Full wwPDB X-ray Structure Validation Report ⓘ

Nov 26, 2024 – 06:10 PM JST

PDB ID	:	8XAA
Title	:	Structure of NAP1 in complex with H2A-H2B
Authors	:	Li, X.
Deposited on	:	2023-12-03
Resolution	:	3.35 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:

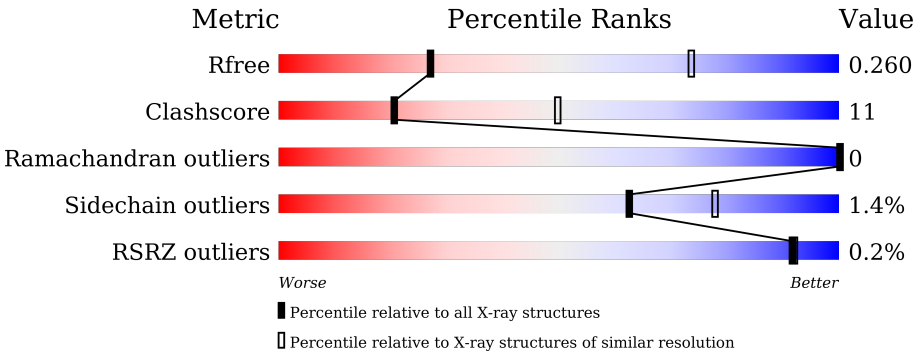
MolProbity	:	4.02b-467
Xtriage (Phenix)	:	1.21
EDS	:	3.0
Percentile statistics	:	20231227.v01 (using entries in the PDB archive December 27th 2023)
CCP4	:	9.0.004 (Gargrove)
Density-Fitness	:	1.0.11
Ideal geometry (proteins)	:	Engh & Huber (2001)
Ideal geometry (DNA, RNA)	:	Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP)	:	2.40

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 3.35 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}	164625	1012 (3.40-3.32)
Clashscore	180529	1035 (3.40-3.32)
Ramachandran outliers	177936	1037 (3.40-3.32)
Sidechain outliers	177891	1037 (3.40-3.32)
RSRZ outliers	164620	1012 (3.40-3.32)

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 <=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	308	69% 22% 9%
1	B	308	66% 21% 13%
1	C	308	62% 27% 11%
1	D	308	59% 25% 16%
1	E	308	59% 22% 19%
1	F	308	60% 22% 18%

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Mol	Chain	Length	Quality of chain
1	G	308	60% 24% 16%
1	H	308	61% 23% 16%
2	I	92	70% 23% 8%
2	K	92	2% 50% 39% 11%
3	J	99	71% 19% 10%
3	L	99	% 60% 31% 9%

2 Entry composition (i)

There are 3 unique types of molecules in this entry. The entry contains 19338 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 Nucleosome Assembly Protein.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
1	A	280	Total	C	N	O	S	0	0	0
			2217	1420	359	434	4			
1	B	269	Total	C	N	O	S	0	0	0
			2136	1365	344	422	5			
1	E	249	Total	C	N	O	S	0	0	0
			1962	1260	310	388	4			
1	F	254	Total	C	N	O	S	0	0	0
			2018	1301	326	387	4			
1	C	273	Total	C	N	O	S	0	0	0
			2177	1387	352	435	3			
1	D	260	Total	C	N	O	S	0	0	0
			2048	1315	329	400	4			
1	G	259	Total	C	N	O	S	0	0	0
			2054	1319	326	405	4			
1	H	258	Total	C	N	O	S	0	0	0
			2032	1307	323	398	4			

There are 168 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
A	-11	MET	-	initiating methionine	UNP Q19007
A	-10	GLY	-	expression tag	UNP Q19007
A	-9	SER	-	expression tag	UNP Q19007
A	-8	SER	-	expression tag	UNP Q19007
A	-7	HIS	-	expression tag	UNP Q19007
A	-6	HIS	-	expression tag	UNP Q19007
A	-5	HIS	-	expression tag	UNP Q19007
A	-4	HIS	-	expression tag	UNP Q19007
A	-3	HIS	-	expression tag	UNP Q19007
A	-2	HIS	-	expression tag	UNP Q19007
A	-1	SER	-	expression tag	UNP Q19007
A	0	SER	-	expression tag	UNP Q19007
A	1	GLY	-	expression tag	UNP Q19007

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Chain	Residue	Modelled	Actual	Comment	Reference
A	2	GLU	-	expression tag	UNP Q19007
A	3	ASN	-	expression tag	UNP Q19007
A	4	LEU	-	expression tag	UNP Q19007
A	5	TYR	-	expression tag	UNP Q19007
A	6	PHE	-	expression tag	UNP Q19007
A	7	GLN	-	expression tag	UNP Q19007
A	8	HIS	-	expression tag	UNP Q19007
A	9	MET	-	expression tag	UNP Q19007
B	-11	MET	-	initiating methionine	UNP Q19007
B	-10	GLY	-	expression tag	UNP Q19007
B	-9	SER	-	expression tag	UNP Q19007
B	-8	SER	-	expression tag	UNP Q19007
B	-7	HIS	-	expression tag	UNP Q19007
B	-6	HIS	-	expression tag	UNP Q19007
B	-5	HIS	-	expression tag	UNP Q19007
B	-4	HIS	-	expression tag	UNP Q19007
B	-3	HIS	-	expression tag	UNP Q19007
B	-2	HIS	-	expression tag	UNP Q19007
B	-1	SER	-	expression tag	UNP Q19007
B	0	SER	-	expression tag	UNP Q19007
B	1	GLY	-	expression tag	UNP Q19007
B	2	GLU	-	expression tag	UNP Q19007
B	3	ASN	-	expression tag	UNP Q19007
B	4	LEU	-	expression tag	UNP Q19007
B	5	TYR	-	expression tag	UNP Q19007
B	6	PHE	-	expression tag	UNP Q19007
B	7	GLN	-	expression tag	UNP Q19007
B	8	HIS	-	expression tag	UNP Q19007
B	9	MET	-	expression tag	UNP Q19007
E	-11	MET	-	initiating methionine	UNP Q19007
E	-10	GLY	-	expression tag	UNP Q19007
E	-9	SER	-	expression tag	UNP Q19007
E	-8	SER	-	expression tag	UNP Q19007
E	-7	HIS	-	expression tag	UNP Q19007
E	-6	HIS	-	expression tag	UNP Q19007
E	-5	HIS	-	expression tag	UNP Q19007
E	-4	HIS	-	expression tag	UNP Q19007
E	-3	HIS	-	expression tag	UNP Q19007
E	-2	HIS	-	expression tag	UNP Q19007
E	-1	SER	-	expression tag	UNP Q19007
E	0	SER	-	expression tag	UNP Q19007
E	1	GLY	-	expression tag	UNP Q19007

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Chain	Residue	Modelled	Actual	Comment	Reference
E	2	GLU	-	expression tag	UNP Q19007
E	3	ASN	-	expression tag	UNP Q19007
E	4	LEU	-	expression tag	UNP Q19007
E	5	TYR	-	expression tag	UNP Q19007
E	6	PHE	-	expression tag	UNP Q19007
E	7	GLN	-	expression tag	UNP Q19007
E	8	HIS	-	expression tag	UNP Q19007
E	9	MET	-	expression tag	UNP Q19007
F	-11	MET	-	initiating methionine	UNP Q19007
F	-10	GLY	-	expression tag	UNP Q19007
F	-9	SER	-	expression tag	UNP Q19007
F	-8	SER	-	expression tag	UNP Q19007
F	-7	HIS	-	expression tag	UNP Q19007
F	-6	HIS	-	expression tag	UNP Q19007
F	-5	HIS	-	expression tag	UNP Q19007
F	-4	HIS	-	expression tag	UNP Q19007
F	-3	HIS	-	expression tag	UNP Q19007
F	-2	HIS	-	expression tag	UNP Q19007
F	-1	SER	-	expression tag	UNP Q19007
F	0	SER	-	expression tag	UNP Q19007
F	1	GLY	-	expression tag	UNP Q19007
F	2	GLU	-	expression tag	UNP Q19007
F	3	ASN	-	expression tag	UNP Q19007
F	4	LEU	-	expression tag	UNP Q19007
F	5	TYR	-	expression tag	UNP Q19007
F	6	PHE	-	expression tag	UNP Q19007
F	7	GLN	-	expression tag	UNP Q19007
F	8	HIS	-	expression tag	UNP Q19007
F	9	MET	-	expression tag	UNP Q19007
C	-11	MET	-	initiating methionine	UNP Q19007
C	-10	GLY	-	expression tag	UNP Q19007
C	-9	SER	-	expression tag	UNP Q19007
C	-8	SER	-	expression tag	UNP Q19007
C	-7	HIS	-	expression tag	UNP Q19007
C	-6	HIS	-	expression tag	UNP Q19007
C	-5	HIS	-	expression tag	UNP Q19007
C	-4	HIS	-	expression tag	UNP Q19007
C	-3	HIS	-	expression tag	UNP Q19007
C	-2	HIS	-	expression tag	UNP Q19007
C	-1	SER	-	expression tag	UNP Q19007
C	0	SER	-	expression tag	UNP Q19007
C	1	GLY	-	expression tag	UNP Q19007

