



Full wwPDB X-ray Structure Validation Report ⓘ

Jun 13, 2022 – 04:28 pm BST

PDB ID : 7B3N
Title : AmiP amidase-3 from *Thermus parvatiensis*
Authors : Freitag-Pohl, S.; Pohl, E.
Deposited on : 2020-12-01
Resolution : 1.79 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 following versions of software and data (see [references ⓘ](#)) were used in the production of this report:

MolProbity : 4.02b-467
Mogul : 1.8.4, CSD as541be (2020)
Xtriage (Phenix) : 1.13
EDS : 2.28.1
Percentile statistics : 20191225.v01 (using entries in the PDB archive December 25th 2019)
Refmac : 5.8.0267
CCP4 : 7.1.010 (Gargrove)
Ideal geometry (proteins) : Engh & Huber (2001)
Ideal geometry (DNA, RNA) : Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP) : 2.28.1

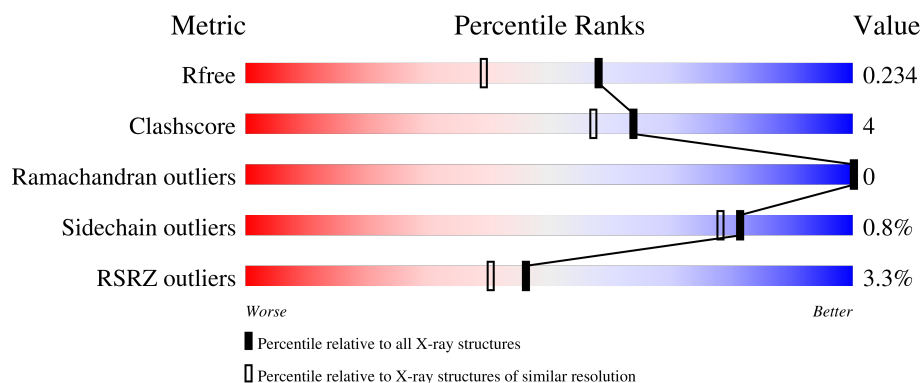
1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

X-RAY DIFFRACTION

The reported resolution of this entry is 1.79 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}	130704	5950 (1.80-1.80)
Clashscore	141614	6793 (1.80-1.80)
Ramachandran outliers	138981	6697 (1.80-1.80)
Sidechain outliers	138945	6696 (1.80-1.80)
RSRZ outliers	127900	5850 (1.80-1.80)

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	177	<div> <div>87%</div> <div>8%</div> <div>5%</div> </div>
1	B	177	<div> <div>85%</div> <div>10%</div> <div>5%</div> </div>
1	C	177	<div> <div>86%</div> <div>8%</div> <div>5%</div> </div>
1	D	177	<div> <div>2%</div> <div>82%</div> <div>12%</div> <div>5%</div> </div>
1	E	177	<div> <div>13%</div> <div>87%</div> <div>8%</div> <div>5%</div> </div>

2 Entry composition

There are 8 unique types of molecules in this entry. The entry contains 13214 atoms, of which 6446 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 Cell wall hydrolase.

Mol	Chain	Residues	Atoms						ZeroOcc	AltConf	Trace
1	A	169	Total	C	H	N	O	S	47	4	0
			2593	823	1295	240	233	2			
1	B	170	Total	C	H	N	O	S	47	2	0
			2581	820	1286	239	234	2			
1	C	168	Total	C	H	N	O	S	45	1	0
			2506	801	1244	231	228	2			
1	D	168	Total	C	H	N	O	S	51	5	0
			2538	810	1264	232	230	2			
1	E	168	Total	C	H	N	O	S	53	2	0
			2449	790	1211	217	229	2			

- Molecule 2 is ZINC ION (three-letter code: ZN) (formula: Zn).

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
2	A	1	Total	Zn	0	0
			1	1		
2	B	1	Total	Zn	0	0
			1	1		
2	C	1	Total	Zn	0	0
			1	1		
2	D	1	Total	Zn	0	0
			1	1		
2	E	1	Total	Zn	0	0
			1	1		

- Molecule 3 is GLYCEROL (three-letter code: GOL) (formula: C₃H₈O₃).



