



Full wwPDB X-ray Structure Validation Report ⓘ

Mar 6, 2026 – 03:02 PM UTC

PDB ID : 2QFB / pdb_00002qfb
Title : Crystal structure of the regulatory domain of human RIG-I with bound Zn
Authors : Cui, S.; Lammens, A.; Lammens, K.; Hopfner, K.P.
Deposited on : 2007-06-27
Resolution : 3.00 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:

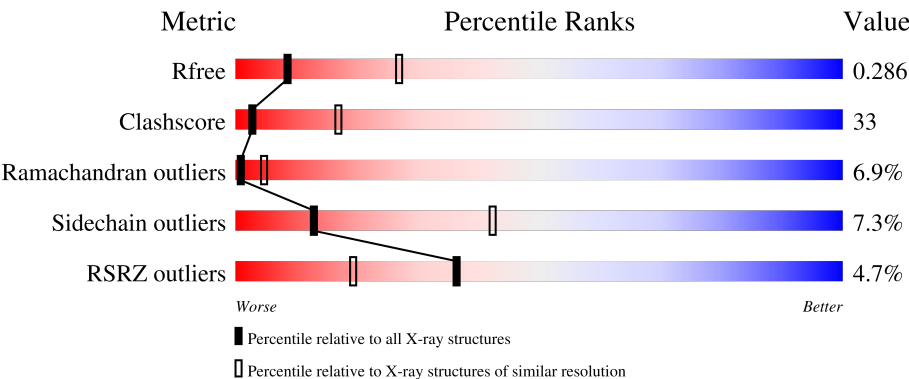
MolProbity	:	4-5-2 with Phenix2.0
Xtriage (Phenix)	:	2.0
EDS	:	3.0
Percentile statistics	:	20250101.v01 (using entries in the PDB archive January 1st 2025)
CCP4	:	9.0.010 (Gargrove)
Density-Fitness	:	1.0.12
Ideal geometry (proteins)	:	Engh & Huber (2001)
Ideal geometry (DNA, RNA)	:	Parkinson et al. (1996)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

1 Overall quality at a glance i

The following experimental techniques were used to determine the structure:
X-RAY DIFFRACTION

The reported resolution of this entry is 3.00 Å.

Percentile scores (ranging between 0-100) for global validation metrics of the entry are shown in the following graphic. The table shows the number of entries on which the scores are based.



Metric	Whole archive (#Entries)	Similar resolution (#Entries, resolution range(Å))
R_{free}	180053	2672 (3.00-3.00)
Clashscore	190562	2977 (3.00-3.00)
Ramachandran outliers	187476	2877 (3.00-3.00)
Sidechain outliers	187428	2880 (3.00-3.00)
RSRZ outliers	180081	2671 (3.00-3.00)

The table below summarises the geometric issues observed across the polymeric chains and their fit to the electron density. The red, orange, yellow and green segments of the lower bar indicate the fraction of residues that contain outliers for ≥ 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	145	
1	B	145	
1	C	145	
1	D	145	
1	E	145	

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Mol	Chain	Length	Quality of chain
1	F	145	
1	G	145	
1	H	145	
1	I	145	
1	J	145	

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	ZN	D	1004	-	-	X	-

2 Entry composition

There are 3 unique types of molecules in this entry. The entry contains 10039 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 Probable ATP-dependent RNA helicase DDX58.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
1	A	121	Total	C	N	O	S	36	0	0
			998	648	169	173	8			
1	B	121	Total	C	N	O	S	73	0	0
			998	648	169	173	8			
1	C	121	Total	C	N	O	S	85	0	0
			998	648	169	173	8			
1	D	121	Total	C	N	O	S	130	0	0
			998	648	169	173	8			
1	E	121	Total	C	N	O	S	110	0	0
			998	648	169	173	8			
1	F	121	Total	C	N	O	S	86	0	0
			998	648	169	173	8			
1	G	121	Total	C	N	O	S	123	0	0
			998	648	169	173	8			
1	H	121	Total	C	N	O	S	102	0	0
			998	648	169	173	8			
1	I	121	Total	C	N	O	S	121	0	0
			998	648	169	173	8			
1	J	121	Total	C	N	O	S	247	0	0
			998	648	169	173	8			

There are 210 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
A	781	MET	-	expression tag	UNP O95786
A	782	GLY	-	expression tag	UNP O95786
A	783	SER	-	expression tag	UNP O95786
A	784	SER	-	expression tag	UNP O95786
A	785	HIS	-	expression tag	UNP O95786
A	786	HIS	-	expression tag	UNP O95786
A	787	HIS	-	expression tag	UNP O95786
A	788	HIS	-	expression tag	UNP O95786
A	789	HIS	-	expression tag	UNP O95786

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Chain	Residue	Modelled	Actual	Comment	Reference
A	790	HIS	-	expression tag	UNP O95786
A	791	SER	-	expression tag	UNP O95786
A	792	SER	-	expression tag	UNP O95786
A	793	GLY	-	expression tag	UNP O95786
A	794	LEU	-	expression tag	UNP O95786
A	795	VAL	-	expression tag	UNP O95786
A	796	PRO	-	expression tag	UNP O95786
A	797	ARG	-	expression tag	UNP O95786
A	798	GLY	-	expression tag	UNP O95786
A	799	SER	-	expression tag	UNP O95786
A	800	HIS	-	expression tag	UNP O95786
A	801	MET	-	expression tag	UNP O95786
B	781	MET	-	expression tag	UNP O95786
B	782	GLY	-	expression tag	UNP O95786
B	783	SER	-	expression tag	UNP O95786
B	784	SER	-	expression tag	UNP O95786
B	785	HIS	-	expression tag	UNP O95786
B	786	HIS	-	expression tag	UNP O95786
B	787	HIS	-	expression tag	UNP O95786
B	788	HIS	-	expression tag	UNP O95786
B	789	HIS	-	expression tag	UNP O95786
B	790	HIS	-	expression tag	UNP O95786
B	791	SER	-	expression tag	UNP O95786
B	792	SER	-	expression tag	UNP O95786
B	793	GLY	-	expression tag	UNP O95786
B	794	LEU	-	expression tag	UNP O95786
B	795	VAL	-	expression tag	UNP O95786
B	796	PRO	-	expression tag	UNP O95786
B	797	ARG	-	expression tag	UNP O95786
B	798	GLY	-	expression tag	UNP O95786
B	799	SER	-	expression tag	UNP O95786
B	800	HIS	-	expression tag	UNP O95786
B	801	MET	-	expression tag	UNP O95786
C	781	MET	-	expression tag	UNP O95786
C	782	GLY	-	expression tag	UNP O95786
C	783	SER	-	expression tag	UNP O95786
C	784	SER	-	expression tag	UNP O95786
C	785	HIS	-	expression tag	UNP O95786
C	786	HIS	-	expression tag	UNP O95786
C	787	HIS	-	expression tag	UNP O95786
C	788	HIS	-	expression tag	UNP O95786
C	789	HIS	-	expression tag	UNP O95786

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Chain	Residue	Modelled	Actual	Comment	Reference
C	790	HIS	-	expression tag	UNP O95786
C	791	SER	-	expression tag	UNP O95786
C	792	SER	-	expression tag	UNP O95786
C	793	GLY	-	expression tag	UNP O95786
C	794	LEU	-	expression tag	UNP O95786
C	795	VAL	-	expression tag	UNP O95786
C	796	PRO	-	expression tag	UNP O95786
C	797	ARG	-	expression tag	UNP O95786
C	798	GLY	-	expression tag	UNP O95786
C	799	SER	-	expression tag	UNP O95786
C	800	HIS	-	expression tag	UNP O95786
C	801	MET	-	expression tag	UNP O95786
D	781	MET	-	expression tag	UNP O95786
D	782	GLY	-	expression tag	UNP O95786
D	783	SER	-	expression tag	UNP O95786
D	784	SER	-	expression tag	UNP O95786
D	785	HIS	-	expression tag	UNP O95786
D	786	HIS	-	expression tag	UNP O95786
D	787	HIS	-	expression tag	UNP O95786
D	788	HIS	-	expression tag	UNP O95786
D	789	HIS	-	expression tag	UNP O95786
D	790	HIS	-	expression tag	UNP O95786
D	791	SER	-	expression tag	UNP O95786
D	792	SER	-	expression tag	UNP O95786
D	793	GLY	-	expression tag	UNP O95786
D	794	LEU	-	expression tag	UNP O95786
D	795	VAL	-	expression tag	UNP O95786
D	796	PRO	-	expression tag	UNP O95786
D	797	ARG	-	expression tag	UNP O95786
D	798	GLY	-	expression tag	UNP O95786
D	799	SER	-	expression tag	UNP O95786
D	800	HIS	-	expression tag	UNP O95786
D	801	MET	-	expression tag	UNP O95786
E	781	MET	-	expression tag	UNP O95786
E	782	GLY	-	expression tag	UNP O95786
E	783	SER	-	expression tag	UNP O95786
E	784	SER	-	expression tag	UNP O95786
E	785	HIS	-	expression tag	UNP O95786
E	786	HIS	-	expression tag	UNP O95786
E	787	HIS	-	expression tag	UNP O95786
E	788	HIS	-	expression tag	UNP O95786
E	789	HIS	-	expression tag	UNP O95786

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Chain	Residue	Modelled	Actual	Comment	Reference
E	790	HIS	-	expression tag	UNP O95786
E	791	SER	-	expression tag	UNP O95786
E	792	SER	-	expression tag	UNP O95786
E	793	GLY	-	expression tag	UNP O95786
E	794	LEU	-	expression tag	UNP O95786
E	795	VAL	-	expression tag	UNP O95786
E	796	PRO	-	expression tag	UNP O95786
E	797	ARG	-	expression tag	UNP O95786
E	798	GLY	-	expression tag	UNP O95786
E	799	SER	-	expression tag	UNP O95786
E	800	HIS	-	expression tag	UNP O95786
E	801	MET	-	expression tag	UNP O95786
F	781	MET	-	expression tag	UNP O95786
F	782	GLY	-	expression tag	UNP O95786
F	783	SER	-	expression tag	UNP O95786
F	784	SER	-	expression tag	UNP O95786
F	785	HIS	-	expression tag	UNP O95786
F	786	HIS	-	expression tag	UNP O95786
F	787	HIS	-	expression tag	UNP O95786
F	788	HIS	-	expression tag	UNP O95786
F	789	HIS	-	expression tag	UNP O95786
F	790	HIS	-	expression tag	UNP O95786
F	791	SER	-	expression tag	UNP O95786
F	792	SER	-	expression tag	UNP O95786
F	793	GLY	-	expression tag	UNP O95786
F	794	LEU	-	expression tag	UNP O95786
F	795	VAL	-	expression tag	UNP O95786
F	796	PRO	-	expression tag	UNP O95786
F	797	ARG	-	expression tag	UNP O95786
F	798	GLY	-	expression tag	UNP O95786
F	799	SER	-	expression tag	UNP O95786
F	800	HIS	-	expression tag	UNP O95786
F	801	MET	-	expression tag	UNP O95786
G	781	MET	-	expression tag	UNP O95786
G	782	GLY	-	expression tag	UNP O95786
G	783	SER	-	expression tag	UNP O95786
G	784	SER	-	expression tag	UNP O95786
G	785	HIS	-	expression tag	UNP O95786
G	786	HIS	-	expression tag	UNP O95786
G	787	HIS	-	expression tag	UNP O95786
G	788	HIS	-	expression tag	UNP O95786
G	789	HIS	-	expression tag	UNP O95786