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Chain	Residue	Modelled	Actual	Comment	Reference
C	2	GLU	-	expression tag	UNP Q19007
C	3	ASN	-	expression tag	UNP Q19007
C	4	LEU	-	expression tag	UNP Q19007
C	5	TYR	-	expression tag	UNP Q19007
C	6	PHE	-	expression tag	UNP Q19007
C	7	GLN	-	expression tag	UNP Q19007
C	8	HIS	-	expression tag	UNP Q19007
C	9	MET	-	expression tag	UNP Q19007
D	-11	MET	-	initiating methionine	UNP Q19007
D	-10	GLY	-	expression tag	UNP Q19007
D	-9	SER	-	expression tag	UNP Q19007
D	-8	SER	-	expression tag	UNP Q19007
D	-7	HIS	-	expression tag	UNP Q19007
D	-6	HIS	-	expression tag	UNP Q19007
D	-5	HIS	-	expression tag	UNP Q19007
D	-4	HIS	-	expression tag	UNP Q19007
D	-3	HIS	-	expression tag	UNP Q19007
D	-2	HIS	-	expression tag	UNP Q19007
D	-1	SER	-	expression tag	UNP Q19007
D	0	SER	-	expression tag	UNP Q19007
D	1	GLY	-	expression tag	UNP Q19007
D	2	GLU	-	expression tag	UNP Q19007
D	3	ASN	-	expression tag	UNP Q19007
D	4	LEU	-	expression tag	UNP Q19007
D	5	TYR	-	expression tag	UNP Q19007
D	6	PHE	-	expression tag	UNP Q19007
D	7	GLN	-	expression tag	UNP Q19007
D	8	HIS	-	expression tag	UNP Q19007
D	9	MET	-	expression tag	UNP Q19007
G	-11	MET	-	initiating methionine	UNP Q19007
G	-10	GLY	-	expression tag	UNP Q19007
G	-9	SER	-	expression tag	UNP Q19007
G	-8	SER	-	expression tag	UNP Q19007
G	-7	HIS	-	expression tag	UNP Q19007
G	-6	HIS	-	expression tag	UNP Q19007
G	-5	HIS	-	expression tag	UNP Q19007
G	-4	HIS	-	expression tag	UNP Q19007
G	-3	HIS	-	expression tag	UNP Q19007
G	-2	HIS	-	expression tag	UNP Q19007
G	-1	SER	-	expression tag	UNP Q19007
G	0	SER	-	expression tag	UNP Q19007
G	1	GLY	-	expression tag	UNP Q19007

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Chain	Residue	Modelled	Actual	Comment	Reference
G	2	GLU	-	expression tag	UNP Q19007
G	3	ASN	-	expression tag	UNP Q19007
G	4	LEU	-	expression tag	UNP Q19007
G	5	TYR	-	expression tag	UNP Q19007
G	6	PHE	-	expression tag	UNP Q19007
G	7	GLN	-	expression tag	UNP Q19007
G	8	HIS	-	expression tag	UNP Q19007
G	9	MET	-	expression tag	UNP Q19007
H	-11	MET	-	initiating methionine	UNP Q19007
H	-10	GLY	-	expression tag	UNP Q19007
H	-9	SER	-	expression tag	UNP Q19007
H	-8	SER	-	expression tag	UNP Q19007
H	-7	HIS	-	expression tag	UNP Q19007
H	-6	HIS	-	expression tag	UNP Q19007
H	-5	HIS	-	expression tag	UNP Q19007
H	-4	HIS	-	expression tag	UNP Q19007
H	-3	HIS	-	expression tag	UNP Q19007
H	-2	HIS	-	expression tag	UNP Q19007
H	-1	SER	-	expression tag	UNP Q19007
H	0	SER	-	expression tag	UNP Q19007
H	1	GLY	-	expression tag	UNP Q19007
H	2	GLU	-	expression tag	UNP Q19007
H	3	ASN	-	expression tag	UNP Q19007
H	4	LEU	-	expression tag	UNP Q19007
H	5	TYR	-	expression tag	UNP Q19007
H	6	PHE	-	expression tag	UNP Q19007
H	7	GLN	-	expression tag	UNP Q19007
H	8	HIS	-	expression tag	UNP Q19007
H	9	MET	-	expression tag	UNP Q19007

- Molecule 2 is a protein called Histone H2A.

Mol	Chain	Residues	Atoms				ZeroOcc	AltConf	Trace
2	I	85	Total	C	N	O	0	0	0
			662	415	131	116			
2	K	82	Total	C	N	O	0	0	0
			641	402	127	112			

- Molecule 3 is a protein called Histone H2B 1.1.

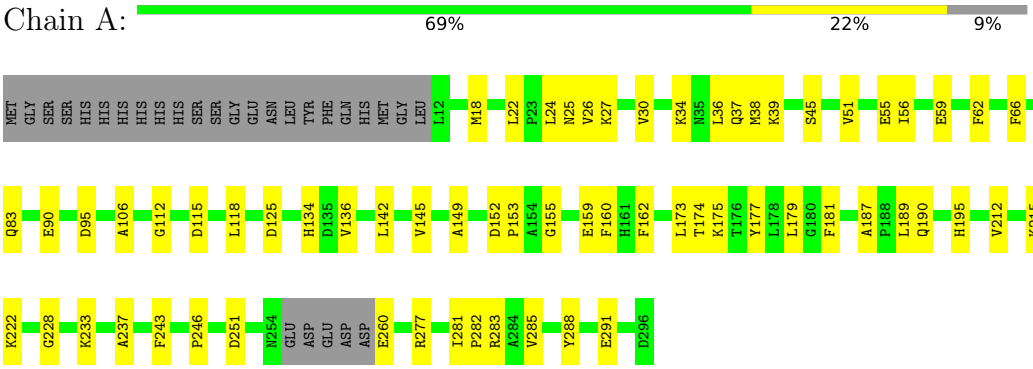
Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
3	J	89	Total 694	C 438	N 122	O 132	S 2	0	0	0
3	L	90	Total 697	C 441	N 121	O 133	S 2	0	0	0

3 Residue-property plots (i)

These plots are drawn for all protein, RNA, DNA and oligosaccharide chains in the entry. The first graphic for a chain summarises the proportions of the various outlier classes displayed in the second graphic. The second graphic shows the sequence view annotated by issues in geometry and electron density. Residues are color-coded according to the number of geometric quality criteria for which they contain at least one outlier: green = 0, yellow = 1, orange = 2 and red = 3 or more. A red dot above a residue indicates a poor fit to the electron density (RSRZ > 2). Stretches of 2 or more consecutive residues without any outlier are shown as a green connector. Residues present in the sample, but not in the model, are shown in grey.

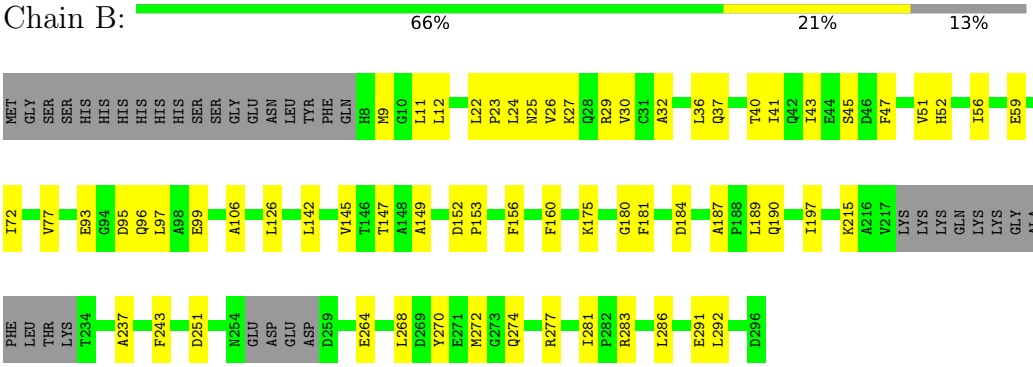
• Molecule 1: Nucleosome Assembly Protein

Chain A:



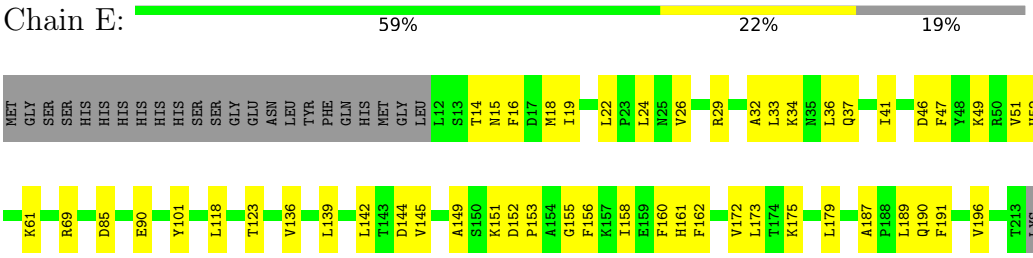
• Molecule 1: Nucleosome Assembly Protein

