



Full wwPDB X-ray Structure Validation Report ⓘ

Nov 27, 2023 – 10:07 AM JST

PDB ID : 7YC2
Title : Crystal structure of auxiliary protein in complex with human protein
Authors : Gao, X.; Cui, S.
Deposited on : 2022-06-30
Resolution : 2.90 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
Xtrriage (Phenix) : 1.13
EDS : 2.36
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) : 2.36

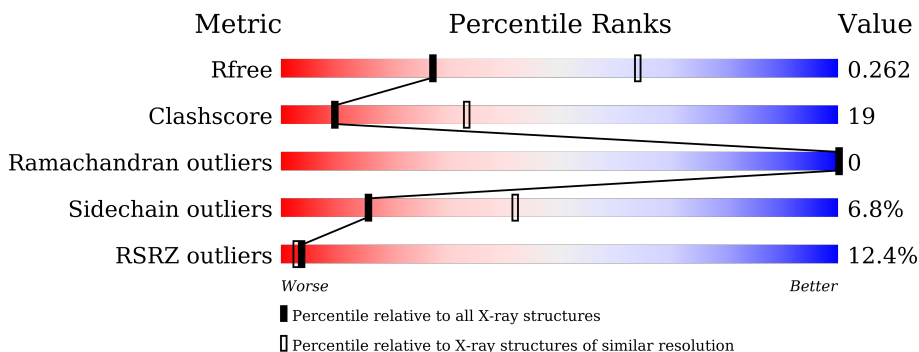
1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

X-RAY DIFFRACTION

The reported resolution of this entry is 2.90 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.



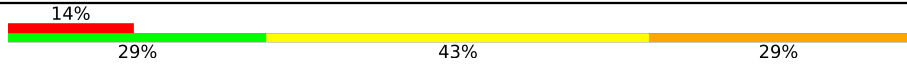

Metric	Whole archive (#Entries)	Similar resolution (#Entries, resolution range(Å))
R_{free}	130704	1957 (2.90-2.90)
Clashscore	141614	2172 (2.90-2.90)
Ramachandran outliers	138981	2115 (2.90-2.90)
Sidechain outliers	138945	2117 (2.90-2.90)
RSRZ outliers	127900	1906 (2.90-2.90)

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	240	
1	B	240	
1	C	240	
1	D	240	
2	E	7	
2	F	7	

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Mol	Chain	Length	Quality of chain
2	G	7	
2	H	7	

2 Entry composition

There are 2 unique types of molecules in this entry. The entry contains 7885 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 Protein zyg-11 homolog B.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
1	A	239	1927	1233	327	357	10	0	0	0
1	B	234	1884	1205	319	350	10	0	0	0
1	C	239	1927	1233	327	357	10	0	0	0
1	D	239	1927	1233	327	357	10	0	0	0

There are 4 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
A	489	SER	-	expression tag	UNP Q9C0D3
B	489	SER	-	expression tag	UNP Q9C0D3
C	489	SER	-	expression tag	UNP Q9C0D3
D	489	SER	-	expression tag	UNP Q9C0D3

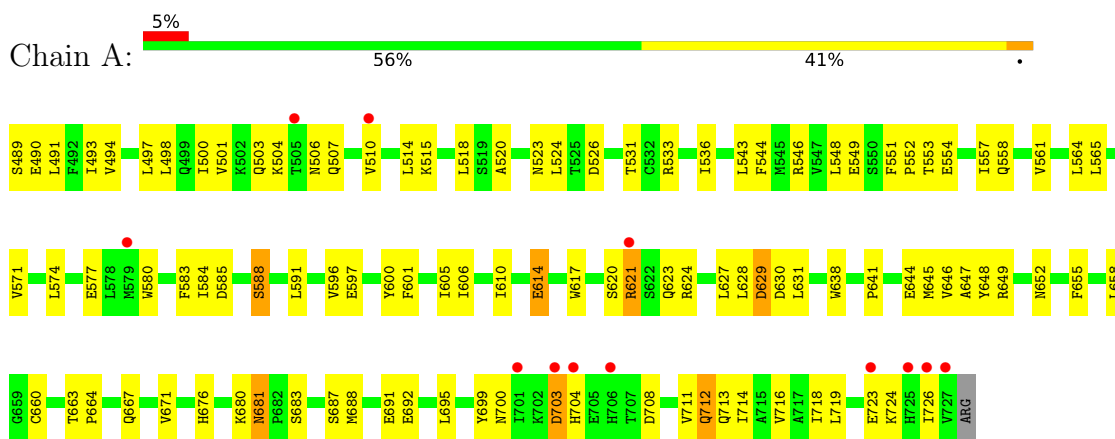
- Molecule 2 is a protein called ORF.

Mol	Chain	Residues	Atoms				ZeroOcc	AltConf	Trace
			Total	C	N	O			
2	E	7	55	38	8	9	0	0	0
2	F	7	55	38	8	9	0	0	0
2	G	7	55	38	8	9	0	0	0
2	H	7	55	38	8	9	0	0	0

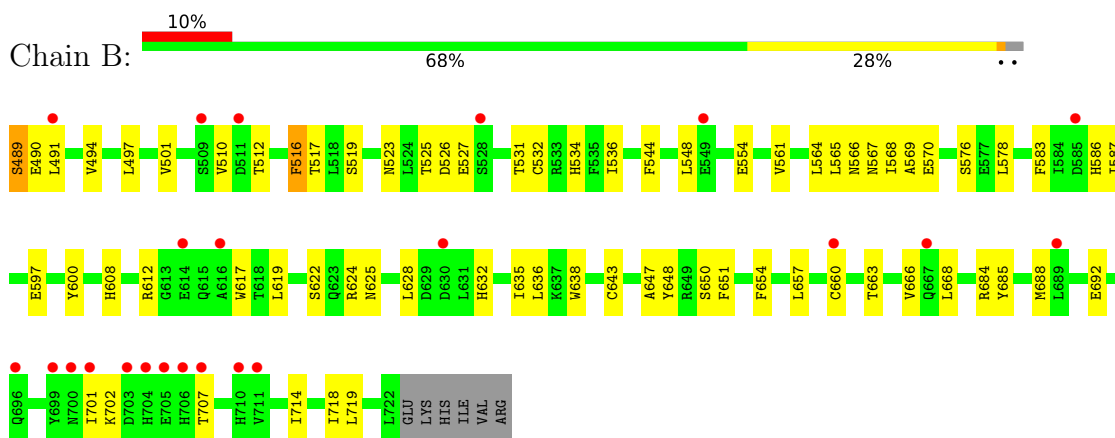
3 Residue-property plots [i](#)

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.

