WORLDWIDE PDB

PROTEIN DATA BANK

wwPDB X-ray Structure Validation Summary Report (i)

Sep 14, 2023 – 10:28 AM EDT

PDB ID	:	2F8J
Title	:	Crystal structure of Histidinol-phosphate aminotransferase (EC 2.6.1.9) (Imidazole acetol-phosphate transferase) (tm1040) from Thermotoga maritima at 2.40 A resolution
Authors	:	Joint Center for Structural Genomics (JCSG)
Deposited on	:	2005-12-02
Resolution	:	2.40 Å(reported)

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

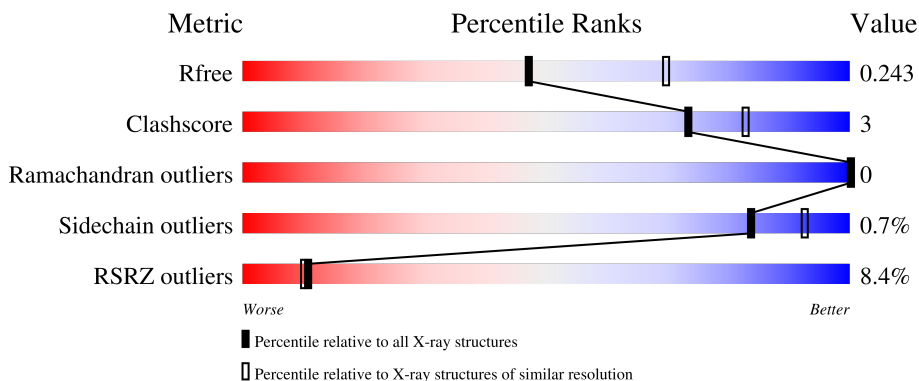|		
MolProbity	:	4.02b-467
Mogul	:	1.8.5 (274361), CSD as541be (2020)
Xtriage (Phenix)	:	1.13
EDS	:	2.35.1
Percentile statistics	:	20191225.v01 (using entries in the PDB archive December 25th 2019)
Refmac	:	5.8.0158
CCP4	:	7.0.044 (Gargrove)
Ideal geometry (proteins)	:	Engh & Huber (2001)
Ideal geometry (DNA, RNA)	:	Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP)	:	2.35.1

1   Overall quality at a glance ⓘ

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

The reported resolution of this entry is 2.40 Å.

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

Metric	Percentile Ranks	Value
Rfree		0.243
Clashscore		3
Ramachandran outliers		0
Sidechain outliers		0.7%
RSRZ outliers		8.4%

Worse   *Better*

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

Metric	Whole archive (#Entries)	Similar resolution (#Entries, resolution range(Å))
R_{free}	130704	3907 (2.40-2.40)
Clashscore	141614	4398 (2.40-2.40)
Ramachandran outliers	138981	4318 (2.40-2.40)
Sidechain outliers	138945	4319 (2.40-2.40)
RSRZ outliers	127900	3811 (2.40-2.40)

The table below summarises the geometric issues observed across the polymeric chains and their fit to the electron density. The red, orange, yellow and green segments of the lower bar indicate the fraction of residues that contain outliers for >=3, 2, 1 and 0 types of geometric quality criteria respectively. A grey segment represents the fraction of residues that are not modelled. The numeric value for each fraction is indicated below the corresponding segment, with a dot representing fractions <=5% The upper red bar (where present) indicates the fraction of residues that have poor fit to the electron density. The numeric value is given above the bar.

Mol	Chain	Length	Quality of chain
1	A	347	3% — 86% — 10% · ·
1	B	347	6% — 88% — 7% ·
1	C	347	6% — 89% — 7% · ·
1	D	347	16% — 91% — 5% ·

2 Entry composition (i)

There are 4 unique types of molecules in this entry. The entry contains 11003 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 Histidinol-phosphate aminotransferase.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
1	A	335	Total 2685	C 1741	N 451	O 484	S 9	0	1	0
1	B	333	Total 2636	C 1709	N 443	O 475	S 9	0	0	0
1	C	335	Total 2695	C 1750	N 449	O 485	S 11	0	3	0
1	D	333	Total 2532	C 1641	N 411	O 472	S 8	0	0	0

