



wwPDB X-ray Structure Validation Summary Report ⓘ

Apr 18, 2026 – 01:41 PM UTC

PDB ID : 2ZY4 / pdb_00002zy4
Title : dodecameric L-aspartate beta-decarboxylase
Authors : Chen, H.-J.; Ko, T.-P.; Lee, C.-Y.; Wang, N.-C.; Wang, A.H.-J.
Deposited on : 2009-01-13
Resolution : 2.00 Å(reported)

This is a wwPDB X-ray Structure Validation Summary 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	:	4-5-2 with Phenix2.0
Mogul	:	2022.3.0, CSD as543be (2022)
Xtriage (Phenix)	:	2.0
EDS	:	3.0
Percentile statistics	:	20250101.v01 (using entries in the PDB archive January 1st 2025)
CCP4	:	9.0.010 (Gargrove)
Density-Fitness	:	1.0.12
Ideal geometry (proteins)	:	Engh & Huber (2001)
Ideal geometry (DNA, RNA)	:	Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP)	:	2.49

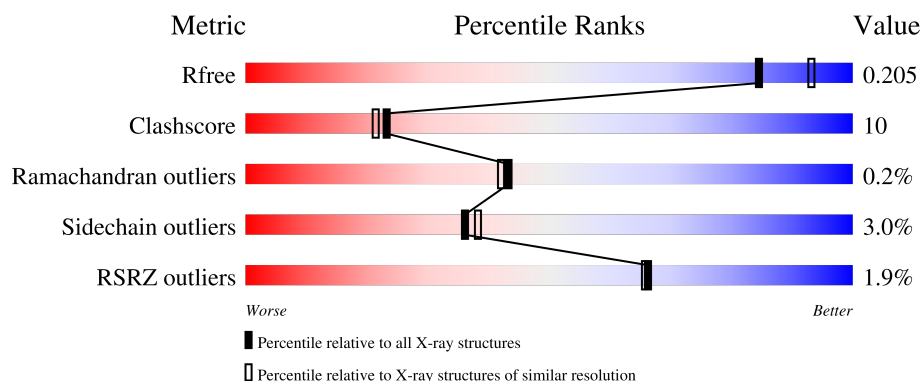
1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

X-RAY DIFFRACTION

The reported resolution of this entry is 2.00 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}	180053	10052 (2.00-2.00)
Clashscore	190562	11152 (2.00-2.00)
Ramachandran outliers	187476	11031 (2.00-2.00)
Sidechain outliers	187428	11029 (2.00-2.00)
RSRZ outliers	180081	10067 (2.00-2.00)

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 $\leq 5\%$. 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	546	0% 75% 19% . .
1	B	546	2% 73% 18% . 6%
1	C	546	2% 71% 21% . 6%
1	D	546	0% 75% 18% . 6%
1	E	546	2% 68% 23% . 7%

Continued on next page...

Continued from previous page...

Mol	Chain	Length	Quality of chain
1	F	546	3% 75% 21% • •

2 Entry composition [i](#)

There are 4 unique types of molecules in this entry. The entry contains 27823 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 L-aspartate beta-decarboxylase.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
1	A	524	Total	C	N	O	S	0	0	0
			4131	2630	701	782	18			
1	B	512	Total	C	N	O	S	0	0	0
			4032	2567	687	761	17			
1	C	511	Total	C	N	O	S	0	0	0
			4019	2557	685	760	17			
1	D	515	Total	C	N	O	S	0	0	0
			4046	2573	692	764	17			
1	E	509	Total	C	N	O	S	0	0	0
			4007	2551	683	756	17			
1	F	535	Total	C	N	O	S	0	0	0
			4202	2675	716	794	17			

