Full wwPDB X-ray Structure Validation Report (i)

Mar 8, 2026 – 12:55 PM UTC

PDB ID	:	6V78 / pdb_00006v78
Title	:	OmpK37 porin
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Deposited on	:	2019-12-08
Resolution	:	2.60 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 (1)) were used in the production of this report:

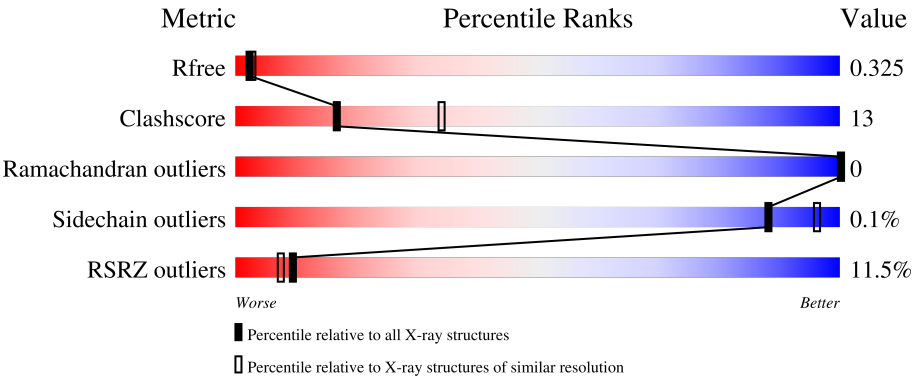
MolProbity	:	4-5-2 with Phenix2.0
Xtriage (Phenix)	:	2.0
EDS	:	3.0
Percentile statistics	:	20250101.v01 (using entries in the PDB archive January 1st 2025)
CCP4	:	9.0.010 (Gargrove)
Density-Fitness	:	1.0.12
Ideal geometry (proteins)	:	Engh & Huber (2001)
Ideal geometry (DNA, RNA)	:	Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP)	:	2.49

1 Overall quality at a glance (i)

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

The reported resolution of this entry is 2.60 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}	180053	4008 (2.60-2.60)
Clashscore	190562	4347 (2.60-2.60)
Ramachandran outliers	187476	4277 (2.60-2.60)
Sidechain outliers	187428	4277 (2.60-2.60)
RSRZ outliers	180081	4008 (2.60-2.60)

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	356	8% 70% 28%
1	B	356	20% 69% 30%
1	C	356	6% 76% 23%

2 Entry composition (i)

There are 2 unique types of molecules in this entry. The entry contains 8455 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 OmpK37.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
1	A	353	Total	C	N	O	S	0	0	0
			2794	1746	463	576	9			
1	B	353	Total	C	N	O	S	0	0	0
			2794	1746	463	576	9			
1	C	353	Total	C	N	O	S	0	0	0
			2794	1746	463	576	9			

There are 9 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
A	-2	GLY	-	expression tag	UNP S5UCA2
A	-1	ALA	-	expression tag	UNP S5UCA2
A	0	MET	-	expression tag	UNP S5UCA2
B	-2	GLY	-	expression tag	UNP S5UCA2
B	-1	ALA	-	expression tag	UNP S5UCA2
B	0	MET	-	expression tag	UNP S5UCA2
C	-2	GLY	-	expression tag	UNP S5UCA2
C	-1	ALA	-	expression tag	UNP S5UCA2
C	0	MET	-	expression tag	UNP S5UCA2

- Molecule 2 is water.

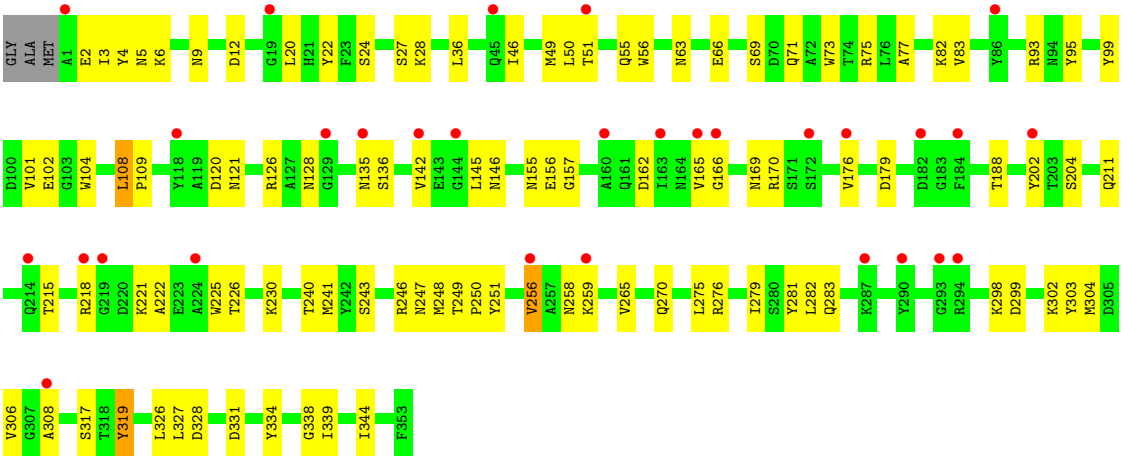
Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
2	A	25	Total	O	0	0
			25	25		
2	B	15	Total	O	0	0
			15	15		
2	C	33	Total	O	0	0
			33	33		