Chain B:



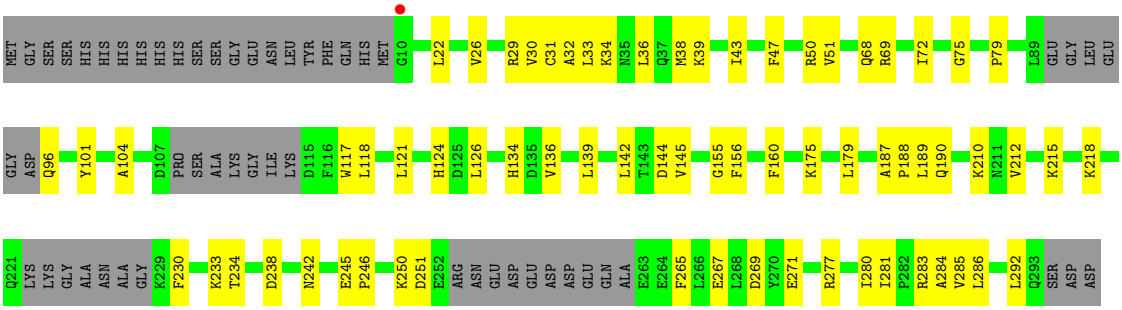
• Molecule 1: Nucleosome Assembly Protein

Chain E:



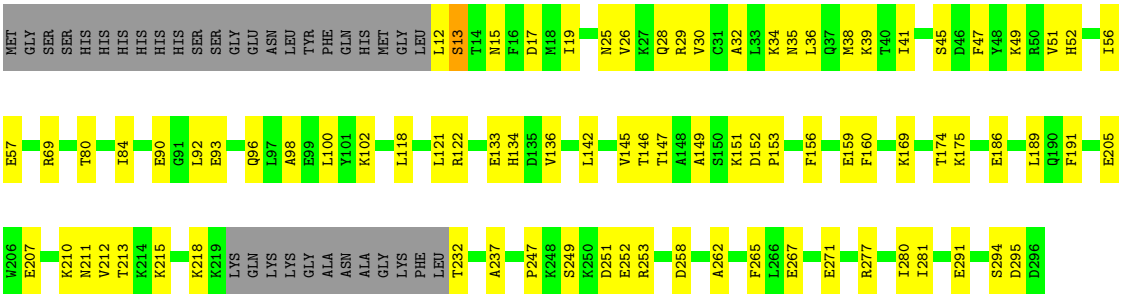
• Molecule 1: Nucleosome Assembly Protein

Chain F:



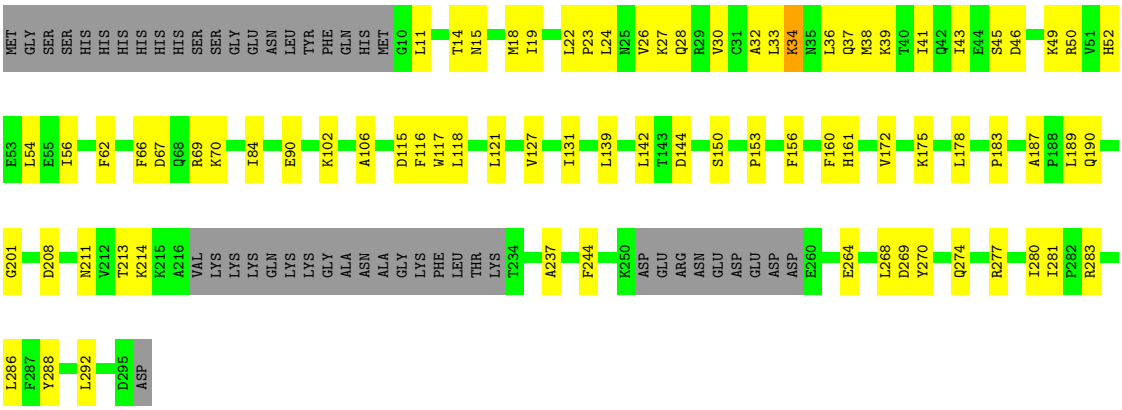
• Molecule 1: Nucleosome Assembly Protein

Chain C:



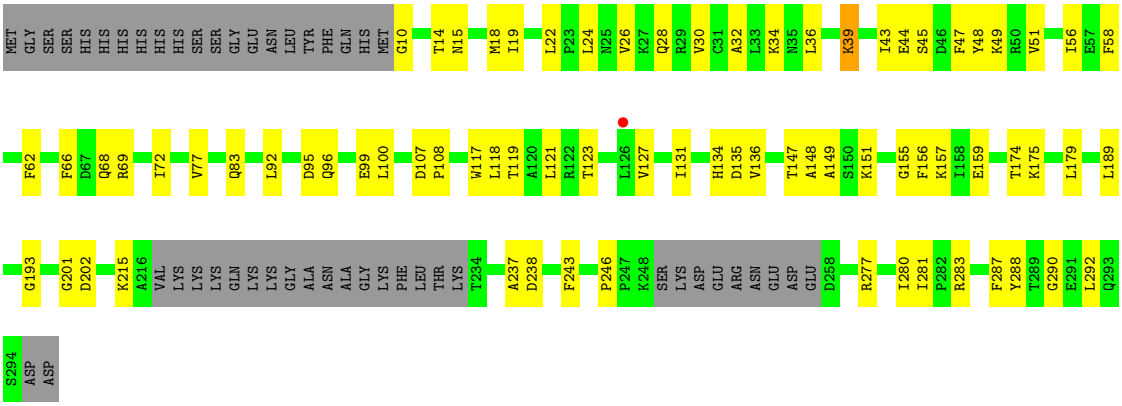
• Molecule 1: Nucleosome Assembly Protein

Chain D:



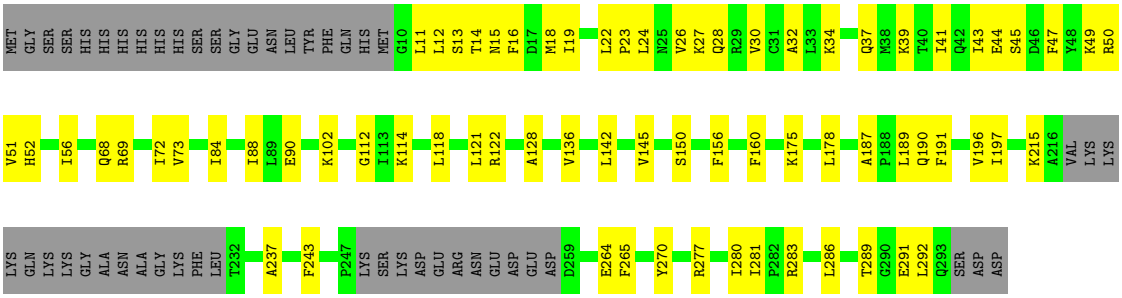
• Molecule 1: Nucleosome Assembly Protein

Chain G:



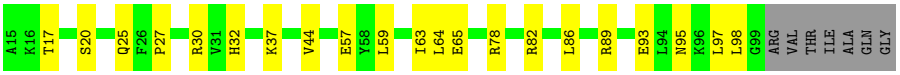
• Molecule 1: Nucleosome Assembly Protein

Chain H:



• Molecule 2: Histone H2A

Chain I:

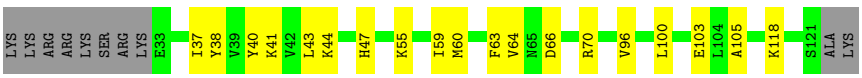


• Molecule 2: Histone H2A

Chain K:

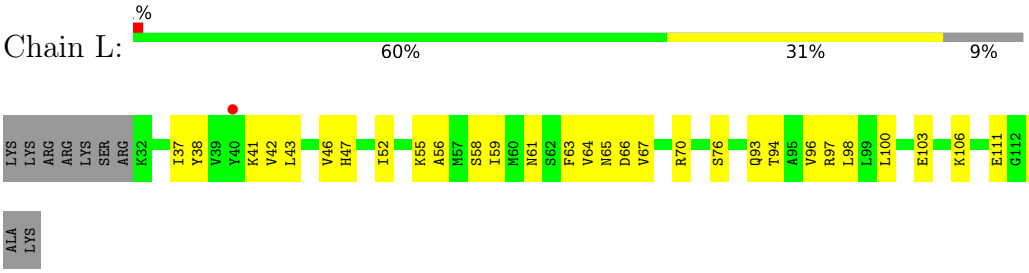
• Molecule 3: Histone H2B 1.1

Chain J:



• Molecule 3: Histone H2B 1.1

Chain L:


%
60%
31%
9%
LYS LYS ARG ARG LYS SER ARG K32 I37 Y38 V39 Y40 K41 V42 L43 V46 H47 I52 K55 A56 M57 S58 I59 M60 N61 S62 F63 V64 N65 D66 V67 R70 S76 Q93 T94 A95 V96 R97 L98 L99 L100 E103 K106 E111 G112 T113 T117 S121
ALA LYS

4 Data and refinement statistics (i)

Property	Value	Source
Space group	P 1	Depositor
Cell constants a, b, c, α, β, γ	79.49Å 92.93Å 119.35Å 104.10° 106.24° 94.18°	Depositor
Resolution (Å)	45.93 – 3.35 45.93 – 3.35	Depositor EDS
% Data completeness (in resolution range)	78.3 (45.93-3.35) 78.3 (45.93-3.35)	Depositor EDS
R_{merge}	0.13	Depositor
R_{sym}	(Not available)	Depositor
$< I/\sigma(I) >$ [1]	1.87 (at 3.32Å)	Xtriage
Refinement program	PHENIX (1.19.2_4158: ???)	Depositor
R, R_{free}	0.204 , 0.261 0.203 , 0.260	Depositor DCC
R_{free} test set	2171 reflections (4.86%)	wwPDB-VP
Wilson B-factor (Å^2)	58.5	Xtriage
Anisotropy	0.360	Xtriage
Bulk solvent k_{sol}(e/Å^3), B_{sol}(Å^2)	0.32 , 66.3	EDS
L-test for twinning[2]	$< \|L\| > = 0.48$, $< L^2 > = 0.31$	Xtriage
Estimated twinning fraction	No twinning to report.	Xtriage
F_o,F_c correlation	0.90	EDS
Total number of atoms	19338	wwPDB-VP
Average B, all atoms (Å^2)	73.0	wwPDB-VP

Xtriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 3.85% of the height of the origin peak. No significant pseudotranslation is detected.*

[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

5.1 Standard geometry

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	0.28	0/2263	0.48	0/3061
1	B	0.27	0/2181	0.48	0/2955
1	C	0.27	0/2221	0.47	0/3006
1	D	0.26	0/2092	0.44	0/2836
1	E	0.26	0/2005	0.46	0/2723
1	F	0.26	0/2058	0.46	0/2783
1	G	0.26	0/2098	0.47	0/2844
1	H	0.26	0/2076	0.45	0/2816
2	I	0.26	0/670	0.55	0/902
2	K	0.25	0/649	0.58	0/874
3	J	0.26	0/705	0.47	0/951
3	L	0.25	0/708	0.48	0/955
All	All	0.26	0/19726	0.47	0/26706

There are no bond length outliers.

There are no bond angle outliers.

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	2217	0	2163	49	0
1	B	2136	0	2057	47	0
1	C	2177	0	2113	55	0
1	D	2048	0	1978	53	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
1	E	1962	0	1872	52	0
1	F	2018	0	1976	51	0
1	G	2054	0	1987	56	0
1	H	2032	0	1960	47	0
2	I	662	0	697	17	0
2	K	641	0	672	33	0
3	J	694	0	709	14	0
3	L	697	0	711	25	0
All	All	19338	0	18895	421	0

The all-atom clashscore is defined as the number of clashes found per 1000 atoms (including hydrogen atoms). The all-atom clashscore for this structure is 11.

All (421) 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)
2:K:66:LEU:HB3	2:K:87:ALA:HB1	1.55	0.89
1:G:118:LEU:HD21	1:G:136:VAL:HG13	1.64	0.79
2:K:25:GLN:HB3	3:L:41:LYS:HE3	1.64	0.77
1:E:22:LEU:HD23	1:E:24:LEU:H	1.51	0.75
1:H:11:LEU:HG	1:H:12:LEU:HG	1.69	0.74
1:F:118:LEU:HD21	1:F:136:VAL:HG13	1.70	0.73
1:E:24:LEU:HD12	1:F:104:ALA:H	1.54	0.73
1:A:215:LYS:HG2	1:A:237:ALA:HB2	1.73	0.70
1:A:155:GLY:HA2	1:A:179:LEU:HD22	1.75	0.69
1:E:118:LEU:HD21	1:E:136:VAL:HG13	1.75	0.68
1:B:11:LEU:HD23	1:B:12:LEU:H	1.57	0.68
2:K:42:GLU:HG2	2:K:43:ARG:HG3	1.75	0.67
1:H:118:LEU:HD21	1:H:136:VAL:HG13	1.76	0.67
2:K:85:GLN:O	2:K:89:ARG:HG2	1.96	0.66
1:G:283:ARG:NH2	1:H:191:PHE:O	2.28	0.66
1:G:117:TRP:O	1:G:121:LEU:HD12	1.95	0.66
1:C:218:LYS:HA	1:C:232:THR:HA	1.78	0.66
1:G:189:LEU:HD12	1:H:90:GLU:HG3	1.78	0.66
1:E:161:HIS:HA	1:E:172:VAL:HG22	1.79	0.65
2:K:71:ALA:HB2	2:K:81:PRO:HG3	1.76	0.65
1:F:283:ARG:HB3	1:F:286:LEU:HD12	1.76	0.65
1:C:291:GLU:OE1	1:D:34:LYS:NZ	2.29	0.65
1:E:34:LYS:HE2	1:E:189:LEU:HD12	1.79	0.65
1:F:175:LYS:NZ	1:F:269:ASP:OD1	2.30	0.64
1:C:69:ARG:HG3	1:D:33:LEU:HD22	1.79	0.64

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:F:286:LEU:HB3	1:F:292:LEU:HD13	1.80	0.63
2:K:40:TYR:HB3	3:L:76:SER:HB2	1.80	0.63
3:J:96:VAL:HG13	3:J:100:LEU:HD12	1.81	0.62
1:C:252:GLU:HB3	1:C:258:ASP:HB2	1.82	0.62
1:C:133:GLU:HG3	2:K:18:ARG:HD3	1.81	0.61
1:A:260:GLU:HB2	2:I:78:ARG:HH21	1.63	0.61
1:F:142:LEU:HD21	1:F:160:PHE:HB3	1.82	0.61
2:K:29:GLY:O	2:K:33:ARG:HG3	2.01	0.61
1:E:190:GLN:N	1:E:190:GLN:OE1	2.33	0.61
2:K:59:LEU:O	2:K:63:ILE:HG13	2.01	0.61
3:J:55:LYS:O	3:J:59:ILE:HG12	2.00	0.61
1:C:145:VAL:HG12	1:C:281:ILE:HD11	1.83	0.60
1:A:282:PRO:O	1:B:37:GLN:NE2	2.33	0.60
1:G:24:LEU:O	1:G:28:GLN:HG3	2.01	0.60
1:F:38:MET:SD	1:F:188:PRO:HB2	2.42	0.60
1:D:127:VAL:O	1:D:131:ILE:HG12	2.02	0.60
2:K:27:PRO:HD3	3:L:38:TYR:CG	2.37	0.60
1:A:45:SER:HB2	1:A:181:PHE:O	2.02	0.59
1:A:159:GLU:HG2	1:A:174:THR:HG23	1.85	0.59
1:G:134:HIS:NE2	1:G:238:ASP:O	2.34	0.59
1:A:155:GLY:HA2	1:A:179:LEU:CD2	2.32	0.59
1:H:215:LYS:HB2	1:H:237:ALA:HB2	1.84	0.58
1:E:16:PHE:O	1:E:19:ILE:HG12	2.04	0.58
1:H:142:LEU:HD21	1:H:160:PHE:HB3	1.84	0.58
2:I:17:THR:HG23	2:I:20:SER:H	1.70	0.57
1:A:25:ASN:HB2	1:B:106:ALA:HB1	1.86	0.57
1:C:207:GLU:HB2	1:C:210:LYS:HG3	1.87	0.57
2:I:64:LEU:HD22	3:J:43:LEU:HD13	1.87	0.57
1:F:118:LEU:HD13	1:F:139:LEU:HB2	1.87	0.57
1:B:23:PRO:HG2	1:B:26:VAL:HG22	1.87	0.56
1:E:37:GLN:HG3	1:F:285:VAL:HG12	1.86	0.56
1:A:175:LYS:HD3	1:A:243:PHE:CE2	2.40	0.56
2:I:82:ARG:O	2:I:86:LEU:HG	2.04	0.56
1:C:25:ASN:HB2	1:D:106:ALA:HB1	1.88	0.56
1:D:46:ASP:HA	1:D:49:LYS:HD2	1.86	0.56
1:A:260:GLU:OE1	2:I:78:ARG:NE	2.38	0.56
1:C:265:PHE:CZ	3:L:37:ILE:HG23	2.41	0.56
1:H:45:SER:O	1:H:49:LYS:HG3	2.06	0.56
1:D:45:SER:O	1:D:49:LYS:HG3	2.05	0.56
1:C:152:ASP:HB3	1:C:153:PRO:HD3	1.88	0.56
2:K:64:LEU:HD13	3:L:43:LEU:HB2	1.88	0.56

