Full wwPDB X-ray Structure Validation Report ⓘ

May 14, 2026 – 01:04 PM EDT

PDB ID	:	9Q6M / pdb_00009q6m
Title	:	Crystal Structure of Vibrio cholerae PilU, a PilT-dependent Retraction ATPase - Crystal Form 1.
Authors	:	Minasov, G.; Shukla, S.; Shuvalova, L.; Brunzelle, J.S.; Satchell, K.J.F.; Center for Structural Biology of Infectious Diseases (CSBID)
Deposited on	:	2025-08-22
Resolution	:	2.95 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:

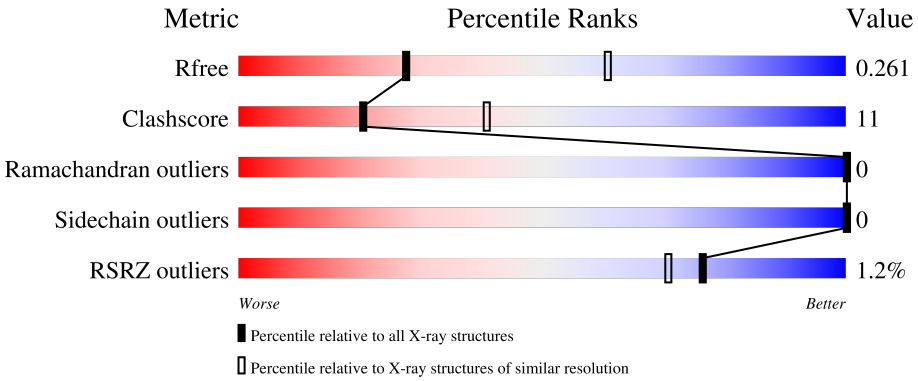
MolProbity	:	4-5-2 with Phenix2.0
Xtriage (Phenix)	:	2.0
EDS	:	3.0
Percentile statistics	:	20250101.v01 (using entries in the PDB archive January 1st 2025)
CCP4	:	9.0.010 (Gargrove)
Density-Fitness	:	1.0.12
Ideal geometry (proteins)	:	Engh & Huber (2001)
Ideal geometry (DNA, RNA)	:	Parkinson et al. (1996)
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 2.95 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	1130 (2.98-2.94)
Clashscore	190562	1157 (2.98-2.94)
Ramachandran outliers	187476	1101 (2.98-2.94)
Sidechain outliers	187428	1101 (2.98-2.94)
RSRZ outliers	180081	1130 (2.98-2.94)

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	386	68% 23% • 8%
1	B	386	% 69% 22% 9%
1	C	386	67% 24% 9%
1	D	386	68% 23% 9%
1	E	386	70% 20% 9%

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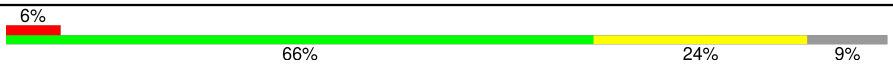
Mol	Chain	Length	Quality of chain
1	F	386	

2 Entry composition (i)

There are 2 unique types of molecules in this entry. The entry contains 16623 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 Twitching motility protein PilT.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
1	A	354	Total	C	N	O	S	0	0	0
			2767	1724	507	522	14			
1	B	351	Total	C	N	O	S	0	0	0
			2758	1720	505	519	14			
1	C	351	Total	C	N	O	S	0	0	0
			2758	1720	505	519	14			
1	D	351	Total	C	N	O	S	0	0	0
			2758	1720	505	519	14			
1	E	350	Total	C	N	O	S	0	0	0
			2747	1713	503	517	14			
1	F	350	Total	C	N	O	S	0	0	0
			2749	1714	503	518	14			

There are 114 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
A	-17	MET	-	expression tag	UNP Q9KUQ2
A	-16	ALA	-	expression tag	UNP Q9KUQ2
A	-15	GLY	-	expression tag	UNP Q9KUQ2
A	-14	GLY	-	expression tag	UNP Q9KUQ2
A	-13	SER	-	expression tag	UNP Q9KUQ2
A	-12	GLY	-	expression tag	UNP Q9KUQ2
A	-11	GLY	-	expression tag	UNP Q9KUQ2
A	-10	HIS	-	expression tag	UNP Q9KUQ2
A	-9	HIS	-	expression tag	UNP Q9KUQ2
A	-8	HIS	-	expression tag	UNP Q9KUQ2
A	-7	HIS	-	expression tag	UNP Q9KUQ2
A	-6	HIS	-	expression tag	UNP Q9KUQ2
A	-5	HIS	-	expression tag	UNP Q9KUQ2
A	-4	ALA	-	expression tag	UNP Q9KUQ2
A	-3	GLY	-	expression tag	UNP Q9KUQ2
A	-2	GLY	-	expression tag	UNP Q9KUQ2
A	-1	ALA	-	expression tag	UNP Q9KUQ2

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Chain	Residue	Modelled	Actual	Comment	Reference
A	0	GLY	-	expression tag	UNP Q9KUQ2
A	1	GLY	-	expression tag	UNP Q9KUQ2
B	-17	MET	-	expression tag	UNP Q9KUQ2
B	-16	ALA	-	expression tag	UNP Q9KUQ2
B	-15	GLY	-	expression tag	UNP Q9KUQ2
B	-14	GLY	-	expression tag	UNP Q9KUQ2
B	-13	SER	-	expression tag	UNP Q9KUQ2
B	-12	GLY	-	expression tag	UNP Q9KUQ2
B	-11	GLY	-	expression tag	UNP Q9KUQ2
B	-10	HIS	-	expression tag	UNP Q9KUQ2
B	-9	HIS	-	expression tag	UNP Q9KUQ2
B	-8	HIS	-	expression tag	UNP Q9KUQ2
B	-7	HIS	-	expression tag	UNP Q9KUQ2
B	-6	HIS	-	expression tag	UNP Q9KUQ2
B	-5	HIS	-	expression tag	UNP Q9KUQ2
B	-4	ALA	-	expression tag	UNP Q9KUQ2
B	-3	GLY	-	expression tag	UNP Q9KUQ2
B	-2	GLY	-	expression tag	UNP Q9KUQ2
B	-1	ALA	-	expression tag	UNP Q9KUQ2
B	0	GLY	-	expression tag	UNP Q9KUQ2
B	1	GLY	-	expression tag	UNP Q9KUQ2
C	-17	MET	-	expression tag	UNP Q9KUQ2
C	-16	ALA	-	expression tag	UNP Q9KUQ2
C	-15	GLY	-	expression tag	UNP Q9KUQ2
C	-14	GLY	-	expression tag	UNP Q9KUQ2
C	-13	SER	-	expression tag	UNP Q9KUQ2
C	-12	GLY	-	expression tag	UNP Q9KUQ2
C	-11	GLY	-	expression tag	UNP Q9KUQ2
C	-10	HIS	-	expression tag	UNP Q9KUQ2
C	-9	HIS	-	expression tag	UNP Q9KUQ2
C	-8	HIS	-	expression tag	UNP Q9KUQ2
C	-7	HIS	-	expression tag	UNP Q9KUQ2
C	-6	HIS	-	expression tag	UNP Q9KUQ2
C	-5	HIS	-	expression tag	UNP Q9KUQ2
C	-4	ALA	-	expression tag	UNP Q9KUQ2
C	-3	GLY	-	expression tag	UNP Q9KUQ2
C	-2	GLY	-	expression tag	UNP Q9KUQ2
C	-1	ALA	-	expression tag	UNP Q9KUQ2
C	0	GLY	-	expression tag	UNP Q9KUQ2
C	1	GLY	-	expression tag	UNP Q9KUQ2
D	-17	MET	-	expression tag	UNP Q9KUQ2
D	-16	ALA	-	expression tag	UNP Q9KUQ2