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.

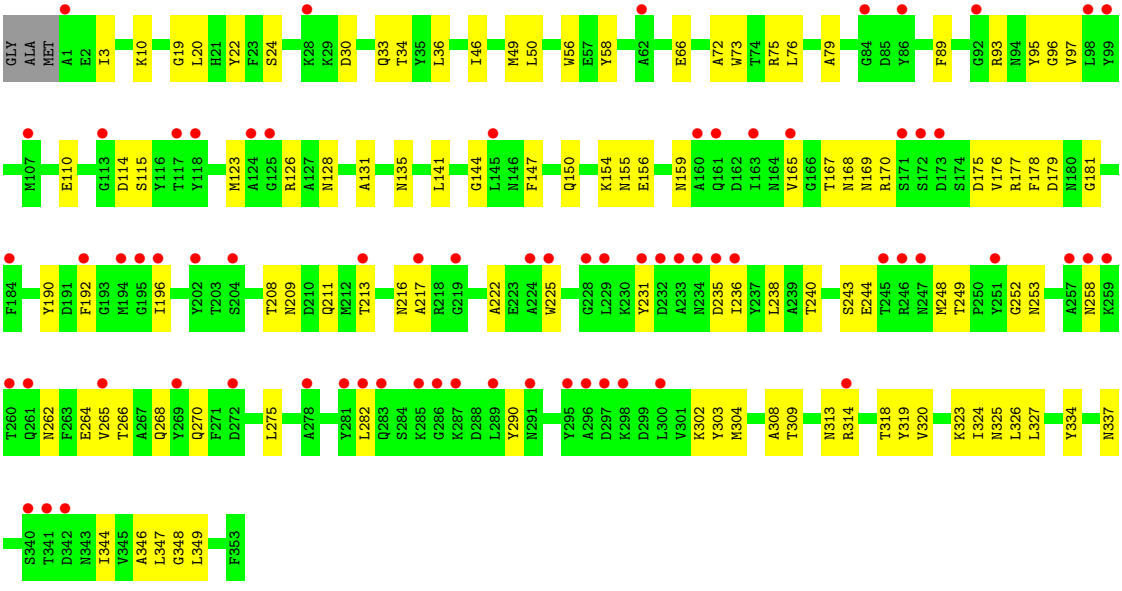
• Molecule 1: OmpK37

Chain A:



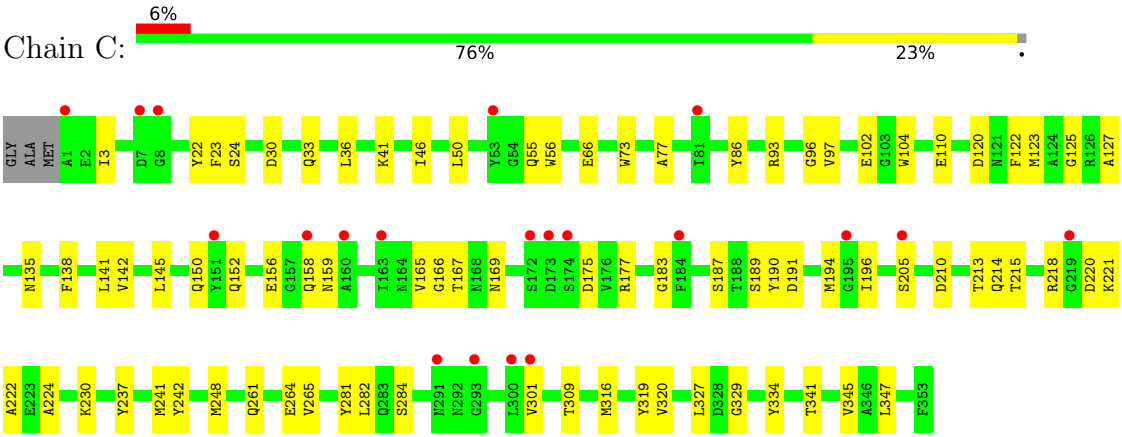
• Molecule 1: OmpK37

Chain B:



