



# wwPDB X-ray Structure Validation Summary Report ⓘ

Jan 4, 2024 – 02:52 am GMT

PDB ID : 4UQV  
Title : methanococcus jannaschii serine hydroxymethyl-transferase in complex with PLP  
Authors : Saccoccia, F.; Angelucci, F.; Ilari, A.  
Deposited on : 2014-06-25  
Resolution : 3.00 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](mailto: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>.

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

MolProbity : 4.02b-467  
Mogul : 1.8.4, CSD as541be (2020)  
Xtriage (Phenix) : 1.13  
EDS : 2.36  
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

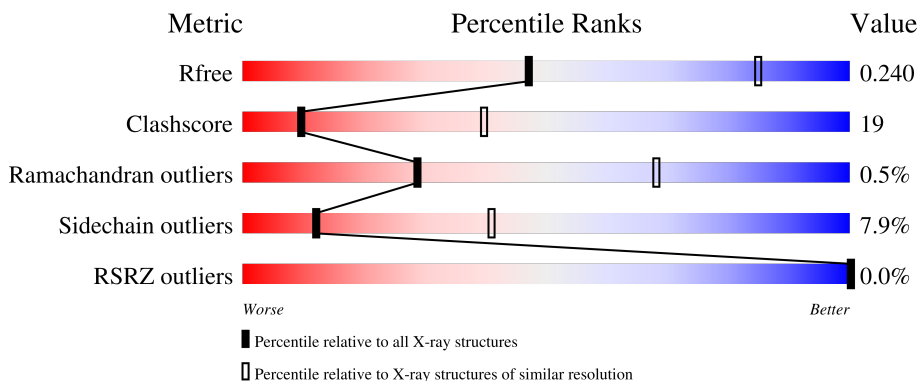
# 1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

*X-RAY DIFFRACTION*

The reported resolution of this entry is 3.00 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))
$R_{free}$	130704	2092 (3.00-3.00)
Clashscore	141614	2416 (3.00-3.00)
Ramachandran outliers	138981	2333 (3.00-3.00)
Sidechain outliers	138945	2336 (3.00-3.00)
RSRZ outliers	127900	1990 (3.00-3.00)

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  $\geq 3$ , 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	429	
1	B	429	
1	C	429	
1	D	429	
1	E	429	

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Mol	Chain	Length	Quality of chain
1	F	429	 57% 36% . . .
1	G	429	 57% 38% 5%
1	H	429	 57% 39% .
1	I	429	 59% 36% .
1	J	429	 54% 43% .
1	K	429	 57% 37% . .
1	L	429	 56% 36% 6% .

## 2 Entry composition [i](#)

There are 2 unique types of molecules in this entry. The entry contains 40370 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 SERINE HYDROXYMETHYLTRANSFERASE.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
1	A	426	3362	2146	560	639	17	0	0	0
1	B	424	3344	2133	558	636	17	0	0	0
1	C	420	3308	2112	552	628	16	0	0	0
1	D	425	3354	2141	559	638	16	0	0	0
1	E	427	3369	2150	565	638	16	0	0	0
1	F	418	3300	2107	554	623	16	0	0	0
1	G	429	3386	2160	567	642	17	0	0	0
1	H	427	3366	2146	564	639	17	0	0	0
1	I	427	3369	2150	565	638	16	0	0	0
1	J	429	3386	2160	567	642	17	0	0	0
1	K	422	3329	2125	559	629	16	0	0	0
1	L	420	3317	2122	555	624	16	0	0	0

- Molecule 2 is PYRIDOXAL-5'-PHOSPHATE (three-letter code: PLP) (formula: C<sub>8</sub>H<sub>10</sub>NO<sub>6</sub>P).