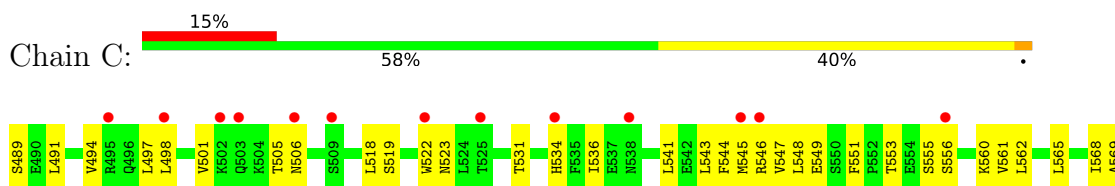
- Molecule 1: Protein zyg-11 homolog B

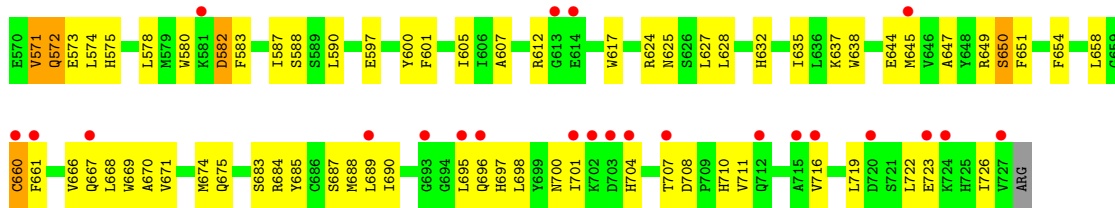


- Molecule 1: Protein zyg-11 homolog B

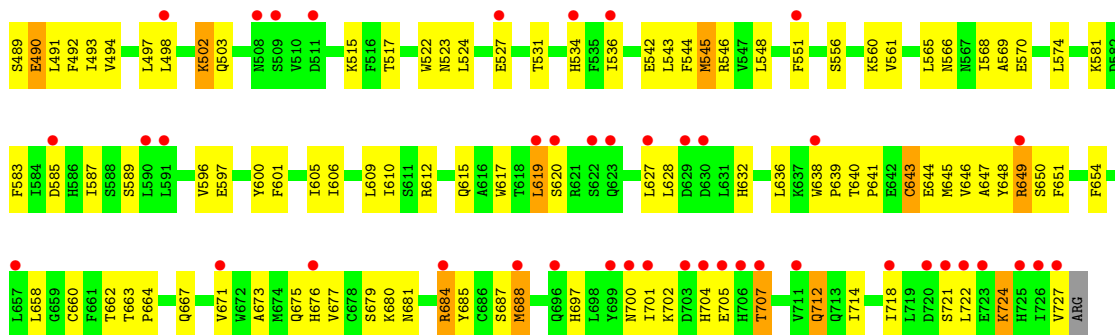


- Molecule 1: Protein zyg-11 homolog B

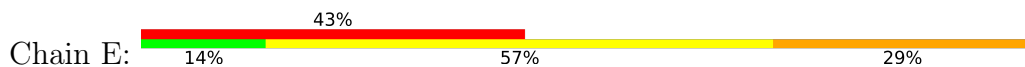




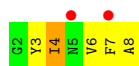
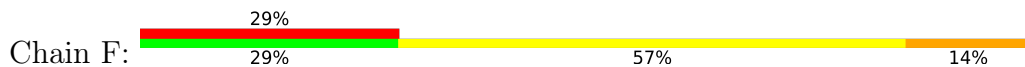
● Molecule 1: Protein zyg-11 homolog B



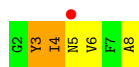
● Molecule 2: ORF



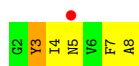
● Molecule 2: ORF



● Molecule 2: ORF



● Molecule 2: ORF



4 Data and refinement statistics i

Property	Value	Source
Space group	C 1 2 1	Depositor
Cell constants a, b, c, α , β , γ	106.30Å 72.80Å 127.50Å 90.00° 113.40° 90.00°	Depositor
Resolution (Å)	17.05 – 2.90 39.76 – 2.90	Depositor EDS
% Data completeness (in resolution range)	99.6 (17.05-2.90) 99.8 (39.76-2.90)	Depositor EDS
R_{merge}	0.27	Depositor
R_{sym}	(Not available)	Depositor
$\langle I/\sigma(I) \rangle$ ¹	1.28 (at 2.90Å)	Xtrriage
Refinement program	PHENIX 1.19.2_4158	Depositor
R, R_{free}	0.250 , 0.262 0.252 , 0.262	Depositor DCC
R_{free} test set	985 reflections (4.92%)	wwPDB-VP
Wilson B-factor (Å ²)	72.3	Xtrriage
Anisotropy	0.155	Xtrriage
Bulk solvent k_{sol} (e/Å ³), B_{sol} (Å ²)	0.36 , 42.3	EDS
L-test for twinning ²	$\langle L \rangle = 0.49$, $\langle L^2 \rangle = 0.32$	Xtrriage
Estimated twinning fraction	0.003 for h,-k,-h-l	Xtrriage
F_o, F_c correlation	0.91	EDS
Total number of atoms	7885	wwPDB-VP
Average B, all atoms (Å ²)	68.0	wwPDB-VP

Xtrriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 13.47% 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 [i](#)

5.1 Standard geometry [i](#)

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

Mol	Chain	Bond lengths		Bond angles	
		RMSZ	# Z >5	RMSZ	# Z >5
1	A	0.39	0/1974	0.56	0/2684
1	B	0.36	0/1930	0.56	0/2625
1	C	0.35	0/1974	0.60	3/2684 (0.1%)
1	D	0.35	0/1974	0.57	2/2684 (0.1%)
2	E	0.61	0/56	1.04	0/75
2	F	0.57	0/56	1.17	0/75
2	G	0.58	0/56	1.32	0/75
2	H	0.53	0/56	1.11	0/75
All	All	0.37	0/8076	0.60	5/10977 (0.0%)

There are no bond length outliers.

