



Full wwPDB X-ray Structure Validation Report ⓘ

Nov 10, 2024 – 07:47 AM EST

PDB ID : 3VGZ
Title : Crystal structure of E. coli YncE
Authors : Kagawa, W.; Sagawa, T.; Niki, H.; Kurumizaka, H.
Deposited on : 2011-08-23
Resolution : 1.70 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
Mogul : 2022.3.0, CSD as543be (2022)
Xtriage (Phenix) : 1.20.1
EDS : 3.0
Percentile statistics : 20231227.v01 (using entries in the PDB archive December 27th 2023)
CCP4 : 9.0.003 (Gargrove)
Density-Fitness : 1.0.11
Ideal geometry (proteins) : Engh & Huber (2001)
Ideal geometry (DNA, RNA) : Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP) : 2.39

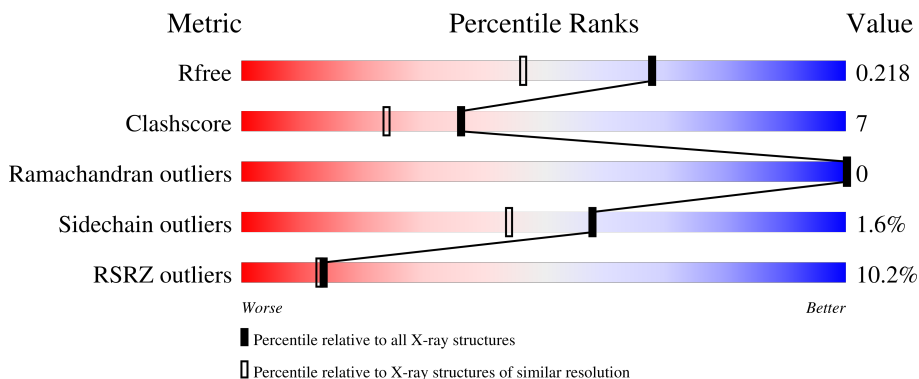
1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

X-RAY DIFFRACTION

The reported resolution of this entry is 1.70 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}	164625	5161 (1.70-1.70)
Clashscore	180529	5671 (1.70-1.70)
Ramachandran outliers	177936	5594 (1.70-1.70)
Sidechain outliers	177891	5594 (1.70-1.70)
RSRZ outliers	164620	5159 (1.70-1.70)

The table below summarises the geometric issues observed across the polymeric chains and their fit to the electron density. The red, orange, yellow and green segments of the lower bar indicate the fraction of residues that contain outliers for ≥ 3 , 2, 1 and 0 types of geometric quality criteria respectively. A grey segment represents the fraction of residues that are not modelled. The numeric value for each fraction is indicated below the corresponding segment, with a dot representing fractions $\leq 5\%$. 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	353	 11% 76% 14% • 9%
1	B	353	 8% 79% 11% • 9%
1	C	353	 7% 82% 9% • 8%
1	D	353	 11% 76% 15% • 9%

2 Entry composition

There are 2 unique types of molecules in this entry. The entry contains 10221 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 Uncharacterized protein YncE.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	Se			
1	A	321	2473	1547	437	486	3	0	0	0
1	B	321	2473	1547	437	486	3	0	0	0
1	C	323	2487	1555	439	490	3	0	0	0
1	D	321	2473	1547	437	486	3	0	0	0

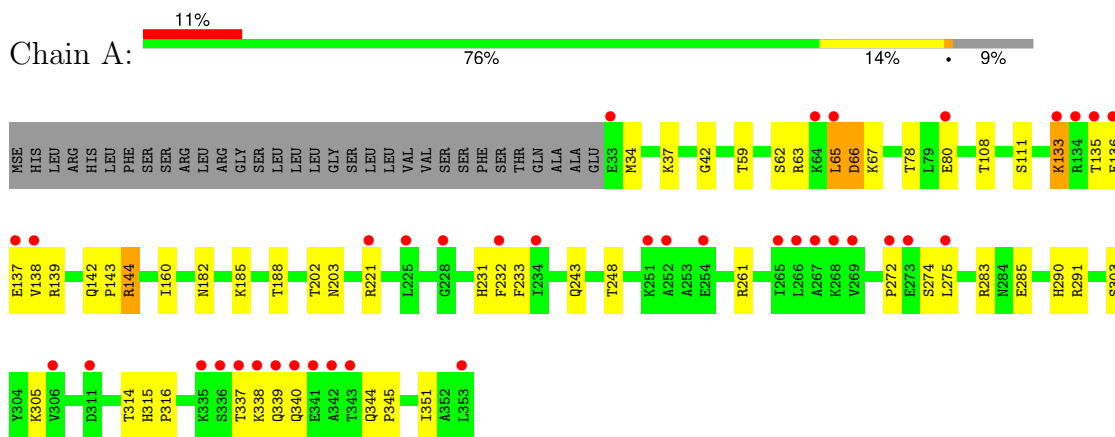
- Molecule 2 is water.