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Chain	Residue	Modelled	Actual	Comment	Reference
D	-15	GLY	-	expression tag	UNP Q9KUQ2
D	-14	GLY	-	expression tag	UNP Q9KUQ2
D	-13	SER	-	expression tag	UNP Q9KUQ2
D	-12	GLY	-	expression tag	UNP Q9KUQ2
D	-11	GLY	-	expression tag	UNP Q9KUQ2
D	-10	HIS	-	expression tag	UNP Q9KUQ2
D	-9	HIS	-	expression tag	UNP Q9KUQ2
D	-8	HIS	-	expression tag	UNP Q9KUQ2
D	-7	HIS	-	expression tag	UNP Q9KUQ2
D	-6	HIS	-	expression tag	UNP Q9KUQ2
D	-5	HIS	-	expression tag	UNP Q9KUQ2
D	-4	ALA	-	expression tag	UNP Q9KUQ2
D	-3	GLY	-	expression tag	UNP Q9KUQ2
D	-2	GLY	-	expression tag	UNP Q9KUQ2
D	-1	ALA	-	expression tag	UNP Q9KUQ2
D	0	GLY	-	expression tag	UNP Q9KUQ2
D	1	GLY	-	expression tag	UNP Q9KUQ2
E	-17	MET	-	expression tag	UNP Q9KUQ2
E	-16	ALA	-	expression tag	UNP Q9KUQ2
E	-15	GLY	-	expression tag	UNP Q9KUQ2
E	-14	GLY	-	expression tag	UNP Q9KUQ2
E	-13	SER	-	expression tag	UNP Q9KUQ2
E	-12	GLY	-	expression tag	UNP Q9KUQ2
E	-11	GLY	-	expression tag	UNP Q9KUQ2
E	-10	HIS	-	expression tag	UNP Q9KUQ2
E	-9	HIS	-	expression tag	UNP Q9KUQ2
E	-8	HIS	-	expression tag	UNP Q9KUQ2
E	-7	HIS	-	expression tag	UNP Q9KUQ2
E	-6	HIS	-	expression tag	UNP Q9KUQ2
E	-5	HIS	-	expression tag	UNP Q9KUQ2
E	-4	ALA	-	expression tag	UNP Q9KUQ2
E	-3	GLY	-	expression tag	UNP Q9KUQ2
E	-2	GLY	-	expression tag	UNP Q9KUQ2
E	-1	ALA	-	expression tag	UNP Q9KUQ2
E	0	GLY	-	expression tag	UNP Q9KUQ2
E	1	GLY	-	expression tag	UNP Q9KUQ2
F	-17	MET	-	expression tag	UNP Q9KUQ2
F	-16	ALA	-	expression tag	UNP Q9KUQ2
F	-15	GLY	-	expression tag	UNP Q9KUQ2
F	-14	GLY	-	expression tag	UNP Q9KUQ2
F	-13	SER	-	expression tag	UNP Q9KUQ2
F	-12	GLY	-	expression tag	UNP Q9KUQ2

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Chain	Residue	Modelled	Actual	Comment	Reference
F	-11	GLY	-	expression tag	UNP Q9KUQ2
F	-10	HIS	-	expression tag	UNP Q9KUQ2
F	-9	HIS	-	expression tag	UNP Q9KUQ2
F	-8	HIS	-	expression tag	UNP Q9KUQ2
F	-7	HIS	-	expression tag	UNP Q9KUQ2
F	-6	HIS	-	expression tag	UNP Q9KUQ2
F	-5	HIS	-	expression tag	UNP Q9KUQ2
F	-4	ALA	-	expression tag	UNP Q9KUQ2
F	-3	GLY	-	expression tag	UNP Q9KUQ2
F	-2	GLY	-	expression tag	UNP Q9KUQ2
F	-1	ALA	-	expression tag	UNP Q9KUQ2
F	0	GLY	-	expression tag	UNP Q9KUQ2
F	1	GLY	-	expression tag	UNP Q9KUQ2

- Molecule 2 is water.

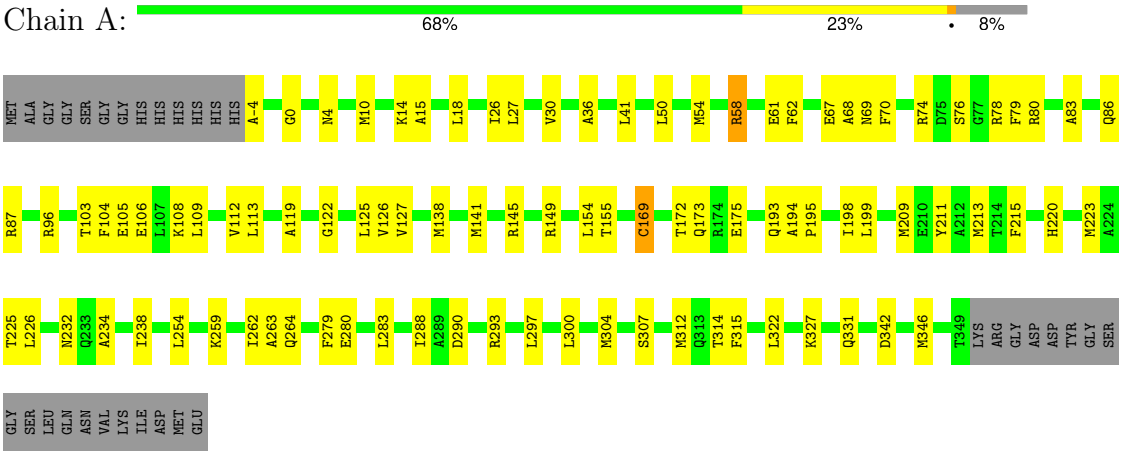
Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
2	A	9	Total O 9 9	0	0
2	B	13	Total O 13 13	0	0
2	C	26	Total O 26 26	0	0
2	D	20	Total O 20 20	0	0
2	E	8	Total O 8 8	0	0
2	F	10	Total O 10 10	0	0

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.

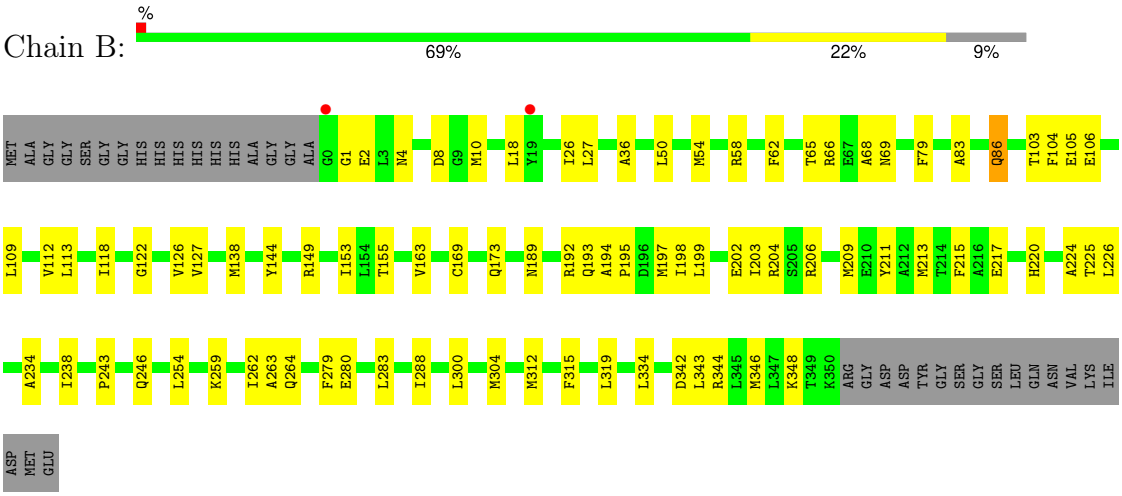
• Molecule 1: Twitching motility protein PilT

