.6.0117	Depositor
R, R_{free}	0.189 , 0.246 0.198 , 0.192	Depositor DCC
R_{free} test set	4440 reflections (5.01%)	wwPDB-VP
Wilson B-factor (Å ²)	30.6	Xtriage
Anisotropy	0.052	Xtriage
Bulk solvent k_{sol} (e/Å ³), B_{sol} (Å ²)	0.35 , 44.2	EDS
L-test for twinning ²	$\langle L \rangle = 0.49$, $\langle L^2 \rangle = 0.32$	Xtriage
Estimated twinning fraction	No twinning to report.	Xtriage
F_o, F_c correlation	0.96	EDS
Total number of atoms	7729	wwPDB-VP
Average B, all atoms (Å ²)	44.0	wwPDB-VP

Xtriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 6.35% 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: CMP, GOL

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	1.33	4/1798 (0.2%)	1.21	4/2434 (0.2%)
1	B	1.15	2/1791 (0.1%)	1.07	0/2425
1	C	1.42	7/1814 (0.4%)	1.22	4/2456 (0.2%)
1	D	1.11	2/1616 (0.1%)	1.11	3/2182 (0.1%)
2	F	1.58	0/189	0.95	0/257
2	H	1.70	4/175 (2.3%)	1.65	2/239 (0.8%)
All	All	1.28	19/7383 (0.3%)	1.17	13/9993 (0.1%)

All (19) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
2	H	-10	PRO	CA-C	6.70	1.61	1.52
1	C	161	ALA	N-CA	6.64	1.54	1.46
1	A	176	HIS	ND1-CE1	6.34	1.38	1.32
1	D	52	ILE	N-CA	6.26	1.54	1.46
1	D	149	VAL	CA-CB	6.22	1.57	1.54
1	A	141	LEU	C-O	5.96	1.30	1.24
1	C	157	LEU	C-O	5.92	1.31	1.24
1	C	119	HIS	CG-CD2	5.87	1.42	1.35
2	H	-16	HIS	CG-CD2	5.53	1.42	1.35
2	H	0	HIS	CG-CD2	5.47	1.41	1.35
1	B	149	VAL	CA-CB	5.30	1.57	1.53
1	C	203	HIS	CG-CD2	5.29	1.41	1.35
1	C	103	HIS	ND1-CE1	5.27	1.37	1.32
1	A	185	GLN	CA-C	-5.23	1.45	1.52
1	A	187	VAL	N-CA	-5.19	1.39	1.46
1	C	25	LEU	C-O	-5.17	1.18	1.24
1	C	149	VAL	CA-C	5.07	1.58	1.52
1	B	45	GLU	CA-C	-5.04	1.47	1.53
2	H	-15	HIS	CA-C	-5.01	1.46	1.52

All (13) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
2	H	-11	ILE	CA-C-N	14.17	137.55	119.84
2	H	-11	ILE	C-N-CA	14.17	137.55	119.84
1	C	90	GLY	CA-C-N	-7.50	113.10	120.52
1	C	90	GLY	C-N-CA	-7.50	113.10	120.52
1	D	186	LEU	N-CA-C	-6.74	104.01	111.36
1	A	149	VAL	N-CA-CB	5.96	114.51	110.52
1	D	86	ILE	CB-CA-C	-5.94	104.28	112.24
1	C	109	SER	N-CA-C	5.61	117.40	111.28
1	D	26	ILE	CB-CA-C	-5.49	104.73	112.14
1	A	4	VAL	N-CA-C	5.36	115.57	110.42
1	A	133	ARG	CG-CD-NE	-5.11	100.77	112.00
1	A	115	TRP	CB-CA-C	-5.07	102.92	110.88
1	C	145	ILE	CB-CA-C	-5.04	105.49	112.24

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	1752	0	1779	35	0
1	B	1758	0	1788	48	0
1	C	1766	0	1799	43	0
1	D	1595	0	1590	55	0
2	F	181	0	152	12	0
2	H	168	0	138	11	0
3	A	22	0	11	1	0
3	B	22	0	11	1	0
3	C	22	0	11	1	0
3	D	22	0	11	2	0
4	A	12	0	16	0	0
5	A	124	0	0	4	0
5	B	91	0	0	3	0
5	C	146	0	0	6	0
5	D	38	0	0	1	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
5	F	4	0	0	2	0
5	H	6	0	0	1	0
All	All	7729	0	7306	179	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 12.

All (179) 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)
3:A:1228:CMP:H2	3:A:1228:CMP:C2	0.97	1.50
3:B:1228:CMP:H2	3:B:1228:CMP:C2	0.97	1.49
3:C:1228:CMP:H2	3:C:1228:CMP:C2	0.97	1.48
3:D:1226:CMP:H2	3:D:1226:CMP:C2	0.97	1.47
1:A:108:ASN:H	1:A:111[A]:MET:HE3	1.08	1.11
1:D:50:LEU:HD11	1:D:107:MET:HE3	1.35	1.08
1:B:108:ASN:H	1:B:111:MET:HE3	1.17	1.02
1:C:13:ILE:H	1:C:80[A]:MET:HE1	1.30	0.93
1:C:13:ILE:N	1:C:80[A]:MET:HE1	1.82	0.91
1:C:12:GLY:N	1:C:80[A]:MET:CE	2.33	0.91
1:A:13[B]:ILE:HD11	1:A:14:PHE:CD1	2.07	0.88
1:C:111[A]:MET:HE1	5:C:2027:HOH:O	1.77	0.85
1:A:108:ASN:N	1:A:111[A]:MET:HE3	1.91	0.85
1:A:205:GLY:O	1:A:217:VAL:CG2	2.25	0.84
1:B:176:HIS:HD2	1:B:178:LEU:H	1.23	0.84
1:C:176:HIS:HD2	1:C:178:LEU:H	1.26	0.83
1:C:80[A]:MET:HE3	5:C:2011:HOH:O	1.78	0.82
1:D:16:GLY:O	1:D:17:VAL:HG22	1.80	0.82
1:B:167:GLN:NE2	2:F:-1:GLY:O	2.12	0.81
1:C:50:LEU:HD21	1:C:80[B]:MET:SD	2.20	0.81
1:C:13:ILE:H	1:C:80[A]:MET:CE	1.94	0.80
1:C:108:ASN:H	1:C:111[A]:MET:HE3	1.45	0.80
1:C:11:ALA:HB1	1:C:80[A]:MET:HE2	1.63	0.80
1:C:12:GLY:CA	1:C:80[A]:MET:HE1	2.15	0.76
1:C:23:ASN:HB3	5:C:2002:HOH:O	1.85	0.76
1:A:176:HIS:HD2	1:A:178:LEU:H	1.32	0.76
1:B:141:LEU:HD12	1:D:141:LEU:HD13	1.71	0.73
1:B:108:ASN:N	1:B:111:MET:HE3	2.00	0.71
1:B:144:LEU:HD12	1:D:141:LEU:CD1	2.22	0.70
5:A:2018:HOH:O	1:B:220:GLU:HG2	1.92	0.69
1:B:116:VAL:HG13	1:B:123:ALA:HB2	1.74	0.68