All (5) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	D	619	LEU	CB-CA-C	-6.71	97.45	110.20
1	D	619	LEU	N-CA-C	-6.57	93.27	111.00
1	C	660	CYS	CB-CA-C	6.04	122.47	110.40
1	C	661	PHE	N-CA-C	-6.01	94.76	111.00
1	C	660	CYS	N-CA-C	-5.86	95.18	111.00

There are no chirality outliers.

There are no planarity outliers.

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	1927	0	1902	74	5
1	B	1884	0	1856	47	1
1	C	1927	0	1902	88	15
1	D	1927	0	1902	82	4
2	E	55	0	51	18	3
2	F	55	0	51	5	1
2	G	55	0	51	14	5
2	H	55	0	51	14	6
All	All	7885	0	7766	304	24

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 19.

All (304) 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:C:523:ASN:ND2	2:E:3:TYR:CE1	2.06	1.22
1:A:644:GLU:OE2	1:A:681:ASN:HB2	1.00	1.18
1:A:644:GLU:OE2	1:A:681:ASN:CB	1.91	1.17
1:D:644:GLU:HB3	2:H:5:ASN:HD22	0.99	1.13
1:C:644:GLU:O	2:E:5:ASN:ND2	1.82	1.12
1:C:523:ASN:ND2	2:E:3:TYR:CD1	2.19	1.10
1:D:523:ASN:OD1	2:H:4:ILE:HG22	1.55	1.06
1:C:660:CYS:O	1:C:667:GLN:OE1	1.73	1.05
2:E:4:ILE:HD12	2:E:4:ILE:H	1.18	1.04
1:A:523:ASN:OD1	2:F:4:ILE:HG22	1.62	0.99
2:G:4:ILE:HD12	2:G:4:ILE:H	1.27	0.99
1:D:644:GLU:HB3	2:H:5:ASN:ND2	1.79	0.98
1:C:523:ASN:ND2	2:E:3:TYR:HE1	1.58	0.94
1:D:644:GLU:CB	2:H:5:ASN:HD22	1.82	0.92
1:B:647:ALA:HB3	2:G:3:TYR:HB3	1.49	0.92
1:B:523:ASN:HD21	2:G:4:ILE:H	0.99	0.91
1:A:510:VAL:HG21	1:A:554:GLU:HG3	1.50	0.91
1:D:490:GLU:OE1	1:D:490:GLU:N	2.10	0.84
1:B:491:LEU:HG	1:B:534:HIS:CE1	2.12	0.83
1:C:523:ASN:CG	2:E:3:TYR:HD1	1.82	0.83
1:D:647:ALA:HB3	2:H:3:TYR:HB3	1.60	0.83
1:A:647:ALA:HB3	2:F:3:TYR:HB3	1.61	0.82
1:D:676:HIS:CE1	1:D:680:LYS:HD2	2.19	0.78
1:C:565:LEU:HD13	1:C:583:PHE:HE1	1.49	0.77
1:C:644:GLU:C	2:E:5:ASN:HD21	1.86	0.77
1:D:641:PRO:O	1:D:680:LYS:HE3	1.85	0.76

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:523:ASN:CG	2:E:3:TYR:CD1	2.58	0.75
1:D:650:SER:HA	1:D:688:MET:SD	2.26	0.75
1:B:516:PHE:HE1	2:G:8:ALA:HB3	1.51	0.74
1:C:696:GLN:O	1:C:700:ASN:ND2	2.23	0.72
1:D:628:LEU:HD21	1:D:664:PRO:HD2	1.72	0.71
2:G:4:ILE:HD12	2:G:4:ILE:N	2.04	0.70
1:A:588:SER:HB2	1:A:627:LEU:HD21	1.73	0.70
1:D:523:ASN:CG	2:H:4:ILE:HG22	2.11	0.70
1:A:712:GLN:O	1:A:716:VAL:HG23	1.93	0.68
1:A:644:GLU:HG2	1:A:680:LYS:HB3	1.74	0.68
1:D:702:LYS:HA	1:D:712:GLN:HE21	1.59	0.68
1:C:556:SER:O	1:C:560:LYS:HD3	1.94	0.67
1:B:523:ASN:ND2	2:G:4:ILE:H	1.84	0.67
1:C:660:CYS:O	1:C:667:GLN:CD	2.33	0.66
1:A:503:GLN:O	1:A:507:GLN:HG3	1.96	0.66
1:A:695:LEU:HD11	1:A:726:ILE:HD11	1.78	0.64
1:A:658:LEU:O	1:A:667:GLN:NE2	2.25	0.64
1:B:569:ALA:O	1:B:612:ARG:NH2	2.30	0.64
1:C:701:ILE:HG23	1:C:707:THR:HG21	1.79	0.64
1:B:625:ASN:HA	1:B:628:LEU:HD12	1.79	0.64
1:B:684:ARG:NE	2:F:7:PHE:CZ	2.66	0.63
1:C:536:ILE:HD12	1:C:541:LEU:HD11	1.79	0.62
1:A:610:ILE:HG21	1:A:628:LEU:HD21	1.79	0.62
1:D:491:LEU:HD23	1:D:534:HIS:CG	2.34	0.62
1:C:650:SER:HA	1:C:688:MET:CE	2.30	0.62
1:C:518:LEU:HB3	1:C:560:LYS:HB3	1.82	0.61
1:C:588:SER:HB2	1:C:627:LEU:HD21	1.82	0.61
1:D:566:ASN:O	1:D:570:GLU:HG3	2.00	0.61
1:D:641:PRO:O	1:D:680:LYS:CE	2.48	0.61
1:D:701:ILE:HG23	1:D:707:THR:HG21	1.83	0.61
1:B:647:ALA:O	2:G:3:TYR:HB2	2.01	0.61
1:D:644:GLU:OE2	1:D:681:ASN:ND2	2.34	0.60
1:C:658:LEU:HD23	1:C:697:HIS:HB3	1.83	0.60
1:C:491:LEU:HD13	1:C:534:HIS:CG	2.37	0.60
1:D:536:ILE:HG13	1:D:574:LEU:HD22	1.83	0.59
1:D:544:PHE:CD2	1:D:561:VAL:HG13	2.38	0.59
1:D:658:LEU:HD12	1:D:697:HIS:HB3	1.85	0.59
1:B:565:LEU:HD13	1:B:583:PHE:HE1	1.68	0.59
1:D:644:GLU:CB	2:H:5:ASN:ND2	2.51	0.59
1:D:644:GLU:OE1	2:H:5:ASN:ND2	2.33	0.59
1:A:600:TYR:OH	1:A:648:TYR:OH	2.10	0.58

