Full wwPDB X-ray Structure Validation Report ⓘ

Oct 9, 2023 – 12:45 PM EDT

PDB ID	:	7K2F
Title	:	Kelch domain of human KEAP1 bound to Nrf2 cyclic peptide, c[GAEETGE]
Authors	:	Muellers, S.N.; Allen, K.N.
Deposited on	:	2020-09-08
Resolution	:	2.37 Å(reported)

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

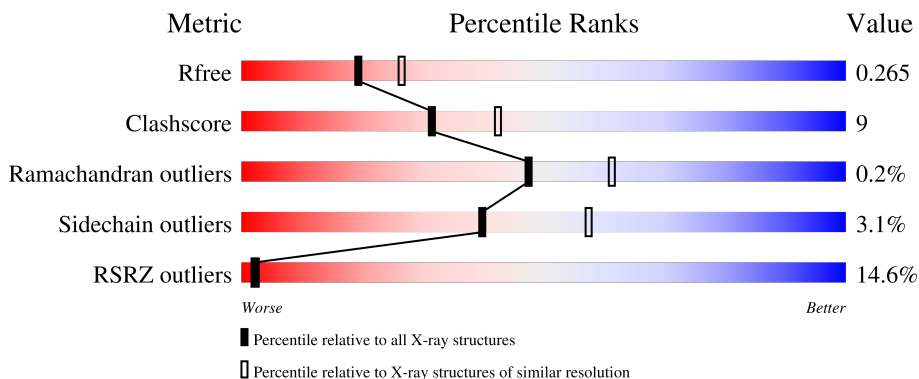|		
MolProbity	:	4.02b-467
Xtriage (Phenix)	:	1.13
EDS	:	2.35.1
Percentile statistics	:	20191225.v01 (using entries in the PDB archive December 25th 2019)
Refmac	:	5.8.0158
CCP4	:	7.0.044 (Gargrove)
Ideal geometry (proteins)	:	Engh & Huber (2001)
Ideal geometry (DNA, RNA)	:	Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP)	:	2.35.1

1 Overall quality at a glance ⓘ

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

The reported resolution of this entry is 2.37 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		0.265
Clashscore		9
Ramachandran outliers		0.2%
Sidechain outliers		3.1%
RSRZ outliers		14.6%

Worse   *Better*

■ Percentile relative to all X-ray structures
▯ Percentile relative to X-ray structures of similar resolution

Metric	Whole archive (#Entries)	Similar resolution (#Entries, resolution range(Å))
R$_{free}$	130704	5509 (2.40-2.36)
Clashscore	141614	6082 (2.40-2.36)
Ramachandran outliers	138981	5973 (2.40-2.36)
Sidechain outliers	138945	5975 (2.40-2.36)
RSRZ outliers	127900	5397 (2.40-2.36)

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	336	22% · 61% · 23% · 15%
1	X	336	3% · 76% · 7% · 15%
2	C	7	14% · 43% · 43% · 14%

2   Entry composition ⓘ

There are 2 unique types of molecules in this entry. The entry contains 4567 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 Kelch-like ECH-associated protein 1.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
1	X	285	Total	C	N	O	S	0	17	0
			2260	1416	406	419	19			
1	A	285	Total	C	N	O	S	0	17	0
			2260	1416	406	419	19			

There are 54 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
X	289	MET	-	initiating methionine	UNP Q14145
X	290	GLY	-	expression tag	UNP Q14145
X	291	SER	-	expression tag	UNP Q14145
X	292	SER	-	expression tag	UNP Q14145
X	293	HIS	-	expression tag	UNP Q14145
X	294	HIS	-	expression tag	UNP Q14145
X	295	HIS	-	expression tag	UNP Q14145
X	296	HIS	-	expression tag	UNP Q14145
X	297	HIS	-	expression tag	UNP Q14145
X	298	HIS	-	expression tag	UNP Q14145
X	299	SER	-	expression tag	UNP Q14145
X	300	SER	-	expression tag	UNP Q14145
X	301	GLY	-	expression tag	UNP Q14145
X	302	GLY	-	expression tag	UNP Q14145
X	303	GLU	-	expression tag	UNP Q14145
X	304	ASN	-	expression tag	UNP Q14145
X	305	LEU	-	expression tag	UNP Q14145
X	306	TYR	-	expression tag	UNP Q14145
X	307	PHE	-	expression tag	UNP Q14145
X	308	GLN	-	expression tag	UNP Q14145
X	309	GLY	-	expression tag	UNP Q14145
X	310	HIS	-	expression tag	UNP Q14145
X	311	MET	-	expression tag	UNP Q14145
X	319	SER	CYS	conflict	UNP Q14145
X	613	SER	CYS	conflict	UNP Q14145