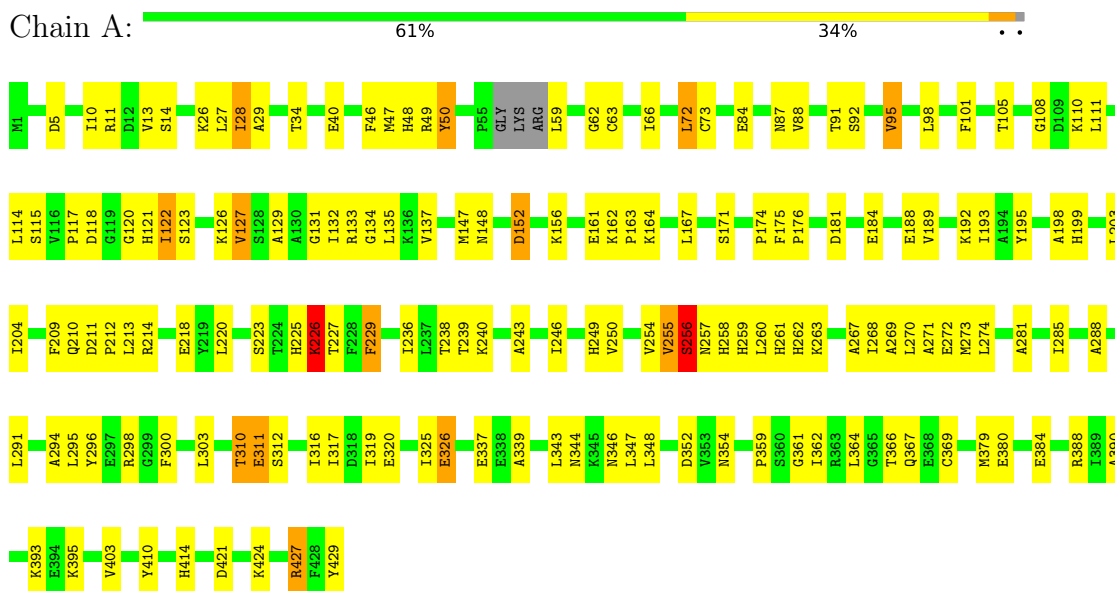


Mol	Chain	Residues	Atoms					ZeroOcc	AltConf
			Total	C	N	O	P		
2	A	1	Total 15	8	1	5	1	0	0
2	B	1	Total 15	8	1	5	1	0	0
2	C	1	Total 15	8	1	5	1	0	0
2	D	1	Total 15	8	1	5	1	0	0
2	E	1	Total 15	8	1	5	1	0	0
2	F	1	Total 15	8	1	5	1	0	0
2	G	1	Total 15	8	1	5	1	0	0
2	H	1	Total 15	8	1	5	1	0	0
2	I	1	Total 15	8	1	5	1	0	0
2	J	1	Total 15	8	1	5	1	0	0
2	K	1	Total 15	8	1	5	1	0	0
2	L	1	Total 15	8	1	5	1	0	0

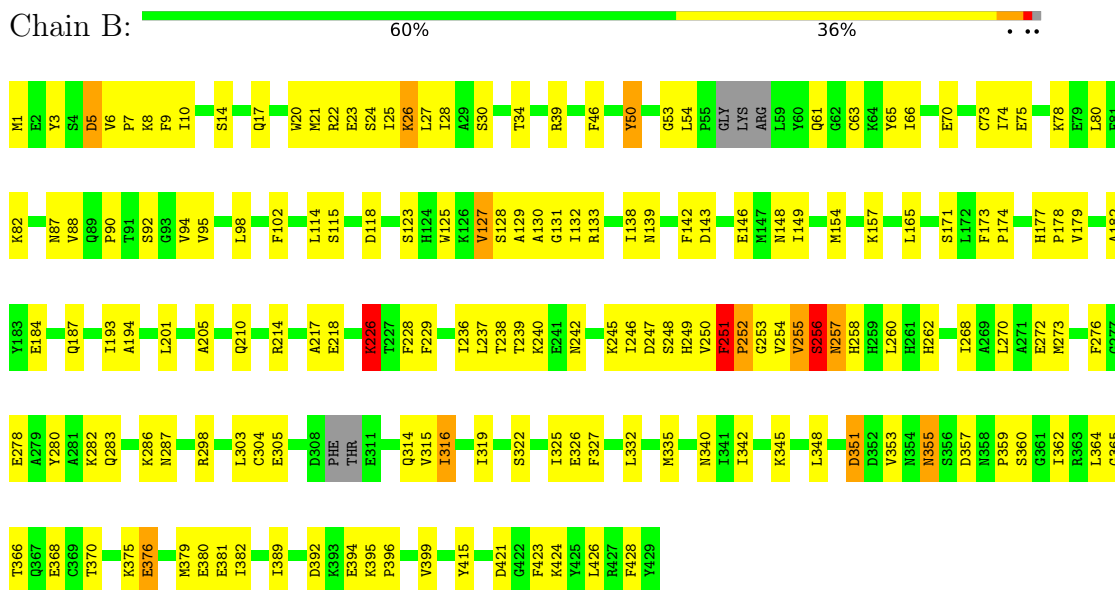
### 3 Residue-property plots [i](#)