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:291:GLU:HB3	1:B:9:MET:HG3	1.87	0.55
1:G:159:GLU:HG3	1:G:174:THR:HG23	1.89	0.55
1:G:215:LYS:HB3	1:G:237:ALA:HB2	1.88	0.55
3:L:94:THR:O	3:L:98:LEU:HG	2.07	0.55
1:C:98:ALA:O	1:C:102:LYS:HG3	2.06	0.55
1:G:45:SER:O	1:G:49:LYS:HG3	2.05	0.55
2:K:33:ARG:O	2:K:37:LYS:HG2	2.06	0.55
3:L:93:GLN:O	3:L:97:ARG:HG3	2.05	0.55
1:B:95:ASP:O	1:B:99:GLU:HG2	2.06	0.55
2:K:64:LEU:O	3:L:47:HIS:NE2	2.39	0.55
1:E:14:THR:OG1	1:E:15:ASN:N	2.40	0.55
1:E:189:LEU:HD13	1:F:286:LEU:HD21	1.89	0.55
1:E:175:LYS:NZ	1:E:243:PHE:O	2.34	0.55
1:E:286:LEU:HD21	1:F:189:LEU:HD13	1.89	0.55
1:C:156:PHE:CD1	1:C:277:ARG:HD2	2.41	0.55
2:I:93:GLU:OE2	3:J:103:GLU:N	2.38	0.54
1:F:175:LYS:HE3	1:F:246:PRO:HB3	1.89	0.54
1:D:142:LEU:HD21	1:D:160:PHE:HB3	1.90	0.54
1:A:112:GLY:H	1:B:29:ARG:CZ	2.21	0.54
1:D:30:VAL:O	1:D:34:LYS:HG2	2.08	0.54
1:E:142:LEU:HD21	1:E:160:PHE:HB3	1.90	0.54
1:E:47:PHE:O	1:E:51:VAL:HG23	2.08	0.53
1:C:93:GLU:HB2	1:C:96:GLN:HG3	1.90	0.53
1:C:189:LEU:HD12	1:D:90:GLU:HG3	1.89	0.53
1:C:26:VAL:HG22	1:C:29:ARG:HH12	1.73	0.53
1:G:56:ILE:HG12	1:G:149:ALA:HB3	1.89	0.53
1:A:220:LYS:HB3	1:A:222:LYS:HG3	1.89	0.53
1:H:52:HIS:CE1	1:H:56:ILE:HD11	2.43	0.53
1:G:174:THR:N	1:G:202:ASP:OD2	2.30	0.53
1:F:267:GLU:O	1:F:271:GLU:HG3	2.09	0.53
1:G:156:PHE:CD2	1:G:277:ARG:HD2	2.44	0.53
1:E:53:GLU:HG2	1:E:151:LYS:HD3	1.92	0.52
1:A:162:PHE:CE2	1:A:173:LEU:HD12	2.44	0.52
1:F:30:VAL:O	1:F:34:LYS:HG2	2.09	0.52
1:A:90:GLU:HG3	1:B:189:LEU:HD12	1.91	0.52
1:G:39:LYS:O	1:G:43:ILE:HG13	2.09	0.52
1:H:52:HIS:O	1:H:56:ILE:HG13	2.10	0.52
1:F:68:GLN:O	1:F:72:ILE:HG13	2.10	0.52
1:F:218:LYS:HD3	1:F:230:PHE:HB3	1.92	0.52
1:A:142:LEU:HD11	1:A:160:PHE:HB3	1.92	0.52
2:K:18:ARG:HH11	2:K:18:ARG:HA	1.75	0.52

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:11:LEU:HD23	1:B:12:LEU:N	2.25	0.52
1:B:25:ASN:O	1:B:29:ARG:HG3	2.10	0.52
1:C:191:PHE:O	1:D:283:ARG:NH2	2.43	0.52
1:G:280:ILE:HG12	1:G:287:PHE:HE2	1.74	0.52
1:H:30:VAL:O	1:H:34:LYS:HG2	2.10	0.52
3:L:56:ALA:O	3:L:59:ILE:HG12	2.09	0.52
1:A:283:ARG:HA	1:B:37:GLN:NE2	2.25	0.51
1:G:56:ILE:HG21	1:G:151:LYS:HE3	1.91	0.51
2:I:27:PRO:HB2	2:I:30:ARG:HB3	1.92	0.51
1:H:187:ALA:HB1	1:H:190:GLN:HG3	1.92	0.51
1:A:106:ALA:HB1	1:B:25:ASN:OD1	2.11	0.51
1:A:222:LYS:HA	1:A:228:GLY:HA2	1.92	0.51
1:E:156:PHE:HE2	1:E:158:ILE:HD11	1.75	0.51
1:G:26:VAL:O	1:G:30:VAL:HG23	2.10	0.51
1:A:187:ALA:HB1	1:A:190:GLN:HB2	1.93	0.51
1:B:152:ASP:HB2	1:B:153:PRO:HD3	1.93	0.51
1:B:187:ALA:HB1	1:B:190:GLN:HG3	1.91	0.51
1:F:39:LYS:O	1:F:43:ILE:HG13	2.11	0.51
1:E:41:ILE:HD12	1:E:191:PHE:HB3	1.93	0.51
1:C:57:GLU:OE2	1:D:50:ARG:NH1	2.39	0.51
1:G:44:GLU:OE1	1:H:283:ARG:NH2	2.34	0.50
1:B:142:LEU:HD11	1:B:160:PHE:HB3	1.94	0.50
1:C:134:HIS:CD2	1:C:212:VAL:HB	2.46	0.50
1:G:121:LEU:HB3	1:G:127:VAL:HG11	1.93	0.50
1:F:145:VAL:HG12	1:F:281:ILE:HD11	1.93	0.50
1:A:37:GLN:OE1	1:B:283:ARG:HA	2.11	0.50
1:B:270:TYR:O	1:B:274:GLN:HG3	2.12	0.50
1:A:152:ASP:HB2	1:A:153:PRO:HD3	1.94	0.50
1:C:90:GLU:HG3	1:D:189:LEU:HD12	1.94	0.50
1:G:62:PHE:HB3	1:G:66:PHE:CE2	2.47	0.50
2:K:56:LEU:HD22	3:L:64:VAL:HG13	1.93	0.49
2:K:65:GLU:HA	3:L:47:HIS:CE1	2.47	0.49
1:A:18:MET:O	1:A:22:LEU:HD13	2.12	0.49
1:A:115:ASP:HB3	1:A:118:LEU:HD23	1.95	0.49
2:K:30:ARG:HG2	2:K:33:ARG:NH2	2.27	0.49
1:E:37:GLN:HE22	1:F:284:ALA:N	2.11	0.49
1:G:135:ASP:OD1	1:G:135:ASP:N	2.41	0.49
2:I:59:LEU:O	2:I:63:ILE:HG13	2.12	0.49
1:C:122:ARG:NH2	2:K:18:ARG:HG3	2.28	0.49
1:C:247:PRO:HB2	1:C:262:ALA:HB1	1.94	0.49
1:A:83:GLN:HB3	1:B:32:ALA:HA	1.94	0.49

