Full wwPDB X-ray Structure Validation Report (i)

Dec 1, 2022 – 12:18 am GMT

PDB ID	:	6HYJ
Title	:	PSPH Human phosphoserine phosphatase
Authors	:	Wouters, J.; Haufroid, M.; Mirgaux, M.
Deposited on	:	2018-10-22
Resolution	:	1.93 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 (1)) were used in the production of this report:

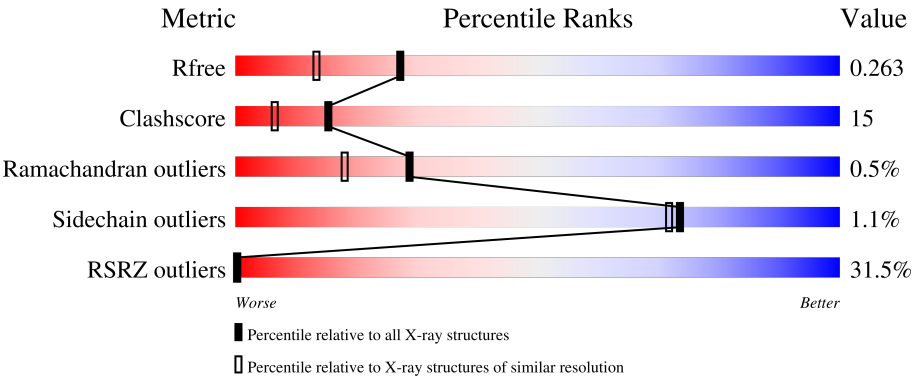
MolProbity	:	4.02b-467
Mogul	:	1.8.4, CSD as541be (2020)
Xtriage (Phenix)	:	1.13
EDS	:	2.31.3
Percentile statistics	:	20191225.v01 (using entries in the PDB archive December 25th 2019)
Refmac	:	5.8.0267
CCP4	:	7.1.010 (Gargrove)
Ideal geometry (proteins)	:	Engh & Huber (2001)
Ideal geometry (DNA, RNA)	:	Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP)	:	2.31.3

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 1.93 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	7937 (1.94-1.90)
Clashscore	141614	8644 (1.94-1.90)
Ramachandran outliers	138981	8530 (1.94-1.90)
Sidechain outliers	138945	8530 (1.94-1.90)
RSRZ outliers	127900	7793 (1.94-1.90)

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	224	30% 76% 22%
1	B	224	32% 78% 20%

The following table lists non-polymeric compounds, carbohydrate monomers and non-standard residues in protein, DNA, RNA chains that are outliers for geometric or electron-density-fit criteria:

Mol	Type	Chain	Res	Chirality	Geometry	Clashes	Electron density
2	SEP	A	301	-	-	X	X
2	SEP	B	301	-	-	-	X
4	SER	B	303	-	-	-	X

2 Entry composition (i)

There are 5 unique types of molecules in this entry. The entry contains 3684 atoms, of which 6 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.

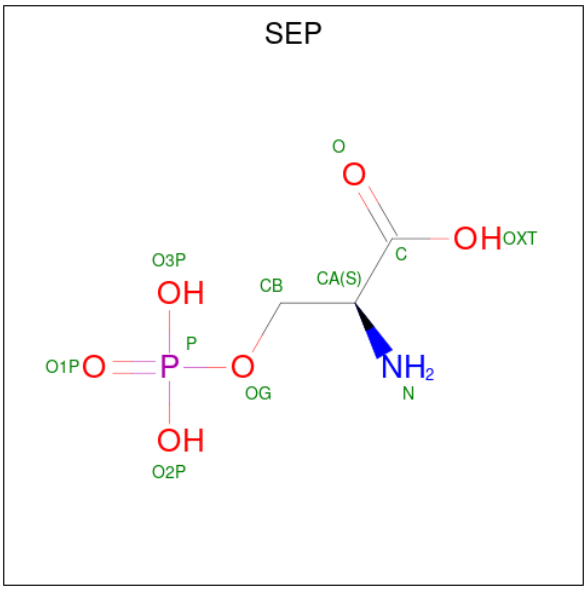
- Molecule 1 is a protein called Phosphoserine phosphatase.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
1	A	221	Total	C	N	O	S	0	1	0
			1737	1106	300	323	8			
1	B	223	Total	C	N	O	S	0	0	0
			1725	1101	295	322	7			

There are 4 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
A	1	MET	-	initiating methionine	UNP P78330
A	2	ILE	-	expression tag	UNP P78330
B	1	MET	-	initiating methionine	UNP P78330
B	2	ILE	-	expression tag	UNP P78330

- Molecule 2 is PHOSPHOSERINE (three-letter code: SEP) (formula: $C_3H_8NO_6P$).