• Molecule 1: OmpK37

Chain C:



4 Data and refinement statistics (i)

Property	Value	Source
Space group	P 21 21 2	Depositor
Cell constants a, b, c, α, β, γ	109.52Å 138.51Å 91.70Å 90.00° 90.00° 90.00°	Depositor
Resolution (Å)	49.34 – 2.60 49.34 – 2.60	Depositor EDS
% Data completeness (in resolution range)	99.3 (49.34-2.60) 99.3 (49.34-2.60)	Depositor EDS
R_{merge}	(Not available)	Depositor
R_{sym}	(Not available)	Depositor
$< I/\sigma(I) >$ [1]	1.69 (at 2.51Å)	Xtriage
Refinement program	PHENIX 1.14_3260	Depositor
R, R_{free}	0.257 , 0.323 0.258 , 0.325	Depositor DCC
R_{free} test set	2167 reflections (4.43%)	wwPDB-VP
Wilson B-factor (Å^2)	45.2	Xtriage
Anisotropy	0.760	Xtriage
Bulk solvent k_{sol}(e/Å^3), B_{sol}(Å^2)	0.31 , 34.6	EDS
L-test for twinning[2]	$< \|L\| > = 0.47$, $< L^2 > = 0.30$	Xtriage
Estimated twinning fraction	No twinning to report.	Xtriage
F_o,F_c correlation	0.90	EDS
Total number of atoms	8455	wwPDB-VP
Average B, all atoms (Å^2)	56.0	wwPDB-VP

Xtriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 3.12% of the height of the origin peak. No significant pseudotranslation is detected.*

[1] Intensities estimated from amplitudes.

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

5 Model quality

5.1 Standard geometry

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

Mol	Chain	Bond lengths		Bond angles	
		RMSZ	#$\|Z\|$ >5	RMSZ	#$\|Z\|$ >5
1	A	0.53	1/2855 (0.0%)	0.68	4/3860 (0.1%)
1	B	0.36	0/2855	0.64	0/3860
1	C	0.40	0/2855	0.65	0/3860
All	All	0.44	1/8565 (0.0%)	0.66	4/11580 (0.0%)

All (1) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
1	A	22	TYR	C-O	-5.27	1.17	1.24

All (4) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
1	A	20	LEU	N-CA-C	6.72	119.85	108.90
1	A	108	LEU	CA-C-N	5.39	126.58	119.84
1	A	108	LEU	C-N-CA	5.39	126.58	119.84
1	A	319	TYR	N-CA-C	5.18	116.67	108.96

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	2794	0	2552	72	0
1	B	2794	0	2552	83	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
1	C	2794	0	2552	66	0
2	A	25	0	0	1	0
2	B	15	0	0	0	0
2	C	33	0	0	3	0
All	All	8455	0	7656	206	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 13.

All (206) 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:97:VAL:HG22	1:C:187:SER:HB3	1.54	0.89
1:C:96:GLY:HA2	1:C:150:GLN:HE22	1.42	0.84
1:C:213:THR:HG23	1:C:214:GLN:HG3	1.61	0.81
1:B:154:LYS:HG3	1:B:181:GLY:HA2	1.68	0.75
1:B:309:THR:HG23	1:B:319:TYR:HB3	1.68	0.74
1:C:224:ALA:HB2	1:C:248:MET:HE1	1.70	0.72
1:C:123:MET:HG2	1:C:150:GLN:HE21	1.57	0.70
1:B:264:GLU:HG2	1:B:282:LEU:HG	1.73	0.70
1:B:175:ASP:OD2	1:B:177:ARG:NH1	2.26	0.69
1:C:222:ALA:HB1	1:C:248:MET:HB2	1.76	0.68
1:A:281:TYR:HB2	1:A:304:MET:HE3	1.74	0.67
1:B:222:ALA:HB1	1:B:248:MET:HB3	1.76	0.67
1:C:158:GLN:HE22	1:C:167:THR:C	2.02	0.67
1:B:3:ILE:HD12	1:C:3:ILE:HG21	1.78	0.65
1:A:176:VAL:HG22	1:A:211:GLN:HG3	1.79	0.65
1:A:156:GLU:HG2	1:A:166:GLY:HA2	1.80	0.64
1:C:194:MET:HE2	1:C:196:ILE:HD13	1.80	0.64
1:C:220:ASP:OD1	1:C:221:LYS:HG3	1.97	0.64
1:C:158:GLN:NE2	1:C:167:THR:O	2.25	0.63
1:B:196:ILE:HG13	1:B:231:TYR:HD1	1.63	0.62
1:B:24:SER:OG	1:B:344:ILE:HA	2.00	0.62
1:C:210:ASP:HA	1:C:213:THR:HG22	1.81	0.62
1:A:69:SER:O	1:A:71:GLN:NE2	2.29	0.62
1:B:97:VAL:H	1:B:150:GLN:HE22	1.47	0.61
1:C:329:GLY:HA2	1:C:341:THR:HG21	1.82	0.60
1:B:325:ASN:OD1	1:B:327:LEU:HD12	2.01	0.60
1:B:266:THR:HB	1:B:268:GLN:HE21	1.65	0.60
1:C:156:GLU:HG2	1:C:166:GLY:HA2	1.84	0.60
1:A:246:ARG:HH11	1:A:259:LYS:HE3	1.67	0.60