There are 78 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
A	534	LYS	-	expression tag	UNP Q93QX0
A	535	LEU	-	expression tag	UNP Q93QX0
A	536	ALA	-	expression tag	UNP Q93QX0
A	537	ALA	-	expression tag	UNP Q93QX0
A	538	ALA	-	expression tag	UNP Q93QX0
A	539	LEU	-	expression tag	UNP Q93QX0
A	540	GLU	-	expression tag	UNP Q93QX0
A	541	HIS	-	expression tag	UNP Q93QX0
A	542	HIS	-	expression tag	UNP Q93QX0
A	543	HIS	-	expression tag	UNP Q93QX0
A	544	HIS	-	expression tag	UNP Q93QX0
A	545	HIS	-	expression tag	UNP Q93QX0
A	546	HIS	-	expression tag	UNP Q93QX0
B	534	LYS	-	expression tag	UNP Q93QX0
B	535	LEU	-	expression tag	UNP Q93QX0
B	536	ALA	-	expression tag	UNP Q93QX0
B	537	ALA	-	expression tag	UNP Q93QX0

Continued on next page...

Continued from previous page...

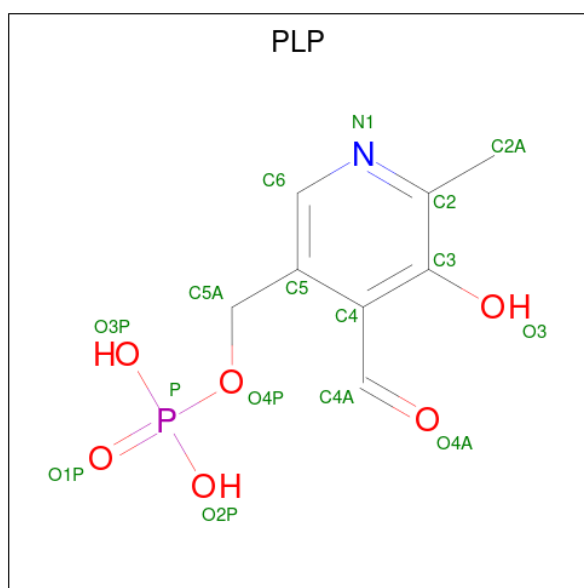
Chain	Residue	Modelled	Actual	Comment	Reference
B	538	ALA	-	expression tag	UNP Q93QX0
B	539	LEU	-	expression tag	UNP Q93QX0
B	540	GLU	-	expression tag	UNP Q93QX0
B	541	HIS	-	expression tag	UNP Q93QX0
B	542	HIS	-	expression tag	UNP Q93QX0
B	543	HIS	-	expression tag	UNP Q93QX0
B	544	HIS	-	expression tag	UNP Q93QX0
B	545	HIS	-	expression tag	UNP Q93QX0
B	546	HIS	-	expression tag	UNP Q93QX0
C	534	LYS	-	expression tag	UNP Q93QX0
C	535	LEU	-	expression tag	UNP Q93QX0
C	536	ALA	-	expression tag	UNP Q93QX0
C	537	ALA	-	expression tag	UNP Q93QX0
C	538	ALA	-	expression tag	UNP Q93QX0
C	539	LEU	-	expression tag	UNP Q93QX0
C	540	GLU	-	expression tag	UNP Q93QX0
C	541	HIS	-	expression tag	UNP Q93QX0
C	542	HIS	-	expression tag	UNP Q93QX0
C	543	HIS	-	expression tag	UNP Q93QX0
C	544	HIS	-	expression tag	UNP Q93QX0
C	545	HIS	-	expression tag	UNP Q93QX0
C	546	HIS	-	expression tag	UNP Q93QX0
D	534	LYS	-	expression tag	UNP Q93QX0
D	535	LEU	-	expression tag	UNP Q93QX0
D	536	ALA	-	expression tag	UNP Q93QX0
D	537	ALA	-	expression tag	UNP Q93QX0
D	538	ALA	-	expression tag	UNP Q93QX0
D	539	LEU	-	expression tag	UNP Q93QX0
D	540	GLU	-	expression tag	UNP Q93QX0
D	541	HIS	-	expression tag	UNP Q93QX0
D	542	HIS	-	expression tag	UNP Q93QX0
D	543	HIS	-	expression tag	UNP Q93QX0
D	544	HIS	-	expression tag	UNP Q93QX0
D	545	HIS	-	expression tag	UNP Q93QX0
D	546	HIS	-	expression tag	UNP Q93QX0
E	534	LYS	-	expression tag	UNP Q93QX0
E	535	LEU	-	expression tag	UNP Q93QX0
E	536	ALA	-	expression tag	UNP Q93QX0
E	537	ALA	-	expression tag	UNP Q93QX0
E	538	ALA	-	expression tag	UNP Q93QX0
E	539	LEU	-	expression tag	UNP Q93QX0
E	540	GLU	-	expression tag	UNP Q93QX0

Continued on next page...

