Full wwPDB X-ray Structure Validation Report ⓘ

Jun 17, 2024 – 05:23 AM EDT

PDB ID	:	5LCN
Title	:	STRUCTURE OF THE PYROCOCCUS FURIOSUS ESTERASE PF2001 WITH SPACE GROUP P212121
Authors	:	Varejao, N.; Reverter, D.
Deposited on	:	2016-06-22
Resolution	:	2.60 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:

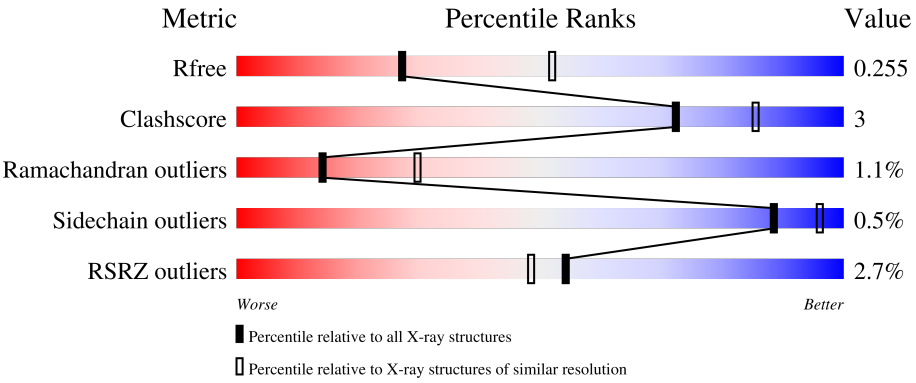
MolProbity	:	4.02b-467
Mogul	:	1.8.5 (274361), CSD as541be (2020)
Xtriage (Phenix)	:	1.13
EDS	:	2.37.1
Percentile statistics	:	20191225.v01 (using entries in the PDB archive December 25th 2019)
Refmac	:	5.8.0158
CCP4	:	7.0.044 (Gargrove)
Ideal geometry (proteins)	:	Engh & Huber (2001)
Ideal geometry (DNA, RNA)	:	Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP)	:	2.37.1

1 Overall quality at a glance (i)

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

The reported resolution of this entry is 2.60 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	3163 (2.60-2.60)
Clashscore	141614	3518 (2.60-2.60)
Ramachandran outliers	138981	3455 (2.60-2.60)
Sidechain outliers	138945	3455 (2.60-2.60)
RSRZ outliers	127900	3104 (2.60-2.60)

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	275	88% 9% ·
1	B	275	88% 7% 5%
1	C	275	3% 89% 7% ·
1	D	275	6% 86% 11% · ·

2 Entry composition (i)

There are 3 unique types of molecules in this entry. The entry contains 8759 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 Uncharacterized protein.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
1	A	268	Total	C	N	O	S	0	0	0
			2176	1414	368	387	7			
1	B	262	Total	C	N	O	S	0	0	0
			2133	1387	359	380	7			
1	C	265	Total	C	N	O	S	0	0	0
			2155	1401	363	384	7			
1	D	268	Total	C	N	O	S	0	0	0
			2181	1418	369	387	7			

There are 28 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
A	14	MET	-	initiating methionine	UNP Q8TZJ1
A	15	HIS	-	expression tag	UNP Q8TZJ1
A	16	HIS	-	expression tag	UNP Q8TZJ1
A	17	HIS	-	expression tag	UNP Q8TZJ1
A	18	HIS	-	expression tag	UNP Q8TZJ1
A	19	HIS	-	expression tag	UNP Q8TZJ1
A	20	HIS	-	expression tag	UNP Q8TZJ1
B	14	MET	-	initiating methionine	UNP Q8TZJ1
B	15	HIS	-	expression tag	UNP Q8TZJ1
B	16	HIS	-	expression tag	UNP Q8TZJ1
B	17	HIS	-	expression tag	UNP Q8TZJ1
B	18	HIS	-	expression tag	UNP Q8TZJ1
B	19	HIS	-	expression tag	UNP Q8TZJ1
B	20	HIS	-	expression tag	UNP Q8TZJ1
C	14	MET	-	initiating methionine	UNP Q8TZJ1
C	15	HIS	-	expression tag	UNP Q8TZJ1
C	16	HIS	-	expression tag	UNP Q8TZJ1
C	17	HIS	-	expression tag	UNP Q8TZJ1
C	18	HIS	-	expression tag	UNP Q8TZJ1
C	19	HIS	-	expression tag	UNP Q8TZJ1
C	20	HIS	-	expression tag	UNP Q8TZJ1