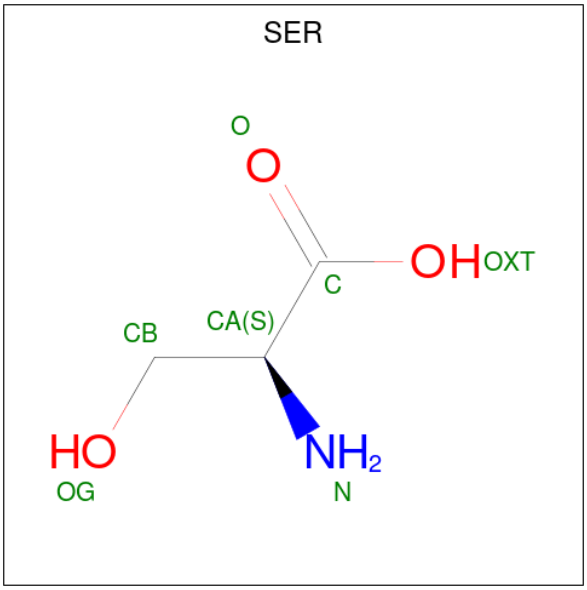


Mol	Chain	Residues	Atoms					ZeroOcc	AltConf
2	A	1	Total	C	N	O	P	0	0
			11	3	1	6	1		
2	B	1	Total	C	N	O	P	0	0
			11	3	1	6	1		

- Molecule 3 is CALCIUM ION (three-letter code: CA) (formula: Ca).

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
3	A	1	Total	Ca	0	0
			1	1		
3	B	1	Total	Ca	0	0
			1	1		

- Molecule 4 is SERINE (three-letter code: SER) (formula: $C_3H_7NO_3$).



Mol	Chain	Residues	Atoms					ZeroOcc	AltConf
4	B	1	Total	C	H	N	O	0	0
			13	3	6	1	3		

- Molecule 5 is water.

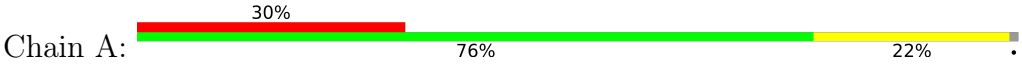
Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
5	A	106	Total	O	0	0
			106	106		
5	B	79	Total	O	0	0
			79	79		

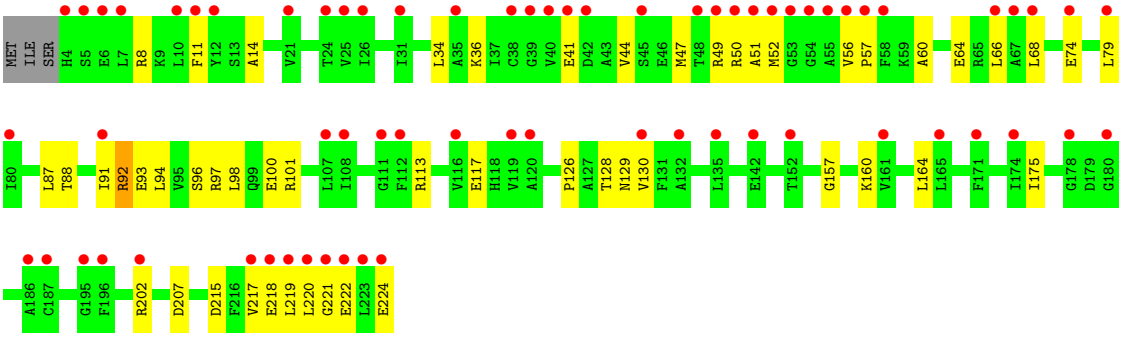
3 Residue-property plots (i)

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: Phosphoserine phosphatase

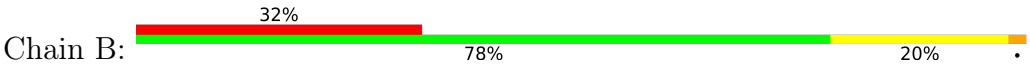
Chain A:

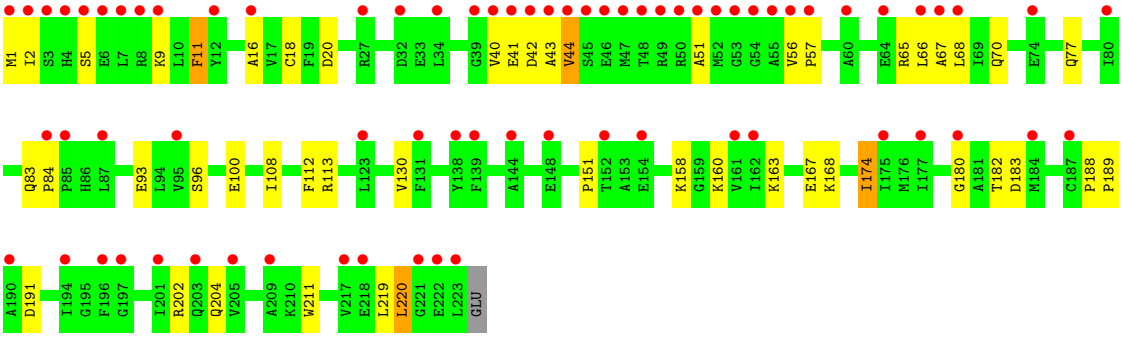




• Molecule 1: Phosphoserine phosphatase

Chain B:





4 Data and refinement statistics (i)

Property	Value	Source
Space group	C 2 2 21	Depositor
Cell constants a, b, c, α, β, γ	48.67Å 128.97Å 155.71Å 90.00° 90.00° 90.00°	Depositor
Resolution (Å)	34.23 – 1.93 34.23 – 1.93	Depositor EDS
% Data completeness (in resolution range)	98.7 (34.23-1.93) 98.7 (34.23-1.93)	Depositor EDS
R_{merge}	0.03	Depositor
R_{sym}	(Not available)	Depositor
$< I/\sigma(I) >$ [1]	1.16 (at 1.94Å)	Xtriage
Refinement program	PHENIX 1.13_2998	Depositor
R, R_{free}	0.200 , 0.263 0.200 , 0.263	Depositor DCC
R_{free} test set	1847 reflections (5.00%)	wwPDB-VP
Wilson B-factor (Å^2)	43.3	Xtriage
Anisotropy	0.260	Xtriage
Bulk solvent k_{sol}(e/Å^3), B_{sol}(Å^2)	(Not available) , (Not available)	EDS
L-test for twinning[2]	$< \|L\| > = 0.48$, $< L^2 > = 0.31$	Xtriage
Estimated twinning fraction	No twinning to report.	Xtriage
F_o,F_c correlation	0.96	EDS
Total number of atoms	3684	wwPDB-VP
Average B, all atoms (Å^2)	48.0	wwPDB-VP

Xtriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 6.12% 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

5.1 Standard geometry

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

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	0.42	0/1769	0.58	1/2384 (0.0%)
1	B	0.43	0/1757	0.54	0/2371
All	All	0.43	0/3526	0.56	1/4755 (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	A	92	ARG	NE-CZ-NH2	-5.04	117.78	120.30

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	1737	0	1743	59	0
1	B	1725	0	1724	45	0
2	A	11	0	5	4	0
2	B	11	0	5	2	0
3	A	1	0	0	0	0
3	B	1	0	0	0	0
4	B	7	6	4	0	0
5	A	106	0	0	16	0

Continued on next page...

Continued from previous page...

Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
5	B	79	0	0	5	0
All	All	3678	6	3481	104	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 15.

