WORLDWIDE wwPDB PROTEIN DATA BANK

Full wwPDB X-ray Structure Validation Report (i)

Nov 20, 2023 – 02:35 PM JST

PDB ID : 7CI2
Title : Crystal structure of AcrVA2 in complex with partial MbCpf1
Authors : Chen, P.; Cheng, Z.; Wang, Y.
Deposited on : 2020-07-07
Resolution : 2.80 Å(reported)

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

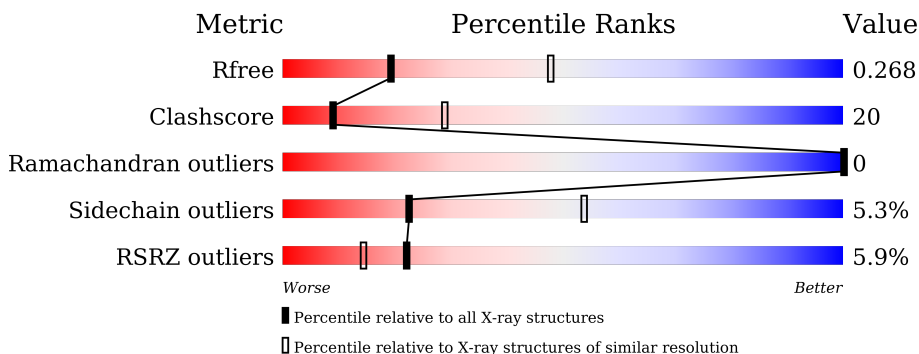|		
MolProbity	:	4.02b-467
Xtriage (Phenix)	:	1.13
EDS	:	2.36
Percentile statistics	:	20191225.v01 (using entries in the PDB archive December 25th 2019)
Refmac	:	5.8.0158
CCP4	:	7.0.044 (Gargrove)
Ideal geometry (proteins)	:	Engh & Huber (2001)
Ideal geometry (DNA, RNA)	:	Parkinson et al. (1996)
Validation 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 2.80 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		0.268
Clashscore		20
Ramachandran outliers		0
Sidechain outliers		5.3%
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}	130704	3140 (2.80-2.80)
Clashscore	141614	3569 (2.80-2.80)
Ramachandran outliers	138981	3498 (2.80-2.80)
Sidechain outliers	138945	3500 (2.80-2.80)
RSRZ outliers	127900	3078 (2.80-2.80)

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	323	5% 61% 31% 5% ·
1	B	323	6% 61% 33% · ·
2	C	33	6% 24% 27% 6% 42%
2	D	33	3% 24% 30% · 42%

W O R L D W I D E
wwPDB
PROTEIN DATA BANK

2 Entry composition ⓘ

There are 3 unique types of molecules in this entry. The entry contains 5336 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 AcrVA2.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
1	A	313	Total	C	N	O	S	0	2	0
			2492	1603	424	457	8			
1	B	313	Total	C	N	O	S	0	2	0
			2485	1600	424	453	8			

- Molecule 2 is a protein called MbCpf1.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
2	C	19	Total	C	N	O	S	0	0	0
			146	98	24	22	2			
2	D	19	Total	C	N	O	S	0	0	0
			146	98	24	22	2			

- Molecule 3 is water.

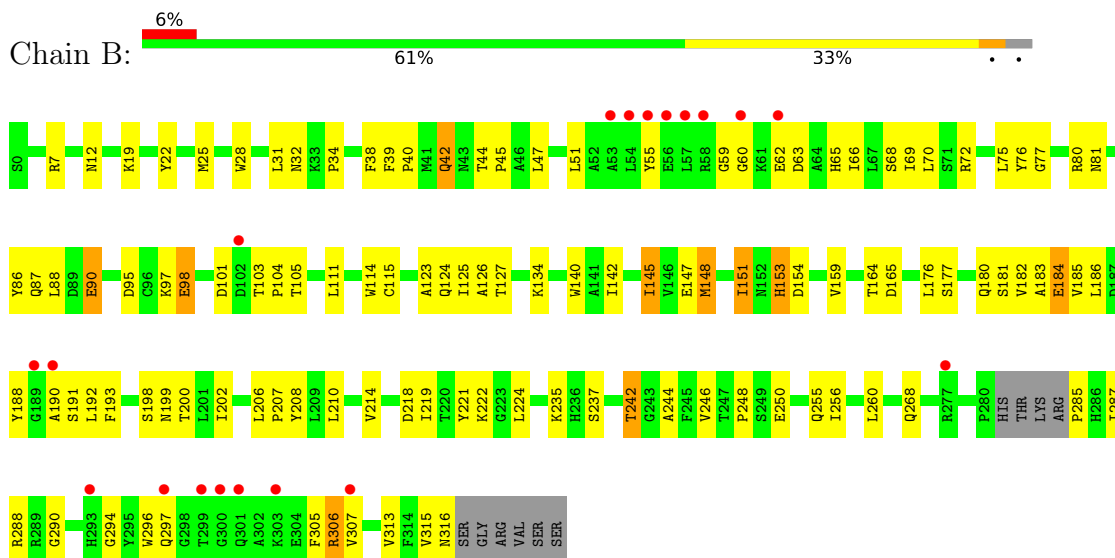| Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
3	A	37	Total	O	0	0
			37	37		
3	B	30	Total	O	0	0
			30	30		

