Full wwPDB X-ray Structure Validation Report ⓘ

Oct 30, 2023 – 01:57 PM JST

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PDB ID	:	5B36
Title	:	Crystal Structure of the O-Phosphoserine Sulfhydrylase from Aeropyrum pernix Complexed with Cysteine
Authors	:	Nakamura, T.; Takeda, E.; Kawai, Y.; Kataoka, M.; Ishikawa, K.
Deposited on	:	2016-02-10
Resolution	:	2.15 Å(reported)

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 2.15 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.
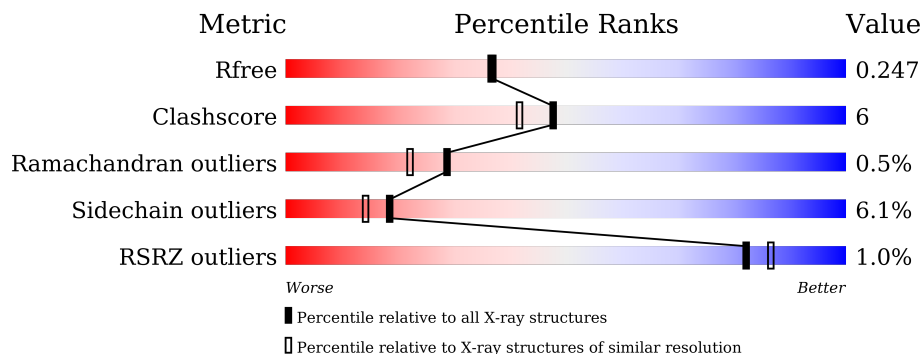
Metric	Whole archive (#Entries)	Similar resolution (#Entries, resolution range(Å))
R_{free}	130704	1479 (2.16-2.16)
Clashscore	141614	1585 (2.16-2.16)
Ramachandran outliers	138981	1560 (2.16-2.16)
Sidechain outliers	138945	1559 (2.16-2.16)
RSRZ outliers	127900	1456 (2.16-2.16)

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	389	.% 83% 13% . .
1	B	389	.% 80% 17% . . .

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
3	CYS	B	402	-	X	X	-

2   Entry composition (i)

There are 5 unique types of molecules in this entry. The entry contains 6234 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 Protein CysO.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
1	A	382	Total	C	N	O	S	0	2	0
			2937	1863	518	547	9			
1	B	383	Total	C	N	O	S	0	6	0
			2977	1885	526	557	9			

- Molecule 2 is PYRIDOXAL-5'-PHOSPHATE (three-letter code: PLP) (formula: $C_8H_{10}NO_6P$).
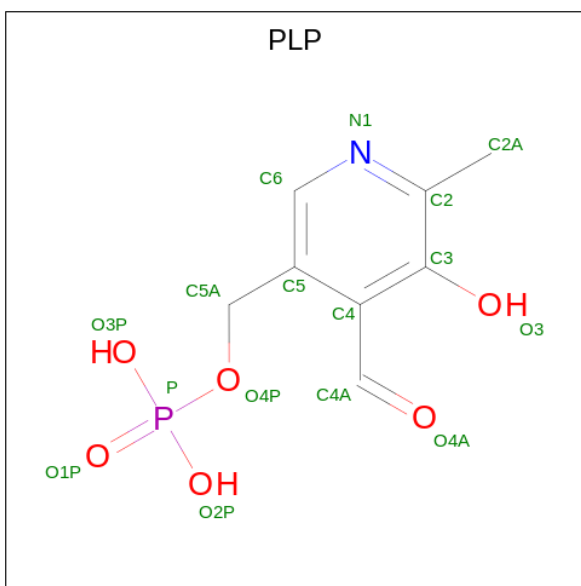
Mol	Chain	Residues	Atoms					ZeroOcc	AltConf
2	A	1	Total	C	N	O	P	0	0
			15	8	1	5	1		
2	B	1	Total	C	N	O	P	0	0
			15	8	1	5	1		