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: SERINE HYDROXYMETHYLTRANSFERASE



#### • Molecule 1: SERINE HYDROXYMETHYLTRANSFERASE





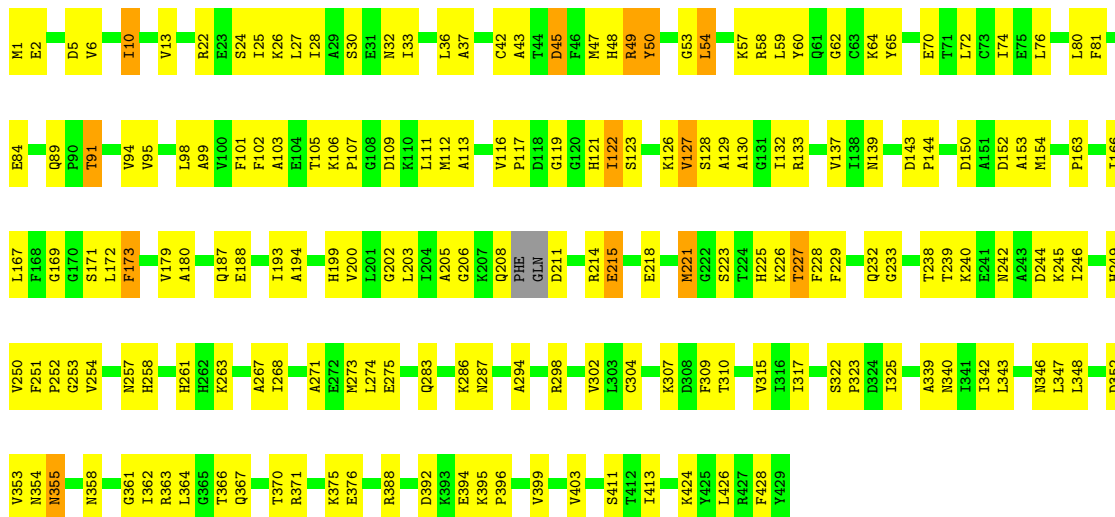






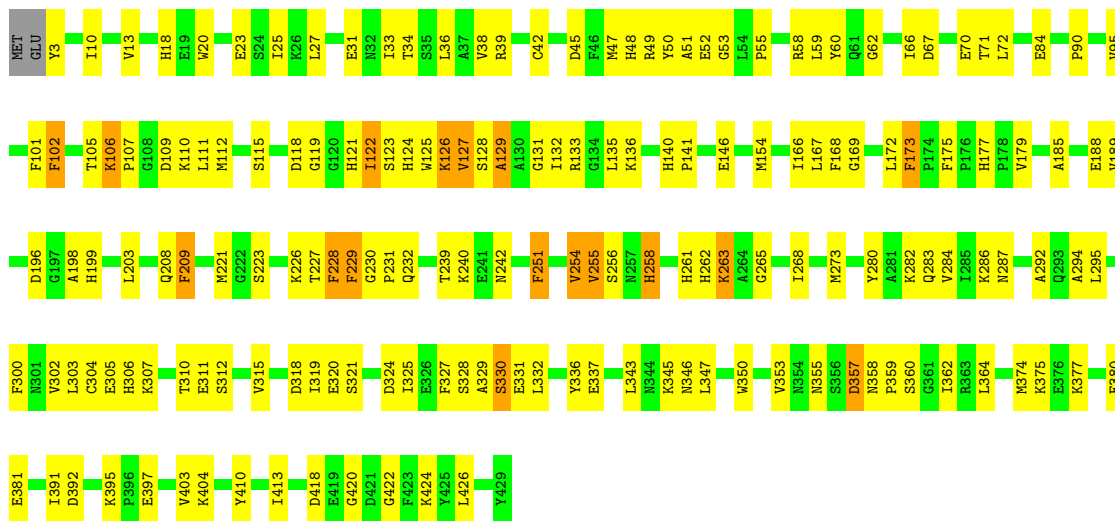
• Molecule 1: SERINE HYDROXYMETHYLTRANSFERASE