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G	790	HIS	-	expression tag	UNP O95786
G	791	SER	-	expression tag	UNP O95786
G	792	SER	-	expression tag	UNP O95786
G	793	GLY	-	expression tag	UNP O95786
G	794	LEU	-	expression tag	UNP O95786
G	795	VAL	-	expression tag	UNP O95786
G	796	PRO	-	expression tag	UNP O95786
G	797	ARG	-	expression tag	UNP O95786
G	798	GLY	-	expression tag	UNP O95786
G	799	SER	-	expression tag	UNP O95786
G	800	HIS	-	expression tag	UNP O95786
G	801	MET	-	expression tag	UNP O95786
H	781	MET	-	expression tag	UNP O95786
H	782	GLY	-	expression tag	UNP O95786
H	783	SER	-	expression tag	UNP O95786
H	784	SER	-	expression tag	UNP O95786
H	785	HIS	-	expression tag	UNP O95786
H	786	HIS	-	expression tag	UNP O95786
H	787	HIS	-	expression tag	UNP O95786
H	788	HIS	-	expression tag	UNP O95786
H	789	HIS	-	expression tag	UNP O95786
H	790	HIS	-	expression tag	UNP O95786
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H	793	GLY	-	expression tag	UNP O95786
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H	796	PRO	-	expression tag	UNP O95786
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H	801	MET	-	expression tag	UNP O95786
I	781	MET	-	expression tag	UNP O95786
I	782	GLY	-	expression tag	UNP O95786
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I	793	GLY	-	expression tag	UNP O95786
I	794	LEU	-	expression tag	UNP O95786
I	795	VAL	-	expression tag	UNP O95786
I	796	PRO	-	expression tag	UNP O95786
I	797	ARG	-	expression tag	UNP O95786
I	798	GLY	-	expression tag	UNP O95786
I	799	SER	-	expression tag	UNP O95786
I	800	HIS	-	expression tag	UNP O95786
I	801	MET	-	expression tag	UNP O95786
J	781	MET	-	expression tag	UNP O95786
J	782	GLY	-	expression tag	UNP O95786
J	783	SER	-	expression tag	UNP O95786
J	784	SER	-	expression tag	UNP O95786
J	785	HIS	-	expression tag	UNP O95786
J	786	HIS	-	expression tag	UNP O95786
J	787	HIS	-	expression tag	UNP O95786
J	788	HIS	-	expression tag	UNP O95786
J	789	HIS	-	expression tag	UNP O95786
J	790	HIS	-	expression tag	UNP O95786
J	791	SER	-	expression tag	UNP O95786
J	792	SER	-	expression tag	UNP O95786
J	793	GLY	-	expression tag	UNP O95786
J	794	LEU	-	expression tag	UNP O95786
J	795	VAL	-	expression tag	UNP O95786
J	796	PRO	-	expression tag	UNP O95786
J	797	ARG	-	expression tag	UNP O95786
J	798	GLY	-	expression tag	UNP O95786
J	799	SER	-	expression tag	UNP O95786
J	800	HIS	-	expression tag	UNP O95786
J	801	MET	-	expression tag	UNP O95786

- Molecule 2 is ZINC ION (CCD ID: ZN) (formula: Zn).

Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
2	A	1	Total 1 Zn 1	0	0
2	B	1	Total 1 Zn 1	0	0
2	C	1	Total 1 Zn 1	0	0

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Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
2	D	1	Total 1	Zn 1	0	0
2	E	1	Total 1	Zn 1	0	0
2	F	1	Total 1	Zn 1	0	0
2	G	1	Total 1	Zn 1	0	0
2	H	1	Total 1	Zn 1	0	0
2	I	1	Total 1	Zn 1	0	0
2	J	1	Total 1	Zn 1	0	0

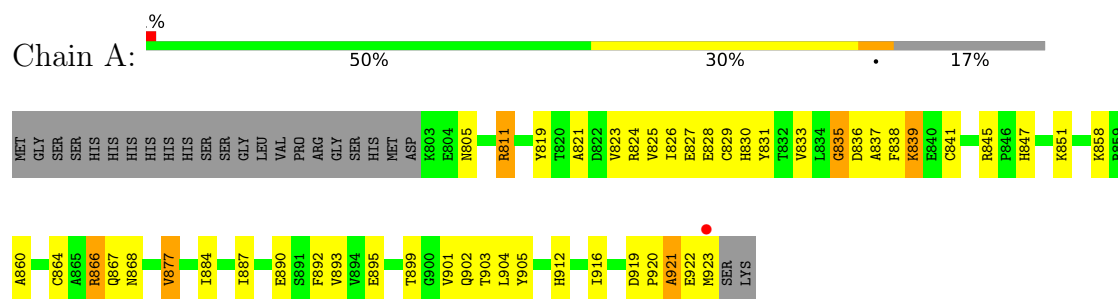
- Molecule 3 is water.

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
3	A	11	Total 11	O 11	0	0
3	B	17	Total 17	O 17	0	0
3	C	3	Total 3	O 3	0	0
3	D	8	Total 8	O 8	0	0
3	E	2	Total 2	O 2	0	0
3	F	2	Total 2	O 2	0	0
3	G	2	Total 2	O 2	0	0
3	H	2	Total 2	O 2	0	0
3	I	1	Total 1	O 1	0	0
3	J	1	Total 1	O 1	0	0

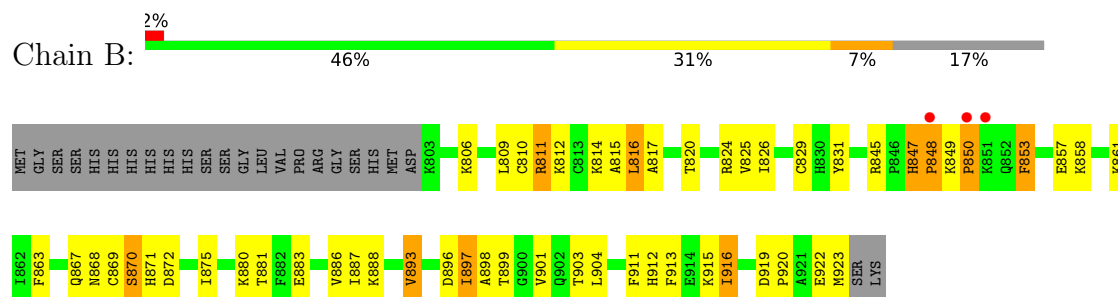
3 Residue-property plots

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.

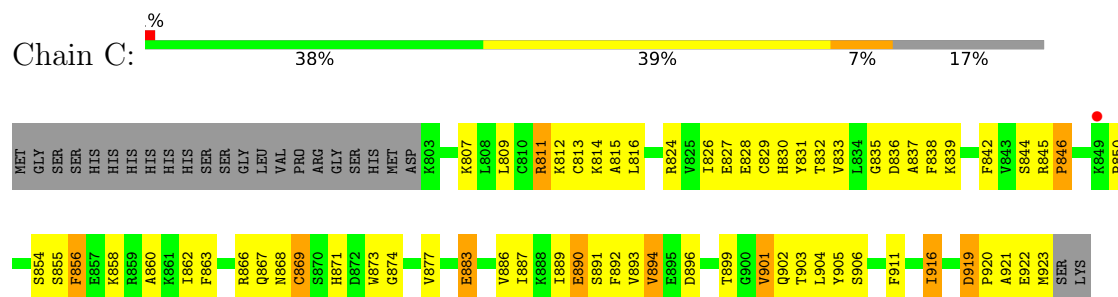
- Molecule 1: Probable ATP-dependent RNA helicase DDX58



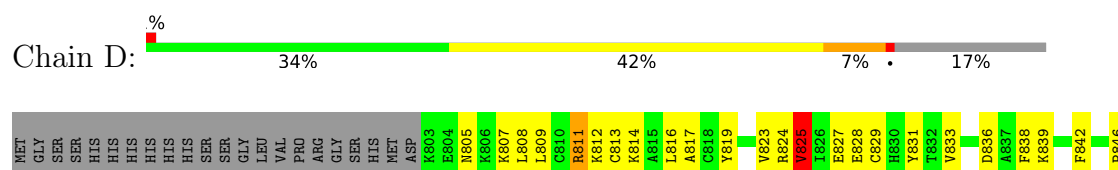
- Molecule 1: Probable ATP-dependent RNA helicase DDX58

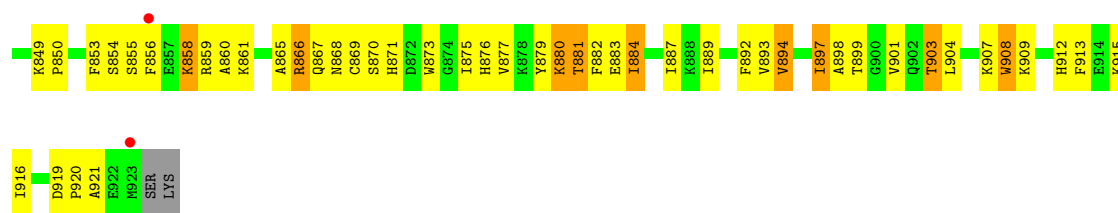


- Molecule 1: Probable ATP-dependent RNA helicase DDX58

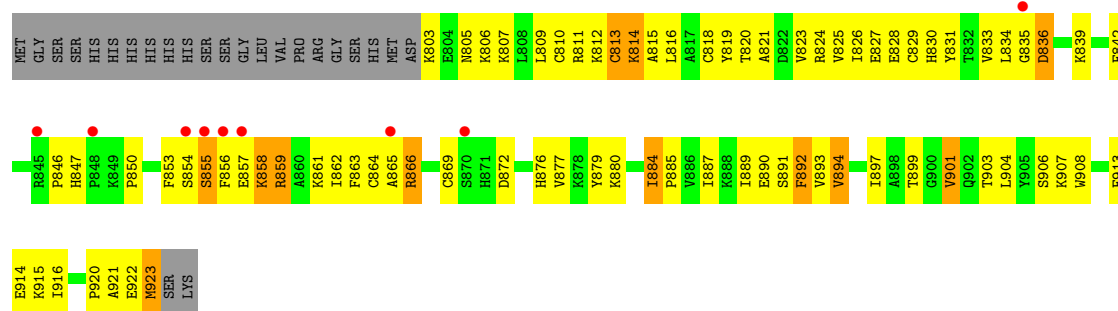


- Molecule 1: Probable ATP-dependent RNA helicase DDX58

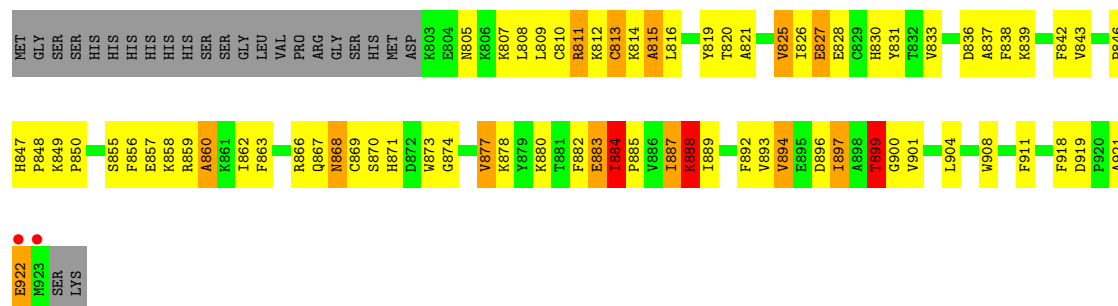




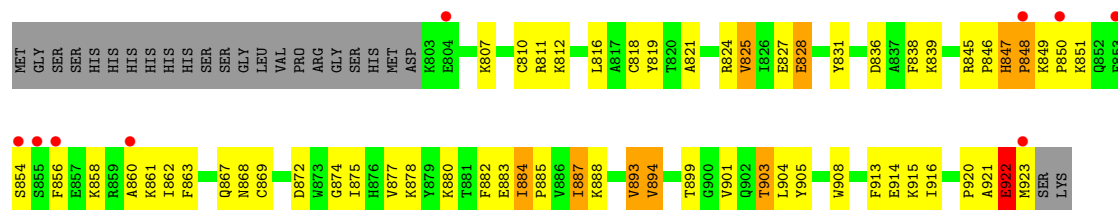
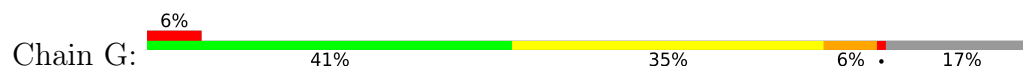
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- Molecule 1: Probable ATP-dependent RNA helicase DDX58