- Molecule 3 is CYSTEINE (three-letter code: CYS) (formula: $C_3H_7NO_2S$).
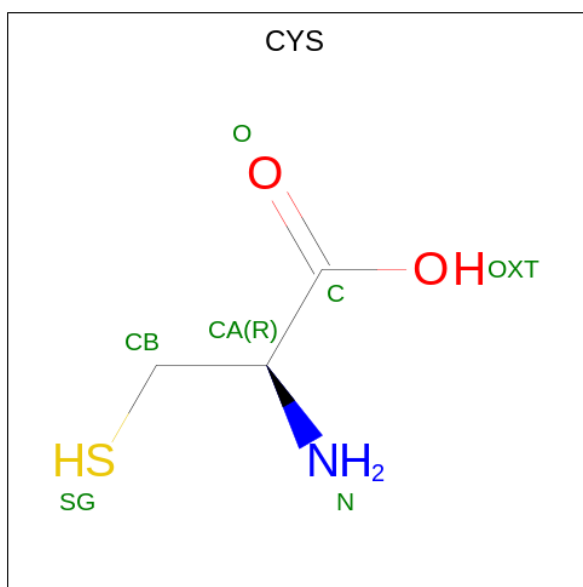
Mol	Chain	Residues	Atoms					ZeroOcc	AltConf
3	A	1	Total 7	C 3	N 1	O 2	S 1	0	0
3	B	1	Total 7	C 3	N 1	O 2	S 1	0	0

- Molecule 4 is (4S)-2-METHYL-2,4-PENTANEDIOL (three-letter code: MPD) (formula: $C_6H_{14}O_2$).
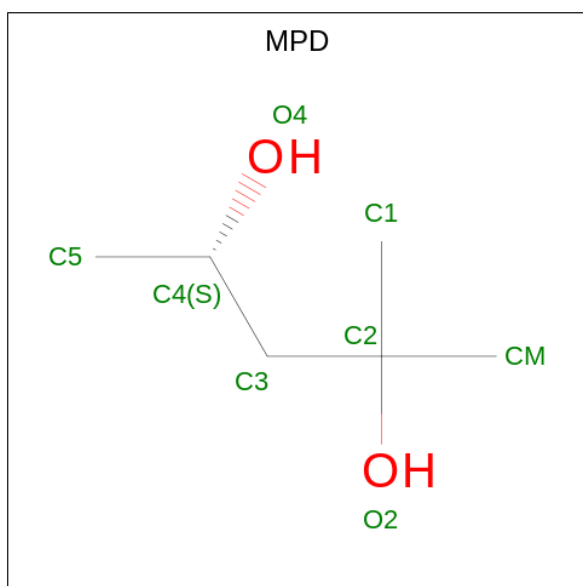
Mol	Chain	Residues	Atoms			ZeroOcc	AltConf
4	A	1	Total 8	C 6	O 2	0	0

- Molecule 5 is water.

Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
5	A	139	Total O 139 139	0	0
5	B	129	Total O 129 129	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: Protein CysO
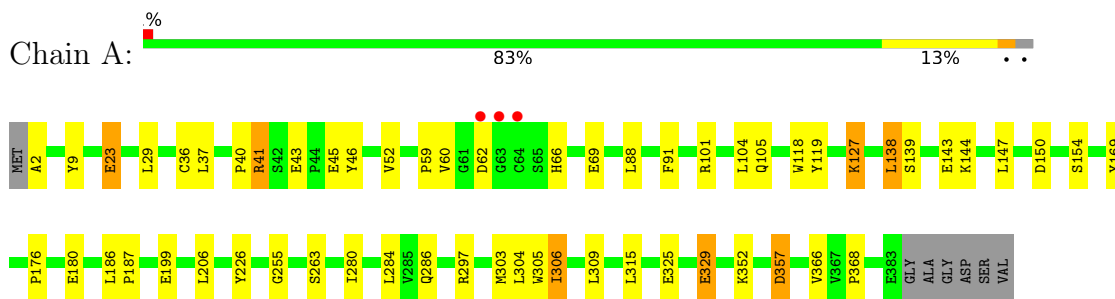
• Molecule 1: Protein CysO
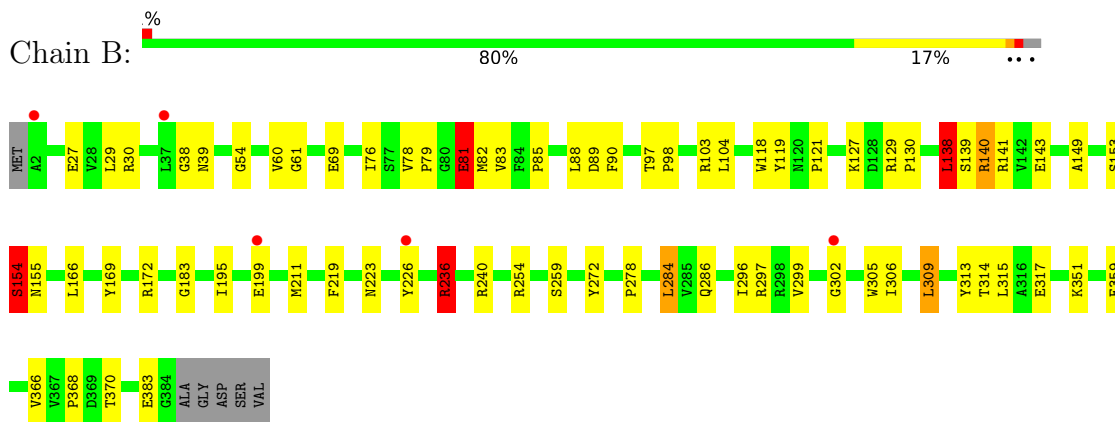
4 Data and refinement statistics ⓘ

Property	Value	Source
Space group	P 43 21 2	Depositor
Cell constants a, b, c, α, β, γ	74.18Å 74.18Å 278.99Å 90.00° 90.00° 90.00°	Depositor
Resolution (Å)	49.10 – 2.15 49.10 – 2.15	Depositor EDS
% Data completeness (in resolution range)	92.1 (49.10-2.15) 92.1 (49.10-2.15)	Depositor EDS
R_{merge}	(Not available)	Depositor
R_{sym}	(Not available)	Depositor
$< I/\sigma(I) >$ [1]	6.22 (at 2.16Å)	Xtriage
Refinement program	REFMAC 5.5.0110	Depositor
R, R_{free}	0.180 , 0.246 0.179 , 0.247	Depositor DCC
R_{free} test set	1991 reflections (4.97%)	wwPDB-VP
Wilson B-factor (Å^2)	32.5	Xtriage
Anisotropy	0.042	Xtriage
Bulk solvent k_{sol}(e/Å^3), B_{sol}(Å^2)	0.32 , 42.2	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	0.96	EDS
Total number of atoms	6234	wwPDB-VP
Average B, all atoms (Å^2)	36.0	wwPDB-VP

Xtriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 6.09% 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: PLP, MPD

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	1.18	6/2996 (0.2%)	0.97	5/4065 (0.1%)
1	B	1.16	8/3037 (0.3%)	0.98	4/4120 (0.1%)
All	All	1.17	14/6033 (0.2%)	0.98	9/8185 (0.1%)

All (14) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
1	A	23	GLU	CG-CD	9.01	1.65	1.51
1	A	23	GLU	CB-CG	8.92	1.69	1.52
1	A	118	TRP	CB-CG	6.30	1.61	1.50
1	A	325	GLU	CG-CD	6.12	1.61	1.51
1	B	119	TYR	CE2-CZ	6.02	1.46	1.38
1	B	226	TYR	CD1-CE1	5.73	1.48	1.39
1	A	226	TYR	CD2-CE2	5.66	1.47	1.39
1	B	81	GLU	CG-CD	5.66	1.60	1.51
1	B	27	GLU	CG-CD	5.52	1.60	1.51
1	B	199	GLU	CG-CD	5.47	1.60	1.51
1	B	272	TYR	CE1-CZ	5.42	1.45	1.38
1	A	329	GLU	CG-CD	5.33	1.59	1.51
1	B	219	PHE	CE1-CZ	5.19	1.47	1.37
1	B	226	TYR	CG-CD2	5.05	1.45	1.39