Chain H: 57% 39%



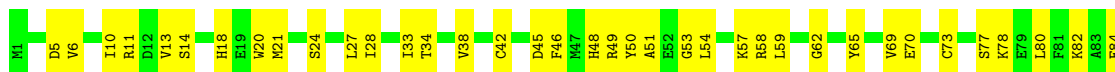
• Molecule 1: SERINE HYDROXYMETHYLTRANSFERASE

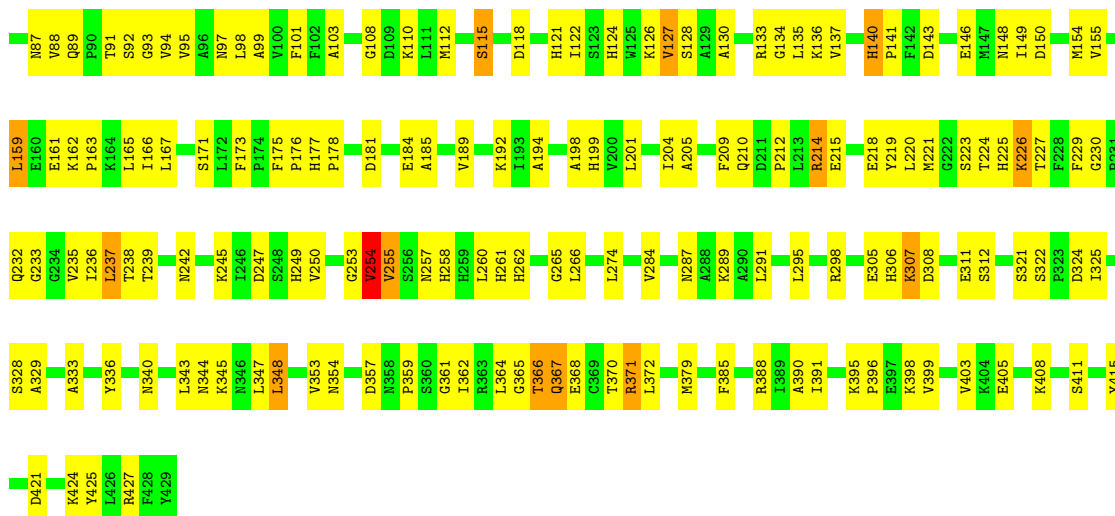
Chain I: 59% 36%



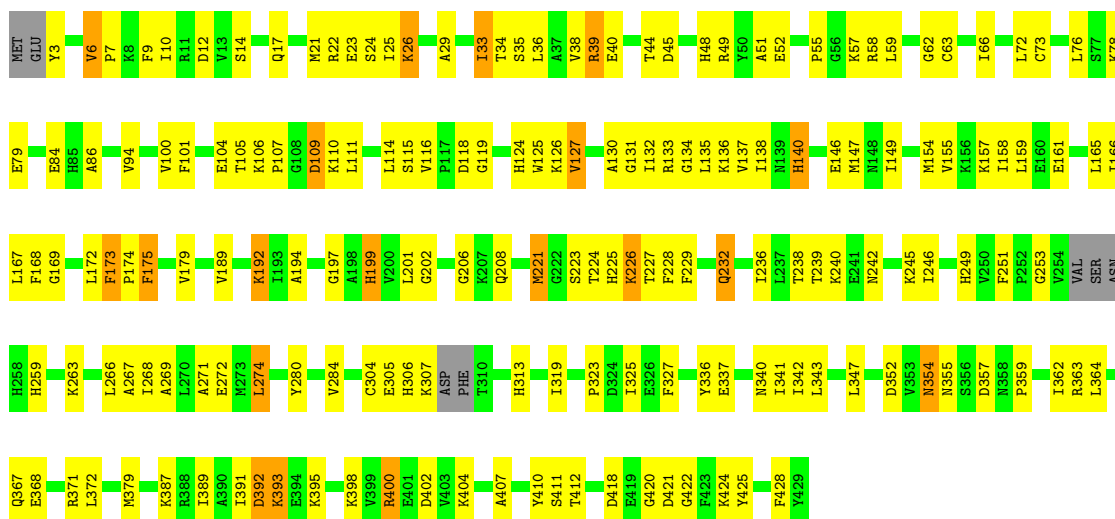
• Molecule 1: SERINE HYDROXYMETHYLTRANSFERASE