Chain A:



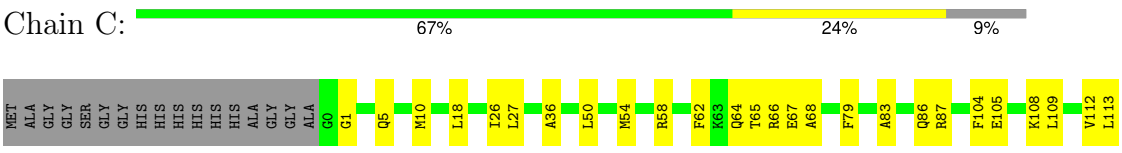
• Molecule 1: Twitching motility protein PilT

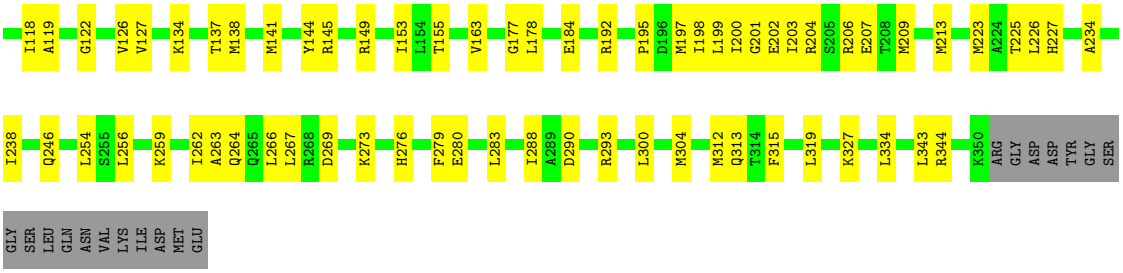
Chain B:



• Molecule 1: Twitching motility protein PilT

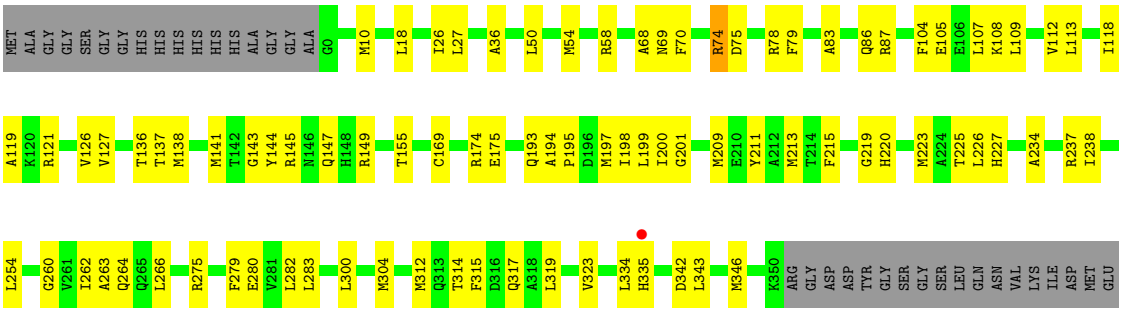
Chain C:





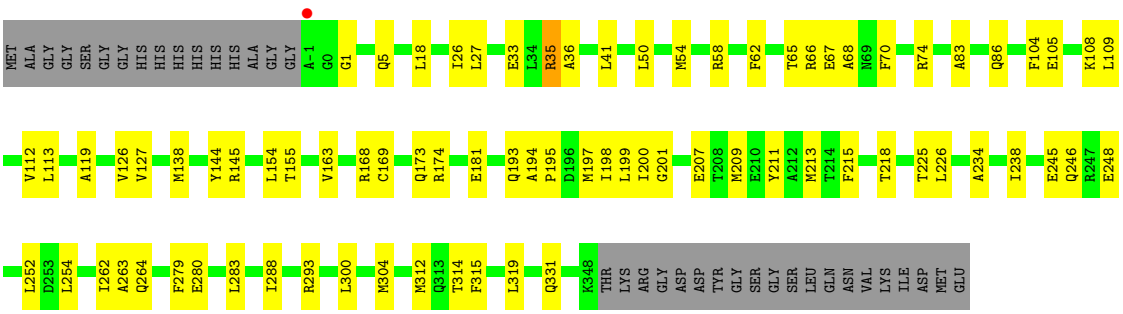
• Molecule 1: Twitching motility protein PilT

Chain D:



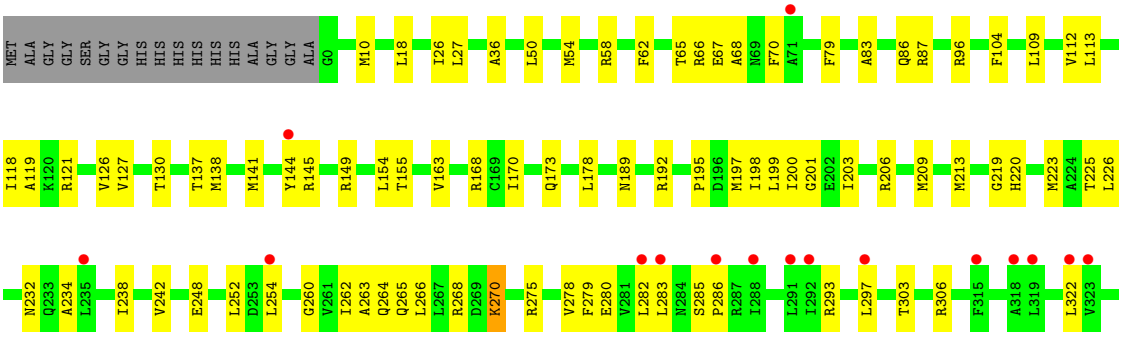
• Molecule 1: Twitching motility protein PilT

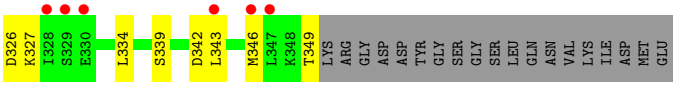
Chain E:



• Molecule 1: Twitching motility protein PilT

Chain F:




D326
K327
I328
S329
E330
L334
S339
D342
L343
M346
L347
K348
T349
LYS
ARG
GLY
ASP
ASP
TYR
GLY
SER
GLY
SER
LEU
GLN
ASN
VAL
LYS
ILE
ASP
MET
GLU

4 Data and refinement statistics (i)

Property	Value	Source
Space group	P 21 21 2	Depositor
Cell constants a, b, c, α, β, γ	108.31Å 133.73Å 181.79Å 90.00° 90.00° 90.00°	Depositor
Resolution (Å)	29.57 – 2.95 29.57 – 2.95	Depositor EDS
% Data completeness (in resolution range)	99.2 (29.57-2.95) 99.2 (29.57-2.95)	Depositor EDS
R_{merge}	0.15	Depositor
R_{sym}	0.15	Depositor
$< I/\sigma(I) >$ [1]	1.92 (at 2.95Å)	Xtriage
Refinement program	REFMAC 5.8.0431	Depositor
R, R_{free}	0.223 , 0.265 0.222 , 0.261	Depositor DCC
R_{free} test set	2834 reflections (5.04%)	wwPDB-VP
Wilson B-factor (Å^2)	71.8	Xtriage
Anisotropy	0.097	Xtriage
Bulk solvent k_{sol}(e/Å^3), B_{sol}(Å^2)	0.27 , 44.7	EDS
L-test for twinning[2]	$< \|L\| > = 0.49$, $< L^2 > = 0.33$	Xtriage
Estimated twinning fraction	No twinning to report.	Xtriage
F_o,F_c correlation	0.94	EDS
Total number of atoms	16623	wwPDB-VP
Average B, all atoms (Å^2)	92.0	wwPDB-VP

Xtriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 11.16% 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 (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	0.45	0/2804	1.03	4/3780 (0.1%)
1	B	0.45	0/2795	1.03	4/3767 (0.1%)
1	C	0.46	0/2795	1.05	5/3767 (0.1%)
1	D	0.45	0/2795	1.05	6/3767 (0.2%)
1	E	0.45	0/2784	1.06	6/3753 (0.2%)
1	F	0.45	0/2786	1.03	4/3756 (0.1%)
All	All	0.45	0/16759	1.04	29/22590 (0.1%)

There are no bond length outliers.