All (9) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	B	138	LEU	CA-CB-CG	7.24	131.96	115.30
1	A	127	LYS	CD-CE-NZ	-6.80	96.06	111.70
1	A	88	LEU	CA-CB-CG	6.75	130.83	115.30
1	B	236	ARG	NE-CZ-NH1	6.35	123.47	120.30
1	B	82	MET	CG-SD-CE	-6.30	90.12	100.20

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
1	A	297	ARG	NE-CZ-NH1	5.76	123.18	120.30
1	B	138	LEU	CB-CG-CD1	-5.70	101.31	111.00
1	A	297	ARG	NE-CZ-NH2	-5.20	117.70	120.30
1	A	150	ASP	CB-CG-OD1	5.08	122.87	118.30

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	2937	0	2954	30	0
1	B	2977	0	2978	40	0
2	A	15	0	7	3	0
2	B	15	0	6	3	0
3	A	7	0	4	2	0
3	B	7	0	4	5	0
4	A	8	0	14	0	0
5	A	139	0	0	5	4
5	B	129	0	0	12	3
All	All	6234	0	5967	73	5

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 6.

All (73) 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:127:LYS:NZ	2:A:401:PLP:C4A	1.71	1.51
1:A:127:LYS:HZ3	2:A:401:PLP:C4A	1.33	1.29
2:B:401:PLP:C4A	3:B:402:CYS:N	2.12	1.11
1:B:211:MET:HE1	5:B:624:HOH:O	1.54	1.06
1:B:359:GLU:HG3	5:B:506:HOH:O	1.58	1.00
1:B:103:ARG:HG3	5:B:539:HOH:O	1.61	0.99
1:B:211:MET:CE	5:B:624:HOH:O	2.11	0.86

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:38:GLY:O	1:B:61:GLY:HA3	1.75	0.86
2:A:401:PLP:C4A	3:A:402:CYS:N	2.42	0.83
1:A:101[B]:ARG:HH21	1:A:101[B]:ARG:CG	1.93	0.82
1:A:180:GLU:HG2	5:A:606:HOH:O	1.83	0.78
1:B:60:VAL:HG12	5:B:616:HOH:O	1.84	0.78
1:B:85:PRO:HD2	1:B:89:ASP:OD2	1.84	0.76
1:A:139:SER:HA	1:A:169:TYR:OH	1.94	0.68
1:A:101[B]:ARG:HH21	1:A:101[B]:ARG:HG3	1.61	0.65
1:B:140:ARG:NH1	5:B:503:HOH:O	2.29	0.65
1:B:286:GLN:HG2	1:B:315:LEU:HD22	1.80	0.64
1:B:60:VAL:CG1	5:B:616:HOH:O	2.46	0.61
1:A:101[B]:ARG:HH21	1:A:101[B]:ARG:HG2	1.65	0.60
1:A:41:ARG:HB2	5:A:562:HOH:O	2.00	0.59
1:B:302:GLY:HA2	5:B:612:HOH:O	2.03	0.58
1:B:302:GLY:CA	5:B:612:HOH:O	2.52	0.57
1:B:172:ARG:HD3	1:B:195:ILE:HD12	1.86	0.57
1:A:59:PRO:HB3	1:A:66:HIS:CD2	2.41	0.56
1:B:383:GLU:OE1	5:B:501:HOH:O	2.18	0.55
1:B:127:LYS:NZ	3:B:402:CYS:N	2.54	0.55
1:A:366:VAL:O	1:A:368:PRO:HD3	2.07	0.55
1:A:329:GLU:OE1	1:A:329:GLU:HA	2.08	0.54
2:B:401:PLP:C4	3:B:402:CYS:N	2.70	0.54
1:A:255:GLY:HA2	1:A:280:ILE:HG23	1.89	0.53
1:B:284:LEU:HD22	1:B:313:TYR:HB2	1.90	0.52
1:B:366:VAL:O	1:B:368:PRO:HD3	2.09	0.52
1:B:138:LEU:C	1:B:138:LEU:HD23	2.29	0.52
1:A:304:LEU:HD23	1:A:305:TRP:CE2	2.46	0.51
1:A:45:GLU:HG3	5:A:617:HOH:O	2.12	0.50
1:A:40:PRO:HG3	1:A:60:VAL:HG23	1.94	0.49
1:A:37:LEU:HD21	1:A:46:TYR:CD2	2.47	0.49
1:A:286:GLN:HG2	1:A:315:LEU:HD22	1.95	0.49
1:A:303:MET:HB2	1:A:306:ILE:HD11	1.93	0.49
1:A:127:LYS:HZ3	3:A:402:CYS:HA	1.79	0.47
1:B:90:PHE:CE2	1:B:121:PRO:HB3	2.49	0.47
1:A:352:LYS:O	1:A:357:ASP:OD1	2.33	0.47
1:B:54:GLY:HA2	1:B:236:ARG:NH1	2.30	0.47
1:B:38:GLY:O	1:B:61:GLY:CA	2.54	0.47
1:B:254:ARG:NH1	5:B:506:HOH:O	2.38	0.46
1:A:263:SER:CB	1:A:306:ILE:HG12	2.45	0.46
1:B:78:VAL:HG22	1:B:79:PRO:HD2	1.97	0.46
1:A:2:ALA:N	5:A:513:HOH:O	2.49	0.46