There are 48 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
A	-11	MET	-	expression tag	UNP Q9X0D0
A	-10	GLY	-	expression tag	UNP Q9X0D0
A	-9	SER	-	expression tag	UNP Q9X0D0
A	-8	ASP	-	expression tag	UNP Q9X0D0
A	-7	LYS	-	expression tag	UNP Q9X0D0
A	-6	ILE	-	expression tag	UNP Q9X0D0
A	-5	HIS	-	expression tag	UNP Q9X0D0
A	-4	HIS	-	expression tag	UNP Q9X0D0
A	-3	HIS	-	expression tag	UNP Q9X0D0
A	-2	HIS	-	expression tag	UNP Q9X0D0
A	-1	HIS	-	expression tag	UNP Q9X0D0
A	0	HIS	-	expression tag	UNP Q9X0D0
B	-11	MET	-	expression tag	UNP Q9X0D0
B	-10	GLY	-	expression tag	UNP Q9X0D0
B	-9	SER	-	expression tag	UNP Q9X0D0
B	-8	ASP	-	expression tag	UNP Q9X0D0
B	-7	LYS	-	expression tag	UNP Q9X0D0
B	-6	ILE	-	expression tag	UNP Q9X0D0
B	-5	HIS	-	expression tag	UNP Q9X0D0
B	-4	HIS	-	expression tag	UNP Q9X0D0
B	-3	HIS	-	expression tag	UNP Q9X0D0

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Chain	Residue	Modelled	Actual	Comment	Reference
B	-2	HIS	-	expression tag	UNP Q9X0D0
B	-1	HIS	-	expression tag	UNP Q9X0D0
B	0	HIS	-	expression tag	UNP Q9X0D0
C	-11	MET	-	expression tag	UNP Q9X0D0
C	-10	GLY	-	expression tag	UNP Q9X0D0
C	-9	SER	-	expression tag	UNP Q9X0D0
C	-8	ASP	-	expression tag	UNP Q9X0D0
C	-7	LYS	-	expression tag	UNP Q9X0D0
C	-6	ILE	-	expression tag	UNP Q9X0D0
C	-5	HIS	-	expression tag	UNP Q9X0D0
C	-4	HIS	-	expression tag	UNP Q9X0D0
C	-3	HIS	-	expression tag	UNP Q9X0D0
C	-2	HIS	-	expression tag	UNP Q9X0D0
C	-1	HIS	-	expression tag	UNP Q9X0D0
C	0	HIS	-	expression tag	UNP Q9X0D0
D	-11	MET	-	expression tag	UNP Q9X0D0
D	-10	GLY	-	expression tag	UNP Q9X0D0
D	-9	SER	-	expression tag	UNP Q9X0D0
D	-8	ASP	-	expression tag	UNP Q9X0D0
D	-7	LYS	-	expression tag	UNP Q9X0D0
D	-6	ILE	-	expression tag	UNP Q9X0D0
D	-5	HIS	-	expression tag	UNP Q9X0D0
D	-4	HIS	-	expression tag	UNP Q9X0D0
D	-3	HIS	-	expression tag	UNP Q9X0D0
D	-2	HIS	-	expression tag	UNP Q9X0D0
D	-1	HIS	-	expression tag	UNP Q9X0D0
D	0	HIS	-	expression tag	UNP Q9X0D0

- Molecule 2 is 4'-DEOXY-4'-AMINOPYRIDOXAL-5'-PHOSPHATE (three-letter code: PMP) (formula: $C_8H_{13}N_2O_5P$).
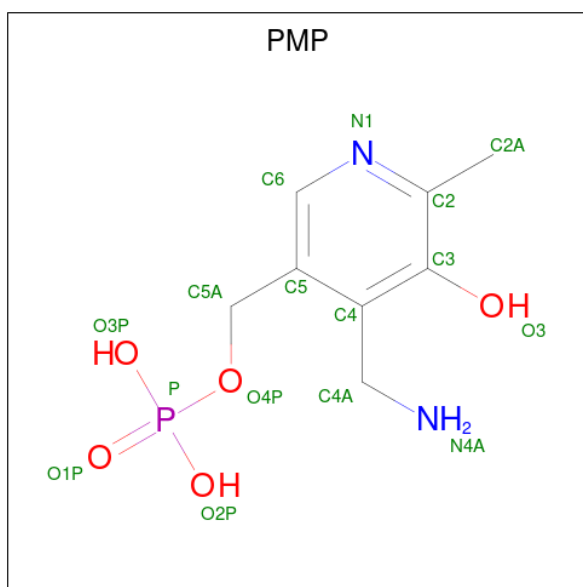
Mol	Chain	Residues	Atoms					ZeroOcc	AltConf
2	A	1	Total	C	N	O	P	0	0
			16	8	2	5	1		
2	B	1	Total	C	N	O	P	0	0
			16	8	2	5	1		
2	C	1	Total	C	N	O	P	0	0
			16	8	2	5	1		
2	D	1	Total	C	N	O	P	0	0
			16	8	2	5	1		