Chain J: 54% 43%

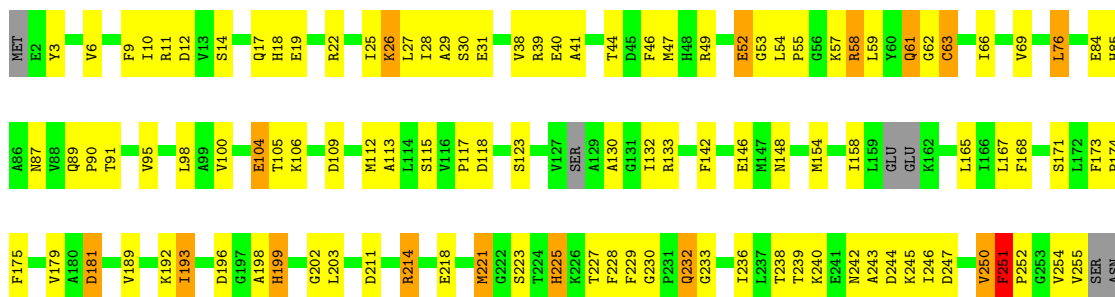


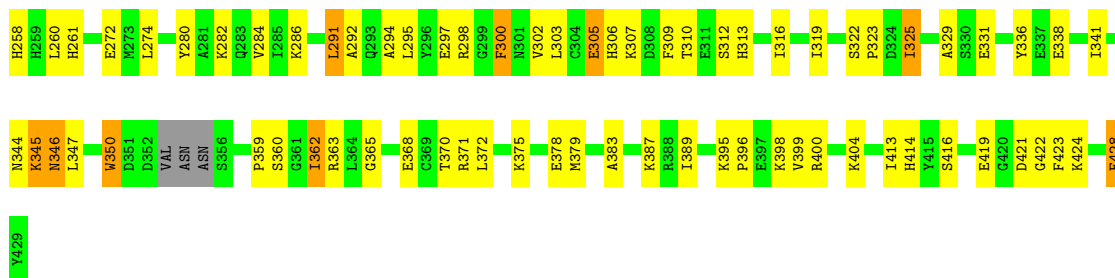


● Molecule 1: SERINE HYDROXYMETHYLTRANSFERASE



● Molecule 1: SERINE HYDROXYMETHYLTRANSFERASE





## 4 Data and refinement statistics

Property	Value	Source
Space group	P 1 21 1	Depositor
Cell constants a, b, c, $\alpha$ , $\beta$ , $\gamma$	123.13Å 47.16Å 344.08Å 90.00° 90.02° 90.00°	Depositor
Resolution (Å)	49.15 – 3.00 49.15 – 3.00	Depositor EDS
% Data completeness (in resolution range)	99.8 (49.15-3.00) 90.7 (49.15-3.00)	Depositor EDS
$R_{merge}$	0.28	Depositor
$R_{sym}$	(Not available)	Depositor
$\langle I/\sigma(I) \rangle$ <sup>1</sup>	0.85 (at 3.01Å)	Xtriage
Refinement program	PHENIX (PHENIX.REFINE: DEV_1702)	Depositor
R, $R_{free}$	0.198 , 0.243 0.202 , 0.240	Depositor DCC
$R_{free}$ test set	4050 reflections (5.00%)	wwPDB-VP
Wilson B-factor (Å <sup>2</sup> )	47.6	Xtriage
Anisotropy	0.350	Xtriage
Bulk solvent $k_{sol}$ (e/Å <sup>3</sup> ), $B_{sol}$ (Å <sup>2</sup> )	0.31 , 29.6	EDS
L-test for twinning <sup>2</sup>	$\langle  L  \rangle = 0.45$ , $\langle L^2 \rangle = 0.27$	Xtriage
Estimated twinning fraction	0.438 for h,-k,-l	Xtriage
Reported twinning fraction	0.500 for -h,-k,l	Depositor
Outliers	0 of 80986 reflections	Xtriage
$F_o, F_c$ correlation	0.90	EDS
Total number of atoms	40370	wwPDB-VP
Average B, all atoms (Å <sup>2</sup> )	55.0	wwPDB-VP

Xtriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 2.90% of the height of the origin peak. No significant pseudotranslation is detected.*

<sup>1</sup>Intensities estimated from amplitudes.

