



wwPDB X-ray Structure Validation Summary Report i

Mar 1, 2014 – 02:40 AM GMT

PDB ID : 4B9B
Title : The structure of the omega aminotransferase from Pseudomonas aeruginosa
Authors : Sayer, C.; Isupov, M.N.; Westlake, A.; Littlechild, J.A.
Deposited on : 2012-09-03
Resolution : 1.64 Å(reported)

This is a wwPDB validation summary report for a publicly released PDB entry.

We welcome your comments at validation@mail.wwpdb.org

A user guide is available at <http://wwpdb.org/ValidationPDFNotes.html>

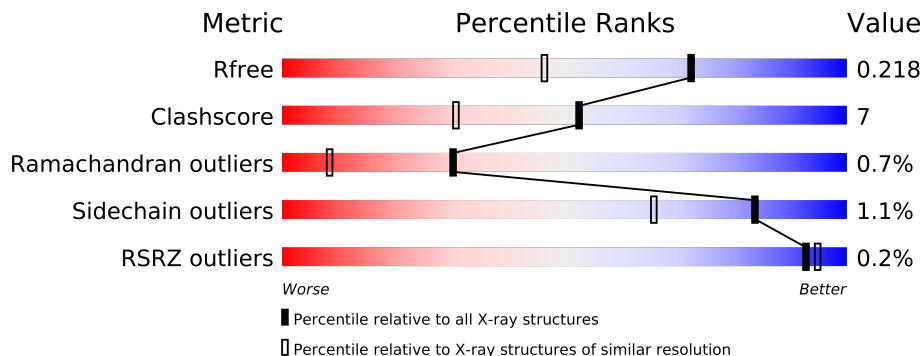
The following versions of software and data (see [references](#)) were used in the production of this report:

MolProbity	:	4.02b-467
Mogul	:	1.15 2013
Xtriage (Phenix)	:	dev-1323
EDS	:	stable22639
Percentile statistics	:	21963
Refmac	:	5.8.0049
CCP4	:	6.3.0 (Settle)
Ideal geometry (proteins)	:	Engh & Huber (2001)
Ideal geometry (DNA, RNA)	:	Parkinson et. al. (1996)
Validation Pipeline (wwPDB-VP)	:	stable22683

1 Overall quality at a glance

The reported resolution of this entry is 1.64 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}	66092	1326 (1.66-1.62)
Clashscore	79885	1525 (1.66-1.62)
Ramachandran outliers	78287	1490 (1.66-1.62)
Sidechain outliers	78261	1490 (1.66-1.62)
RSRZ outliers	66119	1326 (1.66-1.62)

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 on the lower bar indicate the fraction of residues that contain outliers for ≥ 3 , 2, 1 and 0 types of geometric quality criteria. The upper red bar (where present) indicates the fraction of residues that have poor fit to the electron density.

Mol	Chain	Length	Quality of chain
1	A	448	
1	B	448	
1	C	448	
1	D	448	
1	E	448	
1	F	448	
1	G	448	
1	H	448	

The following table lists non-polymeric compounds that are outliers for geometric or electron-density-fit criteria:

Mol	Type	Chain	Res	Geometry	Electron density
2	PLP	A	500	-	X

Continued on next page...

Continued from previous page...

Mol	Type	Chain	Res	Geometry	Electron density
2	PLP	B	500	-	X
2	PLP	C	500	-	X
2	PLP	D	500	-	X
2	PLP	E	500	-	X
2	PLP	F	500	-	X
2	PLP	G	500	-	X
2	PLP	H	500	-	X
3	GOL	A	501	-	X
3	GOL	A	504	-	X
3	GOL	B	504	-	X
3	GOL	C	501	-	X
3	GOL	C	504	-	X
3	GOL	E	504	-	X
3	GOL	F	501	-	X
3	GOL	G	504	-	X
3	GOL	H	501	-	X
3	GOL	H	504	-	X

