Full wwPDB X-ray Structure Validation Report ⓘ

Mar 6, 2026 – 11:44 PM UTC

PDB ID	:	6VI1 / pdb_00006vi1
Title	:	Structure of Fab4 bound to P22 TerL(1-33)
Authors	:	Cingolani, G.; Lokareddy, R.; Ko, Y.
Deposited on	:	2020-01-11
Resolution	:	2.40 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:

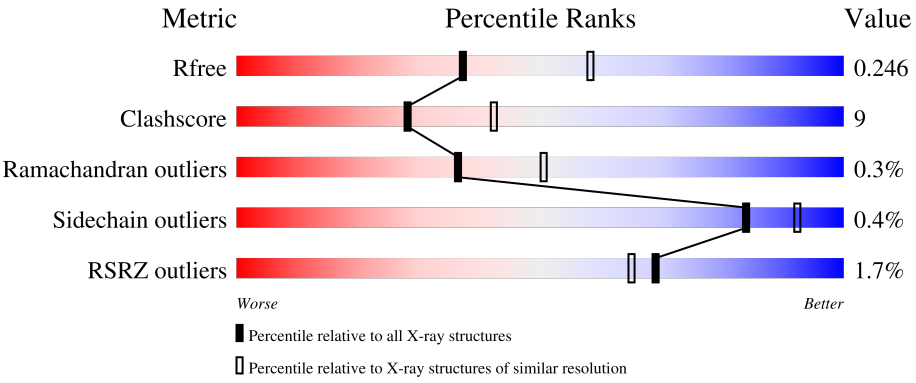
MolProbity	:	4-5-2 with Phenix2.0
Xtriage (Phenix)	:	2.0
EDS	:	3.0
Percentile statistics	:	20250101.v01 (using entries in the PDB archive January 1st 2025)
CCP4	:	9.0.010 (Gargrove)
Density-Fitness	:	1.0.12
Ideal geometry (proteins)	:	Engh & Huber (2001)
Ideal geometry (DNA, RNA)	:	Parkinson et al. (1996)
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 2.40 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	4912 (2.40-2.40)
Clashscore	190562	5391 (2.40-2.40)
Ramachandran outliers	187476	5320 (2.40-2.40)
Sidechain outliers	187428	5321 (2.40-2.40)
RSRZ outliers	180081	4916 (2.40-2.40)

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	215	82% 16%
1	C	215	78% 19%
1	D	215	84% 15%
1	G	215	79% 20%
1	I	215	5% 81% 17%