<sup>2</sup>Theoretical 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

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	0.25	0/3437	0.48	0/4635
1	B	0.28	1/3417 (0.0%)	0.54	6/4606 (0.1%)
1	C	0.26	0/3380	0.49	1/4554 (0.0%)
1	D	0.26	0/3429	0.52	0/4625
1	E	0.25	0/3445	0.55	3/4646 (0.1%)
1	F	0.26	0/3372	0.53	2/4542 (0.0%)
1	G	0.26	0/3462	0.47	0/4668
1	H	0.25	0/3440	0.50	1/4637 (0.0%)
1	I	0.25	0/3445	0.52	3/4646 (0.1%)
1	J	0.27	0/3462	0.55	3/4668 (0.1%)
1	K	0.25	0/3402	0.50	1/4584 (0.0%)
1	L	0.24	0/3389	0.47	0/4563
All	All	0.26	1/41080 (0.0%)	0.51	20/55374 (0.0%)

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	3
1	B	0	2
1	C	0	5
1	D	0	3
1	E	0	2
1	F	0	2
1	G	0	1
1	I	0	3
1	J	0	1
1	K	0	3
1	L	0	2

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Mol	Chain	#Chirality outliers	#Planarity outliers
All	All	0	27

All (1) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
1	B	252	PRO	N-CD	5.21	1.55	1.47

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

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	J	226	LYS	N-CA-C	9.70	137.19	111.00
1	E	226	LYS	N-CA-C	9.53	136.72	111.00
1	B	226	LYS	N-CA-C	9.24	135.94	111.00
1	I	226	LYS	N-CA-C	8.29	133.38	111.00
1	J	254	VAL	CB-CA-C	-7.69	96.79	111.40

There are no chirality outliers.

5 of 27 planarity outliers are listed below:

Mol	Chain	Res	Type	Group
1	A	254	VAL	Peptide
1	A	255	VAL	Peptide
1	A	256	SER	Peptide
1	B	226	LYS	Peptide
1	B	256	SER	Peptide

## 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	3362	0	3304	132	0
1	B	3344	0	3288	149	0
1	C	3308	0	3257	134	0
1	D	3354	0	3292	177	0
1	E	3369	0	3316	157	0
1	F	3300	0	3252	138	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
1	G	3386	0	3334	152	0
1	H	3366	0	3316	132	0
1	I	3369	0	3316	147	0
1	J	3386	0	3335	137	0
1	K	3329	0	3281	134	0
1	L	3317	0	3269	135	0
2	A	15	0	7	2	0
2	B	15	0	7	1	0
2	C	15	0	7	1	0
2	D	15	0	7	0	0
2	E	15	0	7	2	0
2	F	15	0	7	2	0
2	G	15	0	7	1	0
2	H	15	0	7	0	0
2	I	15	0	7	0	0
2	J	15	0	7	1	0
2	K	15	0	7	0	0
2	L	15	0	7	0	0
All	All	40370	0	39644	1550	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 19.

The worst 5 of 1550 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:I:52:GLU:HG2	1:I:60:TYR:CD1	1.70	1.24
1:D:351:ASP:HB2	1:D:352:ASP:OD1	1.44	1.16
1:A:310:THR:HG23	1:A:311:GLU:N	1.55	1.12
1:C:47:MET:HE1	1:D:34:THR:HG21	1.25	1.11
1:A:147:MET:HB2	1:A:175:PHE:HE2	1.08	1.09