2 Entry composition

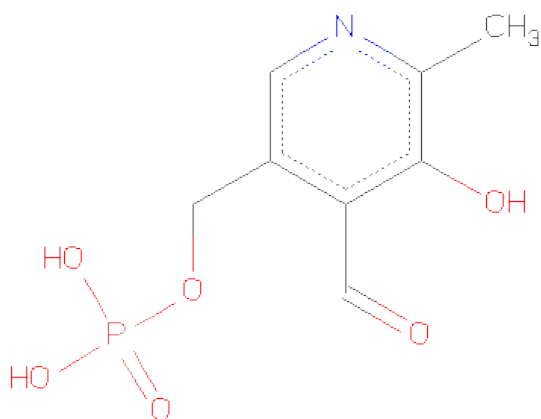
There are 6 unique types of molecules in this entry. The entry contains 33210 atoms, of which 0 are hydrogen and 0 are deuterium.

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 BETA-ALANINE-PYRUVATETRANSAMINASE.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
1	A	436	Total	C	N	O	S	0	38	0
			3537	2261	615	644	17			
1	B	435	Total	C	N	O	S	0	41	0
			3549	2274	614	642	19			
1	C	436	Total	C	N	O	S	0	42	0
			3563	2276	620	647	20			
1	D	436	Total	C	N	O	S	0	47	0
			3607	2305	632	651	19			
1	E	435	Total	C	N	O	S	0	43	0
			3569	2280	623	647	19			
1	F	436	Total	C	N	O	S	0	37	0
			3536	2255	622	642	17			
1	G	436	Total	C	N	O	S	0	34	0
			3528	2249	619	641	19			
1	H	436	Total	C	N	O	S	0	39	0
			3547	2264	622	643	18			

- Molecule 2 is PYRIDOXAL-5'-PHOSPHATE (three-letter code: PLP) (formula: C₈H₁₀NO₆P).



Mol	Chain	Residues	Atoms					ZeroOcc	AltConf
2	A	1	Total	C	N	O	P	0	0
			16	8	1	6	1		
2	B	1	Total	C	N	O	P	0	0
			16	8	1	6	1		
2	C	1	Total	C	N	O	P	0	0
			16	8	1	6	1		
2	D	1	Total	C	N	O	P	0	0
			16	8	1	6	1		
2	E	1	Total	C	N	O	P	0	0
			16	8	1	6	1		
2	F	1	Total	C	N	O	P	0	0
			16	8	1	6	1		
2	G	1	Total	C	N	O	P	0	0
			16	8	1	6	1		
2	H	1	Total	C	N	O	P	0	0
			16	8	1	6	1		

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



Mol	Chain	Residues	Atoms			ZeroOcc	AltConf
3	A	1	Total	C	O	0	0
			6	3	3		
3	A	1	Total	C	O	0	0
			6	3	3		
3	B	1	Total	C	O	0	0
			6	3	3		
3	C	1	Total	C	O	0	0
			6	3	3		
3	C	1	Total	C	O	0	0
			6	3	3		
3	E	1	Total	C	O	0	0
			6	3	3		
3	F	1	Total	C	O	0	0
			6	3	3		
3	G	1	Total	C	O	0	0
			6	3	3		
3	H	1	Total	C	O	0	0
			6	3	3		
3	H	1	Total	C	O	0	0
			6	3	3		

- Molecule 4 is CHLORIDE ION (three-letter code: CL) (formula: Cl).

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
4	G	1	Total	Cl	0	0
			1	1		
4	D	1	Total	Cl	0	0
			1	1		

Continued on next page...

Continued from previous page...

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
4	E	1	Total 1	Cl 1	0	0
4	H	1	Total 1	Cl 1	0	0
4	B	1	Total 1	Cl 1	0	0
4	C	1	Total 1	Cl 1	0	0
4	A	1	Total 1	Cl 1	0	0
4	F	1	Total 1	Cl 1	0	0

- Molecule 5 is CALCIUM ION (three-letter code: CA) (formula: Ca).

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
5	H	1	Total 1	Ca 1	0	0
5	G	1	Total 1	Ca 1	0	0
5	F	1	Total 1	Ca 1	0	0
5	E	1	Total 1	Ca 1	0	0

- Molecule 6 is water.

