Full wwPDB X-ray Structure Validation Report (i)

May 16, 2020 – 09:01 am BST

PDB ID	:	6AF3
Title	:	Toxin-Antitoxin module from Streptococcus pneumoniae
Authors	:	Kang, S.M.; Kim, D.H.; Jin, C.
Deposited on	:	2018-08-08
Resolution	:	2.80 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 (i) symbol.

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

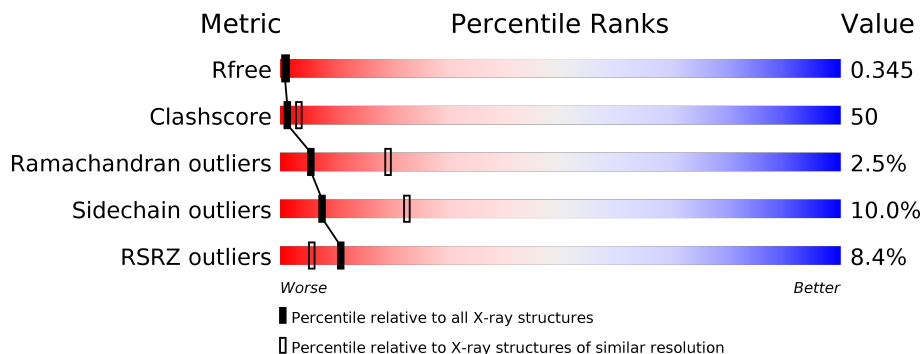|		
MolProbity	:	4.02b-467
Mogul	:	1.8.5 (274361), CSD as541be (2020)
Xtriage (Phenix)	:	1.13
EDS	:	2.11
Percentile statistics	:	20191225.v01 (using entries in the PDB archive December 25th 2019)
Refmac	:	5.8.0158
CCP4	:	7.0.044 (Gargrove)
Ideal geometry (proteins)	:	Engh & Huber (2001)
Ideal geometry (DNA, RNA)	:	Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP)	:	2.11

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 2.80 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	Percentile Ranks	Value
Rfree		0.345
Clashscore		50
Ramachandran outliers		2.5%
Sidechain outliers		10.0%
RSRZ outliers		8.4%

Worse   *Better*

∎ Percentile relative to all X-ray structures

▯ Percentile relative to X-ray structures of similar resolution

Metric	Whole archive (#Entries)	Similar resolution (#Entries, resolution range(Å))
R$_{free}$	130704	3140 (2.80-2.80)
Clashscore	141614	3569 (2.80-2.80)
Ramachandran outliers	138981	3498 (2.80-2.80)
Sidechain outliers	138945	3500 (2.80-2.80)
RSRZ outliers	127900	3078 (2.80-2.80)

The table below summarises the geometric issues observed across the polymeric chains and their fit to the electron density. The red, orange, yellow and green segments on the lower bar indicate the fraction of residues that contain outliers for >=3, 2, 1 and 0 types of geometric quality criteria respectively. A grey segment represents the fraction of residues that are not modelled. The numeric value for each fraction is indicated below the corresponding segment, with a dot representing fractions <=5% The upper red bar (where present) indicates the fraction of residues that have poor fit to the electron density. The numeric value is given above the bar.

Mol	Chain	Length	Quality of chain
1	A	141	% 38% 36% 6% • 19%
1	C	141	4% 32% 42% 6% • 20%
1	E	141	10% 23% 43% 14% • 18%
1	G	141	25% 6% 36% 29% 12% 17%
2	B	97	2% 49% 36% 7% • 6%
2	D	97	3% 45% 39% 10% 5%

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Mol	Chain	Length	Quality of chain
2	F	97	2% 46% 41% 5% 7%
2	H	97	3% 44% 34% 8% • 11%

2 Entry composition (i)

There are 3 unique types of molecules in this entry. The entry contains 6717 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 HigB toxin.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
1	A	114	Total	C	N	O	Se	0	0	0
			968	619	174	171	4			
1	C	113	Total	C	N	O	Se	0	0	0
			959	614	173	168	4			
1	E	116	Total	C	N	O	Se	0	0	0
			983	627	179	173	4			
1	G	117	Total	C	N	O	Se	0	0	0
			991	633	180	174	4			

There are 80 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
A	-19	MSE	-	initiating methionine	UNP A0A0H2UQ08
A	-18	GLY	-	expression tag	UNP A0A0H2UQ08
A	-17	SER	-	expression tag	UNP A0A0H2UQ08
A	-16	SER	-	expression tag	UNP A0A0H2UQ08
A	-15	HIS	-	expression tag	UNP A0A0H2UQ08
A	-14	HIS	-	expression tag	UNP A0A0H2UQ08
A	-13	HIS	-	expression tag	UNP A0A0H2UQ08
A	-12	HIS	-	expression tag	UNP A0A0H2UQ08
A	-11	HIS	-	expression tag	UNP A0A0H2UQ08
A	-10	HIS	-	expression tag	UNP A0A0H2UQ08
A	-9	SER	-	expression tag	UNP A0A0H2UQ08
A	-8	SER	-	expression tag	UNP A0A0H2UQ08
A	-7	GLY	-	expression tag	UNP A0A0H2UQ08
A	-6	LEU	-	expression tag	UNP A0A0H2UQ08
A	-5	VAL	-	expression tag	UNP A0A0H2UQ08
A	-4	PRO	-	expression tag	UNP A0A0H2UQ08
A	-3	ARG	-	expression tag	UNP A0A0H2UQ08
A	-2	GLY	-	expression tag	UNP A0A0H2UQ08
A	-1	SER	-	expression tag	UNP A0A0H2UQ08
A	0	HIS	-	expression tag	UNP A0A0H2UQ08
C	-19	MSE	-	initiating methionine	UNP A0A0H2UQ08

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Chain	Residue	Modelled	Actual	Comment	Reference
C	-18	GLY	-	expression tag	UNP A0A0H2UQ08
C	-17	SER	-	expression tag	UNP A0A0H2UQ08
C	-16	SER	-	expression tag	UNP A0A0H2UQ08
C	-15	HIS	-	expression tag	UNP A0A0H2UQ08
C	-14	HIS	-	expression tag	UNP A0A0H2UQ08
C	-13	HIS	-	expression tag	UNP A0A0H2UQ08
C	-12	HIS	-	expression tag	UNP A0A0H2UQ08
C	-11	HIS	-	expression tag	UNP A0A0H2UQ08
C	-10	HIS	-	expression tag	UNP A0A0H2UQ08
C	-9	SER	-	expression tag	UNP A0A0H2UQ08
C	-8	SER	-	expression tag	UNP A0A0H2UQ08
C	-7	GLY	-	expression tag	UNP A0A0H2UQ08
C	-6	LEU	-	expression tag	UNP A0A0H2UQ08
C	-5	VAL	-	expression tag	UNP A0A0H2UQ08
C	-4	PRO	-	expression tag	UNP A0A0H2UQ08
C	-3	ARG	-	expression tag	UNP A0A0H2UQ08
C	-2	GLY	-	expression tag	UNP A0A0H2UQ08
C	-1	SER	-	expression tag	UNP A0A0H2UQ08
C	0	HIS	-	expression tag	UNP A0A0H2UQ08
E	-19	MSE	-	initiating methionine	UNP A0A0H2UQ08
E	-18	GLY	-	expression tag	UNP A0A0H2UQ08
E	-17	SER	-	expression tag	UNP A0A0H2UQ08
E	-16	SER	-	expression tag	UNP A0A0H2UQ08
E	-15	HIS	-	expression tag	UNP A0A0H2UQ08
E	-14	HIS	-	expression tag	UNP A0A0H2UQ08
E	-13	HIS	-	expression tag	UNP A0A0H2UQ08
E	-12	HIS	-	expression tag	UNP A0A0H2UQ08
E	-11	HIS	-	expression tag	UNP A0A0H2UQ08
E	-10	HIS	-	expression tag	UNP A0A0H2UQ08
E	-9	SER	-	expression tag	UNP A0A0H2UQ08
E	-8	SER	-	expression tag	UNP A0A0H2UQ08
E	-7	GLY	-	expression tag	UNP A0A0H2UQ08
E	-6	LEU	-	expression tag	UNP A0A0H2UQ08
E	-5	VAL	-	expression tag	UNP A0A0H2UQ08
E	-4	PRO	-	expression tag	UNP A0A0H2UQ08
E	-3	ARG	-	expression tag	UNP A0A0H2UQ08
E	-2	GLY	-	expression tag	UNP A0A0H2UQ08
E	-1	SER	-	expression tag	UNP A0A0H2UQ08
E	0	HIS	-	expression tag	UNP A0A0H2UQ08
G	-19	MSE	-	initiating methionine	UNP A0A0H2UQ08
G	-18	GLY	-	expression tag	UNP A0A0H2UQ08
G	-17	SER	-	expression tag	UNP A0A0H2UQ08

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Chain	Residue	Modelled	Actual	Comment	Reference
G	-16	SER	-	expression tag	UNP A0A0H2UQ08
G	-15	HIS	-	expression tag	UNP A0A0H2UQ08
G	-14	HIS	-	expression tag	UNP A0A0H2UQ08
G	-13	HIS	-	expression tag	UNP A0A0H2UQ08
G	-12	HIS	-	expression tag	UNP A0A0H2UQ08
G	-11	HIS	-	expression tag	UNP A0A0H2UQ08
G	-10	HIS	-	expression tag	UNP A0A0H2UQ08
G	-9	SER	-	expression tag	UNP A0A0H2UQ08
G	-8	SER	-	expression tag	UNP A0A0H2UQ08
G	-7	GLY	-	expression tag	UNP A0A0H2UQ08
G	-6	LEU	-	expression tag	UNP A0A0H2UQ08
G	-5	VAL	-	expression tag	UNP A0A0H2UQ08
G	-4	PRO	-	expression tag	UNP A0A0H2UQ08
G	-3	ARG	-	expression tag	UNP A0A0H2UQ08
G	-2	GLY	-	expression tag	UNP A0A0H2UQ08
G	-1	SER	-	expression tag	UNP A0A0H2UQ08
G	0	HIS	-	expression tag	UNP A0A0H2UQ08

- Molecule 2 is a protein called HigA antitoxin.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
2	B	91	Total 697	C 435	N 119	O 139	Se 4	0	0	0
2	D	92	Total 706	C 441	N 121	O 140	Se 4	0	0	0
2	F	90	Total 688	C 430	N 118	O 136	Se 4	0	0	0
2	H	86	Total 664	C 416	N 112	O 132	Se 4	0	0	0

- Molecule 3 is water.

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
3	A	12	Total 12	O 12	0	0
3	B	8	Total 8	O 8	0	0
3	C	7	Total 7	O 7	0	0
3	D	4	Total 4	O 4	0	0
3	E	7	Total 7	O 7	0	0

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| Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
3	F	5	Total 5	O 5	0	0
3	G	7	Total 7	O 7	0	0
3	H	11	Total 11	O 11	0	0

