Full wwPDB X-ray Structure Validation Report (i)

Jan 30, 2024 – 01:35 PM EST

PDB ID	:	1FWW
Title	:	AQUIFEX AEOLICUS KDO8P SYNTHASE IN COMPLEX WITH PEP, A5P AND CADMIUM
Authors	:	Duewel, H.S.; Radaev, S.; Wang, J.; Woodard, R.W.; Gatti, D.L.
Deposited on	:	2000-09-24
Resolution	:	1.85 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 (i) 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 (i)) were used in the production of this report:

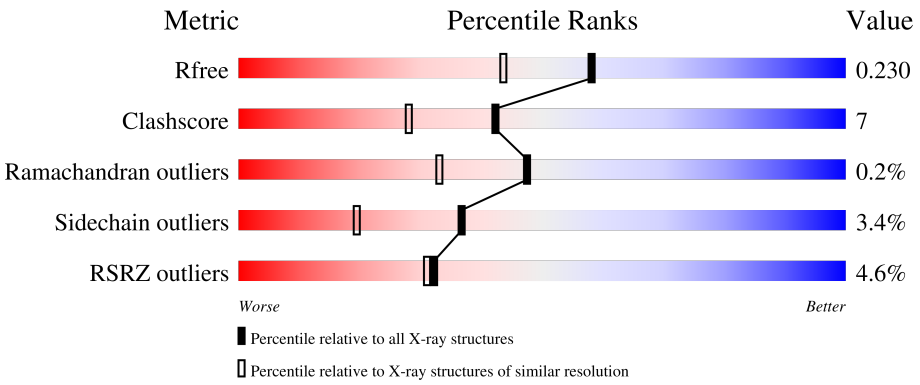
MolProbity	:	4.02b-467
Mogul	:	1.8.5 (274361), CSD as541be (2020)
Xtriage (Phenix)	:	1.13
EDS	:	2.36
Percentile statistics	:	20191225.v01 (using entries in the PDB archive December 25th 2019)
Refmac	:	5.8.0158
CCP4	:	7.0.044 (Gargrove)
Ideal geometry (proteins)	:	Engh & Huber (2001)
Ideal geometry (DNA, RNA)	:	Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP)	:	2.36

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 1.85 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	2469 (1.86-1.86)
Clashscore	141614	2625 (1.86-1.86)
Ramachandran outliers	138981	2592 (1.86-1.86)
Sidechain outliers	138945	2592 (1.86-1.86)
RSRZ outliers	127900	2436 (1.86-1.86)

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	267	4% 89% 8%
1	B	267	5% 73% 20%

2 Entry composition (i)

There are 6 unique types of molecules in this entry. The entry contains 4322 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.

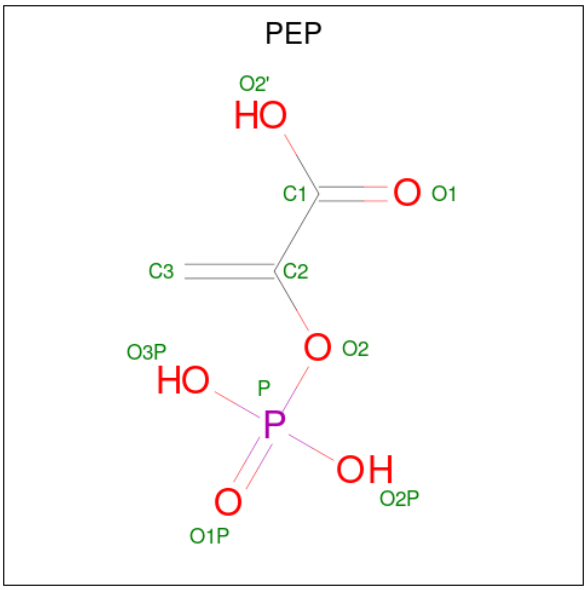
- Molecule 1 is a protein called 2-DEHYDRO-3-DEOXYPHOSPHOOCTONATE ALDOLASE.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
1	A	263	2065	1331	345	383	6	0	0	0
1	B	255	2013	1301	336	370	6	0	0	0

- Molecule 2 is CADMIUM ION (three-letter code: CD) (formula: Cd).

