



Full wwPDB X-ray Structure Validation Report ⓘ

Mar 8, 2026 – 03:14 PM UTC

PDB ID : 1C7N / pdb_00001c7n
Title : CRYSTAL STRUCTURE OF CYSTALYSIN FROM TREPONEMA DENTICOLOA CONTAINS A PYRIDOXAL 5'-PHOSPHATE COFACTOR
Authors : Krupka, H.I.; Huber, R.; Holt, S.C.; Clausen, T.
Deposited on : 2000-03-16
Resolution : 1.90 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 ⓘ 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

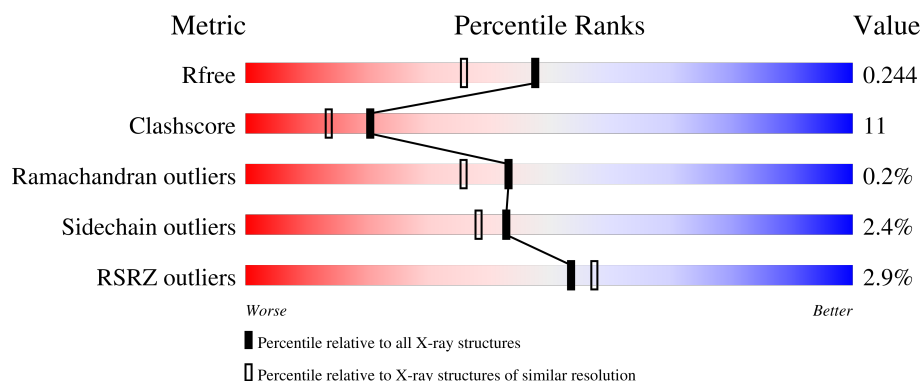
1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

X-RAY DIFFRACTION

The reported resolution of this entry is 1.90 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.



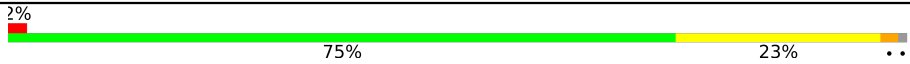
Metric	Whole archive (#Entries)	Similar resolution (#Entries, resolution range(Å))
R_{free}	180053	7789 (1.90-1.90)
Clashscore	190562	8410 (1.90-1.90)
Ramachandran outliers	187476	8333 (1.90-1.90)
Sidechain outliers	187428	8333 (1.90-1.90)
RSRZ outliers	180081	7790 (1.90-1.90)

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 $\leq 5\%$. 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	399	 2% 71% 25% ..
1	B	399	 3% 79% 19% ..
1	C	399	 3% 75% 22% ..
1	D	399	 3% 72% 24% ...
1	E	399	 3% 72% 25% ..

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Mol	Chain	Length	Quality of chain
1	F	399	
1	G	399	
1	H	399	

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	PLP	D	400	-	X	-	-

2 Entry composition

There are 3 unique types of molecules in this entry. The entry contains 28402 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 CRYSTALYSIN.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
1	A	394	Total	C	N	O	S	0	0	0
			3207	2075	523	590	19			
1	B	394	Total	C	N	O	S	0	0	0
			3207	2075	523	590	19			
1	C	394	Total	C	N	O	S	0	0	0
			3207	2075	523	590	19			
1	D	394	Total	C	N	O	S	0	0	0
			3207	2075	523	590	19			
1	E	394	Total	C	N	O	S	0	0	0
			3207	2075	523	590	19			
1	F	394	Total	C	N	O	S	0	0	0
			3207	2075	523	590	19			
1	G	394	Total	C	N	O	S	0	0	0
			3207	2075	523	590	19			
1	H	394	Total	C	N	O	S	0	0	0
			3207	2075	523	590	19			

There are 24 discrepancies between the modelled and reference sequences:

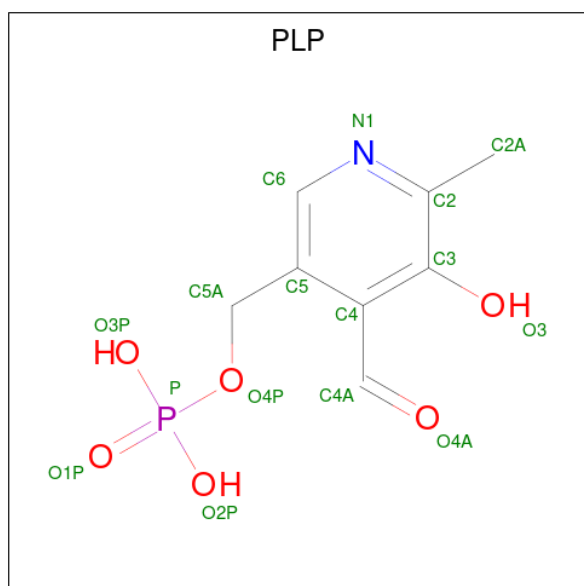
Chain	Residue	Modelled	Actual	Comment	Reference
A	88	GLN	GLU	conflict	UNP Q56257
A	154	GLN	GLU	conflict	UNP Q56257
A	267	ALA	ILE	conflict	UNP Q56257
B	88	GLN	GLU	conflict	UNP Q56257
B	154	GLN	GLU	conflict	UNP Q56257
B	267	ALA	ILE	conflict	UNP Q56257
C	88	GLN	GLU	conflict	UNP Q56257
C	154	GLN	GLU	conflict	UNP Q56257
C	267	ALA	ILE	conflict	UNP Q56257
D	88	GLN	GLU	conflict	UNP Q56257
D	154	GLN	GLU	conflict	UNP Q56257
D	267	ALA	ILE	conflict	UNP Q56257
E	88	GLN	GLU	conflict	UNP Q56257

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Chain	Residue	Modelled	Actual	Comment	Reference
E	154	GLN	GLU	conflict	UNP Q56257
E	267	ALA	ILE	conflict	UNP Q56257
F	88	GLN	GLU	conflict	UNP Q56257
F	154	GLN	GLU	conflict	UNP Q56257
F	267	ALA	ILE	conflict	UNP Q56257
G	88	GLN	GLU	conflict	UNP Q56257
G	154	GLN	GLU	conflict	UNP Q56257
G	267	ALA	ILE	conflict	UNP Q56257
H	88	GLN	GLU	conflict	UNP Q56257
H	154	GLN	GLU	conflict	UNP Q56257
H	267	ALA	ILE	conflict	UNP Q56257

- 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		
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		

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Mol	Chain	Residues	Atoms					ZeroOcc	AltConf
2	G	1	Total	C	N	O	P	0	0
			15	8	1	5	1		
2	H	1	Total	C	N	O	P	0	0
			15	8	1	5	1		

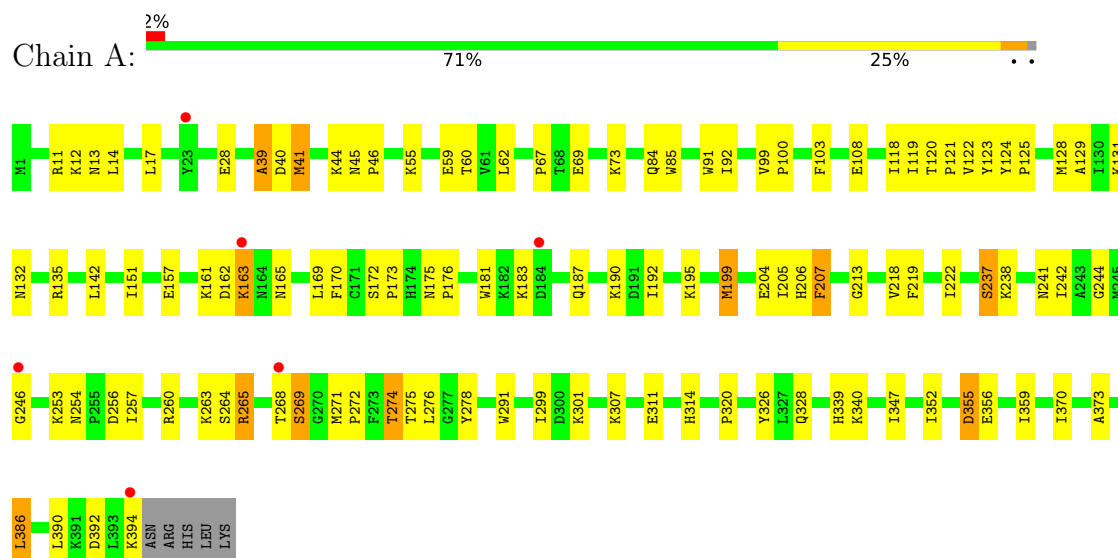
- Molecule 3 is water.

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
3	A	313	Total	O	0	0
			313	313		
3	B	269	Total	O	0	0
			269	269		
3	C	354	Total	O	0	0
			354	354		
3	D	379	Total	O	0	0
			379	379		
3	E	292	Total	O	0	0
			292	292		
3	F	380	Total	O	0	0
			380	380		
3	G	334	Total	O	0	0
			334	334		
3	H	305	Total	O	0	0
			305	305		

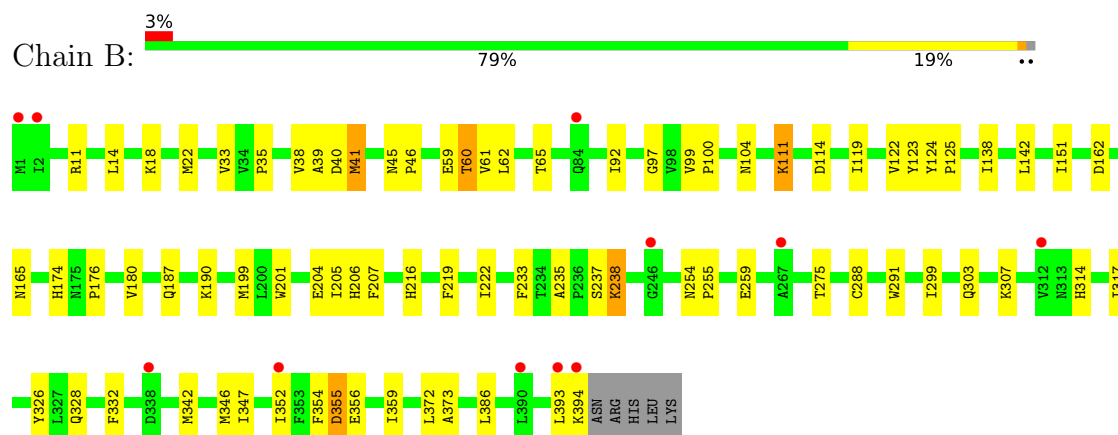
3 Residue-property plots [i](#)

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.