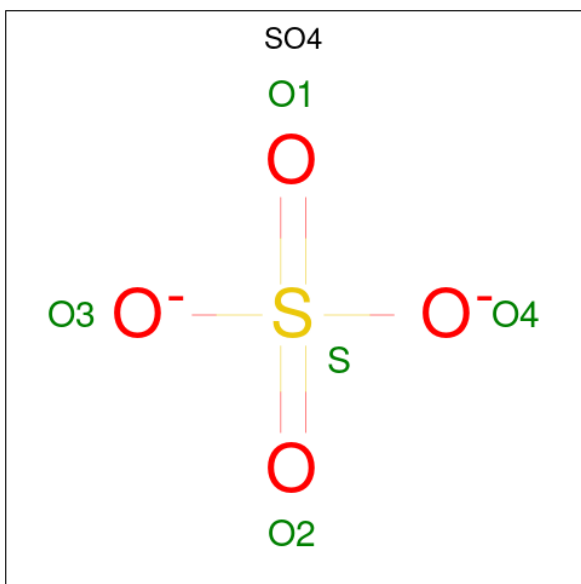
Mol	Chain	Residues	Atoms				ZeroOcc	AltConf
3	A	1	Total	C	H	O	4	1
			28	6	16	6		
3	B	1	Total	C	H	O	2	0
			14	3	8	3		
3	C	1	Total	C	H	O	4	1
			28	6	16	6		
3	D	1	Total	C	H	O	2	0
			14	3	8	3		
3	E	1	Total	C	H	O	2	0
			14	3	8	3		

- Molecule 4 is 4-(2-HYDROXYETHYL)-1-PIPERAZINE ETHANESULFONIC ACID (three-letter code: EPE) (formula: C₈H₁₈N₂O₄S).



Mol	Chain	Residues	Atoms						ZeroOcc	AltConf
4	A	1	Total 33	C 8	H 18	N 2	O 4	S 1	2	0
4	B	1	Total 33	C 8	H 18	N 2	O 4	S 1	2	0
4	B	1	Total 33	C 8	H 18	N 2	O 4	S 1	2	0
4	C	1	Total 33	C 8	H 18	N 2	O 4	S 1	2	0
4	D	1	Total 33	C 8	H 18	N 2	O 4	S 1	2	0

- Molecule 5 is SULFATE ION (three-letter code: SO4) (formula: O₄S).



Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
5	A	1	Total O S 5 4 1	0	0
5	D	1	Total O S 5 4 1	0	0
5	D	1	Total O S 5 4 1	0	0
5	E	1	Total O S 5 4 1	0	0
5	E	1	Total O S 5 4 1	0	0

- Molecule 6 is SODIUM ION (three-letter code: NA) (formula: Na).

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

- Molecule 7 is CHLORIDE ION (three-letter code: CL) (formula: Cl).

Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
7	B	1	Total Cl 1 1	0	0
7	E	1	Total Cl 1 1	0	0

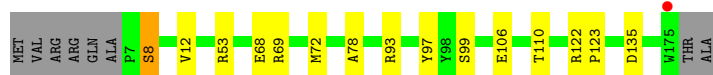
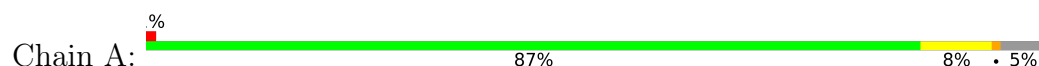
- Molecule 8 is water.

Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
8	A	62	Total O 62 62	0	0
8	B	71	Total O 71 71	0	0
8	C	46	Total O 46 46	0	0
8	D	43	Total O 43 43	0	0
8	E	28	Total O 28 28	0	0

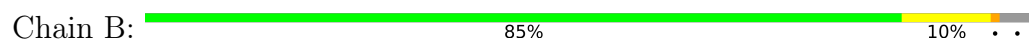
3 Residue-property plots [i](#)

These plots are drawn for all protein, RNA, DNA and oligosaccharide chains in the entry. The first graphic for a chain summarises the proportions of the various outlier classes displayed in the second graphic. The second graphic shows the sequence view annotated by issues in geometry 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.