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
6	A	654	Total 654	O 654	0	0
6	B	536	Total 536	O 536	0	0
6	C	718	Total 718	O 718	0	0
6	D	570	Total 570	O 570	0	0
6	E	608	Total 608	O 608	0	0
6	F	515	Total 515	O 515	0	0
6	G	532	Total 532	O 532	0	0

Continued on next page...

Continued from previous page...

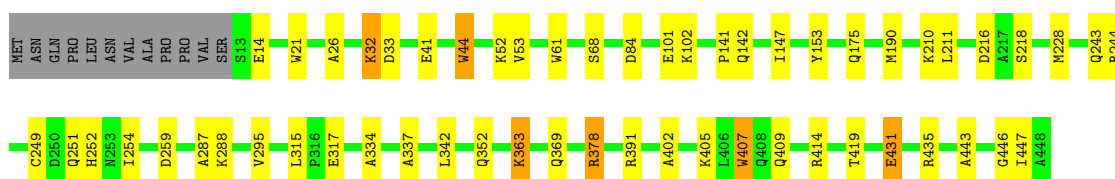
Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
6	H	441	Total 441	O 441	0	0

3 Residue-property plots

These plots are drawn for all protein, RNA and DNA chains in the entry. The first graphic for a chain summarises the proportions of errors 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.

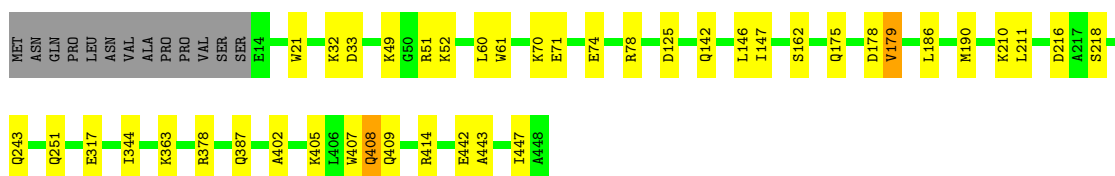
- Molecule 1: BETA-ALANINE-PYRUVATETRANSAMINASE

Chain A:



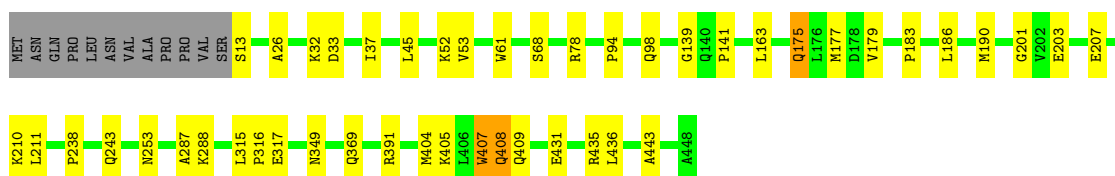
- Molecule 1: BETA-ALANINE-PYRUVATETRANSAMINASE

Chain B:



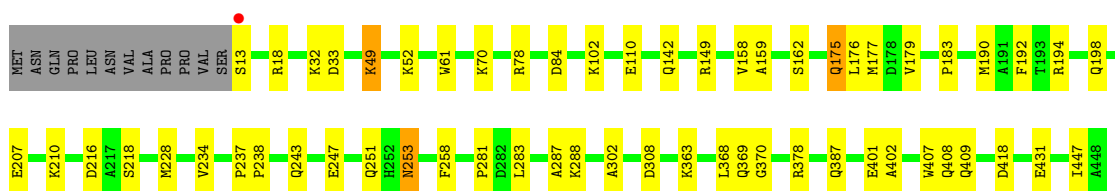
- Molecule 1: BETA-ALANINE-PYRUVATETRANSAMINASE

Chain C:



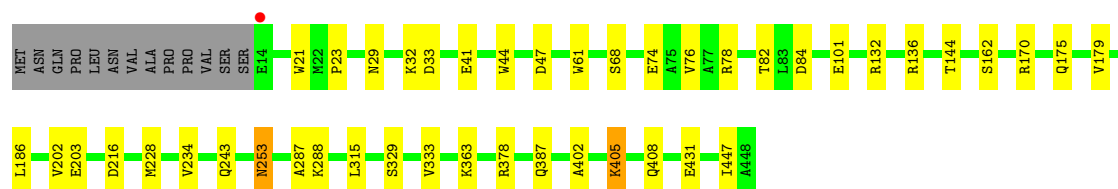
- Molecule 1: BETA-ALANINE-PYRUVATETRANSAMINASE