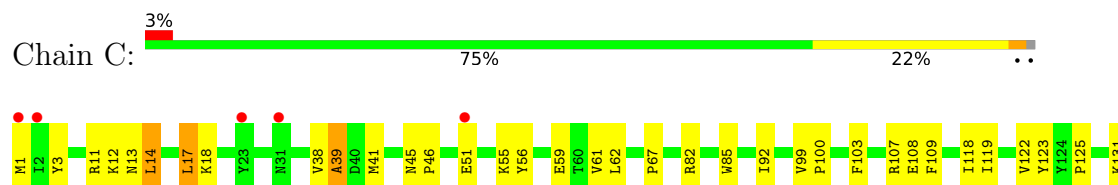
• Molecule 1: CYSTALYSIN

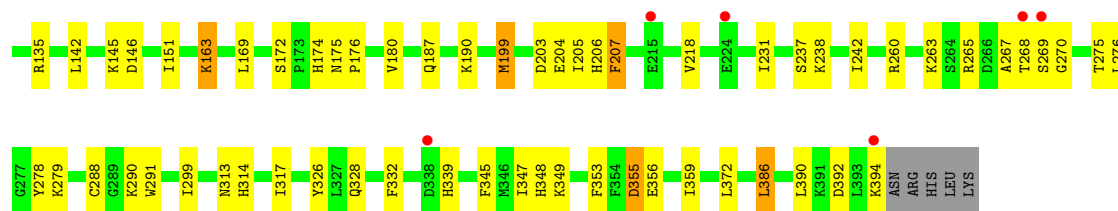


• Molecule 1: CYSTALYSIN

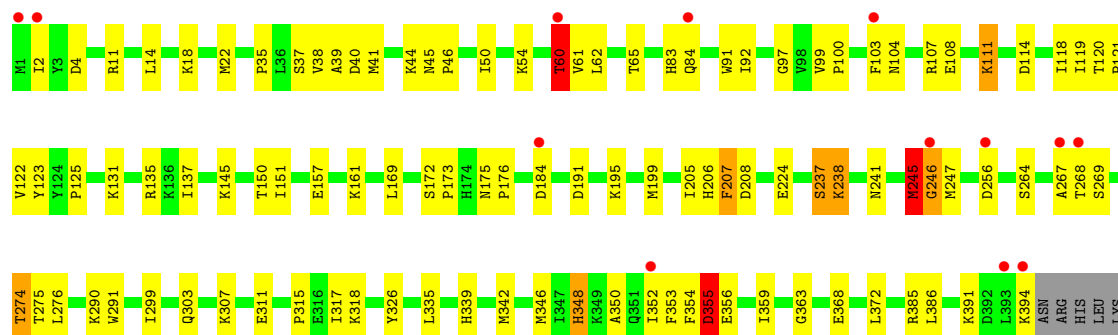


• Molecule 1: CYSTALYSIN

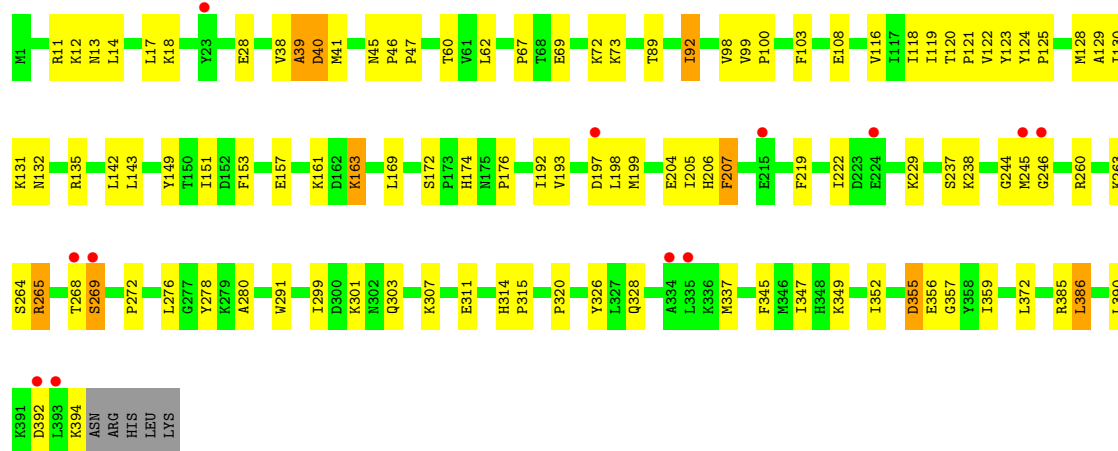




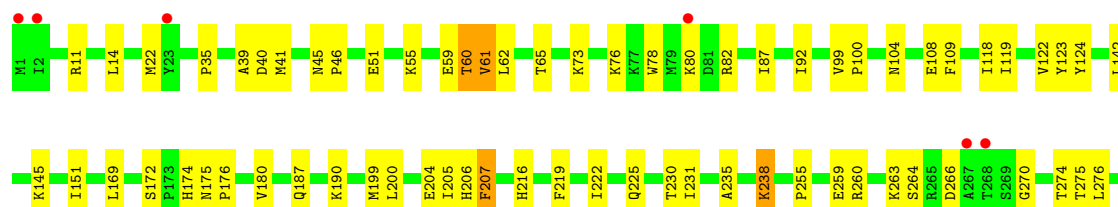
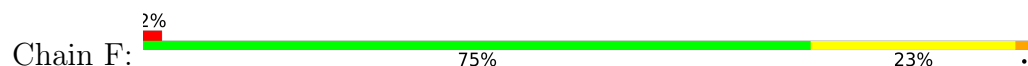
• Molecule 1: CYSTALYSIN



• Molecule 1: CYSTALYSIN

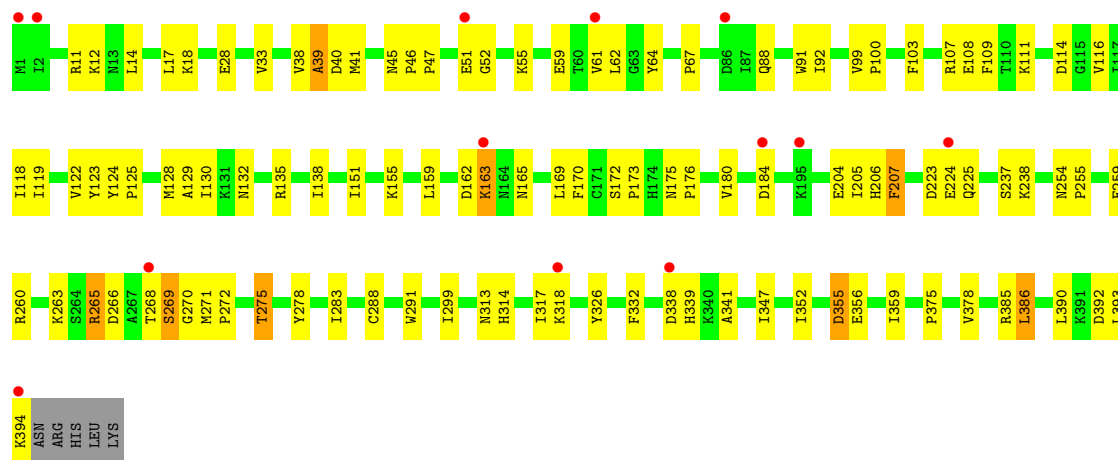


• Molecule 1: CYSTALYSIN

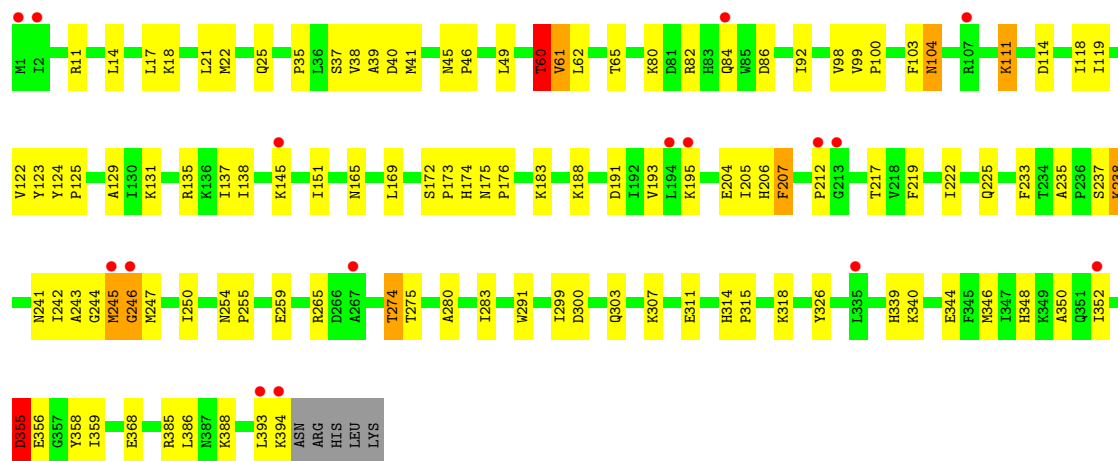




● Molecule 1: CYSTALYSIN



● Molecule 1: CYSTALYSIN



4 Data and refinement statistics

Property	Value	Source
Space group	P 1 21 1	Depositor
Cell constants a, b, c, α , β , γ	89.47Å 108.44Å 176.09Å 90.00° 90.17° 90.00°	Depositor
Resolution (Å)	25.00 – 1.90 25.00 – 1.90	Depositor EDS
% Data completeness (in resolution range)	96.5 (25.00-1.90) 96.5 (25.00-1.90)	Depositor EDS
R_{merge}	0.08	Depositor
R_{sym}	(Not available)	Depositor
$\langle I/\sigma(I) \rangle$ ¹	2.11 (at 1.90Å)	Xtriage
Refinement program	unknown	Depositor
R, R_{free}	0.208 , 0.247 0.205 , 0.244	Depositor DCC
R_{free} test set	12711 reflections (4.99%)	wwPDB-VP
Wilson B-factor (Å ²)	15.6	Xtriage
Anisotropy	0.461	Xtriage
Bulk solvent k_{sol} (e/Å ³), B_{sol} (Å ²)	0.34 , 47.9	EDS
L-test for twinning ²	$\langle L \rangle = 0.48$, $\langle L^2 \rangle = 0.31$	Xtriage
Estimated twinning fraction	0.027 for h,-k,-l	Xtriage
F_o, F_c correlation	0.93	EDS
Total number of atoms	28402	wwPDB-VP
Average B, all atoms (Å ²)	17.0	wwPDB-VP

Xtriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 4.74% 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

5.1 Standard geometry

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	0.35	0/3283	0.96	18/4429 (0.4%)
1	B	0.35	0/3283	0.92	13/4429 (0.3%)
1	C	0.39	0/3283	0.96	18/4429 (0.4%)
1	D	0.39	1/3283 (0.0%)	0.94	15/4429 (0.3%)
1	E	0.36	0/3283	0.96	15/4429 (0.3%)
1	F	0.38	0/3283	0.96	17/4429 (0.4%)
1	G	0.37	0/3283	0.96	20/4429 (0.5%)
1	H	0.37	0/3283	0.95	17/4429 (0.4%)
All	All	0.37	1/26264 (0.0%)	0.95	133/35432 (0.4%)

All (1) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
1	D	245	MET	SD-CE	-6.17	1.64	1.79

All (133) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	E	60	THR	N-CA-C	8.58	123.03	110.59
1	D	60	THR	N-CA-C	8.48	121.47	110.53
1	G	314	HIS	CA-C-N	8.34	129.15	119.47
1	G	314	HIS	C-N-CA	8.34	129.15	119.47
1	A	60	THR	N-CA-C	8.14	121.03	110.53
1	H	245	MET	N-CA-C	-7.85	103.54	113.43
1	F	355	ASP	N-CA-C	-7.68	95.07	108.20
1	F	39	ALA	N-CA-C	7.62	121.51	109.39
1	A	314	HIS	CA-C-N	7.53	128.20	119.47
1	A	314	HIS	C-N-CA	7.53	128.20	119.47
1	H	60	THR	N-CA-C	7.47	120.66	110.35
1	H	193	VAL	N-CA-C	7.41	118.21	110.72

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	D	41	MET	N-CA-C	7.36	121.37	110.48
1	F	207	PHE	N-CA-C	7.17	121.72	113.19
1	A	41	MET	N-CA-C	7.12	121.02	110.48
1	C	314	HIS	CA-C-N	7.12	127.72	119.47
1	C	314	HIS	C-N-CA	7.12	127.72	119.47
1	E	237	SER	N-CA-C	7.04	118.60	111.07
1	A	39	ALA	N-CA-C	6.99	120.50	109.39
1	B	237	SER	N-CA-C	6.99	118.54	111.07
1	E	92	ILE	N-CA-C	6.98	118.51	107.98
1	D	355	ASP	N-CA-C	-6.94	93.94	107.62
1	E	39	ALA	N-CA-C	6.92	120.39	109.39
1	C	207	PHE	N-CA-C	6.88	121.38	113.19
1	C	339	HIS	N-CA-C	6.85	118.75	111.28
1	G	92	ILE	N-CA-C	6.80	118.25	107.98
1	C	39	ALA	N-CA-C	6.79	120.18	109.39
1	C	41	MET	N-CA-C	6.75	120.48	110.48
1	H	41	MET	N-CA-C	6.72	121.00	110.32
1	G	355	ASP	N-CA-C	-6.71	94.39	107.62
1	D	39	ALA	N-CA-C	6.57	119.83	109.39
1	B	39	ALA	N-CA-C	6.55	119.81	109.39
1	G	41	MET	N-CA-C	6.54	120.54	110.20
1	D	237	SER	N-CA-C	6.54	118.09	110.97
1	B	92	ILE	N-CA-C	6.53	118.21	108.54
1	G	393	LEU	N-CA-C	-6.53	104.57	112.54
1	D	92	ILE	N-CA-C	6.46	117.73	107.98
1	B	41	MET	N-CA-C	6.45	120.03	110.48
1	E	355	ASP	N-CA-C	-6.42	95.81	107.75
1	E	40	ASP	N-CA-C	-6.40	99.57	109.24
1	H	39	ALA	N-CA-C	6.40	119.56	109.39
1	E	199	MET	N-CA-C	-6.39	101.06	110.52
1	C	355	ASP	N-CA-C	-6.38	95.05	107.62
1	G	39	ALA	N-CA-C	6.37	119.52	109.39
1	G	207	PHE	N-CA-C	6.35	120.75	113.19
1	A	175	ASN	N-CA-C	-6.35	102.07	110.07
1	H	92	ILE	N-CA-C	6.30	117.50	107.98
1	C	92	ILE	N-CA-C	6.29	117.84	108.54
1	G	175	ASN	N-CA-C	-6.26	102.18	110.07
1	A	237	SER	N-CA-C	6.24	118.60	111.11
1	F	175	ASN	N-CA-C	-6.18	101.99	109.72
1	A	355	ASP	N-CA-C	-6.16	96.29	107.75
1	D	207	PHE	N-CA-C	6.11	120.46	113.19
1	G	180	VAL	N-CA-C	-6.07	97.63	107.28