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:186:LEU:N	1:A:187:PRO:CD	2.78	0.46
1:B:305:TRP:HB3	1:B:309:LEU:HD22	1.98	0.46
1:B:127:LYS:NZ	3:B:402:CYS:CA	2.79	0.45
1:A:176:PRO:HD3	1:A:206:LEU:HD11	1.99	0.45
1:A:91:PHE:CD1	1:A:91:PHE:C	2.91	0.44
1:B:153:SER:OG	3:B:402:CYS:CB	2.66	0.44
1:B:236:ARG:O	1:B:240:ARG:HD2	2.18	0.43
1:B:155:ASN:ND2	2:B:401:PLP:H2A1	2.33	0.43
1:B:139:SER:HA	1:B:169:TYR:OH	2.18	0.43
1:B:30[B]:ARG:HH12	1:B:278:PRO:CG	2.32	0.42
1:A:101[B]:ARG:CG	1:A:101[B]:ARG:NH2	2.63	0.42
1:B:166:LEU:HD23	1:B:166:LEU:HA	1.92	0.42
1:B:317:GLU:O	1:B:351:LYS:HE3	2.20	0.42
1:A:9:TYR:CD1	1:A:9:TYR:N	2.87	0.42
1:B:153:SER:O	1:B:154:SER:CB	2.67	0.42
1:B:149:ALA:HA	1:B:172:ARG:O	2.19	0.41
1:B:154:SER:OG	1:B:183:GLY:HA3	2.19	0.41
1:B:129:ARG:N	1:B:130:PRO:HD2	2.36	0.41
1:B:97:THR:HA	1:B:98:PRO:HD3	1.93	0.41
1:B:297:ARG:HD3	5:B:605:HOH:O	2.21	0.41
1:A:352:LYS:HD3	1:A:352:LYS:HA	1.91	0.41
1:B:81:GLU:HG2	1:B:83:VAL:HG23	2.03	0.41
1:A:147:LEU:HB2	5:A:582:HOH:O	2.20	0.40
1:A:138:LEU:HD12	1:A:138:LEU:HA	1.82	0.40
1:B:259:SER:HB2	1:B:296:ILE:HG21	2.03	0.40

All (5) symmetry-related close contacts are listed below. The label for Atom-2 includes the symmetry operator and encoded unit-cell translations to be applied.