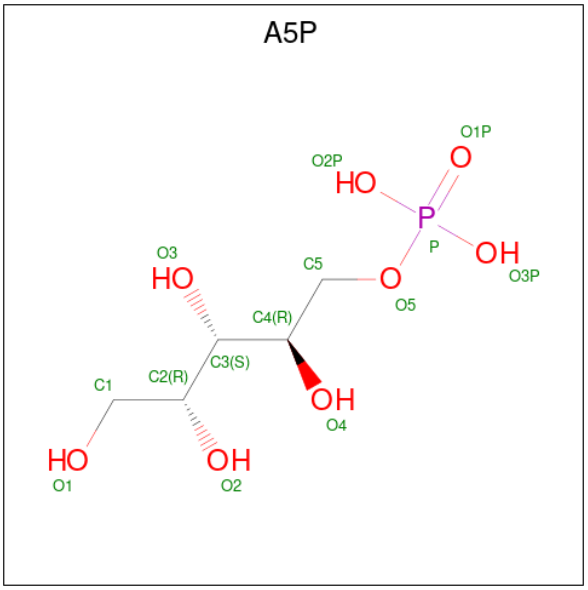
Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
			Total	Cd		
2	A	1	1	1	0	0
2	B	1	1	1	0	0

- Molecule 3 is PHOSPHOENOLPYRUVATE (three-letter code: PEP) (formula: $C_3H_5O_6P$).



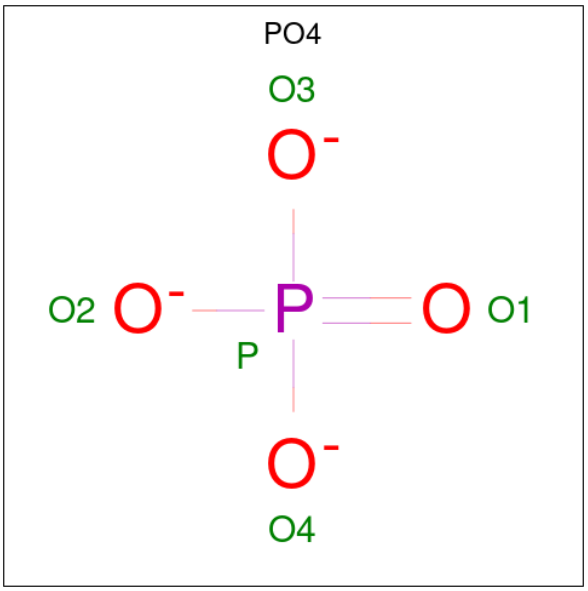
Mol	Chain	Residues	Atoms				ZeroOcc	AltConf
			Total	C	O	P		
3	A	1	10	3	6	1	0	0
			Total	C	O	P		
3	B	1	10	3	6	1	0	0

- Molecule 4 is ARABINOSE-5-PHOSPHATE (three-letter code: A5P) (formula: $C_5H_{13}O_8P$).



Mol	Chain	Residues	Atoms				ZeroOcc	AltConf
			Total	C	O	P		
4	A	1	14	5	8	1	0	0

- Molecule 5 is PHOSPHATE ION (three-letter code: PO4) (formula: O_4P).



Mol	Chain	Residues	Atoms			ZeroOcc	AltConf
			Total	O	P		
5	B	1	5	4	1	0	0

- Molecule 6 is water.

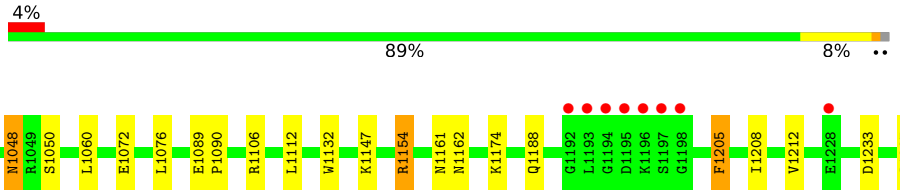
Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
			Total	O		
6	A	115	115	115	0	0
			Total	O		
6	B	88	88	88	0	0