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	422/429 (98%)	391 (93%)	28 (7%)	3 (1%)	22	60
1	B	418/429 (97%)	382 (91%)	32 (8%)	4 (1%)	15	53
1	C	414/429 (96%)	375 (91%)	38 (9%)	1 (0%)	47	82
1	D	421/429 (98%)	375 (89%)	44 (10%)	2 (0%)	29	68
1	E	425/429 (99%)	380 (89%)	43 (10%)	2 (0%)	29	68
1	F	412/429 (96%)	368 (89%)	38 (9%)	6 (2%)	10	42
1	G	427/429 (100%)	394 (92%)	33 (8%)	0	100	100
1	H	423/429 (99%)	378 (89%)	44 (10%)	1 (0%)	47	82
1	I	425/429 (99%)	398 (94%)	26 (6%)	1 (0%)	47	82
1	J	427/429 (100%)	383 (90%)	41 (10%)	3 (1%)	22	60
1	K	416/429 (97%)	377 (91%)	38 (9%)	1 (0%)	47	82
1	L	410/429 (96%)	368 (90%)	40 (10%)	2 (0%)	29	68
All	All	5040/5148 (98%)	4569 (91%)	445 (9%)	26 (0%)	29	68

5 of 26 Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	A	127	VAL
1	B	127	VAL
1	C	127	VAL
1	F	54	LEU
1	F	127	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	357/359 (99%)	332 (93%)	25 (7%)	15	47
1	B	355/359 (99%)	334 (94%)	21 (6%)	19	54

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Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
1	C	350/359 (98%)	327 (93%)	23 (7%)	16	49
1	D	356/359 (99%)	325 (91%)	31 (9%)	10	37
1	E	357/359 (99%)	327 (92%)	30 (8%)	11	38
1	F	348/359 (97%)	320 (92%)	28 (8%)	12	40
1	G	359/359 (100%)	327 (91%)	32 (9%)	9	35
1	H	357/359 (99%)	328 (92%)	29 (8%)	11	40
1	I	357/359 (99%)	334 (94%)	23 (6%)	17	51
1	J	359/359 (100%)	334 (93%)	25 (7%)	15	47
1	K	352/359 (98%)	323 (92%)	29 (8%)	11	39
1	L	350/359 (98%)	309 (88%)	41 (12%)	5	22
All	All	4257/4308 (99%)	3920 (92%)	337 (8%)	12	41

5 of 337 residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	I	263	LYS
1	K	343	LEU
1	I	392	ASP
1	J	348	LEU
1	L	52	GLU

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. 5 of 23 such sidechains are listed below:

Mol	Chain	Res	Type
1	G	367	GLN
1	I	177	HIS
1	H	259	HIS
1	J	140	HIS
1	D	140	HIS

### 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](#)

12 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	A	1430	1	15,15,16	1.05	2 (13%)	20,22,23	1.46	3 (15%)
2	PLP	H	1430	1	15,15,16	0.99	1 (6%)	20,22,23	1.46	2 (10%)
2	PLP	J	1430	1	15,15,16	1.02	2 (13%)	20,22,23	1.57	2 (10%)
2	PLP	L	1430	1	15,15,16	1.01	1 (6%)	20,22,23	1.64	2 (10%)
2	PLP	I	1430	1	15,15,16	1.03	1 (6%)	20,22,23	1.66	2 (10%)
2	PLP	K	1430	1	15,15,16	1.03	2 (13%)	20,22,23	1.51	2 (10%)
2	PLP	B	1430	1	15,15,16	1.04	1 (6%)	20,22,23	1.62	2 (10%)
2	PLP	G	1430	1	15,15,16	1.03	1 (6%)	20,22,23	1.59	2 (10%)
2	PLP	D	1430	1	15,15,16	1.12	1 (6%)	20,22,23	1.73	3 (15%)
2	PLP	E	1430	1	15,15,16	1.17	2 (13%)	20,22,23	2.28	4 (20%)
2	PLP	F	1430	1	15,15,16	1.00	1 (6%)	20,22,23	1.68	2 (10%)
2	PLP	C	1430	1	15,15,16	1.01	1 (6%)	20,22,23	1.81	2 (10%)

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	1430	1	-	0/6/6/8	0/1/1/1
2	PLP	H	1430	1	-	3/6/6/8	0/1/1/1
2	PLP	J	1430	1	-	2/6/6/8	0/1/1/1
2	PLP	L	1430	1	-	3/6/6/8	0/1/1/1
2	PLP	I	1430	1	-	3/6/6/8	0/1/1/1
2	PLP	K	1430	1	-	3/6/6/8	0/1/1/1
2	PLP	B	1430	1	-	3/6/6/8	0/1/1/1
2	PLP	G	1430	1	-	2/6/6/8	0/1/1/1
2	PLP	D	1430	1	-	0/6/6/8	0/1/1/1
2	PLP	E	1430	1	-	2/6/6/8	0/1/1/1
2	PLP	F	1430	1	-	1/6/6/8	0/1/1/1
2	PLP	C	1430	1	-	4/6/6/8	0/1/1/1