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:141:LEU:CD1	1:D:141:LEU:HB2	2.24	0.67
1:D:50:LEU:HD11	1:D:107:MET:CE	2.21	0.67
1:D:29:MET:HE3	1:D:107:MET:HE2	1.76	0.67
1:A:13[B]:ILE:HD11	1:A:14:PHE:CE1	2.29	0.67
1:A:108:ASN:OD1	1:A:111[A]:MET:HG3	1.96	0.66
1:B:144:LEU:HD12	1:D:141:LEU:HD12	1.77	0.66
1:B:141:LEU:HD11	1:D:141:LEU:CA	2.26	0.66
1:B:30:GLU:HG3	1:B:106:THR:HG22	1.78	0.65
1:B:108:ASN:H	1:B:111:MET:CE	2.02	0.64
1:C:12:GLY:H	1:C:80[A]:MET:CE	2.09	0.64
5:D:2009:HOH:O	2:H:-7:GLU:OE1	2.15	0.64
1:B:176:HIS:CD2	1:B:178:LEU:H	2.12	0.64
1:C:12:GLY:H	1:C:80[A]:MET:HE3	1.63	0.63
1:C:12:GLY:CA	1:C:80[A]:MET:CE	2.75	0.63
1:A:205:GLY:O	1:A:217:VAL:HG21	1.98	0.63
1:D:16:GLY:C	1:D:17:VAL:HG22	2.23	0.62
1:A:108:ASN:H	1:A:111[A]:MET:CE	1.99	0.62
2:H:-4:TYR:O	2:H:0:HIS:HD2	1.83	0.62
1:C:27:GLN:NE2	5:C:2003:HOH:O	2.28	0.60
1:B:5:GLN:NE2	1:B:27:GLN:HE22	1.99	0.60
1:D:16:GLY:C	1:D:17:VAL:CG2	2.75	0.60
1:B:144:LEU:CD1	1:D:141:LEU:HD12	2.31	0.60
1:B:30:GLU:CG	1:B:106:THR:HG22	2.32	0.59
1:C:12:GLY:C	1:C:80[A]:MET:HE1	2.27	0.59
1:D:190:SER:O	1:D:194:VAL:HG23	2.03	0.59
1:B:74:ILE:O	1:B:163[B]:ARG:NH2	2.37	0.58
1:D:60:LEU:CD1	1:D:75:MET:HE3	2.34	0.58
2:F:-16:HIS:HE1	5:F:2004:HOH:O	1.86	0.58
1:D:83:GLU:OE1	3:D:1226:CMP:O2'	2.21	0.58
1:B:30:GLU:CG	1:B:106:THR:CG2	2.82	0.58
5:A:2066:HOH:O	1:C:135:ARG:NH2	2.37	0.57
1:B:15:GLN:HE22	2:F:-15:HIS:HE1	1.52	0.57
1:D:176:HIS:CD2	1:D:178:LEU:H	2.22	0.57
5:B:2044:HOH:O	2:F:-15:HIS:CD2	2.57	0.57
1:A:13[B]:ILE:HG23	5:A:2003:HOH:O	2.03	0.57
1:A:28:ASP:OD2	1:A:111[B]:MET:HE3	2.04	0.56
1:C:12:GLY:N	1:C:80[A]:MET:HE2	2.19	0.56
1:A:149:VAL:HG11	1:A:193:THR:HG22	1.88	0.56
1:A:180:GLN:HE21	1:A:195:ASN:HD21	1.54	0.56
2:H:-11:ILE:O	2:H:-6:ASN:ND2	2.39	0.56
1:C:52:ILE:HG12	1:C:80[B]:MET:HG2	1.87	0.56