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: AcrVA2
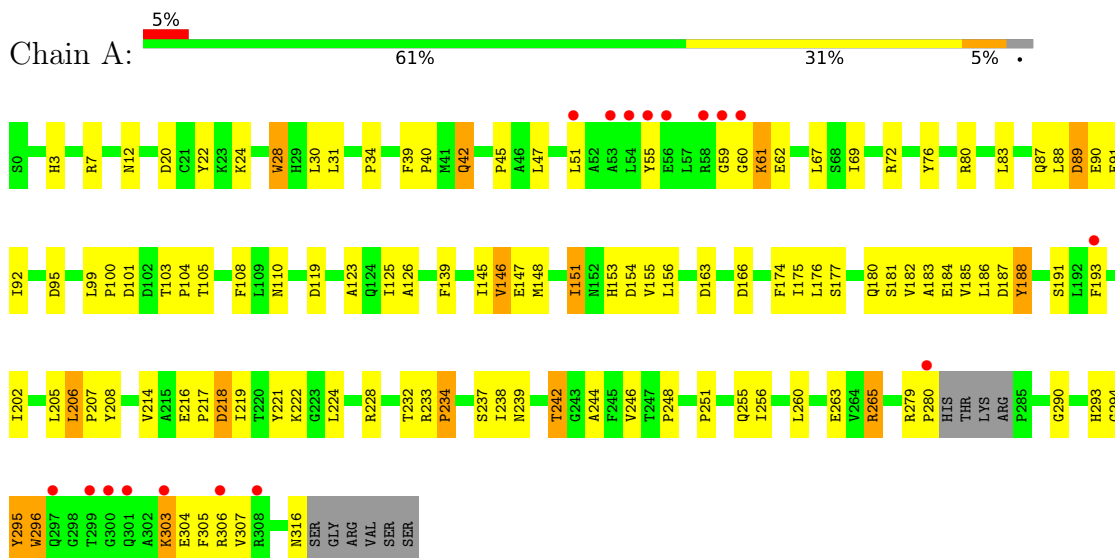
- Molecule 1: AcrVA2

- Molecule 2: MbCpf1

ASN THR GLY LYS SER VAL **Y618 Q619 K620 M621 I622** L625 L626 **N630 K631 M632 L633** P634 K635 V636 PHE PHE ALA LYS SER ASN LEU ASP

• Molecule 2: MbCpf1

Chain D:

3%

24%   30%   •   42%

ASN THR GLY LYS SER VAL **Y618 Q619 K620 M621 I622 Y623 K624 L625 L626 P627 G628 P629 N630** P634 K635 V636 PHE PHE ALA LYS SER ASN LEU ASP
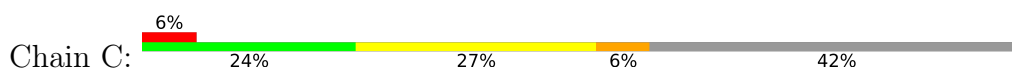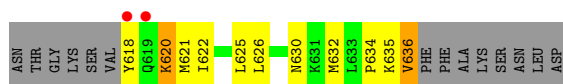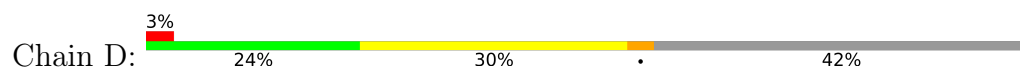
4 Data and refinement statistics ⓘ