All (29) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
1	B	204	ARG	CB-CA-C	8.53	122.17	109.29
1	D	74	ARG	CA-CB-CG	7.47	129.05	114.10
1	D	74	ARG	N-CA-CB	6.96	122.93	111.31
1	F	86	GLN	CB-CA-C	6.47	120.11	110.14
1	E	86	GLN	CB-CA-C	6.40	120.00	110.14
1	E	35	ARG	CB-CG-CD	6.36	125.93	111.30
1	A	58	ARG	CB-CA-C	6.32	120.80	109.29
1	C	86	GLN	CB-CA-C	6.29	119.83	110.14
1	D	74	ARG	CB-CG-CD	6.22	125.60	111.30
1	B	264	GLN	N-CA-CB	-6.18	101.34	111.66
1	D	86	GLN	CB-CA-C	6.16	119.63	110.14
1	B	86	GLN	CB-CA-C	6.13	119.58	110.14
1	C	313	GLN	CB-CA-C	-6.09	99.28	110.62
1	A	86	GLN	CB-CA-C	6.08	119.51	110.14
1	E	264	GLN	N-CA-CB	-6.07	101.53	111.66
1	A	264	GLN	N-CA-CB	-5.87	101.86	111.66
1	F	168	ARG	N-CA-CB	5.80	119.86	110.40
1	E	74	ARG	N-CA-CB	-5.76	102.46	111.56
1	D	264	GLN	N-CA-CB	-5.57	102.36	111.66
1	A	169	CYS	CB-CA-C	-5.51	100.70	109.80
1	E	169	CYS	CB-CA-C	-5.43	99.42	109.37

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
1	C	134	LYS	CB-CA-C	-5.43	102.60	110.96
1	F	270	LYS	N-CA-CB	5.38	117.95	109.94
1	C	344	ARG	N-CA-CB	-5.34	102.08	110.30
1	B	192	ARG	N-CA-CB	-5.31	102.43	110.92
1	E	168	ARG	CB-CA-C	5.30	120.32	109.55
1	F	264	GLN	N-CA-CB	-5.24	102.91	111.66
1	C	264	GLN	N-CA-CB	-5.12	103.11	111.66
1	D	74	ARG	CD-NE-CZ	5.01	131.42	124.40

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	2767	0	2800	70	0
1	B	2758	0	2797	62	0
1	C	2758	0	2797	69	0
1	D	2758	0	2797	59	0
1	E	2747	0	2782	56	0
1	F	2749	0	2784	75	0
2	A	9	0	0	0	0
2	B	13	0	0	0	0
2	C	26	0	0	0	0
2	D	20	0	0	0	0
2	E	8	0	0	0	0
2	F	10	0	0	0	0
All	All	16623	0	16757	372	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 11.

All (372) 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:A:76:SER:HG	1:A:79:PHE:HE2	1.33	0.75
1:A:10:MET:HE2	1:A:18:LEU:HB2	1.70	0.73
1:F:119:ALA:O	1:F:145:ARG:NH1	2.21	0.73
1:A:58:ARG:CZ	1:A:70:PHE:HB3	2.19	0.73
1:E:119:ALA:O	1:E:145:ARG:NH1	2.25	0.70
1:E:283:LEU:O	1:E:288:ILE:HD12	1.92	0.69
1:F:263:ALA:HB3	1:F:280:GLU:HB3	1.74	0.69
1:A:69:ASN:HB3	1:F:192:ARG:NH1	2.07	0.68
1:A:155:THR:HG22	1:A:199:LEU:HB3	1.74	0.68
1:C:141:MET:HE3	1:C:223:MET:HE1	1.74	0.68
1:D:119:ALA:O	1:D:145:ARG:NH1	2.26	0.68
1:B:155:THR:HG22	1:B:199:LEU:HB3	1.75	0.68
1:C:119:ALA:O	1:C:145:ARG:NH1	2.27	0.68
1:A:58:ARG:NH1	1:A:70:PHE:HB3	2.09	0.67
1:D:155:THR:HG22	1:D:199:LEU:HB3	1.76	0.67
1:E:155:THR:HG22	1:E:199:LEU:HB3	1.77	0.67
1:A:331:GLN:OE1	1:A:331:GLN:N	2.27	0.67
1:D:141:MET:HE3	1:D:223:MET:CE	2.25	0.66
1:E:263:ALA:HB3	1:E:280:GLU:HB3	1.77	0.66
1:A:283:LEU:O	1:A:288:ILE:HD12	1.95	0.66
1:C:283:LEU:O	1:C:288:ILE:HD12	1.95	0.66
1:B:113:LEU:HD22	1:B:262:ILE:CD1	2.25	0.66
1:F:303:THR:HG22	1:F:306:ARG:NH2	2.10	0.66
1:A:119:ALA:O	1:A:145:ARG:NH1	2.28	0.66
1:E:113:LEU:HD22	1:E:262:ILE:CD1	2.26	0.66
1:A:263:ALA:HB3	1:A:280:GLU:HB3	1.78	0.66
1:B:65:THR:O	1:B:66:ARG:HB2	1.95	0.66
1:C:141:MET:HE3	1:C:223:MET:CE	2.26	0.66
1:D:113:LEU:HD22	1:D:262:ILE:HD11	1.78	0.65
1:B:263:ALA:HB3	1:B:280:GLU:HB3	1.78	0.65
1:C:184:GLU:HG3	1:C:207:GLU:HG2	1.79	0.65
1:B:113:LEU:HD22	1:B:262:ILE:HD11	1.78	0.65
1:C:206:ARG:NH1	1:C:246:GLN:OE1	2.27	0.64
1:D:141:MET:HE3	1:D:223:MET:HE1	1.79	0.64
1:E:33:GLU:HB2	1:E:35:ARG:NH2	2.13	0.64
1:F:213:MET:HE1	1:F:254:LEU:HD23	1.80	0.64
1:D:263:ALA:HB3	1:D:280:GLU:HB3	1.79	0.64
1:F:118:ILE:HD12	1:F:149:ARG:NH2	2.12	0.64
1:C:155:THR:HG22	1:C:199:LEU:HB3	1.80	0.64
1:E:113:LEU:HD22	1:E:262:ILE:HD11	1.80	0.64
1:F:155:THR:HG22	1:F:199:LEU:HB3	1.79	0.64
1:F:141:MET:HE3	1:F:223:MET:CE	2.28	0.63