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:F:47:PHE:O	1:F:51:VAL:HG23	2.11	0.49
1:H:68:GLN:O	1:H:72:ILE:HG13	2.13	0.49
1:D:116:PHE:HA	1:D:288:TYR:CE1	2.47	0.49
1:H:156:PHE:CD2	1:H:277:ARG:HD2	2.48	0.49
1:C:121:LEU:HD23	1:C:280:ILE:HG21	1.95	0.49
1:D:62:PHE:HB3	1:D:66:PHE:CE2	2.47	0.48
2:K:80:ILE:HD13	3:L:52:ILE:HG23	1.94	0.48
1:C:28:GLN:HG2	1:D:84:ILE:HG12	1.94	0.48
1:C:47:PHE:O	1:C:51:VAL:HG23	2.13	0.48
1:G:47:PHE:O	1:G:51:VAL:HG23	2.12	0.48
1:A:30:VAL:O	1:A:34:LYS:HG2	2.12	0.48
1:A:80:THR:OG1	1:A:83:GLN:HG3	2.13	0.48
3:J:40:TYR:O	3:J:44:LYS:HG2	2.13	0.48
1:A:38:MET:HG3	1:A:189:LEU:HD21	1.94	0.48
1:H:121:LEU:HD23	1:H:280:ILE:HG21	1.95	0.48
2:K:80:ILE:HD12	2:K:81:PRO:HD2	1.96	0.48
3:L:61:ASN:O	3:L:65:ASN:ND2	2.45	0.48
1:B:180:GLY:HA3	1:B:197:ILE:HD11	1.96	0.48
3:J:37:ILE:O	3:J:41:LYS:HG3	2.13	0.48
1:C:80:THR:O	1:C:84:ILE:HD12	2.13	0.48
1:D:156:PHE:CD1	1:D:277:ARG:HD2	2.48	0.48
3:L:38:TYR:O	3:L:42:VAL:HG23	2.13	0.48
1:A:145:VAL:HG12	1:A:281:ILE:HD11	1.96	0.48
1:E:29:ARG:HD3	1:F:79:PRO:HG3	1.96	0.48
1:E:46:ASP:HA	1:E:49:LYS:HD2	1.96	0.48
2:K:32:HIS:O	2:K:36:ARG:HG3	2.13	0.48
1:E:37:GLN:HG3	1:F:285:VAL:CG1	2.43	0.48
1:C:169:LYS:HE2	1:C:205:GLU:HB3	1.95	0.48
1:D:286:LEU:HB3	1:D:292:LEU:HD13	1.96	0.48
1:A:56:ILE:HG12	1:A:149:ALA:HB3	1.95	0.48
1:A:59:GLU:OE2	1:A:149:ALA:N	2.40	0.48
1:E:267:GLU:O	1:E:271:GLU:HG3	2.13	0.48
1:D:14:THR:OG1	1:D:15:ASN:N	2.47	0.48
1:H:24:LEU:HA	1:H:27:LYS:HB2	1.95	0.48
1:C:142:LEU:HD21	1:C:160:PHE:HB3	1.96	0.47
1:A:175:LYS:HZ1	1:A:246:PRO:HB3	1.79	0.47
1:E:264:GLU:O	1:E:268:LEU:HG	2.13	0.47
1:D:32:ALA:O	1:D:36:LEU:HG	2.15	0.47
3:L:63:PHE:O	3:L:67:VAL:HG23	2.15	0.47
3:L:113:THR:O	3:L:117:THR:HG23	2.15	0.47
1:D:69:ARG:NH2	1:D:281:ILE:O	2.46	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:D:175:LYS:HD2	1:D:201:GLY:HA2	1.97	0.47
2:K:27:PRO:HB2	2:K:30:ARG:HB2	1.97	0.47
1:B:37:GLN:O	1:B:41:ILE:HG12	2.15	0.47
1:D:24:LEU:O	1:D:28:GLN:HG3	2.15	0.47
1:B:56:ILE:HA	1:B:59:GLU:HG3	1.95	0.47
1:B:286:LEU:HB3	1:B:292:LEU:HD13	1.97	0.47
1:E:179:LEU:HD23	1:E:196:VAL:HA	1.97	0.47
1:G:14:THR:OG1	1:G:15:ASN:N	2.48	0.47
1:D:18:MET:O	1:D:22:LEU:HG	2.14	0.47
1:G:36:LEU:HA	1:G:39:LYS:HD2	1.97	0.47
1:H:37:GLN:O	1:H:41:ILE:HG12	2.14	0.47
1:A:51:VAL:O	1:A:55:GLU:HG3	2.15	0.47
1:A:179:LEU:HB2	1:A:195:HIS:O	2.14	0.47
1:D:213:THR:O	1:D:237:ALA:N	2.48	0.47
1:G:72:ILE:HD13	1:G:77:VAL:HG23	1.96	0.47
1:E:52:HIS:CE1	1:E:149:ALA:HB1	2.50	0.47
1:D:70:LYS:HB3	1:D:144:ASP:OD1	2.15	0.47
1:H:23:PRO:O	1:H:26:VAL:N	2.48	0.47
1:B:59:GLU:OE2	1:B:149:ALA:N	2.46	0.46
1:E:270:TYR:O	1:E:274:GLN:HG3	2.14	0.46
1:D:211:ASN:HB3	1:D:214:LYS:HD2	1.95	0.46
1:G:34:LYS:HE2	1:H:88:ILE:O	2.15	0.46
1:H:13:SER:O	1:H:16:PHE:HB2	2.13	0.46
1:C:15:ASN:O	1:C:19:ILE:HG12	2.15	0.46
1:G:68:GLN:O	1:G:72:ILE:HG12	2.14	0.46
1:B:40:THR:HA	1:B:43:ILE:HD12	1.96	0.46
1:F:242:ASN:HA	1:F:245:GLU:HG3	1.97	0.46
1:D:23:PRO:O	1:D:26:VAL:N	2.49	0.46
1:E:18:MET:O	1:E:22:LEU:HB2	2.16	0.46
1:F:117:TRP:HE1	1:F:144:ASP:HA	1.80	0.46
1:F:175:LYS:HZ1	1:F:269:ASP:CG	2.19	0.46
1:E:58:PHE:HA	1:E:61:LYS:HG3	1.96	0.46
1:H:39:LYS:O	1:H:43:ILE:HG13	2.15	0.46
1:B:26:VAL:O	1:B:30:VAL:HG23	2.15	0.46
1:H:15:ASN:O	1:H:19:ILE:HG12	2.15	0.46
1:E:69:ARG:HG3	1:F:33:LEU:HD22	1.98	0.46
1:E:139:LEU:HD21	1:E:240:PHE:CE2	2.50	0.46
1:E:155:GLY:HA2	1:E:179:LEU:HD12	1.96	0.46
1:H:178:LEU:HD22	1:H:197:ILE:HD12	1.97	0.46
2:K:76:LYS:HG2	2:K:79:ILE:HD11	1.98	0.46
1:A:285:VAL:HG12	1:B:37:GLN:HG3	1.98	0.46