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	E	41	MET	N-CA-C	6.04	119.92	110.32
1	E	174	HIS	N-CA-C	6.01	118.08	108.41
1	E	135	ARG	N-CA-C	-5.96	101.63	110.46
1	D	175	ASN	N-CA-C	-5.96	102.28	109.72
1	H	40	ASP	N-CA-C	-5.95	100.26	109.24
1	F	41	MET	N-CA-C	5.93	119.26	110.48
1	G	347	ILE	N-CA-C	5.92	116.10	110.42
1	F	40	ASP	N-CA-C	-5.91	100.06	109.23
1	G	313	ASN	N-CA-C	5.87	120.46	113.12
1	C	108	GLU	N-CA-C	5.84	118.87	111.69
1	C	180	VAL	N-CA-C	-5.83	98.00	107.28
1	H	207	PHE	N-CA-C	5.79	119.96	113.01
1	H	355	ASP	N-CA-C	-5.76	96.27	107.62
1	G	237	SER	N-CA-C	5.76	117.25	110.97
1	C	313	ASN	N-CA-C	5.76	120.45	112.45
1	F	124	TYR	N-CA-C	5.75	121.51	113.57
1	B	40	ASP	N-CA-C	-5.75	100.32	109.23
1	C	135	ARG	N-CA-C	-5.74	101.97	110.46
1	H	175	ASN	N-CA-C	-5.72	102.44	109.65
1	F	92	ILE	N-CA-C	5.71	116.59	107.98
1	C	175	ASN	N-CA-C	-5.70	102.60	109.72
1	C	109	PHE	N-CA-C	5.68	119.91	112.92
1	A	199	MET	N-CA-C	-5.63	102.18	110.52
1	B	314	HIS	CA-C-N	5.62	125.29	119.56
1	B	314	HIS	C-N-CA	5.62	125.29	119.56
1	E	347	ILE	N-CA-C	5.61	116.35	110.62
1	E	207	PHE	N-CA-C	5.60	119.86	113.19
1	F	180	VAL	N-CA-C	-5.60	98.37	107.28
1	C	199	MET	N-CA-C	-5.60	101.16	110.17
1	C	174	HIS	N-CA-C	5.59	117.41	108.41
1	A	108	GLU	N-CA-C	5.58	118.55	111.69
1	A	339	HIS	N-CA-C	5.56	118.10	111.71
1	H	174	HIS	N-CA-C	5.56	117.36	108.41
1	F	61	VAL	N-CA-C	-5.55	100.49	108.48
1	A	44	LYS	N-CA-C	-5.52	103.25	110.53
1	B	174	HIS	N-CA-C	5.50	117.27	108.41
1	F	174	HIS	N-CA-C	5.49	117.25	108.41
1	H	314	HIS	CA-C-N	5.49	126.70	119.84
1	H	314	HIS	C-N-CA	5.49	126.70	119.84
1	G	109	PHE	N-CA-C	5.46	119.25	112.59
1	A	92	ILE	N-CA-C	5.44	116.59	108.54
1	B	199	MET	N-CA-C	-5.39	102.54	110.52

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	D	135	ARG	N-CA-C	-5.37	102.52	110.46
1	E	357	GLY	N-CA-C	5.36	119.37	112.83
1	A	207	PHE	N-CA-C	5.36	119.44	113.01
1	D	339	HIS	N-CA-C	5.34	117.79	111.33
1	F	231	ILE	N-CA-C	-5.33	99.88	107.77
1	F	347	ILE	N-CA-C	5.32	115.53	110.53
1	H	243	ALA	N-CA-C	-5.31	105.90	112.38
1	A	135	ARG	N-CA-C	-5.31	102.61	110.46
1	D	246	GLY	N-CA-C	5.29	125.73	113.18
1	F	313	ASN	N-CA-C	5.29	119.74	113.12
1	G	40	ASP	N-CA-C	-5.29	101.03	109.23
1	C	231	ILE	N-CA-C	-5.28	99.95	107.77
1	D	199	MET	N-CA-C	-5.27	102.72	110.52
1	G	33	VAL	N-CA-C	5.26	116.36	109.21
1	B	288	CYS	N-CA-C	5.25	118.71	112.72
1	B	180	VAL	N-CA-C	-5.24	99.61	107.37
1	F	287	GLU	N-CA-C	5.18	121.32	114.12
1	H	246	GLY	N-CA-C	5.18	125.45	113.18
1	A	40	ASP	N-CA-C	-5.18	101.21	109.23
1	A	347	ILE	N-CA-C	5.17	115.39	110.53
1	F	108	GLU	N-CA-C	5.17	118.05	111.69
1	G	135	ARG	N-CA-C	-5.17	103.09	110.59
1	D	40	ASP	N-CA-C	-5.16	101.23	109.23
1	D	348	HIS	N-CA-C	5.16	119.71	113.41
1	B	347	ILE	N-CA-C	5.15	115.93	110.72
1	H	135	ARG	N-CA-C	-5.14	102.45	110.42
1	F	318	LYS	N-CA-C	5.13	117.32	109.07
1	C	288	CYS	N-CA-C	5.12	118.84	112.59
1	G	288	CYS	N-CA-C	5.12	118.55	112.72
1	G	339	HIS	N-CA-C	5.12	116.86	111.28
1	D	91	TRP	N-CA-C	-5.10	107.06	113.28
1	A	181	TRP	N-CA-C	5.09	117.69	110.10
1	E	314	HIS	CA-C-N	5.09	126.20	119.84
1	E	314	HIS	C-N-CA	5.09	126.20	119.84
1	B	33	VAL	N-CA-C	5.09	116.14	109.58
1	H	61	VAL	N-CA-C	-5.07	101.01	108.11
1	G	108	GLU	N-CA-C	5.04	117.89	111.69

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	3207	0	3221	82	0
1	B	3207	0	3221	56	0
1	C	3207	0	3221	71	0
1	D	3207	0	3221	80	0
1	E	3207	0	3221	89	0
1	F	3207	0	3221	67	0
1	G	3207	0	3221	77	0
1	H	3207	0	3221	84	0
2	A	15	0	6	4	0
2	B	15	0	6	1	0
2	C	15	0	6	4	0
2	D	15	0	6	4	0
2	E	15	0	6	4	0
2	F	15	0	6	1	0
2	G	15	0	6	3	0
2	H	15	0	6	1	0
3	A	313	0	0	9	0
3	B	269	0	0	1	0
3	C	354	0	0	8	0
3	D	379	0	0	12	0
3	E	292	0	0	18	0
3	F	380	0	0	8	0
3	G	334	0	0	4	0
3	H	305	0	0	15	0
All	All	28402	0	25816	576	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 11.

All (576) 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:C:163:LYS:H	1:C:163:LYS:HD3	1.06	1.13
1:A:163:LYS:H	1:A:163:LYS:HD3	1.07	1.09
1:E:163:LYS:HD3	1:E:163:LYS:H	1.07	1.09

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:G:163:LYS:H	1:G:163:LYS:HD3	1.15	1.04
1:E:45:ASN:HD21	1:F:62:LEU:H	1.15	0.94
1:E:62:LEU:H	1:F:45:ASN:HD21	1.16	0.90
1:C:163:LYS:H	1:C:163:LYS:CD	1.85	0.89
1:G:45:ASN:HD21	1:H:62:LEU:H	1.21	0.89
1:A:45:ASN:HD21	1:B:62:LEU:H	1.21	0.88
1:C:62:LEU:H	1:D:45:ASN:HD21	1.20	0.88
1:E:205:ILE:HD13	2:E:400:PLP:H5A1	1.54	0.87
1:C:163:LYS:HD3	1:C:163:LYS:N	1.90	0.87
1:H:60:THR:HG22	1:H:61:VAL:H	1.44	0.82
1:E:163:LYS:HD3	1:E:163:LYS:N	1.92	0.81
1:A:163:LYS:HD3	1:A:163:LYS:N	1.91	0.81
1:D:150:THR:HG23	3:D:575:HOH:O	1.81	0.81
1:D:346:MET:SD	1:D:352:ILE:HD11	2.21	0.81
1:D:65:THR:OG1	1:D:275:THR:HG22	1.80	0.80
1:G:163:LYS:H	1:G:163:LYS:CD	1.94	0.79
1:F:255:PRO:O	1:F:259:GLU:HG3	1.83	0.79
1:A:62:LEU:H	1:B:45:ASN:HD21	1.26	0.79
1:B:65:THR:OG1	1:B:275:THR:HG22	1.82	0.79
1:C:62:LEU:CD2	1:C:275:THR:HG21	2.14	0.78
1:F:11:ARG:HA	1:F:14:LEU:HD12	1.66	0.78
1:A:84:GLN:HG3	3:A:611:HOH:O	1.84	0.77
1:C:45:ASN:HD21	1:D:62:LEU:H	1.28	0.77
1:D:22:MET:SD	1:D:35:PRO:HG3	2.24	0.77
1:G:67:PRO:HG3	1:G:278:TYR:CE2	2.20	0.77
1:G:62:LEU:H	1:H:45:ASN:HD21	1.32	0.76
1:H:84:GLN:HG3	3:H:456:HOH:O	1.85	0.76
1:H:22:MET:SD	1:H:35:PRO:HG3	2.26	0.75
1:D:84:GLN:HG3	3:D:594:HOH:O	1.86	0.74
1:H:255:PRO:O	1:H:259:GLU:HG3	1.87	0.74
1:C:12:LYS:O	1:C:14:LEU:HD13	1.88	0.74
1:B:255:PRO:O	1:B:259:GLU:HG3	1.89	0.73
1:D:352:ILE:HD13	1:D:386:LEU:HD13	1.71	0.73
1:D:205:ILE:HD13	2:D:400:PLP:H5A1	1.71	0.72
1:C:62:LEU:HD23	1:C:275:THR:HG21	1.72	0.72
1:A:192:ILE:HA	1:A:195:LYS:HE3	1.70	0.72
1:E:46:PRO:HG3	1:E:291:TRP:CD2	2.25	0.72
1:D:315:PRO:O	1:D:318:LYS:HE2	1.89	0.71
1:H:205:ILE:CD1	1:H:235:ALA:HB3	2.19	0.71
1:A:119:ILE:HD13	1:A:151:ILE:HD12	1.73	0.71
1:D:60:THR:HG22	1:D:61:VAL:H	1.54	0.71

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:205:ILE:HD13	2:C:400:PLP:H5A1	1.72	0.71
1:D:104:ASN:HD22	1:D:107:ARG:HH21	1.38	0.71
1:F:187:GLN:HE22	1:F:190:LYS:NZ	1.88	0.70
1:G:260:ARG:HA	1:G:263:LYS:HD3	1.73	0.70
1:B:346:MET:SD	1:B:352:ILE:HD11	2.31	0.70
1:C:386:LEU:HD22	1:C:390:LEU:HG	1.73	0.70
1:A:190:LYS:HE2	3:A:572:HOH:O	1.92	0.70
1:H:356:GLU:O	1:H:359:ILE:HG12	1.92	0.70
1:D:307:LYS:O	1:D:311:GLU:HG3	1.92	0.70
1:G:163:LYS:HD3	1:G:163:LYS:N	1.99	0.70
1:A:67:PRO:HG3	1:A:278:TYR:CE2	2.26	0.69
1:F:205:ILE:CD1	1:F:235:ALA:HB3	2.22	0.69
1:C:299:ILE:HD13	1:C:326:TYR:HB3	1.72	0.69
1:H:80:LYS:HE2	3:H:566:HOH:O	1.92	0.69
1:C:39:ALA:HB1	1:C:238:LYS:HE2	1.74	0.69
1:F:346:MET:SD	1:F:352:ILE:HD11	2.32	0.69
1:H:60:THR:HG23	3:H:513:HOH:O	1.92	0.69
1:E:67:PRO:HG3	1:E:278:TYR:CE2	2.29	0.68
1:G:119:ILE:HD13	1:G:151:ILE:HD12	1.75	0.68
1:D:157:GLU:HG2	1:D:161:LYS:NZ	2.08	0.68
1:B:11:ARG:HA	1:B:14:LEU:HD12	1.74	0.67
1:H:245:MET:HE3	1:H:280:ALA:HB2	1.75	0.67
1:F:352:ILE:HD13	1:F:386:LEU:HD13	1.76	0.67
1:H:65:THR:OG1	1:H:275:THR:HG22	1.94	0.67
1:A:12:LYS:O	1:A:14:LEU:HD13	1.94	0.67
1:H:191:ASP:O	1:H:195:LYS:HE2	1.95	0.67
1:C:119:ILE:HD13	1:C:151:ILE:HD12	1.76	0.67
1:E:301:LYS:HG2	3:E:558:HOH:O	1.94	0.66
1:G:386:LEU:HD22	1:G:390:LEU:HG	1.75	0.66
1:H:65:THR:CB	1:H:275:THR:HG22	2.26	0.66
1:B:205:ILE:CD1	1:B:235:ALA:HB3	2.26	0.66
1:E:128:MET:O	1:E:132:ASN:HB2	1.96	0.65
1:H:346:MET:SD	1:H:352:ILE:HD11	2.36	0.65
1:B:187:GLN:HE22	1:B:190:LYS:NZ	1.94	0.65
1:B:18:LYS:HB2	1:B:38:VAL:HB	1.79	0.65
1:D:352:ILE:CD1	1:D:386:LEU:HD13	2.27	0.65
1:H:99:VAL:HB	1:H:100:PRO:HD3	1.77	0.65
1:H:191:ASP:O	1:H:195:LYS:HG3	1.97	0.65
1:H:299:ILE:HD13	1:H:326:TYR:HB3	1.78	0.65
1:F:46:PRO:HG3	1:F:291:TRP:CD2	2.32	0.64
1:A:46:PRO:HG3	1:A:291:TRP:CD2	2.32	0.64