All (104) 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)
2:A:301:SEP:O	5:A:401:HOH:O	1.63	1.17
1:A:97:ARG:NH1	1:A:100:GLU:OE1	1.89	1.05
1:A:49:ARG:HA	1:A:52[B]:MET:HE3	1.40	1.03
2:B:301:SEP:OG	5:B:401:HOH:O	1.86	0.94
1:A:207:ASP:OD2	5:A:402:HOH:O	1.95	0.83
1:A:49:ARG:O	1:A:52[B]:MET:HG2	1.79	0.82
1:A:97:ARG:HD2	5:A:414:HOH:O	1.80	0.82
1:A:44:VAL:HA	1:A:47:MET:HE3	1.62	0.81
2:A:301:SEP:O3P	5:A:403:HOH:O	1.98	0.81
1:A:50:ARG:CZ	1:B:2:ILE:HG21	2.11	0.80
1:A:47:MET:CE	1:A:68:LEU:HD12	2.14	0.77
1:B:5:SER:O	1:B:9:LYS:HD3	1.85	0.77
1:A:74:GLU:OE1	5:A:406:HOH:O	2.05	0.75
1:B:168:LYS:HD2	2:B:301:SEP:O3P	1.86	0.75
1:B:41:GLU:HG2	1:B:42:ASP:H	1.53	0.74
1:A:96:SER:O	1:A:100:GLU:HG3	1.88	0.73
1:A:217:VAL:HA	1:A:220:LEU:HD12	1.70	0.73
1:A:11:PHE:CE1	1:A:219:LEU:HD13	2.24	0.72
1:B:44:VAL:HG22	1:B:68:LEU:HD22	1.70	0.72
2:A:301:SEP:N	5:A:408:HOH:O	2.18	0.71
1:B:56:VAL:HG22	1:B:57:PRO:HD2	1.72	0.70
1:A:221:GLY:O	1:A:222:GLU:HG2	1.92	0.70
1:B:93:GLU:OE1	5:B:402:HOH:O	2.10	0.69
1:A:47:MET:HE1	1:A:68:LEU:HD12	1.75	0.68
1:B:163:LYS:O	1:B:167:GLU:HG3	1.95	0.66
1:A:8:ARG:HH21	1:A:222:GLU:CG	2.10	0.65
1:B:40:VAL:HG12	1:B:43:ALA:HB3	1.79	0.65
1:A:92:ARG:NH2	5:A:411:HOH:O	2.27	0.64
1:A:217:VAL:N	5:A:404:HOH:O	1.99	0.64
1:A:97:ARG:HH12	1:A:100:GLU:CD	2.01	0.63
1:B:18:CYS:SG	1:B:174:ILE:HD11	2.39	0.63
1:A:47:MET:HE2	1:A:68:LEU:HD12	1.80	0.62

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:97:ARG:NH1	1:A:224:GLU:OE2	2.33	0.62
1:B:1:MET:HB2	1:B:211:TRP:CZ3	2.35	0.62
1:A:14:ALA:HB2	1:A:175:ILE:HD12	1.82	0.60
1:A:217:VAL:HB	5:A:490:HOH:O	1.99	0.60
1:A:36:LYS:HE2	1:A:41:GLU:OE2	2.01	0.60
1:B:40:VAL:HG12	1:B:68:LEU:HD21	1.84	0.60
1:B:44:VAL:HG13	1:B:65:ARG:HG2	1.84	0.59
2:A:301:SEP:HB2	5:A:439:HOH:O	2.01	0.59
1:B:56:VAL:HG22	1:B:57:PRO:CD	2.33	0.58
1:B:44:VAL:O	1:B:44:VAL:HG12	2.04	0.58
1:A:128:THR:HG23	1:A:129:ASN:OD1	2.04	0.57
1:A:92:ARG:NH2	5:A:409:HOH:O	2.18	0.57
1:B:1:MET:O	1:B:1:MET:HG3	2.04	0.57
1:A:92:ARG:HD2	5:A:405:HOH:O	2.05	0.56
1:B:40:VAL:CG1	1:B:68:LEU:HD21	2.35	0.56
1:B:41:GLU:HG2	1:B:42:ASP:N	2.21	0.56
1:B:108:ILE:CG2	1:B:158:LYS:HG2	2.36	0.55
1:A:79:LEU:O	1:A:79:LEU:HD23	2.06	0.55
1:A:79:LEU:HD23	1:A:79:LEU:C	2.26	0.55
1:B:180:GLY:HA2	1:B:202:ARG:HD2	1.89	0.54
1:A:51:ALA:HA	1:A:56:VAL:HG22	1.88	0.54
1:A:50:ARG:NE	1:B:2:ILE:HG12	2.22	0.54
1:A:50:ARG:CZ	1:B:2:ILE:HG12	2.40	0.51
1:A:157:GLY:HA2	1:A:160:LYS:HD2	1.91	0.51
1:A:50:ARG:NH1	1:B:2:ILE:HG21	2.25	0.51
1:A:50:ARG:NH2	1:B:2:ILE:HG12	2.26	0.51
1:B:11:PHE:CE2	1:B:219:LEU:HD21	2.46	0.50
1:B:65:ARG:HH11	1:B:65:ARG:HG3	1.75	0.50
1:B:93:GLU:HB2	5:B:402:HOH:O	2.11	0.50
1:B:188:PRO:HB2	1:B:189:PRO:HA	1.93	0.50
1:A:34:LEU:HA	1:A:79:LEU:HD12	1.94	0.49
1:B:67:ALA:O	1:B:70:GLN:HG3	2.13	0.49
1:B:151:PRO:HB3	1:B:160:LYS:HD3	1.94	0.49
1:A:8:ARG:HH21	1:A:222:GLU:HG2	1.76	0.48
1:A:87:LEU:HD12	1:A:92:ARG:NH1	2.29	0.47
1:B:108:ILE:HG22	1:B:158:LYS:HG2	1.95	0.47
1:A:219:LEU:HD23	1:A:219:LEU:HA	1.73	0.46
1:B:113:ARG:NH2	1:B:130:VAL:O	2.45	0.46
1:A:126:PRO:HB2	1:A:128:THR:HG22	1.97	0.46
1:A:113:ARG:HG3	1:A:117:GLU:HG3	1.98	0.46
1:A:215:ASP:OD1	5:A:404:HOH:O	2.21	0.46