Property	Value	Source
Space group	P 31	Depositor
Cell constants a, b, c, α, β, γ	90.82Å 90.82Å 137.68Å 90.00° 90.00° 120.00°	Depositor
Resolution (Å)	45.41 – 2.80 45.41 – 2.80	Depositor EDS
% Data completeness (in resolution range)	92.5 (45.41-2.80) 92.5 (45.41-2.80)	Depositor EDS
R_{merge}	0.07	Depositor
R_{sym}	(Not available)	Depositor
$< I/\sigma(I) >$ [1]	2.02 (at 2.81Å)	Xtriage
Refinement program	PHENIX 1.18.2_3874	Depositor
R, R_{free}	0.245 , 0.268 0.245 , 0.268	Depositor DCC
R_{free} test set	1434 reflections (4.96%)	wwPDB-VP
Wilson B-factor (Å^2)	42.8	Xtriage
Anisotropy	0.079	Xtriage
Bulk solvent k_{sol}(e/Å^3), B_{sol}(Å^2)	0.30 , 14.5	EDS
L-test for twinning[2]	$< |L| > = 0.50, < L^2 > = 0.34$	Xtriage
Estimated twinning fraction	0.023 for -h,-k,l 0.478 for h,-h-k,-l 0.025 for -k,-h,-l	Xtriage
F_o,F_c correlation	0.90	EDS
Total number of atoms	5336	wwPDB-VP
Average B, all atoms (Å^2)	44.0	wwPDB-VP

Xtriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 4.57% 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	0.95	2/2568 (0.1%)	0.83	7/3497 (0.2%)
1	B	0.78	0/2561	0.75	3/3488 (0.1%)
2	C	0.85	0/149	1.19	1/200 (0.5%)
2	D	0.67	0/149	1.18	2/200 (1.0%)
All	All	0.86	2/5427 (0.0%)	0.82	13/7385 (0.2%)

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	B	0	1

All (2) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
1	A	22	TYR	CE1-CZ	-5.96	1.30	1.38
1	A	28	TRP	CG-CD1	-5.28	1.29	1.36

All (13) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	B	148	MET	N-CA-C	-7.87	89.74	111.00
1	A	148	MET	N-CA-C	-7.74	90.09	111.00
1	B	145	ILE	O-C-N	-6.53	112.26	122.70
1	A	91	GLU	O-C-N	6.42	132.97	122.70
1	B	98	GLU	C-N-CA	6.08	136.91	121.70
1	A	31	LEU	CA-CB-CG	-5.80	101.96	115.30
1	A	218	ASP	CB-CG-OD2	-5.40	113.44	118.30
1	A	89	ASP	CB-CG-OD1	5.34	123.11	118.30
1	A	265	ARG	NE-CZ-NH1	-5.33	117.63	120.30
1	A	234	PRO	CA-N-CD	-5.22	104.19	111.50

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
2	C	635	LYS	C-N-CA	5.21	134.73	121.70
2	D	635	LYS	C-N-CA	5.00	134.21	121.70
2	D	636	VAL	CB-CA-C	-5.00	101.89	111.40

There are no chirality outliers.

All (1) planarity outliers are listed below:

Mol	Chain	Res	Type	Group
1	B	184	GLU	Sidechain

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	2492	0	2391	98	0
1	B	2485	0	2385	110	3
2	C	146	0	160	12	2
2	D	146	0	160	10	0
3	A	37	0	0	3	0
3	B	30	0	0	3	0
All	All	5336	0	5096	209	3

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 20.

All (209) 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:B:219:ILE:HD13	1:B:256:ILE:HG12	1.48	0.92
1:A:101:ASP:HB3	1:A:183:ALA:HB2	1.52	0.91
1:B:12:ASN:HD21	1:B:80[B]:ARG:HH21	1.22	0.87
1:B:12:ASN:HD21	1:B:80[B]:ARG:NH2	1.74	0.85
1:A:12:ASN:HD21	1:A:80[B]:ARG:NH2	1.75	0.83
1:A:12:ASN:HD21	1:A:80[B]:ARG:HH21	1.29	0.80
1:B:124:GLN:O	2:D:622:ILE:HG23	1.80	0.80

