WORLDWIDE wwPDB PROTEIN DATA BANK

Full wwPDB X-ray Structure Validation Report (i)

Nov 24, 2024 – 12:07 am GMT

PDB ID	:	8RNE
Title	:	HLA-E*01:03 in complex with SARS-CoV-2 Nsp13 peptide, VMPLSAPTL
Authors	:	Sun, R.; Achour, A.; Sala, B.M.; Sandalova, T.
Deposited on	:	2024-01-09
Resolution	:	1.71 Å(reported)

This is a Full wwPDB X-ray Structure Validation Report for a publicly released PDB entry.

We welcome your comments at *validation@mail.wwpdb.org*
A user guide is available at
https://www.wwpdb.org/validation/2017/XrayValidationReportHelp
with specific help available everywhere you see the (i) symbol.

The types of validation reports are described at
http://www.wwpdb.org/validation/2017/FAQs#types.

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

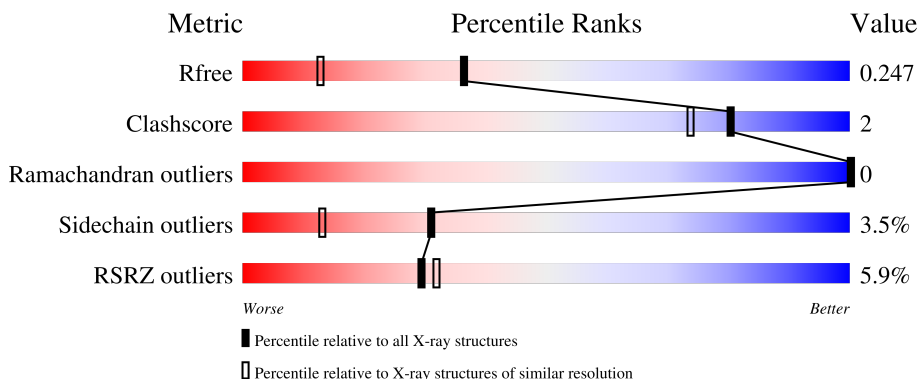|		
MolProbity	:	4.02b-467
Xtriage (Phenix)	:	1.13
EDS	:	3.0
Percentile statistics	:	20231227.v01 (using entries in the PDB archive December 27th 2023)
CCP4	:	9.0.003 (Gargrove)
Density-Fitness	:	1.0.11
Ideal geometry (proteins)	:	Engh & Huber (2001)
Ideal geometry (DNA, RNA)	:	Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP)	:	2.40

1 Overall quality at a glance ⓘ

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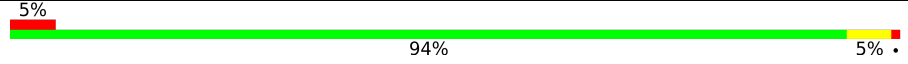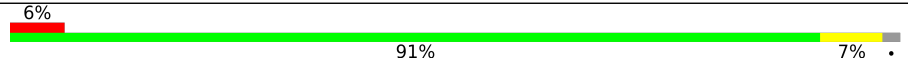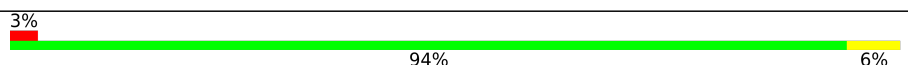*X-RAY DIFFRACTION*

The reported resolution of this entry is 1.71 Å.

Percentile scores (ranging between 0-100) for global validation metrics of the entry are shown in the following graphic. The table shows the number of entries on which the scores are based.
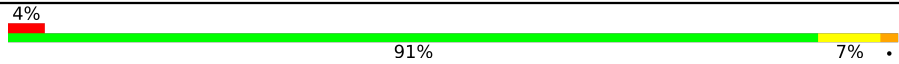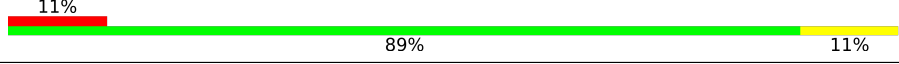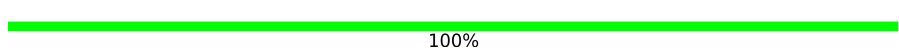
Metric	Percentile Ranks	Value
Rfree		0.247
Clashscore		2
Ramachandran outliers		0
Sidechain outliers		3.5%
RSRZ outliers		5.9%