Continued from previous page...

Chain	Residue	Modelled	Actual	Comment	Reference
E	541	HIS	-	expression tag	UNP Q93QX0
E	542	HIS	-	expression tag	UNP Q93QX0
E	543	HIS	-	expression tag	UNP Q93QX0
E	544	HIS	-	expression tag	UNP Q93QX0
E	545	HIS	-	expression tag	UNP Q93QX0
E	546	HIS	-	expression tag	UNP Q93QX0
F	534	LYS	-	expression tag	UNP Q93QX0
F	535	LEU	-	expression tag	UNP Q93QX0
F	536	ALA	-	expression tag	UNP Q93QX0
F	537	ALA	-	expression tag	UNP Q93QX0
F	538	ALA	-	expression tag	UNP Q93QX0
F	539	LEU	-	expression tag	UNP Q93QX0
F	540	GLU	-	expression tag	UNP Q93QX0
F	541	HIS	-	expression tag	UNP Q93QX0
F	542	HIS	-	expression tag	UNP Q93QX0
F	543	HIS	-	expression tag	UNP Q93QX0
F	544	HIS	-	expression tag	UNP Q93QX0
F	545	HIS	-	expression tag	UNP Q93QX0
F	546	HIS	-	expression tag	UNP Q93QX0

- Molecule 2 is PYRIDOXAL-5'-PHOSPHATE (CCD ID: 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		

Continued on next page...

Continued from previous page...

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf
2	C	1	Total	C	N	O	P	0	0
			15	8	1	5	1		
2	D	1	Total	C	N	O	P	0	0
			15	8	1	5	1		
2	E	1	Total	C	N	O	P	0	0
			15	8	1	5	1		
2	F	1	Total	C	N	O	P	0	0
			15	8	1	5	1		

- Molecule 3 is CHLORIDE ION (CCD ID: CL) (formula: Cl).

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
3	A	1	Total	Cl	0	0
			1	1		
3	B	1	Total	Cl	0	0
			1	1		
3	C	1	Total	Cl	0	0
			1	1		
3	D	1	Total	Cl	0	0
			1	1		
3	E	1	Total	Cl	0	0
			1	1		
3	F	1	Total	Cl	0	0
			1	1		

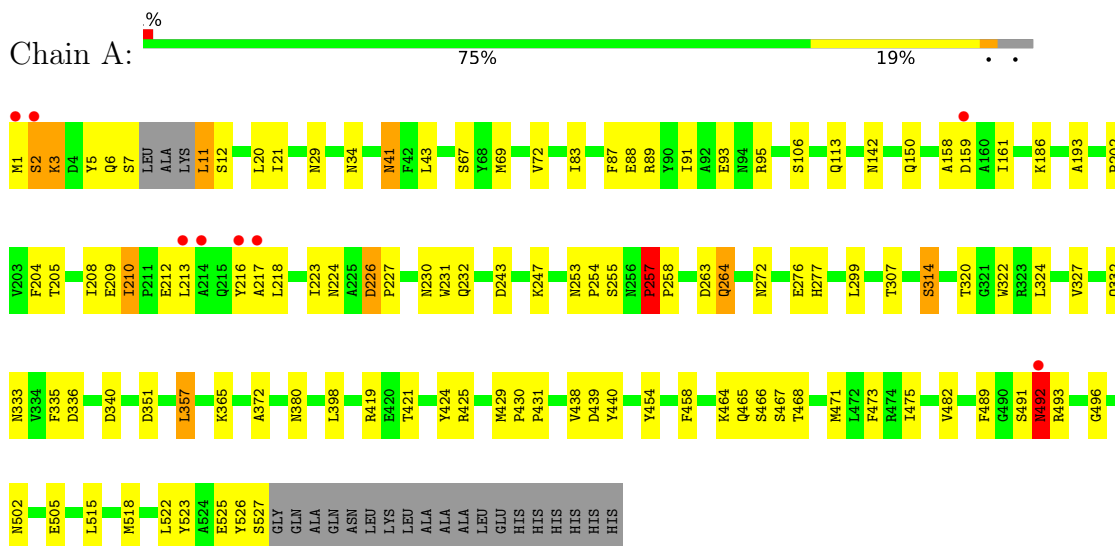
- Molecule 4 is water.