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:D:115:ASP:HB3	1:D:118:LEU:HD23	1.98	0.46
1:D:264:GLU:O	1:D:268:LEU:HG	2.16	0.46
1:H:286:LEU:HB3	1:H:292:LEU:HD13	1.98	0.46
1:E:29:ARG:NH1	1:F:75:GLY:HA2	2.31	0.46
1:D:283:ARG:HB3	1:D:286:LEU:HD12	1.98	0.46
1:H:114:LYS:HE2	1:H:114:LYS:HB3	1.70	0.46
1:A:26:VAL:O	1:A:30:VAL:HG23	2.16	0.45
1:B:145:VAL:HG12	1:B:281:ILE:HD11	1.98	0.45
1:B:215:LYS:HG3	1:B:237:ALA:HB2	1.98	0.45
1:C:218:LYS:HE2	1:C:218:LYS:HB2	1.81	0.45
1:F:26:VAL:O	1:F:30:VAL:HG23	2.15	0.45
1:F:155:GLY:HA2	1:F:179:LEU:HD13	1.97	0.45
1:G:100:LEU:O	1:H:27:LYS:HE2	2.16	0.45
1:H:26:VAL:O	1:H:30:VAL:HG23	2.16	0.45
2:K:80:ILE:HD11	2:K:84:LEU:HG	1.99	0.45
1:E:33:LEU:HD22	1:F:69:ARG:HG3	1.99	0.45
1:H:175:LYS:HD3	1:H:243:PHE:CE2	2.52	0.45
1:B:184:ASP:OD1	1:B:184:ASP:N	2.42	0.45
1:C:159:GLU:HG2	1:C:174:THR:HG23	1.99	0.45
1:E:145:VAL:HG12	1:E:281:ILE:HD11	1.99	0.45
1:C:151:LYS:HA	1:C:151:LYS:HD2	1.76	0.45
1:D:67:ASP:O	1:D:70:LYS:HG3	2.17	0.45
1:G:69:ARG:NH2	1:G:281:ILE:O	2.32	0.45
1:B:24:LEU:HA	1:B:27:LYS:HB3	1.99	0.45
1:E:156:PHE:CD2	1:E:277:ARG:HD2	2.52	0.45
1:F:32:ALA:O	1:F:36:LEU:HG	2.17	0.45
1:F:134:HIS:NE2	1:F:238:ASP:O	2.45	0.45
1:G:175:LYS:NZ	1:G:246:PRO:HB3	2.32	0.45
1:B:264:GLU:O	1:B:268:LEU:HG	2.17	0.45
1:E:32:ALA:O	1:E:36:LEU:HG	2.17	0.45
1:E:149:ALA:HA	1:E:156:PHE:HA	1.99	0.45
1:F:156:PHE:CD1	1:F:277:ARG:HD2	2.51	0.45
1:C:41:ILE:HD12	1:C:189:LEU:HA	1.99	0.45
1:C:118:LEU:HD21	1:C:136:VAL:HG13	1.99	0.45
1:D:37:GLN:O	1:D:41:ILE:HG12	2.17	0.45
1:E:152:ASP:HB3	1:E:153:PRO:HD3	1.99	0.44
1:F:22:LEU:HD13	1:F:26:VAL:HG12	2.00	0.44
1:F:187:ALA:HB1	1:F:190:GLN:HG3	2.00	0.44
1:G:201:GLY:H	1:G:246:PRO:HG3	1.82	0.44
1:H:264:GLU:HG3	1:H:265:PHE:HD1	1.82	0.44
1:B:93:GLU:HB2	1:B:96:GLN:HG3	1.99	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:G:149:ALA:HA	1:G:156:PHE:HA	2.00	0.44
2:K:60:THR:O	2:K:64:LEU:HG	2.17	0.44
1:E:22:LEU:O	1:E:24:LEU:HG	2.18	0.44
1:C:38:MET:HG3	1:C:189:LEU:HD21	2.00	0.44
1:D:38:MET:HG3	1:D:189:LEU:HD21	1.98	0.44
1:G:32:ALA:O	1:G:36:LEU:HG	2.18	0.44
1:C:100:LEU:HG	1:D:27:LYS:HE2	1.99	0.44
1:D:270:TYR:O	1:D:274:GLN:HG3	2.17	0.44
1:F:210:LYS:HA	1:F:210:LYS:HD3	1.83	0.44
1:F:250:LYS:HE2	1:F:250:LYS:HB3	1.83	0.44
1:G:147:THR:OG1	1:G:277:ARG:NH1	2.51	0.44
1:G:201:GLY:N	1:G:246:PRO:HG3	2.33	0.44
1:B:126:LEU:HG	1:B:272:MET:HE2	1.99	0.44
1:F:117:TRP:NE1	1:F:144:ASP:HA	2.32	0.44
3:J:100:LEU:O	3:J:105:ALA:HB2	2.18	0.44
1:H:24:LEU:O	1:H:28:GLN:HG3	2.18	0.44
1:E:24:LEU:HD13	1:F:101:TYR:O	2.18	0.44
1:G:175:LYS:HD2	1:G:243:PHE:CE2	2.52	0.44
1:H:14:THR:OG1	1:H:15:ASN:N	2.51	0.44
1:E:24:LEU:HG	1:F:104:ALA:HB3	2.00	0.43
1:E:260:GLU:HA	1:E:263:GLU:OE1	2.18	0.43
1:D:26:VAL:O	1:D:30:VAL:HG23	2.17	0.43
1:D:54:LEU:HD12	1:D:54:LEU:HA	1.91	0.43
1:B:52:HIS:O	1:B:56:ILE:HG13	2.18	0.43
2:I:37:LYS:HE3	2:I:37:LYS:HB3	1.71	0.43
1:D:102:LYS:HB3	1:D:102:LYS:HE3	1.78	0.43
1:D:178:LEU:HD23	1:D:178:LEU:HA	1.87	0.43
1:E:24:LEU:HD12	1:F:104:ALA:N	2.28	0.43
2:I:25:GLN:N	2:I:57:GLU:OE1	2.50	0.43
1:H:175:LYS:HD3	1:H:243:PHE:CZ	2.53	0.43
1:C:211:ASN:OD1	1:C:213:THR:OG1	2.26	0.43
3:L:66:ASP:O	3:L:70:ARG:HG3	2.18	0.43
1:E:123:THR:HG21	1:E:290:GLY:HA2	1.99	0.43
1:E:187:ALA:HB1	1:E:190:GLN:NE2	2.33	0.43
1:C:12:LEU:HB3	1:C:13:SER:H	1.61	0.43
1:D:52:HIS:O	1:D:56:ILE:HG13	2.18	0.43
1:D:66:PHE:O	1:D:70:LYS:HG2	2.19	0.43
1:F:189:LEU:HD23	1:F:189:LEU:HA	1.81	0.43
1:C:30:VAL:O	1:C:34:LYS:HG2	2.18	0.43
2:K:93:GLU:OE2	3:L:103:GLU:N	2.47	0.43
1:F:29:ARG:O	1:F:33:LEU:HG	2.19	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:G:10:GLY:HA2	1:H:291:GLU:HB3	2.00	0.43
1:H:196:VAL:HB	1:H:270:TYR:CD2	2.54	0.43
3:J:66:ASP:O	3:J:70:ARG:HG3	2.19	0.43
1:G:95:ASP:O	1:G:99:GLU:HG3	2.19	0.43
3:L:43:LEU:HA	3:L:46:VAL:HG12	2.00	0.43
1:A:24:LEU:HA	1:A:27:LYS:HB2	2.01	0.43
1:E:57:GLU:OE2	1:F:50:ARG:NH1	2.31	0.43
1:D:187:ALA:HB1	1:D:190:GLN:HG3	2.00	0.43
1:G:28:GLN:OE1	1:H:84:ILE:HG12	2.19	0.43
1:G:127:VAL:O	1:G:131:ILE:HG13	2.19	0.43
3:L:106:LYS:HA	3:L:106:LYS:HD2	1.85	0.43
1:A:149:ALA:HB2	1:A:277:ARG:NH2	2.34	0.42
1:A:288:TYR:OH	1:B:22:LEU:HD21	2.19	0.42
1:C:249:SER:C	1:C:251:ASP:H	2.21	0.42
1:D:117:TRP:NE1	1:D:144:ASP:HA	2.33	0.42
1:D:150:SER:OG	1:D:153:PRO:HG2	2.19	0.42
1:H:145:VAL:HG12	1:H:281:ILE:HD11	2.00	0.42
1:E:22:LEU:HD21	1:E:26:VAL:CG2	2.49	0.42
1:G:155:GLY:HA2	1:G:179:LEU:HG	2.01	0.42
1:H:34:LYS:HE2	1:H:189:LEU:HD13	2.01	0.42
1:A:220:LYS:HB2	1:A:220:LYS:HE2	1.70	0.42
2:K:67:ALA:HB2	2:K:84:LEU:HD23	2.02	0.42
1:A:134:HIS:CE1	1:A:212:VAL:HB	2.55	0.42
2:I:65:GLU:HA	3:J:47:HIS:CE1	2.54	0.42
3:J:96:VAL:HG13	3:J:100:LEU:CD1	2.48	0.42
1:A:62:PHE:HB3	1:A:66:PHE:CE2	2.54	0.42
1:B:147:THR:OG1	1:B:277:ARG:HG3	2.20	0.42
1:E:162:PHE:CE2	1:E:173:LEU:HD12	2.54	0.42
2:I:25:GLN:H	2:I:57:GLU:CD	2.22	0.42
1:C:45:SER:O	1:C:49:LYS:HG3	2.20	0.42
1:H:47:PHE:O	1:H:51:VAL:HG23	2.19	0.42
1:C:267:GLU:O	1:C:271:GLU:HG3	2.19	0.42
1:G:287:PHE:HE1	1:G:292:LEU:HD23	1.85	0.42
2:K:27:PRO:HG3	3:L:38:TYR:CE2	2.54	0.42
3:L:55:LYS:O	3:L:58:SER:HB3	2.19	0.42
1:B:72:ILE:HD13	1:B:77:VAL:HG23	2.01	0.42
2:I:32:HIS:HE2	2:I:44:VAL:HG13	1.84	0.42
1:C:146:THR:OG1	1:C:159:GLU:HB2	2.19	0.42
1:G:62:PHE:HZ	1:H:44:GLU:HG3	1.85	0.42
2:K:25:GLN:H	2:K:57:GLU:CD	2.23	0.42
1:B:47:PHE:O	1:B:51:VAL:HG23	2.19	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:E:101:TYR:OH	1:F:31:CYS:SG	2.70	0.42
1:D:39:LYS:O	1:D:43:ILE:HG13	2.20	0.42
2:K:84:LEU:O	2:K:88:VAL:HG23	2.20	0.42
3:L:96:VAL:HG13	3:L:100:LEU:HD13	2.01	0.42
1:G:58:PHE:HZ	1:H:50:ARG:HG3	1.84	0.42
1:A:219:LYS:HA	1:A:219:LYS:HD2	1.84	0.42
1:C:215:LYS:HB3	1:C:237:ALA:HB2	2.01	0.42
1:G:288:TYR:HE2	1:H:22:LEU:HD11	1.85	0.42
1:H:73:VAL:O	1:H:112:GLY:HA3	2.20	0.42
1:E:90:GLU:OE1	1:F:189:LEU:HB2	2.20	0.41
2:I:17:THR:HG23	2:I:20:SER:N	2.33	0.41
1:G:18:MET:O	1:G:22:LEU:HG	2.20	0.41
1:G:48:TYR:CE2	1:G:193:GLY:HA2	2.55	0.41
2:K:81:PRO:O	2:K:83:HIS:N	2.53	0.41
1:A:233:LYS:HB3	1:A:233:LYS:HE3	1.84	0.41
1:F:121:LEU:HD23	1:F:280:ILE:HG21	2.01	0.41
1:D:161:HIS:HA	1:D:172:VAL:HG22	2.01	0.41
1:B:99:GLU:OE1	1:F:234:THR:HB	2.20	0.41
1:C:253:ARG:HE	1:C:253:ARG:HB2	1.67	0.41
1:D:15:ASN:O	1:D:19:ILE:HG12	2.21	0.41
1:B:156:PHE:CD1	1:B:277:ARG:HD2	2.56	0.41
1:E:191:PHE:O	1:F:283:ARG:NH2	2.52	0.41
2:I:98:LEU:HD13	3:J:63:PHE:CD1	2.56	0.41
1:C:41:ILE:CD1	1:C:189:LEU:HA	2.50	0.41
1:A:72:ILE:HD12	1:B:36:LEU:HD11	2.02	0.41
1:B:27:LYS:HE3	1:B:27:LYS:HB2	1.53	0.41
2:I:97:LEU:O	3:J:70:ARG:NH2	2.50	0.41
1:H:122:ARG:O	1:H:128:ALA:HB2	2.21	0.41
1:E:22:LEU:HD21	1:E:26:VAL:HG22	2.03	0.41
1:C:147:THR:OG1	1:C:277:ARG:HG3	2.21	0.41
1:G:19:ILE:HD11	1:H:289:THR:HA	2.02	0.41
1:G:58:PHE:CZ	1:H:50:ARG:HG3	2.56	0.41
1:G:92:LEU:HD23	1:G:92:LEU:HA	1.93	0.41
1:G:123:THR:HG21	1:G:290:GLY:HA2	2.02	0.41
1:A:34:LYS:NZ	1:B:291:GLU:OE2	2.42	0.41
1:A:36:LEU:HD21	1:B:68:GLN:HB3	2.03	0.41
1:B:45:SER:HB2	1:B:181:PHE:O	2.20	0.41
1:C:17:ASP:OD1	1:C:17:ASP:N	2.53	0.41
1:C:26:VAL:O	1:C:30:VAL:HG23	2.20	0.41
1:C:52:HIS:O	1:C:56:ILE:HG13	2.20	0.41
1:H:69:ARG:O	1:H:73:VAL:HG23	2.21	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:K:54:ALA:HB1	3:L:111:GLU:HG2	2.03	0.41
1:A:118:LEU:HD21	1:A:136:VAL:HG13	2.02	0.41
1:B:175:LYS:HG2	1:B:243:PHE:CE2	2.55	0.41
1:F:124:HIS:CE1	1:F:126:LEU:HB3	2.55	0.41
1:C:294:SER:OG	1:C:295:ASP:N	2.54	0.41
1:D:45:SER:HB2	1:D:183:PRO:HD3	2.02	0.41
1:G:107:ASP:HA	1:G:108:PRO:HD3	1.91	0.41
1:G:215:LYS:HB3	1:G:215:LYS:HE2	1.94	0.41
2:K:97:LEU:O	3:L:70:ARG:NH2	2.51	0.41
1:C:32:ALA:O	1:C:36:LEU:HG	2.21	0.41
1:C:175:LYS:HZ3	1:C:175:LYS:HG2	1.77	0.41
1:G:119:THR:HG22	1:G:288:TYR:HA	2.02	0.41
1:G:148:ALA:O	1:G:157:LYS:HG2	2.21	0.41
3:J:60:MET:O	3:J:64:VAL:HG23	2.20	0.40
1:D:175:LYS:NZ	1:D:269:ASP:OD1	2.42	0.40
1:G:92:LEU:HD22	1:G:96:GLN:HB3	2.03	0.40
1:F:134:HIS:CD2	1:F:212:VAL:HB	2.56	0.40
1:C:92:LEU:HD23	1:D:11:LEU:HG	2.03	0.40
1:D:121:LEU:HD23	1:D:280:ILE:HG21	2.03	0.40
1:C:35:ASN:O	1:C:39:LYS:HG3	2.22	0.40
1:C:56:ILE:HG12	1:C:149:ALA:HB3	2.04	0.40
1:G:83:GLN:HB3	1:H:32:ALA:HA	2.03	0.40
2:I:27:PRO:HD3	3:J:38:TYR:CD2	2.55	0.40
1:D:160:PHE:CD1	1:D:244:PHE:HZ	2.40	0.40
1:A:175:LYS:HE3	1:A:177:TYR:OH	2.22	0.40
1:B:272:MET:HE3	1:B:272:MET:HB2	2.02	0.40
1:D:131:ILE:HD12	1:D:139:LEU:HD13	2.04	0.40