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:283:LEU:O	1:B:288:ILE:HD12	1.98	0.63
1:F:113:LEU:HD22	1:F:262:ILE:HD11	1.78	0.63
1:C:65:THR:O	1:C:66:ARG:HB2	2.00	0.62
1:C:288:ILE:HD11	1:C:312:MET:HE1	1.81	0.62
1:B:288:ILE:HD11	1:B:312:MET:HE1	1.82	0.62
1:E:58:ARG:NH1	1:E:70:PHE:HB3	2.14	0.62
1:F:285:SER:OG	1:F:286:PRO:HD2	1.99	0.62
1:B:206:ARG:NH2	1:B:243:PRO:HD3	2.14	0.62
1:D:27:LEU:HD23	1:D:36:ALA:HA	1.81	0.62
1:E:65:THR:O	1:E:66:ARG:HB2	1.99	0.62
1:A:195:PRO:CG	1:A:198:ILE:HD11	2.30	0.61
1:F:266:LEU:HB3	1:F:275:ARG:HG2	1.82	0.61
1:A:27:LEU:HD23	1:A:36:ALA:HA	1.82	0.61
1:A:225:THR:C	1:A:226:LEU:HD12	2.26	0.61
1:D:213:MET:HE1	1:D:254:LEU:HD23	1.81	0.61
1:B:105:GLU:OE1	1:B:105:GLU:N	2.33	0.61
1:D:113:LEU:HD22	1:D:262:ILE:CD1	2.30	0.60
1:C:213:MET:HE1	1:C:254:LEU:HD23	1.83	0.60
1:A:113:LEU:HD22	1:A:262:ILE:HD11	1.83	0.60
1:F:27:LEU:HD23	1:F:36:ALA:HA	1.81	0.60
1:E:213:MET:HE1	1:E:254:LEU:HD23	1.83	0.60
1:C:263:ALA:HB3	1:C:280:GLU:HB3	1.84	0.60
1:D:225:THR:C	1:D:226:LEU:HD12	2.27	0.60
1:F:145:ARG:HD2	1:F:197:MET:HE3	1.84	0.59
1:F:209:MET:HE3	1:F:238:ILE:HG21	1.83	0.59
1:A:87:ARG:HH11	1:F:163:VAL:HG13	1.67	0.59
1:D:68:ALA:HB3	1:D:83:ALA:HB3	1.83	0.59
1:D:126:VAL:HB	1:D:138:MET:HE2	1.85	0.59
1:F:113:LEU:HD22	1:F:262:ILE:CD1	2.32	0.59
1:A:80:ARG:HD2	1:F:192:ARG:HD2	1.85	0.59
1:F:342:ASP:O	1:F:346:MET:HG2	2.03	0.59
1:A:113:LEU:HD22	1:A:262:ILE:CD1	2.33	0.59
1:F:65:THR:O	1:F:66:ARG:HB2	2.02	0.59
1:A:213:MET:HE1	1:A:254:LEU:HD23	1.85	0.58
1:E:58:ARG:CZ	1:E:70:PHE:HB3	2.33	0.58
1:E:105:GLU:N	1:E:105:GLU:OE1	2.34	0.58
1:D:118:ILE:O	1:D:149:ARG:NH2	2.36	0.58
1:F:68:ALA:HB3	1:F:83:ALA:HB3	1.86	0.58
1:F:266:LEU:HB3	1:F:275:ARG:CG	2.34	0.58
1:F:339:SER:OG	1:F:342:ASP:HB2	2.04	0.58
1:C:68:ALA:HB3	1:C:83:ALA:HB3	1.86	0.58

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:54:MET:HE1	1:A:62:PHE:HB2	1.86	0.58
1:C:50:LEU:O	1:C:54:MET:HG2	2.04	0.57
1:D:195:PRO:CG	1:D:198:ILE:HD11	2.34	0.57
1:F:225:THR:C	1:F:226:LEU:HD12	2.28	0.57
1:E:225:THR:C	1:E:226:LEU:HD12	2.30	0.57
1:E:252:LEU:HD23	1:E:293:ARG:HG3	1.87	0.57
1:F:268:ARG:HB3	1:F:275:ARG:NH2	2.19	0.57
1:B:243:PRO:HG2	1:B:246:GLN:OE1	2.04	0.57
1:E:288:ILE:HD11	1:E:312:MET:HE1	1.86	0.57
1:B:127:VAL:HG12	1:B:226:LEU:HB2	1.86	0.56
1:B:195:PRO:CG	1:B:198:ILE:HD11	2.34	0.56
1:C:27:LEU:HD23	1:C:36:ALA:HA	1.85	0.56
1:D:10:MET:CE	1:D:79:PHE:CE1	2.88	0.56
1:A:126:VAL:HB	1:A:138:MET:HE2	1.87	0.56
1:B:213:MET:HE1	1:B:254:LEU:HD23	1.87	0.56
1:F:141:MET:HE3	1:F:223:MET:HE1	1.86	0.56
1:D:137:THR:HG22	1:D:141:MET:HE2	1.87	0.56
1:F:346:MET:O	1:F:349:THR:OG1	2.24	0.56
1:A:10:MET:SD	1:A:96:ARG:HB2	2.45	0.56
1:B:112:VAL:HG21	1:B:283:LEU:HD11	1.88	0.56
1:C:105:GLU:OE2	1:C:105:GLU:N	2.33	0.56
1:D:10:MET:HE1	1:D:79:PHE:CD1	2.40	0.56
1:E:68:ALA:HB3	1:E:83:ALA:HB3	1.87	0.56
1:E:331:GLN:OE1	1:E:331:GLN:N	2.35	0.56
1:F:121:ARG:HE	1:F:219:GLY:HA2	1.71	0.55
1:F:126:VAL:HB	1:F:138:MET:HE2	1.88	0.55
1:A:288:ILE:HD11	1:A:312:MET:HE1	1.89	0.55
1:F:252:LEU:HD23	1:F:293:ARG:HG3	1.88	0.55
1:E:112:VAL:HG21	1:E:283:LEU:HD11	1.89	0.55
1:B:211:TYR:HB3	1:B:215:PHE:CE2	2.42	0.55
1:A:18:LEU:HD11	1:A:26:ILE:HG23	1.89	0.55
1:C:266:LEU:C	1:C:267:LEU:HD12	2.31	0.55
1:A:138:MET:HE3	1:A:225:THR:HG23	1.87	0.55
1:E:181:GLU:N	1:E:181:GLU:OE1	2.39	0.55
1:E:195:PRO:CG	1:E:198:ILE:HD11	2.36	0.55
1:E:27:LEU:HD23	1:E:36:ALA:HA	1.88	0.54
1:B:27:LEU:HD23	1:B:36:ALA:HA	1.88	0.54
1:B:163:VAL:HG13	1:C:87:ARG:HH11	1.71	0.54
1:B:68:ALA:HB3	1:B:83:ALA:HB3	1.89	0.54
1:C:10:MET:HE1	1:C:79:PHE:CD1	2.43	0.54
1:C:300:LEU:O	1:C:304:MET:HG3	2.07	0.54