Worse   *Better*

▮ Percentile relative to all X-ray structures

▯ Percentile relative to X-ray structures of similar resolution

Metric	Whole archive (#Entries)	Similar resolution (#Entries, resolution range(Å))
R_{free}	164625	7106 (1.74-1.70)
Clashscore	180529	7746 (1.74-1.70)
Ramachandran outliers	177936	7654 (1.74-1.70)
Sidechain outliers	177891	7654 (1.74-1.70)
RSRZ outliers	164620	7104 (1.74-1.70)

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	274	5% / 94% / 5% ·
1	C	274	6% / 91% / 7% ·
1	F	274	8% / 93% / 6% ·
2	B	100	6% / 90% / 10%
2	D	100	3% / 94% / 6%

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Mol	Chain	Length	Quality of chain
2	G	100	4% 91% 7%
3	E	9	11% 78% 22%
3	H	9	11% 89% 11%
3	P	9	100%

2 Entry composition ⓘ

There are 4 unique types of molecules in this entry. The entry contains 10052 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 HLA class I histocompatibility antigen, E alpha chain variant.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
1	A	274	Total 2231	C 1394	N 399	O 431	S 7	0	0	0
1	C	268	Total 2188	C 1370	N 390	O 421	S 7	0	0	0
1	F	274	Total 2231	C 1394	N 399	O 431	S 7	0	0	0

- Molecule 2 is a protein called Beta-2-microglobulin.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
2	B	100	Total 837	C 533	N 141	O 159	S 4	0	0	0
2	D	100	Total 837	C 533	N 141	O 159	S 4	0	0	0
2	G	100	Total 837	C 533	N 141	O 159	S 4	0	0	0

There are 3 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
B	1	MET	-	initiating methionine	UNP P61769
D	1	MET	-	initiating methionine	UNP P61769
G	1	MET	-	initiating methionine	UNP P61769

- Molecule 3 is a protein called Non-structural protein 7.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
3	E	9	Total 64	C 42	N 9	O 12	S 1	0	0	0
3	H	9	Total 64	C 42	N 9	O 12	S 1	0	0	0

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Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
3	P	9	Total 64	C 42	N 9	O 12	S 1	0	0	0

- Molecule 4 is water.

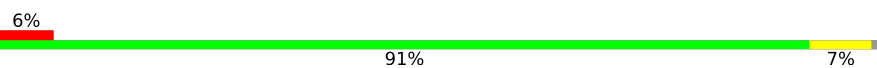| Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
4	A	188	Total 188	O 188	0	0
4	B	68	Total 68	O 68	0	0
4	C	126	Total 126	O 126	0	0
4	D	71	Total 71	O 71	0	0
4	E	3	Total 3	O 3	0	0
4	F	152	Total 152	O 152	0	0
4	G	80	Total 80	O 80	0	0
4	H	5	Total 5	O 5	0	0
4	P	6	Total 6	O 6	0	0

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.
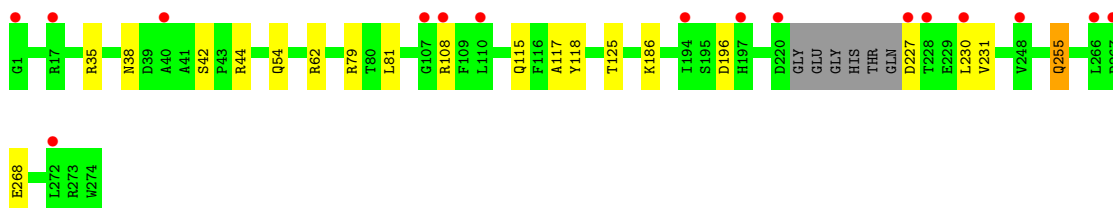
• Molecule 1: HLA class I histocompatibility antigen, E alpha chain variant

Chain A:

• Molecule 1: HLA class I histocompatibility antigen, E alpha chain variant

Chain C:
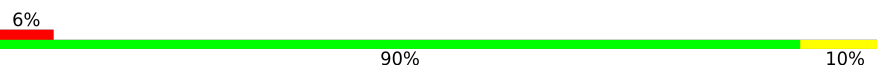
• Molecule 1: HLA class I histocompatibility antigen, E alpha chain variant