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
4	A	565	Total	O	0	0
			565	565		
4	B	611	Total	O	0	0
			611	611		
4	C	593	Total	O	0	0
			593	593		
4	D	573	Total	O	0	0
			573	573		
4	E	462	Total	O	0	0
			462	462		
4	F	486	Total	O	0	0
			486	486		

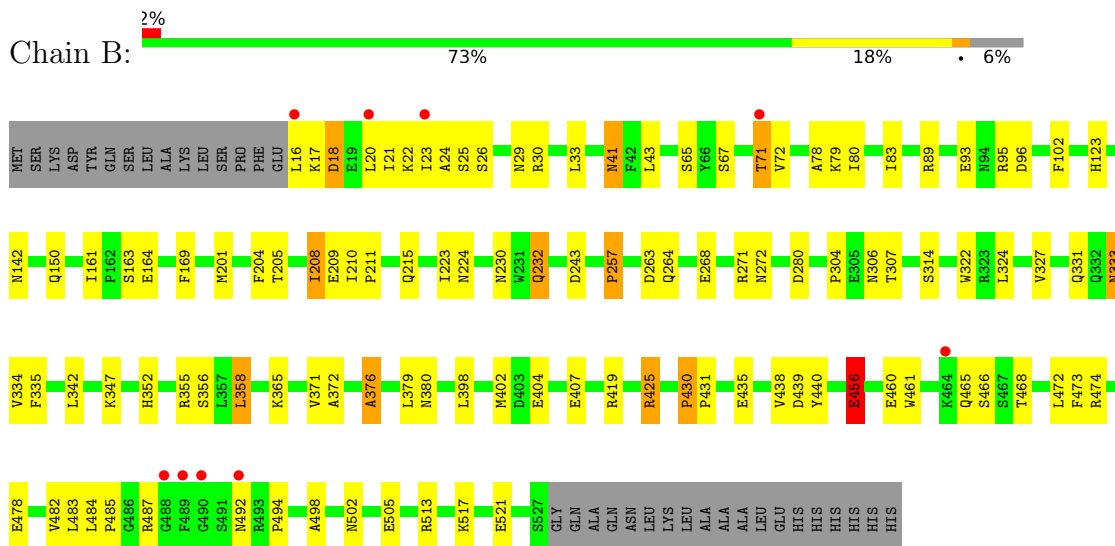
3 Residue-property plots [i](#)

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.

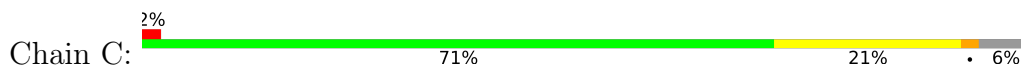
- Molecule 1: L-aspartate beta-decarboxylase