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Chain	Residue	Modelled	Actual	Comment	Reference
X	622	SER	CYS	conflict	UNP Q14145
X	624	SER	-	expression tag	UNP Q14145
A	289	MET	-	initiating methionine	UNP Q14145
A	290	GLY	-	expression tag	UNP Q14145
A	291	SER	-	expression tag	UNP Q14145
A	292	SER	-	expression tag	UNP Q14145
A	293	HIS	-	expression tag	UNP Q14145
A	294	HIS	-	expression tag	UNP Q14145
A	295	HIS	-	expression tag	UNP Q14145
A	296	HIS	-	expression tag	UNP Q14145
A	297	HIS	-	expression tag	UNP Q14145
A	298	HIS	-	expression tag	UNP Q14145
A	299	SER	-	expression tag	UNP Q14145
A	300	SER	-	expression tag	UNP Q14145
A	301	GLY	-	expression tag	UNP Q14145
A	302	GLY	-	expression tag	UNP Q14145
A	303	GLU	-	expression tag	UNP Q14145
A	304	ASN	-	expression tag	UNP Q14145
A	305	LEU	-	expression tag	UNP Q14145
A	306	TYR	-	expression tag	UNP Q14145
A	307	PHE	-	expression tag	UNP Q14145
A	308	GLN	-	expression tag	UNP Q14145
A	309	GLY	-	expression tag	UNP Q14145
A	310	HIS	-	expression tag	UNP Q14145
A	311	MET	-	expression tag	UNP Q14145
A	319	SER	CYS	conflict	UNP Q14145
A	613	SER	CYS	conflict	UNP Q14145
A	622	SER	CYS	conflict	UNP Q14145
A	624	SER	-	expression tag	UNP Q14145

- Molecule 2 is a protein called Nrf2 cyclic peptide,c[GAEETGE].

| Mol	Chain	Residues	Atoms				ZeroOcc	AltConf	Trace
			Total	C	N	O			
2	C	7	47	26	7	14	0	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.
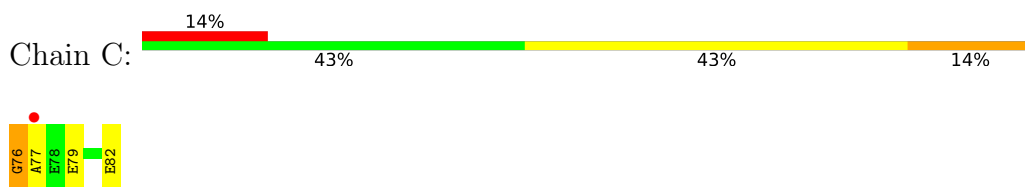
• Molecule 1: Kelch-like ECH-associated protein 1

Chain X:

• Molecule 1: Kelch-like ECH-associated protein 1

Chain A:
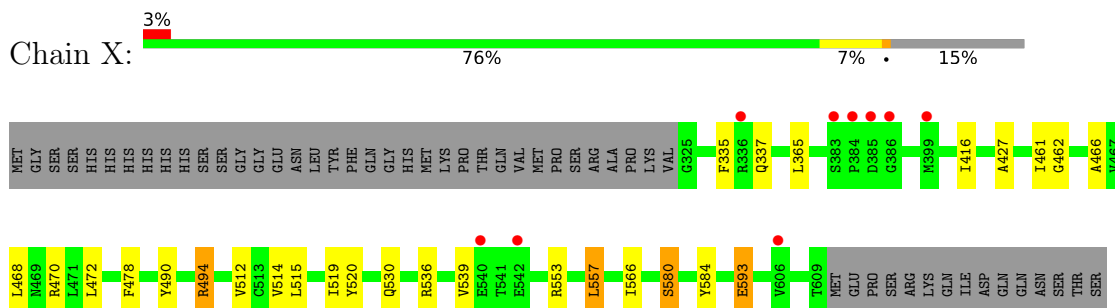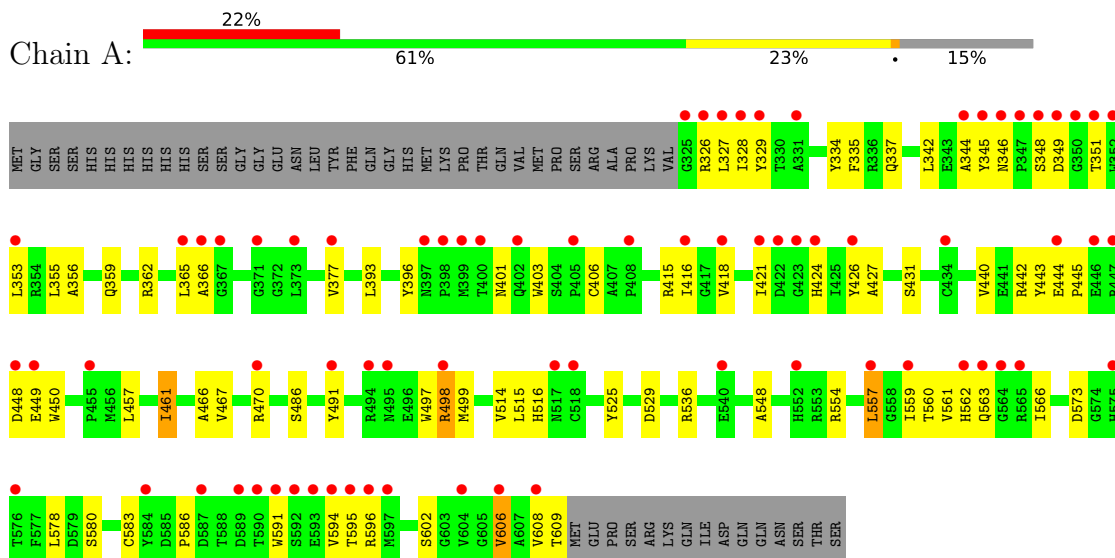
• Molecule 2: Nrf2 cyclic peptide,c[GAEETGE]

Chain C:

4 Data and refinement statistics ⓘ

Property	Value	Source
Space group	I 1 2 1	Depositor
Cell constants a, b, c, α, β, γ	77.64Å 68.89Å 144.02Å 90.00° 90.95° 90.00°	Depositor
Resolution (Å)	27.15 – 2.37 27.15 – 2.37	Depositor EDS
% Data completeness (in resolution range)	98.8 (27.15-2.37) 98.8 (27.15-2.37)	Depositor EDS
R_{merge}	0.05	Depositor
R_{sym}	(Not available)	Depositor
$< I/\sigma(I) >$ [1]	3.18 (at 2.36Å)	Xtriage
Refinement program	PHENIX 1.17.1_3660	Depositor
R, R_{free}	0.237 , 0.264 0.237 , 0.265	Depositor DCC
R_{free} test set	1017 reflections (3.31%)	wwPDB-VP
Wilson B-factor (Å^2)	26.1	Xtriage
Anisotropy	0.404	Xtriage
Bulk solvent k_{sol}(e/Å^3), B_{sol}(Å^2)	0.34 , 42.2	EDS
L-test for twinning[2]	$< |L| > = 0.49, < L^2 > = 0.32$	Xtriage
Estimated twinning fraction	0.022 for h,-k,-l	Xtriage
F_o,F_c correlation	0.90	EDS
Total number of atoms	4567	wwPDB-VP
Average B, all atoms (Å^2)	38.0	wwPDB-VP

Xtriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 5.16% 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	0.29	0/2361	0.54	0/3215
1	X	0.28	0/2361	0.52	0/3215
2	C	2.77	2/46 (4.3%)	1.27	1/60 (1.7%)
All	All	0.39	2/4768 (0.0%)	0.54	1/6490 (0.0%)

All (2) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
2	C	76	GLY	N-CA	15.46	1.69	1.46
2	C	82	GLU	CA-C	5.02	1.66	1.52

All (1) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
2	C	82	GLU	CA-C-O	-6.31	106.85	120.10

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	2260	0	2196	61	0
1	X	2260	0	2196	18	0
2	C	47	0	35	6	0
All	All	4567	0	4427	81	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 9.