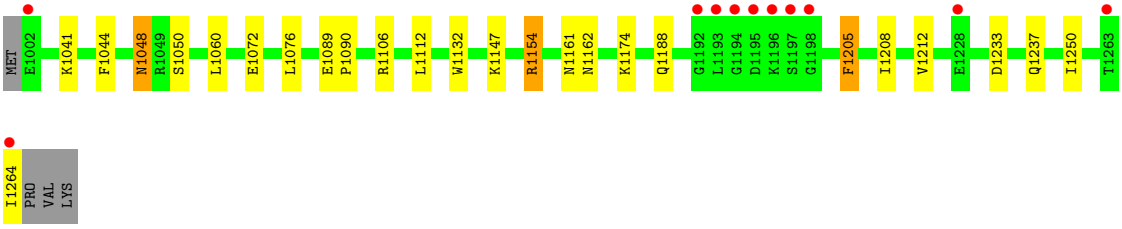
3 Residue-property plots (i)

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: 2-DEHYDRO-3-DEOXYPHOSPHOOCTONATE ALDOLASE

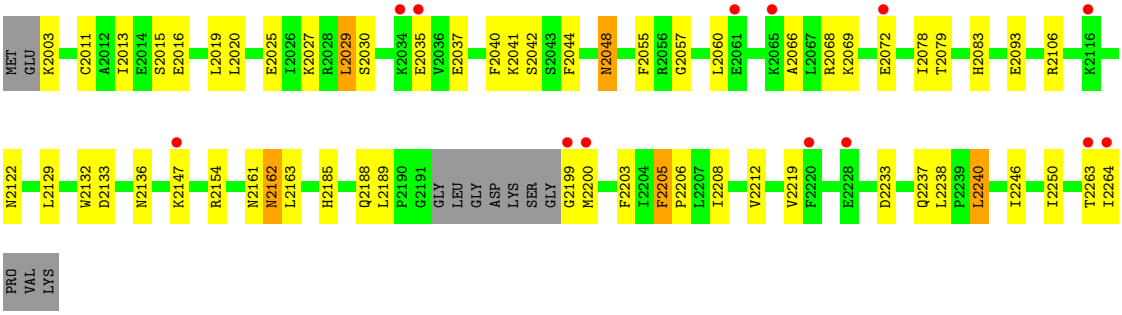
Chain A:





• Molecule 1: 2-DEHYDRO-3-DEOXYPHOSPHOOCTONATE ALDOLASE

Chain B:



4 Data and refinement statistics (i)

Property	Value	Source
Space group	P 31 2 1	Depositor
Cell constants a, b, c, α, β, γ	84.11Å 84.11Å 159.78Å 90.00° 90.00° 120.00°	Depositor
Resolution (Å)	27.13 – 1.85 27.13 – 1.79	Depositor EDS
% Data completeness (in resolution range)	91.4 (27.13-1.85) 85.2 (27.13-1.79)	Depositor EDS
R_{merge}	0.09	Depositor
R_{sym}	(Not available)	Depositor
$< I/\sigma(I) >$ [1]	1.12 (at 1.79Å)	Xtriage
Refinement program	CNS 1.0	Depositor
R, R_{free}	0.205 , 0.238 0.196 , 0.230	Depositor DCC
R_{free} test set	5271 reflections (9.60%)	wwPDB-VP
Wilson B-factor (Å^2)	33.9	Xtriage
Anisotropy	0.057	Xtriage
Bulk solvent k_{sol}(e/Å^3), B_{sol}(Å^2)	0.37 , 41.4	EDS
L-test for twinning[2]	$< \|L\| > = 0.49$, $< L^2 > = 0.32$	Xtriage
Estimated twinning fraction	0.025 for -h,-k,l	Xtriage
F_o,F_c correlation	0.96	EDS
Total number of atoms	4322	wwPDB-VP
Average B, all atoms (Å^2)	35.0	wwPDB-VP

Xtriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 4.45% of the height of the origin peak. No significant pseudotranslation is detected.*

[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 (i)

5.1 Standard geometry (i)

Bond lengths and bond angles in the following residue types are not validated in this section: PEP, A5P, CD, PO4

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	0.36	1/2106 (0.0%)	0.58	0/2840
1	B	0.32	0/2053	0.57	0/2769
All	All	0.34	1/4159 (0.0%)	0.57	0/5609

All (1) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
1	A	1072	GLU	CD-OE2	7.13	1.33	1.25

There are no bond angle outliers.