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:105:THR:HB	1:B:176:LEU:HD23	1.63	0.78
1:A:89:ASP:OD1	1:A:265:ARG:NH2	2.17	0.78
1:B:103:THR:HA	1:B:305:PHE:CE2	2.19	0.78
1:B:104:PRO:HD3	1:B:305:PHE:HD2	1.50	0.75
1:B:182:VAL:HG13	1:B:186:LEU:HD21	1.67	0.75
1:A:175:ILE:HD11	1:A:193:PHE:CD2	2.21	0.74
1:A:295:TYR:O	1:A:306:ARG:N	2.19	0.74
1:A:224:LEU:HD22	1:B:235:LYS:O	1.87	0.74
1:A:175:ILE:HD11	1:A:193:PHE:CE2	2.24	0.72
1:A:182:VAL:HG13	1:A:186:LEU:HD12	1.73	0.71
1:A:76:TYR:O	1:A:80[A]:ARG:HG2	1.91	0.70
1:A:99:LEU:HD21	1:A:207:PRO:HA	1.73	0.70
1:A:55:TYR:OH	1:A:61:LYS:HD2	1.92	0.68
1:B:88:LEU:CD1	1:B:256:ILE:HD12	2.23	0.68
1:B:193:PHE:HD1	2:D:634:PRO:HG3	1.58	0.67
1:A:89:ASP:CG	1:A:265:ARG:HH22	1.97	0.67
1:B:103:THR:HA	1:B:305:PHE:CD2	2.30	0.66
1:A:59:GLY:HA2	1:A:62:GLU:HB3	1.76	0.66
1:B:19:LYS:HA	1:B:22:TYR:CD2	2.30	0.66
1:B:12:ASN:ND2	1:B:80[B]:ARG:NH2	2.41	0.66
1:A:3:HIS:HE1	3:A:414:HOH:O	1.78	0.66
1:A:193:PHE:HD1	2:C:634:PRO:HG3	1.60	0.66
1:A:224:LEU:CD2	1:B:235:LYS:O	2.43	0.66
1:A:146:VAL:HG21	1:A:155:VAL:HG21	1.80	0.64
1:A:105:THR:HG23	1:A:180:GLN:O	1.98	0.63
1:B:104:PRO:HD3	1:B:305:PHE:CD2	2.31	0.63
1:A:296:TRP:HB3	1:A:304:GLU:O	1.98	0.63
1:A:12:ASN:ND2	1:A:80[B]:ARG:NH2	2.47	0.63
1:B:154:ASP:H	1:B:177:SER:HB2	1.64	0.62
1:A:80[A]:ARG:NH2	3:A:402:HOH:O	2.32	0.62
1:B:219:ILE:CD1	1:B:256:ILE:HG12	2.25	0.61
1:B:65:HIS:O	1:B:69:ILE:HG12	2.01	0.60
1:B:44:THR:N	1:B:45:PRO:HD2	2.17	0.60
1:B:181:SER:N	1:B:184:GLU:OE1	2.31	0.60
1:A:104:PRO:HD3	1:A:305:PHE:HB3	1.82	0.60
1:A:88:LEU:HD11	1:A:256:ILE:HD12	1.84	0.59
1:A:103:THR:HA	1:A:305:PHE:CD2	2.37	0.59
1:A:217:PRO:HB2	1:A:219:ILE:HG12	1.85	0.59
1:A:193:PHE:CD1	2:C:634:PRO:HG3	2.37	0.59
1:A:222:LYS:NZ	1:B:221:TYR:OH	2.35	0.59
1:B:186:LEU:HD12	1:B:199:ASN:O	2.03	0.59