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:182:THR:HB	5:B:463:HOH:O	2.16	0.46
1:B:20:ASP:HB2	1:B:183:ASP:OD1	2.16	0.46
1:A:160:LYS:O	1:A:164:LEU:HG	2.17	0.45
1:B:96:SER:O	1:B:100:GLU:HG3	2.16	0.45
1:A:97:ARG:HG3	1:A:220:LEU:CD2	2.47	0.45
1:A:52[B]:MET:SD	1:A:202:ARG:NH1	2.78	0.44
1:A:87:LEU:HD12	1:A:92:ARG:CZ	2.47	0.44
1:A:93:GLU:O	1:A:97:ARG:HG2	2.17	0.44
1:B:108:ILE:HG21	1:B:158:LYS:HG2	1.99	0.44
1:A:101:ARG:HG3	5:A:434:HOH:O	2.16	0.44
1:B:83:GLN:O	1:B:83:GLN:HG2	2.18	0.44
1:A:97:ARG:NH1	5:A:412:HOH:O	2.50	0.43
1:A:113:ARG:NH2	1:A:130:VAL:O	2.47	0.43
1:A:51:ALA:HA	1:A:56:VAL:CG2	2.48	0.43
1:B:77:GLN:HB2	5:B:404:HOH:O	2.16	0.43
1:B:220:LEU:HD13	1:B:220:LEU:HA	1.76	0.43
1:A:60:ALA:O	1:A:64:GLU:HG3	2.19	0.43
1:B:66:LEU:HD21	1:B:112:PHE:CZ	2.54	0.42
1:A:56:VAL:HB	1:A:57:PRO:CD	2.50	0.42
1:B:174:ILE:HG22	1:B:191:ASP:OD2	2.20	0.42
1:A:88:THR:O	1:A:91:ILE:HG22	2.20	0.42
1:A:92:ARG:NE	5:A:409:HOH:O	2.47	0.41
1:A:215:ASP:O	1:A:218:GLU:HG3	2.20	0.41
1:B:1:MET:HB2	1:B:211:TRP:CE3	2.55	0.41
1:B:83:GLN:N	1:B:84:PRO:CD	2.84	0.41
1:A:36:LYS:HG3	1:A:41:GLU:HG3	2.03	0.41
1:A:66:LEU:HD23	1:A:66:LEU:HA	1.86	0.41
1:A:94:LEU:HA	1:A:220:LEU:HD21	2.03	0.40
1:B:16:ALA:HB3	1:B:174:ILE:HD12	2.04	0.40
1:A:98:LEU:HD23	1:A:98:LEU:HA	1.94	0.40
1:B:2:ILE:HD12	1:B:2:ILE:H	1.86	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	220/224 (98%)	212 (96%)	8 (4%)	0	100 100
1	B	221/224 (99%)	206 (93%)	13 (6%)	2 (1%)	17 7
All	All	441/448 (98%)	418 (95%)	21 (5%)	2 (0%)	29 18