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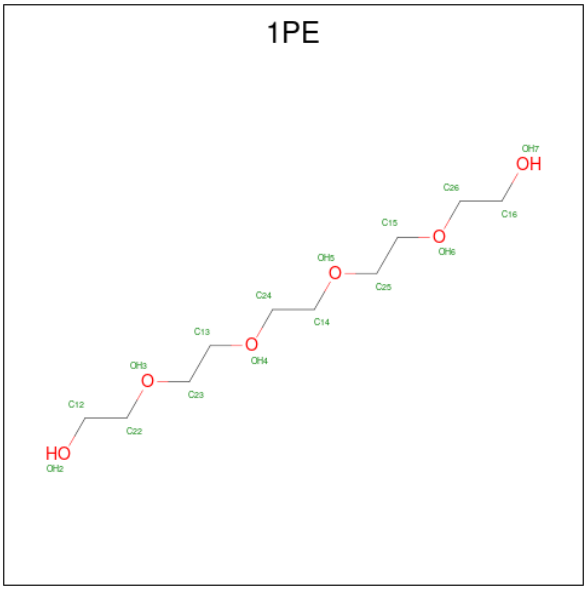
Chain	Residue	Modelled	Actual	Comment	Reference
D	14	MET	-	initiating methionine	UNP Q8TZJ1
D	15	HIS	-	expression tag	UNP Q8TZJ1
D	16	HIS	-	expression tag	UNP Q8TZJ1
D	17	HIS	-	expression tag	UNP Q8TZJ1
D	18	HIS	-	expression tag	UNP Q8TZJ1
D	19	HIS	-	expression tag	UNP Q8TZJ1
D	20	HIS	-	expression tag	UNP Q8TZJ1

- Molecule 2 is PENTAETHYLENE GLYCOL (three-letter code: 1PE) (formula: $C_{10}H_{22}O_6$).



Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
2	C	1	Total C O 16 10 6	0	0
2	D	1	Total C O 16 10 6	0	0

- Molecule 3 is water.

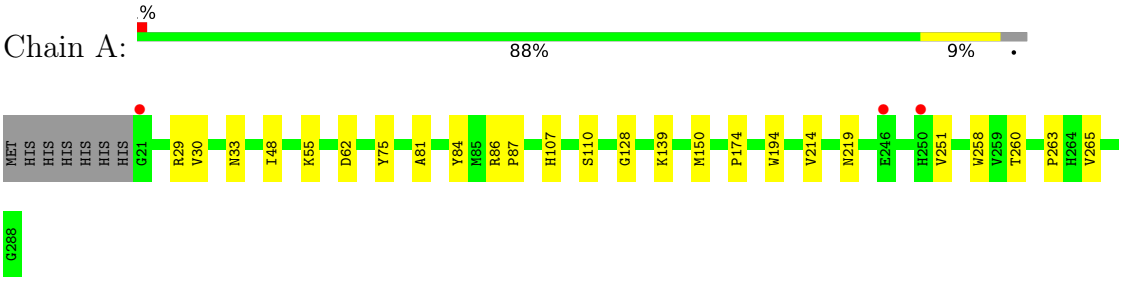
Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
3	A	32	Total O 32 32	0	0
3	B	25	Total O 25 25	0	0
3	C	15	Total O 15 15	0	0
3	D	10	Total O 10 10	0	0

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.

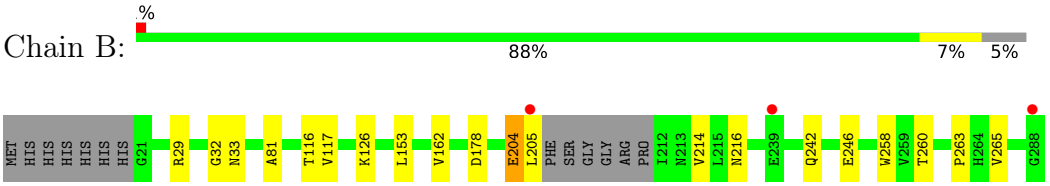
• Molecule 1: Uncharacterized protein

Chain A:



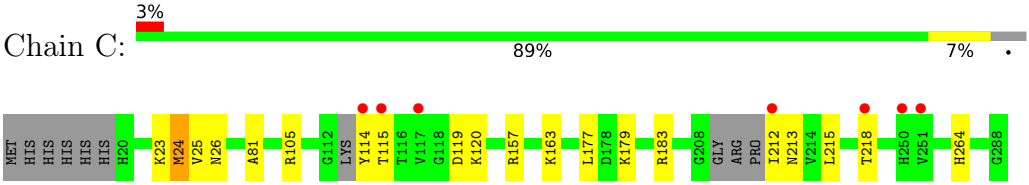
• Molecule 1: Uncharacterized protein

Chain B:



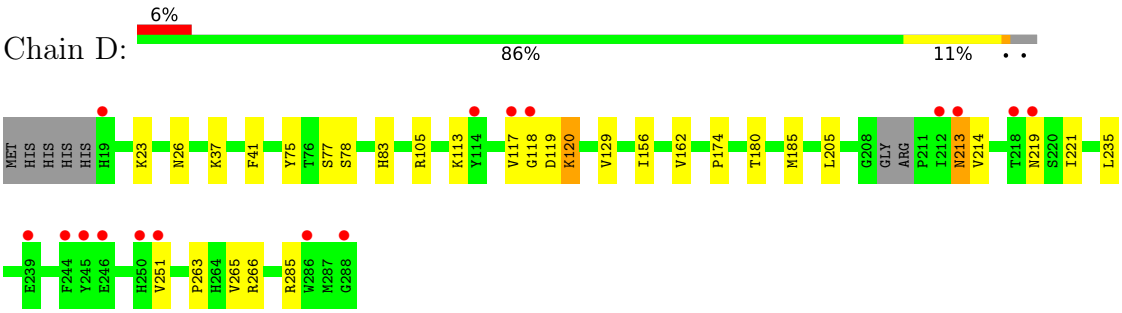
• Molecule 1: Uncharacterized protein

Chain C:



• Molecule 1: Uncharacterized protein

Chain D:



4 Data and refinement statistics (i)

Property	Value	Source
Space group	P 21 21 21	Depositor
Cell constants a, b, c, α, β, γ	96.50Å 99.44Å 146.05Å 90.00° 90.00° 90.00°	Depositor
Resolution (Å)	48.25 – 2.60 48.25 – 2.59	Depositor EDS
% Data completeness (in resolution range)	87.9 (48.25-2.60) 87.0 (48.25-2.59)	Depositor EDS
R_{merge}	(Not available)	Depositor
R_{sym}	(Not available)	Depositor
$< I/\sigma(I) >$ [1]	1.13 (at 2.58Å)	Xtriage
Refinement program	PHENIX 1.8.4_1496	Depositor
R, R_{free}	0.196 , 0.256 0.199 , 0.255	Depositor DCC
R_{free} test set	1949 reflections (5.03%)	wwPDB-VP
Wilson B-factor (Å^2)	41.4	Xtriage
Anisotropy	0.519	Xtriage
Bulk solvent k_{sol}(e/Å^3), B_{sol}(Å^2)	0.35 , 45.9	EDS
L-test for twinning[2]	$< \|L\| > = 0.48$, $< L^2 > = 0.31$	Xtriage
Estimated twinning fraction	0.003 for k,h,-l	Xtriage
F_o,F_c correlation	0.94	EDS
Total number of atoms	8759	wwPDB-VP
Average B, all atoms (Å^2)	43.0	wwPDB-VP

Xtriage's analysis on translational NCS is as follows: *The analyses of the Patterson function reveals a significant off-origin peak that is 58.02 % of the origin peak, indicating pseudo-translational symmetry. The chance of finding a peak of this or larger height randomly in a structure without pseudo-translational symmetry is equal to 2.1750e-05. The detected translational NCS is most likely also responsible for the elevated intensity ratio.*

[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: 1PE

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	0.21	0/2238	0.37	0/3030
1	B	0.21	0/2192	0.38	0/2967
1	C	0.22	0/2215	0.39	0/2997
1	D	0.24	0/2244	0.44	1/3037 (0.0%)
All	All	0.22	0/8889	0.40	1/12031 (0.0%)

There are no bond length outliers.

All (1) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
1	D	213	ASN	N-CA-C	-5.66	95.71	111.00

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	2176	0	2175	15	0
1	B	2133	0	2134	11	0
1	C	2155	0	2144	16	0
1	D	2181	0	2173	23	0
2	C	16	0	22	3	0
2	D	16	0	22	1	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
3	A	32	0	0	1	0
3	B	25	0	0	0	0
3	C	15	0	0	0	0
3	D	10	0	0	0	0
All	All	8759	0	8670	59	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.