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:222:ALA:HB1	1:A:248:MET:HB3	1.84	0.59
1:A:279:ILE:HG23	1:A:306:VAL:HG22	1.85	0.59
1:B:58:TYR:CZ	1:B:72:ALA:HB1	2.37	0.59
1:C:309:THR:HG23	1:C:319:TYR:HB3	1.84	0.58
1:A:95:TYR:OH	1:A:126:ARG:NH1	2.36	0.58
1:B:159:ASN:HB2	1:B:165:VAL:HG21	1.85	0.58
1:C:158:GLN:HG3	1:C:165:VAL:O	2.04	0.58
1:A:298:LYS:NZ	1:A:331:ASP:OD2	2.25	0.58
1:A:63:ASN:O	1:C:169:ASN:HB2	2.05	0.57
1:B:170:ARG:HG2	1:B:179:ASP:OD1	2.05	0.57
1:B:97:VAL:H	1:B:150:GLN:NE2	2.03	0.56
1:B:302:LYS:HG2	1:B:326:LEU:HB2	1.87	0.56
1:A:327:LEU:HB3	1:A:334:TYR:CE2	2.41	0.56
1:A:51:THR:OG1	1:A:82:LYS:HB3	2.05	0.56
1:B:225:TRP:NE1	1:B:244:GLU:OE1	2.34	0.56
1:A:102:GLU:OE1	1:A:241:MET:HE3	2.06	0.55
1:A:56:TRP:CD1	1:B:36:LEU:HD21	2.41	0.55
1:C:97:VAL:HG22	1:C:187:SER:CB	2.32	0.55
1:A:108:LEU:HB3	1:A:109:PRO:HD2	1.89	0.55
1:A:36:LEU:HD22	1:C:56:TRP:CD1	2.42	0.55
1:B:175:ASP:HB3	1:B:178:PHE:HD2	1.70	0.54
1:B:216:ASN:HB2	1:B:290:TYR:HB3	1.87	0.54
1:A:55:GLN:O	1:A:77:ALA:HA	2.08	0.54
1:C:241:MET:HE3	1:C:264:GLU:HB2	1.89	0.54
1:B:46:ILE:HG21	1:B:50:LEU:HD23	1.89	0.54
1:C:242:TYR:OH	1:C:261:GLN:HG2	2.08	0.53
1:A:303:TYR:HA	1:A:326:LEU:HG	1.89	0.53
1:C:138:PHE:O	1:C:141:LEU:HD12	2.08	0.53
1:A:66:GLU:HB3	1:C:73:TRP:CD1	2.44	0.53
1:B:93:ARG:HH21	1:B:128:ASN:ND2	2.06	0.53
1:B:73:TRP:CD1	1:C:66:GLU:HB3	2.44	0.53
1:B:156:GLU:O	1:B:167:THR:N	2.42	0.53
1:A:240:THR:HG22	1:A:265:VAL:HB	1.90	0.53
1:B:89:PHE:CE1	1:B:131:ALA:HB1	2.45	0.52
1:B:96:GLY:HA2	1:B:150:GLN:HE22	1.74	0.52
1:C:104:TRP:O	1:C:237:TYR:OH	2.26	0.52
1:C:135:ASN:OD1	1:C:138:PHE:N	2.42	0.52
1:C:265:VAL:HG12	1:C:281:TYR:HB3	1.92	0.52
1:B:76:LEU:HD11	1:B:95:TYR:HE1	1.75	0.52
1:A:104:TRP:CE2	1:A:230:LYS:HE2	2.44	0.52
1:A:121:ASN:OD1	1:A:250:PRO:HD3	2.10	0.52