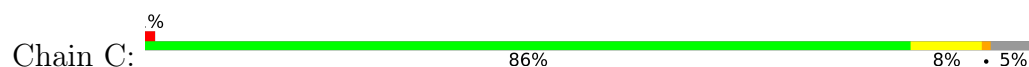
- Molecule 1: Cell wall hydrolase



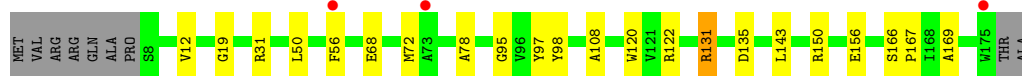
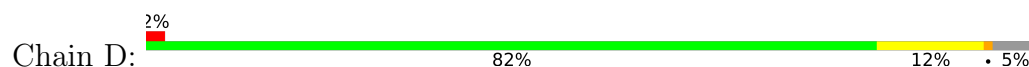
- Molecule 1: Cell wall hydrolase



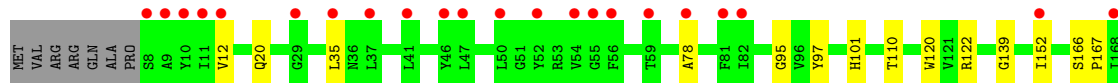
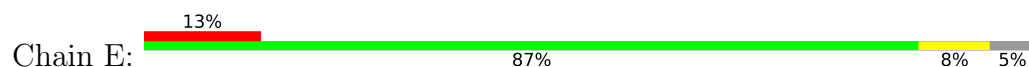
- Molecule 1: Cell wall hydrolase



- Molecule 1: Cell wall hydrolase



- Molecule 1: Cell wall hydrolase





4 Data and refinement statistics

Property	Value	Source
Space group	P 21 21 21	Depositor
Cell constants a, b, c, α , β , γ	64.54Å 97.99Å 148.72Å 90.00° 90.00° 90.00°	Depositor
Resolution (Å)	43.68 – 1.79 43.64 – 1.79	Depositor EDS
% Data completeness (in resolution range)	96.8 (43.68-1.79) 96.9 (43.64-1.79)	Depositor EDS
R_{merge}	0.04	Depositor
R_{sym}	(Not available)	Depositor
$\langle I/\sigma(I) \rangle$ ¹	1.67 (at 1.79Å)	Xtrriage
Refinement program	REFMAC 5.8.0258	Depositor
R, R_{free}	0.185 , 0.225 0.196 , 0.234	Depositor DCC
R_{free} test set	4282 reflections (4.96%)	wwPDB-VP
Wilson B-factor (Å ²)	34.7	Xtrriage
Anisotropy	0.144	Xtrriage
Bulk solvent k_{sol} (e/Å ³), B_{sol} (Å ²)	(Not available) , (Not available)	EDS
L-test for twinning ²	$\langle L \rangle = 0.49$, $\langle L^2 \rangle = 0.33$	Xtrriage
Estimated twinning fraction	No twinning to report.	Xtrriage
F_o, F_c correlation	0.96	EDS
Total number of atoms	13214	wwPDB-VP
Average B, all atoms (Å ²)	42.0	wwPDB-VP

Xtrriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 4.83% 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: GOL, EPE, SO4, CL, NA, ZN

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	0.75	0/1344	0.88	1/1832 (0.1%)
1	B	0.76	0/1335	0.89	0/1820
1	C	0.74	0/1298	0.91	3/1773 (0.2%)
1	D	0.74	0/1323	0.88	0/1808
1	E	0.75	0/1278	0.79	0/1752
All	All	0.75	0/6578	0.87	4/8985 (0.0%)

There are no bond length outliers.