3 Residue-property plots ⓘ

These plots are drawn for all protein, RNA and DNA chains in the entry. The first graphic for a chain summarises the proportions of 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.
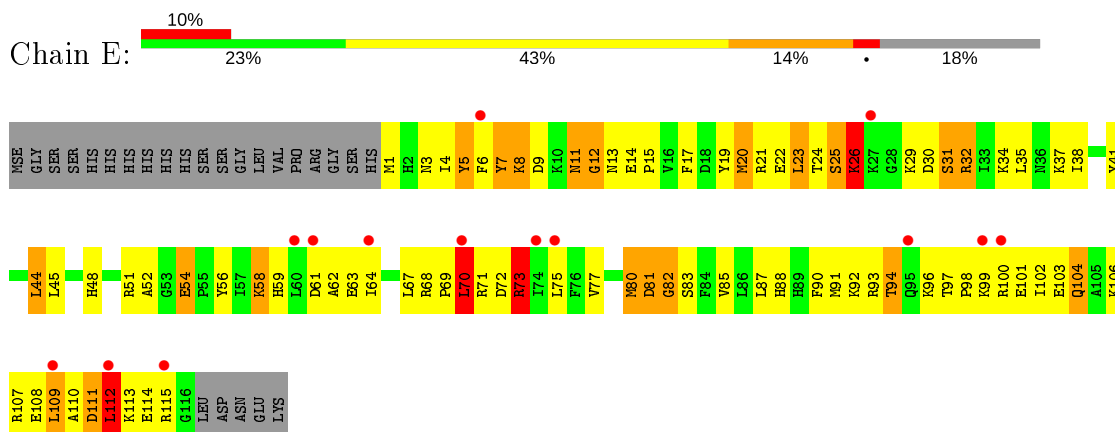
• Molecule 1: HigB toxin
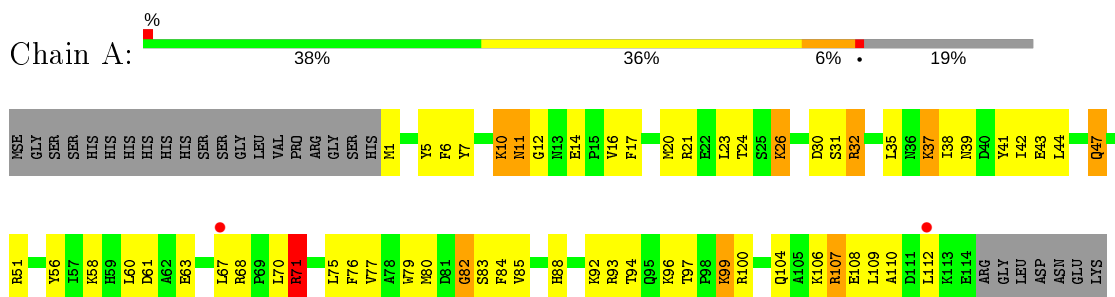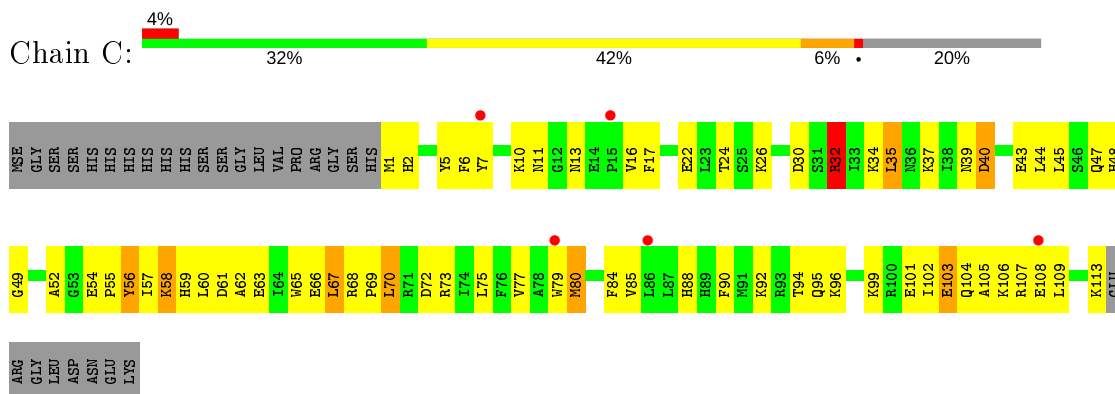
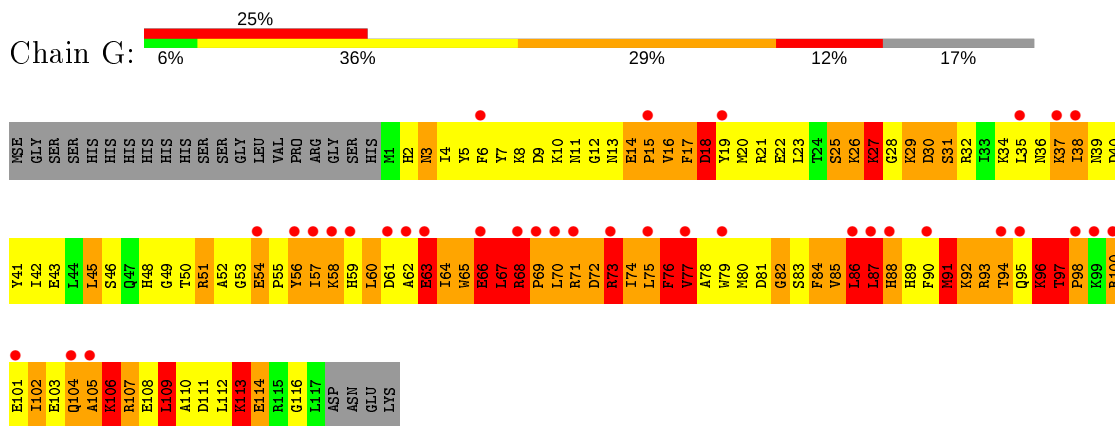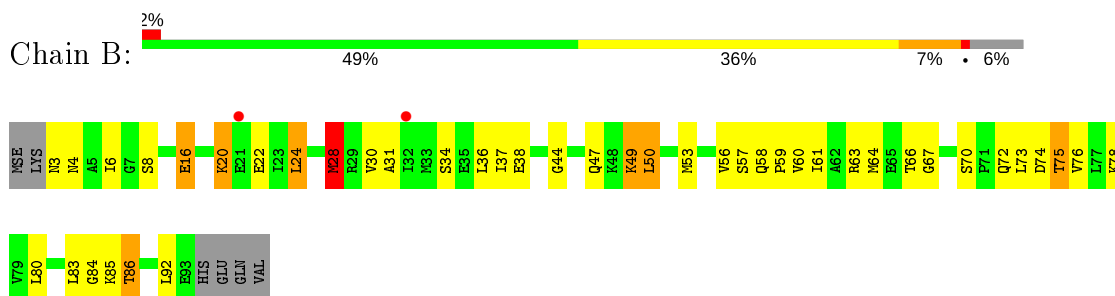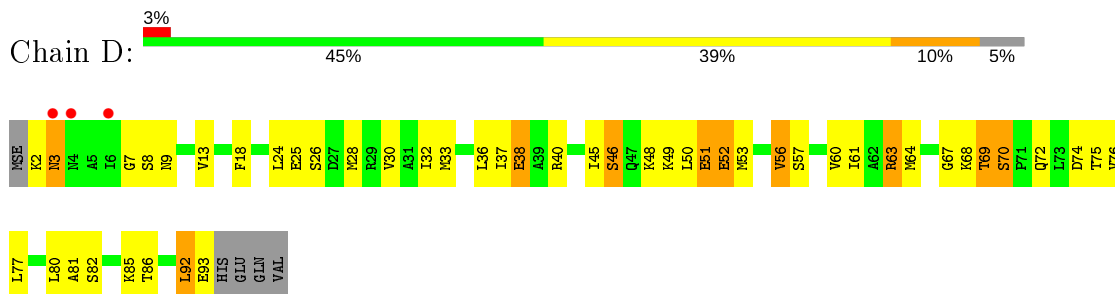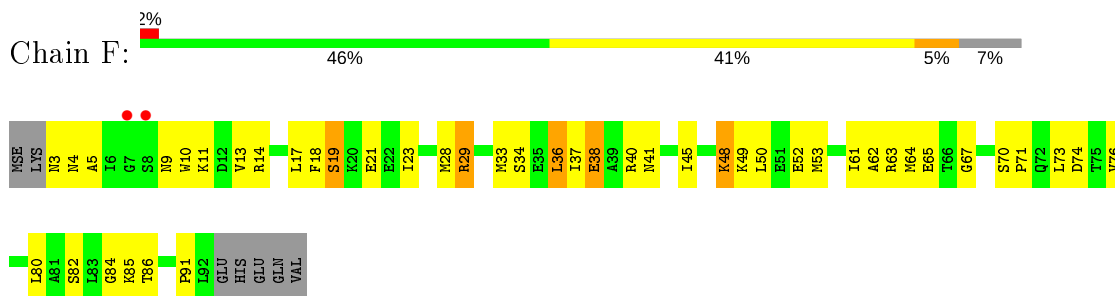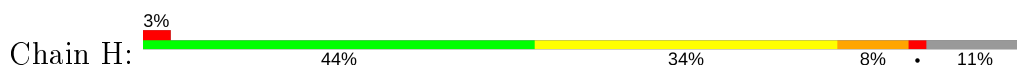• Molecule 1: HigB toxin

• Molecule 1: HigB toxin

• Molecule 1: HigB toxin

Chain G:

• Molecule 2: HigA antitoxin

Chain B:

• Molecule 2: HigA antitoxin

Chain D:

• Molecule 2: HigA antitoxin

Chain F:

• Molecule 2: HigA antitoxin

Chain H:
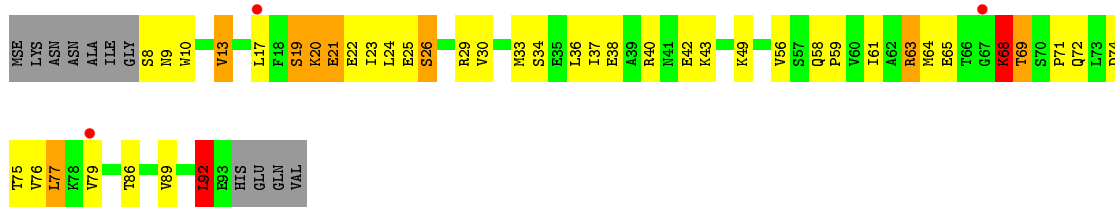
4 Data and refinement statistics (i)

Property	Value	Source
Space group	P 1 21 1	Depositor
Cell constants a, b, c, α, β, γ	74.58Å 67.04Å 87.72Å 90.00° 94.22° 90.00°	Depositor
Resolution (Å)	49.80 – 2.80 49.79 – 2.80	Depositor EDS
% Data completeness (in resolution range)	99.6 (49.80-2.80) 93.0 (49.79-2.80)	Depositor EDS
R_{merge}	(Not available)	Depositor
R_{sym}	(Not available)	Depositor
$<I/\sigma(I)>$ [1]	0.77 (at 2.81Å)	Xtriage
Refinement program	PHENIX 1.9_1692	Depositor
R, R_{free}	0.220 , 0.333 0.222 , 0.345	Depositor DCC
R_{free} test set	1095 reflections (5.12%)	wwPDB-VP
Wilson B-factor (Å^2)	76.4	Xtriage
Anisotropy	0.107	Xtriage
Bulk solvent k_{sol}(e/Å^3), B_{sol}(Å^2)	0.28 , 59.7	EDS
L-test for twinning[2]	$<|L|> = 0.49, <L^2> = 0.33$	Xtriage
Estimated twinning fraction	No twinning to report.	Xtriage
F_o,F_c correlation	0.92	EDS
Total number of atoms	6717	wwPDB-VP
Average B, all atoms (Å^2)	100.0	wwPDB-VP

Xtriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 5.92% of the height of the origin peak. No significant pseudotranslation is detected.*

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[1]Intensities estimated from amplitudes.
[2]Theoretical values of $<|L|>$, $<L^2>$ for acentric reflections are 0.5, 0.333 respectively for untwinned datasets, and 0.375, 0.2 for perfectly twinned datasets.

5 Model quality (i)

5.1 Standard geometry (i)

The Z score for a bond length (or angle) is the number of standard deviations the observed value is removed from the expected value. A bond length (or angle) with $|Z| > 5$ is considered an outlier worth inspection. RMSZ is the root-mean-square of all Z scores of the bond lengths (or angles).