Chain F:
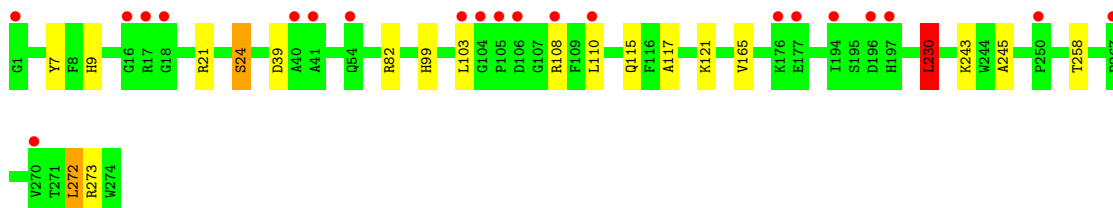
• Molecule 2: Beta-2-microglobulin

Chain B:
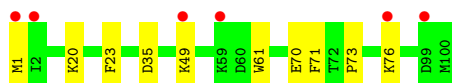
• Molecule 2: Beta-2-microglobulin

Chain D:

3%

94%

6%

M1 I2 D35 E45 R46 I47 E48 W61 F71 D99 M100

• Molecule 2: Beta-2-microglobulin

Chain G:

4%

91%

7%

M1 I2 Q3 N25 D35 K49 H52 K59 D60 W61 L66 F71 S89 D99 M100

• Molecule 3: Non-structural protein 7

Chain E:

11%

78%

22%

V1 M2 P3 L4 L9

• Molecule 3: Non-structural protein 7

Chain H:

11%

89%

11%

V1 L4 L9

• Molecule 3: Non-structural protein 7

Chain P:

100%
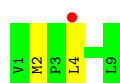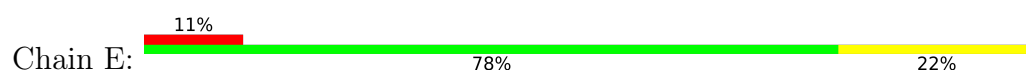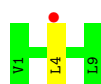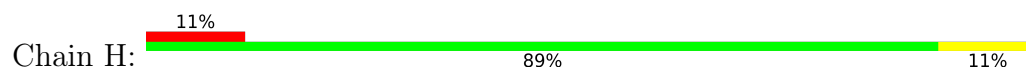
There are no outlier residues recorded for this chain.

4 Data and refinement statistics ⓘ

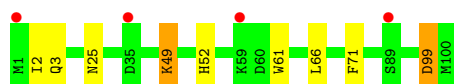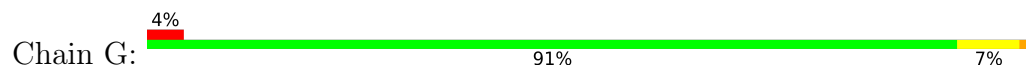| Property	Value	Source
Space group	C 1 2 1	Depositor
Cell constants a, b, c, α, β, γ	120.49Å 67.60Å 152.23Å 90.00° 92.78° 90.00°	Depositor
Resolution (Å)	46.11 – 1.71 46.11 – 1.71	Depositor EDS
% Data completeness (in resolution range)	99.8 (46.11-1.71) 99.8 (46.11-1.71)	Depositor EDS
R_{merge}	0.07	Depositor
R_{sym}	(Not available)	Depositor
$< I/\sigma(I) >$ [1]	1.68 (at 1.71Å)	Xtriage
Refinement program	REFMAC 5	Depositor
R, R_{free}	0.204 , 0.243 0.211 , 0.247	Depositor DCC
R_{free} test set	6704 reflections (5.08%)	wwPDB-VP
Wilson B-factor (Å^2)	28.9	Xtriage
Anisotropy	0.010	Xtriage
Bulk solvent k_{sol}(e/Å^3), B_{sol}(Å^2)	0.35 , 31.9	EDS
L-test for twinning[2]	$< |L| > = 0.49, < L^2 > = 0.33$	Xtriage
Estimated twinning fraction	0.008 for -1/2*h-3/2*k,-1/2*h+1/2*k,-l 0.009 for -1/2*h+3/2*k,1/2*h+1/2*k,-l 0.033 for 1/2*h-3/2*k,-1/2*h-1/2*k,-l 0.017 for 1/2*h+3/2*k,1/2*h-1/2*k,-l 0.013 for -h,-k,l	Xtriage
F_o,F_c correlation	0.96	EDS
Total number of atoms	10052	wwPDB-VP
Average B, all atoms (Å^2)	35.0	wwPDB-VP

Xtriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 4.85% of the height of the origin peak. No significant pseudotranslation is detected.*

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

5 Model quality ⓘ

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	0.41	0/2297	0.86	3/3123 (0.1%)
1	C	0.37	0/2252	0.76	0/3061
1	F	0.38	0/2297	0.79	2/3123 (0.1%)
2	B	0.39	0/860	0.78	0/1162
2	D	0.39	0/860	0.82	0/1162
2	G	0.39	0/860	0.74	0/1162
3	E	0.45	0/65	1.13	1/88 (1.1%)
3	H	0.48	0/65	0.83	0/88
3	P	0.60	0/65	0.89	0/88
All	All	0.39	0/9621	0.80	6/13057 (0.0%)

Chiral center outliers are detected by calculating the chiral volume of a chiral center and verifying if the center is modelled as a planar moiety or with the opposite hand.A planarity outlier is detected by checking planarity of atoms in a peptide group, atoms in a mainchain group or atoms of a sidechain that are expected to be planar.

Mol	Chain	#Chirality outliers	#Planarity outliers
1	A	0	2
1	C	0	1
All	All	0	3

There are no bond length outliers.

All (6) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
1	A	35	ARG	NE-CZ-NH2	-8.45	116.08	120.30
1	A	65	ARG	NE-CZ-NH2	-7.96	116.32	120.30
1	F	230	LEU	CB-CG-CD2	6.35	121.79	111.00
1	A	98	MET	CG-SD-CE	5.91	109.66	100.20
1	F	82	ARG	NE-CZ-NH1	5.83	123.21	120.30
3	E	2	MET	CB-CA-C	-5.42	99.55	110.40

There are no chirality outliers.

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All (3) planarity outliers are listed below:

Mol	Chain	Res	Type	Group
1	A	35	ARG	Sidechain
1	A	65	ARG	Sidechain
1	C	79	ARG	Sidechain

5.2 Too-close contacts (i)

In the following table, the Non-H and H(model) columns list the number of non-hydrogen atoms and hydrogen atoms in the chain respectively. The H(added) column lists the number of hydrogen atoms added and optimized by MolProbity. The Clashes column lists the number of clashes within the asymmetric unit, whereas Symm-Clashes lists symmetry-related clashes.

Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
1	A	2231	0	2068	16	0
1	C	2188	0	2033	6	0
1	F	2231	0	2068	13	0
2	B	837	0	803	3	0
2	D	837	0	803	2	0
2	G	837	0	803	7	0
3	E	64	0	73	0	0
3	H	64	0	73	1	0
3	P	64	0	73	0	0
4	A	188	0	0	2	0
4	B	68	0	0	0	0
4	C	126	0	0	0	0
4	D	71	0	0	0	0
4	E	3	0	0	0	0
4	F	152	0	0	1	0
4	G	80	0	0	1	0
4	H	5	0	0	1	0
4	P	6	0	0	0	0
All	All	10052	0	8797	44	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 2.

All (44) 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:A:253:GLU:CD	1:A:256:ARG:NH1	2.42	0.72