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
2	A	74	Total 74	O 74	0	0
2	B	91	Total 91	O 91	0	0
2	C	90	Total 90	O 90	0	0
2	D	60	Total 60	O 60	0	0

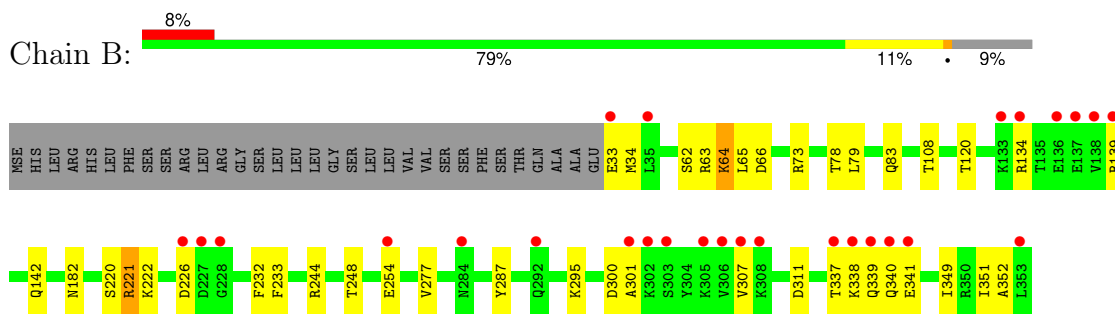
3 Residue-property plots [i](#)

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.

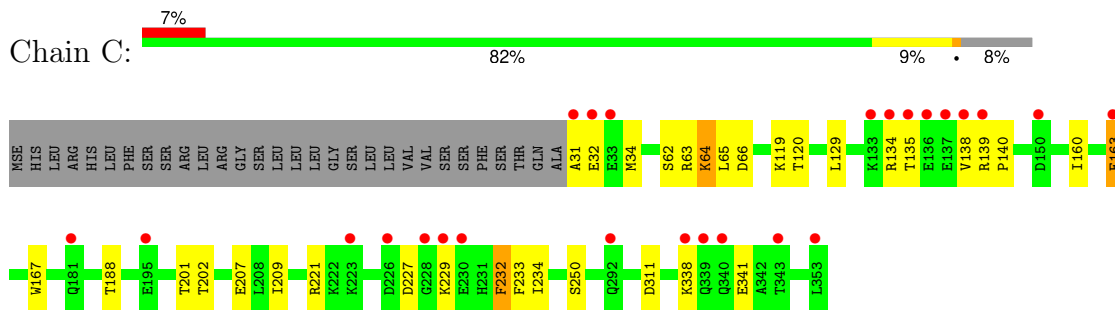
- Molecule 1: Uncharacterized protein YncE