All (81) 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:C:76:GLY:N	2:C:76:GLY:CA	1.69	1.53
1:A:328:ILE:HG12	1:A:608:VAL:HG12	1.12	1.10
1:A:328:ILE:HG21	1:A:560:THR:HG21	1.60	0.84
1:A:328:ILE:CG1	1:A:608:VAL:HG12	2.04	0.83
1:A:328:ILE:HG12	1:A:608:VAL:CG1	2.06	0.82
1:A:491:TYR:HE2	1:A:498:ARG:HB2	1.44	0.81
1:A:486:SER:HB2	1:A:499[B]:MET:HE1	1.66	0.75
1:A:491:TYR:CE2	1:A:498:ARG:HB2	2.26	0.70
1:A:443:TYR:HA	1:A:449:GLU:O	1.93	0.69
1:A:466:ALA:HB1	1:A:514[B]:VAL:HG23	1.76	0.68
1:A:561:VAL:HG22	1:A:566:ILE:HG12	1.77	0.66
1:A:583:CYS:HB2	1:A:594:VAL:CG2	2.26	0.65
2:C:76:GLY:N	2:C:76:GLY:C	2.48	0.65
1:X:466:ALA:HB1	1:X:514[B]:VAL:HG23	1.79	0.65
1:A:393:LEU:HD23	1:A:406:CYS:HB2	1.79	0.63
1:A:329:TYR:CE1	1:A:609:THR:HG22	2.33	0.63
1:X:515:LEU:HD22	1:X:566:ILE:HG13	1.81	0.63
1:A:416:ILE:HD11	1:A:427:ALA:HB1	1.82	0.62
1:A:554:ARG:HG3	1:A:557:LEU:HD22	1.81	0.61
1:A:415:ARG:NH2	2:C:79:GLU:OE1	2.27	0.60
1:A:344:ALA:HB3	1:A:353:LEU:HB3	1.83	0.60
1:A:515:LEU:HD21	1:A:586:PRO:HG3	1.84	0.60
1:A:377:VAL:HG22	1:A:393:LEU:HD12	1.86	0.58
2:C:76:GLY:N	2:C:77:ALA:N	2.53	0.56
1:A:595:THR:OG1	1:A:596:ARG:N	2.39	0.54
1:A:349:ASP:HB2	1:A:351:THR:OG1	2.09	0.53
1:A:443:TYR:HB2	1:A:450:TRP:CD2	2.44	0.53
1:A:562:HIS:CD2	1:A:563[B]:GLN:HG2	2.44	0.53
1:A:326[B]:ARG:HB2	1:A:562:HIS:CE1	2.43	0.53
1:A:366:ALA:HB1	1:A:418:VAL:HG22	1.91	0.52
1:X:365:LEU:HD23	1:X:365:LEU:H	1.75	0.52
1:A:424:HIS:ND1	1:A:442:ARG:HD2	2.24	0.52
1:X:494:ARG:NH2	1:A:586:PRO:O	2.43	0.51
1:X:557:LEU:HD23	1:X:557:LEU:H	1.76	0.50
1:A:573:ASP:OD2	1:A:578:LEU:HD11	2.11	0.50
2:C:76:GLY:N	2:C:77:ALA:H	2.09	0.50
1:A:362:ARG:HG3	1:A:365:LEU:HD13	1.93	0.50