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:285:PRO:HA	1:B:315:VAL:O	2.02	0.59
1:A:185:VAL:HG13	1:A:191:SER:HB3	1.84	0.58
1:A:108:PHE:CZ	1:A:206:LEU:HD13	2.38	0.58
1:A:214:VAL:HG12	1:A:216:GLU:H	1.68	0.58
1:A:40:PRO:HG3	1:A:145:ILE:CG2	2.34	0.58
1:B:105:THR:O	1:B:176:LEU:HD22	2.03	0.58
1:A:183:ALA:O	1:A:187:ASP:HB2	2.02	0.57
1:B:294:GLY:HA2	1:B:307:VAL:HA	1.87	0.57
1:A:100:PRO:O	1:A:103:THR:HG23	2.04	0.57
1:B:268:GLN:HG2	1:B:287:ILE:HD12	1.87	0.57
1:B:86:TYR:HB3	1:B:256:ILE:HD11	1.88	0.56
1:B:193:PHE:CD1	2:D:634:PRO:HG3	2.39	0.56
1:A:110:ASN:O	1:A:228:ARG:NH2	2.35	0.56
1:B:75:LEU:HD21	1:B:140:TRP:CD2	2.41	0.56
1:A:72:ARG:NH1	3:A:404:HOH:O	2.39	0.55
1:A:193:PHE:HD1	2:C:634:PRO:CG	2.19	0.55
1:B:28:TRP:HZ3	1:B:34:PRO:HG3	1.72	0.54
1:B:294:GLY:HA3	1:B:307:VAL:HG22	1.89	0.54
1:A:193:PHE:CD1	2:C:634:PRO:CG	2.91	0.54
1:A:296:TRP:N	1:A:296:TRP:CD1	2.72	0.54
1:B:75:LEU:HA	1:B:142:ILE:CD1	2.37	0.54
1:A:154:ASP:H	1:A:177:SER:HB2	1.72	0.54
1:B:97:LYS:O	1:B:98:GLU:HG3	2.08	0.53
1:B:44:THR:N	1:B:45:PRO:CD	2.72	0.53
1:A:108:PHE:HB2	1:A:176:LEU:HD21	1.89	0.53
1:A:156:LEU:HB2	1:A:176:LEU:HD11	1.90	0.53
1:B:148:MET:CB	1:B:153:HIS:NE2	2.72	0.53
1:A:221:TYR:OH	1:B:222:LYS:NZ	2.40	0.53
1:B:88:LEU:HD12	1:B:256:ILE:HD12	1.90	0.52
1:B:186:LEU:HB2	1:B:199:ASN:HB3	1.91	0.52
1:A:181:SER:OG	1:A:184:GLU:HG3	2.10	0.51
1:A:188:TYR:CD1	1:A:188:TYR:N	2.72	0.51
1:B:59:GLY:O	1:B:62:GLU:HG2	2.09	0.51
1:B:103:THR:CA	1:B:305:PHE:CE2	2.91	0.51
1:A:40:PRO:HG3	1:A:145:ILE:HG22	1.93	0.51
1:A:146:VAL:CG2	1:A:155:VAL:HG21	2.40	0.51
1:B:80[A]:ARG:NH2	3:B:402:HOH:O	2.43	0.51
1:A:139:PHE:CD2	1:A:205:LEU:HD22	2.46	0.51
1:B:65:HIS:O	1:B:68:SER:OG	2.21	0.50
1:B:75:LEU:HD22	1:B:159:VAL:HG21	1.92	0.50
1:A:237:SER:O	1:A:246:VAL:HG23	2.11	0.50