- Molecule 3 is 1,2-ETHANEDIOL (three-letter code: EDO) (formula: $C_2H_6O_2$).

Mol	Chain	Residues	Atoms			ZeroOcc	AltConf
3	A	1	Total 4	C 2	O 2	0	0
3	A	1	Total 4	C 2	O 2	0	0
3	A	1	Total 4	C 2	O 2	0	0
3	B	1	Total 4	C 2	O 2	0	0
3	B	1	Total 4	C 2	O 2	0	0
3	B	1	Total 4	C 2	O 2	0	0
3	B	1	Total 4	C 2	O 2	0	0
3	B	1	Total 4	C 2	O 2	0	0
3	C	1	Total 4	C 2	O 2	0	0
3	C	1	Total 4	C 2	O 2	0	0
3	C	1	Total 4	C 2	O 2	0	0
3	D	1	Total 4	C 2	O 2	0	0
3	D	1	Total 4	C 2	O 2	0	0

- Molecule 4 is water.

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
4	A	100	Total 100	O 100	0	0
4	B	110	Total 110	O 110	0	0
4	C	98	Total 98	O 98	0	0
4	D	31	Total 31	O 31	0	0

3 Residue-property plots ⓘ

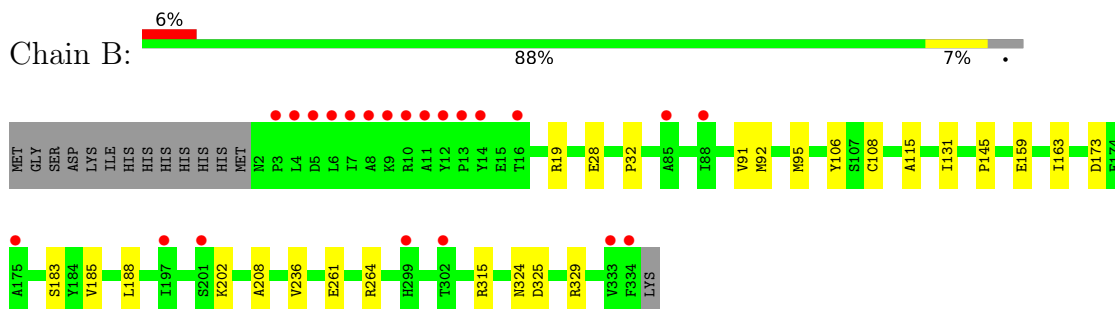These plots are drawn for all protein, RNA, DNA and oligosaccharide chains in the entry. The first graphic for a chain summarises the proportions of the various outlier classes displayed in the second graphic. The second graphic shows the sequence view annotated by issues in geometry and electron density.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

- Molecule 1: Histidinol-phosphate aminotransferase
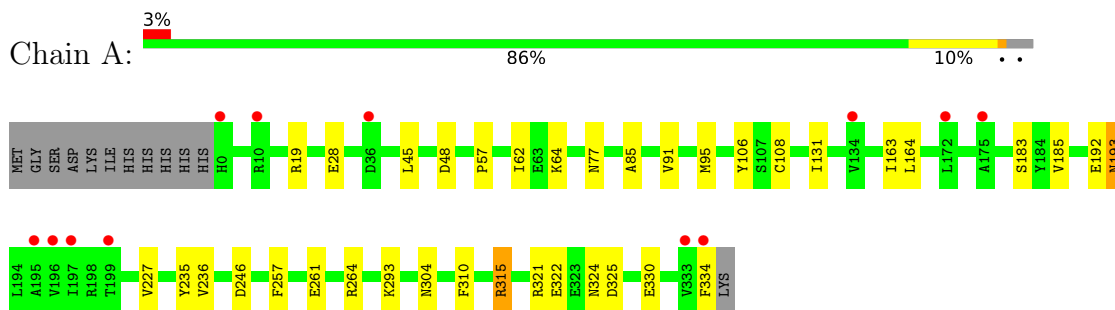
Chain A:

- Molecule 1: Histidinol-phosphate aminotransferase

Chain B:

- Molecule 1: Histidinol-phosphate aminotransferase

Chain C:

- Molecule 1: Histidinol-phosphate aminotransferase

Chain D:

MET GLY SER ASP LYS ILE HIS HIS HIS HIS HIS MET N2 P3 L4 A8 A11 Y12 P13 E17 D20 K21 T22 Y23 P57 E60 L61 I62 E63 K64 D70 T71 D72 G84 A85 I88 I89 R98 Y106 S107 C108 Y109 F120 L121 E122 V123

D128 I131 P132 E133 V134 N135 V136 D140 N149 T166 L172 D173 E174 A175 Y176 Y177 E178 Y184 A195 V196 I197 R198 T199 F200 S201 K202 A203 A207 V211 G212 Y213 V214 R264 A268 G273 I276 T277 D278 L296 H299 D325 E330 L331

E332 V333 F334 LYS
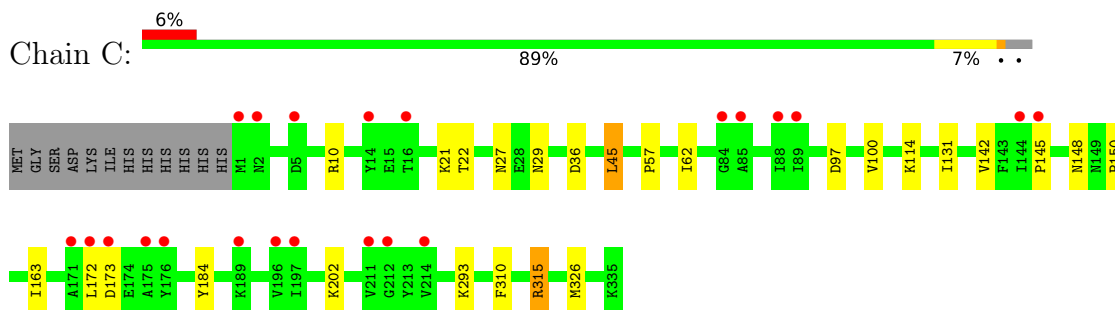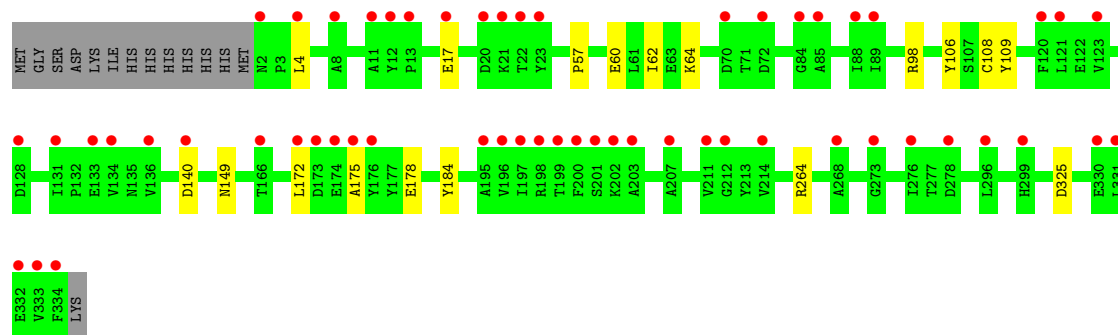
4 Data and refinement statistics (i)