- Molecule 1: L-aspartate beta-decarboxylase

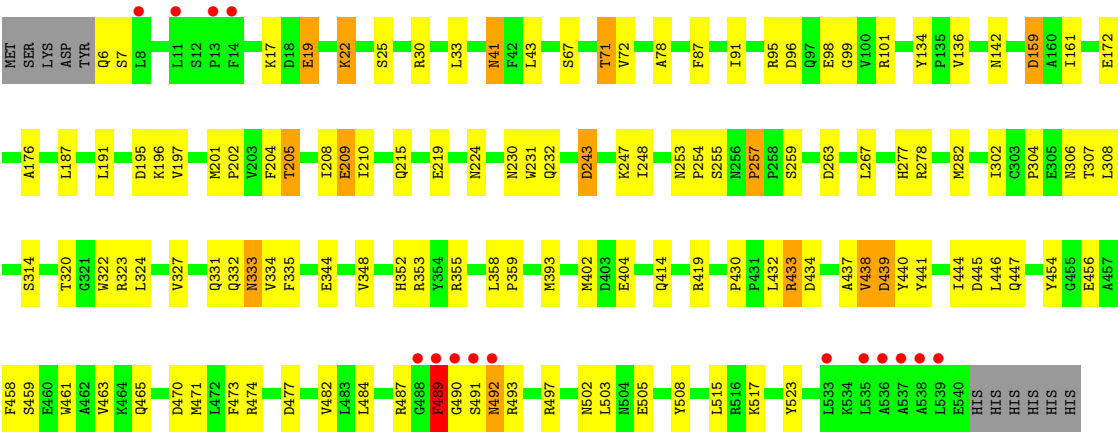


- Molecule 1: L-aspartate beta-decarboxylase



GLN
ALA
GLN
ASN
LEU
LYS
LEU
ALA
ALA
ALA
LEU
GLU
HIS
HIS
HIS
HIS
HIS

● Molecule 1: L-aspartate beta-decarboxylase



4 Data and refinement statistics

Property	Value	Source
Space group	C 2 2 21	Depositor
Cell constants a, b, c, α , β , γ	149.95Å 217.15Å 207.15Å 90.00° 90.00° 90.00°	Depositor
Resolution (Å)	30.00 – 2.00 30.00 – 2.00	Depositor EDS
% Data completeness (in resolution range)	94.7 (30.00-2.00) 94.7 (30.00-2.00)	Depositor EDS
R_{merge}	0.07	Depositor
R_{sym}	(Not available)	Depositor
$\langle I/\sigma(I) \rangle$ ¹	1.58 (at 2.00Å)	Xtriage
Refinement program	CNS	Depositor
R, R_{free}	0.157 , 0.204 0.157 , 0.205	Depositor DCC
R_{free} test set	10656 reflections (4.98%)	wwPDB-VP
Wilson B-factor (Å ²)	19.3	Xtriage
Anisotropy	0.176	Xtriage
Bulk solvent k_{sol} (e/Å ³), B_{sol} (Å ²)	0.35 , 62.1	EDS
L-test for twinning ²	$\langle L \rangle = 0.49$, $\langle L^2 \rangle = 0.32$	Xtriage
Estimated twinning fraction	No twinning to report.	Xtriage
F_o, F_c correlation	0.96	EDS
Total number of atoms	27823	wwPDB-VP
Average B, all atoms (Å ²)	26.0	wwPDB-VP

Xtriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 2.42% of the height of the origin peak. No significant pseudotranslation is detected.*

¹Intensities estimated from amplitudes.

²Theoretical values of $\langle |L| \rangle$, $\langle L^2 \rangle$ 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: PLP, CL

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	0.83	0/4215	1.10	32/5705 (0.6%)
1	B	0.84	0/4114	1.09	24/5571 (0.4%)
1	C	0.84	1/4101 (0.0%)	1.10	29/5554 (0.5%)
1	D	0.82	1/4128 (0.0%)	1.06	16/5591 (0.3%)
1	E	0.80	0/4089	1.12	22/5538 (0.4%)
1	F	0.86	3/4286 (0.1%)	1.10	22/5803 (0.4%)
All	All	0.83	5/24933 (0.0%)	1.10	145/33762 (0.4%)

All (5) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
1	D	402	MET	SD-CE	-10.14	1.54	1.79
1	C	210	ILE	CA-CB	6.40	1.57	1.54
1	F	210	ILE	CA-CB	6.23	1.57	1.54
1	F	402	MET	SD-CE	-5.14	1.66	1.79
1	F	393	MET	SD-CE	-5.08	1.66	1.79