All (4) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	C	109	ARG	NE-CZ-NH2	-9.36	115.62	120.30
1	C	122	ARG	NE-CZ-NH1	6.15	123.38	120.30
1	A	69	ARG	NE-CZ-NH2	-5.18	117.71	120.30
1	C	109	ARG	NE-CZ-NH1	5.09	122.85	120.30

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	1298	1295	1287	8	0
1	B	1295	1286	1277	10	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
1	C	1262	1244	1224	9	0
1	D	1274	1264	1248	15	0
1	E	1238	1211	1186	9	0
2	A	1	0	0	0	0
2	B	1	0	0	0	0
2	C	1	0	0	0	0
2	D	1	0	0	0	0
2	E	1	0	0	0	0
3	A	12	16	13	0	0
3	B	6	8	6	2	0
3	C	12	16	14	0	0
3	D	6	8	7	2	0
3	E	6	8	7	0	0
4	A	15	18	18	0	0
4	B	30	36	36	1	0
4	C	15	18	18	0	0
4	D	15	18	18	1	0
5	A	5	0	0	0	0
5	D	10	0	0	0	0
5	E	10	0	0	1	0
6	A	1	0	0	0	0
6	C	1	0	0	0	0
7	B	1	0	0	0	0
7	E	1	0	0	0	0
8	A	62	0	0	1	0
8	B	71	0	0	2	0
8	C	46	0	0	1	0
8	D	43	0	0	2	0
8	E	28	0	0	0	0
All	All	6768	6446	6359	54	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 4.

All (54) 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:106:GLU:O	1:A:110[B]:THR:HG23	1.91	0.70
1:E:166:SER:HB2	1:E:167:PRO:HD3	1.75	0.69
1:B:44:LYS:HE3	1:B:48:VAL:HG21	1.81	0.62
1:B:68:GLU:O	1:B:72:MET:HG3	2.00	0.62