Property	Value	Source
Space group	P 21 21 2	Depositor
Cell constants a, b, c, α, β, γ	145.16Å 187.45Å 54.32Å 90.00° 90.00° 90.00°	Depositor
Resolution (Å)	29.60 – 2.40 29.79 – 2.39	Depositor EDS
% Data completeness (in resolution range)	91.5 (29.60-2.40) 91.5 (29.79-2.39)	Depositor EDS
R_{merge}	0.08	Depositor
R_{sym}	(Not available)	Depositor
$< I/\sigma(I) >$ [1]	1.60 (at 2.39Å)	Xtriage
Refinement program	REFMAC 5.2.0005	Depositor
R, R_{free}	0.182 , 0.238 0.189 , 0.243	Depositor DCC
R_{free} test set	2745 reflections (5.05%)	wwPDB-VP
Wilson B-factor (Å^2)	51.0	Xtriage
Anisotropy	0.240	Xtriage
Bulk solvent k_{sol}(e/Å^3), B_{sol}(Å^2)	0.33 , 57.2	EDS
L-test for twinning[2]	$< \|L\| > = 0.50$, $< L^2 > = 0.34$	Xtriage
Estimated twinning fraction	No twinning to report.	Xtriage
F_o,F_c correlation	0.95	EDS
Total number of atoms	11003	wwPDB-VP
Average B, all atoms (Å^2)	58.0	wwPDB-VP

Xtriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 3.09% of the height of the origin peak. No significant pseudotranslation is detected.*

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[1]Intensities estimated from amplitudes.
[2]Theoretical values of $< \|L\| >$, $< L^2 >$ for acentric reflections are 0.5, 0.333 respectively for untwinned datasets, and 0.375, 0.2 for perfectly twinned datasets.

5   Model quality ⓘ

5.1   Standard geometry ⓘ

Bond lengths and bond angles in the following residue types are not validated in this section: EDO, PMP

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	0.55	0/2745	0.67	2/3715 (0.1%)
1	B	0.56	0/2695	0.65	0/3645
1	C	0.54	0/2761	0.68	3/3730 (0.1%)
1	D	0.44	0/2591	0.57	0/3515
All	All	0.53	0/10792	0.64	5/14605 (0.0%)

Chiral center outliers are detected by calculating the chiral volume of a chiral center and verifying if the center is modelled as a planar moiety or with the opposite hand. A planarity outlier is detected by checking planarity of atoms in a peptide group, atoms in a mainchain group or atoms of a sidechain that are expected to be planar.

Mol	Chain	#Chirality outliers	#Planarity outliers
1	A	0	1

There are no bond length outliers.

All (5) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
1	C	315	ARG	NE-CZ-NH1	6.43	123.52	120.30
1	C	45	LEU	CA-CB-CG	6.13	129.41	115.30
1	A	315	ARG	NE-CZ-NH1	6.11	123.36	120.30
1	C	315	ARG	NE-CZ-NH2	-5.55	117.52	120.30
1	A	193	ASN	N-CA-CB	-5.03	101.55	110.60

There are no chirality outliers.

All (1) planarity outliers are listed below:

Mol	Chain	Res	Type	Group
1	A	192	GLU	Peptide

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	2685	0	2601	24	0
1	B	2636	0	2533	23	0
1	C	2695	0	2625	16	0
1	D	2532	0	2307	10	0
2	A	16	0	11	1	0
2	B	16	0	10	3	0
2	C	16	0	10	1	0
2	D	16	0	10	2	0
3	A	12	0	18	0	0
3	B	20	0	30	0	0
3	C	12	0	18	0	0
3	D	8	0	12	2	0
4	A	100	0	0	1	0
4	B	110	0	0	2	0
4	C	98	0	0	1	0
4	D	31	0	0	0	0
All	All	11003	0	10185	69	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 3.

The worst 5 of 69 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:C:131:ILE:HG21	1:C:163:ILE:HD11	1.69	0.74
1:C:10:ARG:NH1	1:C:114:LYS:O	2.25	0.69
1:B:131:ILE:HG21	1:B:163:ILE:HD11	1.82	0.61
1:A:261:GLU:OE2	1:A:321:ARG:HD3	2.01	0.60
1:D:149:ASN:ND2	2:D:500:PMP:O3	2.35	0.59

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	334/347 (96%)	327 (98%)	7 (2%)	0	100	100
1	B	331/347 (95%)	321 (97%)	10 (3%)	0	100	100
1	C	336/347 (97%)	328 (98%)	8 (2%)	0	100	100
1	D	331/347 (95%)	322 (97%)	9 (3%)	0	100	100
All	All	1332/1388 (96%)	1298 (97%)	34 (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	272/312 (87%)	270 (99%)	2 (1%)	84	92
1	B	264/312 (85%)	264 (100%)	0	100	100
1	C	273/312 (88%)	270 (99%)	3 (1%)	73	87
1	D	238/312 (76%)	236 (99%)	2 (1%)	81	91
All	All	1047/1248 (84%)	1040 (99%)	7 (1%)	84	92

5 of 7 residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	C	36	ASP
1	C	45	LEU
1	D	17	GLU

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Mol	Chain	Res	Type
1	D	4	LEU
1	C	21	LYS

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (1) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	77	ASN

5.3.3 RNA ⓘ

There are no RNA molecules in this entry.