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:D:33:ARG:HG3	1:D:103:HIS:CD2	2.41	0.56
1:B:60:LEU:HD11	1:B:75[A]:MET:HE3	1.87	0.55
1:B:141:LEU:HD11	1:D:141:LEU:HA	1.88	0.55
1:B:141:LEU:HD12	1:D:141:LEU:CD1	2.36	0.55
1:C:167:GLN:NE2	2:H:-1:GLY:O	2.39	0.53
1:B:144:LEU:CD1	1:D:141:LEU:CD1	2.86	0.53
1:A:171:ALA:HB3	1:A:215[A]:LEU:HD11	1.90	0.53
1:D:183:ILE:O	1:D:187:VAL:HG23	2.09	0.53
1:B:30:GLU:HG2	1:B:106:THR:CG2	2.39	0.52
1:A:180:GLN:NE2	1:A:195:ASN:HD21	2.06	0.52
1:C:200:THR:O	1:C:204:ARG:HG2	2.08	0.52
1:B:141:LEU:HD11	1:D:141:LEU:N	2.24	0.52
1:A:13[B]:ILE:CD1	1:A:14:PHE:CD1	2.86	0.52
1:C:3:GLY:HA3	5:C:2001:HOH:O	2.10	0.51
1:B:60:LEU:HD12	1:B:73:THR:HG22	1.92	0.51
1:B:141:LEU:CD1	1:D:141:LEU:CB	2.89	0.51
1:C:141:LEU:C	1:C:141:LEU:HD23	2.36	0.51
1:C:162[B]:ASN:ND2	2:H:-5:LEU:HG	2.26	0.51
1:C:108:ASN:N	1:C:111[A]:MET:HE3	2.20	0.50
1:D:204:ARG:HG3	1:D:204:ARG:HH11	1.76	0.50
1:D:8:LEU:HD12	1:D:26:ILE:HG23	1.93	0.50
1:A:13[B]:ILE:HD12	1:A:14:PHE:N	2.27	0.50
1:D:202:ALA:CB	1:D:209:LEU:CD2	2.89	0.50
2:F:-16:HIS:CE1	5:F:2004:HOH:O	2.61	0.49
1:D:202:ALA:HB2	1:D:209:LEU:CD2	2.43	0.49
1:B:125:GLN:HE22	1:B:128:ARG:HH21	1.61	0.49
1:D:176:HIS:HD2	1:D:178:LEU:H	1.59	0.49
1:B:141:LEU:CD1	1:D:141:LEU:CA	2.90	0.49
5:B:2044:HOH:O	2:F:-15:HIS:HD2	1.94	0.49
1:A:144:LEU:HD12	1:C:141:LEU:HG	1.94	0.49
1:B:144:LEU:HD23	1:B:152:ARG:CZ	2.43	0.48
1:D:202:ALA:CB	1:D:209:LEU:HD21	2.44	0.48
2:H:-11:ILE:HG22	2:H:-9:THR:HG23	1.95	0.48
1:A:50:LEU:HD12	1:A:50:LEU:C	2.39	0.47
1:A:111[A]:MET:HE1	5:A:2008:HOH:O	2.14	0.47
1:D:200:THR:CG2	1:D:204:ARG:NH1	2.78	0.47
2:H:-17:HIS:CB	5:H:2004:HOH:O	2.61	0.47
1:C:108:ASN:H	1:C:111[A]:MET:CE	2.19	0.47
1:C:13:ILE:HG23	1:C:80[A]:MET:SD	2.55	0.47
1:D:8:LEU:CD1	1:D:26:ILE:HG23	2.44	0.47
1:D:125:GLN:OE1	1:D:128:ARG:NH2	2.47	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:141:LEU:CD1	1:D:141:LEU:HA	2.43	0.47
1:B:163[A]:ARG:HD2	2:F:-16:HIS:O	2.15	0.47
1:B:108:ASN:ND2	1:B:111:MET:HE2	2.30	0.47
1:C:23:ASN:O	1:C:27:GLN:HG2	2.15	0.47
1:C:167:GLN:HB2	2:H:-1:GLY:O	2.15	0.47
1:B:14:PHE:CE2	1:B:26:ILE:HD11	2.50	0.46
1:C:108:ASN:OD1	1:C:111[B]:MET:HG3	2.15	0.46
1:A:25:LEU:HB3	1:A:115:TRP:CH2	2.50	0.46
1:B:163[B]:ARG:NE	2:F:-14:ASP:HA	2.31	0.46
1:A:25:LEU:HD22	1:A:115:TRP:CD2	2.50	0.46
1:B:15:GLN:HE22	2:F:-15:HIS:CE1	2.33	0.46
1:D:31:THR:HG22	1:D:32:VAL:N	2.31	0.45
1:D:204:ARG:HH11	1:D:204:ARG:CG	2.30	0.45
1:A:144:LEU:CD2	1:C:145:ILE:HD11	2.47	0.45
1:B:22:VAL:O	1:B:26:ILE:HG12	2.17	0.45
1:C:162[B]:ASN:HD21	2:H:-5:LEU:HG	1.80	0.45
1:B:142:ALA:HB2	1:D:62:ARG:NH1	2.32	0.45
1:D:107:MET:HB2	1:D:111[B]:MET:HE2	1.98	0.45
1:D:200:THR:O	1:D:203:HIS:HB3	2.17	0.45
1:B:30:GLU:HG3	1:B:106:THR:CG2	2.46	0.44
1:D:108:ASN:H	1:D:111[A]:MET:HE3	1.81	0.44
1:D:202:ALA:HB2	1:D:209:LEU:HD22	1.99	0.44
1:D:208:ARG:O	1:D:214:VAL:HG13	2.17	0.44
1:A:72:LEU:HD21	5:C:2096:HOH:O	2.17	0.44
1:A:171:ALA:CB	1:A:215[A]:LEU:HD11	2.47	0.44
1:C:205:GLY:O	1:C:217:VAL:HG22	2.18	0.44
1:B:15:GLN:NE2	2:F:-15:HIS:HE1	2.15	0.44
1:A:36[A]:ARG:NE	1:A:99:VAL:O	2.51	0.43
1:D:18:ASP:OD1	1:D:18:ASP:C	2.61	0.43
1:B:32[B]:VAL:HG22	5:B:2011:HOH:O	2.18	0.43
1:D:204:ARG:HD3	1:D:206:TRP:CZ2	2.54	0.43
1:A:205:GLY:O	1:A:217:VAL:HG22	2.15	0.43
1:D:173:ARG:HA	1:D:215:LEU:HD12	1.99	0.43
1:B:30:GLU:HG2	1:B:106:THR:HG23	1.99	0.43
1:D:60:LEU:HD12	1:D:75:MET:HE3	2.01	0.43
1:C:14:PHE:HE1	1:C:25:LEU:HD23	1.83	0.43
1:D:11:ALA:HB1	1:D:13:ILE:HG22	2.00	0.43
2:H:-11:ILE:HA	2:H:-10:PRO:HD3	1.68	0.43
1:C:176:HIS:CD2	1:C:178:LEU:H	2.18	0.42
1:B:25:LEU:HB3	1:B:115:TRP:CZ2	2.55	0.42
1:B:23:ASN:O	1:B:27:GLN:NE2	2.52	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:60:LEU:HD12	1:C:73:THR:HG22	2.02	0.42
1:A:36[A]:ARG:CZ	1:A:99:VAL:O	2.68	0.42
2:H:-4:TYR:O	2:H:0:HIS:CD2	2.68	0.42
1:D:48:ASP:O	1:D:48:ASP:CG	2.62	0.42
1:B:135:ARG:NH2	1:D:88:ASP:O	2.46	0.41
1:C:205:GLY:O	1:C:217:VAL:CG2	2.68	0.41
1:D:33:ARG:NH1	1:D:101:GLU:OE2	2.53	0.41
1:D:60:LEU:HD11	1:D:75:MET:HE3	2.01	0.41
1:D:8:LEU:HD12	1:D:26:ILE:CG2	2.51	0.41
1:A:206:TRP:C	1:A:217:VAL:HG22	2.45	0.41
1:B:15:GLN:NE2	2:F:-15:HIS:CE1	2.89	0.41
1:D:31:THR:CG2	1:D:32:VAL:N	2.84	0.41
1:A:113:ARG:NH1	1:C:124:GLU:OE2	2.54	0.41
1:B:50:LEU:HD22	1:B:107:MET:HG2	2.02	0.41
1:D:149:VAL:O	1:D:153:VAL:HG23	2.21	0.41
1:C:80[B]:MET:HE3	1:C:80[B]:MET:HB3	1.69	0.41
1:C:158:LEU:HD11	1:C:223:ALA:HA	2.03	0.41
1:D:157:LEU:HD12	1:D:222:LEU:HD21	2.03	0.41
2:F:-16:HIS:CD2	2:F:-2:GLN:HE21	2.39	0.40
1:A:202:ALA:HB2	1:A:209:LEU:CD2	2.52	0.40
1:C:216:ILE:HG21	1:C:219:THR:HG22	2.03	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	224/225 (100%)	218 (97%)	5 (2%)	1 (0%)	30	19
1	B	226/225 (100%)	221 (98%)	5 (2%)	0	100	100
1	C	230/225 (102%)	227 (99%)	3 (1%)	0	100	100
1	D	205/225 (91%)	190 (93%)	12 (6%)	3 (2%)	8	2