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:55:LYS:HE2	1:C:59:GLU:OE2	1.97	0.64
1:H:205:ILE:HD11	1:H:235:ALA:HB3	1.78	0.64
1:H:242:ILE:HB	1:H:245:MET:HB2	1.79	0.64
1:B:22:MET:SD	1:B:35:PRO:HG3	2.37	0.64
1:A:260:ARG:O	1:A:263:LYS:HG2	1.97	0.64
1:G:394:LYS:HZ2	1:G:394:LYS:HB2	1.61	0.64
1:A:205:ILE:CD1	2:A:400:PLP:H5A1	2.28	0.64
1:H:21:LEU:O	1:H:25:GLN:HG3	1.97	0.64
1:F:352:ILE:CD1	1:F:386:LEU:HD13	2.28	0.63
1:C:82:ARG:HD2	3:C:739:HOH:O	1.98	0.63
1:C:51:GLU:HG3	3:C:496:HOH:O	1.97	0.63
1:E:99:VAL:HB	1:E:100:PRO:HD3	1.81	0.63
1:E:386:LEU:HD22	1:E:390:LEU:HG	1.79	0.63
1:F:394:LYS:HD2	3:F:747:HOH:O	1.99	0.63
1:F:187:GLN:HE22	1:F:190:LYS:HZ3	1.47	0.62
1:B:60:THR:HG22	1:B:61:VAL:H	1.64	0.62
1:D:119:ILE:HD13	1:D:151:ILE:HD12	1.81	0.62
1:E:92:ILE:HD12	3:E:433:HOH:O	1.99	0.62
1:F:22:MET:SD	1:F:35:PRO:HG3	2.39	0.62
1:F:55:LYS:HE2	1:F:59:GLU:OE2	1.99	0.62
1:D:2:ILE:HA	3:D:585:HOH:O	2.00	0.62
1:F:206:HIS:HE1	2:F:400:PLP:O3	1.83	0.62
1:G:46:PRO:HG3	1:G:291:TRP:CD2	2.35	0.62
1:H:352:ILE:CD1	1:H:386:LEU:HD13	2.30	0.62
1:G:299:ILE:HD13	1:G:326:TYR:HB3	1.82	0.62
1:E:392:ASP:C	1:E:394:LYS:H	2.07	0.61
1:B:46:PRO:HG3	1:B:291:TRP:CD2	2.36	0.61
1:B:356:GLU:O	1:B:359:ILE:HG12	1.99	0.61
1:A:118:ILE:HG22	1:A:169:LEU:HB3	1.81	0.61
1:F:65:THR:OG1	1:F:275:THR:HG22	2.00	0.61
1:A:39:ALA:HB1	1:A:238:LYS:HE2	1.82	0.60
1:A:39:ALA:CB	1:A:238:LYS:HE2	2.31	0.60
1:A:299:ILE:HD13	1:A:326:TYR:HB3	1.83	0.60
1:E:260:ARG:O	1:E:263:LYS:HG2	2.01	0.60
1:A:301:LYS:HD3	3:A:664:HOH:O	2.01	0.60
1:E:307:LYS:O	1:E:311:GLU:HG3	2.01	0.60
1:C:62:LEU:HD22	1:C:275:THR:HG21	1.82	0.60
1:B:352:ILE:CD1	1:B:386:LEU:HD13	2.31	0.60
1:F:260:ARG:O	1:F:263:LYS:HG2	2.01	0.59
1:F:299:ILE:HD13	1:F:326:TYR:HB3	1.85	0.59
1:A:263:LYS:HG3	1:A:264:SER:N	2.17	0.59

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:157:GLU:HG3	1:A:195:LYS:HE2	1.84	0.59
1:B:352:ILE:HD12	1:B:354:PHE:CE2	2.37	0.59
1:E:394:LYS:HB2	1:E:394:LYS:NZ	2.16	0.59
1:A:320:PRO:HG3	3:A:519:HOH:O	2.03	0.59
1:G:12:LYS:O	1:G:14:LEU:HD13	2.02	0.59
1:H:65:THR:HB	1:H:275:THR:HG22	1.84	0.59
1:H:60:THR:HG22	1:H:61:VAL:N	2.14	0.59
1:E:157:GLU:O	1:E:161:LYS:HD3	2.03	0.59
1:F:391:LYS:O	1:F:394:LYS:HG2	2.02	0.59
1:E:118:ILE:HG22	1:E:169:LEU:HB3	1.85	0.59
1:H:238:LYS:HD3	3:H:420:HOH:O	2.03	0.58
1:C:356:GLU:O	1:C:359:ILE:HG12	2.03	0.58
1:D:205:ILE:HD13	2:D:400:PLP:C5A	2.33	0.58
1:D:107:ARG:NE	1:D:268:THR:HG21	2.18	0.58
1:E:72:LYS:HB3	3:E:433:HOH:O	2.03	0.58
1:E:205:ILE:CD1	2:E:400:PLP:H5A1	2.29	0.58
1:G:255:PRO:O	1:G:259:GLU:HG3	2.03	0.58
1:D:290:LYS:HG2	3:D:726:HOH:O	2.02	0.58
1:A:11:ARG:HA	1:A:14:LEU:HD22	1.84	0.58
1:H:119:ILE:HD13	1:H:151:ILE:HD12	1.84	0.58
1:F:109:PHE:HB3	1:F:199:MET:HE1	1.84	0.58
1:A:244:GLY:HA3	1:B:275:THR:HG23	1.84	0.58
1:H:82:ARG:HD2	3:H:517:HOH:O	2.04	0.57
1:H:104:ASN:HD21	1:H:265:ARG:N	2.02	0.57
1:G:122:VAL:HG22	1:G:123:TYR:N	2.18	0.57
1:A:91:TRP:CZ2	1:A:253:LYS:HG3	2.39	0.57
1:E:244:GLY:HA3	1:F:275:THR:HG23	1.85	0.57
1:C:39:ALA:CB	1:C:238:LYS:HE2	2.34	0.57
1:F:352:ILE:O	1:F:352:ILE:HG13	2.03	0.57
1:B:352:ILE:HD13	1:B:386:LEU:HD13	1.86	0.56
1:D:60:THR:HG23	3:D:441:HOH:O	2.03	0.56
1:D:99:VAL:HB	1:D:100:PRO:HD3	1.86	0.56
1:E:98:VAL:HG21	1:E:205:ILE:HD12	1.87	0.56
1:E:89:THR:HG22	3:E:433:HOH:O	2.04	0.56
1:G:88:GLN:HB2	1:G:91:TRP:CD1	2.40	0.56
1:B:122:VAL:HG22	1:B:123:TYR:N	2.19	0.56
1:E:219:PHE:O	1:E:222:ILE:HG12	2.04	0.56
1:E:268:THR:O	1:E:269:SER:CB	2.54	0.56
1:A:128:MET:O	1:A:132:ASN:HB2	2.05	0.56
1:H:46:PRO:HG3	1:H:291:TRP:CD2	2.40	0.56
1:G:268:THR:O	1:G:269:SER:CB	2.53	0.56

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:340:LYS:HG2	3:A:499:HOH:O	2.05	0.56
1:D:118:ILE:HG22	1:D:169:LEU:HB3	1.88	0.56
1:F:80:LYS:HE2	3:F:611:HOH:O	2.06	0.56
1:A:386:LEU:HD22	1:A:390:LEU:HG	1.86	0.55
1:G:394:LYS:HB2	1:G:394:LYS:NZ	2.21	0.55
1:E:39:ALA:HB1	1:E:238:LYS:HE2	1.87	0.55
1:E:119:ILE:HD13	1:E:151:ILE:HD12	1.88	0.55
1:A:268:THR:O	1:A:269:SER:HB2	2.07	0.55
1:F:391:LYS:O	1:F:394:LYS:HE2	2.07	0.55
1:E:62:LEU:H	1:F:45:ASN:ND2	1.97	0.55
1:B:299:ILE:HD13	1:B:326:TYR:HB3	1.89	0.55
1:C:99:VAL:HB	1:C:100:PRO:HD3	1.89	0.55
1:D:317:ILE:HD11	1:D:335:LEU:HD11	1.88	0.55
1:E:198:LEU:HD12	3:E:598:HOH:O	2.07	0.55
1:A:213:GLY:HA3	3:A:588:HOH:O	2.06	0.54
1:E:206:HIS:HE1	2:E:400:PLP:O3	1.89	0.54
1:E:299:ILE:HD13	1:E:326:TYR:HB3	1.88	0.54
1:F:328:GLN:HB2	1:F:372:LEU:HD11	1.89	0.54
1:H:225:GLN:HG2	3:H:618:HOH:O	2.07	0.54
1:D:60:THR:HG22	1:D:61:VAL:N	2.22	0.54
1:D:264:SER:O	1:D:268:THR:HG23	2.07	0.54
1:F:288:CYS:HA	3:F:571:HOH:O	2.06	0.54
1:G:99:VAL:HB	1:G:100:PRO:HD3	1.89	0.54
1:E:122:VAL:HG22	1:E:123:TYR:N	2.22	0.54
1:E:392:ASP:C	1:E:394:LYS:N	2.66	0.54
1:H:86:ASP:HB3	3:H:633:HOH:O	2.06	0.54
1:E:12:LYS:O	1:E:14:LEU:HD13	2.08	0.54
1:A:99:VAL:HB	1:A:100:PRO:HD3	1.89	0.54
1:B:111:LYS:HD2	1:B:114:ASP:OD2	2.08	0.54
1:C:275:THR:HG23	1:C:276:LEU:N	2.22	0.54
1:C:11:ARG:HA	1:C:14:LEU:HD22	1.90	0.54
1:G:375:PRO:HB2	1:G:378:VAL:HG23	1.90	0.54
1:A:268:THR:O	1:A:269:SER:CB	2.56	0.54
1:D:65:THR:CB	1:D:275:THR:HG22	2.37	0.53
1:C:206:HIS:HE1	2:C:400:PLP:O3	1.91	0.53
1:E:394:LYS:HB2	1:E:394:LYS:HZ2	1.71	0.53
1:G:62:LEU:CD2	1:G:275:THR:HG21	2.38	0.53
1:B:60:THR:HG22	1:B:61:VAL:N	2.22	0.53
1:B:187:GLN:HE22	1:B:190:LYS:HZ3	1.56	0.53
1:D:111:LYS:HE3	3:D:434:HOH:O	2.08	0.53
1:C:67:PRO:HG3	1:C:278:TYR:CE2	2.42	0.53