- Molecule 1: Uncharacterized protein YncE

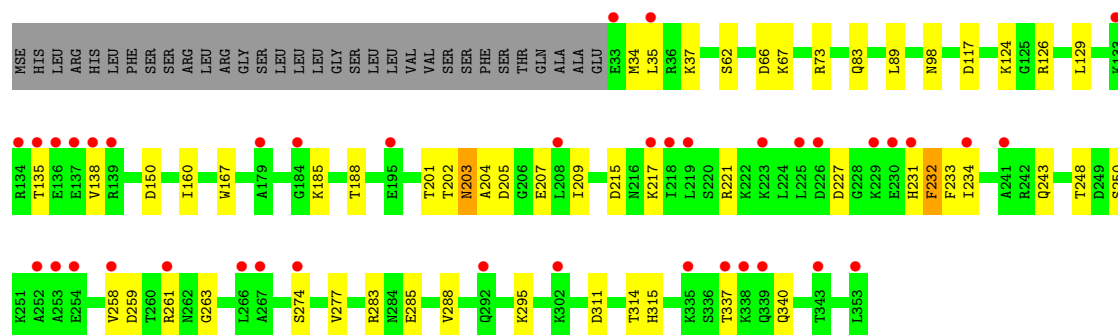


- Molecule 1: Uncharacterized protein YncE



- Molecule 1: Uncharacterized protein YncE

Chain D:  11% 76% 15% 9%



4 Data and refinement statistics

Property	Value	Source
Space group	C 2 2 21	Depositor
Cell constants a, b, c, α , β , γ	119.17Å 139.31Å 173.69Å 90.00° 90.00° 90.00°	Depositor
Resolution (Å)	50.00 – 1.70 50.00 – 1.70	Depositor EDS
% Data completeness (in resolution range)	(Not available) (50.00-1.70) 95.7 (50.00-1.70)	Depositor EDS
R_{merge}	(Not available)	Depositor
R_{sym}	0.07	Depositor
$\langle I/\sigma(I) \rangle$ ¹	2.55 (at 1.70Å)	Xtrriage
Refinement program	CNS 1.21	Depositor
R, R_{free}	0.220 , 0.244 0.221 , 0.218	Depositor DCC
R_{free} test set	7574 reflections (5.02%)	wwPDB-VP
Wilson B-factor (Å ²)	20.0	Xtrriage
Anisotropy	0.392	Xtrriage
Bulk solvent k_{sol} (e/Å ³), B_{sol} (Å ²)	0.34 , 25.6	EDS
L-test for twinning ²	$\langle L \rangle = 0.49$, $\langle L^2 \rangle = 0.32$	Xtrriage
Estimated twinning fraction	No twinning to report.	Xtrriage
F_o, F_c correlation	0.94	EDS
Total number of atoms	10221	wwPDB-VP
Average B, all atoms (Å ²)	26.0	wwPDB-VP

Xtrriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 3.75% 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	0.31	0/2503	0.66	0/3385
1	B	0.31	0/2503	0.67	0/3385
1	C	0.31	0/2517	0.67	0/3404
1	D	0.29	0/2503	0.65	0/3385
All	All	0.31	0/10026	0.66	0/13559

There are no bond length outliers.

There are no bond angle outliers.

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	2473	0	2524	46	0
1	B	2473	0	2524	36	0
1	C	2487	0	2535	30	0
1	D	2473	0	2524	35	0
2	A	74	0	0	0	0
2	B	91	0	0	2	0
2	C	90	0	0	1	0
2	D	60	0	0	0	0
All	All	10221	0	10107	142	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 7.

All (142) 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:D:234:ILE:HD11	1:D:250:SER:HB3	1.06	1.03
1:D:117:ASP:HB2	1:D:124:LYS:HE3	1.41	0.99
1:D:234:ILE:CD1	1:D:250:SER:HB3	2.01	0.88
1:B:64:LYS:HD2	1:B:65:LEU:HD22	1.59	0.84
1:A:111:SER:H	1:A:142:GLN:HE22	1.24	0.82
1:A:135:THR:HB	1:A:138:VAL:HG12	1.63	0.80
1:B:337:THR:HG22	1:B:339:GLN:H	1.49	0.76
1:D:117:ASP:CB	1:D:124:LYS:HE3	2.16	0.76
1:D:234:ILE:HD11	1:D:250:SER:CB	2.02	0.75
1:A:303:SER:HB2	1:A:305:LYS:HE2	1.69	0.74
1:C:63:ARG:HH12	1:C:338:LYS:HE2	1.53	0.74
1:D:215:ASP:OD1	1:D:217:LYS:HG2	1.88	0.72
1:B:340:GLN:HE21	1:B:340:GLN:HA	1.55	0.71
1:A:135:THR:HG22	1:A:137:GLU:H	1.56	0.70
1:B:34:MSE:HE2	1:B:349:ILE:HG21	1.72	0.70
1:B:64:LYS:HD2	1:B:65:LEU:CD2	2.23	0.69
1:A:133:LYS:HD3	1:A:138:VAL:HG11	1.76	0.68
1:A:111:SER:N	1:A:142:GLN:HE22	1.91	0.68
1:C:64:LYS:HD2	1:C:341:GLU:OE2	1.95	0.66
1:D:201:THR:HG22	1:D:209:ILE:HB	1.78	0.66
1:A:65:LEU:HG	1:A:66:ASP:OD1	1.96	0.66
1:B:64:LYS:CD	1:B:65:LEU:HD22	2.25	0.66
1:A:135:THR:HB	1:A:138:VAL:CG1	2.26	0.65
1:A:314:THR:HG22	1:A:315:HIS:CD2	2.31	0.64
1:B:139:ARG:NH2	1:B:142:GLN:HE21	1.94	0.64
1:B:244:ARG:HH22	1:B:301:ALA:HB1	1.64	0.62
1:B:222:LYS:HB2	1:C:31:ALA:N	2.14	0.62
1:D:337:THR:OG1	1:D:340:GLN:HB3	2.00	0.61
1:D:203:ASN:HD22	1:D:203:ASN:C	2.04	0.61
1:A:337:THR:OG1	1:A:339:GLN:HG2	2.00	0.61
1:D:62:SER:HB3	1:D:66:ASP:OD1	2.02	0.60
1:D:243:GLN:OE1	1:D:261:ARG:HD3	2.02	0.59
1:D:160:ILE:HG21	1:D:188:THR:HG22	1.84	0.59
1:B:254:GLU:HG2	2:B:372:HOH:O	2.02	0.59
2:B:377:HOH:O	1:C:32:GLU:HB2	2.01	0.58
1:C:64:LYS:HD2	1:C:341:GLU:CD	2.24	0.58
1:B:139:ARG:HH22	1:B:142:GLN:HE21	1.49	0.58
1:A:272:PRO:HG2	1:A:290:HIS:CE1	2.38	0.58
1:C:232:PHE:CE1	1:C:234:ILE:HD13	2.38	0.58
1:D:129:LEU:HD13	1:D:167:TRP:CE3	2.38	0.57