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
2	F	19/21 (90%)	17 (90%)	2 (10%)	0	100	100
2	H	18/21 (86%)	16 (89%)	1 (6%)	1 (6%)	1	0
All	All	922/942 (98%)	889 (96%)	28 (3%)	5 (0%)	21	14

All (5) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	A	18	ASP
1	D	17	VAL
1	D	66	ASP
2	H	-10	PRO
1	D	67	GLY

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	186/183 (102%)	181 (97%)	5 (3%)	39	22
1	B	186/183 (102%)	180 (97%)	6 (3%)	34	16
1	C	189/183 (103%)	180 (95%)	9 (5%)	23	6
1	D	162/183 (88%)	155 (96%)	7 (4%)	26	9
2	F	19/19 (100%)	19 (100%)	0	100	100
2	H	17/19 (90%)	17 (100%)	0	100	100
All	All	759/770 (99%)	732 (96%)	27 (4%)	32	13

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

Mol	Chain	Res	Type
1	A	20	THR
1	A	23	ASN
1	A	28	ASP
1	A	166	THR
1	A	218	ASP

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Mol	Chain	Res	Type
1	B	50	LEU
1	B	136	ARG
1	B	141	LEU
1	B	192	GLU
1	B	208	ARG
1	B	224	ARG
1	C	42	ASP
1	C	75[A]	MET
1	C	75[B]	MET
1	C	125	GLN
1	C	144	LEU
1	C	172	LEU
1	C	181	GLU
1	C	209	LEU
1	C	217	VAL
1	D	4	VAL
1	D	17	VAL
1	D	48	ASP
1	D	62	ARG
1	D	157	LEU
1	D	192	GLU
1	D	204	ARG

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (32) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	5	GLN
1	A	15	GLN
1	A	27	GLN
1	A	63	HIS
1	A	70	ASN
1	A	103	HIS
1	A	119	HIS
1	A	176	HIS
1	A	180	GLN
1	B	5	GLN
1	B	15	GLN
1	B	27	GLN
1	B	125	GLN
1	B	167	GLN
1	B	175	ASN
1	B	176	HIS

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Mol	Chain	Res	Type
1	B	180	GLN
1	B	185	GLN
1	C	27	GLN
1	C	167	GLN
1	C	176	HIS
1	C	185	GLN
1	C	203	HIS
1	D	70	ASN
1	D	162	ASN
1	D	176	HIS
1	D	203	HIS
2	F	-16	HIS
2	F	-15	HIS
2	F	-2	GLN
2	H	-2	GLN
2	H	0	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 oligosaccharides in this entry.

5.6 Ligand geometry [i](#)

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	CMP	A	1228	-	25,25,25	2.16	4 (16%)	37,39,39	2.37	10 (27%)
3	CMP	B	1228	-	25,25,25	2.39	8 (32%)	37,39,39	2.90	13 (35%)
3	CMP	C	1228	-	25,25,25	1.97	9 (36%)	37,39,39	2.40	13 (35%)
4	GOL	A	1230	-	5,5,5	0.53	0	5,5,5	0.65	0
4	GOL	A	1229	-	5,5,5	0.59	0	5,5,5	0.34	0
3	CMP	D	1226	-	25,25,25	2.10	6 (24%)	37,39,39	2.42	11 (29%)

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	CMP	A	1228	-	-	0/4/31/31	0/4/4/4
3	CMP	B	1228	-	-	0/4/31/31	0/4/4/4
3	CMP	C	1228	-	-	0/4/31/31	0/4/4/4
4	GOL	A	1230	-	-	4/4/4/4	-
4	GOL	A	1229	-	-	0/4/4/4	-
3	CMP	D	1226	-	-	0/4/31/31	0/4/4/4

All (27) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
3	B	1228	CMP	P-O3'	7.36	1.69	1.57
3	A	1228	CMP	P-O5'	6.85	1.65	1.57
3	D	1226	CMP	C5-C4	5.24	1.48	1.39
3	A	1228	CMP	P-O3'	5.16	1.66	1.57
3	B	1228	CMP	P-O5'	4.98	1.63	1.57
3	D	1226	CMP	P-O3'	4.79	1.65	1.57
3	B	1228	CMP	C5-C4	4.17	1.46	1.39
3	C	1228	CMP	C5-C4	3.93	1.46	1.39
3	A	1228	CMP	C4-N9	-3.93	1.29	1.37
3	C	1228	CMP	P-O5'	3.88	1.62	1.57
3	B	1228	CMP	O5'-C5'	-3.69	1.40	1.46
3	C	1228	CMP	P-O3'	3.39	1.63	1.57
3	D	1226	CMP	C5-N7	-3.33	1.33	1.39
3	D	1226	CMP	C8-N7	3.13	1.37	1.31
3	C	1228	CMP	P-O2P	-2.99	1.41	1.55
3	D	1226	CMP	C5-C6	2.93	1.49	1.41
3	C	1228	CMP	C5-N7	-2.92	1.33	1.39
3	A	1228	CMP	C5-C4	2.76	1.44	1.39