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	2065	0	2100	17	0
1	B	2013	0	2051	42	0
2	A	1	0	0	0	0
2	B	1	0	0	0	0
3	A	10	0	2	1	0
3	B	10	0	2	0	0
4	A	14	0	10	1	0
5	B	5	0	0	0	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
6	A	115	0	0	2	0
6	B	88	0	0	1	0
All	All	4322	0	4165	57	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 7.

All (57) 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:2208:ILE:HD11	1:B:2219:VAL:HG11	1.50	0.94
1:A:1161:ASN:HD21	1:B:2132:TRP:HE1	1.14	0.91
1:A:1174:LYS:HG3	1:A:1264:ILE:HD13	1.61	0.82
1:A:1154:ARG:HH22	1:A:1188:GLN:HE22	1.28	0.81
1:A:1132:TRP:HE1	1:B:2161:ASN:HD21	1.24	0.81
1:B:2185:HIS:O	1:B:2188:GLN:HG2	1.84	0.78
1:B:2011:CYS:H	1:B:2237:GLN:NE2	1.82	0.77
1:B:2208:ILE:CD1	1:B:2219:VAL:HG11	2.22	0.68
1:B:2011:CYS:H	1:B:2237:GLN:HE22	1.40	0.67
1:B:2188:GLN:HA	1:B:2199:GLY:HA3	1.77	0.67
1:B:2048:ASN:H	1:B:2048:ASN:HD22	1.45	0.65
1:B:2205:PHE:O	1:B:2208:ILE:HG22	1.97	0.63
1:B:2189:LEU:HG	1:B:2199:GLY:HA2	1.81	0.62
1:B:2263:THR:O	1:B:2264:ILE:HG22	2.04	0.58
1:A:1048:ASN:H	1:A:1048:ASN:HD22	1.52	0.57
1:A:1154:ARG:HH22	1:A:1188:GLN:NE2	2.02	0.57
1:A:1174:LYS:HG3	1:A:1264:ILE:HG21	1.88	0.56
1:B:2205:PHE:HB3	1:B:2206:PRO:HD3	1.87	0.56
1:B:2044:PHE:CZ	1:B:2060:LEU:HD13	2.42	0.54
6:A:3209:HOH:O	1:B:2083:HIS:HD2	1.92	0.53
1:B:2025:GLU:O	1:B:2029:LEU:HD22	2.09	0.52
1:B:2233:ASP:O	1:B:2237:GLN:HG3	2.10	0.52
1:B:2013:ILE:HG23	1:B:2019:LEU:HD11	1.91	0.51
1:B:2147:LYS:HB3	1:B:2147:LYS:NZ	2.27	0.50
1:A:1147:LYS:HE3	6:A:3184:HOH:O	2.11	0.50
1:B:2129:LEU:HG	1:B:2133:ASP:HB2	1.93	0.49
1:A:1205:PHE:O	1:A:1208:ILE:HG22	2.13	0.48
1:A:1233:ASP:O	1:A:1237:GLN:HG3	2.13	0.47
1:B:2020:LEU:HD21	1:B:2069:LYS:HG3	1.95	0.47
1:B:2019:LEU:HD12	1:B:2066:ALA:HB1	1.96	0.47
1:B:2055:PHE:CZ	1:B:2057:GLY:HA2	2.50	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:2212:VAL:HG11	1:B:2250:ILE:HB	1.97	0.47
1:B:2048:ASN:HD22	1:B:2048:ASN:N	2.08	0.47
1:B:2027:LYS:O	1:B:2030:SER:HB3	2.14	0.47
1:A:1041:LYS:HD3	1:A:1041:LYS:C	2.35	0.46
3:A:1268:PEP:H32	4:A:1269:A5P:H12	1.97	0.46
1:B:2093:GLU:HG3	6:B:3133:HOH:O	2.14	0.46
1:B:2238:LEU:HD21	1:B:2246:ILE:HD12	1.98	0.46
1:B:2016:GLU:O	1:B:2020:LEU:HG	2.17	0.45
1:A:1044:PHE:CZ	1:A:1060:LEU:HD23	2.51	0.45
1:B:2200:MET:HB2	1:B:2203:PHE:HD2	1.82	0.45
1:B:2078:ILE:HG22	1:B:2079:THR:N	2.32	0.45
1:B:2003:LYS:HB2	1:B:2035:GLU:O	2.16	0.44
1:A:1212:VAL:HG11	1:A:1250:ILE:HB	1.99	0.44
1:B:2162:ASN:HD22	1:B:2163:LEU:H	1.66	0.44
1:B:2041:LYS:HD3	1:B:2041:LYS:C	2.38	0.43
1:A:1050:SER:O	1:B:2136:ASN:HB3	2.19	0.43
1:B:2044:PHE:CE1	1:B:2060:LEU:HD13	2.53	0.43
1:B:2025:GLU:HG2	1:B:2240:LEU:HD22	1.99	0.43
1:A:1089:GLU:HB3	1:A:1090:PRO:CD	2.49	0.43
1:A:1048:ASN:HD22	1:A:1048:ASN:N	2.11	0.42
1:B:2040:PHE:HB3	1:B:2078:ILE:HD13	2.01	0.42
1:B:2078:ILE:CG2	1:B:2079:THR:N	2.83	0.42
1:B:2041:LYS:HD3	1:B:2042:SER:N	2.34	0.42
1:B:2068:ARG:O	1:B:2072:GLU:HG3	2.20	0.41
1:B:2003:LYS:HD2	1:B:2037:GLU:HB2	2.03	0.40
1:A:1060:LEU:HD13	1:A:1060:LEU:C	2.42	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	261/267 (98%)	257 (98%)	4 (2%)	0	100	100
1	B	251/267 (94%)	245 (98%)	5 (2%)	1 (0%)	34	19
All	All	512/534 (96%)	502 (98%)	9 (2%)	1 (0%)	47	33