All (2) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	B	51	ALA
1	B	44	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	184/186 (99%)	184 (100%)	0	100 100
1	B	181/186 (97%)	177 (98%)	4 (2%)	52 45
All	All	365/372 (98%)	361 (99%)	4 (1%)	73 72

All (4) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	B	11	PHE
1	B	174	ILE
1	B	204	GLN
1	B	220	LEU

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)

Of 5 ligands modelled in this entry, 2 are monoatomic - leaving 3 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	$\#\|Z\| > 2$
4	SER	B	303	-	5,6,6	0.99	1 (20%)	5,7,7	1.51	2 (40%)
2	SEP	B	301	-	9,10,10	1.64	2 (22%)	12,14,14	1.64	3 (25%)
2	SEP	A	301	-	9,10,10	1.61	1 (11%)	12,14,14	1.96	4 (33%)

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	SER	B	303	-	-	4/6/6/6	-
2	SEP	B	301	-	-	2/10/10/10	-
2	SEP	A	301	-	-	4/10/10/10	-

All (4) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
2	A	301	SEP	P-O1P	3.65	1.62	1.50
2	B	301	SEP	P-O1P	3.46	1.61	1.50
4	B	303	SER	OXT-C	-2.11	1.23	1.30

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
2	B	301	SEP	OXT-C	-2.08	1.23	1.30

All (9) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
2	A	301	SEP	OG-CB-CA	3.74	111.32	108.06
2	A	301	SEP	P-OG-CB	-3.27	109.29	118.30
2	B	301	SEP	OXT-C-O	-3.16	116.92	124.09
2	A	301	SEP	OXT-C-CA	2.99	123.55	113.38
2	B	301	SEP	OXT-C-CA	2.91	123.30	113.38
2	A	301	SEP	OXT-C-O	-2.75	117.84	124.09
2	B	301	SEP	OG-CB-CA	2.64	110.36	108.06
4	B	303	SER	OXT-C-O	-2.59	118.22	124.09
4	B	303	SER	OXT-C-CA	2.09	120.50	113.38

There are no chirality outliers.

All (10) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
2	A	301	SEP	CB-OG-P-O1P
2	A	301	SEP	CB-OG-P-O3P
2	B	301	SEP	CB-OG-P-O1P
4	B	303	SER	O-C-CA-CB
4	B	303	SER	OXT-C-CA-CB
4	B	303	SER	OXT-C-CA-N
4	B	303	SER	O-C-CA-N
2	A	301	SEP	CB-OG-P-O2P
2	B	301	SEP	CB-OG-P-O3P
2	A	301	SEP	OXT-C-CA-CB

There are no ring outliers.

2 monomers are involved in 6 short contacts:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
2	B	301	SEP	2	0
2	A	301	SEP	4	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	221/224 (98%)	1.88	68 (30%) 0 0	30, 43, 70, 92	0
1	B	223/224 (99%)	2.26	72 (32%) 0 0	32, 47, 85, 110	0
All	All	444/448 (99%)	2.07	140 (31%) 0 0	30, 45, 77, 110	0

All (140) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	B	223	LEU	20.1
1	B	53	GLY	18.7
1	B	51	ALA	16.2
1	B	54	GLY	15.3
1	B	52	MET	13.9
1	A	223	LEU	12.8
1	B	50	ARG	12.7
1	A	4	HIS	10.5
1	B	44	VAL	9.4
1	B	2	ILE	9.2
1	B	42	ASP	9.2
1	B	55	ALA	9.1
1	A	56	VAL	8.4
1	A	40	VAL	7.4
1	B	1	MET	7.3
1	B	43	ALA	7.0
1	B	12	TYR	6.7
1	B	48	THR	6.6
1	B	4	HIS	6.3
1	B	40	VAL	6.2
1	A	52[A]	MET	6.0
1	B	3	SER	6.0
1	A	5	SER	5.7
1	A	224	GLU	5.6