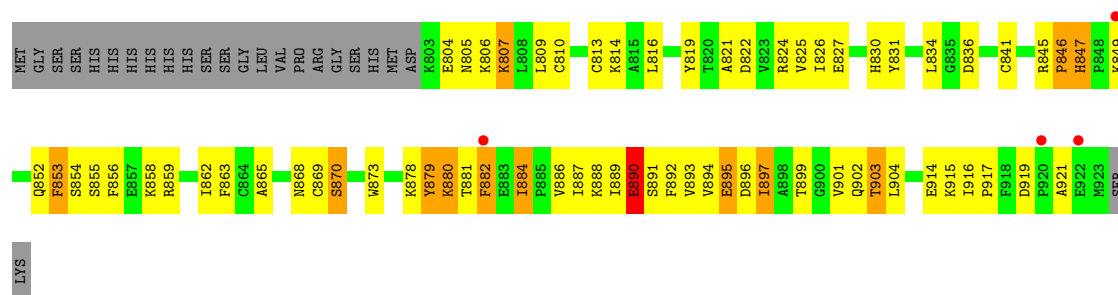


- Molecule 1: Probable ATP-dependent RNA helicase DDX58

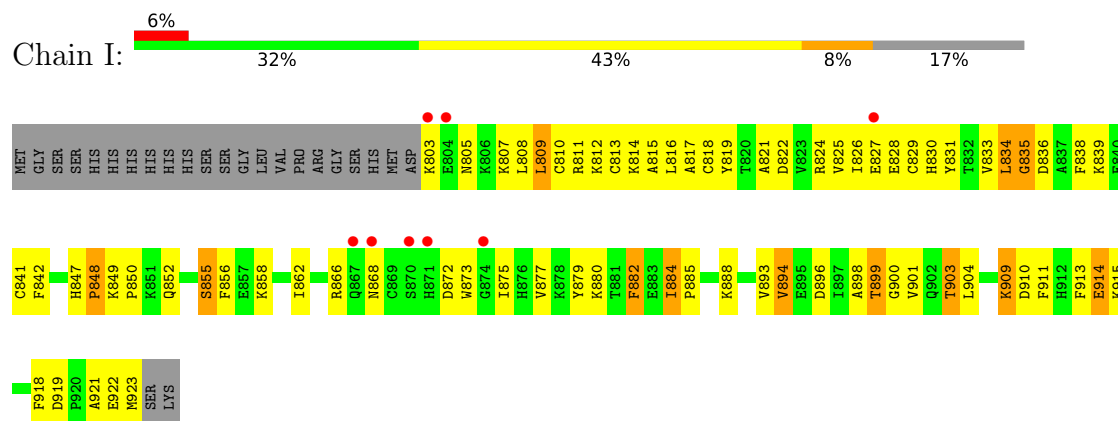


- Molecule 1: Probable ATP-dependent RNA helicase DDX58

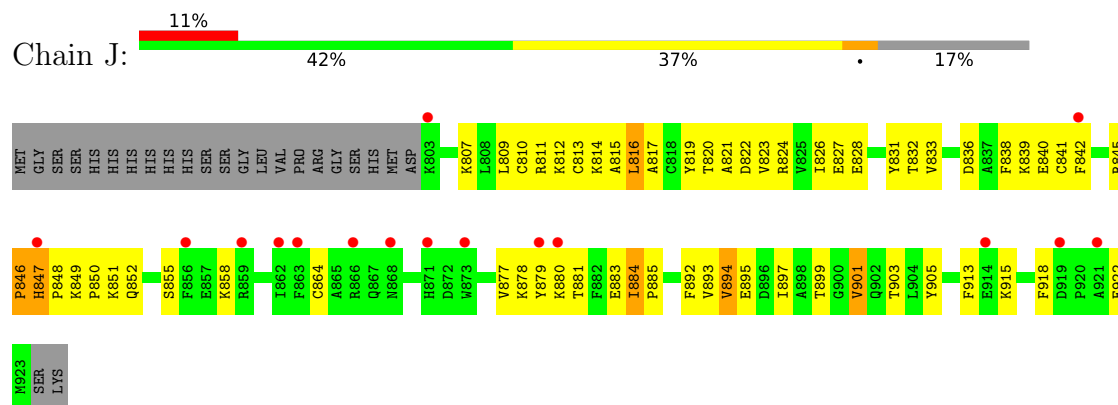




- Molecule 1: Probable ATP-dependent RNA helicase DDX58



- Molecule 1: Probable ATP-dependent RNA helicase DDX58



4 Data and refinement statistics

Property	Value	Source
Space group	P 1 21 1	Depositor
Cell constants a, b, c, α , β , γ	97.90Å 76.60Å 139.40Å 90.00° 93.30° 90.00°	Depositor
Resolution (Å)	50.00 – 3.00 50.00 – 3.00	Depositor EDS
% Data completeness (in resolution range)	98.2 (50.00-3.00) 98.1 (50.00-3.00)	Depositor EDS
R_{merge}	(Not available)	Depositor
R_{sym}	0.09	Depositor
$\langle I/\sigma(I) \rangle$ ¹	2.34 (at 3.01Å)	Xtriage
Refinement program	CNS 1.1	Depositor
R, R_{free}	0.248 , 0.285 0.239 , 0.286	Depositor DCC
R_{free} test set	4111 reflections (10.02%)	wwPDB-VP
Wilson B-factor (Å ²)	57.0	Xtriage
Anisotropy	0.161	Xtriage
Bulk solvent k_{sol} (e/Å ³), B_{sol} (Å ²)	0.29 , 77.5	EDS
L-test for twinning ²	$\langle L \rangle = 0.47$, $\langle L^2 \rangle = 0.30$	Xtriage
Estimated twinning fraction	No twinning to report.	Xtriage
F_o, F_c correlation	0.90	EDS
Total number of atoms	10039	wwPDB-VP
Average B, all atoms (Å ²)	50.0	wwPDB-VP

Xtriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 3.37% 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: ZN

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	0.62	0/1026	1.13	9/1380 (0.7%)
1	B	0.57	0/1026	1.06	5/1380 (0.4%)
1	C	0.47	0/1026	1.00	5/1380 (0.4%)
1	D	0.49	0/1026	0.97	3/1380 (0.2%)
1	E	0.46	0/1026	0.95	3/1380 (0.2%)
1	F	0.49	0/1026	1.09	11/1380 (0.8%)
1	G	0.42	0/1026	1.00	8/1380 (0.6%)
1	H	0.43	0/1026	0.98	4/1380 (0.3%)
1	I	0.40	0/1026	0.84	1/1380 (0.1%)
1	J	0.37	0/1026	0.89	2/1380 (0.1%)
All	All	0.48	0/10260	0.99	51/13800 (0.4%)

There are no bond length outliers.

All (51) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	F	884	ILE	N-CA-C	8.40	117.16	107.84
1	A	835	GLY	N-CA-C	8.21	123.18	112.18
1	A	877	VAL	N-CA-C	8.01	120.27	108.65
1	C	916	ILE	N-CA-C	7.34	114.94	108.63
1	F	860	ALA	N-CA-C	6.93	117.74	108.38
1	G	825	VAL	N-CA-C	6.86	117.53	107.37
1	D	887	ILE	N-CA-C	6.79	119.50	108.97
1	J	897	ILE	N-CA-C	6.74	117.24	110.23
1	H	836	ASP	N-CA-C	-6.72	106.02	114.56
1	F	899	THR	N-CA-C	6.48	119.31	111.40
1	E	821	ALA	N-CA-C	-6.36	105.52	113.28
1	F	888	LYS	N-CA-C	-6.33	102.01	110.55
1	I	882	PHE	N-CA-C	6.24	120.22	110.17
1	C	835	GLY	N-CA-C	6.18	120.46	112.18

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	E	887	ILE	N-CA-C	6.17	118.53	108.97
1	B	912	HIS	N-CA-C	6.16	119.56	107.98
1	A	912	HIS	N-CA-C	6.13	119.70	107.62
1	D	912	HIS	N-CA-C	6.12	117.80	109.11
1	G	887	ILE	N-CA-C	6.04	118.66	109.12
1	F	882	PHE	N-CA-C	6.01	118.54	109.23
1	G	828	GLU	N-CA-C	5.83	123.21	110.80
1	C	896	ASP	N-CA-C	-5.79	101.05	110.20
1	F	877	VAL	N-CA-C	5.77	117.16	108.96
1	G	847	HIS	CA-C-N	5.75	127.02	119.84
1	G	847	HIS	C-N-CA	5.75	127.02	119.84
1	E	862	ILE	N-CA-C	5.75	117.02	109.21
1	C	887	ILE	N-CA-C	5.74	117.01	108.46
1	A	823	VAL	N-CA-C	5.64	117.31	109.80
1	F	887	ILE	N-CA-C	5.61	117.06	108.71
1	A	884	ILE	N-CA-C	5.54	115.27	109.01
1	A	841	CYS	N-CA-C	5.50	119.16	112.23
1	B	916	ILE	CB-CA-C	-5.49	105.83	110.94
1	B	883	GLU	N-CA-C	-5.48	100.87	109.25
1	B	887	ILE	N-CA-C	5.45	117.24	108.85
1	A	847	HIS	CA-C-N	5.44	124.95	119.19
1	A	847	HIS	C-N-CA	5.44	124.95	119.19
1	F	900	GLY	N-CA-C	-5.42	107.62	115.27
1	J	847	HIS	C-N-CD	-5.41	108.70	120.60
1	F	880	LYS	CB-CA-C	-5.35	110.43	116.63
1	C	916	ILE	CB-CA-C	-5.34	105.97	110.94
1	B	886	VAL	N-CA-C	-5.31	99.91	107.77
1	H	845	ARG	CA-C-N	5.31	126.48	119.84
1	H	845	ARG	C-N-CA	5.31	126.48	119.84
1	A	887	ILE	N-CA-C	5.25	117.26	109.17
1	D	825	VAL	N-CA-C	5.23	115.12	107.37
1	F	813	CYS	N-CA-C	-5.23	106.00	112.38
1	G	880	LYS	CB-CA-C	-5.16	110.61	116.54
1	G	922	GLU	N-CA-C	-5.14	99.86	110.80
1	H	879	TYR	N-CA-C	-5.13	103.26	110.35
1	G	893	VAL	N-CA-C	-5.09	100.79	108.12
1	F	825	VAL	N-CA-C	5.02	115.20	108.17

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	998	0	993	43	0
1	B	998	0	993	41	0
1	C	998	0	993	63	0
1	D	998	0	994	66	0
1	E	998	0	994	84	0
1	F	998	0	993	73	0
1	G	998	0	993	49	0
1	H	998	0	993	59	0
1	I	998	0	994	59	0
1	J	998	0	995	42	0
2	A	1	0	0	0	0
2	B	1	0	0	0	0
2	C	1	0	0	0	0
2	D	1	0	0	2	0
2	E	1	0	0	0	0
2	F	1	0	0	0	0
2	G	1	0	0	0	0
2	H	1	0	0	0	0
2	I	1	0	0	0	0
2	J	1	0	0	0	0
3	A	11	0	0	2	0
3	B	17	0	0	0	0
3	C	3	0	0	0	0
3	D	8	0	0	4	0
3	E	2	0	0	0	0
3	F	2	0	0	0	0
3	G	2	0	0	0	0
3	H	2	0	0	0	0
3	I	1	0	0	0	0
3	J	1	0	0	0	0
All	All	10039	0	9935	574	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 33.