There are no symmetry-related clashes.

5.3 Torsion angles (i)

5.3.1 Protein backbone (i)

In the following table, the Percentiles column shows the percent Ramachandran outliers of the chain as a percentile score with respect to all X-ray entries followed by that with respect to entries of similar resolution.

The Analysed column shows the number of residues for which the backbone conformation was analysed, and the total number of residues.

Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
1	A	276/308 (90%)	265 (96%)	11 (4%)	0	100	100
1	B	263/308 (85%)	251 (95%)	12 (5%)	0	100	100
1	C	269/308 (87%)	251 (93%)	18 (7%)	0	100	100
1	D	254/308 (82%)	243 (96%)	11 (4%)	0	100	100
1	E	243/308 (79%)	233 (96%)	10 (4%)	0	100	100
1	F	244/308 (79%)	233 (96%)	11 (4%)	0	100	100
1	G	253/308 (82%)	237 (94%)	16 (6%)	0	100	100
1	H	252/308 (82%)	239 (95%)	13 (5%)	0	100	100
2	I	83/92 (90%)	82 (99%)	1 (1%)	0	100	100
2	K	80/92 (87%)	70 (88%)	10 (12%)	0	100	100
3	J	87/99 (88%)	85 (98%)	2 (2%)	0	100	100
3	L	88/99 (89%)	86 (98%)	2 (2%)	0	100	100
All	All	2392/2846 (84%)	2275 (95%)	117 (5%)	0	100	100

There are no Ramachandran outliers to report.

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	235/265 (89%)	230 (98%)	5 (2%)	48	69
1	B	228/265 (86%)	225 (99%)	3 (1%)	65	79
1	C	234/265 (88%)	232 (99%)	2 (1%)	75	87
1	D	216/265 (82%)	214 (99%)	2 (1%)	75	87
1	E	207/265 (78%)	204 (99%)	3 (1%)	62	78
1	F	215/265 (81%)	210 (98%)	5 (2%)	45	68
1	G	219/265 (83%)	218 (100%)	1 (0%)	86	92
1	H	214/265 (81%)	211 (99%)	3 (1%)	62	78
2	I	66/71 (93%)	64 (97%)	2 (3%)	36	61

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Mol	Chain	Analysed	Rotameric	Outliers	Percentiles
2	K	64/71 (90%)	63 (98%)	1 (2%)	58 75
3	J	76/85 (89%)	75 (99%)	1 (1%)	65 79
3	L	76/85 (89%)	76 (100%)	0	100 100
All	All	2050/2432 (84%)	2022 (99%)	28 (1%)	62 78

All (28) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	39	LYS
1	A	95	ASP
1	A	125	ASP
1	A	220	LYS
1	A	251	ASP
1	B	64	SER
1	B	97	LEU
1	B	251	ASP
1	E	85	ASP
1	E	144	ASP
1	E	260	GLU
1	F	96	GLN
1	F	215	LYS
1	F	233	LYS
1	F	251	ASP
1	F	265	PHE
2	I	89	ARG
2	I	95	ASN
3	J	118	LYS
1	C	13	SER
1	C	186	GLU
1	D	34	LYS
1	D	208	ASP
1	G	39	LYS
1	H	18	MET
1	H	102	LYS
1	H	150	SER
2	K	26	PHE

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (3) such sidechains are listed below:

Mol	Chain	Res	Type
1	E	37	GLN
3	J	47	HIS
1	H	52	HIS

5.3.3 RNA

There are no RNA molecules in this entry.

5.4 Non-standard residues in protein, DNA, RNA chains

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

5.5 Carbohydrates

There are no oligosaccharides in this entry.

5.6 Ligand geometry

There are no ligands in this entry.

5.7 Other polymers

There are no such residues in this entry.

5.8 Polymer linkage issues

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, 95^{th} 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	280/308 (90%)	-0.56	0 100 100	16, 35, 94, 123	0
1	B	269/308 (87%)	-0.53	0 100 100	22, 43, 93, 117	0
1	C	273/308 (88%)	-0.47	0 100 100	24, 54, 120, 138	0
1	D	260/308 (84%)	-0.28	0 100 100	36, 82, 130, 142	0
1	E	249/308 (80%)	-0.30	0 100 100	41, 81, 129, 157	0
1	F	254/308 (82%)	-0.33	1 (0%) 89 86	40, 81, 135, 166	0
1	G	259/308 (84%)	-0.29	1 (0%) 89 86	59, 92, 112, 128	0
1	H	258/308 (83%)	-0.21	0 100 100	67, 95, 119, 147	0
2	I	85/92 (92%)	-0.57	0 100 100	32, 56, 87, 100	0
2	K	82/92 (89%)	-0.07	2 (2%) 59 50	57, 87, 148, 173	0
3	J	89/99 (89%)	-0.51	0 100 100	37, 58, 82, 113	0
3	L	90/99 (90%)	-0.31	1 (1%) 77 70	50, 83, 133, 149	0
All	All	2448/2846 (86%)	-0.38	5 (0%) 92 92	16, 75, 122, 173	0

All (5) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
3	L	40	TYR	3.9
2	K	80	ILE	3.2
2	K	67	ALA	2.8
1	F	10	GLY	2.6
1	G	126	LEU	2.4

6.2 Non-standard residues in protein, DNA, RNA chains

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

6.3 Carbohydrates (i)

There are no monosaccharides in this entry.

6.4 Ligands (i)

There are no ligands in this entry.

6.5 Other polymers (i)

There are no such residues in this entry.