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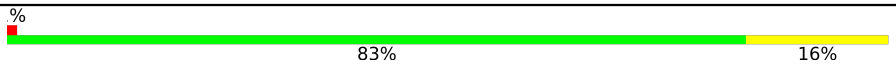
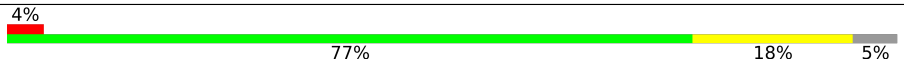
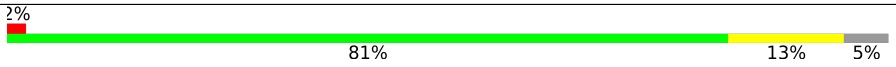
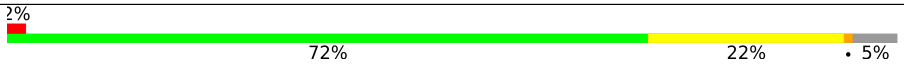
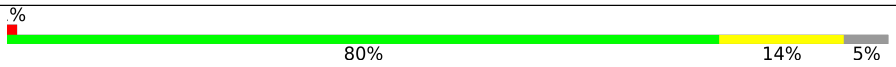
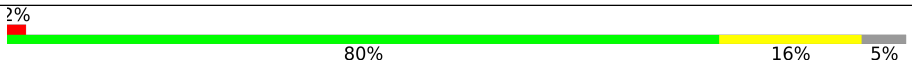
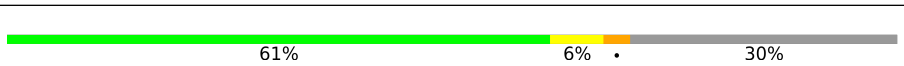
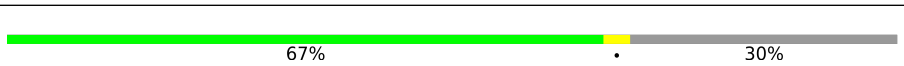
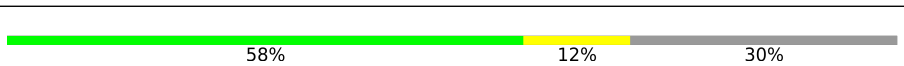
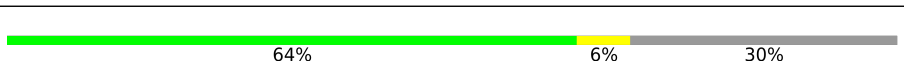
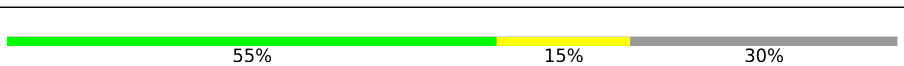
Mol	Chain	Length	Quality of chain
1	K	215	
2	B	243	
2	E	243	
2	F	243	
2	H	243	
2	J	243	
2	L	243	
3	M	33	
3	N	33	
3	O	33	
3	P	33	
3	Q	33	
3	R	33	

2 Entry composition (i)

There are 4 unique types of molecules in this entry. The entry contains 22166 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 Synthetic Fab4 light chain.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
1	D	214	Total	C	N	O	S	0	0	0
			1629	1018	274	331	6			
1	A	214	Total	C	N	O	S	0	0	0
			1629	1018	274	331	6			
1	C	214	Total	C	N	O	S	0	0	0
			1629	1018	274	331	6			
1	G	214	Total	C	N	O	S	0	0	0
			1629	1018	274	331	6			
1	I	214	Total	C	N	O	S	0	0	0
			1629	1018	274	331	6			
1	K	214	Total	C	N	O	S	0	0	0
			1629	1018	274	331	6			

- Molecule 2 is a protein called Synthetic Fab4 heavy chain.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
2	E	230	Total	C	N	O	S	0	0	0
			1732	1104	284	338	6			
2	B	232	Total	C	N	O	S	0	0	0
			1747	1113	287	341	6			
2	F	231	Total	C	N	O	S	0	0	0
			1741	1110	286	339	6			
2	H	231	Total	C	N	O	S	0	0	0
			1741	1110	286	339	6			
2	J	230	Total	C	N	O	S	0	0	0
			1732	1104	284	338	6			
2	L	232	Total	C	N	O	S	0	0	0
			1747	1113	287	341	6			

- Molecule 3 is a protein called Terminase, large subunit.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
3	M	23	Total	C	N	O	S	0	0	0
			186	116	25	44	1			
3	N	23	Total	C	N	O	S	0	0	0
			186	116	25	44	1			
3	O	23	Total	C	N	O	S	0	0	0
			186	116	25	44	1			
3	P	23	Total	C	N	O	S	0	0	0
			186	116	25	44	1			
3	Q	23	Total	C	N	O	S	0	0	0
			186	116	25	44	1			
3	R	23	Total	C	N	O	S	0	0	0
			186	116	25	44	1			

- Molecule 4 is water.