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:F:195:PRO:CG	1:F:198:ILE:HD11	2.38	0.54
1:D:121:ARG:HE	1:D:219:GLY:HA2	1.72	0.54
1:A:68:ALA:HB3	1:A:83:ALA:HB3	1.88	0.54
1:C:54:MET:HE1	1:C:62:PHE:HB2	1.89	0.54
1:C:54:MET:HE3	1:C:58:ARG:HG2	1.90	0.54
1:E:126:VAL:HB	1:E:138:MET:HE2	1.88	0.54
1:B:344:ARG:O	1:B:348:LYS:HG3	2.08	0.54
1:C:177:GLY:C	1:C:178:LEU:HD12	2.33	0.54
1:D:266:LEU:O	1:D:275:ARG:NH2	2.40	0.54
1:B:300:LEU:O	1:B:304:MET:HG3	2.09	0.53
1:E:174:ARG:HH22	1:F:67:GLU:CD	2.17	0.53
1:B:138:MET:HE3	1:B:225:THR:HG23	1.90	0.53
1:C:126:VAL:HB	1:C:138:MET:HE2	1.90	0.53
1:F:118:ILE:HD12	1:F:149:ARG:HH21	1.74	0.53
1:C:209:MET:HE2	1:C:238:ILE:HD12	1.91	0.53
1:C:192:ARG:NH2	1:D:69:ASN:HB3	2.23	0.53
1:C:118:ILE:HD12	1:C:149:ARG:HH11	1.74	0.53
1:C:195:PRO:CG	1:C:198:ILE:HD11	2.38	0.53
1:D:149:ARG:O	1:D:169:CYS:SG	2.67	0.52
1:B:10:MET:HE1	1:B:79:PHE:CD1	2.44	0.52
1:D:174:ARG:HH22	1:E:67:GLU:CD	2.17	0.52
1:F:79:PHE:CE1	1:F:96:ARG:HG3	2.44	0.52
1:E:33:GLU:HB2	1:E:35:ARG:HH21	1.75	0.52
1:D:105:GLU:C	1:D:105:GLU:OE1	2.53	0.52
1:D:342:ASP:O	1:D:346:MET:HG3	2.10	0.52
1:D:209:MET:HE2	1:D:238:ILE:HD12	1.92	0.51
1:E:54:MET:HE1	1:E:62:PHE:HB2	1.91	0.51
1:E:211:TYR:HB3	1:E:215:PHE:CE2	2.45	0.51
1:F:18:LEU:HD11	1:F:26:ILE:HG23	1.92	0.51
1:B:126:VAL:HB	1:B:138:MET:HE2	1.93	0.51
1:C:127:VAL:HG12	1:C:226:LEU:HB2	1.91	0.51
1:A:209:MET:HE2	1:A:238:ILE:HD12	1.92	0.51
1:A:290:ASP:OD1	1:A:293:ARG:NH1	2.44	0.51
1:C:202:GLU:OE2	1:C:204:ARG:NH1	2.44	0.51
1:D:211:TYR:HB3	1:D:215:PHE:CE2	2.45	0.51
1:D:78:ARG:NH2	1:D:175:GLU:OE1	2.33	0.51
1:E:1:GLY:O	1:E:5:GLN:HG3	2.11	0.51
1:A:322:LEU:HD22	1:A:327:LYS:HE2	1.92	0.51
1:C:276:HIS:NE2	1:C:327:LYS:HE2	2.26	0.51
1:E:248:GLU:O	1:E:252:LEU:HG	2.12	0.50
1:A:211:TYR:HB3	1:A:215:PHE:CE2	2.46	0.50