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
3	C	1228	CMP	C2-N3	2.45	1.38	1.33
3	B	1228	CMP	C5'-C4'	2.19	1.55	1.51
3	D	1226	CMP	O4'-C1'	2.19	1.47	1.42
3	B	1228	CMP	O4'-C1'	2.19	1.47	1.42
3	C	1228	CMP	C4-N9	-2.16	1.33	1.37
3	B	1228	CMP	C4-N9	-2.11	1.33	1.37
3	B	1228	CMP	C8-N7	2.08	1.35	1.31
3	C	1228	CMP	C4-N3	2.04	1.38	1.34
3	C	1228	CMP	C5-C6	2.01	1.46	1.41

All (47) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
3	A	1228	CMP	O3'-C3'-C4'	-8.08	104.61	110.71
3	B	1228	CMP	O2P-P-O1P	6.96	129.94	108.56
3	B	1228	CMP	O5'-P-O3'	-6.38	97.17	105.70
3	C	1228	CMP	O2P-P-O1P	5.70	126.07	108.56
3	B	1228	CMP	O3'-C3'-C2'	5.70	121.19	115.61
3	C	1228	CMP	N3-C2-N1	-5.40	120.40	128.58
3	A	1228	CMP	O5'-P-O3'	-5.38	98.50	105.70
3	C	1228	CMP	O3'-C3'-C4'	-5.31	106.70	110.71
3	D	1226	CMP	O2P-P-O1P	5.21	124.58	108.56
3	D	1226	CMP	C5-C4-N3	-5.16	119.62	126.72
3	A	1228	CMP	O3'-C3'-C2'	5.13	120.63	115.61
3	B	1228	CMP	N3-C4-N9	5.12	135.87	127.17
3	B	1228	CMP	C5-C4-N3	-5.10	119.70	126.72
3	D	1226	CMP	N3-C4-N9	5.01	135.68	127.17
3	D	1226	CMP	O5'-P-O3'	-4.94	99.09	105.70
3	C	1228	CMP	O5'-P-O3'	-4.52	99.65	105.70
3	C	1228	CMP	C2-N1-C6	4.34	125.86	118.73
3	D	1226	CMP	O3'-C3'-C4'	4.32	113.97	110.71
3	B	1228	CMP	N3-C2-N1	-4.18	122.26	128.58
3	A	1228	CMP	C5-C4-N3	-3.99	121.22	126.72
3	D	1226	CMP	N3-C2-N1	-3.99	122.54	128.58
3	B	1228	CMP	O3'-C3'-C4'	3.93	113.67	110.71
3	B	1228	CMP	C4-N9-C8	3.93	109.86	105.74
3	B	1228	CMP	C2-N3-C4	3.86	121.27	111.83
3	B	1228	CMP	C5-C6-N6	-3.72	114.08	123.29
3	A	1228	CMP	O2P-P-O1P	3.36	118.90	108.56
3	A	1228	CMP	N3-C4-N9	3.35	132.86	127.17
3	B	1228	CMP	O3'-P-O1P	-3.30	103.31	110.39
3	D	1226	CMP	C4-N9-C8	3.30	109.20	105.74

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
3	D	1226	CMP	C2-N1-C6	3.22	124.02	118.73
3	D	1226	CMP	C2-N3-C4	3.21	119.68	111.83
3	B	1228	CMP	N6-C6-N1	3.07	125.21	118.38
3	C	1228	CMP	O3'-P-O1P	-2.99	103.98	110.39
3	C	1228	CMP	C4-N9-C8	2.92	108.80	105.74
3	C	1228	CMP	N3-C4-N9	2.83	131.97	127.17
3	A	1228	CMP	C4-N9-C8	2.68	108.55	105.74
3	B	1228	CMP	C2'-C1'-N9	-2.59	106.86	113.30
3	A	1228	CMP	N6-C6-N1	2.47	123.89	118.38
3	C	1228	CMP	C2-N3-C4	2.31	117.47	111.83
3	A	1228	CMP	C2'-C1'-N9	-2.28	107.64	113.30
3	C	1228	CMP	N6-C6-N1	2.24	123.36	118.38
3	D	1226	CMP	O3'-P-O1P	-2.21	105.65	110.39
3	C	1228	CMP	C6-C5-N7	2.19	136.31	132.09
3	C	1228	CMP	C5-C4-N3	-2.13	123.78	126.72
3	D	1226	CMP	N9-C8-N7	-2.09	110.97	113.94
3	A	1228	CMP	C5-C6-N6	-2.09	118.11	123.29
3	C	1228	CMP	C6-C5-C4	-2.05	114.38	117.18

There are no chirality outliers.

All (4) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
4	A	1230	GOL	O1-C1-C2-C3
4	A	1230	GOL	C1-C2-C3-O3
4	A	1230	GOL	O2-C2-C3-O3
4	A	1230	GOL	O1-C1-C2-O2