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
3:D:202:GOL:H11	8:D:315:HOH:O	2.00	0.61
1:B:8:SER:C	8:B:302:HOH:O	2.39	0.59
3:D:202:GOL:C1	8:D:315:HOH:O	2.50	0.59
1:C:95:GLY:HA3	1:C:120:TRP:CE2	2.38	0.58
3:B:202:GOL:H2	8:B:345:HOH:O	2.05	0.57
1:E:12:VAL:HG23	1:E:78:ALA:HB2	1.88	0.54
1:D:131[B]:ARG:HG2	1:D:135:ASP:OD2	2.07	0.54
1:E:95:GLY:HA3	1:E:120:TRP:CE2	2.42	0.54
1:A:68:GLU:O	1:A:72:MET:HG3	2.08	0.52
1:B:12:VAL:HG23	1:B:78:ALA:HB2	1.91	0.52
1:E:110[A]:THR:HG22	1:E:167:PRO:HB3	1.92	0.51
1:C:12:VAL:HG23	1:C:78:ALA:HB2	1.93	0.51
1:A:12:VAL:HG23	1:A:78:ALA:HB2	1.92	0.50
1:D:68:GLU:O	1:D:72:MET:HG2	2.12	0.49
1:C:68:GLU:O	1:C:72:MET:HG3	2.12	0.49
1:C:95:GLY:HA3	1:C:120:TRP:CD2	2.47	0.49
1:D:19:GLY:O	1:D:31:ARG:NH2	2.46	0.48
1:D:166[A]:SER:HB2	1:D:167:PRO:HD3	1.94	0.48
1:C:97:TYR:HA	1:C:122:ARG:O	2.13	0.48
1:B:145:GLU:OE2	3:B:202:GOL:H12	2.14	0.48
1:A:8[A]:SER:OG	1:A:53:ARG:NH1	2.46	0.47
1:C:28:ASP:OD2	1:C:151:PRO:HG3	2.15	0.47
1:D:166[A]:SER:HB2	1:D:167:PRO:CD	2.44	0.47
1:D:12:VAL:HG23	1:D:78:ALA:HB2	1.95	0.47
1:E:35:LEU:HD13	1:E:152:ILE:HD12	1.96	0.46
1:C:170:GLU:OE1	1:C:173:ARG:HD3	2.15	0.46
1:D:131[B]:ARG:CZ	1:D:135:ASP:HB2	2.45	0.46
1:E:97:TYR:HA	1:E:122:ARG:O	2.15	0.46
1:C:110[B]:THR:HG23	8:C:307:HOH:O	2.14	0.46
1:D:50:LEU:HD23	1:D:169:ALA:HB2	1.97	0.46
1:A:97:TYR:HA	1:A:122:ARG:O	2.15	0.45
1:B:150:ARG:HB2	1:B:151:PRO:HD2	1.99	0.45
1:E:20:GLN:N	5:E:204:SO4:O3	2.37	0.45
1:E:95:GLY:HA3	1:E:120:TRP:CD2	2.51	0.45
1:A:99:SER:HB2	1:A:135:ASP:HA	1.99	0.45
1:B:94:PRO:O	1:B:119:ALA:HA	2.18	0.44
1:D:97:TYR:HA	1:D:122:ARG:O	2.17	0.44
1:B:170:GLU:O	1:B:174:ARG:HG3	2.17	0.44
1:D:150:ARG:HH22	1:D:156:GLU:CD	2.21	0.44
1:B:166:SER:HB2	1:B:167:PRO:HD3	2.00	0.43
1:D:56:PHE:O	4:D:203:EPE:H101	2.18	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:D:95:GLY:HA3	1:D:120:TRP:CE2	2.53	0.43
1:D:143:LEU:C	1:D:143:LEU:HD23	2.38	0.43
1:E:101:HIS:CE1	1:E:139:GLY:HA2	2.54	0.43
4:B:204:EPE:N4	4:B:205:EPE:H61	2.34	0.43
1:A:93:ARG:NH2	8:A:306:HOH:O	2.51	0.42
1:D:98:TYR:HB3	1:D:108:ALA:HB2	2.02	0.42
1:B:107:LEU:HG	1:B:142:ILE:HD13	2.02	0.41
1:C:94:PRO:O	1:C:119:ALA:HA	2.21	0.41
1:A:123:PRO:HG3	1:D:131[B]:ARG:CZ	2.52	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	171/177 (97%)	168 (98%)	3 (2%)	0	100	100
1	B	170/177 (96%)	166 (98%)	4 (2%)	0	100	100
1	C	167/177 (94%)	164 (98%)	3 (2%)	0	100	100
1	D	171/177 (97%)	170 (99%)	1 (1%)	0	100	100
1	E	168/177 (95%)	166 (99%)	2 (1%)	0	100	100
All	All	847/885 (96%)	834 (98%)	13 (2%)	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	129/135 (96%)	127 (98%)	2 (2%)	62	54
1	B	128/135 (95%)	125 (98%)	3 (2%)	50	37
1	C	121/135 (90%)	121 (100%)	0	100	100
1	D	125/135 (93%)	123 (98%)	2 (2%)	62	54
1	E	119/135 (88%)	119 (100%)	0	100	100
All	All	622/675 (92%)	615 (99%)	7 (1%)	81	68

All (7) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	8[A]	SER
1	A	8[B]	SER
1	B	8	SER
1	B	44	LYS
1	B	162	GLN
1	D	131[A]	ARG
1	D	131[B]	ARG

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. There are no such sidechains identified.