Mol	Chain	Bond lengths		Bond angles	
		RMSZ	#$|Z|$ >5	RMSZ	#$|Z|$ >5
1	A	1.21	1/987 (0.1%)	1.32	9/1317 (0.7%)
1	C	1.26	4/978 (0.4%)	1.29	5/1305 (0.4%)
1	E	1.06	1/1002 (0.1%)	1.37	9/1336 (0.7%)
1	G	1.24	4/1010 (0.4%)	2.02	36/1347 (2.7%)
2	B	1.43	4/698 (0.6%)	1.49	4/931 (0.4%)
2	D	1.52	6/707 (0.8%)	1.43	7/942 (0.7%)
2	F	1.39	3/689 (0.4%)	1.35	6/919 (0.7%)
2	H	1.09	0/665	1.32	5/886 (0.6%)
All	All	1.27	23/6736 (0.3%)	1.48	81/8983 (0.9%)

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	2
1	C	0	1
1	E	0	8
1	G	0	24
2	F	0	1
2	H	0	3
All	All	0	39

All (23) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
2	B	38	GLU	CG-CD	9.11	1.65	1.51
1	G	77	VAL	CB-CG1	-8.74	1.34	1.52
1	C	56	TYR	CB-CG	-7.09	1.41	1.51
2	F	21	GLU	CG-CD	7.01	1.62	1.51
1	C	22	GLU	CG-CD	6.57	1.61	1.51
2	D	56	VAL	CA-CB	-6.33	1.41	1.54

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
2	D	9	ASN	CB-CG	6.21	1.65	1.51
1	A	39	ASN	CB-CG	6.09	1.65	1.51
2	B	16	GLU	CG-CD	5.97	1.60	1.51
2	F	38	GLU	CB-CG	5.88	1.63	1.52
2	B	38	GLU	CB-CG	5.87	1.63	1.52
2	D	52	GLU	CG-CD	5.78	1.60	1.51
2	D	38	GLU	CG-CD	5.66	1.60	1.51
1	G	76	PHE	CD2-CE2	-5.62	1.28	1.39
2	D	69	THR	CA-CB	5.60	1.68	1.53
1	C	26	LYS	CE-NZ	5.51	1.62	1.49
2	B	28	MSE	N-CA	-5.47	1.35	1.46
2	F	38	GLU	CG-CD	5.42	1.60	1.51
1	E	63	GLU	CG-CD	5.40	1.60	1.51
1	G	73	ARG	CG-CD	-5.29	1.38	1.51
1	C	32	ARG	CG-CD	5.21	1.65	1.51
1	G	67	LEU	CA-C	5.16	1.66	1.52
2	D	38	GLU	CD-OE1	5.05	1.31	1.25

All (81) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
2	B	28	MSE	CA-CB-CG	-14.78	88.18	113.30
1	G	37	LYS	CD-CE-NZ	14.76	145.64	111.70
1	G	75	LEU	CB-CG-CD2	-12.86	89.15	111.00
1	A	32	ARG	NE-CZ-NH1	-11.54	114.53	120.30
1	G	70	LEU	CB-CG-CD2	10.66	129.13	111.00
1	G	87	LEU	CA-CB-CG	10.66	139.83	115.30
1	G	75	LEU	CA-CB-CG	10.49	139.44	115.30
1	E	109	LEU	CA-CB-CG	-10.16	91.92	115.30
1	G	67	LEU	CB-CG-CD2	-9.70	94.50	111.00
1	G	38	ILE	CB-CA-C	-9.58	92.44	111.60
1	G	109	LEU	CA-CB-CG	8.90	135.78	115.30
2	F	73	LEU	CB-CG-CD2	-8.48	96.59	111.00
1	G	45	LEU	CB-CG-CD1	-8.38	96.75	111.00
1	G	68	ARG	CG-CD-NE	8.27	129.17	111.80
2	H	77	LEU	CA-CB-CG	8.23	134.23	115.30
1	G	91	MSE	N-CA-C	7.90	132.34	111.00
2	F	49	LYS	CD-CE-NZ	7.84	129.74	111.70
2	H	68	LYS	CD-CE-NZ	-7.76	93.86	111.70
1	G	109	LEU	CB-CG-CD2	-7.68	97.95	111.00
1	G	100	ARG	NE-CZ-NH1	-7.52	116.54	120.30
1	G	86	LEU	CA-CB-CG	7.50	132.56	115.30

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
2	D	36	LEU	CB-CG-CD1	-7.49	98.26	111.00
1	C	35	LEU	CB-CG-CD2	-7.47	98.30	111.00
1	G	72	ASP	N-CA-C	7.44	131.09	111.00
1	A	32	ARG	NE-CZ-NH2	7.26	123.93	120.30
1	G	93	ARG	CA-CB-CG	7.25	129.36	113.40
1	C	32	ARG	NE-CZ-NH1	7.21	123.91	120.30
2	H	77	LEU	CB-CG-CD1	-7.10	98.93	111.00
1	G	73	ARG	N-CA-C	7.09	130.16	111.00
1	G	87	LEU	CB-CG-CD1	-6.92	99.23	111.00
1	A	82	GLY	N-CA-C	-6.91	95.82	113.10
2	F	29	ARG	NE-CZ-NH2	-6.88	116.86	120.30
1	G	14	GLU	CA-CB-CG	6.83	128.41	113.40
2	D	40	ARG	NE-CZ-NH2	-6.73	116.93	120.30
1	G	113	LYS	CA-CB-CG	6.70	128.14	113.40
1	C	40	ASP	CB-CG-OD1	6.58	124.22	118.30
1	G	49	GLY	N-CA-C	-6.54	96.75	113.10
1	G	77	VAL	N-CA-C	6.18	127.68	111.00
1	G	67	LEU	C-N-CA	6.14	137.05	121.70
1	E	44	LEU	CA-CB-CG	-6.10	101.27	115.30
2	H	92	LEU	CA-CB-CG	6.10	129.33	115.30
1	G	57	ILE	N-CA-C	6.06	127.36	111.00
1	E	109	LEU	CB-CG-CD2	6.04	121.26	111.00
1	A	26	LYS	CD-CE-NZ	6.03	125.58	111.70
2	B	49	LYS	C-N-CA	-5.96	106.79	121.70
2	F	73	LEU	CB-CG-CD1	5.93	121.08	111.00
1	G	77	VAL	CG1-CB-CG2	-5.91	101.44	110.90
1	G	72	ASP	N-CA-CB	-5.86	100.06	110.60
2	H	68	LYS	CB-CG-CD	-5.79	96.56	111.60
2	B	50	LEU	CA-CB-CG	5.77	128.57	115.30
1	G	92	LYS	C-N-CA	5.64	135.80	121.70
1	G	38	ILE	N-CA-C	5.60	126.13	111.00
1	G	68	ARG	N-CA-C	5.55	125.99	111.00
2	D	36	LEU	CA-CB-CG	5.49	127.93	115.30
1	E	23	LEU	CB-CG-CD2	5.45	120.27	111.00
1	A	67	LEU	CA-CB-CG	5.41	127.75	115.30
1	C	67	LEU	N-CA-C	-5.38	96.46	111.00
1	E	73	ARG	NE-CZ-NH2	-5.38	117.61	120.30
1	E	70	LEU	N-CA-C	5.36	125.48	111.00
1	A	107	ARG	NE-CZ-NH1	-5.35	117.63	120.30
1	G	98	PRO	N-CA-C	5.34	125.99	112.10
1	A	71	ARG	CA-CB-CG	-5.34	101.66	113.40
1	G	27	LYS	CB-CG-CD	5.33	125.46	111.60

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
2	B	24	LEU	CB-CG-CD2	-5.32	101.95	111.00
2	F	86	THR	CA-CB-CG2	-5.28	105.01	112.40
2	D	51	GLU	OE1-CD-OE2	-5.26	116.99	123.30
1	A	23	LEU	CB-CG-CD1	5.26	119.94	111.00
2	D	80	LEU	CB-CG-CD1	-5.24	102.09	111.00
1	C	70	LEU	CB-CG-CD2	-5.23	102.11	111.00
1	G	27	LYS	N-CA-C	5.23	125.13	111.00
1	G	88	HIS	CA-C-N	-5.22	105.72	117.20
1	G	17	PHE	N-CA-C	5.17	124.96	111.00
1	E	94	THR	N-CA-C	5.12	124.83	111.00
2	D	63	ARG	NE-CZ-NH2	-5.09	117.75	120.30
1	E	97	THR	C-N-CD	5.09	139.09	128.40
1	G	106	LYS	CA-CB-CG	-5.09	102.20	113.40
1	A	51	ARG	NE-CZ-NH2	-5.06	117.77	120.30
2	F	36	LEU	CB-CG-CD1	5.06	119.60	111.00
1	E	26	LYS	C-N-CA	-5.06	109.06	121.70
1	G	86	LEU	N-CA-C	5.03	124.58	111.00
2	D	92	LEU	CA-CB-CG	5.03	126.86	115.30

There are no chirality outliers.

All (39) planarity outliers are listed below:

Mol	Chain	Res	Type	Group
1	A	11	ASN	Peptide
1	A	82	GLY	Peptide
1	C	80	MSE	Peptide
1	E	12	GLY	Peptide
1	E	25	SER	Peptide
1	E	5	TYR	Peptide
1	E	70	LEU	Mainchain
1	E	8	LYS	Peptide
1	E	80	MSE	Peptide
1	E	82	GLY	Peptide
1	E	96	LYS	Peptide
2	F	4	ASN	Peptide
1	G	102	ILE	Peptide
1	G	106	LYS	Peptide
1	G	18	ASP	Peptide
1	G	26	LYS	Peptide
1	G	29	LYS	Peptide
1	G	36	ASN	Peptide
1	G	51	ARG	Peptide

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Mol	Chain	Res	Type	Group
1	G	56	TYR	Peptide
1	G	58	LYS	Peptide
1	G	63	GLU	Peptide
1	G	64	ILE	Peptide
1	G	65	TRP	Peptide
1	G	66	GLU	Peptide
1	G	71	ARG	Peptide
1	G	73	ARG	Peptide
1	G	76	PHE	Peptide
1	G	80	MSE	Peptide
1	G	82	GLY	Peptide
1	G	84	PHE	Peptide
1	G	86	LEU	Peptide
1	G	91	MSE	Peptide
1	G	94	THR	Peptide
1	G	96	LYS	Peptide
1	G	97	THR	Peptide
2	H	19	SER	Peptide
2	H	20	LYS	Peptide
2	H	68	LYS	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	968	0	978	58	1
1	C	959	0	972	72	0
1	E	983	0	994	134	0
1	G	991	0	1005	293	0
2	B	697	0	728	42	0
2	D	706	0	741	43	1
2	F	688	0	722	39	1
2	H	664	0	697	49	1
3	A	12	0	0	3	1
3	B	8	0	0	1	0
3	C	7	0	0	2	0
3	D	4	0	0	2	0
3	E	7	0	0	0	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
3	F	5	0	0	0	0
3	G	7	0	0	1	1
3	H	11	0	0	0	0
All	All	6717	0	6837	670	3

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 50.

All (670) 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:E:26:LYS:HG3	1:E:31:SER:HB3	1.27	1.14
1:G:6:PHE:HA	1:G:85:VAL:HG11	1.14	1.11
1:E:8:LYS:HD2	1:E:14:GLU:HA	1.26	1.10
1:G:37:LYS:HE2	1:G:73:ARG:NE	1.68	1.07
1:G:37:LYS:HE2	1:G:73:ARG:HE	1.04	1.05
1:G:101:GLU:HA	1:G:104:GLN:HG3	1.39	1.05
1:G:68:ARG:NH1	1:G:73:ARG:HG2	1.72	1.04
1:G:71:ARG:HB2	1:G:72:ASP:HB2	1.40	1.04
1:G:91:MSE:HE3	1:G:92:LYS:HB2	1.37	1.04
1:G:67:LEU:HG	1:G:68:ARG:HG3	1.39	1.01
1:C:58:LYS:NZ	1:C:68:ARG:HD2	1.78	0.99
1:A:26:LYS:HE2	1:A:31:SER:HB2	1.43	0.99
1:G:85:VAL:HG13	1:G:86:LEU:H	1.26	0.98
1:G:68:ARG:HH12	1:G:72:ASP:HB3	1.25	0.97
1:G:67:LEU:HG	1:G:68:ARG:H	1.27	0.96
1:G:6:PHE:CA	1:G:85:VAL:HG11	1.97	0.95
1:G:48:HIS:NE2	2:H:38:GLU:OE2	1.99	0.95
1:G:60:LEU:HD22	1:G:102:ILE:HG13	1.50	0.94
1:G:73:ARG:HB3	1:G:74:ILE:HG23	1.50	0.93
1:C:56:TYR:HE2	2:D:37:ILE:HD11	1.32	0.91
2:H:63:ARG:O	2:H:68:LYS:HD2	1.71	0.91
1:G:22:GLU:HA	1:G:25:SER:HB3	1.52	0.90
1:A:37:LYS:HG2	1:A:70:LEU:HG	1.54	0.89
2:H:19:SER:O	2:H:21:GLU:HB3	1.72	0.88
1:E:99:LYS:HE2	1:E:103:GLU:HG3	1.56	0.88
1:G:94:THR:HA	1:G:97:THR:HB	1.53	0.88
1:C:24:THR:HG22	1:C:35:LEU:HD21	1.53	0.87
1:G:67:LEU:HD21	1:G:73:ARG:HB2	1.57	0.87
1:G:73:ARG:HD3	1:G:89:HIS:CE1	2.11	0.86
1:C:92:LYS:NZ	1:C:94:THR:O	2.08	0.85