Chain D:



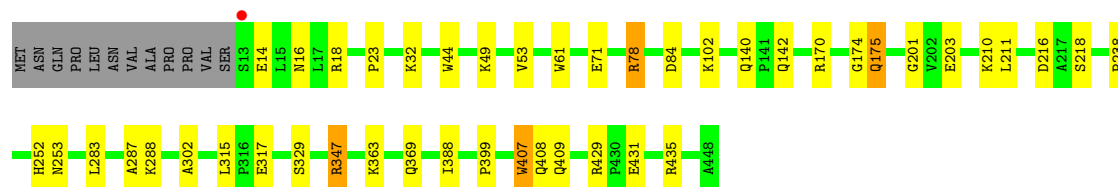
- Molecule 1: BETA-ALANINE-PYRUVATETRANSAMINASE

Chain E:



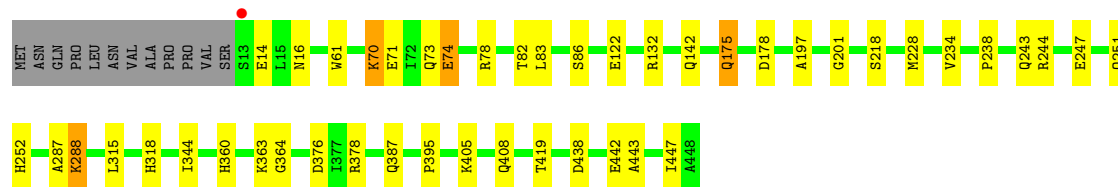
- Molecule 1: BETA-ALANINE-PYRUVATETRANSAMINASE

Chain F:



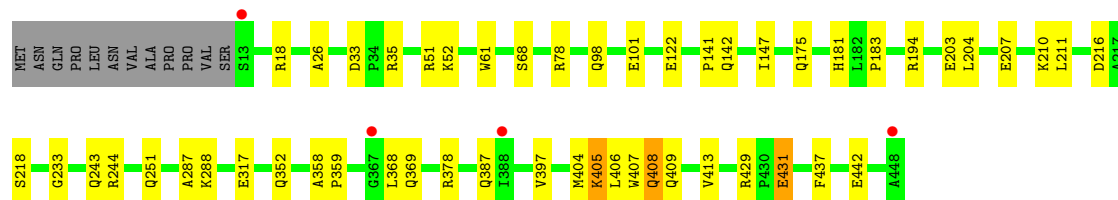
- Molecule 1: BETA-ALANINE-PYRUVATETRANSAMINASE

Chain G:



- Molecule 1: BETA-ALANINE-PYRUVATETRANSAMINASE

Chain H:



4 Data and refinement statistics

Property	Value	Source
Space group	P 1 21 1	Depositor
Cell constants a, b, c, α , β , γ	80.38Å 133.16Å 161.96Å 90.00° 91.75° 90.00°	Depositor
Resolution (Å)	66.58 – 1.64 66.58 – 1.64	Depositor EDS
% Data completeness (in resolution range)	99.3 (66.58-1.64) 99.3 (66.58-1.64)	Depositor EDS
R_{merge}	0.10	Depositor
R_{sym}	(Not available)	Depositor
$\langle I/\sigma(I) \rangle$ ¹	2.06 (at 1.63Å)	Xtriage
Refinement program	REFMAC 5.6.0117	Depositor
R, R_{free}	0.174 , 0.219 0.174 , 0.218	Depositor DCC
R_{free} test set	20738 reflections (5.28%)	DCC
Wilson B-factor (Å ²)	13.0	Xtriage
Anisotropy	0.424	Xtriage
Bulk solvent k_{sol} (e/Å ³), B_{sol} (Å ²)	0.34 , 41.8	EDS
Estimated twinning fraction	0.026 for h,-k,-l	Xtriage
L-test for twinning	$\langle L \rangle = 0.47$, $\langle L^2 \rangle = 0.30$	Xtriage
Outliers	2 of 413822 reflections (0.000%)	Xtriage
F_o, F_c correlation	0.96	EDS
Total number of atoms	33210	wwPDB-VP
Average B, all atoms (Å ²)	16.0	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 60.15 % 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 1.5891e-05. The detected translational NCS is most likely also responsible for the elevated intensity ratio.*

¹Intensities estimated from amplitudes.