The worst 5 of 16 bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
2	D	1430	PLP	C3-C2	-3.21	1.37	1.40
2	E	1430	PLP	C3-C2	-3.12	1.37	1.40
2	K	1430	PLP	C3-C2	-2.69	1.38	1.40
2	B	1430	PLP	C3-C2	-2.63	1.38	1.40
2	G	1430	PLP	C3-C2	-2.62	1.38	1.40

The worst 5 of 28 bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
2	E	1430	PLP	O4P-C5A-C5	6.87	122.44	109.35
2	C	1430	PLP	O4P-C5A-C5	6.47	121.68	109.35
2	F	1430	PLP	O4P-C5A-C5	5.92	120.64	109.35
2	E	1430	PLP	C4A-C4-C5	5.72	126.83	120.94
2	D	1430	PLP	O4P-C5A-C5	5.58	119.98	109.35

There are no chirality outliers.

5 of 26 torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
2	B	1430	PLP	C5A-O4P-P-O2P
2	B	1430	PLP	C5A-O4P-P-O3P
2	C	1430	PLP	C4-C5-C5A-O4P
2	C	1430	PLP	C6-C5-C5A-O4P
2	C	1430	PLP	C5A-O4P-P-O2P

There are no ring outliers.

7 monomers are involved in 10 short contacts:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
2	A	1430	PLP	2	0
2	J	1430	PLP	1	0
2	B	1430	PLP	1	0
2	G	1430	PLP	1	0
2	E	1430	PLP	2	0
2	F	1430	PLP	2	0
2	C	1430	PLP	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, 95<sup>th</sup> 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 <sup>2</sup> )	Q<0.9
1	A	426/429 (99%)	-0.80	0 100 100	30, 45, 66, 73	0
1	B	424/429 (98%)	-0.79	0 100 100	31, 47, 68, 80	0
1	C	420/429 (97%)	-0.77	0 100 100	34, 52, 67, 79	0
1	D	425/429 (99%)	-0.65	0 100 100	33, 61, 78, 85	0
1	E	427/429 (99%)	-0.63	1 (0%) 95 87	40, 62, 80, 95	0
1	F	418/429 (97%)	-0.64	0 100 100	43, 62, 76, 93	0
1	G	429/429 (100%)	-0.84	0 100 100	30, 45, 61, 71	0
1	H	427/429 (99%)	-0.78	0 100 100	29, 47, 71, 79	0
1	I	427/429 (99%)	-0.82	0 100 100	33, 48, 64, 71	0
1	J	429/429 (100%)	-0.71	0 100 100	37, 53, 72, 78	0
1	K	422/429 (98%)	-0.62	0 100 100	45, 62, 76, 91	0
1	L	420/429 (97%)	-0.54	0 100 100	51, 66, 79, 93	0
All	All	5094/5148 (98%)	-0.72	1 (0%) 100 100	29, 55, 74, 95	0

All (1) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	E	355	ASN	3.1

### 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<sup>th</sup> 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 <sup>2</sup> )	Q<0.9
2	PLP	L	1430	15/16	0.92	0.21	65,66,66,66	0
2	PLP	I	1430	15/16	0.93	0.21	41,42,42,43	0
2	PLP	C	1430	15/16	0.94	0.20	45,46,46,47	0
2	PLP	K	1430	15/16	0.94	0.18	58,59,59,60	0
2	PLP	D	1430	15/16	0.94	0.19	53,56,59,60	0
2	PLP	J	1430	15/16	0.95	0.13	47,47,47,48	0
2	PLP	A	1430	15/16	0.96	0.15	36,37,39,39	0
2	PLP	B	1430	15/16	0.97	0.14	41,43,44,44	0
2	PLP	E	1430	15/16	0.97	0.17	43,44,46,47	0
2	PLP	F	1430	15/16	0.97	0.20	51,54,56,57	0
2	PLP	G	1430	15/16	0.97	0.18	37,37,39,39	0
2	PLP	H	1430	15/16	0.98	0.14	42,44,45,46	0

## 6.5 Other polymers [i](#)

There are no such residues in this entry.