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:56:TYR:CE2	2:D:37:ILE:HD11	2.11	0.85
1:E:7:TYR:O	1:E:8:LYS:HD3	1.77	0.84
1:G:85:VAL:HG13	1:G:86:LEU:N	1.89	0.84
1:E:8:LYS:N	2:F:5:ALA:O	2.10	0.84
1:C:101:GLU:HA	1:C:104:GLN:HE22	1.40	0.84
1:G:37:LYS:HD3	1:G:38:ILE:HG12	1.60	0.83
1:A:20:MSE:HE2	1:A:38:ILE:HG21	1.62	0.82
1:G:68:ARG:CZ	1:G:70:LEU:HD11	2.08	0.82
1:A:21:ARG:NH2	2:B:16:GLU:OE2	2.13	0.82
1:E:26:LYS:CG	1:E:31:SER:HB3	2.08	0.82
1:G:106:LYS:HA	1:G:108:GLU:HB3	1.62	0.81
1:A:10:LYS:NZ	3:A:201:HOH:O	2.11	0.81
1:G:76:PHE:HB3	1:G:84:PHE:HZ	1.45	0.81
2:H:68:LYS:HG2	2:H:69:THR:H	1.45	0.80
1:C:77:VAL:O	3:C:201:HOH:O	1.98	0.80
1:G:91:MSE:CE	1:G:92:LYS:HB2	2.13	0.79
2:F:3:ASN:OD1	2:F:5:ALA:N	2.13	0.79
1:G:26:LYS:HB3	1:G:27:LYS:HG2	1.65	0.79
1:G:19:TYR:OH	1:G:71:ARG:NH2	2.14	0.78
2:D:2:LYS:N	3:D:101:HOH:O	2.17	0.78
1:G:76:PHE:HB3	1:G:84:PHE:CZ	2.18	0.78
1:C:7:TYR:CE2	1:C:108:GLU:HG2	2.19	0.78
1:G:73:ARG:HH11	1:G:89:HIS:CE1	2.01	0.78
1:G:37:LYS:HD2	1:G:73:ARG:HH21	1.49	0.78
1:E:29:LYS:CD	1:E:32:ARG:HH22	1.97	0.77
1:G:98:PRO:HB2	1:G:101:GLU:H	1.49	0.77
1:G:17:PHE:O	1:G:20:MSE:N	2.17	0.77
1:G:65:TRP:HB2	1:G:77:VAL:CG1	2.13	0.77
1:E:22:GLU:N	1:E:22:GLU:OE1	2.18	0.77
1:C:11:ASN:HB2	1:C:13:ASN:N	1.99	0.76
1:G:16:VAL:HG23	1:G:17:PHE:H	1.49	0.76
2:B:47:GLN:HA	2:B:50:LEU:HG	1.67	0.76
1:G:73:ARG:HB3	1:G:74:ILE:CG2	2.15	0.76
1:G:68:ARG:NH1	1:G:72:ASP:HB3	1.99	0.76
1:G:61:ASP:OD1	1:G:62:ALA:N	2.19	0.75
1:E:94:THR:HB	1:E:98:PRO:HG3	1.67	0.75
1:G:68:ARG:CZ	1:G:73:ARG:HG2	2.16	0.75
1:E:26:LYS:HG3	1:E:31:SER:CB	2.14	0.74
1:A:112:LEU:O	2:B:3:ASN:ND2	2.17	0.74
1:C:17:PHE:HD1	2:D:13:VAL:HG13	1.52	0.74
1:G:7:TYR:CZ	1:G:111:ASP:OD2	2.41	0.74

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:54:GLU:HG3	1:C:55:PRO:HA	1.69	0.74
1:G:84:PHE:CE1	1:G:86:LEU:HG	2.22	0.73
1:E:23:LEU:O	1:E:26:LYS:HB3	1.87	0.73
1:G:16:VAL:HG23	1:G:17:PHE:CD1	2.23	0.73
2:B:58:GLN:HB3	2:B:59:PRO:HD3	1.71	0.73
1:E:104:GLN:CD	1:E:104:GLN:H	1.92	0.73
2:D:72:GLN:NE2	3:D:102:HOH:O	2.21	0.73
2:D:63:ARG:HG3	2:D:67:GLY:HA3	1.71	0.73
2:D:77:LEU:HD11	2:F:28:MSE:HE1	1.70	0.73
1:E:8:LYS:HD2	1:E:15:PRO:HD2	1.69	0.73
1:C:58:LYS:HZ3	1:C:68:ARG:HD2	1.50	0.73
1:C:58:LYS:HZ1	1:C:68:ARG:HD2	1.53	0.72
1:G:67:LEU:CG	1:G:68:ARG:H	2.03	0.72
1:G:15:PRO:O	1:G:17:PHE:N	2.23	0.72
1:G:89:HIS:CE1	1:G:91:MSE:HG2	2.23	0.72
1:G:78:ALA:HB1	1:G:112:LEU:HD13	1.71	0.72
1:G:57:ILE:HB	1:G:66:GLU:HA	1.71	0.72
1:A:7:TYR:CD1	1:A:112:LEU:HD11	2.24	0.72
1:G:110:ALA:HA	1:G:113:LYS:HG2	1.72	0.72
1:G:76:PHE:HE2	1:G:87:LEU:N	1.86	0.72
1:G:6:PHE:HB2	2:H:8:SER:HB3	1.70	0.72
1:A:32:ARG:NH1	2:B:22:GLU:OE2	2.23	0.71
1:E:85:VAL:HG11	1:E:112:LEU:HD11	1.72	0.71
1:E:26:LYS:NZ	1:E:32:ARG:HA	2.05	0.71
1:G:81:ASP:CB	1:G:83:SER:H	2.04	0.71
1:G:58:LYS:H	1:G:67:LEU:H	1.38	0.71
1:G:27:LYS:HZ1	1:G:30:ASP:H	1.38	0.71
1:G:37:LYS:CD	1:G:38:ILE:HG12	2.21	0.71
1:G:71:ARG:CB	1:G:72:ASP:HB2	2.18	0.71
1:G:72:ASP:OD2	1:G:73:ARG:NH1	2.24	0.71
2:B:50:LEU:CD1	2:B:61:ILE:HD13	2.21	0.70
1:E:8:LYS:CD	1:E:14:GLU:HA	2.14	0.70
1:A:85:VAL:HG11	1:A:112:LEU:HD21	1.72	0.70
1:E:101:GLU:O	1:E:104:GLN:HB2	1.91	0.70
1:G:59:HIS:CE1	1:G:65:TRP:HA	2.27	0.70
1:G:43:GLU:HB3	2:H:30:VAL:HG21	1.74	0.70
1:G:54:GLU:OE2	1:G:55:PRO:HA	1.92	0.70
1:E:29:LYS:HD2	1:E:32:ARG:HH22	1.55	0.70
1:E:5:TYR:O	1:E:85:VAL:HA	1.91	0.70
1:C:72:ASP:O	1:C:73:ARG:NH1	2.24	0.70
1:G:75:LEU:HD21	1:G:102:ILE:HD12	1.72	0.70

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:G:11:ASN:HB2	1:G:13:ASN:HB2	1.74	0.70
1:G:101:GLU:HB2	1:G:104:GLN:HE21	1.57	0.70
1:E:68:ARG:NH2	1:E:72:ASP:O	2.24	0.69
1:G:37:LYS:O	1:G:40:ASP:HB2	1.92	0.69
2:D:64:MSE:HE1	2:D:76:VAL:HA	1.74	0.69
1:G:58:LYS:O	1:G:59:HIS:ND1	2.25	0.69
1:G:77:VAL:HA	1:G:84:PHE:CE1	2.26	0.69
2:H:68:LYS:HZ1	2:H:71:PRO:CD	2.05	0.69
1:G:48:HIS:CE1	2:H:38:GLU:OE2	2.46	0.69
1:G:72:ASP:CG	1:G:91:MSE:HG3	2.13	0.69
1:C:1:MSE:N	3:C:202:HOH:O	2.03	0.69
1:G:68:ARG:NH1	1:G:70:LEU:HD11	2.07	0.69
1:E:14:GLU:HB2	1:E:17:PHE:HB3	1.76	0.68
1:G:54:GLU:HG3	1:G:55:PRO:HA	1.74	0.68
1:A:7:TYR:CE2	1:A:108:GLU:HG2	2.28	0.68
2:D:69:THR:HG23	2:D:70:SER:O	1.93	0.68
1:E:59:HIS:NE2	1:E:62:ALA:O	2.25	0.68
1:G:76:PHE:O	1:G:77:VAL:HG12	1.93	0.68
1:C:6:PHE:O	2:D:7:GLY:N	2.26	0.68
1:G:81:ASP:HB2	1:G:82:GLY:HA2	1.74	0.68
1:G:71:ARG:HB2	1:G:72:ASP:CB	2.21	0.68
1:G:37:LYS:HG2	1:G:38:ILE:N	2.08	0.67
2:D:51:GLU:HG3	2:D:57:SER:HA	1.76	0.67
1:E:104:GLN:N	1:E:104:GLN:OE1	2.27	0.67
1:E:8:LYS:HG3	1:E:14:GLU:CG	2.25	0.67
1:G:38:ILE:HA	1:G:41:TYR:H	1.60	0.66
1:E:110:ALA:HA	1:E:113:LYS:NZ	2.10	0.66
1:E:30:ASP:O	1:E:34:LYS:HG3	1.95	0.66
2:D:92:LEU:HD23	2:F:84:GLY:HA2	1.77	0.66
1:C:103:GLU:HA	1:C:106:LYS:HD3	1.78	0.66
1:A:20:MSE:HE1	1:A:42:ILE:HD11	1.76	0.66
1:G:92:LYS:HD2	1:G:93:ARG:HB3	1.77	0.66
1:A:77:VAL:HG11	1:A:109:LEU:HD13	1.78	0.65
1:E:48:HIS:HB2	1:E:52:ALA:HB2	1.77	0.65
1:E:8:LYS:HG3	1:E:14:GLU:HG2	1.78	0.65
1:E:8:LYS:HD2	1:E:14:GLU:CA	2.16	0.65
1:G:81:ASP:HB2	1:G:83:SER:H	1.61	0.65
2:H:19:SER:N	2:H:21:GLU:OE1	2.27	0.65
1:C:104:GLN:HA	1:C:107:ARG:HB3	1.79	0.65
1:G:67:LEU:HD13	1:G:74:ILE:HG12	1.78	0.65
1:G:77:VAL:HB	1:G:84:PHE:CD2	2.32	0.65

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:11:ASN:HB2	1:C:13:ASN:H	1.61	0.65
1:G:113:LYS:O	1:G:116:GLY:N	2.19	0.65
1:G:37:LYS:HD2	1:G:73:ARG:NH2	2.11	0.65
1:E:73:ARG:HH21	1:E:92:LYS:HD3	1.62	0.65
1:G:87:LEU:HD22	1:G:107:ARG:HH12	1.62	0.65
1:G:64:ILE:O	1:G:65:TRP:CG	2.50	0.64
1:E:26:LYS:NZ	1:E:35:LEU:HB2	2.12	0.64
1:E:7:TYR:O	1:E:8:LYS:CD	2.45	0.64
1:G:84:PHE:HE1	1:G:86:LEU:HG	1.62	0.64
1:E:7:TYR:O	1:E:7:TYR:CG	2.50	0.64
1:E:7:TYR:O	1:E:7:TYR:CD2	2.51	0.64
1:E:26:LYS:HZ3	1:E:35:LEU:HB2	1.62	0.64
2:H:68:LYS:HZ1	2:H:71:PRO:CG	2.10	0.64
1:A:41:TYR:CZ	1:A:56:TYR:HD1	2.14	0.64
1:E:103:GLU:HA	1:E:106:LYS:HD2	1.80	0.64
1:G:106:LYS:HE3	1:G:109:LEU:H	1.63	0.64
1:G:40:ASP:OD1	2:H:26:SER:OG	2.16	0.64
1:G:29:LYS:HE3	2:H:22:GLU:OE1	1.98	0.63
1:G:98:PRO:HG2	1:G:101:GLU:HB3	1.80	0.63
1:G:35:LEU:O	1:G:35:LEU:HG	1.98	0.63
1:E:103:GLU:HA	1:E:106:LYS:HB2	1.80	0.63
1:C:6:PHE:HE2	1:C:16:VAL:HG12	1.63	0.63
1:G:10:LYS:HE2	1:G:11:ASN:HD21	1.63	0.63
1:G:59:HIS:CE1	1:G:65:TRP:CE3	2.86	0.63
1:G:58:LYS:H	1:G:67:LEU:N	1.97	0.63
1:E:68:ARG:CZ	1:E:70:LEU:O	2.47	0.62
1:E:7:TYR:HB2	1:E:85:VAL:CG1	2.29	0.62
1:G:6:PHE:CE1	1:G:17:PHE:HE1	2.17	0.62
1:G:73:ARG:NH1	1:G:89:HIS:NE2	2.46	0.62
1:G:32:ARG:NH2	2:H:22:GLU:OE2	2.32	0.62
2:B:73:LEU:HD22	2:H:76:VAL:HG21	1.81	0.62
1:C:113:LYS:HA	2:D:3:ASN:OD1	1.99	0.62
1:E:103:GLU:O	1:E:107:ARG:N	2.30	0.61
1:E:4:ILE:HB	2:F:10:TRP:HB2	1.82	0.61
1:G:17:PHE:O	1:G:21:ARG:N	2.32	0.61
1:G:52:ALA:HB1	1:G:53:GLY:CA	2.30	0.61
1:G:65:TRP:CD1	1:G:77:VAL:HG13	2.35	0.61
1:A:7:TYR:HD1	1:A:112:LEU:HD11	1.62	0.61
1:G:106:LYS:HA	1:G:108:GLU:CB	2.29	0.61
1:C:17:PHE:CD1	2:D:13:VAL:HG13	2.34	0.61
1:E:11:ASN:OD1	1:E:13:ASN:N	2.33	0.61