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
4:F:357:HOH:O	2:G:99:ASP:HB3	1.93	0.68
1:F:9:HIS:ND1	1:F:24:SER:HB2	2.10	0.65
2:G:49:LYS:O	2:G:49:LYS:HG3	2.00	0.62
1:C:115:GLN:HG2	1:C:125:THR:HG23	1.85	0.58
1:A:8:PHE:HE2	1:A:98:MET:HE2	1.69	0.57
1:A:117:ALA:HB2	2:B:61:TRP:CE2	2.41	0.56
1:A:8:PHE:CE2	1:A:98:MET:CE	2.90	0.55
1:A:8:PHE:HE2	1:A:98:MET:CE	2.20	0.54
1:F:117:ALA:HB2	2:G:61:TRP:CE2	2.43	0.54
1:A:253:GLU:OE1	1:A:256:ARG:CZ	2.60	0.50
1:A:253:GLU:CD	1:A:256:ARG:HH12	2.15	0.48
1:F:230:LEU:HD22	1:F:243:LYS:HE3	1.96	0.48
2:D:47:ILE:HG22	2:D:48:GLU:O	2.14	0.48
1:F:230:LEU:HD23	1:F:245:ALA:HB2	1.97	0.47
1:C:117:ALA:HB2	2:D:61:TRP:CE2	2.50	0.47
1:A:8:PHE:CE2	1:A:98:MET:HE2	2.49	0.47
2:G:3:GLN:NE2	4:G:203:HOH:O	2.47	0.47
3:H:4:LEU:C	4:H:101:HOH:O	2.53	0.47
1:A:253:GLU:OE1	1:A:256:ARG:NH1	2.48	0.46
1:F:258:THR:HG22	1:F:273:ARG:HD3	1.97	0.46
1:A:253:GLU:OE1	1:A:256:ARG:NH2	2.49	0.45
1:A:8:PHE:CD2	1:A:98:MET:HE3	2.52	0.45
1:C:255:GLN:H	1:C:255:GLN:CD	2.19	0.45
1:F:21:ARG:CD	1:F:39:ASP:HB2	2.47	0.45
2:G:25:ASN:HB3	2:G:66:LEU:HD11	1.99	0.44
1:F:258:THR:HG22	1:F:273:ARG:HG2	2.00	0.43
1:A:215:LEU:HD23	1:A:261:VAL:HG22	2.01	0.43
1:A:21:ARG:NE	1:A:39:ASP:HB2	2.34	0.43
1:C:230:LEU:HD23	1:C:230:LEU:HA	1.93	0.42
1:A:131:ARG:NH1	4:A:307:HOH:O	2.50	0.42
1:F:258:THR:HG22	1:F:273:ARG:CG	2.50	0.42
1:F:21:ARG:HD2	1:F:39:ASP:HB2	2.02	0.42
2:B:20:LYS:O	2:B:73:PRO:HD2	2.19	0.42
1:A:230:LEU:HD22	1:A:243:LYS:HE3	2.01	0.41
2:B:23:PHE:CE2	2:B:70:GLU:HG3	2.55	0.41
1:F:121:LYS:CG	2:G:2:ILE:HD12	2.50	0.41
1:F:103:LEU:HD21	1:F:165:VAL:HG13	2.03	0.41
1:F:272:LEU:N	1:F:272:LEU:HD12	2.35	0.41
1:F:7:TYR:HB2	1:F:99:HIS:CE1	2.55	0.40
1:C:38:ASN:OD1	1:C:38:ASN:C	2.60	0.40
1:C:81:LEU:HD13	1:C:118:TYR:CD1	2.56	0.40

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:174:LYS:HD2	4:A:355:HOH:O	2.20	0.40
2:G:52:HIS:HA	2:G:66:LEU:O	2.22	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	272/274 (99%)	268 (98%)	4 (2%)	0	100	100
1	C	264/274 (96%)	261 (99%)	3 (1%)	0	100	100
1	F	272/274 (99%)	267 (98%)	5 (2%)	0	100	100
2	B	98/100 (98%)	97 (99%)	1 (1%)	0	100	100
2	D	98/100 (98%)	96 (98%)	2 (2%)	0	100	100
2	G	98/100 (98%)	97 (99%)	1 (1%)	0	100	100
3	E	7/9 (78%)	7 (100%)	0	0	100	100
3	H	7/9 (78%)	7 (100%)	0	0	100	100
3	P	7/9 (78%)	7 (100%)	0	0	100	100
All	All	1123/1149 (98%)	1107 (99%)	16 (1%)	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	235/235 (100%)	230 (98%)	5 (2%)	48	31
1	C	231/235 (98%)	219 (95%)	12 (5%)	19	6
1	F	235/235 (100%)	229 (97%)	6 (3%)	41	22
2	B	95/95 (100%)	90 (95%)	5 (5%)	19	5
2	D	95/95 (100%)	92 (97%)	3 (3%)	34	15
2	G	95/95 (100%)	92 (97%)	3 (3%)	34	15
3	E	8/8 (100%)	7 (88%)	1 (12%)	3	1
3	H	8/8 (100%)	8 (100%)	0	100	100
3	P	8/8 (100%)	8 (100%)	0	100	100
All	All	1010/1014 (100%)	975 (96%)	35 (4%)	31	13

All (35) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	35	ARG
1	A	65	ARG
1	A	75	ARG
1	A	98	MET
1	A	267	PRO
2	B	1	MET
2	B	35	ASP
2	B	49	LYS
2	B	71	PHE
2	B	76	LYS
1	C	35	ARG
1	C	42	SER
1	C	44	ARG
1	C	54	GLN
1	C	62	ARG
1	C	108	ARG
1	C	186	LYS
1	C	196	ASP
1	C	227	ASP
1	C	231	VAL
1	C	255	GLN
1	C	268	GLU
2	D	35	ASP
2	D	45	GLU
2	D	71	PHE
3	E	4	LEU