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:37:LYS:NZ	1:A:80:GLU:HG2	2.19	0.57
1:C:129:LEU:HD13	1:C:167:TRP:CE3	2.40	0.57
1:B:220:SER:HB2	1:C:31:ALA:HA	1.85	0.56
1:C:232:PHE:CD1	1:C:234:ILE:HD13	2.39	0.56
1:C:63:ARG:NH1	1:C:338:LYS:HE2	2.20	0.56
1:A:135:THR:HG22	1:A:136:GLU:N	2.20	0.56
1:A:62:SER:OG	1:A:65:LEU:HD23	2.07	0.56
1:B:34:MSE:HG2	1:B:351:ILE:HG12	1.88	0.55
1:B:340:GLN:HA	1:B:340:GLN:NE2	2.20	0.55
1:D:295:LYS:HD3	1:D:311:ASP:HA	1.88	0.55
1:C:135:THR:OG1	1:C:138:VAL:HG12	2.06	0.55
1:D:314:THR:HG22	1:D:315:HIS:CD2	2.42	0.55
1:A:135:THR:CG2	1:A:136:GLU:N	2.69	0.55
1:D:135:THR:OG1	1:D:138:VAL:HG12	2.07	0.54
1:A:78:THR:OG1	1:A:80:GLU:HG3	2.08	0.54
1:A:108:THR:O	1:A:142:GLN:NE2	2.41	0.54
1:D:201:THR:CG2	1:D:209:ILE:HB	2.37	0.54
1:A:142:GLN:HE21	1:A:143:PRO:HD2	1.73	0.54
1:C:134:ARG:HG2	1:C:140:PRO:HD2	1.89	0.53
1:A:182:ASN:O	1:A:221:ARG:NH2	2.41	0.53
1:D:283:ARG:O	1:D:285:GLU:HG3	2.09	0.52
1:D:202:THR:HB	1:D:233:PHE:HB2	1.91	0.52
1:C:234:ILE:HG13	1:C:250:SER:HB3	1.91	0.52
1:A:275:LEU:HD12	1:A:275:LEU:N	2.25	0.51
1:C:207:GLU:OE2	1:C:221:ARG:HD3	2.09	0.51
1:A:34:MSE:HG2	1:A:351:ILE:HG12	1.92	0.50
1:C:120:THR:O	1:D:67:LYS:HE3	2.11	0.50
1:D:227:ASP:OD1	1:D:231:HIS:HE1	1.94	0.50
1:D:185:LYS:HD2	1:D:204:ALA:HB3	1.92	0.50
1:A:144:ARG:HG2	1:A:144:ARG:HH11	1.77	0.50
1:D:35:LEU:HD21	1:D:37:LYS:HG2	1.94	0.50
1:A:274:SER:C	1:A:275:LEU:HD12	2.32	0.49
1:A:344:GLN:HG3	1:A:345:PRO:HD2	1.94	0.49
1:B:337:THR:HB	1:B:340:GLN:HB3	1.93	0.49
1:D:203:ASN:ND2	1:D:207:GLU:H	2.11	0.49
1:B:182:ASN:O	1:B:221:ARG:NH2	2.46	0.49
1:B:33:GLU:HG2	1:B:352:ALA:HB3	1.94	0.49
1:B:62:SER:HB3	1:B:66:ASP:OD2	2.13	0.49
1:C:62:SER:HB3	1:C:66:ASP:OD1	2.12	0.48
1:A:160:ILE:HG21	1:A:188:THR:HG22	1.96	0.47
1:C:160:ILE:HG21	1:C:188:THR:HG22	1.96	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:133:LYS:CD	1:A:138:VAL:HG11	2.42	0.47
1:C:119:LYS:HD2	2:C:425:HOH:O	2.14	0.47
1:D:98:ASN:HB2	1:D:150:ASP:OD2	2.15	0.47
1:C:63:ARG:HH12	1:C:338:LYS:CE	2.24	0.47
1:C:163:GLU:N	1:C:163:GLU:OE1	2.48	0.47
1:A:202:THR:HB	1:A:233:PHE:HB2	1.97	0.46
1:D:89:LEU:HD12	1:D:126:ARG:HD3	1.97	0.46
1:A:243:GLN:OE1	1:A:261:ARG:HD3	2.15	0.46
1:A:337:THR:C	1:A:339:GLN:H	2.18	0.46
1:C:139:ARG:HG3	1:C:139:ARG:HH11	1.79	0.46
1:D:209:ILE:HD12	1:D:221:ARG:HB3	1.98	0.46
1:D:203:ASN:HD21	1:D:207:GLU:H	1.63	0.46
1:A:133:LYS:HD2	1:A:133:LYS:N	2.31	0.45
1:A:133:LYS:O	1:A:138:VAL:HG13	2.16	0.45
1:C:134:ARG:HG2	1:C:140:PRO:CD	2.45	0.45