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type	RSRZ
1	B	56	VAL	5.6
1	B	49	ARG	5.5
1	A	10	LEU	5.5
1	B	221	GLY	5.5
1	A	39	GLY	5.5
1	A	54	GLY	5.3
1	B	222	GLU	5.2
1	B	41	GLU	5.1
1	A	41	GLU	5.0
1	A	220	LEU	4.9
1	B	60	ALA	4.9
1	B	47	MET	4.7
1	B	85	PRO	4.6
1	A	217	VAL	4.6
1	A	48	THR	4.5
1	A	58	PHE	4.4
1	A	42	ASP	4.4
1	B	8	ARG	4.4
1	B	68	LEU	4.2
1	A	55	ALA	4.2
1	B	74	GLU	4.0
1	A	21	VAL	4.0
1	A	222	GLU	4.0
1	A	25	VAL	3.9
1	A	219	LEU	3.8
1	A	218	GLU	3.8
1	B	201	ILE	3.5
1	B	9	LYS	3.4
1	A	51	ALA	3.4
1	B	162	ILE	3.3
1	A	6	GLU	3.3
1	A	116	VAL	3.3
1	B	205	VAL	3.3
1	B	190	ALA	3.2
1	A	111	GLY	3.2
1	A	38	CYS	3.2
1	A	130	VAL	3.2
1	B	45	SER	3.2
1	A	26	ILE	3.1
1	A	66	LEU	3.1
1	B	148	GLU	3.1
1	A	221	GLY	3.1

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type	RSRZ
1	B	144	ALA	3.0
1	A	119	VAL	3.0
1	A	91	ILE	2.9
1	B	209	ALA	2.9
1	A	107	LEU	2.9
1	A	186	ALA	2.9
1	B	187	CYS	2.9
1	A	53	GLY	2.9
1	A	202	ARG	2.9
1	B	131	PHE	2.8
1	B	64	GLU	2.8
1	A	12	TYR	2.8
1	A	57	PRO	2.7
1	B	57	PRO	2.7
1	A	79	LEU	2.7
1	B	196	PHE	2.7
1	A	68	LEU	2.7
1	B	7	LEU	2.7
1	A	35	ALA	2.6
1	A	11	PHE	2.6
1	B	218	GLU	2.6
1	A	74	GLU	2.6
1	A	80	ILE	2.6
1	B	177	ILE	2.6
1	A	196	PHE	2.6
1	B	34	LEU	2.5
1	B	175	ILE	2.5
1	A	132	ALA	2.5
1	A	7	LEU	2.5
1	A	178	GLY	2.5
1	A	108	ILE	2.5
1	B	5	SER	2.5
1	A	171	PHE	2.4
1	B	139	PHE	2.4
1	A	31	ILE	2.4
1	A	120	ALA	2.4
1	A	50	ARG	2.4
1	A	152	THR	2.3
1	B	39	GLY	2.3
1	B	180	GLY	2.3
1	B	95	VAL	2.3
1	A	180	GLY	2.3

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type	RSRZ
1	A	165	LEU	2.3
1	A	161	VAL	2.3
1	A	24	THR	2.3
1	A	135	LEU	2.3
1	B	32	ASP	2.3
1	A	67	ALA	2.2
1	B	217	VAL	2.2
1	A	195	GLY	2.2
1	B	6	GLU	2.2
1	B	203	GLN	2.2
1	B	66	LEU	2.2
1	B	67	ALA	2.2
1	A	142	GLU	2.2
1	B	138	TYR	2.2
1	B	46	GLU	2.2
1	A	45	SER	2.1
1	B	184	MET	2.1
1	B	27	ARG	2.1
1	B	161	VAL	2.1
1	A	174	ILE	2.1
1	B	16	ALA	2.1
1	B	197	GLY	2.1
1	B	152	THR	2.1
1	A	187	CYS	2.1
1	A	112	PHE	2.0
1	B	87	LEU	2.0
1	B	123	LEU	2.0
1	B	84	PRO	2.0
1	B	80	ILE	2.0
1	B	194	ILE	2.0
1	A	49	ARG	2.0
1	B	154	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, 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	SEP	B	301	11/11	0.34	0.51	51,59,65,66	11
4	SER	B	303	7/7	0.57	0.48	57,60,72,77	13
2	SEP	A	301	11/11	0.77	0.55	40,50,57,57	11
3	CA	B	302	1/1	0.98	0.11	38,38,38,38	0
3	CA	A	302	1/1	0.98	0.17	35,35,35,35	0

6.5 Other polymers (i)

There are no such residues in this entry.