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Mol	Chain	Res	Type
1	F	24	SER
1	F	108	ARG
1	F	110	LEU
1	F	115	GLN
1	F	230	LEU
1	F	272	LEU
2	G	49	LYS
2	G	71	PHE
2	G	99	ASP

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (8) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	191	HIS
1	A	219	GLN
1	C	141	GLN
1	C	218	GLN
2	D	84	ASN
1	F	72	GLN
1	F	226	GLN
2	G	3	GLN

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, 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(Å²)	Q<0.9
1	A	274/274 (100%)	0.35	15 (5%)	32	35	18, 30, 55, 78	0
1	C	268/274 (97%)	0.59	16 (5%)	29	31	20, 34, 60, 78	0
1	F	274/274 (100%)	0.62	21 (7%)	21	22	21, 34, 65, 85	0
2	B	100/100 (100%)	0.52	6 (6%)	29	31	22, 34, 53, 94	0
2	D	100/100 (100%)	0.41	3 (3%)	52	57	21, 30, 55, 72	0
2	G	100/100 (100%)	0.31	4 (4%)	43	47	20, 29, 51, 85	0
3	E	9/9 (100%)	0.55	1 (11%)	12	12	26, 29, 39, 41	0
3	H	9/9 (100%)	0.78	1 (11%)	12	12	30, 32, 43, 46	0
3	P	9/9 (100%)	0.24	0	100	100	20, 24, 29, 31	0
All	All	1143/1149 (99%)	0.49	67 (5%)	29	32	18, 32, 58, 94	0

All (67) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	A	225	THR	3.7
2	B	1	MET	3.6
1	F	40	ALA	3.5
2	B	2	ILE	3.5
2	D	2	ILE	3.5
1	F	110	LEU	3.4
1	C	107	GLY	3.3
1	A	230	LEU	3.2
2	G	1	MET	3.2
1	F	1	GLY	3.1
1	F	267	PRO	3.1
1	F	106	ASP	3.1
2	D	1	MET	3.0
1	F	194	ILE	2.9
1	C	108	ARG	2.9

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Mol	Chain	Res	Type	RSRZ
1	F	250	PRO	2.9
1	F	108	ARG	2.9
1	C	272	LEU	2.8
1	C	227	ASP	2.8
1	C	194	ILE	2.8
1	C	1	GLY	2.8
1	A	197	HIS	2.8
1	F	18	GLY	2.8
1	F	16	GLY	2.7
1	C	197	HIS	2.7
1	F	104	GLY	2.7
1	A	224	HIS	2.7
1	C	228	THR	2.6
1	C	220	ASP	2.6
1	A	90	ALA	2.6
1	F	41	ALA	2.6
1	F	197	HIS	2.6
1	C	230	LEU	2.6
1	F	176	LYS	2.5
1	C	267	PRO	2.5
1	A	15	PRO	2.5
2	D	99	ASP	2.5
2	B	76	LYS	2.4
1	C	40	ALA	2.4
2	B	99	ASP	2.4
1	A	16	GLY	2.3
1	C	266	LEU	2.3
3	H	4	LEU	2.3
1	C	17	ARG	2.3
1	C	110	LEU	2.3
1	F	17	ARG	2.2
1	F	270	VAL	2.2
2	B	49	LYS	2.2
2	B	59	LYS	2.2
2	G	89	SER	2.2
1	A	40	ALA	2.2
1	F	54	GLN	2.2
1	F	177	GLU	2.2
1	A	41	ALA	2.1
1	F	105	PRO	2.1
1	F	103	LEU	2.1
3	E	4	LEU	2.1

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Mol	Chain	Res	Type	RSRZ
1	A	17	ARG	2.1
1	A	194	ILE	2.1
1	A	226	GLN	2.1
1	A	196	ASP	2.1
2	G	59	LYS	2.1
1	C	248	VAL	2.1
1	A	227	ASP	2.0
1	F	196	ASP	2.0
2	G	35	ASP	2.0
1	A	89	GLU	2.0

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 ⓘ

There are no monosaccharides in this entry.

6.4 Ligands ⓘ

There are no ligands in this entry.

6.5 Other polymers ⓘ

There are no such residues in this entry.