All (59) 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:B:153:LEU:HD22	1:B:214:VAL:HG11	1.67	0.75
1:D:117:VAL:HG12	1:D:118:GLY:H	1.52	0.75
1:C:119:ASP:OD1	1:C:157:ARG:NH1	2.19	0.75
1:B:178:ASP:HA	1:B:205:LEU:HD22	1.71	0.73
1:A:194:TRP:HB2	2:C:300:1PE:H132	1.73	0.71
1:A:75:TYR:HB2	1:A:150:MET:HG3	1.76	0.68
1:A:29:ARG:HB3	1:C:26:ASN:HB2	1.79	0.64
1:D:37:LYS:HA	1:D:41:PHE:H	1.63	0.62
1:A:29:ARG:NH2	1:A:110:SER:O	2.34	0.61
1:B:29:ARG:HB3	1:D:26:ASN:HB2	1.84	0.60
1:C:105:ARG:HG3	1:C:115:THR:HG23	1.83	0.59
1:C:105:ARG:HH11	1:C:120:LYS:HE2	1.66	0.59
1:A:30:VAL:HG12	1:C:25:VAL:HG22	1.85	0.57
1:D:235:LEU:HD13	2:D:300:1PE:H241	1.86	0.56
1:D:119:ASP:OD1	1:D:119:ASP:N	2.38	0.56
1:B:126:LYS:HG2	1:B:162:VAL:HG22	1.88	0.55
1:D:117:VAL:HG12	1:D:118:GLY:N	2.22	0.55
1:C:264:HIS:HD2	2:C:300:1PE:H231	1.72	0.54
1:D:105:ARG:HD2	1:D:120:LYS:HB2	1.90	0.54
1:D:113:LYS:HD2	1:D:120:LYS:NZ	2.22	0.53
1:A:33:ASN:HB3	1:C:23:LYS:HB2	1.92	0.51
1:C:24:MET:HE1	1:C:114:TYR:HB2	1.92	0.51
1:D:219:ASN:HA	1:D:251:VAL:HG21	1.92	0.51
1:D:119:ASP:OD1	1:D:120:LYS:HG3	2.12	0.50
1:A:174:PRO:O	3:A:301:HOH:O	2.19	0.49
1:D:185:MET:HA	1:D:185:MET:HE2	1.95	0.48
1:C:24:MET:CE	1:C:114:TYR:HB2	2.44	0.48
1:D:83:HIS:CG	1:D:266:ARG:HH12	2.32	0.48
1:C:23:LYS:O	1:C:23:LYS:HD2	2.13	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:258:TRP:CE2	1:B:260:THR:HG22	2.50	0.47
1:B:33:ASN:HA	1:D:23:LYS:HG2	1.96	0.47
1:C:264:HIS:CD2	2:C:300:1PE:H231	2.50	0.46
1:C:163:LYS:H	1:C:163:LYS:HG2	1.46	0.45
1:B:242:GLN:O	1:B:246:GLU:HG2	2.16	0.45
1:A:219:ASN:HA	1:A:251:VAL:HG21	1.99	0.45
1:C:177:LEU:HD12	1:C:212:ILE:HB	1.99	0.45
1:D:77:SER:OG	1:D:78:SER:N	2.45	0.45
1:C:215:LEU:O	1:C:218:THR:OG1	2.31	0.44
1:C:105:ARG:NH1	1:C:120:LYS:HE2	2.33	0.44
1:A:48:ILE:HD13	1:A:128:GLY:HA2	2.00	0.44
1:D:156:ILE:HG23	1:D:221:ILE:HD11	2.00	0.44
1:A:55:LYS:HE3	1:A:55:LYS:HB2	1.75	0.43
1:A:75:TYR:O	1:A:107:HIS:NE2	2.44	0.43
1:D:120:LYS:HG3	1:D:120:LYS:H	1.63	0.43
1:B:178:ASP:HA	1:B:205:LEU:CD2	2.45	0.43
1:D:285:ARG:HE	1:D:285:ARG:HB2	1.62	0.42
1:D:113:LYS:HD2	1:D:120:LYS:HZ1	1.84	0.42
1:B:32:GLY:O	1:D:23:LYS:HE3	2.20	0.42
1:D:129:VAL:HG21	1:D:162:VAL:HG11	2.01	0.42
1:D:174:PRO:O	1:D:214:VAL:HG21	2.19	0.42
1:A:84:TYR:C	1:A:87:PRO:HD2	2.40	0.42
1:D:180:THR:HG23	1:D:235:LEU:HB3	2.01	0.41
1:C:179:LYS:O	1:C:183:ARG:HG3	2.20	0.41
1:A:62:ASP:OD2	1:A:139:LYS:NZ	2.54	0.41
1:B:204:GLU:C	1:B:205:LEU:HG	2.42	0.41
1:B:116:THR:HB	1:B:117:VAL:H	1.69	0.40
1:D:75:TYR:CE2	1:D:205:LEU:HG	2.57	0.40
1:A:258:TRP:CE2	1:A:260:THR:HG22	2.57	0.40
1:A:86:ARG:HB3	1:A:87:PRO:HD3	2.02	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	266/275 (97%)	256 (96%)	7 (3%)	3 (1%)	14 30
1	B	258/275 (94%)	247 (96%)	7 (3%)	4 (2%)	9 19
1	C	259/275 (94%)	242 (93%)	15 (6%)	2 (1%)	19 39
1	D	264/275 (96%)	253 (96%)	9 (3%)	2 (1%)	19 39
All	All	1047/1100 (95%)	998 (95%)	38 (4%)	11 (1%)	14 30