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 ⓘ

Of 26 ligands modelled in this entry, 9 are monoatomic - leaving 17 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$
5	SO4	D	205	-	4,4,4	0.25	0	6,6,6	0.28	0
4	EPE	A	203	-	15,15,15	0.62	0	18,20,20	2.55	3 (16%)
3	GOL	C	202[B]	2	5,5,5	0.11	0	5,5,5	0.28	0
3	GOL	C	202[A]	2	5,5,5	0.15	0	5,5,5	0.34	0
5	SO4	E	205	-	4,4,4	0.35	0	6,6,6	0.08	0
3	GOL	A	202[B]	2	5,5,5	0.13	0	5,5,5	0.35	0
4	EPE	C	203	-	15,15,15	0.59	0	18,20,20	0.64	0
5	SO4	D	204	-	4,4,4	0.38	0	6,6,6	0.21	0
4	EPE	B	204	-	15,15,15	0.66	1 (6%)	18,20,20	0.65	0
3	GOL	B	202	2	5,5,5	0.21	0	5,5,5	0.62	0
3	GOL	A	202[A]	2	5,5,5	0.11	0	5,5,5	0.34	0
4	EPE	B	205	-	15,15,15	0.62	1 (6%)	18,20,20	0.91	1 (5%)
4	EPE	D	203	-	15,15,15	0.62	0	18,20,20	1.45	1 (5%)
5	SO4	A	204	-	4,4,4	0.30	0	6,6,6	0.11	0
5	SO4	E	204	-	4,4,4	0.34	0	6,6,6	0.27	0
3	GOL	D	202	2	5,5,5	0.25	0	5,5,5	0.60	0
3	GOL	E	202	2	5,5,5	0.20	0	5,5,5	0.37	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
4	EPE	A	203	-	-	3/9/19/19	0/1/1/1
3	GOL	C	202[B]	2	-	0/4/4/4	-
3	GOL	C	202[A]	2	-	2/4/4/4	-
3	GOL	A	202[B]	2	-	2/4/4/4	-
4	EPE	C	203	-	-	3/9/19/19	0/1/1/1
4	EPE	B	204	-	-	0/9/19/19	0/1/1/1
3	GOL	B	202	2	-	4/4/4/4	-
3	GOL	A	202[A]	2	-	0/4/4/4	-
4	EPE	B	205	-	-	6/9/19/19	0/1/1/1

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Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
4	EPE	D	203	-	-	8/9/19/19	0/1/1/1
3	GOL	D	202	2	-	2/4/4/4	-
3	GOL	E	202	2	-	0/4/4/4	-

All (2) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
4	B	204	EPE	O3S-S	2.26	1.55	1.47
4	B	205	EPE	O3S-S	2.09	1.55	1.47

All (5) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
4	A	203	EPE	O3S-S-C10	-9.70	90.08	105.77
4	D	203	EPE	O3S-S-C10	-5.10	97.53	105.77
4	A	203	EPE	O3S-S-O2S	3.42	119.63	111.27
4	A	203	EPE	O1S-S-C10	2.38	109.79	106.92
4	B	205	EPE	O3S-S-O1S	-2.37	105.49	111.27

There are no chirality outliers.

All (30) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
3	A	202[B]	GOL	O1-C1-C2-C3
3	B	202	GOL	C1-C2-C3-O3
3	C	202[A]	GOL	O1-C1-C2-C3
3	D	202	GOL	O1-C1-C2-C3
4	A	203	EPE	C10-C9-N1-C6
4	A	203	EPE	S-C10-C9-N1
4	B	205	EPE	C9-C10-S-O2S
4	B	205	EPE	C9-C10-S-O3S
4	C	203	EPE	C10-C9-N1-C6
4	C	203	EPE	S-C10-C9-N1
4	D	203	EPE	C10-C9-N1-C6
4	D	203	EPE	S-C10-C9-N1
4	A	203	EPE	N4-C7-C8-O8
4	D	203	EPE	C9-C10-S-O3S
4	D	203	EPE	N4-C7-C8-O8
3	B	202	GOL	O2-C2-C3-O3
3	C	202[A]	GOL	O1-C1-C2-O2
3	D	202	GOL	O1-C1-C2-O2

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Mol	Chain	Res	Type	Atoms
4	B	205	EPE	N4-C7-C8-O8
3	A	202[B]	GOL	O1-C1-C2-O2
3	B	202	GOL	O1-C1-C2-O2
4	B	205	EPE	C10-C9-N1-C2
4	B	205	EPE	C10-C9-N1-C6
4	B	205	EPE	C9-C10-S-O1S
4	D	203	EPE	C9-C10-S-O1S
4	C	203	EPE	C10-C9-N1-C2
4	D	203	EPE	C8-C7-N4-C5
3	B	202	GOL	O1-C1-C2-C3
4	D	203	EPE	C8-C7-N4-C3
4	D	203	EPE	C10-C9-N1-C2

There are no ring outliers.