All (574) 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:H:897:ILE:HD12	1:H:897:ILE:H	1.05	1.20
1:G:858:LYS:HA	1:G:877:VAL:HG12	1.37	1.04
1:A:866:ARG:HG2	1:A:866:ARG:HH11	1.22	1.00
1:E:858:LYS:HA	1:E:877:VAL:HG12	1.44	0.96
1:H:880:LYS:O	1:H:881:THR:HG22	1.67	0.91
1:C:829:CYS:HG	1:E:829:CYS:HG	1.12	0.90
1:H:897:ILE:H	1:H:897:ILE:CD1	1.85	0.86
1:B:848:PRO:HG3	1:B:861:LYS:HG3	1.57	0.86
1:G:894:VAL:HG13	1:G:903:THR:HG23	1.57	0.85
1:H:897:ILE:HD12	1:H:897:ILE:N	1.90	0.84
1:H:859:ARG:HD2	1:H:878:LYS:HB2	1.57	0.84
1:H:890:GLU:H	1:H:890:GLU:CD	1.86	0.83
1:A:826:ILE:HG22	1:A:827:GLU:HG2	1.60	0.81
1:H:805:ASN:O	1:H:897:ILE:HD11	1.79	0.81
1:G:847:HIS:HB3	1:G:848:PRO:HD2	1.62	0.80
1:H:895:GLU:HG3	1:H:902:GLN:HG2	1.64	0.80
1:E:839:LYS:HA	1:E:842:PHE:CE1	2.16	0.79
1:D:869:CYS:HG	2:D:1004:ZN:ZN	0.96	0.79
1:I:842:PHE:CD2	1:I:862:ILE:HG23	2.17	0.79
1:G:899:THR:HG23	1:G:901:VAL:HG12	1.64	0.79
1:C:811:ARG:HA	1:C:893:VAL:HG23	1.63	0.79
1:D:897:ILE:HD13	1:D:897:ILE:N	1.97	0.79
1:J:899:THR:OG1	1:J:901:VAL:HG12	1.84	0.78
1:D:846:PRO:HA	1:D:860:ALA:HB2	1.65	0.78
1:D:833:VAL:HB	1:D:838:PHE:CD2	2.19	0.78
1:F:859:ARG:HG2	1:F:859:ARG:HH11	1.49	0.77
1:F:809:LEU:HB3	1:F:815:ALA:O	1.84	0.77
1:I:805:ASN:OD1	1:I:819:TYR:HB3	1.84	0.76
1:D:899:THR:OG1	1:D:901:VAL:HG23	1.85	0.76
1:H:807:LYS:HG2	1:H:816:LEU:HD21	1.65	0.76
1:E:858:LYS:O	1:E:859:ARG:HB2	1.85	0.76
1:G:847:HIS:CB	1:G:848:PRO:HD2	2.15	0.76
1:J:858:LYS:HA	1:J:877:VAL:HG12	1.67	0.76
1:A:866:ARG:HH11	1:A:866:ARG:CG	2.00	0.75
1:D:880:LYS:HG3	1:D:880:LYS:O	1.86	0.75
1:B:824:ARG:HD3	1:B:916:ILE:HB	1.68	0.75
1:A:836:ASP:O	1:A:839:LYS:HG2	1.87	0.74
1:J:816:LEU:HD23	1:J:817:ALA:H	1.50	0.74
1:E:889:ILE:HB	1:E:908:TRP:CE2	2.22	0.74
1:F:899:THR:HB	1:F:901:VAL:HG12	1.68	0.74
1:H:896:ASP:HB3	1:H:899:THR:HB	1.69	0.74
1:A:805:ASN:HD21	1:A:819:TYR:HB3	1.53	0.73

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:829:CYS:HB3	1:E:829:CYS:HB3	1.68	0.73
1:D:869:CYS:O	1:D:871:HIS:N	2.21	0.73
1:E:899:THR:OG1	1:E:901:VAL:HG12	1.89	0.73
1:J:811:ARG:HA	1:J:893:VAL:HG23	1.70	0.73
1:C:839:LYS:HA	1:C:842:PHE:HE1	1.55	0.72
1:J:813:CYS:O	1:J:815:ALA:N	2.23	0.71
1:E:816:LEU:HD21	1:E:819:TYR:HE1	1.54	0.71
1:D:858:LYS:HA	1:D:877:VAL:HG12	1.70	0.71
1:J:878:LYS:HA	1:J:883:GLU:HA	1.73	0.71
1:I:805:ASN:HD21	1:I:819:TYR:HD2	1.38	0.71
1:J:816:LEU:CD2	1:J:817:ALA:H	2.05	0.70
1:B:847:HIS:N	1:B:848:PRO:HD2	2.07	0.70
1:C:890:GLU:HB3	1:C:906:SER:HA	1.73	0.70
1:E:818:CYS:C	1:E:819:TYR:HD1	1.98	0.70
1:I:899:THR:OG1	1:I:901:VAL:HG12	1.92	0.70
1:J:810:CYS:HB3	1:J:813:CYS:O	1.91	0.70
1:F:889:ILE:HB	1:F:908:TRP:CE2	2.27	0.70
1:C:839:LYS:HA	1:C:842:PHE:CE1	2.26	0.69
1:I:894:VAL:HG13	1:I:903:THR:HG23	1.72	0.69
1:C:919:ASP:OD2	1:C:921:ALA:HB3	1.92	0.69
1:A:866:ARG:HG2	1:A:866:ARG:NH1	2.03	0.69
1:B:903:THR:C	1:B:904:LEU:HD12	2.18	0.69
1:F:857:GLU:HB2	1:F:878:LYS:HB3	1.74	0.69
1:G:899:THR:CG2	1:G:901:VAL:HG12	2.22	0.69
1:C:883:GLU:OE1	1:C:883:GLU:N	2.23	0.68
1:G:812:LYS:HD3	1:G:869:CYS:SG	2.33	0.68
1:E:890:GLU:O	1:E:890:GLU:HG2	1.91	0.68
1:D:880:LYS:O	1:D:881:THR:HG22	1.93	0.68
1:J:894:VAL:HG13	1:J:903:THR:HG23	1.73	0.68
1:D:869:CYS:SG	2:D:1004:ZN:ZN	1.84	0.67
1:I:808:LEU:HD12	1:I:818:CYS:SG	2.34	0.67
1:H:806:LYS:HA	1:H:897:ILE:HD11	1.74	0.67
1:I:816:LEU:HD12	1:I:817:ALA:H	1.60	0.67
1:H:807:LYS:HE2	1:H:816:LEU:HD23	1.75	0.66
1:E:876:HIS:HA	1:E:885:PRO:HA	1.76	0.66
1:E:923:MET:HE3	1:E:923:MET:H	1.60	0.66
1:J:826:ILE:HD12	1:J:918:PHE:HB2	1.76	0.66
1:F:812:LYS:HG3	1:F:813:CYS:H	1.60	0.66
1:F:846:PRO:HA	1:F:860:ALA:HB2	1.77	0.66
1:D:836:ASP:HA	1:D:839:LYS:HB2	1.78	0.66
1:C:824:ARG:HD3	1:C:916:ILE:HB	1.78	0.65

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:D:811:ARG:HD3	1:D:892:PHE:O	1.96	0.65
1:B:899:THR:OG1	1:B:901:VAL:HG23	1.97	0.65
1:I:919:ASP:OD2	1:I:921:ALA:HB3	1.96	0.65
1:F:847:HIS:ND1	1:F:848:PRO:HD2	2.12	0.64
1:E:884:ILE:HD13	1:E:884:ILE:H	1.62	0.64
1:I:922:GLU:HG3	1:I:923:MET:H	1.61	0.64
1:I:827:GLU:OE2	1:I:855:SER:HB3	1.97	0.64
1:I:913:PHE:O	1:I:915:LYS:HG3	1.98	0.64
1:A:836:ASP:HA	1:A:839:LYS:HD3	1.80	0.64
1:F:858:LYS:HA	1:F:877:VAL:HG12	1.80	0.64
1:D:897:ILE:N	1:D:897:ILE:CD1	2.59	0.63
1:E:810:CYS:HB3	1:E:813:CYS:SG	2.38	0.63
1:I:830:HIS:ND1	1:I:856:PHE:HE1	1.96	0.63
1:E:816:LEU:HD21	1:E:819:TYR:CE1	2.33	0.63
1:E:839:LYS:HA	1:E:842:PHE:HE1	1.63	0.63
1:I:856:PHE:CD2	1:I:877:VAL:HG11	2.33	0.63
1:A:893:VAL:HG22	1:A:904:LEU:CD2	2.28	0.63
1:B:812:LYS:CE	1:B:869:CYS:HA	2.28	0.63
1:C:812:LYS:HE2	1:C:869:CYS:HA	1.80	0.63
1:F:812:LYS:HG3	1:F:813:CYS:N	2.14	0.62
1:G:894:VAL:HG11	1:G:905:TYR:HE2	1.63	0.62
1:D:884:ILE:HD13	1:D:884:ILE:H	1.65	0.62
1:E:811:ARG:HA	1:E:893:VAL:HG23	1.81	0.62
1:C:890:GLU:HA	1:C:905:TYR:O	1.99	0.62
1:H:809:LEU:HD23	1:H:816:LEU:HA	1.82	0.61
1:I:824:ARG:HG2	1:I:824:ARG:HH11	1.64	0.61
1:J:884:ILE:HD13	1:J:884:ILE:H	1.65	0.61
1:E:807:LYS:HE2	1:E:809:LEU:HD21	1.83	0.61
1:I:811:ARG:HA	1:I:893:VAL:HG23	1.82	0.61
1:G:893:VAL:HG13	1:G:904:LEU:CD2	2.31	0.61
1:I:848:PRO:O	1:I:850:PRO:HD3	2.01	0.61
1:E:920:PRO:C	1:E:922:GLU:H	2.08	0.61
1:E:812:LYS:HG3	1:E:813:CYS:H	1.65	0.61
1:H:888:LYS:HB2	1:H:890:GLU:OE2	2.00	0.60
1:B:913:PHE:CE1	1:B:915:LYS:HE2	2.36	0.60
1:C:811:ARG:HA	1:C:893:VAL:CG2	2.32	0.60
1:H:847:HIS:HB2	1:H:859:ARG:O	2.02	0.60
1:A:829:CYS:HG	1:B:829:CYS:HG	0.63	0.60
1:J:913:PHE:CE1	1:J:915:LYS:HE2	2.36	0.60
1:H:827:GLU:OE2	1:H:855:SER:HB3	2.02	0.60
1:B:869:CYS:O	1:B:870:SER:C	2.44	0.60