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:22:TYR:OH	1:B:110:GLU:OE2	2.24	0.52
1:B:155:ASN:OD1	1:B:169:ASN:ND2	2.38	0.52
1:A:204:SER:OG	1:A:221:LYS:NZ	2.44	0.51
1:B:240:THR:HB	1:B:265:VAL:HG23	1.91	0.51
1:C:190:TYR:HD1	1:C:191:ASP:N	2.09	0.50
1:C:24:SER:O	1:C:30:ASP:HB2	2.11	0.50
1:A:328:ASP:N	1:A:334:TYR:HE2	2.09	0.50
1:B:58:TYR:OH	1:B:72:ALA:HB1	2.12	0.50
1:B:303:TYR:HA	1:B:326:LEU:HG	1.93	0.49
1:B:19:GLY:HA2	1:B:34:THR:HG23	1.94	0.49
1:B:266:THR:HB	1:B:268:GLN:NE2	2.26	0.49
1:B:313:ASN:HB2	1:B:314:ARG:NH2	2.27	0.49
1:A:162:ASP:HB3	1:A:165:VAL:HG23	1.95	0.49
1:B:3:ILE:HD12	1:C:3:ILE:CG2	2.43	0.49
1:A:49:MET:HE3	1:A:83:VAL:HG13	1.94	0.49
1:A:73:TRP:CD1	1:B:66:GLU:HB3	2.47	0.49
1:B:304:MET:HB3	1:B:324:ILE:CG1	2.43	0.49
1:C:110:GLU:HB2	1:C:319:TYR:CE1	2.48	0.49
1:B:75:ARG:O	1:B:126:ARG:HD2	2.12	0.49
1:B:217:ALA:HA	1:B:258:ASN:OD1	2.12	0.49
1:B:327:LEU:HD22	1:B:334:TYR:CE2	2.48	0.49
1:B:303:TYR:CE2	1:B:323:LYS:HE2	2.48	0.49
1:A:246:ARG:NH1	1:A:259:LYS:HE3	2.27	0.48
1:B:24:SER:HG	1:B:344:ILE:HA	1.76	0.48
1:C:93:ARG:NH1	1:C:120:ASP:OD1	2.37	0.48
1:C:284:SER:HB3	1:C:301:VAL:HB	1.94	0.48
1:B:209:ASN:O	1:B:213:THR:HG23	2.13	0.48
1:C:159:ASN:HB2	1:C:165:VAL:HG21	1.95	0.48
1:B:115:SER:OG	1:B:264:GLU:OE1	2.29	0.48
1:A:4:TYR:CZ	1:A:6:LYS:HB3	2.49	0.47
1:C:218:ARG:O	2:C:401:HOH:O	2.20	0.47
1:C:327:LEU:HD22	1:C:334:TYR:CE2	2.49	0.47
1:B:89:PHE:HE1	1:B:131:ALA:HB1	1.78	0.47
1:C:46:ILE:HD12	1:C:50:LEU:HG	1.95	0.47
1:C:264:GLU:HG2	1:C:282:LEU:HG	1.95	0.47
1:A:135:ASN:HD22	1:A:136:SER:N	2.13	0.47
1:A:251:TYR:HD2	1:A:339:ILE:HD11	1.80	0.47
1:C:22:TYR:OH	1:C:110:GLU:OE1	2.20	0.47
1:A:27:SER:HB2	1:C:166:GLY:O	2.14	0.46
1:A:218:ARG:O	1:A:247:ASN:ND2	2.48	0.46
1:A:2:GLU:HA	1:A:12:ASP:OD1	2.16	0.46