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:E:23:LEU:HA	1:E:26:LYS:HD3	1.83	0.61
1:E:112:LEU:O	2:F:3:ASN:ND2	2.34	0.60
1:G:65:TRP:HD1	1:G:77:VAL:HG13	1.66	0.60
1:A:30:ASP:OD1	1:A:31:SER:N	2.33	0.60
1:G:74:ILE:HG13	1:G:76:PHE:CD1	2.36	0.60
1:G:66:GLU:CD	1:G:67:LEU:HB2	2.21	0.60
1:G:101:GLU:HB2	1:G:104:GLN:NE2	2.15	0.60
1:G:102:ILE:HA	1:G:105:ALA:HB2	1.83	0.60
1:G:66:GLU:OE2	1:G:67:LEU:HB2	2.01	0.60
1:G:109:LEU:O	1:G:113:LYS:N	2.30	0.60
1:G:7:TYR:HB3	1:G:14:GLU:OE2	2.01	0.60
1:C:77:VAL:HG21	1:C:109:LEU:HD13	1.84	0.60
1:G:37:LYS:CD	1:G:73:ARG:HH21	2.14	0.60
1:A:94:THR:HG22	1:A:96:LYS:H	1.66	0.60
1:G:57:ILE:O	1:G:57:ILE:HD12	2.01	0.60
1:E:48:HIS:CB	1:E:52:ALA:HB2	2.32	0.59
1:E:6:PHE:CD2	2:F:13:VAL:HG21	2.37	0.59
1:G:54:GLU:CG	1:G:55:PRO:HA	2.32	0.59
1:G:9:ASP:OD1	1:G:14:GLU:HB3	2.02	0.59
1:G:106:LYS:HG3	1:G:108:GLU:H	1.67	0.59
2:B:50:LEU:HD12	2:B:61:ILE:HD13	1.83	0.59
1:C:104:GLN:OE1	1:C:104:GLN:N	2.35	0.59
1:G:7:TYR:CE2	1:G:111:ASP:OD2	2.54	0.59
1:G:81:ASP:HB2	1:G:83:SER:N	2.17	0.59
1:C:70:LEU:HD21	2:D:68:LYS:HE3	1.82	0.59
1:G:54:GLU:HG3	1:G:55:PRO:CA	2.32	0.59
1:G:108:GLU:O	1:G:111:ASP:N	2.28	0.58
1:E:90:PHE:HE1	1:E:98:PRO:HG2	1.68	0.58
1:G:109:LEU:HD13	1:G:112:LEU:HB3	1.85	0.58
1:G:11:ASN:HB2	1:G:13:ASN:CB	2.32	0.58
1:G:18:ASP:HA	1:G:21:ARG:H	1.68	0.58
1:G:60:LEU:HD13	1:G:102:ILE:HD11	1.85	0.58
2:B:49:LYS:O	2:B:49:LYS:HG2	2.03	0.58
1:G:67:LEU:HD11	1:G:73:ARG:HG3	1.84	0.58
1:E:19:TYR:CG	1:E:19:TYR:O	2.56	0.58
1:G:27:LYS:NZ	1:G:30:ASP:H	2.01	0.58
1:G:68:ARG:NH2	1:G:73:ARG:CZ	2.67	0.58
1:G:98:PRO:CG	1:G:101:GLU:HB3	2.34	0.58
1:C:103:GLU:HA	1:C:106:LYS:CD	2.33	0.58
1:E:68:ARG:NH2	1:E:72:ASP:N	2.51	0.58
1:G:72:ASP:OD1	1:G:91:MSE:HG3	2.02	0.58

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:G:6:PHE:HB2	2:H:8:SER:CB	2.33	0.58
1:C:35:LEU:HG	2:D:18:PHE:HE1	1.68	0.58
1:E:8:LYS:CD	1:E:15:PRO:HD2	2.33	0.58
2:D:49:LYS:O	2:D:53:MSE:HG3	2.04	0.58
1:G:94:THR:HB	1:G:95:GLN:HA	1.84	0.58
1:C:66:GLU:OE1	1:C:73:ARG:HD2	2.04	0.57
1:E:6:PHE:CE2	2:F:13:VAL:HG21	2.39	0.57
1:A:1:MSE:N	3:A:203:HOH:O	2.27	0.57
2:F:34:SER:O	2:F:38:GLU:HG3	2.03	0.57
1:G:53:GLY:HA3	1:G:57:ILE:HG13	1.87	0.57
1:A:26:LYS:HE2	1:A:31:SER:CB	2.26	0.57
2:D:74:ASP:OD1	2:D:75:THR:N	2.37	0.57
1:G:57:ILE:HA	1:G:67:LEU:H	1.70	0.57
1:G:18:ASP:HB3	1:G:21:ARG:HB2	1.86	0.57
1:G:84:PHE:CG	1:G:85:VAL:N	2.72	0.57
1:G:7:TYR:CG	1:G:8:LYS:N	2.73	0.57
1:G:37:LYS:CG	1:G:38:ILE:H	2.15	0.57
1:E:90:PHE:CE1	1:E:98:PRO:HG2	2.40	0.57
1:G:69:PRO:C	1:G:70:LEU:HG	2.25	0.57
1:C:6:PHE:CD1	2:D:13:VAL:HG21	2.40	0.57
1:G:37:LYS:HG2	1:G:38:ILE:HG23	1.86	0.56
1:E:20:MSE:HE1	1:E:38:ILE:HG21	1.86	0.56
1:G:109:LEU:HG	1:G:113:LYS:HD3	1.88	0.56
2:H:56:VAL:HG21	2:H:79:VAL:HG23	1.87	0.56
1:G:67:LEU:HD21	1:G:73:ARG:CB	2.31	0.56
2:H:68:LYS:NZ	2:H:69:THR:O	2.37	0.56
1:E:68:ARG:NH1	1:E:71:ARG:HA	2.19	0.56
2:H:23:ILE:HG22	2:H:24:LEU:HD23	1.87	0.56
1:C:68:ARG:HB3	1:C:73:ARG:NH1	2.21	0.56
2:D:72:GLN:NE2	2:D:74:ASP:OD2	2.39	0.56
1:G:107:ARG:NH1	1:G:107:ARG:HG2	2.21	0.56
1:G:26:LYS:CB	1:G:27:LYS:HG2	2.36	0.56
1:G:54:GLU:OE1	1:G:58:LYS:HA	2.06	0.56
1:G:5:TYR:O	1:G:85:VAL:HB	2.06	0.56
1:C:48:HIS:HB2	1:C:52:ALA:HB2	1.88	0.56
1:E:7:TYR:HD1	1:E:112:LEU:CD2	2.18	0.56
1:G:106:LYS:HE3	1:G:109:LEU:N	2.21	0.56
1:A:108:GLU:O	1:A:112:LEU:HD13	2.06	0.55
1:G:64:ILE:O	1:G:65:TRP:CD1	2.59	0.55
1:C:6:PHE:CE1	2:D:13:VAL:HG21	2.41	0.55
1:G:28:GLY:O	1:G:32:ARG:HG3	2.07	0.55

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:G:77:VAL:HG23	1:G:78:ALA:N	2.21	0.55
1:G:81:ASP:HB2	1:G:82:GLY:CA	2.36	0.55
1:E:99:LYS:C	1:E:101:GLU:H	2.10	0.55
1:G:67:LEU:HG	1:G:68:ARG:N	2.10	0.55
1:G:85:VAL:CG1	1:G:86:LEU:H	2.11	0.55
1:G:85:VAL:CG1	1:G:86:LEU:N	2.68	0.55
1:G:54:GLU:HG3	1:G:55:PRO:N	2.20	0.55
1:C:58:LYS:HE2	1:C:68:ARG:CZ	2.36	0.55
1:E:7:TYR:CZ	1:E:108:GLU:HB3	2.41	0.55
1:E:75:LEU:HD13	1:E:88:HIS:CE1	2.41	0.55
1:G:107:ARG:HH11	1:G:107:ARG:HG2	1.70	0.55
2:D:25:GLU:OE1	2:F:74:ASP:OD2	2.24	0.55
1:G:93:ARG:HD3	1:G:94:THR:O	2.07	0.55
1:A:58:LYS:HD2	1:A:68:ARG:NH1	2.21	0.55
1:G:105:ALA:O	1:G:108:GLU:HB2	2.06	0.55
1:G:16:VAL:HG12	1:G:88:HIS:HD2	1.72	0.55
1:G:35:LEU:HA	1:G:37:LYS:CB	2.37	0.55
2:B:70:SER:O	2:H:72:GLN:NE2	2.39	0.55
1:C:73:ARG:HB2	1:C:90:PHE:CE1	2.41	0.55
2:F:40:ARG:HA	2:F:45:ILE:O	2.06	0.55
1:G:27:LYS:O	1:G:27:LYS:HG3	2.07	0.54
2:F:10:TRP:CZ2	2:F:14:ARG:HG3	2.42	0.54
1:G:59:HIS:HE1	1:G:65:TRP:CE3	2.25	0.54
1:G:73:ARG:HA	1:G:89:HIS:CE1	2.42	0.54
1:A:37:LYS:CG	1:A:70:LEU:HG	2.34	0.54
1:A:107:ARG:O	1:A:110:ALA:HB3	2.07	0.54
1:E:54:GLU:HA	1:E:56:TYR:H	1.72	0.54
1:G:19:TYR:O	1:G:23:LEU:HG	2.07	0.54
1:E:98:PRO:O	1:E:101:GLU:HB2	2.07	0.54
1:A:10:LYS:O	1:A:10:LYS:HG3	2.08	0.54
1:E:17:PHE:CE2	1:E:21:ARG:HD2	2.43	0.54
1:A:44:LEU:HD21	2:B:37:ILE:HD11	1.90	0.54
1:C:11:ASN:HD22	1:C:13:ASN:HB2	1.73	0.54
1:E:7:TYR:HD1	1:E:112:LEU:HD21	1.73	0.54
1:G:37:LYS:CE	1:G:73:ARG:NE	2.58	0.54
2:H:61:ILE:O	2:H:64:MSE:HB2	2.08	0.54
1:C:45:LEU:HD12	1:C:49:GLY:HA2	1.90	0.53
1:G:63:GLU:HB2	1:G:79:TRP:HZ2	1.71	0.53
1:E:94:THR:HG21	1:E:98:PRO:HD3	1.90	0.53
1:G:38:ILE:HD12	1:G:42:ILE:HD12	1.89	0.53
1:G:38:ILE:O	1:G:42:ILE:N	2.37	0.53