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:D:205:ILE:CD1	2:D:400:PLP:H5A1	2.38	0.53
1:E:320:PRO:HG3	3:E:565:HOH:O	2.09	0.53
1:B:206:HIS:HE1	2:B:400:PLP:O3	1.91	0.53
1:D:50:ILE:O	1:D:54:LYS:HG3	2.09	0.53
1:D:191:ASP:O	1:D:195:LYS:HG3	2.08	0.53
1:E:163:LYS:H	1:E:163:LYS:CD	1.91	0.53
1:G:11:ARG:HA	1:G:14:LEU:HD22	1.89	0.53
1:D:342:MET:HE3	1:D:368:GLU:OE1	2.09	0.53
1:E:39:ALA:CB	1:E:238:LYS:HE2	2.39	0.53
1:E:268:THR:O	1:E:269:SER:HB2	2.08	0.53
1:A:163:LYS:H	1:A:163:LYS:CD	1.92	0.52
1:G:62:LEU:H	1:H:45:ASN:ND2	2.04	0.52
1:H:307:LYS:O	1:H:311:GLU:HG3	2.09	0.52
1:F:62:LEU:HA	1:F:275:THR:HG21	1.91	0.52
1:G:18:LYS:HB2	1:G:38:VAL:HB	1.91	0.52
1:A:394:LYS:HB2	1:A:394:LYS:NZ	2.23	0.52
1:H:388:LYS:HD2	3:H:623:HOH:O	2.10	0.52
1:A:205:ILE:HD13	2:A:400:PLP:H5A1	1.92	0.52
1:C:145:LYS:HE3	1:C:146:ASP:OD1	2.09	0.52
1:D:206:HIS:HE1	2:D:400:PLP:O3	1.92	0.52
1:E:311:GLU:O	1:E:315:PRO:HG3	2.10	0.52
1:G:238:LYS:HD3	3:H:569:HOH:O	2.09	0.52
1:D:65:THR:HG1	1:D:275:THR:HG22	1.74	0.52
1:F:99:VAL:HB	1:F:100:PRO:HD3	1.92	0.52
1:A:199:MET:HE3	1:A:257:ILE:HD13	1.92	0.52
1:H:11:ARG:HA	1:H:14:LEU:HD12	1.91	0.52
1:H:352:ILE:HD11	1:H:386:LEU:HD13	1.93	0.51
1:G:155:LYS:O	1:G:159:LEU:HG	2.09	0.51
1:H:122:VAL:HG22	1:H:123:TYR:N	2.26	0.51
1:H:206:HIS:HE1	2:H:400:PLP:O3	1.94	0.51
1:H:352:ILE:HD13	1:H:386:LEU:HD13	1.93	0.51
1:D:352:ILE:HG13	1:D:352:ILE:O	2.10	0.51
1:B:119:ILE:HD13	1:B:151:ILE:HD12	1.93	0.51
1:D:18:LYS:HB2	1:D:38:VAL:HB	1.92	0.51
3:E:648:HOH:O	1:F:60:THR:HG21	2.11	0.51
1:F:80:LYS:CE	3:F:611:HOH:O	2.59	0.51
1:H:340:LYS:HG2	3:H:684:HOH:O	2.10	0.51
1:G:268:THR:O	1:G:269:SER:HB2	2.11	0.51
1:D:145:LYS:O	1:D:145:LYS:HG3	2.11	0.50
1:H:172:SER:O	1:H:204:GLU:HA	2.11	0.50
1:B:99:VAL:HB	1:B:100:PRO:HD3	1.93	0.50

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:F:352:ILE:HD12	1:F:354:PHE:CE2	2.46	0.50
1:B:111:LYS:HD2	1:B:114:ASP:CG	2.37	0.50
1:D:299:ILE:HD13	1:D:326:TYR:HB3	1.93	0.50
1:F:219:PHE:O	1:F:222:ILE:HG12	2.11	0.50
1:H:212:PRO:HG2	3:H:427:HOH:O	2.10	0.50
1:A:11:ARG:HD3	1:B:61:VAL:HB	1.93	0.50
1:G:67:PRO:HG3	1:G:278:TYR:HE2	1.74	0.50
1:E:108:GLU:OE2	1:E:260:ARG:HD2	2.11	0.50
3:E:415:HOH:O	1:F:238:LYS:HD3	2.12	0.50
1:G:118:ILE:HG22	1:G:169:LEU:HB3	1.93	0.50
1:H:247:MET:CE	1:H:274:THR:HG23	2.41	0.50
1:A:17:LEU:HD21	1:B:65:THR:C	2.37	0.49
1:E:151:ILE:HB	1:E:153:PHE:CE1	2.46	0.49
1:B:162:ASP:HB3	1:B:165:ASN:ND2	2.27	0.49
1:D:46:PRO:HG3	1:D:291:TRP:CD2	2.47	0.49
1:D:356:GLU:O	1:D:359:ILE:HG12	2.13	0.49
1:G:47:PRO:O	1:G:51:GLU:HG3	2.13	0.49
1:H:37:SER:HB2	1:H:355:ASP:OD1	2.11	0.49
1:C:122:VAL:HG22	1:C:123:TYR:N	2.27	0.49
1:A:172:SER:HA	1:A:173:PRO:C	2.36	0.49
1:B:352:ILE:HG13	1:B:352:ILE:O	2.11	0.49
1:G:318:LYS:HD2	3:G:470:HOH:O	2.12	0.49
1:B:41:MET:HG2	1:B:373:ALA:CB	2.43	0.49
1:E:46:PRO:HG3	1:E:291:TRP:CE3	2.47	0.49
1:F:350:ALA:O	1:F:385:ARG:HD2	2.12	0.49
1:G:62:LEU:HD22	1:G:275:THR:HG21	1.95	0.49
1:G:205:ILE:CD1	2:G:400:PLP:H5A1	2.42	0.49
1:B:41:MET:HG2	1:B:373:ALA:HB1	1.94	0.49
1:D:104:ASN:ND2	1:D:107:ARG:HH21	2.07	0.49
1:B:342:MET:O	1:B:346:MET:HG2	2.13	0.49
1:D:238:LYS:HD2	3:D:444:HOH:O	2.13	0.49
1:E:328:GLN:HB2	1:E:372:LEU:HD11	1.95	0.49
1:E:385:ARG:HD3	3:E:583:HOH:O	2.12	0.48
1:H:315:PRO:O	1:H:318:LYS:HE2	2.13	0.48
1:H:350:ALA:O	1:H:385:ARG:HD2	2.12	0.48
1:H:60:THR:CG2	1:H:61:VAL:H	2.22	0.48
1:A:122:VAL:HG22	1:A:123:TYR:N	2.28	0.48
1:D:303:GLN:HB3	1:D:372:LEU:HD13	1.95	0.48
1:E:172:SER:O	1:E:204:GLU:HA	2.14	0.48
1:E:337:MET:HE1	1:E:345:PHE:HB2	1.94	0.48
1:G:17:LEU:HD12	3:G:702:HOH:O	2.13	0.48

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:F:342:MET:HE1	1:F:366:GLY:HA2	1.94	0.48
1:G:122:VAL:O	1:G:123:TYR:C	2.57	0.48
1:G:205:ILE:HD13	2:G:400:PLP:H5A1	1.96	0.48
1:E:12:LYS:HG2	1:E:13:ASN:ND2	2.28	0.48
1:E:72:LYS:HE2	3:E:577:HOH:O	2.13	0.48
1:C:17:LEU:HD22	3:C:562:HOH:O	2.14	0.48
1:C:268:THR:O	1:C:269:SER:CB	2.60	0.48
1:H:123:TYR:CG	1:H:125:PRO:HD2	2.48	0.48
1:A:62:LEU:H	1:B:45:ASN:ND2	2.02	0.48
1:A:123:TYR:CZ	1:A:125:PRO:HG2	2.49	0.48
1:C:103:PHE:HD2	1:D:267:ALA:O	1.96	0.48
1:G:162:ASP:HB3	1:G:165:ASN:ND2	2.29	0.48
1:G:275:THR:HG22	1:H:244:GLY:O	2.13	0.48
1:E:18:LYS:HD3	1:E:38:VAL:HB	1.96	0.48
1:F:122:VAL:HG22	1:F:123:TYR:N	2.29	0.48
1:D:123:TYR:CG	1:D:125:PRO:HD2	2.49	0.47
1:E:246:GLY:HA2	3:E:530:HOH:O	2.13	0.47
1:C:265:ARG:HD3	1:C:270:GLY:C	2.39	0.47
1:C:317:ILE:HD13	1:C:332:PHE:CE2	2.48	0.47
1:C:163:LYS:CD	1:C:163:LYS:N	2.64	0.47
1:E:11:ARG:HD3	1:F:61:VAL:HB	1.96	0.47
1:F:356:GLU:O	1:F:359:ILE:HG12	2.14	0.47
1:H:352:ILE:O	1:H:352:ILE:HG13	2.15	0.47
1:E:246:GLY:CA	3:E:530:HOH:O	2.62	0.47
1:H:18:LYS:HB2	1:H:38:VAL:HB	1.96	0.47
1:A:69:GLU:O	1:A:73:LYS:HG3	2.15	0.47
1:C:205:ILE:CD1	2:C:400:PLP:H5A1	2.41	0.47
1:G:271:MET:HE1	1:H:17:LEU:HD11	1.96	0.47
1:H:111:LYS:HD2	1:H:114:ASP:CG	2.40	0.47
1:C:118:ILE:HG22	1:C:169:LEU:HB3	1.95	0.47
1:F:187:GLN:NE2	1:F:190:LYS:NZ	2.61	0.47
1:B:119:ILE:HG22	1:B:142:LEU:HG	1.97	0.47
1:A:162:ASP:HB3	1:A:165:ASN:ND2	2.30	0.47
1:D:122:VAL:O	1:D:123:TYR:C	2.58	0.47
1:D:122:VAL:HG22	1:D:123:TYR:N	2.28	0.47
1:D:123:TYR:CZ	1:D:125:PRO:HG2	2.50	0.47
1:E:116:VAL:HB	1:E:130:ILE:HD13	1.97	0.47
1:E:193:VAL:HA	3:E:598:HOH:O	2.15	0.47
1:C:123:TYR:CD2	1:C:125:PRO:HD2	2.49	0.47
1:G:352:ILE:HG23	1:G:352:ILE:O	2.15	0.47
1:A:219:PHE:O	1:A:222:ILE:HG12	2.16	0.46