The worst 5 of 145 bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	F	440	TYR	N-CA-C	-13.41	96.27	111.82
1	B	314	SER	N-CA-C	10.53	122.33	111.07
1	E	440	TYR	N-CA-C	-9.94	100.29	111.82
1	D	440	TYR	N-CA-C	-9.69	100.56	111.71
1	E	224	ASN	N-CA-C	9.48	124.04	108.96

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	4131	0	4097	82	1
1	B	4032	0	4004	85	0
1	C	4019	0	3983	83	0
1	D	4046	0	4011	76	0
1	E	4007	0	3975	98	0
1	F	4202	0	4181	91	0
2	A	15	0	6	0	0
2	B	15	0	6	0	0
2	C	15	0	7	0	0
2	D	15	0	7	0	0
2	E	15	0	6	0	0
2	F	15	0	7	0	0
3	A	1	0	0	0	0
3	B	1	0	0	0	0
3	C	1	0	0	0	0
3	D	1	0	0	0	0
3	E	1	0	0	0	0
3	F	1	0	0	0	0
4	A	565	0	0	17	0
4	B	611	0	0	21	0
4	C	593	0	0	18	1
4	D	573	0	0	20	0
4	E	462	0	0	16	0
4	F	486	0	0	14	1
All	All	27823	0	24290	501	2

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 10.

The worst 5 of 501 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:429:MET:HG3	4:A:2840:HOH:O	1.35	1.26
1:F:332:GLN:HG2	4:F:3116:HOH:O	1.54	1.08
1:E:26:SER:HB3	1:E:29:ASN:HB2	1.41	1.02

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:F:17:LYS:HE3	1:F:487:ARG:HH22	1.27	0.97
1:D:448:ASP:HB2	4:D:1323:HOH:O	1.64	0.94

All (2) 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)
4:F:1730:HOH:O	4:F:1730:HOH:O[4_566]	2.09	0.11
1:A:425:ARG:NH2	4:C:1033:HOH:O[4_566]	2.15	0.05

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	520/546 (95%)	509 (98%)	11 (2%)	0	100	100
1	B	510/546 (93%)	500 (98%)	9 (2%)	1 (0%)	43	42
1	C	509/546 (93%)	493 (97%)	15 (3%)	1 (0%)	43	42
1	D	513/546 (94%)	504 (98%)	8 (2%)	1 (0%)	43	42
1	E	507/546 (93%)	481 (95%)	24 (5%)	2 (0%)	30	27
1	F	533/546 (98%)	522 (98%)	10 (2%)	1 (0%)	43	42
All	All	3092/3276 (94%)	3009 (97%)	77 (2%)	6 (0%)	43	42

5 of 6 Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	B	492	ASN
1	D	492	ASN
1	E	455	GLY
1	C	492	ASN
1	F	492	ASN

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	439/455 (96%)	429 (98%)	10 (2%)	44	49
1	B	427/455 (94%)	415 (97%)	12 (3%)	38	41
1	C	425/455 (93%)	412 (97%)	13 (3%)	35	37
1	D	426/455 (94%)	416 (98%)	10 (2%)	44	49
1	E	424/455 (93%)	410 (97%)	14 (3%)	33	34
1	F	444/455 (98%)	426 (96%)	18 (4%)	27	26
All	All	2585/2730 (95%)	2508 (97%)	77 (3%)	36	38

5 of 77 residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	E	425	ARG
1	F	331	GLN
1	F	19	GLU
1	F	159	ASP
1	F	489	PHE

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. 5 of 87 such sidechains are listed below:

Mol	Chain	Res	Type
1	D	410	HIS
1	F	6	GLN
1	E	34	ASN
1	E	306	ASN
1	F	167	ASN

5.3.3 RNA ⓘ

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 oligosaccharides in this entry.