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:19:LYS:HA	1:B:22:TYR:HD2	1.76	0.50
1:B:39:PHE:CZ	1:B:47:LEU:HD21	2.46	0.50
1:B:76:TYR:O	1:B:80[A]:ARG:HG2	2.10	0.50
1:B:55:TYR:O	1:B:60:GLY:HA3	2.09	0.50
1:B:182:VAL:O	1:B:186:LEU:HD23	2.12	0.50
1:B:88:LEU:HD12	1:B:256:ILE:HB	1.94	0.50
1:A:20:ASP:O	1:A:24:LYS:HG3	2.12	0.49
1:B:237:SER:HB3	1:B:246:VAL:HB	1.93	0.49
1:A:7:ARG:NE	1:A:163:ASP:OD1	2.42	0.49
1:A:55:TYR:O	1:A:60:GLY:HA3	2.11	0.49
1:A:248:PRO:HA	1:B:224:LEU:HD11	1.95	0.49
1:A:293:HIS:O	1:A:307:VAL:HA	2.13	0.49
1:B:306:ARG:HH11	1:B:306:ARG:HA	1.78	0.49
1:A:228:ARG:O	1:A:232:THR:HG23	2.12	0.49
1:B:44:THR:OG1	1:B:45:PRO:HD3	2.12	0.48
1:B:51:LEU:HD13	1:B:70:LEU:HD23	1.95	0.48
1:B:126:ALA:HB3	2:D:625:LEU:HD23	1.96	0.48
1:A:295:TYR:C	1:A:295:TYR:HD1	2.17	0.48
1:B:81:ASN:ND2	3:B:401:HOH:O	2.28	0.48
1:B:126:ALA:HB2	2:D:622:ILE:HG21	1.96	0.48
1:B:268:GLN:HG2	1:B:287:ILE:CD1	2.44	0.48
2:D:620:LYS:O	2:D:620:LYS:HD3	2.14	0.48
1:A:80[B]:ARG:HB2	1:A:80[B]:ARG:NH1	2.28	0.48
1:A:295:TYR:C	1:A:295:TYR:CD1	2.86	0.48
1:B:125:ILE:HD11	1:B:208:TYR:OH	2.14	0.48
1:A:233:ARG:HG2	1:A:234:PRO:CD	2.44	0.47
1:A:95:ASP:HB3	1:A:290:GLY:O	2.15	0.47
1:B:105:THR:HG23	1:B:180:GLN:O	2.13	0.47
1:B:51:LEU:HD13	1:B:70:LEU:CD2	2.45	0.47
1:B:185:VAL:HG13	1:B:191:SER:HB3	1.97	0.47
1:B:306:ARG:HH11	1:B:306:ARG:CB	2.27	0.47
1:B:148:MET:O	1:B:151:ILE:HG13	2.15	0.47
2:C:620:LYS:HD3	2:C:620:LYS:C	2.35	0.47
1:A:87:GLN:HA	1:A:119:ASP:HB3	1.96	0.47
1:A:175:ILE:HD11	1:A:193:PHE:HD2	1.78	0.47
1:A:295:TYR:N	1:A:306:ARG:O	2.36	0.47
1:A:219:ILE:HD13	1:A:256:ILE:HG12	1.96	0.46
1:B:202:ILE:O	1:B:206:LEU:HG	2.15	0.46
1:A:218:ASP:OD2	1:A:260:LEU:HG	2.15	0.46
1:A:224:LEU:HD11	1:B:248:PRO:HA	1.97	0.46
1:A:303:LYS:HD2	1:A:303:LYS:O	2.15	0.46