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:647:ALA:O	2:G:3:TYR:N	2.37	0.58
1:C:649:ARG:O	1:C:688:MET:HE1	2.03	0.58
1:C:697:HIS:O	1:C:701:ILE:HD12	2.03	0.58
1:D:489:SER:HB2	1:D:492:PHE:HB3	1.85	0.58
1:A:506:ASN:OD1	1:A:546:ARG:NH2	2.30	0.58
1:C:494:VAL:HG21	1:C:531:THR:HG23	1.85	0.58
1:A:660:CYS:HB3	1:A:663:THR:OG1	2.03	0.58
1:C:562:LEU:HD11	1:C:590:LEU:HD13	1.84	0.58
1:D:601:PHE:HZ	1:D:646:VAL:HB	1.68	0.58
1:D:676:HIS:O	1:D:680:LYS:HG3	2.03	0.57
1:D:491:LEU:HD23	1:D:534:HIS:HB2	1.85	0.57
2:E:7:PHE:O	2:E:7:PHE:CD1	2.57	0.57
1:C:501:VAL:O	1:C:505:THR:OG1	2.18	0.57
1:D:489:SER:O	1:D:493:ILE:HG13	2.05	0.57
1:C:607:ALA:HA	1:C:666:VAL:HG22	1.87	0.56
1:A:497:LEU:HA	1:A:500:ILE:HD12	1.88	0.56
1:D:536:ILE:HD11	1:D:568:ILE:HG21	1.87	0.56
1:A:600:TYR:HA	1:A:638:TRP:CH2	2.41	0.56
1:A:724:LYS:O	1:A:724:LYS:NZ	2.31	0.56
1:C:617:TRP:CE2	1:C:624:ARG:HB2	2.41	0.55
1:A:687:SER:O	1:A:691:GLU:HG2	2.07	0.55
1:C:698:LEU:HB2	1:C:719:LEU:HD21	1.89	0.54
1:D:569:ALA:HB2	1:D:605:ILE:HG23	1.89	0.54
1:B:490:GLU:O	1:B:494:VAL:HG23	2.07	0.54
1:C:650:SER:HA	1:C:688:MET:HE2	1.90	0.54
1:A:494:VAL:HG21	1:A:531:THR:HG23	1.89	0.54
1:A:644:GLU:CG	1:A:680:LYS:HB3	2.38	0.54
1:C:506:ASN:OD1	1:C:546:ARG:NH2	2.38	0.54
1:D:491:LEU:HD23	1:D:534:HIS:CB	2.36	0.54
1:D:724:LYS:HA	1:D:727:VAL:HG22	1.90	0.54
1:C:522:TRP:CZ3	1:C:560:LYS:HA	2.43	0.54
1:C:569:ALA:O	1:C:612:ARG:NH2	2.20	0.54
1:A:683:SER:O	2:G:6:VAL:HA	2.07	0.54
1:B:660:CYS:HB3	1:B:663:THR:OG1	2.08	0.53
1:C:658:LEU:HG	1:C:701:ILE:HD11	1.90	0.53
1:D:667:GLN:O	1:D:671:VAL:HG22	2.08	0.53
2:G:4:ILE:H	2:G:4:ILE:CD1	1.99	0.53
1:A:565:LEU:HD13	1:A:583:PHE:CE1	2.44	0.53
1:B:565:LEU:HD13	1:B:583:PHE:CE1	2.44	0.53
1:C:523:ASN:HD22	2:E:3:TYR:HE1	1.47	0.53
1:B:648:TYR:CZ	1:B:654:PHE:HZ	2.27	0.53

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:D:660:CYS:O	1:D:663:THR:O	2.26	0.53
1:C:632:HIS:HE1	1:C:710:HIS:HD2	1.56	0.53
1:C:522:TRP:CZ3	2:E:4:ILE:HG23	2.44	0.53
1:B:523:ASN:HD21	2:G:4:ILE:N	1.84	0.52
1:A:574:LEU:HD12	1:A:577:GLU:HG3	1.91	0.52
1:C:580:TRP:HB3	1:C:583:PHE:HB3	1.90	0.52
1:D:601:PHE:CZ	1:D:646:VAL:HB	2.44	0.52
1:C:645:MET:HA	2:E:5:ASN:ND2	2.25	0.52
2:E:4:ILE:HD12	2:E:4:ILE:N	2.03	0.52
1:B:651:PHE:HZ	1:B:685:TYR:HB3	1.75	0.52
1:D:648:TYR:HB2	1:D:685:TYR:HE1	1.72	0.52
1:C:544:PHE:CD2	1:C:561:VAL:HG13	2.45	0.52
1:D:700:ASN:O	1:D:704:HIS:HB2	2.10	0.52
1:C:651:PHE:CD2	1:C:688:MET:HG2	2.45	0.52
1:B:532:CYS:HB3	1:B:568:ILE:HD13	1.91	0.51
1:A:700:ASN:O	1:A:704:HIS:HB2	2.10	0.51
1:C:536:ILE:HG13	1:C:574:LEU:HD22	1.92	0.51
1:A:688:MET:O	1:A:692:GLU:HG3	2.10	0.51
1:D:556:SER:O	1:D:560:LYS:NZ	2.35	0.51
1:D:569:ALA:O	1:D:612:ARG:NH2	2.33	0.51
1:A:490:GLU:HA	1:A:493:ILE:HD12	1.92	0.51
1:C:505:THR:HG23	1:C:551:PHE:CE2	2.46	0.51
1:C:518:LEU:HD13	1:C:561:VAL:HG23	1.93	0.51
1:A:699:TYR:CE1	1:A:719:LEU:HD13	2.46	0.51
1:C:543:LEU:O	1:C:547:VAL:HG23	2.11	0.51
1:D:597:GLU:HA	1:D:645:MET:SD	2.51	0.51
1:B:544:PHE:CD2	1:B:561:VAL:HG13	2.46	0.50
1:C:580:TRP:CE2	1:C:582:ASP:HB2	2.47	0.50
1:C:716:VAL:HA	1:C:719:LEU:HD12	1.94	0.50
1:C:545:MET:HE2	1:C:583:PHE:HA	1.94	0.50
1:D:643:CYS:O	1:D:680:LYS:CD	2.59	0.50
2:E:3:TYR:HE1	2:E:8:ALA:HA	1.75	0.50
1:D:494:VAL:HG21	1:D:531:THR:HG23	1.93	0.50
1:D:523:ASN:ND2	2:H:4:ILE:CG2	2.75	0.49
1:B:583:PHE:O	1:B:587:ILE:HG12	2.13	0.49
1:D:606:ILE:O	1:D:610:ILE:HG13	2.12	0.49
1:A:614:GLU:N	1:A:614:GLU:OE1	2.45	0.49
1:C:667:GLN:HE21	1:C:711:VAL:HG11	1.77	0.49
1:D:676:HIS:HE1	1:D:680:LYS:HD2	1.69	0.49
1:B:635:ILE:HG21	1:B:668:LEU:HG	1.93	0.49
1:A:641:PRO:HG2	1:A:676:HIS:CE1	2.48	0.49