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:G:72:ASP:OD2	1:G:73:ARG:N	2.41	0.53
1:G:52:ALA:HB1	1:G:53:GLY:HA2	1.90	0.53
1:E:104:GLN:O	1:E:108:GLU:HG3	2.08	0.53
1:C:5:TYR:N	1:C:84:PHE:O	2.39	0.53
2:B:50:LEU:HA	2:B:53:MSE:HE2	1.91	0.53
1:G:59:HIS:ND1	1:G:64:ILE:HB	2.24	0.53
1:E:110:ALA:HA	1:E:113:LYS:HZ2	1.73	0.53
1:G:109:LEU:HG	1:G:113:LYS:HZ3	1.73	0.53
2:H:29:ARG:O	2:H:33:MSE:HG3	2.09	0.53
1:E:3:ASN:HB2	1:E:83:SER:OG	2.09	0.52
1:G:16:VAL:CG2	1:G:17:PHE:H	2.20	0.52
2:H:25:GLU:O	2:H:29:ARG:HG3	2.09	0.52
2:H:72:GLN:HB3	2:H:74:ASP:OD1	2.09	0.52
1:E:101:GLU:N	1:E:104:GLN:HE21	2.07	0.52
1:A:96:LYS:HZ3	1:A:99:LYS:HG2	1.74	0.52
2:B:63:ARG:HA	2:B:67:GLY:H	1.74	0.52
1:E:23:LEU:CA	1:E:26:LYS:HD3	2.39	0.52
1:E:54:GLU:OE1	1:E:58:LYS:HE2	2.09	0.52
1:E:73:ARG:NH2	1:E:92:LYS:HD3	2.25	0.52
1:G:68:ARG:CZ	1:G:73:ARG:CZ	2.87	0.52
2:D:61:ILE:O	2:D:64:MSE:HB2	2.09	0.52
2:D:28:MSE:O	2:D:28:MSE:HE3	2.09	0.52
2:D:45:ILE:HG22	2:D:46:SER:O	2.09	0.52
2:D:50:LEU:O	2:D:50:LEU:HD12	2.09	0.52
1:E:48:HIS:CD2	2:F:37:ILE:HD11	2.45	0.52
1:G:27:LYS:NZ	1:G:27:LYS:O	2.43	0.52
1:A:97:THR:OG1	1:A:97:THR:O	2.25	0.52
1:C:63:GLU:O	1:C:77:VAL:HG12	2.10	0.52
1:C:39:ASN:HB2	2:D:18:PHE:CZ	2.45	0.52
1:E:103:GLU:CA	1:E:106:LYS:HB2	2.41	0.51
1:G:18:ASP:HA	1:G:21:ARG:HG3	1.92	0.51
1:G:16:VAL:HG12	1:G:88:HIS:CD2	2.45	0.51
1:G:106:LYS:CE	1:G:109:LEU:HB3	2.39	0.51
1:G:62:ALA:O	1:G:64:ILE:HG23	2.09	0.51
1:G:63:GLU:HB2	1:G:79:TRP:CZ2	2.45	0.51
2:B:31:ALA:O	2:B:34:SER:HB3	2.10	0.51
1:G:10:LYS:HE2	1:G:11:ASN:ND2	2.25	0.51
1:G:66:GLU:O	1:G:67:LEU:HB3	2.09	0.51
1:G:4:ILE:HA	1:G:83:SER:HB3	1.91	0.51
1:A:79:TRP:CZ2	2:B:6:ILE:HD11	2.45	0.51
1:E:26:LYS:HG2	1:E:26:LYS:O	2.11	0.51

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:E:99:LYS:HD2	1:E:104:GLN:HE22	1.75	0.51
2:B:56:VAL:HG12	2:B:60:VAL:HB	1.93	0.51
1:G:110:ALA:CA	1:G:113:LYS:HG2	2.40	0.51
1:G:11:ASN:HD22	1:G:13:ASN:HB3	1.76	0.51
1:G:90:PHE:O	1:G:91:MSE:SE	2.78	0.51
1:E:68:ARG:NH1	1:E:70:LEU:O	2.44	0.50
2:D:46:SER:O	2:D:49:LYS:HB3	2.11	0.50
2:F:9:ASN:O	2:F:13:VAL:HG23	2.11	0.50
1:E:48:HIS:NE2	2:F:37:ILE:HD11	2.26	0.50
1:G:18:ASP:HA	1:G:21:ARG:CB	2.41	0.50
1:G:70:LEU:CD1	1:G:71:ARG:H	2.25	0.50
1:G:70:LEU:HD13	1:G:71:ARG:H	1.76	0.50
1:G:72:ASP:CG	1:G:73:ARG:H	2.15	0.50
1:A:61:ASP:OD1	1:A:106:LYS:NZ	2.42	0.50
2:D:26:SER:O	2:D:30:VAL:HG23	2.12	0.50
1:E:4:ILE:O	2:F:10:TRP:N	2.43	0.50
1:G:77:VAL:CG2	1:G:78:ALA:N	2.73	0.50
1:C:5:TYR:HB2	1:C:85:VAL:HG22	1.93	0.50
1:G:91:MSE:HE3	1:G:92:LYS:CB	2.26	0.50
2:H:68:LYS:HG2	2:H:69:THR:N	2.20	0.50
2:H:68:LYS:CG	2:H:69:THR:H	2.21	0.49
1:A:43:GLU:O	1:A:47:GLN:HG2	2.12	0.49
2:F:48:LYS:O	2:F:48:LYS:HD2	2.12	0.49
1:G:50:THR:OG1	1:G:51:ARG:NH1	2.45	0.49
1:G:52:ALA:HB1	1:G:53:GLY:O	2.13	0.49
1:G:74:ILE:HG13	1:G:76:PHE:HD1	1.76	0.49
2:F:53:MSE:HE2	2:F:82:SER:HB2	1.94	0.49
2:B:86:THR:CG2	2:H:24:LEU:HD13	2.41	0.49
1:A:44:LEU:HD12	2:B:30:VAL:HG13	1.94	0.49
1:C:43:GLU:O	1:C:47:GLN:HG3	2.13	0.49
1:E:23:LEU:O	1:E:26:LYS:HE2	2.12	0.49
1:A:21:ARG:HA	1:A:24:THR:HB	1.93	0.49
1:E:68:ARG:HH22	1:E:72:ASP:N	2.10	0.49
1:E:7:TYR:CZ	1:E:9:ASP:HB2	2.48	0.49
1:E:3:ASN:O	1:E:83:SER:HB3	2.13	0.49
1:G:22:GLU:O	1:G:26:LYS:HG3	2.12	0.49
1:E:64:ILE:CD1	1:E:106:LYS:HG3	2.42	0.49
1:G:27:LYS:HE2	1:G:30:ASP:CG	2.33	0.49
1:G:15:PRO:O	1:G:16:VAL:C	2.51	0.49
2:H:9:ASN:O	2:H:13:VAL:HG13	2.13	0.49
2:B:28:MSE:CE	2:H:89:VAL:HG23	2.43	0.49

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:E:100:ARG:H	1:E:104:GLN:NE2	2.11	0.49
1:E:20:MSE:HB3	1:E:35:LEU:HD21	1.94	0.49
1:E:44:LEU:O	1:E:44:LEU:HG	2.11	0.49
1:G:76:PHE:CE2	1:G:87:LEU:HB2	2.48	0.49
2:H:19:SER:O	2:H:20:LYS:C	2.51	0.49
1:A:41:TYR:CZ	1:A:56:TYR:CD1	2.98	0.49
1:E:48:HIS:CE1	2:F:37:ILE:HD11	2.48	0.49
1:E:68:ARG:CZ	1:E:73:ARG:NE	2.76	0.49
1:G:20:MSE:HG2	1:G:35:LEU:HD11	1.95	0.49
1:A:79:TRP:CH2	1:A:112:LEU:HB3	2.48	0.49
1:G:2:HIS:HB2	1:G:46:SER:O	2.13	0.49
1:G:65:TRP:HB2	1:G:77:VAL:HG12	1.95	0.48
1:A:37:LYS:HA	1:A:37:LYS:HD3	1.54	0.48
1:C:75:LEU:HD12	1:C:105:ALA:HB2	1.94	0.48
1:E:8:LYS:HG3	1:E:14:GLU:CB	2.42	0.48
2:F:50:LEU:HD23	2:F:61:ILE:HD13	1.94	0.48
1:G:35:LEU:HA	1:G:37:LYS:HB2	1.95	0.48
1:G:89:HIS:CE1	1:G:91:MSE:CG	2.95	0.48
1:A:37:LYS:NZ	3:A:202:HOH:O	2.20	0.48
1:C:43:GLU:O	1:C:43:GLU:HG3	2.14	0.48
1:E:20:MSE:HE2	1:E:20:MSE:HB3	1.66	0.48
1:G:50:THR:HG1	1:G:51:ARG:NH1	2.11	0.48
2:H:75:THR:OG1	2:H:76:VAL:N	2.47	0.48
1:A:96:LYS:NZ	1:A:99:LYS:HG2	2.29	0.48
2:D:81:ALA:HA	2:D:85:LYS:O	2.14	0.48
2:H:74:ASP:O	2:H:77:LEU:N	2.46	0.48
1:A:104:GLN:O	1:A:104:GLN:HG2	2.12	0.48
1:E:111:ASP:O	1:E:112:LEU:C	2.52	0.48
1:E:26:LYS:HZ1	1:E:32:ARG:HA	1.77	0.48
1:E:68:ARG:NH2	1:E:72:ASP:C	2.66	0.48
1:G:100:ARG:HA	1:G:103:GLU:OE2	2.14	0.48
1:G:106:LYS:HA	1:G:108:GLU:N	2.29	0.48
1:G:35:LEU:HA	1:G:37:LYS:HB3	1.96	0.48
1:G:50:THR:O	1:G:51:ARG:NH1	2.47	0.48
1:G:68:ARG:NH2	1:G:70:LEU:CD1	2.77	0.48
1:G:74:ILE:HB	1:G:76:PHE:CE1	2.49	0.48
2:H:49:LYS:HG3	2:H:49:LYS:O	2.13	0.48
1:C:68:ARG:NH2	1:C:92:LYS:HE3	2.29	0.47
1:C:94:THR:HG22	1:C:96:LYS:H	1.79	0.47
1:G:27:LYS:HE2	1:G:30:ASP:OD1	2.14	0.47
1:G:72:ASP:OD2	1:G:89:HIS:CE1	2.66	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:H:34:SER:O	2:H:38:GLU:HG2	2.14	0.47
1:G:14:GLU:HA	1:G:15:PRO:HD2	1.33	0.47
1:E:110:ALA:HA	1:E:113:LYS:HZ1	1.79	0.47
1:G:38:ILE:C	1:G:40:ASP:N	2.65	0.47
2:H:61:ILE:O	2:H:64:MSE:N	2.45	0.47
2:D:92:LEU:HD12	2:D:93:GLU:OE1	2.13	0.47
1:E:19:TYR:CD1	1:E:22:GLU:OE2	2.67	0.47
1:E:51:ARG:HG2	1:E:51:ARG:HH11	1.80	0.47
1:G:113:LYS:HB3	1:G:114:GLU:H	1.25	0.47
1:G:4:ILE:HD11	1:G:45:LEU:HB3	1.95	0.47
1:G:70:LEU:HD12	1:G:71:ARG:N	2.30	0.47
1:C:11:ASN:HD22	1:C:13:ASN:ND2	2.13	0.47
1:E:5:TYR:HA	1:E:6:PHE:HB2	1.96	0.47
2:F:14:ARG:CZ	2:F:23:ILE:HG23	2.44	0.47
1:G:106:LYS:HE3	1:G:109:LEU:HB3	1.96	0.47
2:H:43:LYS:HD2	2:H:43:LYS:O	2.15	0.47
1:A:44:LEU:CD1	2:B:30:VAL:HG13	2.44	0.47
1:G:91:MSE:HE3	1:G:92:LYS:N	2.30	0.47
1:C:37:LYS:HG2	1:C:70:LEU:HD12	1.97	0.47
1:C:77:VAL:HG11	1:C:109:LEU:HD22	1.97	0.47
1:E:114:GLU:HG3	1:E:115:ARG:N	2.30	0.47
1:G:39:ASN:O	1:G:43:GLU:HB2	2.14	0.47
2:D:26:SER:O	2:D:30:VAL:N	2.48	0.46
1:A:17:PHE:HZ	1:A:21:ARG:NH2	2.12	0.46
1:G:102:ILE:N	1:G:102:ILE:HD13	2.31	0.46
1:E:37:LYS:HE2	1:E:70:LEU:HG	1.98	0.46
1:G:74:ILE:CG1	1:G:76:PHE:CD1	2.98	0.46
2:F:36:LEU:HA	2:F:36:LEU:HD23	1.73	0.46
1:C:40:ASP:OD2	2:D:33:MSE:HE1	2.16	0.46
1:E:72:ASP:O	1:E:73:ARG:HD3	2.15	0.46
2:H:37:ILE:HG13	2:H:65:GLU:OE2	2.16	0.46
1:G:72:ASP:OD2	1:G:89:HIS:HE1	1.98	0.46
1:A:88:HIS:CG	1:A:104:GLN:NE2	2.83	0.46
2:B:80:LEU:HA	2:B:80:LEU:HD23	1.77	0.46
1:C:48:HIS:CB	1:C:52:ALA:HB2	2.45	0.46
1:E:11:ASN:OD1	1:E:12:GLY:N	2.47	0.46
1:G:67:LEU:CG	1:G:68:ARG:N	2.72	0.46
1:G:67:LEU:CG	1:G:68:ARG:HG3	2.29	0.46
2:H:58:GLN:HA	2:H:61:ILE:HG13	1.97	0.46
1:A:32:ARG:HD3	1:A:32:ARG:HA	1.59	0.46
1:A:41:TYR:CE1	1:A:56:TYR:HD1	2.33	0.46