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

There are no non-standard protein/DNA/RNA residues in this entry.

5.5 Carbohydrates ⓘ

There are no monosaccharides in this entry.

5.6 Ligand geometry ⓘ

17 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	$\#|Z| > 2$
2	PMP	A	500	-	16,16,16	1.43	3 (18%)	21,23,23	1.97	6 (28%)
3	EDO	B	503	-	3,3,3	0.55	0	2,2,2	0.18	0
3	EDO	A	501	-	3,3,3	0.60	0	2,2,2	0.18	0
3	EDO	C	501	-	3,3,3	0.64	0	2,2,2	0.09	0
3	EDO	B	501	-	3,3,3	0.60	0	2,2,2	0.35	0

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	#|Z| > 2	Counts	RMSZ	#|Z| > 2
3	EDO	A	503	-	3,3,3	0.45	0	2,2,2	0.36	0
3	EDO	C	502	-	3,3,3	0.48	0	2,2,2	0.27	0
3	EDO	B	502	-	3,3,3	0.58	0	2,2,2	0.18	0
2	PMP	C	500	-	16,16,16	1.50	2 (12%)	21,23,23	1.85	7 (33%)
3	EDO	C	503	-	3,3,3	0.42	0	2,2,2	0.23	0
3	EDO	B	505	-	3,3,3	0.43	0	2,2,2	0.35	0
2	PMP	B	500	-	16,16,16	1.37	2 (12%)	21,23,23	1.83	5 (23%)
2	PMP	D	500	-	16,16,16	1.45	2 (12%)	21,23,23	1.79	6 (28%)
3	EDO	B	504	-	3,3,3	0.51	0	2,2,2	0.13	0
3	EDO	D	502	-	3,3,3	0.62	0	2,2,2	0.18	0
3	EDO	D	501	-	3,3,3	0.65	0	2,2,2	0.03	0
3	EDO	A	502	-	3,3,3	0.44	0	2,2,2	0.53	0

In the following table, the Chirals column lists the number of chiral outliers, the number of chiral centers analysed, the number of these observed in the model and the number defined in the Chemical Component Dictionary. Similar counts are reported in the Torsion and Rings columns. '-' means no outliers of that kind were identified.

Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
2	PMP	A	500	-	-	4/8/8/8	0/1/1/1
3	EDO	B	503	-	-	1/1/1/1	-
3	EDO	A	501	-	-	1/1/1/1	-
3	EDO	C	501	-	-	1/1/1/1	-
3	EDO	B	501	-	-	0/1/1/1	-
3	EDO	A	503	-	-	1/1/1/1	-
3	EDO	C	502	-	-	1/1/1/1	-
3	EDO	B	502	-	-	1/1/1/1	-
2	PMP	C	500	-	-	5/8/8/8	0/1/1/1
3	EDO	C	503	-	-	0/1/1/1	-
3	EDO	B	505	-	-	1/1/1/1	-
2	PMP	B	500	-	-	3/8/8/8	0/1/1/1
2	PMP	D	500	-	-	4/8/8/8	0/1/1/1
3	EDO	B	504	-	-	0/1/1/1	-
3	EDO	D	502	-	-	1/1/1/1	-
3	EDO	D	501	-	-	0/1/1/1	-
3	EDO	A	502	-	-	1/1/1/1	-

The worst 5 of 9 bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
2	C	500	PMP	P-O1P	3.21	1.60	1.50

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
2	D	500	PMP	P-O1P	3.20	1.60	1.50
2	A	500	PMP	P-O1P	3.14	1.60	1.50
2	B	500	PMP	P-O1P	3.04	1.60	1.50
2	A	500	PMP	C2A-C2	2.76	1.55	1.50

The worst 5 of 24 bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
2	A	500	PMP	O4P-C5A-C5	4.48	117.89	109.35
2	B	500	PMP	O4P-C5A-C5	4.34	117.62	109.35
2	A	500	PMP	C6-C5-C4	4.10	121.02	118.12
2	D	500	PMP	O4P-C5A-C5	3.84	116.67	109.35
2	C	500	PMP	O4P-C5A-C5	3.72	116.44	109.35

There are no chirality outliers.