1:C:201:THR:CG2	1:C:209:ILE:HB	2.45	0.45
1:C:201:THR:HG22	1:C:209:ILE:HB	1.98	0.45
1:B:182:ASN:HD22	1:C:311:ASP:HB2	1.81	0.45
1:B:63:ARG:HH12	1:B:338:LYS:HE2	1.80	0.45
1:B:295:LYS:HD3	1:B:311:ASP:HA	1.98	0.45
1:B:78:THR:O	1:B:79:LEU:HB2	2.16	0.45
1:C:163:GLU:H	1:C:163:GLU:CD	2.19	0.45
1:A:67:LYS:HE3	1:B:120:THR:O	2.18	0.44
1:B:34:MSE:HE3	1:B:351:ILE:HD11	1.98	0.44
1:B:233:PHE:HA	1:B:248:THR:O	2.17	0.44
1:A:231:HIS:C	1:A:232:PHE:HD1	2.20	0.44
1:D:274:SER:HB3	1:D:288:VAL:CG1	2.47	0.44
1:C:163:GLU:CG	1:C:163:GLU:O	2.65	0.44
1:C:62:SER:OG	1:C:64:LYS:HD3	2.18	0.44
1:A:139:ARG:HG2	1:A:139:ARG:HH11	1.83	0.43
1:A:233:PHE:HA	1:A:248:THR:O	2.19	0.43
1:B:226:ASP:OD1	1:B:226:ASP:O	2.36	0.43
1:B:340:GLN:NE2	1:B:340:GLN:CA	2.81	0.43
1:D:248:THR:HG23	1:D:277:VAL:HB	2.00	0.43
1:A:185:LYS:O	1:A:203:ASN:HB2	2.19	0.43
1:A:142:GLN:HE21	1:A:142:GLN:HA	1.83	0.43
1:C:227:ASP:OD1	1:C:229:LYS:HB2	2.19	0.43
1:B:73:ARG:HB3	1:B:83:GLN:HB3	2.01	0.42
1:B:64:LYS:HE3	1:B:64:LYS:HB3	1.79	0.42
1:B:134:ARG:CZ	1:B:139:ARG:HH11	2.32	0.42
1:A:63:ARG:HH12	1:A:338:LYS:HD3	1.85	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:63:ARG:NH1	1:A:338:LYS:HD3	2.34	0.42
1:D:258:VAL:CG1	1:D:263:GLY:HA2	2.50	0.42
1:B:300:ASP:HB2	1:B:307:VAL:HG11	2.01	0.41
1:A:42:GLY:O	1:A:59:THR:HA	2.20	0.41
1:A:315:HIS:HA	1:A:316:PRO:HD2	1.97	0.41
1:B:300:ASP:HB2	1:B:307:VAL:CG1	2.50	0.41
1:D:73:ARG:HB3	1:D:83:GLN:HB3	2.01	0.41
1:B:340:GLN:O	1:B:340:GLN:HG3	2.21	0.41
1:A:142:GLN:NE2	1:A:142:GLN:HA	2.36	0.41
1:C:202:THR:HB	1:C:233:PHE:HB2	2.02	0.41
1:A:283:ARG:O	1:A:285:GLU:HG3	2.21	0.41
1:B:34:MSE:CE	1:B:349:ILE:HG21	2.46	0.41
1:D:232:PHE:C	1:D:232:PHE:CD1	2.94	0.41
1:A:133:LYS:CD	1:A:133:LYS:H	2.34	0.40
1:A:275:LEU:HD22	1:A:291:ARG:HB2	2.03	0.40
1:D:258:VAL:HG12	1:D:259:ASP:N	2.36	0.40
1:A:37:LYS:HZ1	1:A:80:GLU:HG2	1.84	0.40
1:D:203:ASN:ND2	1:D:205:ASP:H	2.18	0.40
1:B:108:THR:O	1:B:142:GLN:CD	2.60	0.40
1:B:277:VAL:HA	1:B:287:TYR: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	319/353 (90%)	301 (94%)	18 (6%)	0	100	100
1	B	319/353 (90%)	304 (95%)	15 (5%)	0	100	100
1	C	321/353 (91%)	306 (95%)	15 (5%)	0	100	100
1	D	319/353 (90%)	303 (95%)	16 (5%)	0	100	100
All	All	1278/1412 (90%)	1214 (95%)	64 (5%)	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	269/293 (92%)	264 (98%)	5 (2%)	52	37
1	B	269/293 (92%)	265 (98%)	4 (2%)	60	47
1	C	270/293 (92%)	265 (98%)	5 (2%)	52	37
1	D	269/293 (92%)	266 (99%)	3 (1%)	70	60
All	All	1077/1172 (92%)	1060 (98%)	17 (2%)	58	44