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:355:ASP:O	1:B:356:GLU:C	2.57	0.46
1:C:276:LEU:HD12	1:D:276:LEU:CD1	2.44	0.46
1:E:131:LYS:HB2	1:E:131:LYS:HE3	1.79	0.46
1:H:122:VAL:O	1:H:123:TYR:C	2.59	0.46
1:H:138:ILE:HG13	1:H:165:ASN:OD1	2.15	0.46
1:H:393:LEU:O	1:H:394:LYS:C	2.58	0.46
1:H:118:ILE:HG22	1:H:169:LEU:HB3	1.96	0.46
1:A:120:THR:HB	1:A:121:PRO:HA	1.96	0.46
1:A:274:THR:HG21	3:A:697:HOH:O	2.15	0.46
1:A:392:ASP:O	1:A:394:LYS:HG3	2.15	0.46
1:G:317:ILE:HD13	1:G:332:PHE:CE2	2.49	0.46
1:A:254:ASN:OD1	1:A:256:ASP:HB2	2.16	0.46
1:B:205:ILE:HD12	1:B:235:ALA:HB3	1.96	0.46
1:D:195:LYS:HE2	3:D:708:HOH:O	2.16	0.46
1:D:247:MET:CE	1:D:274:THR:HG23	2.46	0.46
1:E:352:ILE:HG23	1:E:352:ILE:O	2.14	0.46
1:G:39:ALA:HB1	1:G:238:LYS:HE2	1.96	0.46
1:H:123:TYR:CZ	1:H:125:PRO:HG2	2.50	0.46
1:D:348:HIS:HD2	3:D:744:HOH:O	1.97	0.46
1:E:122:VAL:O	1:E:123:TYR:C	2.57	0.46
1:E:356:GLU:O	1:E:359:ILE:HG12	2.14	0.46
1:G:51:GLU:HG2	3:G:573:HOH:O	2.16	0.46
1:G:206:HIS:HE1	2:G:400:PLP:O3	1.99	0.46
1:A:172:SER:O	1:A:204:GLU:HA	2.16	0.46
1:B:317:ILE:HD13	1:B:332:PHE:CE2	2.50	0.46
1:F:119:ILE:HD13	1:F:151:ILE:HD12	1.97	0.46
1:G:46:PRO:HG3	1:G:291:TRP:CE3	2.50	0.46
1:F:73:LYS:HG2	3:F:612:HOH:O	2.15	0.46
1:F:78:TRP:CE2	1:F:82:ARG:HG3	2.51	0.46
1:G:224:GLU:OE1	1:G:224:GLU:HA	2.16	0.46
1:G:356:GLU:O	1:G:359:ILE:HG12	2.15	0.46
1:F:118:ILE:HG22	1:F:169:LEU:HB3	1.97	0.46
1:A:41:MET:HG2	1:A:373:ALA:HB1	1.97	0.45
1:C:394:LYS:HB2	1:C:394:LYS:NZ	2.31	0.45
1:F:392:ASP:O	1:F:394:LYS:HG3	2.16	0.45
1:G:172:SER:HA	1:G:173:PRO:C	2.41	0.45
1:D:224:GLU:HG3	3:D:618:HOH:O	2.16	0.45
1:E:263:LYS:HG3	1:E:264:SER:N	2.30	0.45
1:A:122:VAL:O	1:A:123:TYR:C	2.60	0.45
1:E:18:LYS:HB2	1:E:38:VAL:HB	1.97	0.45
1:E:301:LYS:HG3	3:E:631:HOH:O	2.16	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:237:SER:HA	1:C:242:ILE:HG13	1.98	0.45
1:A:260:ARG:O	1:A:263:LYS:CG	2.64	0.45
1:A:67:PRO:HG3	1:A:278:TYR:HE2	1.79	0.45
1:C:123:TYR:CG	1:C:125:PRO:HD2	2.52	0.45
1:B:205:ILE:HD11	1:B:235:ALA:HB3	1.99	0.45
1:C:62:LEU:H	1:D:45:ASN:ND2	2.01	0.45
1:E:119:ILE:HG22	1:E:142:LEU:HG	1.99	0.45
1:F:119:ILE:HG22	1:F:142:LEU:HG	1.99	0.45
1:F:339:HIS:HB3	1:F:365:ILE:HG23	1.98	0.45
1:A:356:GLU:O	1:A:359:ILE:HG12	2.17	0.45
1:B:307:LYS:HE2	3:B:498:HOH:O	2.16	0.45
1:B:328:GLN:HB2	1:B:372:LEU:HD11	1.98	0.45
1:E:245:MET:HE3	1:E:280:ALA:HB2	1.99	0.45
1:G:107:ARG:CZ	1:G:107:ARG:HB2	2.46	0.45
1:C:268:THR:O	1:C:268:THR:OG1	2.35	0.45
1:E:123:TYR:CG	1:E:125:PRO:HD2	2.51	0.45
1:C:61:VAL:HG11	1:D:241:ASN:HD21	1.82	0.44
1:D:108:GLU:HB2	1:D:264:SER:HB2	1.99	0.44
1:D:247:MET:HE1	1:D:274:THR:HG23	1.98	0.44
1:C:62:LEU:HD13	1:D:245:MET:HG3	1.99	0.44
1:H:344:GLU:OE2	1:H:348:HIS:ND1	2.50	0.44
1:A:307:LYS:O	1:A:311:GLU:HG3	2.17	0.44
1:B:303:GLN:HB3	1:B:372:LEU:HD13	1.99	0.44
1:C:18:LYS:HB2	1:C:38:VAL:HB	1.99	0.44
1:F:145:LYS:HD3	3:F:574:HOH:O	2.16	0.44
1:F:315:PRO:O	1:F:318:LYS:HE3	2.17	0.44
1:A:205:ILE:HD12	2:A:400:PLP:H5A1	1.98	0.44
1:C:145:LYS:HG2	3:C:686:HOH:O	2.16	0.44
1:A:119:ILE:HG22	1:A:142:LEU:HG	2.00	0.44
1:D:352:ILE:HD12	1:D:354:PHE:CZ	2.53	0.44
1:E:205:ILE:HD13	2:E:400:PLP:C5A	2.36	0.44
1:E:386:LEU:CD2	1:E:390:LEU:HG	2.45	0.44
1:F:76:LYS:HA	1:F:87:ILE:HD11	1.98	0.44
1:A:265:ARG:NH2	3:A:620:HOH:O	2.50	0.44
1:D:157:GLU:HG2	1:D:161:LYS:HZ2	1.79	0.44
1:G:260:ARG:HA	1:G:263:LYS:CD	2.46	0.44
1:D:44:LYS:HD2	3:D:424:HOH:O	2.17	0.44
1:F:60:THR:HG22	1:F:61:VAL:H	1.81	0.44
1:G:128:MET:O	1:G:132:ASN:HB2	2.18	0.44
1:F:205:ILE:HD12	1:F:235:ALA:HB3	1.98	0.44
1:C:347:ILE:HG23	1:C:353:PHE:CE2	2.53	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:D:83:HIS:HE1	1:D:208:ASP:OD1	2.00	0.44
1:E:193:VAL:HG12	1:E:229:LYS:HE3	2.00	0.44
1:F:172:SER:O	1:F:204:GLU:HA	2.18	0.44
1:G:61:VAL:CG1	1:H:241:ASN:HD21	2.31	0.44
1:G:62:LEU:HD13	1:H:245:MET:CG	2.47	0.44
1:G:172:SER:O	1:G:204:GLU:HA	2.18	0.44
1:G:338:ASP:OD2	1:G:341:ALA:HB3	2.18	0.44
1:C:328:GLN:HB2	1:C:372:LEU:HD11	1.99	0.43
1:C:345:PHE:O	1:C:349:LYS:HB2	2.17	0.43
1:G:45:ASN:ND2	1:H:62:LEU:H	2.01	0.43
1:H:124:TYR:CD1	1:H:125:PRO:HD3	2.53	0.43
1:H:188:LYS:HG2	3:H:417:HOH:O	2.17	0.43
1:A:41:MET:HB2	1:A:241:ASN:ND2	2.33	0.43
1:A:120:THR:HA	1:A:121:PRO:C	2.42	0.43
1:B:123:TYR:CZ	1:B:125:PRO:HG2	2.54	0.43
1:B:352:ILE:HD11	1:B:386:LEU:HD13	1.99	0.43
1:C:119:ILE:HG22	1:C:142:LEU:HG	2.00	0.43
1:E:122:VAL:HG22	1:E:123:TYR:H	1.83	0.43
1:E:123:TYR:CZ	1:E:125:PRO:HG2	2.53	0.43
1:C:187:GLN:NE2	1:C:190:LYS:CE	2.81	0.43
1:G:55:LYS:O	1:G:59:GLU:HG3	2.19	0.43
1:H:394:LYS:HD2	3:H:668:HOH:O	2.18	0.43
1:A:265:ARG:O	1:A:268:THR:O	2.36	0.43
1:D:11:ARG:HA	1:D:14:LEU:HD12	1.99	0.43
1:D:391:LYS:O	1:D:394:LYS:HG3	2.18	0.43
1:F:263:LYS:HG3	1:F:264:SER:N	2.33	0.43
1:H:219:PHE:O	1:H:222:ILE:HG12	2.19	0.43
1:C:267:ALA:HA	1:D:103:PHE:CE2	2.52	0.43
1:E:89:THR:HA	3:E:433:HOH:O	2.17	0.43
1:D:37:SER:HB2	1:D:355:ASP:OD1	2.19	0.43
1:D:107:ARG:HE	1:D:268:THR:HG21	1.84	0.43
1:B:201:TRP:HB3	1:B:233:PHE:HE1	1.84	0.43
1:C:392:ASP:C	1:C:394:LYS:N	2.75	0.43
1:E:192:ILE:HG22	3:E:598:HOH:O	2.19	0.43
1:H:233:PHE:HD2	1:H:250:ILE:HD12	1.82	0.43
1:A:260:ARG:C	1:A:263:LYS:HG2	2.44	0.43
1:E:260:ARG:HA	1:E:263:LYS:HG2	1.99	0.43
1:F:204:GLU:OE1	1:F:216:HIS:HE1	2.02	0.43
1:H:183:LYS:HG2	1:H:217:THR:HG21	2.00	0.43
1:D:256:ASP:CG	3:D:449:HOH:O	2.62	0.43
1:F:122:VAL:O	1:F:123:TYR:C	2.62	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:F:205:ILE:HD11	1:F:235:ALA:HB3	1.99	0.43
1:A:124:TYR:CG	1:A:125:PRO:HD3	2.53	0.43
1:C:206:HIS:HD2	3:C:415:HOH:O	2.02	0.43
1:E:143:LEU:O	1:E:149:TYR:HA	2.19	0.43
1:G:64:TYR:C	1:H:17:LEU:HD23	2.44	0.43
1:G:119:ILE:HD12	1:G:170:PHE:CE1	2.54	0.43
1:C:123:TYR:CZ	1:C:125:PRO:HG2	2.54	0.42
1:E:11:ARG:NH2	1:E:40:ASP:OD2	2.48	0.42
1:F:274:THR:HG23	1:F:274:THR:O	2.19	0.42
1:H:80:LYS:CE	3:H:566:HOH:O	2.62	0.42
1:H:98:VAL:HG21	1:H:205:ILE:HD13	2.00	0.42
1:B:123:TYR:CG	1:B:125:PRO:HD2	2.54	0.42
1:F:200:LEU:O	1:F:230:THR:HA	2.20	0.42
1:F:350:ALA:O	1:F:385:ARG:CD	2.67	0.42
1:G:123:TYR:CG	1:G:125:PRO:HD2	2.54	0.42
1:G:116:VAL:HB	1:G:130:ILE:HD13	2.01	0.42
1:H:339:HIS:HB2	1:H:358:TYR:CD2	2.55	0.42
1:A:183:LYS:O	1:A:187:GLN:HG2	2.20	0.42
1:A:392:ASP:C	1:A:394:LYS:N	2.72	0.42
1:G:392:ASP:C	1:G:394:LYS:N	2.75	0.42
1:A:394:LYS:HB2	1:A:394:LYS:HZ2	1.84	0.42
1:C:46:PRO:HG3	1:C:291:TRP:CD2	2.55	0.42
1:C:103:PHE:CD2	1:D:267:ALA:O	2.73	0.42
1:C:265:ARG:O	1:C:268:THR:O	2.37	0.42
1:D:350:ALA:O	1:D:385:ARG:HD2	2.18	0.42
1:C:348:HIS:HD2	3:C:657:HOH:O	2.01	0.42
1:H:145:LYS:O	1:H:145:LYS:HG3	2.20	0.42
1:B:393:LEU:O	1:B:394:LYS:HB2	2.19	0.42
1:C:107:ARG:HD3	3:C:435:HOH:O	2.20	0.42
1:C:263:LYS:HE3	1:C:263:LYS:HB2	1.87	0.42
1:E:11:ARG:HH22	1:E:40:ASP:CG	2.28	0.42
1:E:265:ARG:NE	3:E:536:HOH:O	2.53	0.42
1:F:266:ASP:HA	1:F:270:GLY:HA2	2.01	0.42
1:H:254:ASN:HA	1:H:255:PRO:HD3	1.90	0.42
1:A:131:LYS:HE3	1:A:131:LYS:HB2	1.81	0.42
1:A:352:ILE:O	1:A:352:ILE:HG23	2.20	0.42
1:G:266:ASP:HA	1:G:270:GLY:HA2	2.01	0.42
1:G:272:PRO:HG3	3:G:557:HOH:O	2.20	0.42
1:A:157:GLU:O	1:A:161:LYS:HD3	2.19	0.42
1:A:237:SER:HA	1:A:242:ILE:HG13	2.01	0.42
1:C:56:TYR:CD1	1:C:279:LYS:HG2	2.55	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:187:GLN:NE2	1:C:190:LYS:HE3	2.35	0.42
1:D:120:THR:HA	1:D:121:PRO:C	2.45	0.42
1:G:260:ARG:O	1:G:263:LYS:CG	2.67	0.42
1:B:46:PRO:HG3	1:B:291:TRP:CE3	2.55	0.42
1:D:205:ILE:HD11	1:D:237:SER:OG	2.20	0.42
1:E:11:ARG:NH2	1:E:18:LYS:HE2	2.35	0.42
1:E:303:GLN:HB3	1:E:372:LEU:HD13	2.00	0.42
1:G:254:ASN:HA	1:G:255:PRO:HD3	1.91	0.42
1:H:103:PHE:CZ	1:H:129:ALA:HA	2.55	0.42
1:A:85:TRP:CD2	1:A:218:VAL:HG11	2.55	0.41
1:B:219:PHE:O	1:B:222:ILE:HG12	2.19	0.41
1:A:17:LEU:H	1:A:17:LEU:HD22	1.85	0.41
1:A:328:GLN:HB3	1:A:370:ILE:HG22	2.02	0.41
1:D:172:SER:HA	1:D:173:PRO:C	2.44	0.41
1:E:103:PHE:CZ	1:E:129:ALA:HA	2.55	0.41
1:E:272:PRO:HD3	3:E:536:HOH:O	2.18	0.41
1:F:238:LYS:HD2	1:F:238:LYS:HA	1.95	0.41
1:G:124:TYR:CG	1:G:125:PRO:HD3	2.55	0.41
1:H:300:ASP:O	1:H:303:GLN:HG2	2.20	0.41
3:A:454:HOH:O	1:B:238:LYS:HD3	2.20	0.41
1:B:97:GLY:C	1:B:100:PRO:HD2	2.45	0.41
1:B:138:ILE:HG13	1:B:165:ASN:OD1	2.20	0.41
1:D:97:GLY:C	1:D:100:PRO:HD2	2.46	0.41
1:G:103:PHE:CZ	1:G:129:ALA:HA	2.56	0.41
1:G:223:ASP:OD1	1:G:225:GLN:HB2	2.20	0.41
1:A:271:MET:HA	1:A:272:PRO:HD3	1.94	0.41
1:C:12:LYS:HE2	1:C:13:ASN:ND2	2.35	0.41
1:D:4:ASP:OD1	1:D:4:ASP:C	2.63	0.41
1:D:131:LYS:HB2	1:D:137:ILE:HD11	2.02	0.41
1:G:111:LYS:HG2	1:G:114:ASP:OD1	2.20	0.41
1:G:265:ARG:HD3	1:G:270:GLY:C	2.45	0.41
1:H:124:TYR:CE2	1:H:359:ILE:HD12	2.56	0.41
1:A:123:TYR:CG	1:A:125:PRO:HD2	2.54	0.41
1:F:46:PRO:HG3	1:F:291:TRP:CE3	2.56	0.41
1:D:111:LYS:HD2	1:D:114:ASP:OD2	2.20	0.41
1:E:124:TYR:CG	1:E:125:PRO:HD3	2.56	0.41
1:A:119:ILE:HD12	1:A:170:PHE:CE1	2.56	0.41
1:B:204:GLU:OE1	1:B:216:HIS:HE1	2.04	0.41
1:C:290:LYS:HG2	3:C:626:HOH:O	2.21	0.41
1:C:386:LEU:HD22	1:C:390:LEU:CG	2.47	0.41
1:B:124:TYR:CG	1:B:125:PRO:HD3	2.55	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:G:338:ASP:OD2	1:G:341:ALA:CB	2.69	0.41
1:A:13:ASN:O	1:A:14:LEU:HD12	2.20	0.41
1:A:206:HIS:HE1	2:A:400:PLP:O3	2.04	0.41
1:A:275:THR:HG23	1:A:276:LEU:N	2.36	0.41
1:C:131:LYS:HE3	1:C:131:LYS:HB2	1.87	0.41
1:D:83:HIS:O	1:D:84:GLN:C	2.64	0.41
1:D:353:PHE:CD1	1:D:353:PHE:N	2.88	0.41
1:E:69:GLU:O	1:E:73:LYS:HG3	2.20	0.41
1:E:163:LYS:N	1:E:163:LYS:CD	2.68	0.41
1:F:51:GLU:HG2	3:F:758:HOH:O	2.20	0.41
1:F:119:ILE:O	1:F:122:VAL:HB	2.21	0.41
1:G:138:ILE:HG13	1:G:165:ASN:OD1	2.20	0.41
1:H:356:GLU:OE2	1:H:368:GLU:OE1	2.38	0.41
1:B:254:ASN:HA	1:B:255:PRO:HD3	1.93	0.41
1:E:345:PHE:O	1:E:349:LYS:HB2	2.20	0.41
1:H:131:LYS:HB2	1:H:137:ILE:HD11	2.03	0.41
1:H:237:SER:HA	1:H:242:ILE:HG13	2.03	0.41
1:A:103:PHE:CZ	1:A:129:ALA:HA	2.56	0.40
1:C:1:MET:HB3	1:C:3:TYR:CE2	2.56	0.40
1:C:85:TRP:CD2	1:C:218:VAL:HG11	2.56	0.40
1:C:172:SER:O	1:C:204:GLU:HA	2.21	0.40
1:C:203:ASP:OD1	2:C:400:PLP:N1	2.54	0.40
1:D:121:PRO:HG3	1:D:363:GLY:HA3	2.03	0.40
1:G:122:VAL:CG2	1:G:123:TYR:N	2.84	0.40
1:G:124:TYR:CD1	1:G:125:PRO:HD3	2.56	0.40
1:H:318:LYS:N	1:H:318:LYS:HD2	2.36	0.40
1:H:394:LYS:HB2	3:H:668:HOH:O	2.21	0.40
1:G:260:ARG:HA	1:G:263:LYS:HG2	2.03	0.40
1:A:124:TYR:CD1	1:A:125:PRO:HD3	2.56	0.40
1:E:46:PRO:HG3	1:E:291:TRP:CE2	2.57	0.40
1:F:225:GLN:HG2	3:F:667:HOH:O	2.21	0.40
1:H:49:LEU:HA	1:H:283:ILE:HG21	2.03	0.40
1:B:122:VAL:O	1:B:123:TYR:C	2.64	0.40
1:C:260:ARG:O	1:C:263:LYS:HG2	2.21	0.40
1:E:46:PRO:HA	1:E:47:PRO:HD3	1.97	0.40
1:E:120:THR:HB	1:E:121:PRO:HA	2.03	0.40
1:G:52:GLY:HA3	1:G:283:ILE:HD13	2.04	0.40
1:H:172:SER:HA	1:H:173:PRO:C	2.45	0.40
1:A:55:LYS:O	1:A:59:GLU:HG3	2.21	0.40
1:E:276:LEU:CD1	1:F:276:LEU:HD12	2.52	0.40