5 of 25 torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
2	A	500	PMP	C5A-O4P-P-O2P
2	A	500	PMP	C5A-O4P-P-O3P
2	B	500	PMP	C5A-O4P-P-O1P
2	B	500	PMP	C5A-O4P-P-O2P
2	B	500	PMP	C5A-O4P-P-O3P

There are no ring outliers.

5 monomers are involved in 9 short contacts:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
2	A	500	PMP	1	0
2	C	500	PMP	1	0
2	B	500	PMP	3	0
2	D	500	PMP	2	0
3	D	502	EDO	2	0

5.7 Other polymers ⓘ

There are no such residues in this entry.

5.8 Polymer linkage issues ⓘ

There are no chain breaks in this entry.

6 Fit of model and data ⓘ

6.1 Protein, DNA and RNA chains ⓘ

In the following table, the column labelled '#RSRZ> 2' contains the number (and percentage) of RSRZ outliers, followed by percent RSRZ outliers for the chain as percentile scores relative to all X-ray entries and entries of similar resolution. The OWAB column contains the minimum, median, 95th percentile and maximum values of the occupancy-weighted average B-factor per residue. The column labelled 'Q< 0.9' lists the number of (and percentage) of residues with an average occupancy less than 0.9.

Mol	Chain	Analysed	<RSRZ>	#RSRZ>2			OWAB(Å²)	Q<0.9
1	A	335/347 (96%)	-0.06	12 (3%)	42	42	48, 57, 70, 92	0
1	B	333/347 (95%)	0.06	22 (6%)	18	17	48, 57, 72, 84	0
1	C	335/347 (96%)	0.03	22 (6%)	18	17	49, 57, 71, 85	0
1	D	333/347 (95%)	0.63	56 (16%)	1	1	48, 57, 70, 87	0
All	All	1336/1388 (96%)	0.17	112 (8%)	11	10	48, 57, 71, 92	0

The worst 5 of 112 RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	D	273	GLY	5.8
1	D	334	PHE	5.4
1	C	197	ILE	4.7
1	D	333	VAL	4.7
1	D	20	ASP	4.6

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

There are no non-standard protein/DNA/RNA residues in this entry.

6.3 Carbohydrates ⓘ

There are no monosaccharides in this entry.

6.4 Ligands ⓘ

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

Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors(Å^2)	Q<0.9
3	EDO	A	501	4/4	0.74	0.26	78,78,79,83	0
3	EDO	A	502	4/4	0.85	0.45	65,71,74,77	0
3	EDO	B	502	4/4	0.86	0.30	76,78,80,81	0
3	EDO	B	501	4/4	0.88	0.16	48,60,65,72	0
3	EDO	A	503	4/4	0.88	0.21	72,76,76,80	0
2	PMP	D	500	16/16	0.89	0.21	69,90,92,92	0
3	EDO	C	501	4/4	0.89	0.23	63,66,67,68	0
3	EDO	D	502	4/4	0.89	0.41	58,67,68,74	0
3	EDO	B	504	4/4	0.90	0.36	68,72,73,73	0
2	PMP	A	500	16/16	0.93	0.18	46,71,79,79	0
2	PMP	C	500	16/16	0.93	0.17	55,69,73,74	0
3	EDO	B	503	4/4	0.93	0.15	75,76,78,79	0
3	EDO	D	501	4/4	0.94	0.15	61,68,69,70	0
3	EDO	C	502	4/4	0.95	0.08	73,75,75,75	0
3	EDO	B	505	4/4	0.95	0.27	47,49,52,53	0
2	PMP	B	500	16/16	0.95	0.16	40,68,76,86	0
3	EDO	C	503	4/4	0.96	0.26	47,50,52,54	0

6.5 Other polymers (i)

There are no such residues in this entry.