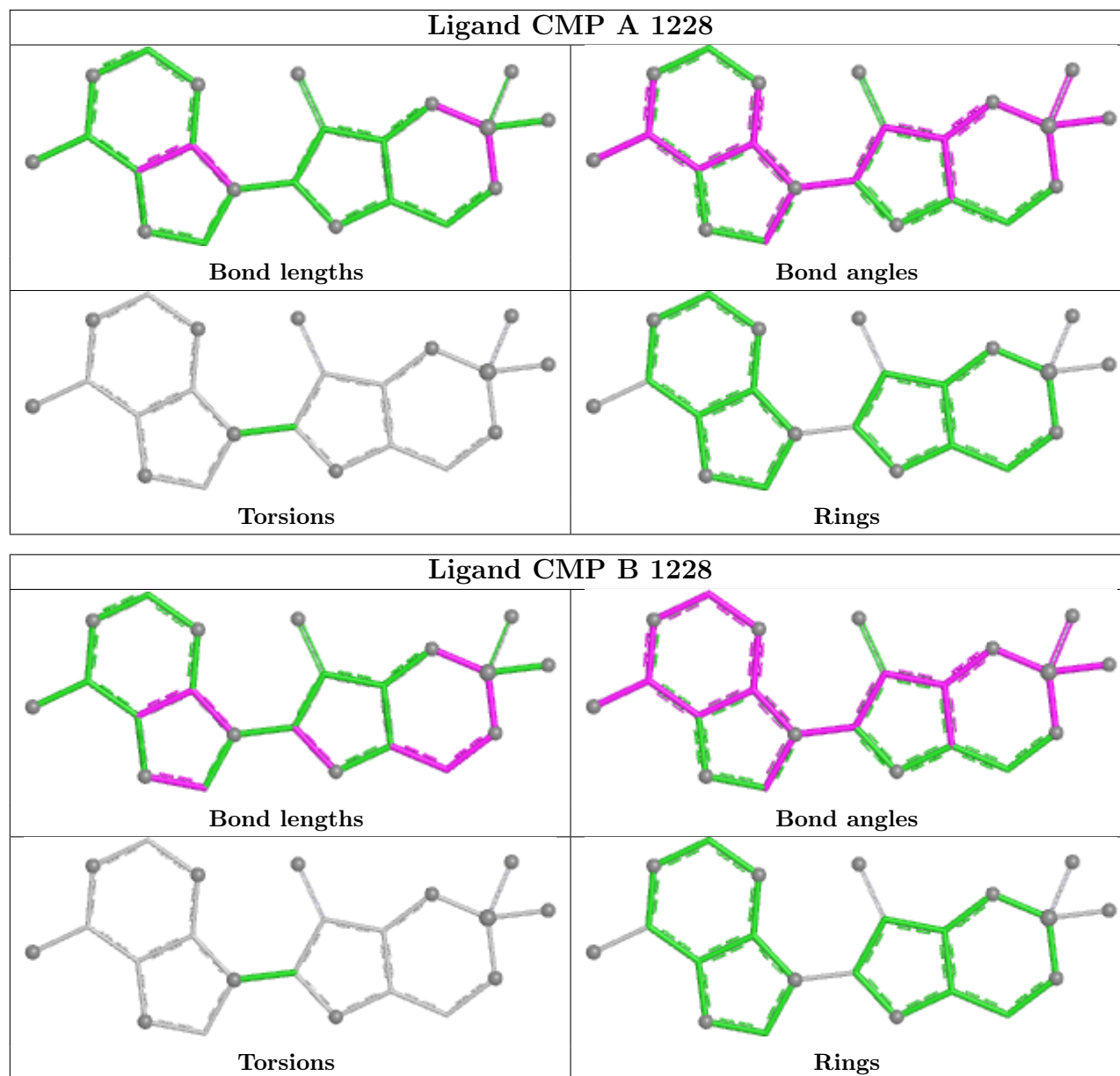
There are no ring outliers.

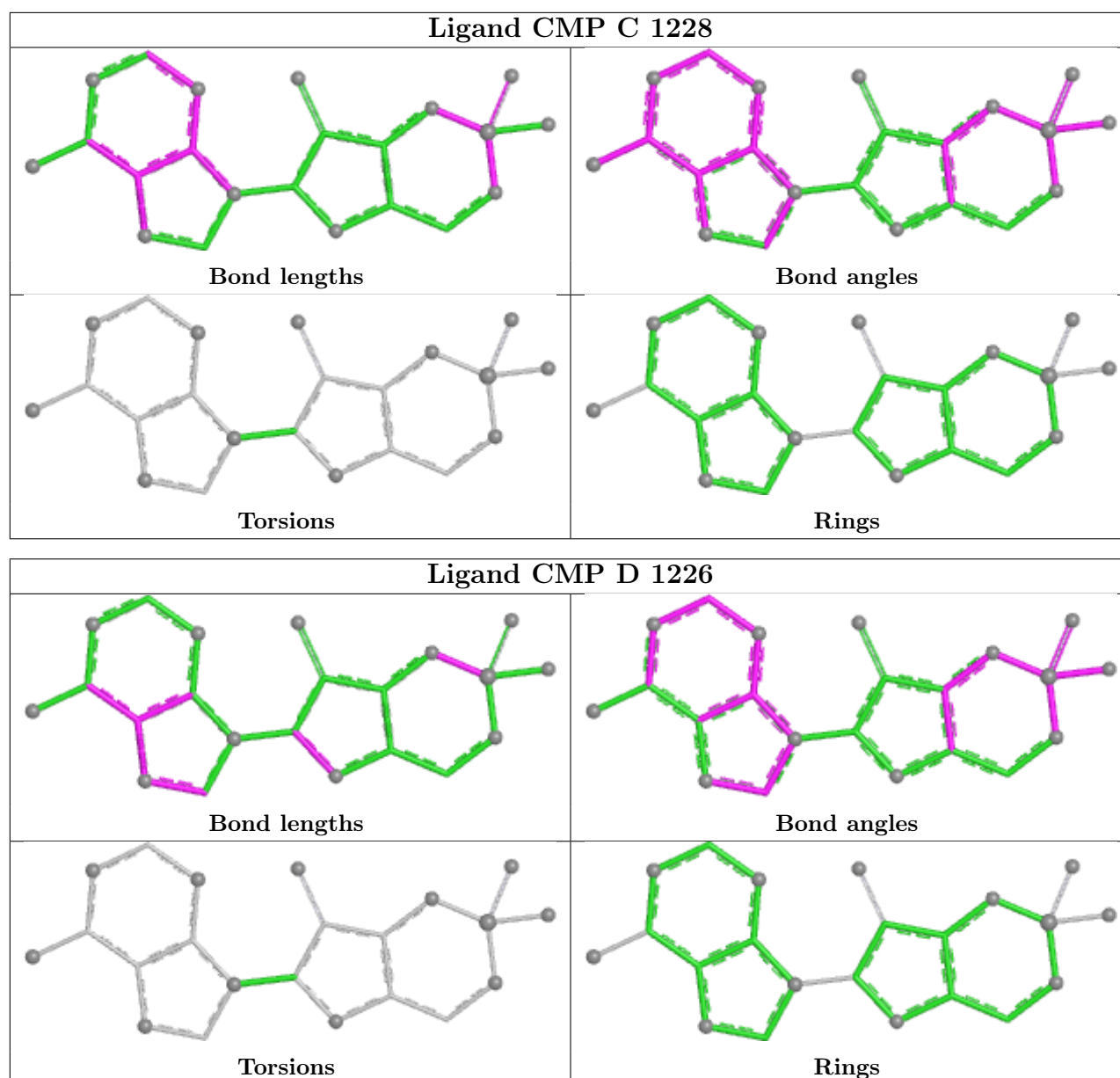
4 monomers are involved in 5 short contacts:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
3	A	1228	CMP	1	0
3	B	1228	CMP	1	0
3	C	1228	CMP	1	0
3	D	1226	CMP	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