All (1) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	B	2015	SER

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	220/224 (98%)	213 (97%)	7 (3%)	39	22
1	B	215/224 (96%)	207 (96%)	8 (4%)	34	17
All	All	435/448 (97%)	420 (97%)	15 (3%)	37	19

All (15) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	1048	ASN
1	A	1076	LEU
1	A	1106	ARG
1	A	1112	LEU
1	A	1154	ARG
1	A	1162	ASN
1	A	1205	PHE
1	B	2029	LEU
1	B	2048	ASN
1	B	2106	ARG
1	B	2122	ASN
1	B	2154	ARG
1	B	2162	ASN
1	B	2205	PHE
1	B	2240	LEU

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (14) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	1048	ASN
1	A	1058	HIS
1	A	1099	GLN
1	A	1161	ASN
1	A	1162	ASN
1	A	1175	GLN
1	A	1188	GLN
1	B	2048	ASN
1	B	2083	HIS
1	B	2122	ASN
1	B	2136	ASN
1	B	2161	ASN
1	B	2162	ASN
1	B	2237	GLN

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)

Of 6 ligands modelled in this entry, 2 are monoatomic - leaving 4 for Mogul analysis.

In the following table, the Counts columns list the number of bonds (or angles) for which Mogul statistics could be retrieved, the number of bonds (or angles) that are observed in the model and the number of bonds (or angles) that are defined in the Chemical Component Dictionary. The Link column lists molecule types, if any, to which the group is linked. The Z score for a bond length (or angle) is the number of standard deviations the observed value is removed from the expected value. A bond length (or angle) with $|Z| > 2$ is considered an outlier worth inspection. RMSZ is the root-mean-square of all Z scores of the bond lengths (or angles).

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	$\#\|Z\| > 2$	Counts	RMSZ	$\#\|Z\| > 2$
3	PEP	B	2268	-	9,9,9	2.39	3 (33%)	11,13,13	3.00	4 (36%)
5	PO4	B	2269	-	4,4,4	1.64	0	6,6,6	0.43	0
4	A5P	A	1269	-	13,13,13	1.56	1 (7%)	18,18,18	5.10	9 (50%)
3	PEP	A	1268	-	9,9,9	2.33	3 (33%)	11,13,13	2.22	4 (36%)

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	PEP	B	2268	-	-	0/9/9/9	-
4	A5P	A	1269	-	-	8/16/16/16	-
3	PEP	A	1268	-	-	2/9/9/9	-

All (7) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
3	B	2268	PEP	C2-C1	5.25	1.54	1.49
4	A	1269	A5P	O1-C1	-5.02	1.21	1.42
3	A	1268	PEP	C2-C1	4.88	1.54	1.49
3	B	2268	PEP	O2'-C1	-3.71	1.19	1.30
3	A	1268	PEP	O2'-C1	-3.70	1.19	1.30
3	A	1268	PEP	O1-C1	2.21	1.28	1.22
3	B	2268	PEP	O1-C1	2.09	1.28	1.22