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:11:ASN:HD22	1:C:13:ASN:HD22	1.63	0.46
1:C:69:PRO:HG2	1:C:72:ASP:HB2	1.97	0.46
1:G:51:ARG:HA	1:G:52:ALA:O	2.15	0.46
1:G:7:TYR:CB	1:G:14:GLU:OE2	2.63	0.46
2:B:50:LEU:HD11	2:B:61:ILE:HG21	1.97	0.46
1:E:45:LEU:HD22	1:E:67:LEU:HD13	1.98	0.46
1:G:103:GLU:HA	1:G:106:LYS:O	2.16	0.46
2:B:24:LEU:HD12	2:B:24:LEU:HA	1.69	0.45
1:E:80:MSE:SE	1:E:81:ASP:OD2	2.84	0.45
1:G:18:ASP:CB	1:G:21:ARG:HB2	2.46	0.45
1:G:68:ARG:CZ	1:G:73:ARG:NE	2.79	0.45
1:G:68:ARG:HH22	1:G:72:ASP:CB	2.28	0.45
1:E:58:LYS:HA	1:E:58:LYS:HD3	1.81	0.45
1:G:34:LYS:O	1:G:37:LYS:HB2	2.16	0.45
1:G:57:ILE:CA	1:G:67:LEU:H	2.28	0.45
1:G:58:LYS:N	1:G:67:LEU:H	2.09	0.45
1:G:70:LEU:HD12	1:G:70:LEU:C	2.37	0.45
1:G:20:MSE:HB3	2:H:17:LEU:HD13	1.99	0.45
1:C:37:LYS:HA	1:C:37:LYS:HD2	1.65	0.45
2:F:29:ARG:O	2:F:33:MSE:HG3	2.15	0.45
1:G:5:TYR:CE2	1:G:83:SER:OG	2.70	0.45
1:A:7:TYR:CZ	1:A:108:GLU:HG2	2.52	0.45
2:B:50:LEU:HB3	2:B:53:MSE:HE2	1.98	0.45
1:C:70:LEU:CD2	2:D:68:LYS:HE3	2.45	0.45
1:G:59:HIS:CE1	1:G:64:ILE:HB	2.52	0.45
2:F:64:MSE:HE2	2:F:76:VAL:HG22	1.99	0.45
2:B:72:GLN:HA	2:H:72:GLN:HA	1.97	0.45
1:A:11:ASN:N	1:A:12:GLY:HA2	2.32	0.45
1:E:29:LYS:HD3	1:E:32:ARG:HH22	1.79	0.45
1:G:68:ARG:CZ	1:G:70:LEU:CD1	2.89	0.45
1:A:56:TYR:CE2	2:B:37:ILE:HD11	2.51	0.45
1:G:68:ARG:NH1	1:G:73:ARG:CG	2.62	0.45
1:G:67:LEU:HD13	1:G:74:ILE:HG23	1.99	0.45
1:A:60:LEU:HA	1:A:60:LEU:HD23	1.57	0.45
1:E:26:LYS:HD2	1:E:31:SER:O	2.17	0.45
1:G:37:LYS:HG3	1:G:68:ARG:HD2	1.99	0.45
1:C:59:HIS:HB2	1:C:65:TRP:CZ3	2.52	0.44
1:G:18:ASP:HA	1:G:21:ARG:HB2	1.99	0.44
1:G:37:LYS:HG3	1:G:68:ARG:HE	1.81	0.44
1:G:60:LEU:HB2	1:G:75:LEU:HD11	1.99	0.44
2:B:64:MSE:HE2	2:B:76:VAL:HG22	2.00	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:G:109:LEU:O	1:G:113:LYS:HD3	2.16	0.44
1:A:93:ARG:HG2	1:A:93:ARG:H	1.65	0.44
2:B:73:LEU:HD12	2:B:73:LEU:HA	1.56	0.44
1:G:7:TYR:C	1:G:14:GLU:OE2	2.56	0.44
1:G:27:LYS:O	1:G:31:SER:OG	2.34	0.44
2:F:80:LEU:HD23	2:F:80:LEU:HA	1.50	0.44
1:G:21:ARG:O	1:G:23:LEU:N	2.50	0.44
1:G:15:PRO:HG2	1:G:88:HIS:CE1	2.53	0.44
2:B:84:GLY:O	2:H:92:LEU:HG	2.16	0.44
1:C:61:ASP:O	1:C:62:ALA:HB3	2.16	0.44
1:E:93:ARG:O	1:E:94:THR:HB	2.17	0.44
1:G:106:LYS:HZ1	1:G:113:LYS:HZ3	1.66	0.44
1:G:71:ARG:CA	1:G:72:ASP:HB2	2.45	0.44
1:G:98:PRO:CD	1:G:101:GLU:HB3	2.48	0.44
1:E:64:ILE:HD12	1:E:106:LYS:HG3	2.00	0.44
2:F:62:ALA:C	2:F:64:MSE:H	2.21	0.44
1:G:21:ARG:C	1:G:23:LEU:H	2.20	0.44
1:G:77:VAL:HB	1:G:84:PHE:CE2	2.52	0.44
2:H:68:LYS:HZ1	2:H:71:PRO:N	2.15	0.44
2:B:4:ASN:C	2:B:6:ILE:H	2.20	0.44
2:D:32:ILE:HD11	2:D:76:VAL:HG11	2.00	0.44
1:G:68:ARG:HH22	1:G:72:ASP:HB3	1.83	0.44
1:G:76:PHE:HE2	1:G:87:LEU:CA	2.30	0.44
1:C:101:GLU:CA	1:C:104:GLN:HE22	2.22	0.44
1:G:54:GLU:HA	1:G:55:PRO:C	2.38	0.44
1:G:94:THR:O	1:G:96:LYS:HG2	2.18	0.44
2:H:40:ARG:HG2	2:H:40:ARG:HH11	1.83	0.44
1:G:70:LEU:CD1	1:G:71:ARG:N	2.81	0.44
1:C:44:LEU:HD13	2:D:30:VAL:HG13	2.00	0.43
1:G:29:LYS:CG	1:G:32:ARG:HB2	2.48	0.43
1:G:59:HIS:ND1	1:G:65:TRP:HA	2.32	0.43
1:A:5:TYR:O	1:A:85:VAL:HA	2.19	0.43
1:G:52:ALA:HB1	1:G:53:GLY:C	2.38	0.43
1:G:56:TYR:CE2	1:G:69:PRO:HA	2.52	0.43
1:G:82:GLY:O	1:G:83:SER:OG	2.36	0.43
1:E:68:ARG:HD3	1:E:73:ARG:CZ	2.48	0.43
1:E:81:ASP:CB	1:E:82:GLY:HA2	2.48	0.43
1:G:59:HIS:CD2	1:G:64:ILE:HD12	2.54	0.43
2:D:77:LEU:HD11	2:F:28:MSE:CE	2.45	0.43
1:E:111:ASP:O	1:E:114:GLU:HG2	2.19	0.43
1:E:26:LYS:HZ2	1:E:32:ARG:HA	1.82	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:B:83:LEU:HD23	2:B:83:LEU:HA	1.66	0.43
1:C:99:LYS:O	1:C:103:GLU:HG2	2.18	0.43
1:G:52:ALA:CB	1:G:53:GLY:CA	2.96	0.43
2:H:21:GLU:OE2	2:H:22:GLU:OE2	2.37	0.43
2:F:41:ASN:N	2:F:41:ASN:OD1	2.50	0.43
1:G:76:PHE:CD2	1:G:86:LEU:HD12	2.54	0.43
1:C:2:HIS:CE1	1:C:49:GLY:HA3	2.54	0.43
2:B:74:ASP:CG	2:B:75:THR:N	2.71	0.43
2:B:74:ASP:OD1	2:B:75:THR:N	2.51	0.43
1:E:23:LEU:O	1:E:24:THR:C	2.54	0.43
1:E:6:PHE:CZ	2:F:13:VAL:HG11	2.54	0.43
2:F:70:SER:HA	2:F:71:PRO:HD3	1.78	0.43
2:F:84:GLY:O	2:F:85:LYS:HG2	2.18	0.43
1:G:98:PRO:HD2	1:G:101:GLU:HB3	2.00	0.43
1:G:45:LEU:HD23	1:G:45:LEU:HA	1.80	0.43
1:A:44:LEU:HD21	2:B:37:ILE:CD1	2.49	0.43
1:A:75:LEU:HD12	1:A:88:HIS:CE1	2.54	0.43
2:D:51:GLU:HG3	2:D:56:VAL:O	2.19	0.43
1:A:76:PHE:CE2	1:A:84:PHE:CD2	3.07	0.42
1:C:57:ILE:HG12	1:C:67:LEU:HD13	2.00	0.42
2:D:74:ASP:OD1	2:D:75:THR:HG23	2.18	0.42
1:A:14:GLU:HB2	1:A:17:PHE:HB3	2.01	0.42
1:A:35:LEU:HD12	1:A:35:LEU:HA	1.86	0.42
1:E:1:MSE:HG2	1:E:1:MSE:O	2.18	0.42
1:G:101:GLU:HA	1:G:104:GLN:CG	2.28	0.42
2:H:68:LYS:HZ1	2:H:71:PRO:HG3	1.82	0.42
1:C:104:GLN:CA	1:C:107:ARG:HB3	2.47	0.42
1:C:68:ARG:HH22	1:C:92:LYS:HE3	1.84	0.42
1:G:75:LEU:C	1:G:76:PHE:CD1	2.93	0.42
1:G:9:ASP:OD1	1:G:12:GLY:O	2.37	0.42
1:C:10:LYS:HE2	1:C:10:LYS:HB3	1.84	0.42
2:B:44:GLY:CA	2:D:60:VAL:HG21	2.50	0.42
2:F:84:GLY:C	2:F:85:LYS:HG2	2.40	0.42
1:G:37:LYS:HE2	1:G:73:ARG:CZ	2.42	0.42
1:G:41:TYR:CZ	1:G:69:PRO:HD2	2.54	0.42
1:G:84:PHE:CZ	1:G:85:VAL:O	2.72	0.42
2:H:9:ASN:OD1	2:H:10:TRP:N	2.51	0.42
1:A:6:PHE:CD1	1:A:6:PHE:N	2.85	0.42
2:F:11:LYS:HA	2:F:11:LYS:HD3	1.80	0.42
1:G:68:ARG:NE	1:G:70:LEU:HD21	2.34	0.42
1:E:35:LEU:HD22	2:F:18:PHE:HZ	1.84	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:G:3:ASN:O	1:G:83:SER:HA	2.20	0.42
2:B:53:MSE:SE	1:E:29:LYS:NZ	3.03	0.42
2:B:58:GLN:HB3	2:B:59:PRO:CD	2.45	0.42
1:G:10:LYS:HG3	1:G:11:ASN:N	2.34	0.42
1:G:37:LYS:HG3	1:G:68:ARG:NE	2.35	0.42
1:G:66:GLU:OE2	1:G:74:ILE:HG12	2.19	0.42
2:H:58:GLN:N	2:H:59:PRO:HD2	2.34	0.42
1:E:109:LEU:HA	1:E:109:LEU:HD12	1.56	0.42
1:G:101:GLU:C	1:G:102:ILE:HD13	2.40	0.42
1:G:76:PHE:CE2	1:G:87:LEU:N	2.77	0.42
1:G:19:TYR:CD2	1:G:19:TYR:C	2.93	0.42
1:E:68:ARG:CZ	1:E:73:ARG:HE	2.33	0.41
1:G:27:LYS:HZ1	1:G:30:ASP:N	2.10	0.41
1:G:52:ALA:HB2	2:H:37:ILE:HG21	2.01	0.41
2:B:36:LEU:HA	2:B:36:LEU:HD23	1.68	0.41
1:E:71:ARG:HG2	1:E:91:MSE:HE3	2.02	0.41
2:F:19:SER:O	2:F:23:ILE:HG13	2.21	0.41
2:F:63:ARG:HA	2:F:67:GLY:HA3	2.02	0.41
1:G:68:ARG:NH2	1:G:70:LEU:HD11	2.35	0.41
1:G:84:PHE:CD2	1:G:85:VAL:HA	2.55	0.41
1:C:107:ARG:HE	1:C:107:ARG:HB2	1.32	0.41
1:E:99:LYS:HD2	1:E:100:ARG:H	1.86	0.41
1:G:101:GLU:O	1:G:105:ALA:N	2.54	0.41
1:G:108:GLU:O	1:G:110:ALA:N	2.54	0.41
1:A:100:ARG:C	1:A:100:ARG:HD3	2.41	0.41
2:D:13:VAL:HG23	2:D:13:VAL:H	1.52	0.41
1:E:29:LYS:HA	1:E:29:LYS:HD3	1.81	0.41
1:A:76:PHE:HE2	1:A:84:PHE:CD2	2.39	0.41
2:B:74:ASP:OD2	2:B:78:LYS:NZ	2.53	0.41
1:E:20:MSE:HB2	2:F:17:LEU:HD13	2.01	0.41
1:E:7:TYR:CB	1:E:87:LEU:HD23	2.51	0.41
2:H:36:LEU:HD23	2:H:36:LEU:HA	1.72	0.41
1:C:60:LEU:HB3	1:C:102:ILE:HD13	2.03	0.41
1:E:41:TYR:HE2	1:E:56:TYR:HA	1.86	0.41
1:G:68:ARG:NH2	1:G:70:LEU:HD13	2.36	0.41
1:G:79:TRP:N	1:G:79:TRP:CD1	2.89	0.41
1:C:30:ASP:OD2	1:C:34:LYS:HE2	2.21	0.41
1:C:44:LEU:CD1	2:D:30:VAL:HG13	2.51	0.41
1:E:77:VAL:HG21	1:E:109:LEU:HD11	2.02	0.41
1:G:54:GLU:OE2	1:G:56:TYR:N	2.48	0.41
1:A:16:VAL:HG23	1:A:88:HIS:HA	2.03	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:B:20:LYS:HA	2:B:20:LYS:HD2	1.66	0.41
1:E:41:TYR:CE2	1:E:68:ARG:O	2.74	0.41
1:E:68:ARG:HH12	1:E:71:ARG:HA	1.84	0.41
1:G:41:TYR:OH	1:G:69:PRO:HG2	2.21	0.41
2:B:85:LYS:NZ	3:B:101:HOH:O	2.54	0.41
1:E:109:LEU:O	1:E:112:LEU:HB2	2.21	0.41
1:E:35:LEU:HD23	1:E:35:LEU:HA	1.67	0.41
2:D:70:SER:OG	2:F:74:ASP:OD1	2.32	0.41
1:G:27:LYS:CE	3:G:204:HOH:O	2.69	0.41
1:G:83:SER:O	1:G:84:PHE:HB3	2.20	0.41
1:C:75:LEU:HD23	1:C:75:LEU:N	2.36	0.40
1:C:5:TYR:O	1:C:85:VAL:HA	2.21	0.40
1:E:37:LYS:O	1:E:41:TYR:HB2	2.20	0.40
2:B:3:ASN:OD1	2:B:4:ASN:N	2.49	0.40
1:E:100:ARG:N	1:E:104:GLN:NE2	2.69	0.40
1:E:69:PRO:O	1:E:70:LEU:HB2	2.21	0.40
1:E:93:ARG:NE	1:E:93:ARG:HA	2.37	0.40
1:G:106:LYS:NZ	1:G:109:LEU:HB3	2.36	0.40
1:C:32:ARG:HA	1:C:32:ARG:HD2	1.77	0.40
1:E:48:HIS:NE2	2:F:34:SER:HB3	2.36	0.40
1:A:79:TRP:CG	1:A:80:MSE:N	2.89	0.40
1:C:99:LYS:HB2	1:C:99:LYS:HE3	1.83	0.40
1:G:10:LYS:HG3	1:G:11:ASN:ND2	2.37	0.40
1:G:96:LYS:H	1:G:96:LYS:HD2	1.86	0.40
2:H:19:SER:O	2:H:21:GLU:OE1	2.39	0.40