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:218:ASP:OD2	1:B:260:LEU:HD11	2.15	0.46
1:A:151:ILE:HB	1:A:153:HIS:CE1	2.50	0.46
1:B:75:LEU:HD12	1:B:142:ILE:HD12	1.96	0.46
1:A:279:ARG:HA	1:A:280:PRO:HD3	1.80	0.46
1:B:180:GLN:HA	1:B:184:GLU:OE1	2.15	0.46
1:A:39:PHE:CZ	1:A:47:LEU:HD21	2.50	0.46
1:B:103:THR:HG23	1:B:182:VAL:CG2	2.46	0.46
1:B:186:LEU:HD23	1:B:186:LEU:H	1.80	0.46
1:B:66:ILE:O	1:B:70:LEU:HG	2.16	0.46
1:B:88:LEU:HD11	1:B:256:ILE:HD12	1.96	0.46
1:A:174:PHE:HB2	1:A:202:ILE:HD13	1.98	0.46
1:B:242:THR:HG23	1:B:244:ALA:H	1.81	0.45
1:B:72:ARG:NH1	3:B:403:HOH:O	2.49	0.45
1:B:145:ILE:O	1:B:145:ILE:HG23	2.16	0.45
1:B:7:ARG:NH2	1:B:165:ASP:OD1	2.50	0.45
1:B:80[B]:ARG:HB2	1:B:80[B]:ARG:NH1	2.31	0.45
1:A:125:ILE:HD11	1:A:208:TYR:OH	2.17	0.45
1:A:123:ALA:HB1	1:A:125:ILE:HG13	1.99	0.45
1:A:218:ASP:O	1:A:256:ILE:HA	2.17	0.44
1:A:295:TYR:O	1:A:295:TYR:HD1	2.00	0.44
1:B:188:TYR:CD1	1:B:188:TYR:N	2.83	0.44
1:B:198:SER:OG	2:D:630:ASN:OD1	2.35	0.44
1:B:200:THR:OG1	2:D:627:PRO:HG2	2.17	0.44
1:A:83:LEU:HB3	1:A:251:PRO:HA	1.99	0.44
1:B:134:LYS:NZ	1:B:164:THR:HG21	2.33	0.44
2:C:620:LYS:C	2:C:620:LYS:CD	2.85	0.44
1:A:89:ASP:OD2	1:A:265:ARG:NH2	2.45	0.44
1:B:103:THR:HA	1:B:305:PHE:HE2	1.78	0.43
1:A:193:PHE:CE1	2:C:634:PRO:HG2	2.53	0.43
2:C:630:ASN:N	2:C:630:ASN:OD1	2.50	0.43
1:B:192:LEU:HA	1:B:192:LEU:HD12	1.80	0.43
1:B:210:LEU:O	1:B:214:VAL:HG23	2.19	0.43
1:B:40:PRO:HG3	1:B:145:ILE:CG2	2.48	0.43
1:B:95:ASP:HB3	1:B:290:GLY:O	2.19	0.43
1:B:90:GLU:H	1:B:90:GLU:HG2	1.54	0.42
1:A:42:GLN:O	1:A:45:PRO:HD2	2.19	0.42
1:A:90:GLU:C	1:A:92:ILE:H	2.21	0.42
1:B:98:GLU:HA	1:B:207:PRO:HG3	2.01	0.42
1:A:126:ALA:HB3	2:C:625:LEU:HD23	2.01	0.42
1:B:42:GLN:HE21	1:B:42:GLN:HB2	1.64	0.42
2:C:622:ILE:HD12	2:C:622:ILE:N	2.35	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:62:GLU:HG3	1:B:63:ASP:N	2.34	0.42
1:B:123:ALA:HB1	1:B:125:ILE:HG13	2.01	0.42
1:B:103:THR:CA	1:B:305:PHE:HE2	2.33	0.42
1:A:185:VAL:CG1	1:A:191:SER:HB3	2.50	0.42
1:B:42:GLN:HE22	1:B:147:GLU:H	1.67	0.42
1:A:105:THR:HB	1:A:176:LEU:HD23	2.01	0.42
1:B:31:LEU:HD23	1:B:31:LEU:HA	1.85	0.42
1:A:155:VAL:HG22	1:A:175:ILE:HG12	2.02	0.41
1:A:239:ASN:HB3	1:A:242:THR:HG22	2.02	0.41
1:A:28:TRP:HZ3	1:A:34:PRO:CG	2.34	0.41
1:A:89:ASP:CG	1:A:265:ARG:NH2	2.65	0.41
1:B:101:ASP:HB3	1:B:183:ALA:HB2	2.02	0.41
2:C:622:ILE:HD12	2:C:622:ILE:H	1.84	0.41
1:A:87:GLN:OE1	1:A:255:GLN:NE2	2.54	0.41
1:A:166:ASP:OD1	1:A:166:ASP:N	2.45	0.41
1:B:38:PHE:HB2	1:B:114:TRP:CG	2.56	0.41
1:B:75:LEU:HA	1:B:142:ILE:HD13	2.02	0.41
1:B:180:GLN:CA	1:B:184:GLU:OE1	2.68	0.41
1:A:51:LEU:HD11	1:A:69:ILE:HG21	2.02	0.41
1:A:222:LYS:HG2	1:B:250:GLU:HB2	2.02	0.41
1:A:295:TYR:CE1	1:A:306:ARG:HB2	2.56	0.41
1:B:87:GLN:OE1	1:B:255:GLN:NE2	2.54	0.41
1:B:182:VAL:CG1	1:B:186:LEU:HD21	2.44	0.41
1:B:75:LEU:CD1	1:B:115:CYS:SG	3.09	0.41
1:B:111:LEU:HD23	1:B:111:LEU:HA	1.87	0.41
1:B:127:THR:OG1	2:D:628:GLY:HA2	2.19	0.41
1:A:30:LEU:HD21	1:A:238:ILE:HD13	2.03	0.40
1:A:42:GLN:HE22	1:A:147:GLU:H	1.69	0.40
1:B:25:MET:CE	1:B:77:GLY:HA3	2.52	0.40
1:B:105:THR:O	1:B:176:LEU:CD2	2.68	0.40
1:B:181:SER:O	1:B:185:VAL:HG23	2.21	0.40
1:A:67:LEU:HD12	1:A:67:LEU:HA	1.87	0.40
1:A:237:SER:HB3	1:A:246:VAL:HB	2.02	0.40
1:A:242:THR:HG23	1:A:244:ALA:H	1.86	0.40
2:D:624:LYS:HB3	2:D:624:LYS:HE3	1.85	0.40
1:A:294:GLY:HA2	1:A:307:VAL:HA	2.03	0.40
1:B:306:ARG:HH11	1:B:306:ARG:CA	2.34	0.40
2:C:636:VAL:O	2:C:636:VAL:CG1	2.69	0.40