All (17) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	65	LEU
1	A	66	ASP
1	A	133	LYS
1	A	144	ARG
1	A	340	GLN
1	B	64	LYS
1	B	221	ARG
1	B	232	PHE
1	B	341	GLU
1	C	34	MSE
1	C	64	LYS
1	C	65	LEU
1	C	163	GLU
1	C	232	PHE
1	D	34	MSE
1	D	203	ASN
1	D	232	PHE

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (25) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	61	GLN
1	A	142	GLN
1	A	264	ASN
1	A	315	HIS
1	A	317	ASN
1	A	339	GLN
1	A	344	GLN
1	B	61	GLN
1	B	182	ASN
1	B	315	HIS
1	B	317	ASN
1	B	340	GLN
1	C	51	GLN
1	C	61	GLN
1	C	315	HIS
1	C	317	ASN
1	C	340	GLN
1	D	50	GLN
1	D	61	GLN
1	D	142	GLN
1	D	203	ASN
1	D	231	HIS
1	D	264	ASN
1	D	315	HIS
1	D	317	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 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, 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	318/353 (90%)	0.62	38 (11%) 10 9	12, 24, 48, 63	0
1	B	318/353 (90%)	0.49	27 (8%) 18 18	13, 23, 42, 57	0
1	C	320/353 (90%)	0.40	25 (7%) 20 21	13, 22, 42, 60	0
1	D	318/353 (90%)	0.85	40 (12%) 9 8	13, 28, 46, 62	0
All	All	1274/1412 (90%)	0.59	130 (10%) 13 13	12, 24, 45, 63	0