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	223/225 (99%)	0.34	17 (7%) 20 22	21, 34, 69, 88	7 (3%)
1	B	225/225 (100%)	0.43	6 (2%) 56 61	16, 43, 66, 77	3 (1%)
1	C	225/225 (100%)	0.08	2 (0%) 81 85	16, 34, 53, 69	8 (3%)
1	D	214/225 (95%)	1.44	54 (25%) 1 2	31, 57, 88, 110	2 (0%)
2	F	21/21 (100%)	0.45	2 (9%) 14 15	27, 37, 53, 65	0
2	H	20/21 (95%)	0.92	2 (10%) 12 14	33, 44, 65, 67	0
All	All	928/942 (98%)	0.57	83 (8%) 15 17	16, 41, 73, 110	20 (2%)

All (83) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	D	215	LEU	5.3
1	D	17	VAL	5.1
1	D	206	TRP	4.9
1	A	13[A]	ILE	4.2
1	A	115	TRP	4.2
1	D	13	ILE	4.1
1	D	12	GLY	4.0
1	D	219	THR	3.9
1	A	17	VAL	3.7
1	D	115	TRP	3.6
1	D	31	THR	3.5
1	A	169	ALA	3.5
1	A	12	GLY	3.5
1	D	211	GLY	3.5
1	D	157	LEU	3.4
1	D	197	ALA	3.4
2	H	-19	ALA	3.4
2	F	-19	ALA	3.3
1	D	221	HIS	3.2

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Mol	Chain	Res	Type	RSRZ
1	A	18	ASP	3.1
1	A	4	VAL	3.1
1	D	38	ALA	3.1
1	D	207	ILE	3.1
1	D	4	VAL	3.1
1	A	14	PHE	3.1
1	D	172	LEU	3.0
1	D	216	ILE	3.0
1	D	149	VAL	3.0
1	A	25	LEU	2.9
2	F	-17	HIS	2.9
1	D	194	VAL	2.8
1	D	183	ILE	2.8
1	D	198	LEU	2.8
1	D	222	LEU	2.8
1	C	48	ASP	2.8
2	H	-11	ILE	2.8
1	D	156	THR	2.7
1	D	16	GLY	2.6
1	D	24	ASN	2.6
1	A	26	ILE	2.6
1	A	22	VAL	2.6
1	D	201	PHE	2.5
1	D	23	ASN	2.5
1	A	203	HIS	2.5
1	D	202	ALA	2.5
1	D	121	ALA	2.5
1	D	214	VAL	2.5
1	D	178	LEU	2.4
1	D	209	LEU	2.4
1	D	104	ALA	2.4
1	B	144	LEU	2.3
1	A	20	THR	2.3
1	D	180	GLN	2.3
1	D	171	ALA	2.3
1	A	3	GLY	2.3
1	D	167	GLN	2.3
1	D	158	LEU	2.3
1	D	189	ALA	2.2
1	A	28	ASP	2.2
1	B	25	LEU	2.2
1	B	87	PHE	2.2

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Mol	Chain	Res	Type	RSRZ
1	B	115	TRP	2.2
1	D	74	ILE	2.2
1	A	205	GLY	2.2
1	A	19	PRO	2.2
1	D	199	ALA	2.2
1	D	26	ILE	2.2
1	D	97	VAL	2.2
1	D	99	VAL	2.1
1	C	16	GLY	2.1
1	D	20	THR	2.1
1	D	67	GLY	2.1
1	D	153	VAL	2.1
1	D	174	VAL	2.1
1	B	209	LEU	2.1
1	D	11	ALA	2.1
1	D	7	ILE	2.0
1	D	22	VAL	2.0
1	D	160	LEU	2.0
1	D	18	ASP	2.0
1	B	3	GLY	2.0
1	D	54	THR	2.0
1	D	19	PRO	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($\text{\AA}^2$)	Q<0.9
4	GOL	A	1230	6/6	0.87	0.12	49,58,60,62	0

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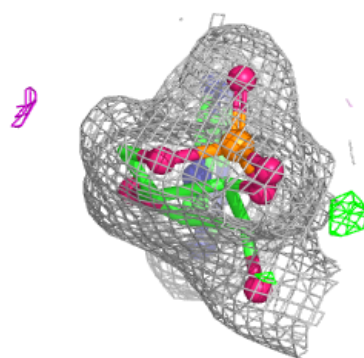
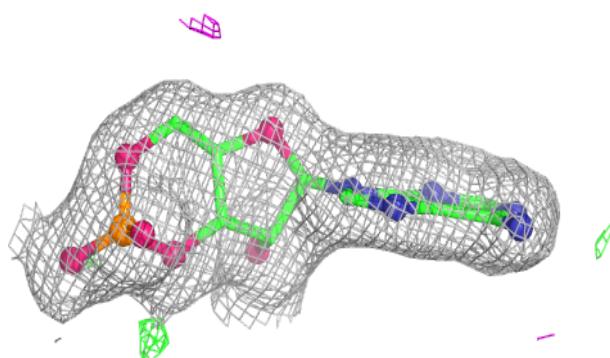
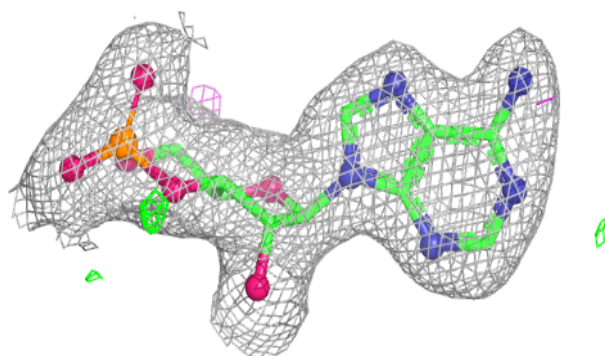
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Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors($\text{\AA}^2$)	Q<0.9
4	GOL	A	1229	6/6	0.96	0.07	30,30,36,39	0
3	CMP	D	1226	22/22	0.97	0.06	32,36,42,45	0
3	CMP	B	1228	22/22	0.98	0.05	27,30,35,38	0
3	CMP	A	1228	22/22	0.98	0.04	22,24,28,28	0
3	CMP	C	1228	22/22	0.99	0.04	23,25,29,30	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.