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:I:884:ILE:HD13	1:I:884:ILE:H	1.67	0.60
1:A:864:CYS:SG	1:A:866:ARG:HB2	2.41	0.60
1:A:903:THR:HG21	1:A:905:TYR:CZ	2.36	0.60
1:H:896:ASP:CB	1:H:899:THR:HB	2.31	0.59
1:I:816:LEU:HD12	1:I:817:ALA:N	2.17	0.59
1:F:812:LYS:O	1:F:814:LYS:HG2	2.02	0.59
1:B:845:ARG:HD2	1:B:863:PHE:CE1	2.38	0.59
1:F:874:GLY:HA2	1:F:888:LYS:HD2	1.85	0.59
1:J:884:ILE:HB	1:J:885:PRO:HD2	1.85	0.59
1:D:839:LYS:HE3	3:D:35:HOH:O	2.03	0.58
1:E:835:GLY:O	1:E:839:LYS:HG3	2.03	0.58
1:D:869:CYS:O	1:D:869:CYS:SG	2.62	0.58
1:H:899:THR:HG22	1:H:901:VAL:H	1.68	0.58
1:F:833:VAL:HB	1:F:838:PHE:CD2	2.39	0.58
1:C:893:VAL:HG13	1:C:904:LEU:CD2	2.34	0.58
1:D:882:PHE:CE2	1:D:920:PRO:HB3	2.38	0.58
1:G:884:ILE:HD13	1:G:884:ILE:H	1.68	0.58
1:F:812:LYS:HG3	1:F:869:CYS:SG	2.43	0.57
1:E:884:ILE:H	1:E:884:ILE:CD1	2.16	0.57
1:F:849:LYS:N	1:F:850:PRO:HD3	2.19	0.57
1:F:836:ASP:O	1:F:839:LYS:HB2	2.03	0.57
1:D:897:ILE:HG12	1:D:898:ALA:N	2.19	0.57
1:F:807:LYS:O	1:F:894:VAL:HA	2.05	0.57
1:E:824:ARG:HD3	1:E:916:ILE:HB	1.87	0.57
1:G:867:GLN:O	1:G:868:ASN:HB2	2.05	0.57
1:D:811:ARG:HD2	1:D:904:LEU:HD22	1.87	0.56
1:C:807:LYS:O	1:C:894:VAL:HA	2.06	0.56
1:D:915:LYS:HA	3:D:26:HOH:O	2.04	0.56
1:G:894:VAL:HG11	1:G:905:TYR:CE2	2.41	0.56
1:C:846:PRO:HA	1:C:860:ALA:HB2	1.86	0.56
1:C:863:PHE:HB3	1:C:871:HIS:O	2.05	0.56
1:F:859:ARG:HE	1:F:883:GLU:CD	2.13	0.56
1:I:848:PRO:O	1:I:850:PRO:N	2.38	0.56
1:C:812:LYS:HB3	1:C:869:CYS:SG	2.45	0.56
1:C:836:ASP:O	1:C:837:ALA:C	2.47	0.56
1:C:893:VAL:HG13	1:C:904:LEU:HD21	1.88	0.56
1:J:810:CYS:O	1:J:811:ARG:C	2.48	0.56
1:E:820:THR:HA	1:E:823:VAL:HG23	1.88	0.56
1:F:811:ARG:HD2	1:F:893:VAL:HG23	1.87	0.56
1:J:823:VAL:O	1:J:824:ARG:NH1	2.38	0.56
1:B:922:GLU:O	1:B:923:MET:HB2	2.06	0.56

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:922:GLU:O	1:C:923:MET:HB2	2.06	0.56
1:D:899:THR:CB	1:D:901:VAL:HG23	2.35	0.56
1:J:879:TYR:O	1:J:881:THR:N	2.39	0.56
1:D:867:GLN:HG2	1:D:868:ASN:ND2	2.20	0.55
1:E:812:LYS:C	1:E:814:LYS:H	2.13	0.55
1:E:913:PHE:O	1:E:915:LYS:HG3	2.06	0.55
1:F:878:LYS:HA	1:F:883:GLU:OE1	2.07	0.55
1:I:884:ILE:HB	1:I:885:PRO:HD2	1.87	0.55
1:E:810:CYS:SG	1:E:812:LYS:HG2	2.45	0.55
1:F:919:ASP:C	1:F:921:ALA:H	2.14	0.55
1:I:848:PRO:O	1:I:850:PRO:CD	2.54	0.55
1:I:873:TRP:O	1:I:888:LYS:HG2	2.07	0.55
1:A:836:ASP:HA	1:A:839:LYS:CG	2.35	0.55
1:E:812:LYS:HG3	1:E:813:CYS:N	2.21	0.55
1:J:823:VAL:HA	1:J:832:THR:O	2.06	0.55
1:A:835:GLY:O	1:A:839:LYS:HD3	2.06	0.55
1:F:859:ARG:HG2	1:F:859:ARG:NH1	2.20	0.55
1:F:816:LEU:C	1:F:816:LEU:HD23	2.31	0.55
1:A:811:ARG:HD3	1:A:892:PHE:O	2.07	0.55
1:B:812:LYS:HE2	1:B:869:CYS:HA	1.89	0.55
1:E:893:VAL:HG22	1:E:904:LEU:CD2	2.35	0.55
1:H:809:LEU:CD2	1:H:816:LEU:HA	2.37	0.55
1:E:819:TYR:HD1	1:E:819:TYR:N	2.04	0.54
1:D:907:LYS:O	1:D:909:LYS:N	2.40	0.54
1:F:811:ARG:HD3	1:F:892:PHE:O	2.07	0.54
1:B:919:ASP:OD1	1:B:919:ASP:C	2.49	0.54
1:E:819:TYR:N	1:E:819:TYR:CD1	2.75	0.54
1:C:812:LYS:HD3	1:C:869:CYS:SG	2.48	0.54
1:H:805:ASN:O	1:H:897:ILE:CD1	2.51	0.54
1:H:831:TYR:O	1:H:886:VAL:HA	2.07	0.54
1:H:895:GLU:HG3	1:H:902:GLN:HE21	1.73	0.54
1:F:805:ASN:HD21	1:F:819:TYR:HB3	1.72	0.54
1:G:847:HIS:HB3	1:G:848:PRO:CD	2.35	0.54
1:A:845:ARG:O	1:A:860:ALA:HB1	2.08	0.54
1:C:811:ARG:HD3	1:C:892:PHE:O	2.08	0.54
1:E:836:ASP:OD1	1:E:836:ASP:N	2.40	0.54
1:F:887:ILE:HG13	1:F:908:TRP:HZ2	1.73	0.54
1:H:887:ILE:HB	1:H:892:PHE:HE2	1.72	0.54
1:J:816:LEU:CD2	1:J:817:ALA:N	2.71	0.54
1:J:894:VAL:HG11	1:J:905:TYR:HE2	1.71	0.54
1:B:853:PHE:CE1	1:B:858:LYS:HB2	2.43	0.53

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:899:THR:OG1	1:C:901:VAL:HG12	2.08	0.53
1:B:824:ARG:CD	1:B:916:ILE:HB	2.37	0.53
1:B:853:PHE:HE1	1:B:858:LYS:HB2	1.73	0.53
1:I:836:ASP:HA	1:I:839:LYS:HE3	1.88	0.53
1:G:819:TYR:C	1:G:821:ALA:H	2.15	0.53
1:B:812:LYS:HE2	1:B:869:CYS:SG	2.48	0.53
1:D:913:PHE:CE1	1:D:915:LYS:HE2	2.44	0.53
1:I:824:ARG:NH1	1:I:834:LEU:HD22	2.24	0.53
1:B:903:THR:HG22	1:B:904:LEU:N	2.24	0.53
1:F:889:ILE:HG13	1:F:889:ILE:O	2.07	0.53
1:A:858:LYS:HA	1:A:877:VAL:HG12	1.91	0.53
1:H:804:GLU:HG3	1:H:805:ASN:N	2.24	0.53
1:F:819:TYR:C	1:F:821:ALA:N	2.67	0.53
1:J:839:LYS:C	1:J:841:CYS:H	2.16	0.53
1:C:845:ARG:C	1:C:860:ALA:HB1	2.34	0.52
1:E:826:ILE:O	1:E:830:HIS:HB2	2.09	0.52
1:I:812:LYS:C	1:I:814:LYS:H	2.16	0.52
1:B:911:PHE:CD1	1:B:911:PHE:C	2.86	0.52
1:E:855:SER:O	1:E:879:TYR:HD1	1.92	0.52
1:G:836:ASP:HA	1:G:839:LYS:CD	2.39	0.52
1:F:808:LEU:HD21	1:F:911:PHE:HE2	1.74	0.52
1:G:903:THR:HA	1:J:903:THR:HA	1.91	0.52
1:C:889:ILE:O	1:C:891:SER:N	2.43	0.52
1:I:839:LYS:HA	1:I:842:PHE:CE1	2.44	0.52
1:E:812:LYS:CG	1:E:813:CYS:H	2.22	0.52
1:E:836:ASP:O	1:E:839:LYS:HB2	2.10	0.52
1:D:812:LYS:HD3	1:D:869:CYS:SG	2.50	0.51
1:F:843:VAL:CG2	1:F:863:PHE:HB2	2.40	0.51
1:G:819:TYR:C	1:G:821:ALA:N	2.68	0.51
1:G:883:GLU:HG3	1:G:883:GLU:O	2.10	0.51
1:I:830:HIS:ND1	1:I:856:PHE:CE1	2.78	0.51
1:H:889:ILE:HG23	1:H:890:GLU:N	2.24	0.51
1:F:819:TYR:C	1:F:821:ALA:H	2.18	0.51
1:D:877:VAL:O	1:D:883:GLU:HA	2.10	0.51
1:E:807:LYS:O	1:E:894:VAL:HA	2.09	0.51
1:H:879:TYR:CZ	1:H:880:LYS:HE3	2.44	0.51
1:B:811:ARG:HD2	1:B:893:VAL:HG23	1.91	0.51
1:B:872:ASP:OD2	1:B:888:LYS:HE3	2.11	0.51
1:D:831:TYR:OH	1:D:915:LYS:HD3	2.11	0.51
1:D:897:ILE:HG12	1:D:898:ALA:H	1.76	0.51
1:F:842:PHE:CD2	1:F:862:ILE:HG12	2.46	0.51

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:F:874:GLY:CA	1:F:888:LYS:HD2	2.40	0.51
1:C:889:ILE:HG23	1:C:890:GLU:N	2.26	0.51
1:F:807:LYS:HE3	1:F:809:LEU:HD21	1.92	0.51
1:F:813:CYS:HB3	1:F:869:CYS:HB2	1.92	0.51
1:F:836:ASP:O	1:F:839:LYS:N	2.43	0.51
1:H:919:ASP:OD2	1:H:921:ALA:HB3	2.11	0.50
1:C:845:ARG:O	1:C:860:ALA:HB1	2.10	0.50
1:C:889:ILE:O	1:C:892:PHE:N	2.45	0.50
1:F:819:TYR:O	1:F:821:ALA:N	2.44	0.50
1:A:866:ARG:CG	1:A:866:ARG:NH1	2.66	0.50
1:B:809:LEU:HA	1:B:815:ALA:O	2.12	0.50
1:C:809:LEU:HD23	1:C:816:LEU:HA	1.92	0.50
1:I:909:LYS:HE3	1:I:910:ASP:OD1	2.12	0.50
1:C:846:PRO:HA	1:C:860:ALA:CB	2.40	0.50
1:C:889:ILE:HD13	1:C:905:TYR:HB2	1.93	0.50
1:D:846:PRO:HA	1:D:860:ALA:CB	2.38	0.50
1:E:865:ALA:O	1:E:866:ARG:C	2.54	0.50
1:G:922:GLU:O	1:G:923:MET:C	2.53	0.50
1:E:823:VAL:O	1:E:824:ARG:HD3	2.11	0.50
1:E:831:TYR:OH	1:E:915:LYS:HD3	2.12	0.50
1:F:836:ASP:HA	1:F:839:LYS:HD2	1.93	0.50
1:G:861:LYS:HA	1:G:875:ILE:HA	1.94	0.50
1:J:809:LEU:HA	1:J:815:ALA:O	2.11	0.50
1:A:833:VAL:HB	1:A:838:PHE:CD2	2.46	0.50
1:F:842:PHE:HB2	1:F:863:PHE:O	2.11	0.50
1:C:813:CYS:O	1:C:814:LYS:HB2	2.11	0.50
1:D:808:LEU:C	1:D:809:LEU:HD23	2.37	0.50
1:E:824:ARG:HG3	1:E:834:LEU:HG	1.94	0.50
1:E:899:THR:OG1	1:E:901:VAL:CG1	2.59	0.49
1:E:892:PHE:N	1:E:892:PHE:CD2	2.79	0.49
1:F:826:ILE:HB	1:F:830:HIS:HB2	1.93	0.49
1:I:896:ASP:OD1	1:I:898:ALA:HB3	2.13	0.49
1:C:811:ARG:HD2	1:C:904:LEU:HD22	1.92	0.49
1:I:879:TYR:N	1:I:882:PHE:O	2.43	0.49
1:D:812:LYS:HB3	1:D:869:CYS:SG	2.52	0.49
1:J:894:VAL:HG11	1:J:905:TYR:CE2	2.47	0.49
1:A:824:ARG:NH1	1:A:916:ILE:HD12	2.27	0.49
1:H:825:VAL:O	1:H:917:PRO:HA	2.11	0.49
1:J:807:LYS:O	1:J:894:VAL:HA	2.12	0.49
1:B:812:LYS:NZ	1:B:869:CYS:HA	2.28	0.49
1:A:919:ASP:C	1:A:919:ASP:OD1	2.54	0.49