There are no symmetry-related clashes.

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	392/399 (98%)	378 (96%)	12 (3%)	2 (0%)	24	16
1	B	392/399 (98%)	375 (96%)	17 (4%)	0	100	100
1	C	392/399 (98%)	378 (96%)	14 (4%)	0	100	100
1	D	392/399 (98%)	378 (96%)	13 (3%)	1 (0%)	36	29
1	E	392/399 (98%)	377 (96%)	14 (4%)	1 (0%)	36	29
1	F	392/399 (98%)	383 (98%)	9 (2%)	0	100	100
1	G	392/399 (98%)	384 (98%)	7 (2%)	1 (0%)	36	29
1	H	392/399 (98%)	376 (96%)	15 (4%)	1 (0%)	36	29
All	All	3136/3192 (98%)	3029 (97%)	101 (3%)	6 (0%)	43	36

All (6) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	E	269	SER
1	G	269	SER
1	H	246	GLY
1	A	269	SER
1	D	246	GLY
1	A	246	GLY

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	353/358 (99%)	345 (98%)	8 (2%)	44	40
1	B	353/358 (99%)	345 (98%)	8 (2%)	44	40
1	C	353/358 (99%)	345 (98%)	8 (2%)	44	40
1	D	353/358 (99%)	343 (97%)	10 (3%)	38	32
1	E	353/358 (99%)	344 (98%)	9 (2%)	42	37
1	F	353/358 (99%)	346 (98%)	7 (2%)	48	46
1	G	353/358 (99%)	343 (97%)	10 (3%)	38	32
1	H	353/358 (99%)	345 (98%)	8 (2%)	44	40
All	All	2824/2864 (99%)	2756 (98%)	68 (2%)	43	38

All (68) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	28	GLU
1	A	163	LYS
1	A	176	PRO
1	A	207	PHE
1	A	265	ARG
1	A	274	THR
1	A	355	ASP
1	A	386	LEU
1	B	59	GLU
1	B	60	THR
1	B	104	ASN
1	B	111	LYS
1	B	176	PRO
1	B	207	PHE
1	B	238	LYS
1	B	355	ASP
1	C	14	LEU
1	C	17	LEU
1	C	163	LYS
1	C	176	PRO
1	C	199	MET
1	C	207	PHE
1	C	355	ASP
1	C	386	LEU
1	D	60	THR
1	D	111	LYS
1	D	176	PRO

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Mol	Chain	Res	Type
1	D	184	ASP
1	D	207	PHE
1	D	238	LYS
1	D	245	MET
1	D	269	SER
1	D	274	THR
1	D	355	ASP
1	E	17	LEU
1	E	28	GLU
1	E	163	LYS
1	E	176	PRO
1	E	197	ASP
1	E	207	PHE
1	E	265	ARG
1	E	355	ASP
1	E	386	LEU
1	F	60	THR
1	F	104	ASN
1	F	176	PRO
1	F	207	PHE
1	F	238	LYS
1	F	335	LEU
1	F	355	ASP
1	G	28	GLU
1	G	163	LYS
1	G	176	PRO
1	G	184	ASP
1	G	207	PHE
1	G	265	ARG
1	G	275	THR
1	G	355	ASP
1	G	385	ARG
1	G	386	LEU
1	H	60	THR
1	H	104	ASN
1	H	111	LYS
1	H	176	PRO
1	H	207	PHE
1	H	238	LYS
1	H	274	THR
1	H	355	ASP

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (59)

such sidechains are listed below:

Mol	Chain	Res	Type
1	A	25	GLN
1	A	45	ASN
1	A	83	HIS
1	A	187	GLN
1	A	206	HIS
1	A	348	HIS
1	B	25	GLN
1	B	45	ASN
1	B	94	ASN
1	B	187	GLN
1	B	206	HIS
1	B	216	HIS
1	B	249	ASN
1	C	13	ASN
1	C	25	GLN
1	C	45	ASN
1	C	83	HIS
1	C	187	GLN
1	C	206	HIS
1	C	216	HIS
1	C	348	HIS
1	D	25	GLN
1	D	45	ASN
1	D	83	HIS
1	D	94	ASN
1	D	104	ASN
1	D	187	GLN
1	D	206	HIS
1	D	249	ASN
1	D	348	HIS
1	E	13	ASN
1	E	25	GLN
1	E	45	ASN
1	E	83	HIS
1	E	94	ASN
1	E	132	ASN
1	E	187	GLN
1	E	206	HIS
1	E	339	HIS
1	E	348	HIS
1	F	25	GLN
1	F	45	ASN

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Mol	Chain	Res	Type
1	F	94	ASN
1	F	104	ASN
1	F	187	GLN
1	F	206	HIS
1	F	216	HIS
1	G	25	GLN
1	G	45	ASN
1	G	187	GLN
1	G	206	HIS
1	G	216	HIS
1	H	25	GLN
1	H	45	ASN
1	H	83	HIS
1	H	104	ASN
1	H	187	GLN
1	H	206	HIS
1	H	216	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 oligosaccharides in this entry.

5.6 Ligand geometry [i](#)

8 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	E	400	1	15,15,16	3.11	5 (33%)	21,22,23	2.82	10 (47%)
2	PLP	A	400	1	15,15,16	3.15	5 (33%)	21,22,23	3.01	9 (42%)
2	PLP	G	400	1	15,15,16	2.91	4 (26%)	21,22,23	2.48	9 (42%)
2	PLP	F	400	1	15,15,16	3.08	5 (33%)	21,22,23	2.54	10 (47%)
2	PLP	C	400	1	15,15,16	3.00	5 (33%)	21,22,23	2.69	10 (47%)
2	PLP	B	400	1	15,15,16	3.07	5 (33%)	21,22,23	2.48	10 (47%)
2	PLP	H	400	1	15,15,16	3.02	6 (40%)	21,22,23	2.59	9 (42%)
2	PLP	D	400	1	15,15,16	3.17	5 (33%)	21,22,23	2.94	11 (52%)

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	E	400	1	-	0/6/6/8	0/1/1/1
2	PLP	A	400	1	-	0/6/6/8	0/1/1/1
2	PLP	G	400	1	-	0/6/6/8	0/1/1/1
2	PLP	F	400	1	-	1/6/6/8	0/1/1/1
2	PLP	C	400	1	-	0/6/6/8	0/1/1/1
2	PLP	B	400	1	-	0/6/6/8	0/1/1/1
2	PLP	H	400	1	-	0/6/6/8	0/1/1/1
2	PLP	D	400	1	-	3/6/6/8	0/1/1/1

All (40) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
2	F	400	PLP	C5-C4	8.69	1.50	1.40
2	E	400	PLP	C5-C4	8.58	1.50	1.40
2	A	400	PLP	C5-C4	8.55	1.50	1.40
2	D	400	PLP	C5-C4	8.53	1.50	1.40
2	B	400	PLP	C5-C4	8.46	1.50	1.40
2	G	400	PLP	C5-C4	8.13	1.49	1.40
2	H	400	PLP	C5-C4	8.10	1.49	1.40
2	C	400	PLP	C5-C4	8.02	1.49	1.40
2	C	400	PLP	C3-C2	6.13	1.47	1.41
2	B	400	PLP	C3-C2	5.99	1.47	1.41
2	E	400	PLP	C3-C2	5.90	1.47	1.41
2	F	400	PLP	C3-C2	5.84	1.47	1.41
2	D	400	PLP	C3-C2	5.78	1.47	1.41