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:281:TYR:C	1:A:282:LEU:HD12	2.40	0.46
1:A:302:LYS:HG2	1:A:326:LEU:HB2	1.96	0.46
1:B:252:GLY:HA3	1:B:337:ASN:HB3	1.97	0.46
1:A:5:ASN:HA	1:A:9:ASN:O	2.15	0.46
1:A:75:ARG:O	1:A:126:ARG:HD2	2.16	0.46
1:B:110:GLU:HB2	1:B:319:TYR:CE1	2.51	0.46
1:C:210:ASP:HA	1:C:213:THR:CG2	2.46	0.46
1:B:114:ASP:N	1:B:114:ASP:OD1	2.48	0.45
1:A:46:ILE:HB	1:A:50:LEU:HB3	1.97	0.45
1:A:157:GLY:HA2	1:A:170:ARG:HB3	1.99	0.45
1:A:241:MET:O	1:A:241:MET:HG3	2.17	0.45
1:C:138:PHE:HB3	1:C:142:VAL:CG2	2.46	0.45
1:B:236:ILE:HG22	1:B:238:LEU:HD12	1.98	0.45
1:A:51:THR:HG1	1:A:82:LYS:HB3	1.82	0.45
1:B:10:LYS:HB3	1:B:10:LYS:HE3	1.54	0.45
1:B:156:GLU:HB3	1:B:208:THR:HG21	1.99	0.45
1:A:328:ASP:OD2	1:A:331:ASP:HB2	2.16	0.44
1:B:275:LEU:HD11	1:B:308:ALA:HB1	1.99	0.44
1:B:304:MET:HB3	1:B:324:ILE:HG12	1.99	0.44
1:B:248:MET:HE3	1:B:248:MET:HB2	1.73	0.44
1:B:320:VAL:HA	1:B:346:ALA:O	2.16	0.44
1:B:176:VAL:HG12	1:B:211:GLN:HG3	1.98	0.44
1:A:270:GLN:OE1	1:A:276:ARG:HB2	2.18	0.44
1:A:302:LYS:HG2	1:A:326:LEU:HD12	2.00	0.44
1:C:145:LEU:HD12	1:C:189:SER:O	2.17	0.44
1:A:248:MET:HG3	1:A:249:THR:N	2.31	0.44
1:B:56:TRP:CE2	1:C:36:LEU:HD11	2.51	0.44
1:C:96:GLY:HA2	1:C:150:GLN:NE2	2.22	0.44
1:C:127:ALA:HB1	1:C:152:GLN:NE2	2.32	0.44
1:A:162:ASP:HB3	1:A:165:VAL:CG2	2.48	0.44
1:A:170:ARG:HG2	1:A:179:ASP:OD1	2.17	0.44
1:A:218:ARG:H	1:A:258:ASN:HD21	1.65	0.44
1:A:317:SER:HB3	2:A:419:HOH:O	2.17	0.44
1:B:318:THR:HB	1:B:349:LEU:HD12	1.99	0.44
1:A:319:TYR:CD1	1:A:319:TYR:C	2.96	0.43
1:B:304:MET:HB3	1:B:324:ILE:HD11	1.99	0.43
1:A:93:ARG:NH2	1:A:120:ASP:OD1	2.47	0.43
1:A:215:THR:HB	1:A:256:VAL:HG21	2.00	0.43
1:B:24:SER:O	1:B:30:ASP:HB2	2.19	0.43
1:B:167:THR:HG22	1:B:168:ASN:H	1.84	0.43
1:B:175:ASP:HB3	1:B:178:PHE:CD2	2.52	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:99:TYR:HA	1:A:102:GLU:HB3	2.01	0.43
1:A:226:THR:HB	1:A:243:SER:HB2	2.01	0.43
1:B:320:VAL:HB	1:B:347:LEU:HD12	1.99	0.43
1:C:55:GLN:O	1:C:77:ALA:HA	2.18	0.43
1:C:102:GLU:OE2	1:C:241:MET:HE2	2.19	0.43
1:C:175:ASP:OD1	1:C:177:ARG:HD3	2.19	0.43
1:C:183:GLY:HA3	1:C:205:SER:HB2	2.00	0.43
1:C:320:VAL:HG22	1:C:347:LEU:CD1	2.49	0.43
1:A:3:ILE:HG21	1:C:3:ILE:HD12	2.00	0.43
1:A:275:LEU:HD11	1:A:308:ALA:HB1	2.00	0.43
1:B:144:GLY:O	1:B:190:TYR:HA	2.19	0.43