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:X:468:LEU:HD22	1:X:519:ILE:HG13	1.94	0.49
1:X:461[B]:ILE:HG23	1:X:478:PHE:O	2.13	0.49
1:A:444:GLU:O	1:A:448:ASP:N	2.46	0.48
1:X:580[B]:SER:OG	1:X:593:GLU:OE2	2.26	0.48
1:A:560:THR:HB	1:A:606[B]:VAL:HG22	1.95	0.48
1:A:329:TYR:HB3	1:A:342:LEU:HD11	1.96	0.47
1:X:512:VAL:HA	1:X:520:TYR:O	2.15	0.47
1:X:519:ILE:O	1:X:536:ARG:HA	2.14	0.47
1:X:335:PHE:C	1:X:337:GLN:H	2.18	0.47
1:X:416:ILE:HD11	1:X:427:ALA:HB1	1.96	0.47
1:A:557:LEU:HD23	1:A:557:LEU:H	1.81	0.46
1:A:559:ILE:H	1:A:606[A]:VAL:HG21	1.81	0.46
1:A:457:LEU:CD2	1:A:497:TRP:CB	2.93	0.46
1:A:457:LEU:CD2	1:A:497:TRP:HB2	2.46	0.46
1:A:525:TYR:HB3	2:C:79:GLU:HG3	1.98	0.45
1:A:431:SER:HB3	1:A:461[B]:ILE:HG21	1.97	0.45
1:A:342:LEU:HD22	1:A:403:TRP:CZ2	2.52	0.45
1:A:335:PHE:C	1:A:337:GLN:H	2.21	0.45
1:A:355:LEU:HD13	1:A:396:TYR:OH	2.17	0.45
1:A:345:TYR:CE2	1:A:595:THR:HG21	2.52	0.44
1:A:421:ILE:HG22	1:A:467:VAL:HG11	1.99	0.44
1:X:461[B]:ILE:HG13	1:X:462:GLY:N	2.32	0.44
1:A:342:LEU:HB3	1:A:356:ALA:O	2.17	0.44
1:A:327:LEU:HD22	1:A:346:ASN:CB	2.47	0.44
1:A:329:TYR:HE1	1:A:609:THR:HG22	1.76	0.44
1:A:442:ARG:CZ	1:A:442:ARG:HB3	2.44	0.44
1:X:472:LEU:HB3	1:X:490:TYR:HB3	1.99	0.44
1:X:566:ILE:HB	1:X:584:TYR:HB3	2.00	0.43
1:A:548:ALA:O	1:A:591:TRP:NE1	2.51	0.43
1:A:328:ILE:CG2	1:A:560:THR:HG21	2.41	0.42
1:A:562:HIS:NE2	1:A:563[B]:GLN:HG2	2.34	0.42
1:A:348[B]:SER:OG	1:A:349:ASP:OD1	2.36	0.42
1:A:334:TYR:N	1:A:602:SER:O	2.53	0.42
1:X:515:LEU:HB3	1:X:520:TYR:CE1	2.55	0.42
1:A:443:TYR:HB2	1:A:450:TRP:CE2	2.55	0.41
1:A:457:LEU:CD2	1:A:497:TRP:HB3	2.50	0.41
1:A:440:VAL:HG21	1:A:497:TRP:HZ2	1.85	0.41
1:A:421:ILE:HG12	1:A:426:TYR:HE2	1.86	0.41
1:X:470[A]:ARG:HH12	1:A:516:HIS:HD2	1.69	0.41
1:A:326[A]:ARG:HB2	1:A:562:HIS:CE1	2.56	0.41
1:A:396:TYR:CE1	1:A:401:ASN:HA	2.56	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:562:HIS:CD2	1:A:563[A]:GLN:H	2.38	0.40
1:A:418:VAL:HA	1:A:426:TYR:O	2.22	0.40
1:X:530:GLN:HB2	1:X:553[A]:ARG:HG3	2.02	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	300/336 (89%)	284 (95%)	15 (5%)	1 (0%)	41	53
1	X	300/336 (89%)	294 (98%)	6 (2%)	0	100	100
2	C	5/7 (71%)	5 (100%)	0	0	100	100
All	All	605/679 (89%)	583 (96%)	21 (4%)	1 (0%)	47	61

All (1) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	A	445	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	243/277 (88%)	229 (94%)	14 (6%)	20	30

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Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
1	X	243/277 (88%)	236 (97%)	7 (3%)	42	60
2	C	4/4 (100%)	4 (100%)	0	100	100
All	All	490/558 (88%)	469 (96%)	21 (4%)	40	43