All (130) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	C	31	ALA	6.4
1	A	137	GLU	6.0
1	A	136	GLU	5.6
1	A	134	ARG	5.5
1	C	138	VAL	4.7
1	B	307	VAL	4.5
1	A	340	GLN	4.4
1	A	138	VAL	4.4
1	A	135	THR	4.3
1	A	337	THR	4.3
1	C	137	GLU	4.2
1	D	338	LYS	4.2
1	A	133	LYS	4.2
1	D	138	VAL	4.0
1	B	292	GLN	3.9
1	A	232	PHE	3.8
1	D	343	THR	3.8
1	B	302	LYS	3.7
1	C	195	GLU	3.7
1	D	137	GLU	3.7
1	B	339	GLN	3.7

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Mol	Chain	Res	Type	RSRZ
1	B	303	SER	3.7
1	A	254	GLU	3.5
1	D	339	GLN	3.5
1	C	135	THR	3.5
1	B	353	LEU	3.4
1	B	133	LYS	3.4
1	C	133	LYS	3.3
1	C	136	GLU	3.3
1	B	338	LYS	3.3
1	C	226	ASP	3.3
1	D	226	ASP	3.3
1	A	33	GLU	3.3
1	D	223	LYS	3.3
1	A	272	PRO	3.3
1	C	343	THR	3.3
1	B	137	GLU	3.3
1	B	305	LYS	3.3
1	B	226	ASP	3.2
1	D	230	GLU	3.2
1	B	337	THR	3.2
1	D	217	LYS	3.2
1	A	336	SER	3.2
1	C	230	GLU	3.2
1	A	338	LYS	3.1
1	B	340	GLN	3.1
1	A	273	GLU	3.1
1	C	32	GLU	3.1
1	A	228	GLY	3.0
1	A	266	LEU	3.0
1	A	275	LEU	3.0
1	D	35	LEU	3.0
1	A	339	GLN	3.0
1	B	306	VAL	3.0
1	B	301	ALA	3.0
1	D	219	LEU	2.9
1	D	353	LEU	2.9
1	A	342	ALA	2.9
1	D	337	THR	2.8
1	A	225	LEU	2.8
1	B	136	GLU	2.8
1	D	133	LYS	2.8
1	D	139	ARG	2.8

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Mol	Chain	Res	Type	RSRZ
1	A	221	ARG	2.7
1	B	254	GLU	2.7
1	B	308	LYS	2.7
1	A	341	GLU	2.6
1	B	284	ASN	2.6
1	C	134	ARG	2.6
1	D	253	ALA	2.6
1	D	134	ARG	2.6
1	D	218	ILE	2.6
1	A	268	LYS	2.6
1	D	225	LEU	2.5
1	C	163	GLU	2.5
1	D	231	HIS	2.5
1	D	229	LYS	2.5
1	A	269	VAL	2.5
1	A	65	LEU	2.5
1	B	33	GLU	2.5
1	C	228	GLY	2.5
1	C	139	ARG	2.5
1	C	353	LEU	2.4
1	D	234	ILE	2.4
1	D	136	GLU	2.4
1	D	254	GLU	2.4
1	B	228	GLY	2.4
1	C	339	GLN	2.4
1	B	139	ARG	2.4
1	A	64	LYS	2.3
1	A	343	THR	2.3
1	D	135	THR	2.3
1	C	181	GLN	2.3
1	D	195	GLU	2.3
1	A	353	LEU	2.3
1	D	266	LEU	2.3
1	D	261	ARG	2.3
1	C	292	GLN	2.3
1	A	252	ALA	2.3
1	D	179	ALA	2.3
1	A	251	LYS	2.3
1	C	229	LYS	2.3
1	A	265	ILE	2.3
1	D	258	VAL	2.3
1	D	241	ALA	2.2

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Mol	Chain	Res	Type	RSRZ
1	B	138	VAL	2.2
1	D	292	GLN	2.2
1	A	267	ALA	2.2
1	D	335	LYS	2.2
1	B	35	LEU	2.2
1	D	274	SER	2.2
1	A	335	LYS	2.2
1	B	134	ARG	2.2
1	D	33	GLU	2.2
1	C	223	LYS	2.1
1	A	234	ILE	2.1
1	C	340	GLN	2.1
1	C	338	LYS	2.1
1	D	252	ALA	2.1
1	B	341	GLU	2.1
1	D	208	LEU	2.1
1	A	311	ASP	2.1
1	B	227	ASP	2.1
1	A	80	GLU	2.1
1	D	184	GLY	2.1
1	D	302	LYS	2.1
1	A	306	VAL	2.1
1	D	267	ALA	2.0
1	C	33	GLU	2.0
1	C	150	ASP	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.