5 Model quality

5.1 Standard geometry

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

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	0.90	4/3721 (0.1%)	0.85	8/5034 (0.2%)
1	B	0.85	3/3736 (0.1%)	0.85	2/5049 (0.0%)
1	C	0.89	2/3753 (0.1%)	0.85	4/5074 (0.1%)
1	D	0.86	2/3809 (0.1%)	0.84	3/5147 (0.1%)
1	E	0.88	3/3762 (0.1%)	0.87	4/5084 (0.1%)
1	F	0.91	3/3717 (0.1%)	0.90	6/5027 (0.1%)
1	G	0.84	1/3691 (0.0%)	0.83	3/4989 (0.1%)
1	H	0.82	2/3734 (0.1%)	0.83	1/5048 (0.0%)
All	All	0.87	20/29923 (0.1%)	0.85	31/40452 (0.1%)

Chiral center outliers are detected by calculating the chiral volume of a chiral center and verifying if the center is modelled as a planar moiety or with the opposite hand. A planarity outlier is detected by checking planarity of atoms in a peptide group, atoms in a mainchain group or atoms of a sidechain that are expected to be planar.

Mol	Chain	#Chirality outliers	#Planarity outliers
1	A	0	1
1	G	0	1
All	All	0	2

The worst 5 of 20 bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
1	B	407	TRP	CD2-CE2	6.56	1.49	1.41
1	C	61	TRP	CD2-CE2	6.33	1.49	1.41
1	G	61	TRP	CD2-CE2	6.14	1.48	1.41
1	F	61	TRP	CD2-CE2	5.71	1.48	1.41
1	H	61	TRP	CD2-CE2	5.69	1.48	1.41

The worst 5 of 31 bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	F	78[A]	ARG	NE-CZ-NH2	-9.36	115.62	120.30
1	F	78[B]	ARG	NE-CZ-NH2	-9.36	115.62	120.30
1	E	84	ASP	CB-CG-OD1	7.02	124.61	118.30
1	E	228	MET	CG-SD-CE	6.96	111.34	100.20
1	A	391	ARG	NE-CZ-NH2	-6.71	116.95	120.30

There are no chirality outliers.

All (2) planarity outliers are listed below:

Mol	Chain	Res	Type	Group
1	A	419	THR	Peptide
1	G	419	THR	Peptide

5.2 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 hydrogens added by MolProbity. The Clashes column lists the number of clashes within the asymmetric unit, and the number in parentheses is this value normalized per 1000 atoms of the molecule in the chain. The Symm-Clashes column gives symmetry related clashes, in the same way as for the Clashes column.

Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
1	A	3537	0	3600	55	0
1	B	3549	0	3632	55	0
1	C	3563	0	3627	59	0
1	D	3607	0	3691	56	1
1	E	3569	0	3642	41	2
1	F	3536	0	3591	45	0
1	G	3528	0	3573	44	0
1	H	3547	0	3612	51	0
2	A	16	0	7	6	0
2	B	16	0	7	1	0
2	C	16	0	7	1	0
2	D	16	0	7	3	0
2	E	16	0	7	1	0
2	F	16	0	7	1	0
2	G	16	0	7	4	0
2	H	16	0	7	1	0
3	A	12	0	16	1	0
3	B	6	0	8	3	0
3	C	12	0	16	7	0

Continued on next page...

Continued from previous page...

Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
3	E	6	0	8	2	0
3	F	6	0	8	0	1
3	G	6	0	8	1	0
3	H	12	0	16	1	0
4	A	1	0	0	0	0
4	B	1	0	0	0	0
4	C	1	0	0	0	0
4	D	1	0	0	0	0
4	E	1	0	0	0	0
4	F	1	0	0	0	0
4	G	1	0	0	0	0
4	H	1	0	0	0	0
5	E	1	0	0	0	0
5	F	1	0	0	0	0
5	G	1	0	0	0	0
5	H	1	0	0	0	0
6	A	654	0	0	27	1
6	B	536	0	0	37	1
6	C	718	0	0	38	3
6	D	570	0	0	29	0
6	E	608	0	0	27	1
6	F	515	0	0	20	0
6	G	532	0	0	29	0
6	H	441	0	0	26	0
All	All	33210	0	29104	411	5

Clashscore is defined as the number of clashes calculated for the entry per 1000 atoms (including hydrogens) of the entry. The overall clashscore for this entry is 7.

The worst 5 of 411 close contacts within the same asymmetric unit are listed below.

Atom-1	Atom-2	Distance(Å)	Clash(Å)
1:G:70[A]:LYS:HE2	6:G:2092:HOH:O	1.23	1.35
1:H:52[A]:LYS:CE	6:H:2051:HOH:O	1.69	1.33
1:D:378[B]:ARG:NH2	1:D:387[B]:GLN:OE1	1.62	1.30
1:B:442[B]:GLU:OE2	6:B:2527:HOH:O	1.52	1.27
1:F:18[B]:ARG:NH2	6:F:2009:HOH:O	1.62	1.26

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	Distance(Å)	Clash(Å)
1:E:363[A]:LYS:NZ	6:C:2581:HOH:O[2_856]	1.29	0.91

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Distance(Å)	Clash(Å)
1:D:363[B]:LYS:NZ	6:A:2527:HOH:O[2.946]	2.00	0.20
1:E:363[B]:LYS:CE	6:C:2581:HOH:O[2.856]	2.06	0.14
6:C:2049:HOH:O	6:E:2334:HOH:O[2.846]	2.10	0.10
3:F:501:GOL:C3	6:B:2062:HOH:O[2.946]	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	472/448 (105%)	453 (96%)	16 (3%)	3 (1%)	33	10
1	B	474/448 (106%)	458 (97%)	15 (3%)	1 (0%)	56	29
1	C	476/448 (106%)	459 (96%)	15 (3%)	2 (0%)	43	19
1	D	481/448 (107%)	466 (97%)	11 (2%)	4 (1%)	27	6
1	E	476/448 (106%)	462 (97%)	10 (2%)	4 (1%)	27	6
1	F	471/448 (105%)	454 (96%)	14 (3%)	3 (1%)	33	10
1	G	468/448 (104%)	448 (96%)	17 (4%)	3 (1%)	33	10
1	H	473/448 (106%)	456 (96%)	14 (3%)	3 (1%)	33	10
All	All	3791/3584 (106%)	3656 (96%)	112 (3%)	23 (1%)	30	10

5 of 23 Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	A	288	LYS
1	C	288	LYS
1	D	288	LYS
1	G	288	LYS
1	H	288	LYS

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	376/350 (107%)	369 (98%)	7 (2%)	69	43
1	B	379/350 (108%)	375 (99%)	4 (1%)	84	66
1	C	380/350 (109%)	373 (98%)	7 (2%)	71	46
1	D	386/350 (110%)	378 (98%)	8 (2%)	66	37
1	E	381/350 (109%)	377 (99%)	4 (1%)	85	70
1	F	375/350 (107%)	371 (99%)	4 (1%)	84	66
1	G	373/350 (107%)	365 (98%)	8 (2%)	66	37
1	H	377/350 (108%)	368 (98%)	9 (2%)	61	30
All	All	3027/2800 (108%)	2976 (98%)	51 (2%)	84	48

5 of 51 residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	D	228[B]	MET
1	E	405[A]	LYS
1	H	408[A]	GLN
1	D	253[B]	ASN
1	E	405[B]	LYS

Some sidechains can be flipped to improve hydrogen bonding and reduce clashes. 5 of 20 such sidechains are listed below:

Mol	Chain	Res	Type
1	F	373	ASN
1	F	409	GLN
1	H	252	HIS
1	E	169	ASN
1	F	79	GLN

5.3.3 RNA ⓘ

There are no RNA chains 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 carbohydrates in this entry.