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:D:565:LEU:HA	1:D:568:ILE:HG12	1.94	0.49
1:C:522:TRP:CE3	1:C:560:LYS:HA	2.48	0.48
1:A:504:LYS:HB2	1:A:514:LEU:HD13	1.95	0.48
1:A:652:ASN:HA	1:A:655:PHE:CD2	2.48	0.48
1:B:490:GLU:OE1	1:B:490:GLU:N	2.37	0.48
1:D:704:HIS:ND1	1:D:705:GLU:O	2.47	0.48
1:B:497:LEU:HD22	1:B:517:THR:HG23	1.95	0.48
1:D:617:TRP:CD1	1:D:619:LEU:O	2.66	0.48
2:E:4:ILE:H	2:E:4:ILE:CD1	1.96	0.48
1:C:650:SER:HA	1:C:688:MET:HE1	1.96	0.48
1:A:520:ALA:O	1:A:524:LEU:HG	2.14	0.48
1:C:667:GLN:O	1:C:671:VAL:HG22	2.14	0.48
1:D:600:TYR:HA	1:D:638:TRP:CH2	2.48	0.48
1:D:542:GLU:OE1	1:D:542:GLU:N	2.41	0.47
1:A:628:LEU:HD23	1:A:628:LEU:HA	1.47	0.47
1:B:617:TRP:CG	1:B:624:ARG:HD2	2.49	0.47
1:C:670:ALA:O	1:C:674:MET:HG3	2.13	0.47
1:D:545:MET:HA	1:D:548:LEU:HD12	1.96	0.47
1:A:671:VAL:O	1:A:718:ILE:HD11	2.14	0.47
1:A:683:SER:HB2	2:G:5:ASN:ND2	2.29	0.47
1:A:617:TRP:CG	1:A:624:ARG:HD2	2.50	0.47
1:A:580:TRP:CE3	1:A:583:PHE:HB2	2.50	0.47
1:A:703:ASP:N	1:A:703:ASP:OD1	2.47	0.47
1:C:568:ILE:O	1:C:571:VAL:HG13	2.15	0.47
1:D:583:PHE:O	1:D:587:ILE:HG12	2.15	0.47
1:D:660:CYS:HB3	1:D:663:THR:OG1	2.14	0.47
1:B:526:ASP:OD1	1:B:527:GLU:HG2	2.15	0.47
1:A:565:LEU:HD13	1:A:583:PHE:HE1	1.79	0.47
1:C:575:HIS:ND1	1:C:612:ARG:HG3	2.30	0.46
1:A:614:GLU:H	1:A:614:GLU:CD	2.19	0.46
1:A:617:TRP:CB	1:A:624:ARG:HD2	2.46	0.46
1:B:578:LEU:HG	1:B:583:PHE:CE2	2.51	0.46
1:C:597:GLU:H	1:C:597:GLU:HG2	1.46	0.46
1:A:515:LYS:HG2	1:A:557:ILE:HD11	1.98	0.46
1:B:657:LEU:HB3	1:B:666:VAL:HG12	1.96	0.46
1:D:523:ASN:ND2	2:H:4:ILE:HG22	2.30	0.46
1:A:606:ILE:HG22	1:A:631:LEU:HD22	1.97	0.46
1:C:708:ASP:HB3	1:C:711:VAL:HB	1.96	0.46
1:D:497:LEU:HD22	1:D:517:THR:HG23	1.98	0.46
1:A:510:VAL:HG23	1:A:551:PHE:CD1	2.51	0.46
1:B:688:MET:O	1:B:692:GLU:HG3	2.16	0.46