All (21) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	X	494	ARG
1	X	539[A]	VAL
1	X	539[B]	VAL
1	X	557	LEU
1	X	580[A]	SER
1	X	580[B]	SER
1	X	593	GLU
1	A	359	GLN
1	A	461[A]	ILE
1	A	461[B]	ILE
1	A	470[A]	ARG
1	A	470[B]	ARG
1	A	498	ARG
1	A	529[A]	ASP
1	A	529[B]	ASP
1	A	536	ARG
1	A	557	LEU
1	A	580[A]	SER
1	A	580[B]	SER
1	A	606[A]	VAL
1	A	606[B]	VAL

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (1) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	517	ASN

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 monosaccharides 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	285/336 (84%)	1.22	74 (25%)	0	0	13, 49, 91, 112	0
1	X	285/336 (84%)	0.14	9 (3%)	47	50	12, 21, 39, 72	0
2	C	7/7 (100%)	1.00	1 (14%)	2	2	29, 31, 56, 59	0
All	All	577/679 (84%)	0.69	84 (14%)	2	2	12, 29, 83, 112	0

All (84) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	A	325	GLY	8.5
1	A	346	ASN	7.1
1	A	399	MET	6.4
1	A	423	GLY	6.2
1	A	446	GLU	6.1
1	A	327	LEU	5.4
1	A	347	PRO	5.3
1	A	371	GLY	5.1
1	A	329	TYR	5.1
1	A	595	THR	5.0
1	A	422	ASP	4.9
1	A	575	HIS	4.8
1	A	494	ARG	4.7
1	X	384	PRO	4.7
1	A	353	LEU	4.5
1	A	421	ILE	4.5
1	A	587	ASP	4.1
1	X	385	ASP	4.0
1	A	498	ARG	3.9
1	A	397	ASN	3.5
1	A	402	GLN	3.5
1	A	444	GLU	3.4
1	X	383	SER	3.4

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Mol	Chain	Res	Type	RSRZ
1	A	348[A]	SER	3.4
1	A	328	ILE	3.3
1	A	326[A]	ARG	3.3
1	A	351	THR	3.3
1	A	590	THR	3.3
1	A	491	TYR	3.2
1	A	344	ALA	3.2
1	A	366	ALA	3.2
1	A	596	ARG	3.2
1	A	350	GLY	3.1
1	A	608	VAL	3.1
1	A	563[A]	GLN	3.1
1	A	592	SER	3.1
1	A	593	GLU	3.0
1	A	604	VAL	3.0
1	X	399	MET	3.0
1	A	562	HIS	2.9
1	A	495	ASN	2.9
1	A	449	GLU	2.9
1	A	447	ARG	2.9
1	X	386	GLY	2.8
2	C	77	ALA	2.8
1	A	416	ILE	2.8
1	A	552	HIS	2.8
1	A	540	GLU	2.8
1	A	565	ARG	2.7
1	A	470[A]	ARG	2.6
1	A	606[A]	VAL	2.6
1	A	517	ASN	2.6
1	A	365	LEU	2.6
1	A	559	ILE	2.6
1	X	542	GLU	2.6
1	A	400	THR	2.5
1	A	352	TRP	2.5
1	A	591	TRP	2.5
1	A	576	THR	2.5
1	A	398	PRO	2.4
1	A	597[A]	MET	2.4
1	A	418	VAL	2.4
1	A	584	TYR	2.4
1	A	331	ALA	2.4
1	A	408	PRO	2.3

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Mol	Chain	Res	Type	RSRZ
1	A	373	LEU	2.3
1	A	589	ASP	2.3
1	A	405	PRO	2.3
1	A	349	ASP	2.3
1	A	345	TYR	2.3
1	A	455	PRO	2.2
1	A	424	HIS	2.2
1	A	448	ASP	2.2
1	A	434[A]	CYS	2.2
1	X	540	GLU	2.2
1	X	606[A]	VAL	2.1
1	A	426	TYR	2.1
1	A	557	LEU	2.1
1	A	518	CYS	2.1
1	A	367	GLY	2.1
1	X	336[A]	ARG	2.1
1	A	564	GLY	2.1
1	A	594	VAL	2.1
1	A	377	VAL	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.