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
5:A:626:HOH:O	5:B:627:HOH:O[5_654]	1.82	0.38
5:B:506:HOH:O	5:B:526:HOH:O[5_644]	1.99	0.21
5:A:557:HOH:O	5:B:617:HOH:O[4_555]	2.03	0.17
5:A:556:HOH:O	5:A:556:HOH:O[7_645]	2.09	0.11
5:A:625:HOH:O	5:A:629:HOH:O[7_645]	2.17	0.03

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	382/389 (98%)	375 (98%)	5 (1%)	2 (0%)	29	22
1	B	387/389 (100%)	376 (97%)	9 (2%)	2 (0%)	29	22
All	All	769/778 (99%)	751 (98%)	14 (2%)	4 (0%)	29	22

All (4) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	A	154	SER
1	B	154	SER
1	B	223	ASN
1	A	119	TYR

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	311/313 (99%)	293 (94%)	18 (6%)	20	15
1	B	315/313 (101%)	295 (94%)	20 (6%)	18	13
All	All	626/626 (100%)	588 (94%)	38 (6%)	18	14

All (38) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	23	GLU
1	A	29	LEU

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Mol	Chain	Res	Type
1	A	36	CYS
1	A	41	ARG
1	A	43	GLU
1	A	52	VAL
1	A	62	ASP
1	A	69	GLU
1	A	104	LEU
1	A	105	GLN
1	A	138	LEU
1	A	143	GLU
1	A	144	LYS
1	A	199	GLU
1	A	284	LEU
1	A	306	ILE
1	A	309	LEU
1	A	357	ASP
1	B	29	LEU
1	B	39	ASN
1	B	69	GLU
1	B	76	ILE
1	B	81	GLU
1	B	88	LEU
1	B	104	LEU
1	B	118	TRP
1	B	138	LEU
1	B	140	ARG
1	B	141	ARG
1	B	143	GLU
1	B	154	SER
1	B	236	ARG
1	B	284	LEU
1	B	299	VAL
1	B	306	ILE
1	B	309	LEU
1	B	314	THR
1	B	370	THR

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (3) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	66	HIS
1	B	39	ASN

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Mol	Chain	Res	Type
1	B	193	GLN

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 ⓘ

5 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	PLP	B	401	1	15,15,16	1.85	5 (33%)	20,22,23	3.35	9 (45%)
2	PLP	A	401	-	15,15,16	1.32	2 (13%)	20,22,23	3.41	12 (60%)
3	CYS	A	402	-	5,6,6	1.70	2 (40%)	5,7,7	1.22	1 (20%)
4	MPD	A	403	-	7,7,7	0.71	0	9,10,10	0.83	0
3	CYS	B	402	-	5,6,6	1.28	1 (20%)	5,7,7	3.20	4 (80%)

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	PLP	B	401	1	-	2/6/6/8	0/1/1/1
2	PLP	A	401	-	-	2/6/6/8	0/1/1/1
3	CYS	A	402	-	-	4/6/6/6	-
4	MPD	A	403	-	-	0/5/5/5	-
3	CYS	B	402	-	-	5/6/6/6	-

All (10) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
2	B	401	PLP	P-O1P	-3.98	1.37	1.50
2	B	401	PLP	C2A-C2	3.47	1.56	1.50
3	A	402	CYS	OXT-C	-2.79	1.21	1.30
2	A	401	PLP	C2A-C2	2.53	1.54	1.50
2	B	401	PLP	C3-C2	-2.43	1.38	1.40
3	A	402	CYS	CB-SG	-2.38	1.76	1.81
3	B	402	CYS	OXT-C	-2.36	1.22	1.30
2	B	401	PLP	O4P-C5A	2.34	1.53	1.45
2	A	401	PLP	C3-C2	-2.21	1.38	1.40
2	B	401	PLP	C6-C5	2.09	1.42	1.37