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:688:MET:SD	2:F:7:PHE:HB3	2.56	0.46
1:C:719:LEU:O	1:C:723:GLU:HG2	2.15	0.46
1:D:581:LYS:NZ	1:D:585:ASP:OD2	2.31	0.45
1:B:516:PHE:CE1	2:G:8:ALA:HB3	2.41	0.45
1:A:551:PHE:HB3	1:A:554:GLU:HB2	1.98	0.45
1:C:660:CYS:O	1:C:667:GLN:HG3	2.17	0.45
1:B:532:CYS:O	1:B:536:ILE:HG12	2.16	0.45
1:B:684:ARG:HG2	1:B:685:TYR:CE2	2.52	0.45
1:D:596:VAL:HB	1:D:639:PRO:HD2	1.98	0.45
1:D:673:ALA:O	1:D:677:VAL:HG22	2.16	0.45
2:F:4:ILE:HG13	2:F:6:VAL:H	1.81	0.45
1:A:544:PHE:CD2	1:A:561:VAL:HG13	2.51	0.45
1:C:545:MET:O	1:C:549:GLU:N	2.43	0.45
1:C:565:LEU:HD13	1:C:583:PHE:CE1	2.40	0.45
1:C:667:GLN:NE2	1:C:711:VAL:HG11	2.32	0.45
1:C:704:HIS:HB3	1:C:707:THR:OG1	2.16	0.45
1:A:664:PRO:HB3	1:A:708:ASP:HB2	1.99	0.44
1:B:701:ILE:HG23	1:B:707:THR:HG21	1.99	0.44
1:C:587:ILE:H	1:C:587:ILE:HG12	1.68	0.44
1:A:601:PHE:HZ	1:A:646:VAL:HB	1.83	0.44
1:C:635:ILE:HB	1:C:668:LEU:HD23	2.00	0.44
1:A:714:ILE:O	1:A:718:ILE:HG13	2.18	0.44
1:D:714:ILE:O	1:D:718:ILE:HG13	2.18	0.44
1:B:536:ILE:HD11	1:B:568:ILE:HG21	1.98	0.43
1:C:601:PHE:O	1:C:605:ILE:HG13	2.18	0.43
2:E:4:ILE:N	2:E:4:ILE:CD1	2.73	0.43
1:A:606:ILE:HD13	1:A:627:LEU:HD22	2.00	0.43
1:D:640:THR:HG22	1:D:680:LYS:HE2	1.99	0.43
1:D:498:LEU:HD22	1:D:543:LEU:HD23	1.99	0.43
1:D:619:LEU:HB3	1:D:620:SER:H	1.62	0.43
1:A:518:LEU:HD13	1:A:561:VAL:HG23	2.00	0.43
1:B:714:ILE:O	1:B:718:ILE:HG13	2.18	0.43
1:D:718:ILE:HG22	1:D:722:LEU:HG	2.00	0.43
1:A:498:LEU:HD22	1:A:543:LEU:HD23	2.00	0.43
1:C:497:LEU:O	1:C:501:VAL:HG23	2.18	0.43
1:C:637:LYS:HE2	1:C:637:LYS:HB2	1.72	0.43
1:C:687:SER:HA	1:C:690:ILE:HD12	2.00	0.43
1:A:621:ARG:H	1:A:621:ARG:HD3	1.84	0.43
1:C:632:HIS:CE1	1:C:710:HIS:HD2	2.35	0.43
1:C:660:CYS:O	1:C:667:GLN:CG	2.66	0.43
1:C:695:LEU:HD11	1:C:726:ILE:HD11	2.01	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:644:GLU:OE2	1:A:681:ASN:CG	2.52	0.43
1:D:491:LEU:HB3	1:D:534:HIS:CD2	2.54	0.43
1:D:523:ASN:HD21	2:H:4:ILE:CG2	2.32	0.43
1:D:632:HIS:CE1	1:D:636:LEU:HD11	2.54	0.43
1:B:600:TYR:HA	1:B:638:TRP:CH2	2.54	0.43
1:A:571:VAL:HG11	1:A:574:LEU:HD23	2.01	0.42
1:D:527:GLU:HB2	1:D:649:ARG:HH22	1.84	0.42
1:C:498:LEU:HD23	1:C:498:LEU:HA	1.82	0.42
1:D:522:TRP:CE3	1:D:560:LYS:HA	2.54	0.42
1:A:554:GLU:O	1:A:558:GLN:HG3	2.19	0.42
1:C:519:SER:O	1:C:522:TRP:HB3	2.19	0.42
1:D:644:GLU:CD	1:D:681:ASN:ND2	2.73	0.42
1:D:675:GLN:O	1:D:679:SER:HB3	2.18	0.42
1:C:600:TYR:HA	1:C:638:TRP:CH2	2.55	0.42
1:C:625:ASN:HA	1:C:628:LEU:HD12	2.01	0.42
1:D:515:LYS:HB3	1:D:560:LYS:HE2	2.01	0.42
1:D:641:PRO:HG2	1:D:645:MET:HE2	2.01	0.42
1:A:497:LEU:O	1:A:501:VAL:HG23	2.19	0.42
1:A:645:MET:HE2	1:A:645:MET:HB2	1.88	0.42
1:B:632:HIS:CE1	1:B:636:LEU:HD11	2.55	0.42
1:B:490:GLU:N	1:B:490:GLU:CD	2.73	0.42
1:A:588:SER:O	1:A:591:LEU:HB3	2.20	0.42
1:C:541:LEU:HD21	1:C:578:LEU:HD23	2.01	0.42
1:C:583:PHE:O	1:C:587:ILE:HG12	2.20	0.42
1:D:644:GLU:OE1	1:D:681:ASN:ND2	2.53	0.42
1:D:647:ALA:CB	2:H:3:TYR:HB3	2.42	0.42
1:A:629:ASP:OD1	1:A:629:ASP:N	2.53	0.42
1:C:654:PHE:HE1	1:C:669:TRP:CH2	2.38	0.42
1:C:689:LEU:HD23	1:C:722:LEU:HD11	2.02	0.42
1:A:544:PHE:HD2	1:A:561:VAL:HG13	1.85	0.41
1:D:605:ILE:O	1:D:609:LEU:HG	2.19	0.41
1:C:578:LEU:HD22	1:C:583:PHE:CZ	2.55	0.41
1:C:689:LEU:HD12	1:C:689:LEU:HA	1.92	0.41
1:B:548:LEU:HG	1:B:561:VAL:HG11	2.02	0.41
1:B:564:LEU:O	1:B:567:ASN:HB2	2.20	0.41
1:C:647:ALA:HA	1:C:685:TYR:OH	2.20	0.41
1:D:523:ASN:CG	2:H:4:ILE:CG2	2.83	0.41
1:A:584:ILE:O	1:A:588:SER:HB3	2.20	0.41
1:C:541:LEU:O	1:C:545:MET:HG2	2.21	0.41
1:A:680:LYS:HD3	1:A:680:LYS:HA	1.84	0.41
1:B:510:VAL:HG11	1:B:554:GLU:OE2	2.20	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:702:LYS:HD3	1:B:719:LEU:CD1	2.51	0.41
2:G:6:VAL:HG12	2:G:6:VAL:O	2.20	0.41
1:C:587:ILE:HD12	1:C:605:ILE:HD12	2.02	0.41
1:D:524:LEU:HB3	1:D:531:THR:HG21	2.03	0.41
1:D:647:ALA:HA	1:D:685:TYR:OH	2.20	0.41
2:E:4:ILE:HG22	2:E:6:VAL:HG23	2.03	0.41
1:B:497:LEU:O	1:B:501:VAL:HG23	2.20	0.41
1:A:526:ASP:OD2	1:A:649:ARG:HD3	2.20	0.41
1:A:548:LEU:HG	1:A:561:VAL:HG11	2.03	0.41
1:A:723:GLU:OE1	1:A:723:GLU:HA	2.21	0.41
1:B:570:GLU:HG2	1:B:608:HIS:CE1	2.56	0.41
1:B:617:TRP:NE1	1:B:619:LEU:HB2	2.36	0.41
1:C:697:HIS:O	1:C:700:ASN:HB2	2.21	0.41
2:E:4:ILE:CG2	2:E:6:VAL:HG23	2.51	0.41
1:A:544:PHE:CE2	1:A:564:LEU:HD13	2.56	0.41
1:A:627:LEU:HA	1:A:627:LEU:HD23	1.79	0.41
1:A:667:GLN:O	1:A:671:VAL:HG22	2.21	0.41
1:D:502:LYS:HE2	1:D:503:GLN:N	2.36	0.41
1:A:601:PHE:O	1:A:605:ILE:HD12	2.21	0.40
1:C:562:LEU:HB3	1:C:601:PHE:HB2	2.03	0.40
1:D:702:LYS:HA	1:D:712:GLN:NE2	2.32	0.40
1:B:490:GLU:CD	1:B:490:GLU:H	2.21	0.40
1:C:498:LEU:HD22	1:C:543:LEU:HD23	2.03	0.40
1:D:648:TYR:HB2	1:D:685:TYR:CE1	2.55	0.40
1:A:536:ILE:HD13	1:A:536:ILE:HA	1.93	0.40
1:A:549:GLU:O	1:A:552:PRO:HD3	2.21	0.40
1:A:667:GLN:HB3	1:A:711:VAL:HG11	2.03	0.40
1:B:525:THR:HG22	1:B:531:THR:HG22	2.02	0.40
1:C:548:LEU:HG	1:C:561:VAL:HG11	2.02	0.40
1:D:523:ASN:OD1	2:H:4:ILE:CG2	2.46	0.40
1:C:632:HIS:HE1	1:C:710:HIS:CD2	2.38	0.40
1:D:651:PHE:O	1:D:654:PHE:N	2.44	0.40