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:G:862:ILE:C	1:G:863:PHE:CD1	2.90	0.49
1:C:866:ARG:O	1:C:868:ASN:N	2.45	0.49
1:D:919:ASP:OD2	1:D:921:ALA:N	2.45	0.49
1:E:857:GLU:O	1:E:858:LYS:O	2.31	0.49
1:A:827:GLU:O	1:A:828:GLU:HB2	2.10	0.49
1:A:836:ASP:HA	1:A:839:LYS:CD	2.42	0.49
1:G:846:PRO:HA	1:G:860:ALA:HB2	1.95	0.49
1:G:858:LYS:CA	1:G:877:VAL:HG12	2.27	0.49
1:H:880:LYS:O	1:H:881:THR:CG2	2.51	0.49
1:I:824:ARG:HG2	1:I:824:ARG:NH1	2.28	0.49
1:A:899:THR:OG1	1:A:901:VAL:HG23	2.13	0.48
1:C:826:ILE:O	1:C:830:HIS:HB2	2.13	0.48
1:D:838:PHE:HE1	1:D:873:TRP:CZ3	2.32	0.48
1:E:813:CYS:O	1:E:815:ALA:N	2.46	0.48
1:E:884:ILE:HB	1:E:885:PRO:HD2	1.94	0.48
1:F:919:ASP:C	1:F:921:ALA:N	2.71	0.48
1:D:907:LYS:O	1:D:908:TRP:C	2.56	0.48
1:E:854:SER:C	1:E:856:PHE:H	2.21	0.48
1:G:836:ASP:HA	1:G:839:LYS:HG3	1.94	0.48
1:F:847:HIS:ND1	1:F:848:PRO:CD	2.76	0.48
1:I:807:LYS:O	1:I:894:VAL:HA	2.13	0.48
1:H:807:LYS:HG3	1:H:819:TYR:CE1	2.48	0.48
1:J:823:VAL:C	1:J:824:ARG:HH11	2.21	0.48
1:J:832:THR:HB	1:J:885:PRO:O	2.14	0.48
1:B:880:LYS:C	1:B:881:THR:HG23	2.39	0.48
1:B:904:LEU:HD12	1:B:904:LEU:N	2.27	0.48
1:D:897:ILE:CD1	1:D:897:ILE:H	2.25	0.48
1:E:811:ARG:HD2	1:E:893:VAL:HG22	1.96	0.48
1:H:858:LYS:C	1:H:859:ARG:HG3	2.39	0.48
1:D:903:THR:HG21	3:D:27:HOH:O	2.12	0.48
1:I:827:GLU:O	1:I:828:GLU:HB2	2.13	0.48
1:B:863:PHE:CD2	1:B:872:ASP:HA	2.49	0.48
1:F:836:ASP:O	1:F:837:ALA:C	2.56	0.48
1:H:893:VAL:HG22	1:H:904:LEU:CD2	2.44	0.48
1:B:850:PRO:HG3	1:B:858:LYS:HB3	1.96	0.48
1:G:884:ILE:HB	1:G:885:PRO:HD2	1.96	0.48
1:F:846:PRO:HA	1:F:860:ALA:CB	2.44	0.47
1:F:873:TRP:C	1:F:888:LYS:HD2	2.39	0.47
1:B:847:HIS:N	1:B:848:PRO:CD	2.76	0.47
1:E:812:LYS:CG	1:E:869:CYS:SG	3.02	0.47
1:F:819:TYR:N	1:F:819:TYR:CD1	2.81	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:E:805:ASN:HD21	1:E:819:TYR:HB3	1.79	0.47
1:J:827:GLU:O	1:J:828:GLU:HB2	2.13	0.47
1:B:809:LEU:HD23	1:B:816:LEU:HA	1.95	0.47
1:D:838:PHE:CE1	1:D:873:TRP:CZ3	3.02	0.47
1:D:880:LYS:NZ	1:D:880:LYS:HB3	2.30	0.47
1:E:913:PHE:O	1:E:915:LYS:N	2.48	0.47
1:H:809:LEU:O	1:H:810:CYS:C	2.57	0.47
1:H:903:THR:O	1:H:904:LEU:HD23	2.15	0.47
1:C:831:TYR:O	1:C:886:VAL:HA	2.14	0.47
1:C:833:VAL:HG11	1:C:838:PHE:CG	2.50	0.47
1:C:836:ASP:O	1:C:839:LYS:N	2.47	0.47
1:D:884:ILE:H	1:D:884:ILE:CD1	2.28	0.47
1:F:827:GLU:HG2	1:F:855:SER:OG	2.15	0.47
1:I:824:ARG:CG	1:I:834:LEU:HD11	2.44	0.47
1:J:813:CYS:O	1:J:813:CYS:SG	2.72	0.47
1:J:813:CYS:SG	1:J:864:CYS:SG	3.13	0.47
1:D:865:ALA:O	1:D:866:ARG:C	2.57	0.47
1:F:825:VAL:HG22	1:F:831:TYR:CE2	2.50	0.47
1:J:913:PHE:CZ	1:J:915:LYS:HG2	2.50	0.47
1:D:916:ILE:N	3:D:26:HOH:O	2.30	0.47
1:G:903:THR:O	1:G:904:LEU:HD23	2.15	0.47
1:D:838:PHE:CE1	1:D:873:TRP:HZ3	2.33	0.47
1:H:889:ILE:C	1:H:891:SER:H	2.22	0.47
1:J:831:TYR:N	1:J:831:TYR:CD1	2.82	0.47
1:I:911:PHE:O	1:I:913:PHE:HD1	1.98	0.46
1:F:811:ARG:HD2	1:F:893:VAL:CG2	2.46	0.46
1:G:893:VAL:HG13	1:G:904:LEU:HD21	1.96	0.46
1:C:858:LYS:HA	1:C:877:VAL:HG12	1.96	0.46
1:B:867:GLN:HG2	1:B:868:ASN:OD1	2.16	0.46
1:E:812:LYS:CG	1:E:813:CYS:N	2.78	0.46
1:F:856:PHE:CE2	1:F:877:VAL:HG11	2.50	0.46
1:I:819:TYR:C	1:I:821:ALA:H	2.23	0.46
1:A:845:ARG:HH11	1:A:845:ARG:HG2	1.81	0.46
1:B:869:CYS:O	1:B:871:HIS:N	2.49	0.46
1:E:810:CYS:O	1:E:811:ARG:C	2.58	0.46
1:G:811:ARG:CZ	1:G:904:LEU:HB3	2.46	0.46
1:H:824:ARG:HD3	1:H:916:ILE:HB	1.96	0.46
1:B:831:TYR:OH	1:B:915:LYS:HD3	2.15	0.46
1:E:889:ILE:HD13	1:E:908:TRP:CH2	2.50	0.46
1:F:842:PHE:CE2	1:F:862:ILE:HG12	2.50	0.46
1:G:874:GLY:HA2	1:G:888:LYS:HE2	1.97	0.46