All (26) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
2	B	401	PLP	O4P-P-O1P	8.90	131.44	106.47
2	A	401	PLP	O4P-P-O1P	-7.36	85.83	106.47
2	A	401	PLP	O3P-P-O1P	-6.03	87.07	110.68
2	B	401	PLP	O3P-P-O1P	-5.52	89.06	110.68
2	B	401	PLP	O3P-P-O2P	-5.45	86.79	107.64
3	B	402	CYS	CA-CB-SG	-5.23	103.17	114.44
2	A	401	PLP	O2P-P-O1P	-4.74	92.14	110.68
2	A	401	PLP	O3P-P-O4P	4.69	119.20	106.73
2	B	401	PLP	O2P-P-O4P	4.53	118.79	106.73
2	A	401	PLP	O3P-P-O2P	4.37	124.33	107.64
2	B	401	PLP	O3P-P-O4P	-4.36	95.14	106.73
2	A	401	PLP	O4P-C5A-C5	4.19	117.33	109.35
2	A	401	PLP	O2P-P-O4P	3.57	116.23	106.73
2	A	401	PLP	C3-C4-C5	3.54	122.57	118.74
2	B	401	PLP	C2A-C2-C3	-3.54	116.52	120.89
2	A	401	PLP	C6-C5-C4	-3.26	115.59	118.16
3	B	402	CYS	CB-CA-C	3.24	113.12	109.89
2	B	401	PLP	C2A-C2-N1	3.16	123.84	117.67
3	B	402	CYS	OXT-C-CA	2.67	122.47	113.38

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
2	A	401	PLP	O3-C3-C2	2.65	123.27	117.49
2	A	401	PLP	C4A-C4-C5	-2.47	118.39	120.94
3	A	402	CYS	OXT-C-O	-2.43	118.58	124.09
2	B	401	PLP	O4P-C5A-C5	2.41	113.95	109.35
3	B	402	CYS	OXT-C-O	-2.24	119.00	124.09
2	B	401	PLP	C3-C4-C5	2.18	121.10	118.74
2	A	401	PLP	C6-N1-C2	2.07	123.00	119.17

There are no chirality outliers.

All (13) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
2	A	401	PLP	C5A-O4P-P-O3P
3	A	402	CYS	O-C-CA-CB
3	A	402	CYS	OXT-C-CA-CB
3	A	402	CYS	C-CA-CB-SG
3	B	402	CYS	N-CA-CB-SG
3	B	402	CYS	C-CA-CB-SG
2	B	401	PLP	C5A-O4P-P-O1P
3	B	402	CYS	O-C-CA-CB
3	B	402	CYS	OXT-C-CA-CB
2	A	401	PLP	C6-C5-C5A-O4P
2	B	401	PLP	C5A-O4P-P-O3P
3	A	402	CYS	OXT-C-CA-N
3	B	402	CYS	OXT-C-CA-N

There are no ring outliers.

4 monomers are involved in 10 short contacts:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
2	B	401	PLP	3	0
2	A	401	PLP	3	0
3	A	402	CYS	2	0
3	B	402	CYS	5	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(Å²)	Q<0.9
1	A	382/389 (98%)	-0.29	3 (0%)	86	89	22, 34, 54, 67	0
1	B	383/389 (98%)	-0.24	5 (1%)	77	82	24, 33, 51, 68	0
All	All	765/778 (98%)	-0.26	8 (1%)	82	86	22, 33, 53, 68	0

All (8) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	A	62	ASP	4.4
1	A	64	CYS	3.0
1	B	37	LEU	3.0
1	B	302	GLY	2.5
1	B	226	TYR	2.4
1	A	63	GLY	2.3
1	B	199	GLU	2.0
1	B	2	ALA	2.0

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	CYS	A	402	7/7	0.88	0.17	44,47,52,61	0
3	CYS	B	402	7/7	0.90	0.12	33,39,44,53	0
4	MPD	A	403	8/8	0.95	0.15	27,35,37,39	0
2	PLP	B	401	15/16	0.98	0.07	23,28,32,36	0
2	PLP	A	401	15/16	0.98	0.10	22,33,38,40	0

6.5 Other polymers ⓘ

There are no such residues in this entry.

W O R L D W I D E
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