All (24) symmetry-related close contacts are listed below. The label for Atom-2 includes the symmetry operator and encoded unit-cell translations to be applied.

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:489:SER:N	2:G:8:ALA:C[2_555]	0.20	2.00
1:C:572:GLN:CD	1:C:572:GLN:OE1[2_556]	0.56	1.64
1:C:572:GLN:CD	1:C:572:GLN:CD[2_556]	0.68	1.52

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:572:GLN:OE1	1:C:572:GLN:NE2[2_556]	1.02	1.18
1:C:489:SER:N	2:H:8:ALA:O[2_546]	1.10	1.10
1:C:489:SER:CA	2:H:8:ALA:O[2_546]	1.18	1.02
1:C:572:GLN:CG	1:C:572:GLN:OE1[2_556]	1.42	0.78
1:A:489:SER:N	2:G:8:ALA:O[2_555]	1.43	0.77
1:A:489:SER:N	2:G:8:ALA:CA[2_555]	1.47	0.73
1:A:489:SER:CA	2:G:8:ALA:C[2_555]	1.56	0.64
1:C:489:SER:CB	2:H:8:ALA:O[2_546]	1.67	0.53
1:C:572:GLN:OE1	1:C:572:GLN:OE1[2_556]	1.78	0.42
1:C:572:GLN:CD	1:C:572:GLN:NE2[2_556]	1.81	0.39
1:A:490:GLU:N	2:G:8:ALA:O[2_555]	1.84	0.36
1:C:489:SER:N	2:H:8:ALA:CA[2_546]	1.89	0.31
1:C:572:GLN:CG	1:C:572:GLN:CD[2_556]	1.92	0.28
1:C:489:SER:N	2:H:8:ALA:CB[2_546]	1.97	0.23
1:C:489:SER:CA	2:H:8:ALA:C[2_546]	2.06	0.14
1:D:687:SER:C	2:E:7:PHE:CE2[1_565]	2.07	0.13
1:D:688:MET:N	2:E:7:PHE:CE2[1_565]	2.08	0.12
1:B:489:SER:N	2:F:8:ALA:O[2_555]	2.11	0.09
1:C:572:GLN:CB	1:C:572:GLN:OE1[2_556]	2.11	0.09
1:C:684:ARG:NH2	1:D:684:ARG:NH2[1_545]	2.15	0.05
1:D:688:MET:CA	2:E:7:PHE:CZ[1_565]	2.18	0.02

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	237/240 (99%)	232 (98%)	5 (2%)	0	100	100
1	B	232/240 (97%)	226 (97%)	6 (3%)	0	100	100
1	C	237/240 (99%)	233 (98%)	4 (2%)	0	100	100
1	D	237/240 (99%)	229 (97%)	8 (3%)	0	100	100
2	E	5/7 (71%)	5 (100%)	0	0	100	100

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
2	F	5/7 (71%)	5 (100%)	0	0	100	100
2	G	5/7 (71%)	5 (100%)	0	0	100	100
2	H	5/7 (71%)	5 (100%)	0	0	100	100
All	All	963/988 (98%)	940 (98%)	23 (2%)	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	219/220 (100%)	202 (92%)	17 (8%)	12	34
1	B	214/220 (97%)	203 (95%)	11 (5%)	24	56
1	C	219/220 (100%)	210 (96%)	9 (4%)	30	64
1	D	219/220 (100%)	202 (92%)	17 (8%)	12	34
2	E	5/5 (100%)	3 (60%)	2 (40%)	0	0
2	F	5/5 (100%)	4 (80%)	1 (20%)	1	4
2	G	5/5 (100%)	3 (60%)	2 (40%)	0	0
2	H	5/5 (100%)	3 (60%)	2 (40%)	0	0
All	All	891/900 (99%)	830 (93%)	61 (7%)	16	42

All (61) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	491	LEU
1	A	533	ARG
1	A	553	THR
1	A	585	ASP
1	A	588	SER
1	A	596	VAL
1	A	597	GLU
1	A	614	GLU

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Mol	Chain	Res	Type
1	A	620	SER
1	A	621	ARG
1	A	623	GLN
1	A	629	ASP
1	A	630	ASP
1	A	681	ASN
1	A	703	ASP
1	A	712	GLN
1	A	713	GLN
1	B	489	SER
1	B	512	THR
1	B	516	PHE
1	B	519	SER
1	B	566	ASN
1	B	576	SER
1	B	586	HIS
1	B	597	GLU
1	B	622	SER
1	B	643	CYS
1	B	650	SER
1	C	553	THR
1	C	555	SER
1	C	571	VAL
1	C	572	GLN
1	C	573	GLU
1	C	582	ASP
1	C	650	SER
1	C	675	GLN
1	C	683	SER
1	D	490	GLU
1	D	502	LYS
1	D	545	MET
1	D	546	ARG
1	D	551	PHE
1	D	589	SER
1	D	615	GLN
1	D	627	LEU
1	D	643	CYS
1	D	649	ARG
1	D	662	THR
1	D	684	ARG
1	D	688	MET

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Mol	Chain	Res	Type
1	D	707	THR
1	D	712	GLN
1	D	721	SER
1	D	724	LYS
2	E	4	ILE
2	E	6	VAL
2	F	4	ILE
2	G	3	TYR
2	G	4	ILE
2	H	3	TYR
2	H	7	PHE

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (15) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	681	ASN
1	A	712	GLN
1	B	499	GLN
1	B	503	GLN
1	B	523	ASN
1	B	534	HIS
1	B	625	ASN
1	C	572	GLN
1	C	667	GLN
1	C	710	HIS
1	D	559	GLN
1	D	681	ASN
1	D	712	GLN
2	G	5	ASN
2	H	5	ASN

5.3.3 RNA [i](#)

There are no RNA molecules in this entry.