1:B:190:TYR:HE1	1:B:192:PHE:CD2	2.37	0.42
1:B:248:MET:HG3	1:B:249:THR:N	2.33	0.42
1:C:215:THR:HG22	2:C:417:HOH:O	2.18	0.42
1:A:146:ASN:O	1:A:188:THR:HA	2.18	0.42
1:B:167:THR:HG22	1:B:168:ASN:N	2.34	0.42
1:A:56:TRP:CD1	1:B:36:LEU:CD2	3.02	0.42
1:A:27:SER:O	1:C:158:GLN:NE2	2.52	0.42
1:B:79:ALA:HB1	1:C:316:MET:HE1	2.00	0.42
1:C:122:PHE:CD1	1:C:122:PHE:N	2.87	0.42
1:B:19:GLY:O	1:B:348:GLY:HA2	2.19	0.42
1:C:104:TRP:CE2	1:C:230:LYS:HE2	2.55	0.42
1:B:97:VAL:N	1:B:150:GLN:HE22	2.15	0.42
1:A:108:LEU:HB3	1:A:109:PRO:CD	2.50	0.42
1:B:49:MET:HE2	1:B:49:MET:HB3	1.83	0.42
1:B:135:ASN:HB3	1:B:147:PHE:CE2	2.55	0.42
1:B:243:SER:HG	1:B:262:ASN:HD22	1.66	0.42
1:B:123:MET:HE3	1:B:123:MET:HB2	1.93	0.41
1:A:24:SER:HB2	1:A:344:ILE:HA	2.01	0.41
1:A:36:LEU:CD2	1:C:56:TRP:CD1	3.03	0.41
1:A:101:VAL:HG12	1:A:241:MET:HE2	2.02	0.41
1:A:142:VAL:HG21	1:A:145:LEU:HD22	2.01	0.41
1:C:97:VAL:CG2	1:C:187:SER:HB3	2.38	0.41
1:B:20:LEU:HG	1:B:33:GLN:HB2	2.01	0.41
1:C:221:LYS:HB3	1:C:221:LYS:HE3	1.67	0.41
1:A:283:GLN:NE2	1:A:299:ASP:OD1	2.49	0.41
1:A:135:ASN:HD22	1:A:136:SER:H	1.67	0.41
1:A:202:TYR:HD1	1:A:225:TRP:HB3	1.86	0.41
1:B:141:LEU:HD23	1:B:141:LEU:HA	1.79	0.41
1:B:313:ASN:HB2	1:B:314:ARG:HH21	1.86	0.41
1:A:93:ARG:HH21	1:A:128:ASN:ND2	2.19	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:97:VAL:HG22	1:B:150:GLN:NE2	2.36	0.41
1:B:235:ASP:HB3	1:B:270:GLN:O	2.21	0.41
1:B:282:LEU:HD22	1:B:303:TYR:OH	2.21	0.41
1:A:28:LYS:HB2	1:A:28:LYS:HE2	1.76	0.40
1:B:253:ASN:N	1:B:337:ASN:O	2.54	0.40
1:C:22:TYR:CD1	1:C:33:GLN:HG3	2.56	0.40
1:C:110:GLU:HB2	1:C:319:TYR:HE1	1.86	0.40
1:C:23:PHE:HB2	1:C:345:VAL:HB	2.02	0.40
1:A:334:TYR:O	1:A:338:GLY:N	2.53	0.40
1:C:41:LYS:C	1:C:41:LYS:HD3	2.46	0.40
1:C:86:TYR:N	1:C:86:TYR:CD1	2.89	0.40
1:A:155:ASN:OD1	1:A:169:ASN:ND2	2.42	0.40
1:C:125:GLY:HA3	2:C:420:HOH:O	2.21	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	351/356 (99%)	335 (95%)	16 (5%)	0	100	100
1	B	351/356 (99%)	337 (96%)	14 (4%)	0	100	100
1	C	351/356 (99%)	338 (96%)	13 (4%)	0	100	100
All	All	1053/1068 (99%)	1010 (96%)	43 (4%)	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	287/288 (100%)	286 (100%)	1 (0%)	86 94
1	B	287/288 (100%)	287 (100%)	0	100 100
1	C	287/288 (100%)	287 (100%)	0	100 100
All	All	861/864 (100%)	860 (100%)	1 (0%)	88 96