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
4	D	116	Total	O	0	0
			116	116		
4	E	74	Total	O	0	0
			74	74		
4	A	78	Total	O	0	0
			78	78		
4	B	62	Total	O	0	0
			62	62		
4	C	79	Total	O	0	0
			79	79		
4	F	45	Total	O	0	0
			45	45		
4	G	57	Total	O	0	0
			57	57		
4	H	27	Total	O	0	0
			27	27		
4	I	95	Total	O	0	0
			95	95		
4	J	75	Total	O	0	0
			75	75		
4	K	65	Total	O	0	0
			65	65		
4	L	30	Total	O	0	0
			30	30		
4	M	7	Total	O	0	0
			7	7		
4	N	3	Total	O	0	0
			3	3		

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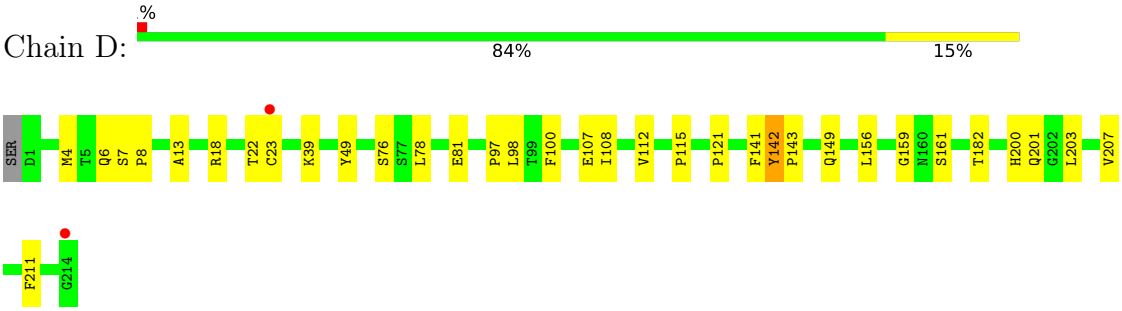
Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
4	O	2	Total O 2 2	0	0
4	P	5	Total O 5 5	0	0
4	Q	11	Total O 11 11	0	0
4	R	5	Total O 5 5	0	0

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.

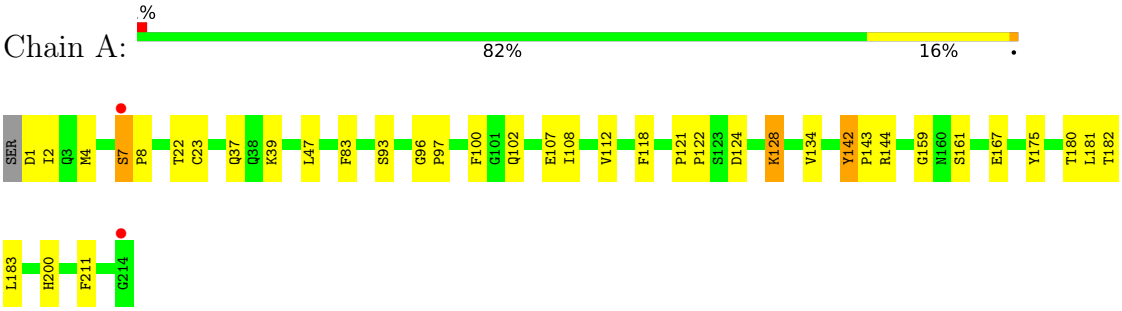
• Molecule 1: Synthetic Fab4 light chain

Chain D:



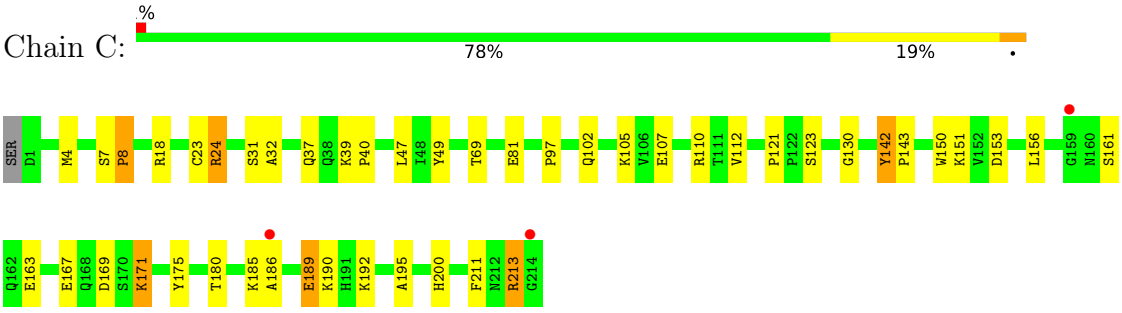
• Molecule 1: Synthetic Fab4 light chain