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

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

5.5 Carbohydrates [i](#)

There are no monosaccharides in this entry.

5.6 Ligand geometry [i](#)

There are no ligands in this entry.

5.7 Other polymers [i](#)

There are no such residues in this entry.

5.8 Polymer linkage issues [i](#)

There are no chain breaks in this entry.

6 Fit of model and data

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	239/240 (99%)	0.58	12 (5%) 28 25	43, 56, 76, 89	0
1	B	234/240 (97%)	0.79	23 (9%) 7 5	46, 60, 75, 95	0
1	C	239/240 (99%)	0.92	36 (15%) 2 1	61, 74, 92, 108	0
1	D	239/240 (99%)	1.03	43 (17%) 1 1	60, 76, 99, 109	0
2	E	7/7 (100%)	2.74	3 (42%) 0 0	67, 81, 94, 98	0
2	F	7/7 (100%)	1.77	2 (28%) 0 0	51, 62, 67, 72	0
2	G	7/7 (100%)	0.97	1 (14%) 2 2	53, 64, 70, 74	0
2	H	7/7 (100%)	1.21	1 (14%) 2 2	71, 82, 89, 90	0
All	All	979/988 (99%)	0.85	121 (12%) 4 3	43, 67, 91, 109	0

All (121) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	A	727	VAL	6.3
1	D	720	ASP	6.0
2	E	7	PHE	6.0
1	D	706	HIS	5.4
1	D	509	SER	5.3
1	B	704	HIS	5.3
1	D	726	ILE	5.1
1	A	723	GLU	4.8
1	C	696	GLN	4.6
2	E	8	ALA	4.6
2	H	5	ASN	4.6
1	B	703	ASP	4.5
1	C	661	PHE	4.5
1	D	591	LEU	4.2
1	B	509	SER	4.2
1	C	689	LEU	4.2

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Mol	Chain	Res	Type	RSRZ
1	B	701	ILE	4.1
1	D	627	LEU	4.1
1	D	722	LEU	4.1
1	D	623	GLN	3.9
1	D	705	GLU	3.9
1	C	495	ARG	3.9
1	B	511	ASP	3.7
1	C	502	LYS	3.6
2	F	5	ASN	3.6
1	C	707	THR	3.6
1	D	704	HIS	3.5
1	D	727	VAL	3.5
1	D	629	ASP	3.5
1	D	723	GLU	3.4
1	B	689	LEU	3.4
1	C	723	GLU	3.4
1	C	614	GLU	3.4
1	C	538	ASN	3.3
1	D	585	ASP	3.3
2	E	3	TYR	3.3
1	B	699	TYR	3.2
1	D	622	SER	3.2
1	D	534	HIS	3.2
1	B	700	ASN	3.2
1	C	712	GLN	3.2
1	A	726	ILE	3.1
1	D	590	LEU	3.1
1	D	718	ILE	3.1
1	B	706	HIS	3.1
1	C	720	ASP	3.1
1	C	724	LYS	3.1
1	D	630	ASP	3.1
1	D	527	GLU	3.0
1	D	725	HIS	3.0
2	G	5	ASN	2.9
2	F	7	PHE	2.9
1	D	707	THR	2.9
1	A	725	HIS	2.9
1	C	715	ALA	2.8
1	B	616	ALA	2.8
1	C	693	GLY	2.8
1	C	509	SER	2.8

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Mol	Chain	Res	Type	RSRZ
1	C	727	VAL	2.8
1	B	711	VAL	2.8
1	B	705	GLU	2.7
1	C	660	CYS	2.7
1	C	613	GLY	2.7
1	A	505	THR	2.6
1	C	701	ILE	2.6
1	D	701	ILE	2.6
1	D	684	ARG	2.6
1	D	511	ASP	2.6
1	B	630	ASP	2.6
1	D	700	ASN	2.6
1	C	704	HIS	2.5
1	C	506	ASN	2.5
1	B	491	LEU	2.5
1	B	585	ASP	2.5
1	C	556	SER	2.5
1	C	581	LYS	2.5
1	D	711	VAL	2.5
1	B	710	HIS	2.4
1	D	703	ASP	2.4
1	A	704	HIS	2.4
1	A	579	MET	2.4
1	C	503	GLN	2.4
1	D	536	ILE	2.4
1	B	660	CYS	2.4
1	A	701	ILE	2.4
1	D	619	LEU	2.4
1	D	696	GLN	2.3
1	C	545	MET	2.3
1	D	620	SER	2.3
1	C	667	GLN	2.3
1	D	671	VAL	2.3
1	D	638	TRP	2.3
1	C	534	HIS	2.3
1	B	667	GLN	2.3
1	C	498	LEU	2.3
1	D	508	ASN	2.3
1	A	706	HIS	2.3
1	C	645	MET	2.3
1	B	528	SER	2.3
1	A	510	VAL	2.3

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Mol	Chain	Res	Type	RSRZ
1	C	546	ARG	2.3
1	B	707	THR	2.2
1	C	702	LYS	2.2
1	D	676	HIS	2.2
1	D	498	LEU	2.2
1	B	549	GLU	2.2
1	D	699	TYR	2.2
1	C	716	VAL	2.2
1	A	703	ASP	2.2
1	A	621	ARG	2.2
1	B	614	GLU	2.1
1	D	688	MET	2.1
1	D	721	SER	2.1
1	D	551	PHE	2.1
1	D	657	LEU	2.1
1	C	695	LEU	2.1
1	D	649	ARG	2.0
1	B	696	GLN	2.0
1	C	703	ASP	2.0
1	C	522	TRP	2.0
1	C	525	THR	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 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.