5.6 Ligand geometry [i](#)

Of 12 ligands modelled in this entry, 6 are monoatomic - leaving 6 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	C	900	1	15,15,16	2.25	7 (46%)	21,22,23	1.63	3 (14%)
2	PLP	D	900	1	15,15,16	2.33	6 (40%)	21,22,23	2.01	4 (19%)
2	PLP	B	900	1	15,15,16	2.27	6 (40%)	21,22,23	1.68	5 (23%)
2	PLP	F	900	1	15,15,16	2.79	6 (40%)	21,22,23	2.05	5 (23%)
2	PLP	A	900	1	15,15,16	2.61	6 (40%)	21,22,23	1.88	5 (23%)
2	PLP	E	900	1	15,15,16	2.96	7 (46%)	21,22,23	1.44	2 (9%)

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	C	900	1	-	0/6/6/8	0/1/1/1
2	PLP	D	900	1	-	0/6/6/8	0/1/1/1
2	PLP	B	900	1	-	0/6/6/8	0/1/1/1
2	PLP	F	900	1	-	0/6/6/8	0/1/1/1
2	PLP	A	900	1	-	1/6/6/8	0/1/1/1
2	PLP	E	900	1	-	0/6/6/8	0/1/1/1

The worst 5 of 38 bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
2	E	900	PLP	C2A-C2	7.33	1.62	1.50
2	A	900	PLP	C3-C2	-5.86	1.34	1.41
2	F	900	PLP	C4A-C4	5.60	1.62	1.51
2	F	900	PLP	C5-C4	5.25	1.46	1.40
2	D	900	PLP	C2-N1	4.80	1.42	1.33

The worst 5 of 24 bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
2	F	900	PLP	C4A-C4-C5	6.91	128.07	120.94
2	D	900	PLP	C4A-C4-C5	5.40	126.51	120.94
2	A	900	PLP	C4A-C4-C5	5.24	126.34	120.94
2	B	900	PLP	C4A-C4-C5	5.00	126.09	120.94
2	C	900	PLP	C4A-C4-C5	4.86	125.95	120.94

There are no chirality outliers.

All (1) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
2	A	900	PLP	C6-C5-C5A-O4P

There are no ring outliers.

No monomer is involved in short contacts.

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	524/546 (95%)	-0.49	8 (1%) 72 71	10, 20, 42, 65	0
1	B	512/546 (93%)	-0.53	9 (1%) 67 67	9, 19, 43, 81	0
1	C	511/546 (93%)	-0.52	9 (1%) 67 67	9, 20, 46, 76	0
1	D	515/546 (94%)	-0.53	8 (1%) 70 70	9, 21, 43, 76	0
1	E	509/546 (93%)	-0.11	11 (2%) 62 61	11, 25, 57, 88	0
1	F	535/546 (97%)	-0.33	15 (2%) 55 54	9, 22, 52, 78	0
All	All	3106/3276 (94%)	-0.42	60 (1%) 66 66	9, 21, 48, 88	0

The worst 5 of 60 RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	B	490	GLY	4.8
1	F	539	LEU	4.4
1	E	489	PHE	4.3
1	D	28	GLY	4.3
1	F	490	GLY	4.3

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 oligosaccharides 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($\text{\AA}^2$)	Q<0.9
2	PLP	E	900	15/16	0.98	0.05	17,21,23,24	0
3	CL	B	4002	1/1	0.98	0.04	20,20,20,20	0
3	CL	E	4005	1/1	0.98	0.05	20,20,20,20	0
3	CL	F	4006	1/1	0.98	0.06	24,24,24,24	0
2	PLP	A	900	15/16	0.99	0.04	14,15,18,18	0
2	PLP	F	900	15/16	0.99	0.04	13,15,18,18	0
3	CL	A	4001	1/1	0.99	0.02	18,18,18,18	0
2	PLP	B	900	15/16	0.99	0.03	12,15,17,18	0
3	CL	D	4004	1/1	0.99	0.04	21,21,21,21	0
2	PLP	C	900	15/16	0.99	0.04	13,15,17,17	0
2	PLP	D	900	15/16	0.99	0.04	14,16,17,18	0
3	CL	C	4003	1/1	1.00	0.02	19,19,19,19	0

6.5 Other polymers [i](#)

There are no such residues in this entry.