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
2	A	400	PLP	C3-C2	5.76	1.47	1.41
2	H	400	PLP	C3-C2	5.76	1.46	1.41
2	G	400	PLP	C3-C2	5.58	1.46	1.41
2	D	400	PLP	C2-N1	4.68	1.42	1.33
2	A	400	PLP	C2-N1	4.20	1.41	1.33
2	B	400	PLP	C2-N1	3.95	1.40	1.33
2	C	400	PLP	C2-N1	3.85	1.40	1.33
2	H	400	PLP	C2-N1	3.82	1.40	1.33
2	E	400	PLP	C2-N1	3.61	1.40	1.33
2	G	400	PLP	C2-N1	3.42	1.39	1.33
2	F	400	PLP	C2-N1	3.37	1.39	1.33
2	B	400	PLP	C4A-C4	-2.48	1.46	1.51
2	A	400	PLP	C4A-C4	-2.47	1.46	1.51
2	H	400	PLP	C4A-C4	-2.46	1.46	1.51
2	D	400	PLP	O4P-C5A	-2.39	1.36	1.44
2	E	400	PLP	C4A-C4	-2.38	1.46	1.51
2	D	400	PLP	C4A-C4	-2.37	1.46	1.51
2	B	400	PLP	P-O3P	-2.32	1.46	1.54
2	E	400	PLP	P-O3P	-2.22	1.46	1.54
2	C	400	PLP	P-O3P	-2.21	1.46	1.54
2	F	400	PLP	P-O3P	-2.13	1.46	1.54
2	H	400	PLP	C6-N1	2.11	1.38	1.34
2	F	400	PLP	C4A-C4	-2.10	1.47	1.51
2	G	400	PLP	C4A-C4	-2.10	1.47	1.51
2	C	400	PLP	C4A-C4	-2.08	1.47	1.51
2	A	400	PLP	P-O3P	-2.07	1.47	1.54
2	H	400	PLP	P-O3P	-2.04	1.47	1.54

All (78) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
2	A	400	PLP	O4P-C5A-C5	7.21	122.87	109.36
2	C	400	PLP	C2A-C2-C3	6.61	128.53	120.80
2	A	400	PLP	C2A-C2-C3	6.60	128.52	120.80
2	E	400	PLP	C2A-C2-C3	6.59	128.51	120.80
2	B	400	PLP	C2A-C2-C3	6.56	128.47	120.80
2	F	400	PLP	C2A-C2-C3	6.49	128.39	120.80
2	G	400	PLP	C2A-C2-C3	6.43	128.32	120.80
2	H	400	PLP	C2A-C2-C3	6.38	128.27	120.80
2	D	400	PLP	O4P-C5A-C5	6.08	120.75	109.36
2	D	400	PLP	C2A-C2-C3	5.97	127.79	120.80
2	E	400	PLP	O4P-C5A-C5	5.31	119.31	109.36

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
2	H	400	PLP	O4P-C5A-C5	4.45	117.70	109.36
2	C	400	PLP	O4P-C5A-C5	4.14	117.12	109.36
2	A	400	PLP	C6-N1-C2	3.93	126.33	119.20
2	E	400	PLP	C6-N1-C2	3.90	126.27	119.20
2	F	400	PLP	C6-N1-C2	3.82	126.12	119.20
2	E	400	PLP	C5-C6-N1	-3.77	117.69	123.83
2	C	400	PLP	C6-C5-C4	3.76	121.18	118.10
2	A	400	PLP	C3-C2-N1	-3.74	116.24	120.96
2	G	400	PLP	C6-N1-C2	3.72	125.95	119.20
2	B	400	PLP	C6-N1-C2	3.71	125.93	119.20
2	A	400	PLP	C6-C5-C4	3.67	121.10	118.10
2	D	400	PLP	C6-N1-C2	3.66	125.84	119.20
2	D	400	PLP	C6-C5-C4	3.65	121.09	118.10
2	G	400	PLP	O3-C3-C4	3.63	127.56	118.10
2	D	400	PLP	O4P-P-O1P	-3.62	96.67	106.44
2	H	400	PLP	C3-C2-N1	-3.60	116.42	120.96
2	E	400	PLP	C6-C5-C4	3.60	121.05	118.10
2	D	400	PLP	C5-C6-N1	-3.59	117.99	123.83
2	C	400	PLP	C6-N1-C2	3.58	125.69	119.20
2	H	400	PLP	C6-N1-C2	3.56	125.66	119.20
2	D	400	PLP	C3-C2-N1	-3.56	116.47	120.96
2	C	400	PLP	O3-C3-C4	3.55	127.37	118.10
2	A	400	PLP	C5A-C5-C4	-3.48	115.78	122.64
2	F	400	PLP	C3-C2-N1	-3.47	116.58	120.96
2	A	400	PLP	C5-C6-N1	-3.47	118.19	123.83
2	A	400	PLP	O3-C3-C4	3.46	127.12	118.10
2	G	400	PLP	C3-C2-N1	-3.45	116.60	120.96
2	B	400	PLP	C6-C5-C4	3.45	120.92	118.10
2	B	400	PLP	C3-C2-N1	-3.42	116.64	120.96
2	B	400	PLP	O3-C3-C4	3.41	126.99	118.10
2	E	400	PLP	C3-C2-N1	-3.39	116.69	120.96
2	H	400	PLP	C5-C6-N1	-3.38	118.33	123.83
2	F	400	PLP	C5-C6-N1	-3.38	118.33	123.83
2	E	400	PLP	O3-C3-C4	3.36	126.87	118.10
2	C	400	PLP	C5-C6-N1	-3.33	118.41	123.83
2	D	400	PLP	O3-C3-C4	3.29	126.70	118.10
2	F	400	PLP	O3-C3-C4	3.28	126.67	118.10
2	C	400	PLP	C3-C2-N1	-3.26	116.84	120.96
2	F	400	PLP	C6-C5-C4	3.26	120.77	118.10
2	B	400	PLP	C5-C6-N1	-3.23	118.58	123.83
2	D	400	PLP	O3P-P-O4P	3.21	115.03	106.67
2	D	400	PLP	C5A-C5-C4	-3.20	116.33	122.64

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
2	H	400	PLP	C6-C5-C4	3.17	120.69	118.10
2	E	400	PLP	C5A-C5-C4	-3.15	116.43	122.64
2	H	400	PLP	O3-C3-C4	3.10	126.19	118.10
2	H	400	PLP	C5A-C5-C4	-3.07	116.59	122.64
2	G	400	PLP	C5-C6-N1	-3.03	118.90	123.83
2	F	400	PLP	O4P-C5A-C5	2.98	114.93	109.36
2	G	400	PLP	C6-C5-C4	2.97	120.53	118.10
2	C	400	PLP	C5A-C5-C4	-2.91	116.89	122.64
2	G	400	PLP	O4P-C5A-C5	2.78	114.57	109.36
2	G	400	PLP	O3-C3-C2	-2.64	112.10	117.58
2	C	400	PLP	O4P-P-O1P	-2.64	99.31	106.44
2	E	400	PLP	O4P-P-O1P	-2.63	99.33	106.44
2	F	400	PLP	C5A-C5-C4	-2.51	117.68	122.64
2	B	400	PLP	C5A-C5-C4	-2.30	118.10	122.64
2	C	400	PLP	O3-C3-C2	-2.24	112.94	117.58
2	F	400	PLP	O3-C3-C2	-2.19	113.05	117.58
2	G	400	PLP	C5A-C5-C4	-2.16	118.38	122.64
2	A	400	PLP	O3-C3-C2	-2.13	113.17	117.58
2	E	400	PLP	O3-C3-C2	-2.11	113.20	117.58
2	B	400	PLP	O4P-C5A-C5	2.08	113.25	109.36
2	B	400	PLP	O4P-P-O1P	-2.07	100.84	106.44
2	B	400	PLP	O3-C3-C2	-2.06	113.30	117.58
2	D	400	PLP	O3-C3-C2	-2.04	113.36	117.58
2	F	400	PLP	O4P-P-O1P	-2.02	100.97	106.44
2	H	400	PLP	O3-C3-C2	-2.00	113.43	117.58

There are no chirality outliers.

All (4) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
2	D	400	PLP	C5A-O4P-P-O2P
2	D	400	PLP	C5A-O4P-P-O1P
2	F	400	PLP	C6-C5-C5A-O4P
2	D	400	PLP	C5A-O4P-P-O3P

There are no ring outliers.

8 monomers are involved in 22 short contacts:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
2	E	400	PLP	4	0
2	A	400	PLP	4	0

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Mol	Chain	Res	Type	Clashes	Symm-Clashes
2	G	400	PLP	3	0
2	F	400	PLP	1	0
2	C	400	PLP	4	0
2	B	400	PLP	1	0
2	H	400	PLP	1	0
2	D	400	PLP	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, 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	394/399 (98%)	0.08	6 (1%) 72 75	9, 17, 28, 39	0
1	B	394/399 (98%)	0.28	11 (2%) 55 59	10, 18, 32, 49	0
1	C	394/399 (98%)	-0.08	11 (2%) 55 59	6, 11, 22, 44	0
1	D	394/399 (98%)	0.07	13 (3%) 49 52	8, 14, 26, 51	0
1	E	394/399 (98%)	0.19	12 (3%) 52 56	7, 17, 31, 50	0
1	F	394/399 (98%)	-0.11	8 (2%) 65 69	5, 12, 23, 47	0
1	G	394/399 (98%)	0.13	13 (3%) 49 52	8, 16, 28, 47	0
1	H	394/399 (98%)	0.31	16 (4%) 41 44	10, 18, 31, 50	0
All	All	3152/3192 (98%)	0.11	90 (2%) 53 57	5, 16, 29, 51	0

All (90) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	D	2	ILE	8.3
1	H	195	LYS	7.6
1	G	1	MET	6.7
1	G	2	ILE	6.3
1	F	1	MET	6.1
1	H	2	ILE	5.5
1	D	256	ASP	5.0
1	E	246	GLY	4.5
1	E	268	THR	4.4
1	D	1	MET	4.3
1	F	394	LYS	4.2
1	H	246	GLY	4.2
1	H	212	PRO	4.0
1	B	246	GLY	4.0
1	F	2	ILE	3.9
1	C	1	MET	3.9

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Mol	Chain	Res	Type	RSRZ
1	B	394	LYS	3.8
1	H	1	MET	3.7
1	C	2	ILE	3.6
1	B	393	LEU	3.6
1	C	268	THR	3.4
1	C	394	LYS	3.4
1	D	393	LEU	3.4
1	D	103	PHE	3.2
1	B	2	ILE	3.2
1	B	312	VAL	3.2
1	H	394	LYS	3.2
1	C	31	ASN	3.1
1	D	246	GLY	3.1
1	H	393	LEU	3.1
1	F	352	ILE	3.1
1	D	394	LYS	3.0
1	E	197	ASP	3.0
1	H	352	ILE	3.0
1	H	194	LEU	2.9
1	A	23	TYR	2.9
1	A	246	GLY	2.9
1	G	268	THR	2.9
1	B	1	MET	2.9
1	E	224	GLU	2.9
1	D	267	ALA	2.8
1	B	352	ILE	2.8
1	A	268	THR	2.8
1	G	61	VAL	2.8
1	G	338	ASP	2.8
1	H	213	GLY	2.8
1	B	390	LEU	2.7
1	E	392	ASP	2.7
1	D	268	THR	2.7
1	H	84	GLN	2.7
1	D	184	ASP	2.6
1	G	224	GLU	2.6
1	C	269	SER	2.6
1	H	245	MET	2.6
1	D	60	THR	2.6
1	G	51	GLU	2.6
1	E	334	ALA	2.5
1	E	393	LEU	2.5

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Mol	Chain	Res	Type	RSRZ
1	G	86	ASP	2.5
1	G	394	LYS	2.5
1	C	23	TYR	2.4
1	A	163	LYS	2.4
1	D	84	GLN	2.4
1	C	215	GLU	2.4
1	E	23	TYR	2.4
1	G	184	ASP	2.4
1	H	267	ALA	2.4
1	G	163	LYS	2.4
1	H	335	LEU	2.3
1	C	224	GLU	2.3
1	E	269	SER	2.2
1	C	338	ASP	2.2
1	G	318	LYS	2.2
1	E	335	LEU	2.2
1	B	338	ASP	2.2
1	F	267	ALA	2.2
1	D	352	ILE	2.2
1	B	267	ALA	2.2
1	F	268	THR	2.2
1	E	215	GLU	2.1
1	A	184	ASP	2.1
1	A	394	LYS	2.1
1	F	23	TYR	2.1
1	E	245	MET	2.1
1	H	107	ARG	2.1
1	C	51	GLU	2.0
1	H	145	LYS	2.0
1	F	80	LYS	2.0
1	G	195	LYS	2.0
1	B	84	GLN	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 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(Å ²)	Q<0.9
2	PLP	B	400	15/16	0.79	0.13	15,19,26,28	0
2	PLP	C	400	15/16	0.80	0.12	10,14,23,26	0
2	PLP	F	400	15/16	0.81	0.12	9,14,24,26	0
2	PLP	H	400	15/16	0.82	0.15	17,20,34,35	0
2	PLP	G	400	15/16	0.83	0.11	14,17,25,28	0
2	PLP	E	400	15/16	0.85	0.12	16,18,28,30	0
2	PLP	A	400	15/16	0.86	0.11	17,20,29,32	0
2	PLP	D	400	15/16	0.87	0.11	16,18,26,27	0

6.5 Other polymers [i](#)

There are no such residues in this entry.