All (3) 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:B:190:ALA:CA	1:B:316:ASN:ND2[3_554]	1.69	0.51
1:B:32:ASN:ND2	2:C:618:TYR:O[3_564]	1.91	0.29
1:B:31:LEU:CD1	2:C:622:ILE:CB[3_564]	2.06	0.14

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	311/323 (96%)	296 (95%)	15 (5%)	0	100	100
1	B	311/323 (96%)	297 (96%)	14 (4%)	0	100	100
2	C	17/33 (52%)	16 (94%)	1 (6%)	0	100	100
2	D	17/33 (52%)	16 (94%)	1 (6%)	0	100	100
All	All	656/712 (92%)	625 (95%)	31 (5%)	0	100	100

There are no Ramachandran outliers to report.

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	261/280 (93%)	249 (95%)	12 (5%)	27	60
1	B	259/280 (92%)	249 (96%)	10 (4%)	32	66
2	C	16/30 (53%)	11 (69%)	5 (31%)	0	0
2	D	16/30 (53%)	14 (88%)	2 (12%)	4	14
All	All	552/620 (89%)	523 (95%)	29 (5%)	22	54

All (29) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	42	GLN
1	A	61	LYS
1	A	146	VAL
1	A	151	ILE
1	A	188	TYR
1	A	206	LEU
1	A	242	THR
1	A	263	GLU
1	A	295	TYR
1	A	296	TRP
1	A	303	LYS
1	A	316	ASN
1	B	42	GLN
1	B	90	GLU
1	B	151	ILE
1	B	153	HIS
1	B	242	THR
1	B	288	ARG
1	B	296	TRP
1	B	297	GLN
1	B	306	ARG
1	B	313	VAL
2	C	620	LYS
2	C	621	MET
2	C	626	LEU
2	C	632	MET
2	C	636	VAL
2	D	619	GLN
2	D	636	VAL

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (6) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	12	ASN
1	A	42	GLN
1	A	286	HIS
1	B	12	ASN
1	B	42	GLN
1	B	297	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 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(Å^2)	Q<0.9
1	A	313/323 (96%)	0.18	17 (5%)	25	17	6, 39, 107, 156	0
1	B	313/323 (96%)	0.20	19 (6%)	21	13	6, 38, 110, 154	0
2	C	19/33 (57%)	0.61	2 (10%)	6	3	21, 44, 77, 77	0
2	D	19/33 (57%)	0.37	1 (5%)	26	17	22, 38, 72, 72	0
All	All	664/712 (93%)	0.21	39 (5%)	22	14	6, 39, 107, 156	0

All (39) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	B	55	TYR	5.0
1	A	55	TYR	4.9
1	A	297	GLN	4.7
1	A	60	GLY	4.5
1	A	58	ARG	4.4
1	A	299	THR	4.4
1	B	58	ARG	4.0
1	B	60	GLY	3.8
1	A	300	GLY	3.7
1	B	301	GLN	3.7
1	B	300	GLY	3.6
1	B	62	GLU	3.6
1	B	299	THR	3.3
1	A	53	ALA	3.3
1	B	57	LEU	3.3
1	A	56	GLU	3.3
1	A	280	PRO	3.2
1	B	56	GLU	3.1
1	B	189	GLY	3.1
2	C	619	GLN	3.1
1	B	303	LYS	3.0

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Mol	Chain	Res	Type	RSRZ
1	B	53	ALA	3.0
2	C	618	TYR	2.8
1	A	51	LEU	2.5
1	B	293	HIS	2.4
1	A	54	LEU	2.4
1	A	301	GLN	2.4
1	A	193	PHE	2.4
1	B	54	LEU	2.4
1	B	277	ARG	2.2
2	D	622	ILE	2.2
1	B	307	VAL	2.2
1	A	59	GLY	2.2
1	B	190	ALA	2.2
1	A	306	ARG	2.1
1	B	297	GLN	2.1
1	A	303	LYS	2.1
1	B	102	ASP	2.1
1	A	308	ARG	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.