All (17) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
4	A	1269	A5P	O2-C2-C3	13.02	140.76	109.10
4	A	1269	A5P	O4-C4-C3	8.84	130.59	109.10
4	A	1269	A5P	C1-C2-C3	-7.16	96.88	112.41
3	B	2268	PEP	O2'-C1-C2	6.92	125.72	113.91
4	A	1269	A5P	O4-C4-C5	-6.72	94.80	109.92
4	A	1269	A5P	C5-C4-C3	-6.11	100.41	112.20
4	A	1269	A5P	O3-C3-C2	5.75	122.71	108.81
3	A	1268	PEP	O2'-C1-C2	5.56	123.40	113.91
3	B	2268	PEP	O1-C1-C2	-5.27	113.85	121.79
4	A	1269	A5P	O1-C1-C2	4.40	120.66	111.07
4	A	1269	A5P	C4-C3-C2	-3.99	105.06	113.36
4	A	1269	A5P	O5-C5-C4	-3.11	101.06	109.36

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
3	B	2268	PEP	O2P-P-O2	-2.91	96.38	105.25
3	A	1268	PEP	O1-C1-C2	-2.80	117.57	121.79
3	A	1268	PEP	O2P-P-O1P	2.74	121.40	110.68
3	B	2268	PEP	O3P-P-O1P	2.26	119.51	110.68
3	A	1268	PEP	O2'-C1-O1	-2.00	119.02	123.61

There are no chirality outliers.

All (10) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
3	A	1268	PEP	O2'-C1-C2-C3
4	A	1269	A5P	O1-C1-C2-C3
4	A	1269	A5P	C2-C3-C4-O4
4	A	1269	A5P	C2-C3-C4-C5
4	A	1269	A5P	O3-C3-C4-O4
4	A	1269	A5P	O3-C3-C4-C5
4	A	1269	A5P	O4-C4-C5-O5
4	A	1269	A5P	C1-C2-C3-C4
4	A	1269	A5P	C3-C4-C5-O5
3	A	1268	PEP	O1-C1-C2-C3

There are no ring outliers.

2 monomers are involved in 1 short contact:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
4	A	1269	A5P	1	0
3	A	1268	PEP	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 (i)

6.1 Protein, DNA and RNA chains (i)

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	263/267 (98%)	0.04	11 (4%)	36	34	23, 32, 50, 67	0
1	B	255/267 (95%)	0.20	13 (5%)	28	26	24, 36, 52, 62	0
All	All	518/534 (97%)	0.12	24 (4%)	32	31	23, 33, 52, 67	0

All (24) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	B	2264	ILE	4.7
1	A	1193	LEU	4.5
1	A	1264	ILE	4.2
1	A	1194	GLY	4.1
1	A	1198	GLY	4.0
1	B	2035	GLU	3.7
1	B	2147	LYS	3.7
1	A	1195	ASP	3.6
1	B	2065	LYS	3.2
1	B	2263	THR	3.1
1	A	1263	THR	3.0
1	A	1196	LYS	2.9
1	B	2061	GLU	2.8
1	B	2200	MET	2.8
1	A	1197	SER	2.7
1	A	1228	GLU	2.7
1	B	2199	GLY	2.6
1	A	1002	GLU	2.5
1	B	2228	GLU	2.5
1	A	1192	GLY	2.3
1	B	2220	PHE	2.2
1	B	2034	LYS	2.2
1	B	2116	LYS	2.1
1	B	2072	GLU	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
4	A5P	A	1269	14/14	0.93	0.18	47,62,67,67	0
5	PO4	B	2269	5/5	0.97	0.08	50,52,53,54	0
3	PEP	B	2268	10/10	0.98	0.11	26,32,35,35	0
2	CD	B	2270	1/1	0.98	0.04	36,36,36,36	1
3	PEP	A	1268	10/10	0.98	0.10	25,29,32,32	0
2	CD	A	1270	1/1	1.00	0.03	37,37,37,37	1

6.5 Other polymers (i)

There are no such residues in this entry.