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:137:THR:HG22	1:C:141:MET:HE2	1.93	0.50
1:E:211:TYR:O	1:E:215:PHE:CD2	2.64	0.50
1:C:104:PHE:HE1	1:C:144:TYR:HB2	1.75	0.50
1:D:138:MET:HE3	1:D:225:THR:HG23	1.92	0.50
1:F:10:MET:HE1	1:F:79:PHE:CD1	2.46	0.50
1:A:-4:ALA:HB3	1:A:0:GLY:HA3	1.94	0.50
1:F:54:MET:HE1	1:F:62:PHE:HB2	1.93	0.50
1:E:218:THR:HG23	1:F:130:THR:CG2	2.41	0.50
1:F:70:PHE:HA	1:F:178:LEU:CD2	2.42	0.50
1:B:109:LEU:HD23	1:B:279:PHE:CZ	2.46	0.50
1:A:105:GLU:OE2	1:A:105:GLU:N	2.38	0.50
1:A:141:MET:HE3	1:A:223:MET:SD	2.51	0.50
1:B:118:ILE:O	1:B:149:ARG:NH1	2.45	0.49
1:C:10:MET:CE	1:C:79:PHE:CE1	2.95	0.49
1:E:33:GLU:CB	1:E:35:ARG:NH2	2.74	0.49
1:C:122:GLY:HA3	1:C:259:LYS:HG2	1.94	0.49
1:F:137:THR:HG22	1:F:141:MET:HE2	1.94	0.49
1:C:178:LEU:HD12	1:C:178:LEU:N	2.27	0.49
1:A:78:ARG:NH2	1:A:175:GLU:OE1	2.32	0.49
1:E:207:GLU:OE1	1:E:207:GLU:N	2.36	0.49
1:F:138:MET:HE3	1:F:225:THR:HG23	1.94	0.49
1:C:315:PHE:O	1:C:319:LEU:HG	2.13	0.49
1:A:10:MET:HG3	1:A:15:ALA:HB3	1.95	0.49
1:C:10:MET:HE3	1:C:79:PHE:CE1	2.48	0.48
1:B:50:LEU:O	1:B:54:MET:HG2	2.13	0.48
1:E:109:LEU:HD23	1:E:279:PHE:CZ	2.49	0.48
1:E:209:MET:HE2	1:E:238:ILE:HD12	1.95	0.48
1:C:118:ILE:HD12	1:C:149:ARG:NH1	2.29	0.48
1:D:18:LEU:HD11	1:D:26:ILE:HG23	1.95	0.48
1:B:202:GLU:OE2	1:B:225:THR:OG1	2.27	0.48
1:E:300:LEU:O	1:E:304:MET:HG3	2.13	0.48
1:B:315:PHE:O	1:B:319:LEU:HG	2.14	0.48
1:B:342:ASP:O	1:B:346:MET:HG3	2.14	0.48
1:E:252:LEU:CD2	1:E:293:ARG:HG3	2.44	0.48
1:A:10:MET:CE	1:A:18:LEU:HB2	2.41	0.47
1:A:112:VAL:HG21	1:A:283:LEU:HD11	1.96	0.47
1:D:112:VAL:HG21	1:D:283:LEU:HD11	1.95	0.47
1:F:248:GLU:O	1:F:252:LEU:HG	2.14	0.47
1:E:138:MET:HE3	1:E:225:THR:HG23	1.95	0.47
1:B:288:ILE:CD1	1:B:312:MET:HE1	2.44	0.47
1:D:213:MET:HE1	1:D:254:LEU:CD2	2.44	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:217:GLU:OE1	1:C:227:HIS:NE2	2.47	0.47
1:F:203:ILE:HD13	1:F:209:MET:HE2	1.96	0.47
1:F:252:LEU:CD2	1:F:293:ARG:HG3	2.45	0.47
1:B:54:MET:HE1	1:B:62:PHE:HB2	1.96	0.47
1:C:276:HIS:CD2	1:C:327:LYS:HB3	2.49	0.47
1:D:127:VAL:HG12	1:D:226:LEU:HB2	1.97	0.47
1:B:104:PHE:HE1	1:B:144:TYR:HB2	1.79	0.47
1:C:138:MET:HE3	1:C:225:THR:HG23	1.96	0.47
1:F:145:ARG:CD	1:F:197:MET:HE3	2.45	0.47
1:B:54:MET:HE3	1:B:58:ARG:HG2	1.96	0.47
1:F:127:VAL:HG12	1:F:226:LEU:HB2	1.97	0.47
1:A:195:PRO:O	1:A:220:HIS:HD2	1.98	0.47
1:B:334:LEU:HD23	1:B:343:LEU:HD23	1.95	0.47
1:F:334:LEU:HD23	1:F:343:LEU:HD23	1.96	0.47
1:A:14:LYS:HD2	1:A:14:LYS:HA	1.56	0.46
1:A:342:ASP:O	1:A:346:MET:HG3	2.14	0.46
1:C:203:ILE:HB	1:C:226:LEU:HD21	1.97	0.46
1:B:4:ASN:O	1:B:8:ASP:OD1	2.33	0.46
1:D:300:LEU:O	1:D:304:MET:HG3	2.14	0.46
1:A:154:LEU:C	1:A:154:LEU:HD23	2.40	0.46
1:C:1:GLY:O	1:C:5:GLN:HG3	2.15	0.46
1:C:65:THR:O	1:C:66:ARG:CB	2.64	0.46
1:E:18:LEU:HD11	1:E:26:ILE:HG23	1.98	0.46
1:F:50:LEU:O	1:F:54:MET:HG2	2.15	0.46
1:B:155:THR:OG1	1:B:173:GLN:HA	2.16	0.46
1:A:314:THR:O	1:A:315:PHE:C	2.59	0.46
1:A:127:VAL:HG12	1:A:226:LEU:HB2	1.98	0.46
1:C:192:ARG:NH2	1:D:69:ASN:CB	2.79	0.46
1:C:113:LEU:HD21	1:C:262:ILE:HD12	1.98	0.45
1:D:304:MET:HG2	1:D:312:MET:CE	2.46	0.45
1:C:18:LEU:HD11	1:C:26:ILE:HG23	1.98	0.45
1:F:322:LEU:HD22	1:F:327:LYS:HE2	1.97	0.45
1:A:193:GLN:O	1:A:194:ALA:C	2.58	0.45
1:E:145:ARG:HD2	1:E:197:MET:HE3	1.97	0.45
1:E:163:VAL:HG13	1:F:87:ARG:HH11	1.81	0.45
1:A:27:LEU:CD1	1:F:170:ILE:HG21	2.47	0.45
1:A:149:ARG:O	1:A:169:CYS:SG	2.69	0.45
1:B:153:ILE:HG23	1:B:197:MET:CE	2.46	0.45
1:B:304:MET:HG2	1:B:312:MET:CE	2.47	0.45
1:E:154:LEU:C	1:E:154:LEU:HD23	2.42	0.45
1:B:195:PRO:O	1:B:220:HIS:HD2	1.99	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:290:ASP:HA	1:C:293:ARG:HG2	1.98	0.45
1:D:143:GLY:O	1:D:147:GLN:HG3	2.17	0.45
1:B:1:GLY:O	1:B:2:GLU:C	2.59	0.45
1:C:288:ILE:CD1	1:C:312:MET:HE1	2.46	0.45
1:C:304:MET:HG2	1:C:312:MET:CE	2.47	0.45
1:E:50:LEU:O	1:E:54:MET:HG2	2.16	0.45
1:E:200:ILE:O	1:E:201:GLY:C	2.60	0.45
1:F:200:ILE:O	1:F:201:GLY:C	2.59	0.45
1:E:245:GLU:HG3	1:E:246:GLN:HG3	1.99	0.45
1:F:127:VAL:HG11	1:F:234:ALA:CB	2.47	0.45
1:A:280:GLU:HG3	1:A:314:THR:HA	1.98	0.44
1:A:300:LEU:O	1:A:304:MET:HG3	2.18	0.44
1:A:155:THR:OG1	1:A:173:GLN:HA	2.17	0.44
1:B:10:MET:CE	1:B:79:PHE:CE1	3.00	0.44
1:F:104:PHE:HE1	1:F:144:TYR:HB2	1.82	0.44
1:D:104:PHE:HE1	1:D:144:TYR:HB2	1.82	0.44
1:B:127:VAL:HG11	1:B:234:ALA:CB	2.48	0.44
1:D:195:PRO:O	1:D:220:HIS:HD2	2.00	0.44
1:A:61:GLU:C	1:A:61:GLU:OE1	2.61	0.44
1:F:54:MET:HE3	1:F:58:ARG:HG2	2.00	0.44
1:C:184:GLU:HG3	1:C:207:GLU:CG	2.47	0.44
1:D:334:LEU:HD23	1:D:343:LEU:HD23	1.99	0.44
1:E:65:THR:O	1:E:66:ARG:CB	2.66	0.44
1:E:104:PHE:HE1	1:E:144:TYR:HB2	1.82	0.44
1:A:195:PRO:O	1:A:220:HIS:CD2	2.71	0.44
1:B:18:LEU:HD11	1:B:26:ILE:HG23	1.98	0.44
1:D:58:ARG:HD3	1:D:70:PHE:CD1	2.53	0.44
1:F:232:ASN:ND2	1:F:297:LEU:O	2.51	0.44
1:C:10:MET:CE	1:C:79:PHE:CD1	3.01	0.43
1:D:10:MET:HE3	1:D:79:PHE:HE1	1.82	0.43
1:B:209:MET:HE2	1:B:238:ILE:HD12	2.00	0.43
1:B:211:TYR:O	1:B:215:PHE:CD2	2.71	0.43
1:C:109:LEU:HD23	1:C:279:PHE:CZ	2.53	0.43
1:A:104:PHE:O	1:A:108:LYS:N	2.51	0.43
1:C:10:MET:HE3	1:C:79:PHE:HE1	1.83	0.43
1:D:200:ILE:O	1:D:201:GLY:C	2.61	0.43
1:F:70:PHE:HA	1:F:178:LEU:HD21	2.01	0.43
1:F:112:VAL:HG21	1:F:283:LEU:HD11	2.00	0.43
1:A:232:ASN:ND2	1:A:297:LEU:O	2.52	0.43
1:C:256:LEU:CD2	1:D:335:HIS:HB3	2.49	0.43
1:D:107:LEU:HD11	1:D:136:THR:HG22	2.01	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:E:304:MET:HG2	1:E:312:MET:CE	2.48	0.43
1:C:112:VAL:HG21	1:C:283:LEU:HD11	2.00	0.43
1:A:27:LEU:HD12	1:F:170:ILE:HG21	2.00	0.43
1:C:195:PRO:HG3	1:C:198:ILE:HD11	2.00	0.43
1:D:104:PHE:O	1:D:108:LYS:N	2.52	0.43
1:D:193:GLN:O	1:D:194:ALA:C	2.61	0.43
1:F:213:MET:HE1	1:F:254:LEU:CD2	2.47	0.43
1:A:172:THR:HG23	1:B:86:GLN:HG2	2.01	0.43
1:B:203:ILE:HG13	1:B:224:ALA:HB1	2.01	0.43
1:E:127:VAL:HG12	1:E:226:LEU:HB2	1.99	0.43
1:F:10:MET:CE	1:F:79:PHE:CE1	3.01	0.43
1:C:200:ILE:O	1:C:201:GLY:C	2.62	0.43
1:F:203:ILE:HG21	1:F:209:MET:HE2	1.99	0.43
1:A:109:LEU:HD23	1:A:279:PHE:CZ	2.54	0.43
1:F:109:LEU:HD23	1:F:279:PHE:CZ	2.54	0.43
1:B:65:THR:O	1:B:66:ARG:CB	2.61	0.42
1:A:4:ASN:OD1	1:A:74:ARG:NH1	2.52	0.42
1:C:153:ILE:HG23	1:C:197:MET:CE	2.49	0.42
1:E:193:GLN:O	1:E:194:ALA:C	2.62	0.42
1:F:10:MET:CE	1:F:79:PHE:CD1	3.02	0.42
1:A:122:GLY:HA3	1:A:259:LYS:HG2	2.02	0.42
1:E:127:VAL:HG11	1:E:234:ALA:CB	2.49	0.42
1:A:213:MET:HE1	1:A:254:LEU:CD2	2.48	0.42
1:B:203:ILE:HB	1:B:226:LEU:CD2	2.50	0.42
1:E:155:THR:OG1	1:E:173:GLN:HA	2.18	0.42
1:E:315:PHE:O	1:E:319:LEU:HG	2.19	0.42
1:D:74:ARG:HB3	1:D:75:ASP:H	1.71	0.42
1:D:195:PRO:O	1:D:220:HIS:CD2	2.72	0.42
1:A:30:VAL:O	1:A:30:VAL:HG23	2.20	0.42
1:B:10:MET:CE	1:B:79:PHE:CD1	3.03	0.42
1:F:154:LEU:C	1:F:154:LEU:HD23	2.44	0.42
1:C:276:HIS:CE1	1:C:327:LYS:HE2	2.55	0.42
1:E:280:GLU:HG3	1:E:314:THR:HA	2.00	0.42
1:C:127:VAL:HG11	1:C:234:ALA:CB	2.50	0.42
1:B:189:ASN:ND2	1:C:67:GLU:HG2	2.35	0.42
1:C:126:VAL:HG21	1:C:141:MET:HE1	2.01	0.42
1:E:104:PHE:O	1:E:108:LYS:N	2.52	0.42
1:A:125:LEU:HD22	1:A:226:LEU:HD11	2.01	0.42
1:B:213:MET:HE1	1:B:254:LEU:CD2	2.48	0.42
1:A:127:VAL:HG11	1:A:234:ALA:CB	2.50	0.41
1:A:307:SER:O	1:A:312:MET:HB2	2.19	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:322:LEU:CD2	1:A:327:LYS:HE2	2.49	0.41
1:F:265:GLN:O	1:F:278:VAL:HG22	2.20	0.41
1:C:104:PHE:O	1:C:108:LYS:N	2.53	0.41
1:D:227:HIS:O	1:D:237:ARG:NH1	2.52	0.41
1:A:50:LEU:O	1:A:54:MET:HG2	2.20	0.41
1:A:211:TYR:O	1:A:215:PHE:CD2	2.73	0.41
1:B:122:GLY:HA3	1:B:259:LYS:HG2	2.02	0.41
1:C:163:VAL:HG13	1:D:87:ARG:HH11	1.85	0.41
1:C:213:MET:HE1	1:C:254:LEU:CD2	2.49	0.41
1:C:269:ASP:HB3	1:C:273:LYS:H	1.85	0.41
1:F:278:VAL:HG12	1:F:322:LEU:CD1	2.50	0.41
1:B:203:ILE:HB	1:B:226:LEU:HD21	2.02	0.41
1:D:107:LEU:HB2	1:D:109:LEU:HG	2.03	0.41
1:F:195:PRO:O	1:F:220:HIS:CD2	2.74	0.41
1:F:278:VAL:HG12	1:F:322:LEU:HD12	2.02	0.41
1:C:64:GLN:C	1:C:64:GLN:CD	2.88	0.41
1:C:334:LEU:HD23	1:C:343:LEU:HD23	2.01	0.41
1:D:319:LEU:O	1:D:323:VAL:HG23	2.20	0.41
1:B:193:GLN:O	1:B:194:ALA:C	2.63	0.41
1:D:127:VAL:HG11	1:D:234:ALA:CB	2.51	0.41
1:F:155:THR:OG1	1:F:173:GLN:HA	2.20	0.41
1:A:69:ASN:CB	1:F:192:ARG:NH1	2.81	0.41
1:A:103:THR:CG2	1:A:106:GLU:HG3	2.51	0.41
1:B:10:MET:HE3	1:B:79:PHE:CE1	2.55	0.41
1:D:145:ARG:HG2	1:D:197:MET:HE3	2.02	0.41
1:D:260:GLY:HA2	1:D:282:LEU:O	2.21	0.41
1:E:26:ILE:CD1	1:E:41:LEU:HD11	2.51	0.41
1:A:67:GLU:HG2	1:F:189:ASN:ND2	2.36	0.41
1:A:304:MET:HG2	1:A:312:MET:CE	2.51	0.41
1:B:103:THR:OG1	1:B:106:GLU:HG3	2.21	0.41
1:F:206:ARG:NH1	1:F:242:VAL:HG13	2.36	0.41
1:D:315:PHE:O	1:D:319:LEU:HG	2.21	0.40
1:B:68:ALA:C	1:B:69:ASN:HD22	2.29	0.40
1:D:314:THR:HG1	1:D:317:GLN:HG3	1.86	0.40
1:F:270:LYS:HE2	1:F:326:ASP:HA	2.03	0.40
1:A:26:ILE:CD1	1:A:41:LEU:HD11	2.52	0.40
1:B:113:LEU:HD22	1:B:262:ILE:HD13	2.03	0.40
1:B:153:ILE:HG23	1:B:197:MET:HE2	2.03	0.40
1:D:50:LEU:O	1:D:54:MET:HG2	2.22	0.40
1:F:209:MET:HE3	1:F:238:ILE:CG2	2.51	0.40
1:B:149:ARG:O	1:B:169:CYS:SG	2.77	0.40