All (1) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	256	VAL

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (13) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	146	ASN
1	A	258	ASN
1	A	261	GLN
1	A	291	ASN
1	B	150	GLN
1	B	261	GLN
1	B	268	GLN
1	B	291	ASN
1	B	352	GLN
1	C	71	GLN
1	C	150	GLN
1	C	247	ASN
1	C	261	GLN

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 oligosaccharides 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, 95^{th} percentile and maximum values of the occupancy-weighted average B-factor per residue. The column labelled 'Q< 0.9' lists the number of (and percentage) of residues with an average occupancy less than 0.9.

Mol	Chain	Analysed	<RSRZ>	#RSRZ>2	OWAB(Å^2)	Q<0.9
1	A	353/356 (99%)	0.98	30 (8%) 16 13	32, 50, 80, 92	0
1	B	353/356 (99%)	1.38	72 (20%) 3 2	41, 64, 87, 108	0
1	C	353/356 (99%)	0.83	20 (5%) 29 24	32, 48, 70, 88	0
All	All	1059/1068 (99%)	1.06	122 (11%) 9 7	32, 53, 82, 108	0

All (122) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	B	286	GLY	7.4
1	B	289	LEU	4.9
1	B	160	ALA	4.6
1	B	247	ASN	4.4
1	A	1	ALA	4.2
1	C	291	ASN	4.1
1	B	259	LYS	4.1
1	B	300	LEU	4.0
1	B	233	ALA	4.0
1	A	129	GLY	4.0
1	C	53	TYR	4.0
1	C	8	GLY	3.8
1	B	235	ASP	3.8
1	B	296	ALA	3.8
1	A	290	TYR	3.7
1	B	192	PHE	3.7
1	B	84	GLY	3.7
1	A	294	ARG	3.7
1	B	234	ASN	3.6
1	B	219	GLY	3.6
1	A	86	TYR	3.4
1	B	86	TYR	3.4
1	B	124	ALA	3.4

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Mol	Chain	Res	Type	RSRZ
1	B	125	GLY	3.3
1	B	171	SER	3.3
1	B	165	VAL	3.3
1	B	224	ALA	3.2
1	A	160	ALA	3.2
1	B	269	TYR	3.2
1	B	245	THR	3.2
1	C	219	GLY	3.1
1	C	160	ALA	3.1
1	B	291	ASN	3.1
1	C	158	GLN	3.1
1	B	99	TYR	3.1
1	A	184	PHE	3.1
1	B	295	TYR	3.0
1	B	194	MET	3.0
1	B	113	GLY	3.0
1	B	287	LYS	3.0
1	B	195	GLY	3.0
1	B	1	ALA	3.0
1	B	62	ALA	3.0
1	B	173	ASP	2.9
1	C	173	ASP	2.9
1	B	228	GLY	2.9
1	B	229	LEU	2.9
1	A	259	LYS	2.9
1	B	261	GLN	2.8
1	B	260	THR	2.8
1	A	51	THR	2.8
1	B	278	ALA	2.8
1	B	246	ARG	2.8
1	B	281	TYR	2.7
1	B	196	ILE	2.7
1	B	163	ILE	2.7
1	A	219	GLY	2.7
1	B	117	THR	2.6
1	C	81	ILE	2.6
1	B	184	PHE	2.6
1	A	202	TYR	2.6
1	A	218	ARG	2.5
1	A	176	VAL	2.5
1	B	172	SER	2.5
1	B	236	ILE	2.5

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Mol	Chain	Res	Type	RSRZ
1	B	314	ARG	2.5
1	A	118	TYR	2.5
1	C	195	GLY	2.5
1	C	163	ILE	2.5
1	A	224	ALA	2.5
1	C	7	ASP	2.4
1	A	182	ASP	2.4
1	A	166	GLY	2.4
1	A	293	GLY	2.4
1	C	151	TYR	2.3
1	C	300	LEU	2.3
1	A	163	ILE	2.3
1	B	232	ASP	2.3
1	B	145	LEU	2.3
1	B	298	LYS	2.3
1	B	342	ASP	2.3
1	B	98	LEU	2.3
1	B	282	LEU	2.3
1	C	172	SER	2.3
1	A	142	VAL	2.3
1	C	184	PHE	2.3
1	B	28	LYS	2.3
1	B	231	TYR	2.3
1	B	257	ALA	2.2
1	B	340	SER	2.2
1	B	265	VAL	2.2
1	C	1	ALA	2.2
1	B	204	SER	2.2
1	B	213	THR	2.2
1	A	135	ASN	2.2
1	B	118	TYR	2.2
1	A	144	GLY	2.2
1	C	293	GLY	2.2
1	B	272	ASP	2.2
1	B	107	MET	2.1
1	B	92	GLY	2.1
1	B	225	TRP	2.1
1	B	341	THR	2.1
1	A	214	GLN	2.1
1	B	161	GLN	2.1
1	A	165	VAL	2.1
1	B	297	ASP	2.1

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Mol	Chain	Res	Type	RSRZ
1	B	217	ALA	2.1
1	A	45	GLN	2.1
1	C	301	VAL	2.1
1	A	308	ALA	2.1
1	B	283	GLN	2.1
1	B	202	TYR	2.1
1	B	251	TYR	2.1
1	A	172	SER	2.0
1	C	205	SER	2.0
1	A	19	GLY	2.0
1	A	256	VAL	2.0
1	A	287	LYS	2.0
1	B	285	LYS	2.0
1	C	174	SER	2.0
1	B	258	ASN	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 oligosaccharides 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.