5.6 Ligand geometry ⓘ

Of 30 ligands modelled in this entry, 12 are monoatomic - leaving 18 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$
2	PLP	A	500	-	16,16,16	4.37	4 (25%)	23,23,23	2.08	10 (43%)
3	GOL	A	501	-	5,5,5	0.54	0	5,5,5	0.42	0
3	GOL	A	504	-	5,5,5	0.34	0	5,5,5	1.01	0
2	PLP	B	500	-	16,16,16	3.35	5 (31%)	23,23,23	1.69	7 (30%)
3	GOL	B	504	-	5,5,5	0.46	0	5,5,5	1.19	0
2	PLP	C	500	-	16,16,16	3.54	6 (37%)	23,23,23	2.13	7 (30%)
3	GOL	C	501	-	5,5,5	0.34	0	5,5,5	1.02	0
3	GOL	C	504	-	5,5,5	0.24	0	5,5,5	0.98	0
2	PLP	D	500	-	16,16,16	3.14	6 (37%)	23,23,23	2.01	9 (39%)
2	PLP	E	500	-	16,16,16	3.65	5 (31%)	23,23,23	1.92	6 (26%)
3	GOL	E	504	-	5,5,5	0.42	0	5,5,5	0.57	0
2	PLP	F	500	-	16,16,16	3.27	5 (31%)	23,23,23	2.23	10 (43%)
3	GOL	F	501	-	5,5,5	0.57	0	5,5,5	0.78	0
2	PLP	G	500	-	16,16,16	3.62	5 (31%)	23,23,23	2.10	6 (26%)
3	GOL	G	504	-	5,5,5	0.44	0	5,5,5	1.15	0
2	PLP	H	500	-	16,16,16	3.49	4 (25%)	23,23,23	1.53	5 (21%)
3	GOL	H	501	-	5,5,5	0.48	0	5,5,5	0.61	0
3	GOL	H	504	-	5,5,5	0.19	0	5,5,5	0.45	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	PLP	A	500	-	-	0/8/8/8	0/1/1/1
3	GOL	A	501	-	-	0/4/4/4	0/0/0/0
3	GOL	A	504	-	-	0/4/4/4	0/0/0/0
2	PLP	B	500	-	-	0/8/8/8	0/1/1/1
3	GOL	B	504	-	-	0/4/4/4	0/0/0/0
2	PLP	C	500	-	-	0/8/8/8	0/1/1/1
3	GOL	C	501	-	-	0/4/4/4	0/0/0/0
3	GOL	C	504	-	-	0/4/4/4	0/0/0/0
2	PLP	D	500	-	-	0/8/8/8	0/1/1/1
2	PLP	E	500	-	-	0/8/8/8	0/1/1/1
3	GOL	E	504	-	-	0/4/4/4	0/0/0/0
2	PLP	F	500	-	-	0/8/8/8	0/1/1/1
3	GOL	F	501	-	-	0/4/4/4	0/0/0/0
2	PLP	G	500	-	-	0/8/8/8	0/1/1/1
3	GOL	G	504	-	-	0/4/4/4	0/0/0/0
2	PLP	H	500	-	-	0/8/8/8	0/1/1/1
3	GOL	H	501	-	-	0/4/4/4	0/0/0/0
3	GOL	H	504	-	-	0/4/4/4	0/0/0/0

The worst 5 of 40 bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
2	A	500	PLP	C3-C2	14.64	1.51	1.40
2	G	500	PLP	C3-C2	11.40	1.48	1.40
2	E	500	PLP	C3-C2	10.96	1.48	1.40
2	H	500	PLP	C3-C2	9.77	1.47	1.40
2	B	500	PLP	C3-C2	9.23	1.47	1.40

The worst 5 of 60 bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
2	F	500	PLP	O4P-P-O1P	5.63	123.20	106.71
2	C	500	PLP	O3P-P-O4P	4.83	119.98	106.65
2	D	500	PLP	O3P-P-O4P	4.71	119.66	106.65
2	E	500	PLP	O2P-P-O4P	4.39	118.76	106.65
2	G	500	PLP	O3P-P-O4P	4.34	118.62	106.65

There are no chirality outliers.