All (11) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	B	204	GLU
1	C	213	ASN
1	A	81	ALA
1	C	81	ALA
1	B	81	ALA
1	A	263	PRO
1	B	263	PRO
1	A	265	VAL
1	B	265	VAL
1	D	263	PRO
1	D	265	VAL

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	235/242 (97%)	234 (100%)	1 (0%)	91 97
1	B	231/242 (96%)	230 (100%)	1 (0%)	91 97
1	C	233/242 (96%)	232 (100%)	1 (0%)	91 97
1	D	236/242 (98%)	234 (99%)	2 (1%)	81 92
All	All	935/968 (97%)	930 (100%)	5 (0%)	88 96

All (5) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	214	VAL
1	B	216	ASN
1	C	24	MET
1	D	120	LYS
1	D	213	ASN

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

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 monosaccharides in this entry.

5.6 Ligand geometry (i)

2 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	1PE	C	300	-	15,15,15	0.55	0	14,14,14	0.43	0
2	1PE	D	300	-	15,15,15	0.54	0	14,14,14	0.48	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	1PE	C	300	-	-	6/13/13/13	-
2	1PE	D	300	-	-	7/13/13/13	-

There are no bond length outliers.

There are no bond angle outliers.

There are no chirality outliers.

All (13) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
2	C	300	1PE	OH6-C15-C25-OH5
2	D	300	1PE	OH4-C13-C23-OH3
2	C	300	1PE	OH4-C13-C23-OH3
2	D	300	1PE	OH5-C14-C24-OH4
2	C	300	1PE	OH5-C14-C24-OH4
2	C	300	1PE	C16-C26-OH6-C15
2	D	300	1PE	C24-C14-OH5-C25
2	D	300	1PE	C12-C22-OH3-C23
2	D	300	1PE	OH6-C15-C25-OH5
2	D	300	1PE	C15-C25-OH5-C14
2	C	300	1PE	C24-C14-OH5-C25
2	C	300	1PE	C15-C25-OH5-C14
2	D	300	1PE	C13-C23-OH3-C22

There are no ring outliers.

2 monomers are involved in 4 short contacts:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
2	C	300	1PE	3	0
2	D	300	1PE	1	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^{th} 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	268/275 (97%)	-0.33	3 (1%)	80	78	25, 34, 51, 73	0
1	B	262/275 (95%)	-0.27	3 (1%)	80	78	25, 36, 59, 88	0
1	C	265/275 (96%)	-0.09	7 (2%)	56	50	29, 40, 64, 82	0
1	D	268/275 (97%)	0.17	16 (5%)	21	16	29, 50, 80, 96	0
All	All	1063/1100 (96%)	-0.13	29 (2%)	54	48	25, 40, 68, 96	0

All (29) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	D	251	VAL	6.6
1	C	114	TYR	5.3
1	D	288	GLY	4.7
1	B	205	LEU	3.9
1	D	250	HIS	3.6
1	C	115	THR	3.6
1	D	218	THR	3.4
1	D	114	TYR	3.3
1	D	219	ASN	3.2
1	D	118	GLY	3.1
1	D	213	ASN	3.0
1	D	212	ILE	2.9
1	C	250	HIS	2.8
1	C	212	ILE	2.7
1	C	251	VAL	2.7
1	B	288	GLY	2.6
1	D	245	TYR	2.6
1	D	117	VAL	2.6
1	A	246	GLU	2.6
1	D	19	HIS	2.5
1	A	250	HIS	2.5

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Mol	Chain	Res	Type	RSRZ
1	D	244	PHE	2.5
1	C	117	VAL	2.4
1	D	239	GLU	2.4
1	D	246	GLU	2.3
1	A	21	GLY	2.3
1	B	239	GLU	2.1
1	C	218	THR	2.1
1	D	286	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, 95^{th} 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
2	1PE	C	300	16/16	0.90	0.23	37,48,58,59	0
2	1PE	D	300	16/16	0.94	0.20	38,47,55,56	0

6.5 Other polymers (i)

There are no such residues in this entry.