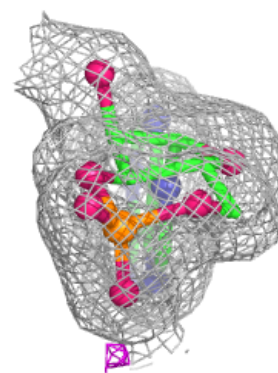
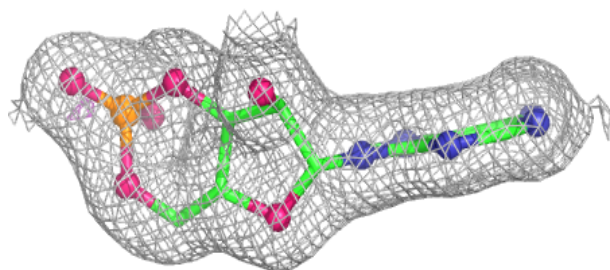
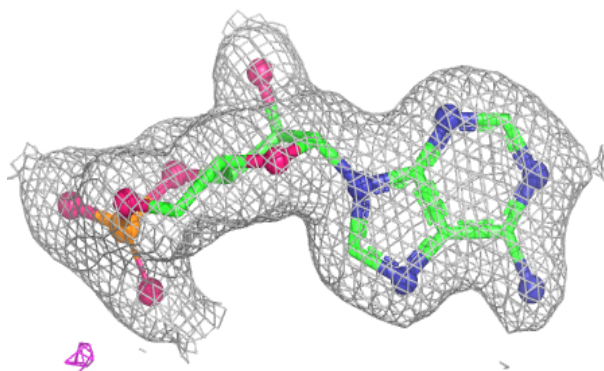
Electron density around CMP D 1226:

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

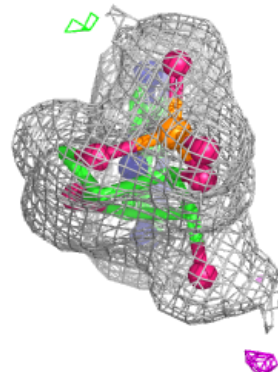
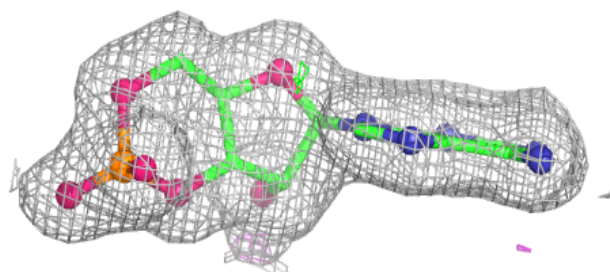
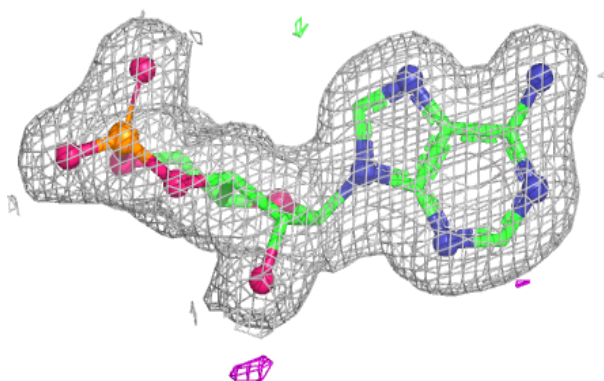


Electron density around CMP B 1228:

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

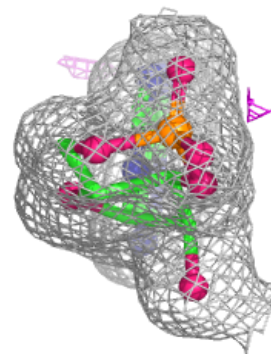
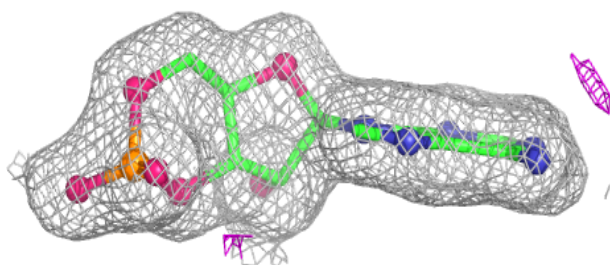
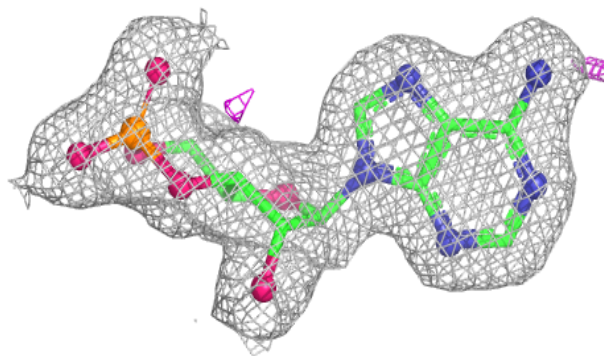
**Electron density around CMP A 1228:**

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



Electron density around CMP C 1228:

$2mF_o-DF_c$ (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.