There are no torsion outliers.

There are no ring outliers.

5.7 Other polymers ⓘ

There are no such residues in this entry.

5.8 Polymer linkage issues

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	436/448 (97%)	-0.28	0	100 100	7, 13, 24, 64	0
1	B	435/448 (97%)	-0.38	0	100 100	7, 14, 22, 64	0
1	C	436/448 (97%)	-0.46	0	100 100	6, 11, 21, 63	0
1	D	436/448 (97%)	-0.40	1 (0%)	93 95	6, 12, 21, 76	0
1	E	435/448 (97%)	-0.48	1 (0%)	93 95	7, 11, 20, 75	0
1	F	436/448 (97%)	-0.31	1 (0%)	93 95	6, 12, 22, 76	0
1	G	436/448 (97%)	-0.27	1 (0%)	93 95	8, 15, 26, 83	0
1	H	436/448 (97%)	-0.11	4 (0%)	81 85	7, 16, 32, 91	0
All	All	3486/3584 (97%)	-0.34	8 (0%)	93 95	6, 13, 25, 91	0

The worst 5 of 8 RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	G	13	SER	4.0
1	H	13	SER	3.8
1	D	13	SER	3.7
1	H	367	GLY	2.5
1	F	13	SER	2.5

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 carbohydrates 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. LLDF column lists the quality of electron density of the group with respect to its neighbouring residues in protein, DNA or RNA chains. 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	RSR	LLDF	B-factors(Å ²)	Q<0.9
2	PLP	C	500	16/16	0.15	13.66	5,13,18,28	16
2	PLP	E	500	16/16	0.17	12.76	6,14,18,29	16
2	PLP	B	500	16/16	0.16	11.57	8,17,21,37	16
2	PLP	D	500	16/16	0.16	11.43	6,15,20,30	16
2	PLP	A	500	16/16	0.17	8.52	9,16,23,28	16
2	PLP	F	500	16/16	0.15	8.47	7,14,18,23	16
2	PLP	H	500	16/16	0.13	8.18	11,19,25,33	16
3	GOL	G	504	6/6	0.14	7.35	18,27,38,46	0
2	PLP	G	500	16/16	0.16	7.08	9,17,24,46	16
3	GOL	A	504	6/6	0.15	6.22	14,27,38,43	0
3	GOL	B	504	6/6	0.15	5.56	15,32,38,39	0
3	GOL	F	501	6/6	0.15	5.45	15,22,30,34	0
3	GOL	C	501	6/6	0.14	5.22	17,25,32,52	0
3	GOL	H	501	6/6	0.13	4.75	18,20,25,29	0
3	GOL	H	504	6/6	0.15	4.72	14,21,29,30	0
3	GOL	C	504	6/6	0.13	3.64	13,19,31,32	0
3	GOL	E	504	6/6	0.11	3.53	12,18,28,35	0
3	GOL	A	501	6/6	0.10	3.22	13,14,20,25	0
5	CA	F	503	1/1	0.09	1.22	18,18,18,18	0
5	CA	H	503	1/1	0.07	-0.89	19,19,19,19	0
5	CA	G	503	1/1	0.05	-2.16	20,20,20,20	0
4	CL	E	502	1/1	0.04	-2.33	18,18,18,18	0
4	CL	G	502	1/1	0.05	-2.71	22,22,22,22	0
4	CL	D	502	1/1	0.04	-3.27	18,18,18,18	0
5	CA	E	503	1/1	0.03	-3.61	17,17,17,17	0
4	CL	F	502	1/1	0.03	-3.66	14,14,14,14	0
4	CL	C	502	1/1	0.04	-4.40	13,13,13,13	0
4	CL	B	502	1/1	0.04	-5.32	18,18,18,18	0
4	CL	A	502	1/1	0.04	-5.41	14,14,14,14	0
4	CL	H	502	1/1	0.04	-6.30	16,16,16,16	0

6.5 Other polymers ⓘ

There are no such residues in this entry.