6 monomers are involved in 7 short contacts:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
4	B	204	EPE	1	0
3	B	202	GOL	2	0
4	B	205	EPE	1	0
4	D	203	EPE	1	0
5	E	204	SO4	1	0
3	D	202	GOL	2	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, 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	169/177 (95%)	0.29	1 (0%) 89 87	25, 35, 53, 70	0
1	B	170/177 (96%)	0.30	0 100 100	27, 35, 50, 88	1 (0%)
1	C	168/177 (94%)	0.36	1 (0%) 89 87	27, 40, 59, 71	0
1	D	168/177 (94%)	0.40	3 (1%) 68 64	29, 41, 61, 73	0
1	E	168/177 (94%)	0.62	23 (13%) 3 2	33, 48, 67, 85	0
All	All	843/885 (95%)	0.39	28 (3%) 46 40	25, 39, 62, 88	1 (0%)

All (28) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	E	56	PHE	3.7
1	E	8	SER	3.6
1	E	37	LEU	3.4
1	E	52	TYR	3.3
1	E	50	LEU	3.2
1	D	175	TRP	3.1
1	E	41	LEU	3.0
1	E	78	ALA	2.9
1	E	29	GLY	2.7
1	E	46	TYR	2.6
1	E	168	ILE	2.5
1	E	152	ILE	2.5
1	E	10	TYR	2.5
1	E	9	ALA	2.4
1	E	47	LEU	2.3
1	E	55	GLY	2.3
1	E	81	PHE	2.3
1	E	11	ILE	2.2
1	E	175	TRP	2.2
1	E	54	VAL	2.2

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Mol	Chain	Res	Type	RSRZ
1	E	12	VAL	2.1
1	E	59	THR	2.1
1	D	56	PHE	2.1
1	E	35	LEU	2.1
1	C	9	ALA	2.1
1	E	82	ILE	2.1
1	D	73	ALA	2.0
1	A	175	TRP	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 monosaccharides 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	GOL	D	202	6/6	0.77	0.14	41,51,60,63	2
7	CL	E	203	1/1	0.77	0.16	83,83,83,83	0
3	GOL	C	202[A]	6/6	0.78	0.18	33,42,51,51	14
3	GOL	C	202[B]	6/6	0.78	0.18	41,51,62,63	14
7	CL	B	203	1/1	0.84	0.08	76,76,76,76	0
3	GOL	A	202[B]	6/6	0.85	0.20	49,52,56,56	14
3	GOL	A	202[A]	6/6	0.85	0.20	26,33,45,45	14
3	GOL	B	202	6/6	0.88	0.09	38,45,51,55	2
4	EPE	B	204	15/15	0.89	0.18	67,81,98,98	2
3	GOL	E	202	6/6	0.90	0.13	54,64,70,71	2
5	SO4	E	205	5/5	0.93	0.15	89,96,98,99	0
4	EPE	B	205	15/15	0.93	0.14	48,81,97,98	2
5	SO4	D	204	5/5	0.93	0.09	72,74,81,83	0
6	NA	C	204	1/1	0.94	0.25	50,50,50,50	0
4	EPE	C	203	15/15	0.94	0.19	61,64,93,96	2

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Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors(\AA^2)	Q<0.9
4	EPE	D	203	15/15	0.94	0.15	57,88,98,99	2
5	SO4	D	205	5/5	0.95	0.12	46,57,67,86	0
5	SO4	E	204	5/5	0.95	0.26	60,80,91,98	0
5	SO4	A	204	5/5	0.96	0.10	63,66,74,85	0
2	ZN	E	201	1/1	0.98	0.07	48,48,48,48	0
4	EPE	A	203	15/15	0.98	0.15	40,64,67,68	2
2	ZN	A	201	1/1	0.99	0.04	37,37,37,37	0
2	ZN	C	201	1/1	0.99	0.06	46,46,46,46	0
6	NA	A	205	1/1	0.99	0.18	35,35,35,35	0
2	ZN	B	201	1/1	1.00	0.06	36,36,36,36	0
2	ZN	D	201	1/1	1.00	0.06	43,43,43,43	0

6.5 Other polymers [i](#)

There are no such residues in this entry.