All (3) 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)
2:D:48:LYS:NZ	2:F:52:GLU:OE2[2_454]	1.89	0.31
3:A:207:HOH:O	3:G:205:HOH:O[1_554]	2.08	0.12
1:A:71:ARG:NH1	2:H:42:GLU:OE1[2_554]	2.11	0.09

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	112/141 (79%)	100 (89%)	12 (11%)	0	100	100
1	C	111/141 (79%)	99 (89%)	12 (11%)	0	100	100
1	E	114/141 (81%)	94 (82%)	14 (12%)	6 (5%)	2	6
1	G	115/141 (82%)	76 (66%)	26 (23%)	13 (11%)	0	1
2	B	89/97 (92%)	83 (93%)	5 (6%)	1 (1%)	14	41
2	D	90/97 (93%)	86 (96%)	4 (4%)	0	100	100
2	F	88/97 (91%)	82 (93%)	6 (7%)	0	100	100
2	H	84/97 (87%)	81 (96%)	3 (4%)	0	100	100
All	All	803/952 (84%)	701 (87%)	82 (10%)	20 (2%)	5	19

All (20) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	E	11	ASN
1	E	26	LYS
1	G	66	GLU
1	G	67	LEU
1	G	85	VAL
1	G	87	LEU
1	G	16	VAL
1	G	113	LYS
2	B	92	LEU
1	E	112	LEU
1	G	27	LYS
1	G	105	ALA
1	G	114	GLU
1	E	111	ASP
1	G	107	ARG
1	E	31	SER
1	G	69	PRO
1	G	15	PRO
1	E	102	ILE
1	G	77	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	104/122 (85%)	96 (92%)	8 (8%)	13	35
1	C	103/122 (84%)	96 (93%)	7 (7%)	16	42
1	E	105/122 (86%)	93 (89%)	12 (11%)	5	18
1	G	106/122 (87%)	88 (83%)	18 (17%)	2	6
2	B	79/80 (99%)	72 (91%)	7 (9%)	9	28
2	D	80/80 (100%)	71 (89%)	9 (11%)	6	18
2	F	78/80 (98%)	74 (95%)	4 (5%)	24	55
2	H	76/80 (95%)	68 (90%)	8 (10%)	7	20
All	All	731/808 (90%)	658 (90%)	73 (10%)	7	22

All (73) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	10	LYS
1	A	37	LYS
1	A	47	GLN
1	A	63	GLU
1	A	71	ARG
1	A	83	SER
1	A	92	LYS
1	A	99	LYS
2	B	8	SER
2	B	20	LYS
2	B	28	MSE
2	B	57	SER
2	B	66	THR
2	B	75	THR
2	B	86	THR
1	C	32	ARG
1	C	58	LYS
1	C	79	TRP
1	C	80	MSE

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Mol	Chain	Res	Type
1	C	88	HIS
1	C	95	GLN
1	C	103	GLU
2	D	3	ASN
2	D	8	SER
2	D	24	LEU
2	D	38	GLU
2	D	46	SER
2	D	52	GLU
2	D	70	SER
2	D	82	SER
2	D	86	THR
1	E	7	TYR
1	E	20	MSE
1	E	25	SER
1	E	26	LYS
1	E	32	ARG
1	E	54	GLU
1	E	58	LYS
1	E	61	ASP
1	E	73	ARG
1	E	81	ASP
1	E	104	GLN
1	E	112	LEU
2	F	19	SER
2	F	48	LYS
2	F	65	GLU
2	F	91	PRO
1	G	3	ASN
1	G	18	ASP
1	G	25	SER
1	G	27	LYS
1	G	30	ASP
1	G	31	SER
1	G	54	GLU
1	G	60	LEU
1	G	63	GLU
1	G	66	GLU
1	G	68	ARG
1	G	74	ILE
1	G	77	VAL
1	G	86	LEU

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Mol	Chain	Res	Type
1	G	96	LYS
1	G	97	THR
1	G	104	GLN
1	G	109	LEU
2	H	13	VAL
2	H	21	GLU
2	H	26	SER
2	H	63	ARG
2	H	68	LYS
2	H	69	THR
2	H	86	THR
2	H	92	LEU

Some sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (9) such sidechains are listed below:

Mol	Chain	Res	Type
1	C	2	HIS
1	C	11	ASN
1	C	13	ASN
1	E	13	ASN
1	E	104	GLN
1	G	11	ASN
1	G	88	HIS
1	G	89	HIS
1	G	104	GLN

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 carbohydrates in this entry.

5.6 Ligand geometry (i)

There are no ligands in this entry.

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	110/141 (78%)	-0.05	2 (1%)	68	61	63, 82, 111, 126	0
1	C	109/141 (77%)	0.08	5 (4%)	32	22	54, 84, 127, 135	0
1	E	112/141 (79%)	0.59	14 (12%)	3	2	69, 110, 149, 165	0
1	G	113/141 (80%)	1.80	35 (30%)	0	0	89, 159, 200, 227	0
2	B	87/97 (89%)	-0.10	2 (2%)	60	51	61, 77, 95, 113	0
2	D	88/97 (90%)	-0.03	3 (3%)	45	35	55, 68, 101, 139	0
2	F	86/97 (88%)	-0.06	2 (2%)	60	51	57, 77, 108, 133	0
2	H	82/97 (84%)	0.06	3 (3%)	41	31	70, 96, 132, 148	0
All	All	787/952 (82%)	0.33	66 (8%)	11	5	54, 89, 165, 227	0

All (66) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	G	75	LEU	15.9
1	G	62	ALA	13.3
1	G	69	PRO	12.3
1	G	100	ARG	11.2
1	G	99	LYS	8.6
1	G	101	GLU	7.6
1	G	61	ASP	6.9
1	G	71	ARG	5.0
1	G	70	LEU	4.8
1	E	100	ARG	4.7
1	C	7	TYR	4.3
1	G	105	ALA	4.3
1	C	79	TRP	4.2
1	G	98	PRO	4.1
1	G	19	TYR	4.0
1	G	90	PHE	3.8

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Mol	Chain	Res	Type	RSRZ
1	G	86	LEU	3.7
1	G	94	THR	3.6
2	D	6	ILE	3.6
1	G	6	PHE	3.5
1	G	38	ILE	3.4
1	G	54	GLU	3.3
1	E	6	PHE	3.3
1	G	15	PRO	3.3
1	E	60	LEU	3.3
1	G	104	GLN	3.3
1	G	37	LYS	3.2
1	G	88	HIS	3.2
1	G	56	TYR	3.2
1	G	95	GLN	3.2
1	E	112	LEU	3.1
1	G	63	GLU	3.1
1	E	61	ASP	3.1
1	E	75	LEU	3.1
1	E	74	ILE	3.0
2	H	17	LEU	3.0
1	E	109	LEU	3.0
2	F	7	GLY	2.9
1	E	64	ILE	2.8
1	E	70	LEU	2.8
2	F	8	SER	2.7
1	G	73	ARG	2.7
1	G	77	VAL	2.7
1	C	108	GLU	2.7
1	G	57	ILE	2.7
2	D	3	ASN	2.5
1	A	67	LEU	2.5
1	E	27	LYS	2.5
1	C	86	LEU	2.4
2	B	21	GLU	2.4
1	G	68	ARG	2.4
1	G	58	LYS	2.4
1	E	95	GLN	2.3
1	G	59	HIS	2.2
1	G	87	LEU	2.2
1	G	66	GLU	2.2
1	C	15	PRO	2.2
1	E	99	LYS	2.2

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Mol	Chain	Res	Type	RSRZ
2	D	4	ASN	2.2
2	H	67	GLY	2.1
1	G	79	TRP	2.1
2	H	79	VAL	2.1
1	E	115	ARG	2.1
1	A	112	LEU	2.1
1	G	35	LEU	2.0
2	B	32	ILE	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 carbohydrates in this entry.

6.4 Ligands (i)

There are no ligands in this entry.

6.5 Other polymers (i)

There are no such residues in this entry.