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:D:109:LEU:HD23	1:D:279:PHE:CZ	2.56	0.40
1:F:260:GLY:HA2	1:F:282:LEU: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	352/386 (91%)	337 (96%)	15 (4%)	0	100	100
1	B	349/386 (90%)	332 (95%)	17 (5%)	0	100	100
1	C	349/386 (90%)	337 (97%)	12 (3%)	0	100	100
1	D	349/386 (90%)	336 (96%)	13 (4%)	0	100	100
1	E	348/386 (90%)	337 (97%)	11 (3%)	0	100	100
1	F	348/386 (90%)	331 (95%)	17 (5%)	0	100	100
All	All	2095/2316 (90%)	2010 (96%)	85 (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	293/317 (92%)	293 (100%)	0	100	100

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Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
1	B	294/317 (93%)	294 (100%)	0	100	100
1	C	294/317 (93%)	294 (100%)	0	100	100
1	D	294/317 (93%)	294 (100%)	0	100	100
1	E	292/317 (92%)	292 (100%)	0	100	100
1	F	293/317 (92%)	293 (100%)	0	100	100
All	All	1760/1902 (92%)	1760 (100%)	0	100	100

There are no protein residues with a non-rotameric sidechain to report.

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (5) such sidechains are listed below:

Mol	Chain	Res	Type
1	B	232	ASN
1	C	5	GLN
1	D	5	GLN
1	E	5	GLN
1	F	5	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	354/386 (91%)	0.08	0 100 100	56, 97, 138, 182	0
1	B	351/386 (90%)	-0.10	2 (0%) 85 82	42, 79, 124, 160	0
1	C	351/386 (90%)	-0.18	0 100 100	36, 65, 104, 140	0
1	D	351/386 (90%)	-0.12	1 (0%) 90 88	42, 76, 122, 160	0
1	E	350/386 (90%)	0.01	1 (0%) 90 88	59, 88, 129, 160	0
1	F	350/386 (90%)	0.46	22 (6%) 26 22	59, 113, 231, 250	0
All	All	2107/2316 (90%)	0.02	26 (1%) 76 71	36, 85, 148, 250	0

All (26) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	F	343	LEU	4.7
1	F	292	ILE	4.6
1	F	319	LEU	4.3
1	F	282	LEU	4.1
1	F	323	VAL	3.0
1	F	315	PHE	3.0
1	F	322	LEU	2.7
1	F	328	ILE	2.6
1	F	347	LEU	2.6
1	F	288	ILE	2.6
1	D	335	HIS	2.5
1	B	0	GLY	2.5
1	F	286	PRO	2.4
1	F	346	MET	2.3
1	F	330	GLU	2.3
1	F	297	LEU	2.3
1	B	19	TYR	2.3
1	E	-1	ALA	2.2
1	F	291	LEU	2.2

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Mol	Chain	Res	Type	RSRZ
1	F	283	LEU	2.2
1	F	254	LEU	2.2
1	F	318	ALA	2.1
1	F	329	SER	2.1
1	F	144	TYR	2.1
1	F	71	ALA	2.0
1	F	235	LEU	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.