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:G:920:PRO:O	1:G:922:GLU:N	2.41	0.46
1:F:808:LEU:CD2	1:F:894:VAL:HB	2.46	0.46
1:H:889:ILE:CG2	1:H:890:GLU:N	2.78	0.46
1:C:856:PHE:C	1:C:856:PHE:CD2	2.93	0.46
1:H:810:CYS:HB3	1:H:813:CYS:SG	2.55	0.46
1:I:875:ILE:O	1:I:875:ILE:HG13	2.15	0.46
1:C:855:SER:O	1:C:856:PHE:HB3	2.15	0.46
1:C:856:PHE:C	1:C:856:PHE:HD2	2.23	0.46
1:G:810:CYS:O	1:G:811:ARG:C	2.59	0.46
1:G:824:ARG:HD3	1:G:916:ILE:HB	1.98	0.46
1:H:893:VAL:CG1	1:H:902:GLN:HB3	2.46	0.46
1:B:816:LEU:HD23	1:B:817:ALA:N	2.31	0.46
1:F:893:VAL:HG22	1:F:904:LEU:CD2	2.46	0.46
1:I:856:PHE:CD2	1:I:877:VAL:HG21	2.51	0.46
1:C:911:PHE:CD1	1:C:911:PHE:C	2.94	0.45
1:F:884:ILE:HB	1:F:885:PRO:HD2	1.97	0.45
1:H:825:VAL:HG21	1:H:915:LYS:HB3	1.99	0.45
1:F:813:CYS:HB3	1:F:869:CYS:CB	2.45	0.45
1:F:869:CYS:O	1:F:870:SER:HB2	2.16	0.45
1:I:811:ARG:HD2	1:I:893:VAL:HG22	1.97	0.45
1:I:824:ARG:HB3	1:I:918:PHE:HA	1.98	0.45
1:A:836:ASP:HA	1:A:839:LYS:HG2	1.97	0.45
1:A:867:GLN:HG2	1:A:868:ASN:ND2	2.31	0.45
1:D:880:LYS:NZ	1:D:880:LYS:CB	2.79	0.45
1:E:812:LYS:HG3	1:E:869:CYS:SG	2.56	0.45
1:H:884:ILE:HD13	1:H:884:ILE:N	2.31	0.45
1:B:806:LYS:HB2	1:B:820:THR:CG2	2.46	0.45
1:D:861:LYS:HA	1:D:875:ILE:HA	1.96	0.45
1:E:920:PRO:C	1:E:922:GLU:N	2.74	0.45
1:F:862:ILE:HG22	1:F:873:TRP:HB2	1.98	0.45
1:B:858:LYS:HE2	1:B:875:ILE:CG2	2.45	0.45
1:C:922:GLU:O	1:C:923:MET:CB	2.63	0.45
1:H:826:ILE:O	1:H:830:HIS:HB2	2.17	0.45
1:H:869:CYS:O	1:H:870:SER:C	2.58	0.45
1:I:847:HIS:O	1:I:848:PRO:O	2.34	0.45
1:B:896:ASP:O	1:B:897:ILE:C	2.60	0.45
1:C:862:ILE:HG12	1:C:874:GLY:O	2.16	0.45
1:E:824:ARG:CD	1:E:916:ILE:HB	2.46	0.45
1:J:832:THR:OG1	1:J:885:PRO:HG2	2.16	0.45
1:A:893:VAL:HG22	1:A:904:LEU:HD22	1.99	0.45
1:E:809:LEU:HA	1:E:815:ALA:O	2.17	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:E:810:CYS:CB	1:E:813:CYS:SG	3.03	0.45
1:G:847:HIS:CB	1:G:848:PRO:CD	2.93	0.45
1:G:856:PHE:CD2	1:G:877:VAL:HG21	2.52	0.45
1:H:879:TYR:O	1:H:881:THR:N	2.50	0.45
1:A:845:ARG:HG2	1:A:845:ARG:NH1	2.31	0.45
1:C:831:TYR:N	1:C:831:TYR:CD1	2.85	0.45
1:D:839:LYS:HA	1:D:842:PHE:CE1	2.52	0.45
1:D:867:GLN:O	1:D:868:ASN:HB2	2.17	0.45
1:E:864:CYS:HB3	1:E:869:CYS:O	2.17	0.45
1:G:807:LYS:HB3	1:G:819:TYR:CD2	2.51	0.45
1:H:847:HIS:O	1:H:849:LYS:N	2.49	0.45
1:E:823:VAL:HG12	1:E:824:ARG:N	2.32	0.45
1:E:884:ILE:CD1	1:E:884:ILE:N	2.79	0.45
1:F:859:ARG:NH2	1:F:878:LYS:HD2	2.32	0.45
1:E:866:ARG:HG2	1:E:866:ARG:HH11	1.82	0.44
1:C:856:PHE:HD2	1:C:856:PHE:O	1.99	0.44
1:E:836:ASP:O	1:E:839:LYS:N	2.50	0.44
1:H:807:LYS:O	1:H:894:VAL:HA	2.17	0.44
1:E:811:ARG:HD2	1:E:893:VAL:CG2	2.47	0.44
1:F:869:CYS:SG	1:F:871:HIS:HB2	2.58	0.44
1:C:809:LEU:HA	1:C:815:ALA:O	2.17	0.44
1:E:833:VAL:O	1:E:835:GLY:N	2.50	0.44
1:E:906:SER:O	1:E:907:LYS:HG2	2.18	0.44
1:E:805:ASN:HD21	1:E:819:TYR:HD2	1.65	0.44
1:F:808:LEU:HD23	1:F:894:VAL:HB	1.99	0.44
1:H:810:CYS:O	1:H:814:LYS:HA	2.18	0.44
1:A:805:ASN:OD1	1:A:821:ALA:HB2	2.18	0.44
1:B:919:ASP:O	1:B:920:PRO:C	2.60	0.44
1:C:811:ARG:HD2	1:C:893:VAL:HG22	1.99	0.44
1:D:879:TYR:N	1:D:882:PHE:O	2.41	0.44
1:H:856:PHE:HB3	1:H:879:TYR:HD1	1.81	0.44
1:C:889:ILE:O	1:C:890:GLU:C	2.60	0.44
1:H:841:CYS:C	1:H:865:ALA:HB2	2.42	0.44
1:B:825:VAL:HG22	1:B:831:TYR:CE2	2.53	0.44
1:H:813:CYS:O	1:H:814:LYS:HB2	2.17	0.44
1:I:807:LYS:CG	1:I:816:LEU:HD13	2.48	0.44
1:A:922:GLU:O	1:A:923:MET:HG2	2.18	0.44
1:I:834:LEU:N	1:I:834:LEU:CD1	2.81	0.44
1:J:836:ASP:O	1:J:839:LYS:HB2	2.18	0.44
1:C:844:SER:HB3	1:C:862:ILE:HG22	2.00	0.43
1:D:920:PRO:O	1:D:921:ALA:C	2.61	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:F:810:CYS:HB2	1:F:873:TRP:HZ2	1.82	0.43
1:C:813:CYS:HB3	1:C:869:CYS:HB2	2.00	0.43
1:E:805:ASN:C	1:E:806:LYS:HG3	2.43	0.43
1:F:842:PHE:CD2	1:F:862:ILE:HG23	2.53	0.43
1:G:921:ALA:O	1:G:922:GLU:CB	2.66	0.43
1:F:883:GLU:OE1	1:F:883:GLU:HA	2.19	0.43
1:H:863:PHE:N	1:H:863:PHE:CD1	2.86	0.43
1:E:861:LYS:HE3	1:E:872:ASP:OD2	2.18	0.43
1:E:908:TRP:HZ3	1:E:913:PHE:CZ	2.36	0.43
1:H:893:VAL:HG22	1:H:904:LEU:HD22	2.00	0.43
1:A:922:GLU:O	1:A:923:MET:CB	2.66	0.43
1:J:827:GLU:OE1	1:J:827:GLU:HA	2.17	0.43
1:J:832:THR:CB	1:J:885:PRO:O	2.66	0.43
1:A:916:ILE:N	3:A:24:HOH:O	2.48	0.43
1:D:856:PHE:CD2	1:D:877:VAL:HG21	2.53	0.43
1:D:907:LYS:HB3	1:D:909:LYS:HG2	2.00	0.43
1:H:879:TYR:N	1:H:882:PHE:O	2.51	0.43
1:I:838:PHE:O	1:I:841:CYS:HB2	2.19	0.43
1:A:920:PRO:O	1:A:921:ALA:C	2.60	0.43
1:F:812:LYS:CG	1:F:869:CYS:SG	3.07	0.43
1:D:897:ILE:CG1	1:D:898:ALA:N	2.82	0.43
1:H:813:CYS:HB3	1:H:869:CYS:SG	2.59	0.43
1:I:822:ASP:O	1:I:833:VAL:HA	2.19	0.43
1:I:858:LYS:HA	1:I:877:VAL:HG12	2.01	0.43
1:B:869:CYS:C	1:B:871:HIS:N	2.74	0.43
1:G:836:ASP:HA	1:G:839:LYS:CG	2.47	0.43
1:J:839:LYS:HA	1:J:842:PHE:CD1	2.53	0.43
1:D:816:LEU:HD12	1:D:817:ALA:N	2.33	0.42
1:G:827:GLU:O	1:G:828:GLU:HB2	2.19	0.42
1:G:887:ILE:HG13	1:G:908:TRP:HZ2	1.83	0.42
1:J:819:TYR:O	1:J:820:THR:C	2.62	0.42
1:J:833:VAL:HB	1:J:838:PHE:CD2	2.54	0.42
1:A:826:ILE:O	1:A:830:HIS:HB2	2.19	0.42
1:D:846:PRO:CA	1:D:860:ALA:HB2	2.43	0.42
1:G:920:PRO:C	1:G:922:GLU:N	2.77	0.42
1:C:901:VAL:HG22	1:C:902:GLN:N	2.34	0.42
1:D:808:LEU:O	1:D:809:LEU:HD23	2.19	0.42
1:D:813:CYS:HB3	1:D:869:CYS:SG	2.59	0.42
1:E:812:LYS:O	1:E:814:LYS:HG2	2.19	0.42
1:F:857:GLU:O	1:F:878:LYS:N	2.48	0.42
1:G:836:ASP:O	1:G:839:LYS:HB2	2.19	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:836:ASP:O	1:A:837:ALA:C	2.60	0.42
1:A:895:GLU:CD	1:A:902:GLN:HE21	2.26	0.42
1:D:919:ASP:OD2	1:D:919:ASP:C	2.62	0.42
1:E:861:LYS:O	1:E:863:PHE:CE1	2.73	0.42
1:E:920:PRO:O	1:E:922:GLU:N	2.52	0.42
1:F:810:CYS:HB3	1:F:813:CYS:SG	2.59	0.42
1:A:893:VAL:HG22	1:A:904:LEU:HD21	2.00	0.42
1:D:807:LYS:O	1:D:894:VAL:HA	2.18	0.42
1:E:813:CYS:C	1:E:815:ALA:H	2.28	0.42
1:G:872:ASP:OD2	1:G:888:LYS:NZ	2.52	0.42
1:I:819:TYR:C	1:I:821:ALA:N	2.75	0.42
1:G:818:CYS:HB3	1:G:838:PHE:CD1	2.55	0.42
1:G:921:ALA:O	1:G:922:GLU:HB2	2.20	0.42
1:H:862:ILE:HG13	1:H:873:TRP:HB2	2.01	0.42
1:A:836:ASP:C	1:A:839:LYS:HG2	2.44	0.42
1:D:825:VAL:HG21	1:D:915:LYS:HB3	2.02	0.42
1:D:889:ILE:HB	1:D:908:TRP:CE2	2.55	0.42
1:E:806:LYS:O	1:E:819:TYR:HA	2.19	0.42
1:E:813:CYS:C	1:E:815:ALA:N	2.77	0.42
1:I:879:TYR:O	1:I:880:LYS:C	2.63	0.42
1:E:812:LYS:O	1:E:814:LYS:N	2.52	0.42
1:J:824:ARG:HA	1:J:824:ARG:HD3	1.86	0.42
1:E:879:TYR:O	1:E:880:LYS:HB2	2.20	0.42
1:E:891:SER:C	1:E:892:PHE:CD2	2.98	0.42
1:C:901:VAL:CG2	1:C:902:GLN:N	2.83	0.41
1:D:856:PHE:CE2	1:D:877:VAL:HG11	2.54	0.41
1:F:918:PHE:CG	1:F:919:ASP:N	2.87	0.41
1:G:845:ARG:HA	1:G:846:PRO:HD2	1.90	0.41
1:I:834:LEU:HB3	1:I:835:GLY:H	1.70	0.41
1:A:921:ALA:C	1:A:923:MET:N	2.77	0.41
1:C:893:VAL:HG13	1:C:904:LEU:HD23	2.01	0.41
1:E:812:LYS:C	1:E:814:LYS:N	2.73	0.41
1:G:878:LYS:HA	1:G:882:PHE:O	2.20	0.41
1:H:807:LYS:HB3	1:H:807:LYS:HZ3	1.85	0.41
1:I:838:PHE:O	1:I:842:PHE:HD1	2.03	0.41
1:I:839:LYS:HA	1:I:842:PHE:HE1	1.84	0.41
1:C:894:VAL:HG22	1:C:903:THR:OG1	2.21	0.41
1:F:813:CYS:O	1:F:814:LYS:HB2	2.20	0.41
1:J:809:LEU:HD11	1:J:895:GLU:OE2	2.20	0.41
1:E:923:MET:HE3	1:E:923:MET:N	2.30	0.41
1:I:809:LEU:HA	1:I:815:ALA:O	2.21	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:D:805:ASN:OD1	1:D:819:TYR:HB3	2.20	0.41
1:D:823:VAL:C	1:D:824:ARG:HH11	2.28	0.41
1:D:827:GLU:O	1:D:829:CYS:N	2.54	0.41
1:G:846:PRO:HA	1:G:860:ALA:CB	2.51	0.41
1:I:812:LYS:C	1:I:814:LYS:N	2.78	0.41
1:I:826:ILE:C	1:I:828:GLU:H	2.28	0.41
1:A:831:TYR:CD1	1:A:831:TYR:N	2.89	0.41
1:D:813:CYS:O	1:D:814:LYS:HB2	2.20	0.41
1:I:810:CYS:O	1:I:811:ARG:C	2.64	0.41
1:A:829:CYS:HG	1:B:829:CYS:CB	2.28	0.41
1:C:827:GLU:O	1:C:828:GLU:HB2	2.21	0.41
1:C:830:HIS:CD2	1:C:856:PHE:CE1	3.09	0.41
1:C:842:PHE:HB3	1:C:873:TRP:CZ3	2.56	0.41
1:E:901:VAL:HG12	1:E:901:VAL:H	1.65	0.41
1:F:816:LEU:C	1:F:816:LEU:CD2	2.93	0.41
1:G:913:PHE:O	1:G:915:LYS:HG3	2.21	0.41
1:I:899:THR:OG1	1:I:900:GLY:N	2.48	0.41
1:C:920:PRO:O	1:C:923:MET:N	2.54	0.41
1:F:896:ASP:O	1:F:897:ILE:C	2.64	0.41
1:D:913:PHE:H	1:D:913:PHE:HD1	1.61	0.40
1:F:827:GLU:O	1:F:828:GLU:HB2	2.21	0.40
1:H:847:HIS:HB2	1:H:859:ARG:C	2.46	0.40
1:H:916:ILE:HA	1:H:917:PRO:HD2	1.98	0.40
1:J:811:ARG:CD	1:J:892:PHE:O	2.69	0.40
1:C:824:ARG:HB2	1:C:832:THR:CG2	2.51	0.40
1:C:862:ILE:HG12	1:C:874:GLY:C	2.47	0.40
1:F:874:GLY:N	1:F:888:LYS:HD2	2.37	0.40
1:I:872:ASP:OD2	1:I:888:LYS:HE2	2.21	0.40
1:B:810:CYS:O	1:B:814:LYS:N	2.52	0.40
1:C:807:LYS:HD2	1:C:816:LEU:HD13	2.03	0.40
1:D:811:ARG:HA	1:D:893:VAL:HG23	2.03	0.40
1:E:922:GLU:HA	1:E:923:MET:HE3	2.03	0.40
1:H:805:ASN:OD1	1:H:821:ALA:HB2	2.22	0.40
1:J:820:THR:O	1:J:822:ASP:N	2.54	0.40
1:F:867:GLN:O	1:F:868:ASN:CB	2.69	0.40
1:A:890:GLU:HB2	3:A:1:HOH:O	2.21	0.40
1:A:922:GLU:O	1:A:923:MET:HB2	2.22	0.40
1:G:831:TYR:CD1	1:G:831:TYR:N	2.89	0.40
1:I:831:TYR:CD1	1:I:831:TYR:N	2.89	0.40
1:I:893:VAL:HG22	1:I:904:LEU:CD2	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	119/145 (82%)	105 (88%)	13 (11%)	1 (1%)	16	50
1	B	119/145 (82%)	98 (82%)	13 (11%)	8 (7%)	1	5
1	C	119/145 (82%)	95 (80%)	18 (15%)	6 (5%)	1	10
1	D	119/145 (82%)	88 (74%)	21 (18%)	10 (8%)	0	3
1	E	119/145 (82%)	89 (75%)	17 (14%)	13 (11%)	0	1
1	F	119/145 (82%)	95 (80%)	18 (15%)	6 (5%)	1	10
1	G	119/145 (82%)	94 (79%)	18 (15%)	7 (6%)	1	7
1	H	119/145 (82%)	93 (78%)	18 (15%)	8 (7%)	1	5
1	I	119/145 (82%)	81 (68%)	28 (24%)	10 (8%)	0	3
1	J	119/145 (82%)	85 (71%)	21 (18%)	13 (11%)	0	1
All	All	1190/1450 (82%)	923 (78%)	185 (16%)	82 (7%)	1	5

All (82) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	B	847	HIS
1	B	850	PRO
1	C	867	GLN
1	D	828	GLU
1	D	849	LYS
1	D	870	SER
1	E	814	LYS
1	E	847	HIS
1	E	850	PRO
1	E	858	LYS
1	E	859	ARG
1	F	868	ASN
1	F	922	GLU
1	G	848	PRO

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Mol	Chain	Res	Type
1	G	849	LYS
1	G	854	SER
1	G	922	GLU
1	H	852	GLN
1	H	854	SER
1	H	880	LYS
1	I	848	PRO
1	J	814	LYS
1	J	847	HIS
1	J	849	LYS
1	J	850	PRO
1	J	855	SER
1	B	849	LYS
1	B	897	ILE
1	C	890	GLU
1	D	850	PRO
1	D	855	SER
1	D	908	TRP
1	E	866	ARG
1	E	914	GLU
1	H	846	PRO
1	I	829	CYS
1	I	835	GLY
1	I	868	ASN
1	I	899	THR
1	J	880	LYS
1	B	853	PHE
1	C	854	SER
1	D	853	PHE
1	D	854	SER
1	D	859	ARG
1	E	813	CYS
1	E	853	PHE
1	E	921	ALA
1	F	820	THR
1	F	866	ARG
1	G	914	GLU
1	H	853	PHE
1	H	890	GLU
1	I	855	SER
1	J	821	ALA
1	J	840	GLU

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Mol	Chain	Res	Type
1	J	851	LYS
1	J	922	GLU
1	B	848	PRO
1	B	870	SER
1	B	898	ALA
1	C	846	PRO
1	C	850	PRO
1	C	869	CYS
1	D	858	LYS
1	E	855	SER
1	H	914	GLU
1	I	813	CYS
1	I	914	GLU
1	J	812	LYS
1	J	846	PRO
1	J	848	PRO
1	A	921	ALA
1	E	828	GLU
1	F	815	ALA
1	G	851	LYS
1	H	834	LEU
1	I	834	LEU
1	I	849	LYS
1	F	897	ILE
1	E	846	PRO
1	G	850	PRO

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	110/131 (84%)	105 (96%)	5 (4%)	24	59
1	B	110/131 (84%)	105 (96%)	5 (4%)	24	59
1	C	110/131 (84%)	104 (94%)	6 (6%)	19	53
1	D	110/131 (84%)	100 (91%)	10 (9%)	9	33

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Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
1	E	110/131 (84%)	99 (90%)	11 (10%)	7	29
1	F	110/131 (84%)	102 (93%)	8 (7%)	13	42
1	G	110/131 (84%)	105 (96%)	5 (4%)	24	59
1	H	110/131 (84%)	97 (88%)	13 (12%)	5	22
1	I	110/131 (84%)	100 (91%)	10 (9%)	9	33
1	J	110/131 (84%)	103 (94%)	7 (6%)	16	48
All	All	1100/1310 (84%)	1020 (93%)	80 (7%)	13	42

All (80) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	811	ARG
1	A	825	VAL
1	A	839	LYS
1	A	851	LYS
1	A	866	ARG
1	B	811	ARG
1	B	816	LEU
1	B	826	ILE
1	B	857	GLU
1	B	893	VAL
1	C	811	ARG
1	C	856	PHE
1	C	883	GLU
1	C	894	VAL
1	C	901	VAL
1	C	919	ASP
1	D	811	ARG
1	D	825	VAL
1	D	866	ARG
1	D	876	HIS
1	D	880	LYS
1	D	881	THR
1	D	884	ILE
1	D	894	VAL
1	D	897	ILE
1	D	903	THR
1	E	803	LYS
1	E	825	VAL
1	E	827	GLU

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Mol	Chain	Res	Type
1	E	836	ASP
1	E	884	ILE
1	E	892	PHE
1	E	894	VAL
1	E	897	ILE
1	E	901	VAL
1	E	903	THR
1	E	923	MET
1	F	811	ARG
1	F	827	GLU
1	F	883	GLU
1	F	884	ILE
1	F	888	LYS
1	F	894	VAL
1	F	899	THR
1	F	922	GLU
1	G	816	LEU
1	G	825	VAL
1	G	884	ILE
1	G	894	VAL
1	G	903	THR
1	H	807	LYS
1	H	822	ASP
1	H	846	PRO
1	H	847	HIS
1	H	853	PHE
1	H	868	ASN
1	H	870	SER
1	H	882	PHE
1	H	884	ILE
1	H	890	GLU
1	H	895	GLU
1	H	897	ILE
1	H	903	THR
1	I	803	LYS
1	I	809	LEU
1	I	825	VAL
1	I	852	GLN
1	I	866	ARG
1	I	884	ILE
1	I	894	VAL
1	I	903	THR

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Mol	Chain	Res	Type
1	I	909	LYS
1	I	914	GLU
1	J	816	LEU
1	J	845	ARG
1	J	846	PRO
1	J	852	GLN
1	J	884	ILE
1	J	894	VAL
1	J	901	VAL

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (23) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	805	ASN
1	A	852	GLN
1	A	867	GLN
1	A	868	ASN
1	A	902	GLN
1	B	830	HIS
1	C	867	GLN
1	D	830	HIS
1	D	868	ASN
1	D	871	HIS
1	D	912	HIS
1	E	830	HIS
1	E	867	GLN
1	E	876	HIS
1	F	852	GLN
1	F	871	HIS
1	F	876	HIS
1	G	805	ASN
1	G	830	HIS
1	G	867	GLN
1	G	876	HIS
1	H	867	GLN
1	I	876	HIS

5.3.3 RNA ⓘ

There are no RNA molecules in this entry.

5.4 Non-standard residues in protein, DNA, RNA chains [i](#)

There are no non-standard protein/DNA/RNA residues in this entry.

5.5 Carbohydrates [i](#)

There are no oligosaccharides in this entry.

5.6 Ligand geometry [i](#)

Of 10 ligands modelled in this entry, 10 are monoatomic - leaving 0 for Mogul analysis.

There are no bond length outliers.

There are no bond angle outliers.

There are no chirality outliers.

There are no torsion outliers.

There are no ring outliers.

No monomer is involved in short contacts.

5.7 Other polymers [i](#)

There are no such residues in this entry.

5.8 Polymer linkage issues [i](#)

There are no chain breaks in this entry.

6 Fit of model and data ⓘ

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	121/145 (83%)	-0.59	1 (0%) 82 64	3, 21, 48, 62	14 (11%)
1	B	119/145 (82%)	-0.30	3 (2%) 58 35	4, 22, 42, 64	20 (16%)
1	C	119/145 (82%)	-0.04	1 (0%) 82 64	10, 36, 66, 81	24 (20%)
1	D	112/145 (77%)	-0.08	2 (1%) 67 44	8, 35, 65, 90	18 (16%)
1	E	118/145 (81%)	0.37	9 (7%) 20 10	12, 42, 85, 97	25 (21%)
1	F	120/145 (82%)	0.11	2 (1%) 69 45	11, 43, 59, 85	27 (22%)
1	G	118/145 (81%)	0.25	9 (7%) 20 10	14, 45, 68, 96	29 (24%)
1	H	118/145 (81%)	0.31	4 (3%) 48 27	22, 52, 89, 108	26 (22%)
1	I	120/145 (82%)	0.61	8 (6%) 24 12	12, 58, 92, 96	37 (30%)
1	J	109/145 (75%)	0.96	16 (14%) 6 3	9, 62, 91, 105	42 (38%)
All	All	1174/1450 (80%)	0.15	55 (4%) 36 19	3, 42, 80, 108	262 (22%)

All (55) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	B	851	LYS	15.6
1	F	923	MET	9.3
1	J	868	ASN	8.4
1	G	848	PRO	6.3
1	J	871	HIS	6.1
1	J	847	HIS	5.2
1	D	923	MET	4.7
1	I	803	LYS	4.6
1	F	922	GLU	4.5
1	G	854	SER	3.8
1	I	827	GLU	3.6
1	G	853	PHE	3.5
1	J	803	LYS	3.5

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Mol	Chain	Res	Type	RSRZ
1	G	855	SER	3.4
1	J	842	PHE	3.3
1	I	804	GLU	3.1
1	J	856	PHE	3.0
1	H	922	GLU	3.0
1	H	882	PHE	2.9
1	C	849	LYS	2.9
1	J	921	ALA	2.8
1	I	867	GLN	2.8
1	I	870	SER	2.7
1	E	870	SER	2.6
1	E	854	SER	2.6
1	B	848	PRO	2.6
1	G	923	MET	2.6
1	J	863	PHE	2.6
1	E	855	SER	2.5
1	E	857	GLU	2.4
1	G	856	PHE	2.4
1	I	871	HIS	2.4
1	J	879	TYR	2.4
1	E	848	PRO	2.4
1	J	862	ILE	2.3
1	B	850	PRO	2.3
1	J	859	ARG	2.3
1	J	866	ARG	2.3
1	I	868	ASN	2.2
1	G	804	GLU	2.2
1	I	874	GLY	2.2
1	E	835	GLY	2.2
1	G	850	PRO	2.2
1	H	849	LYS	2.2
1	J	880	LYS	2.2
1	E	865	ALA	2.1
1	J	873	TRP	2.1
1	G	860	ALA	2.1
1	E	845	ARG	2.1
1	H	920	PRO	2.1
1	J	919	ASP	2.1
1	D	856	PHE	2.0
1	E	856	PHE	2.0
1	A	923	MET	2.0
1	J	914	GLU	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($\text{\AA}^2$)	Q<0.9
2	ZN	J	1010	1/1	0.95	0.08	86,86,86,86	0
2	ZN	E	1005	1/1	0.99	0.02	50,50,50,50	0
2	ZN	H	1008	1/1	0.99	0.04	57,57,57,57	0
2	ZN	I	1009	1/1	0.99	0.02	88,88,88,88	0
2	ZN	B	1002	1/1	0.99	0.02	30,30,30,30	0
2	ZN	F	1006	1/1	1.00	0.04	44,44,44,44	0
2	ZN	G	1007	1/1	1.00	0.03	52,52,52,52	0
2	ZN	C	1003	1/1	1.00	0.01	47,47,47,47	0
2	ZN	D	1004	1/1	1.00	0.01	47,47,47,47	0
2	ZN	A	1001	1/1	1.00	0.03	28,28,28,28	0

6.5 Other polymers [i](#)

There are no such residues in this entry.