Chain A:



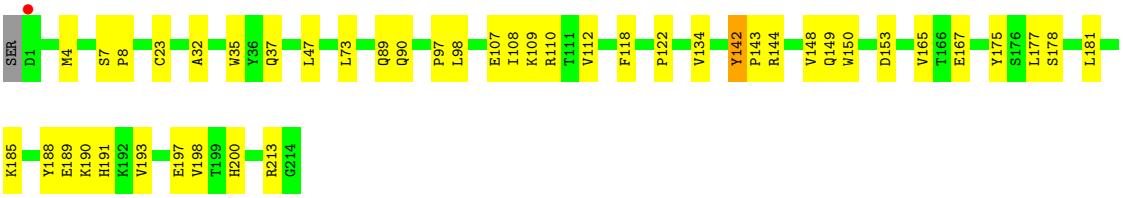
• Molecule 1: Synthetic Fab4 light chain

Chain C:

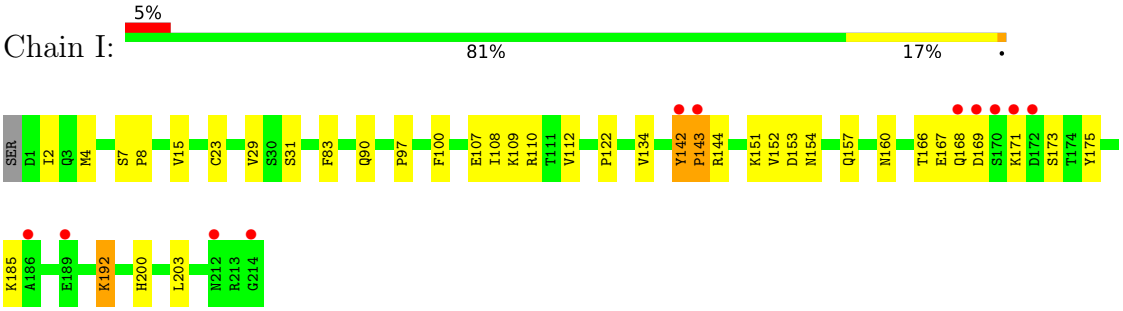


• Molecule 1: Synthetic Fab4 light chain

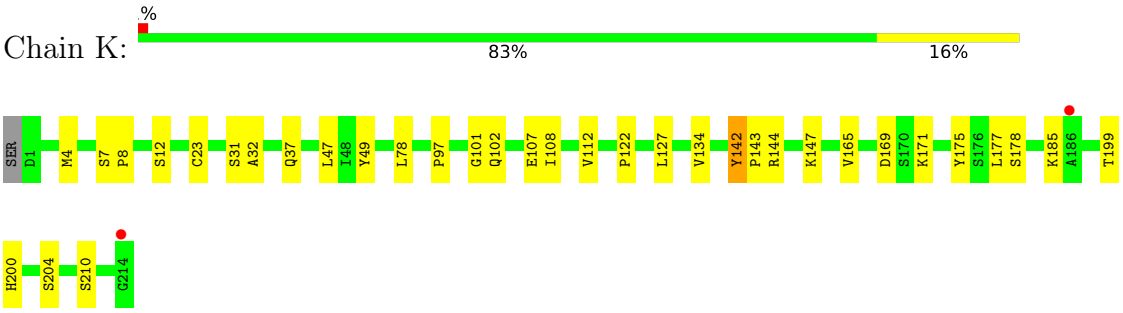
Chain G:



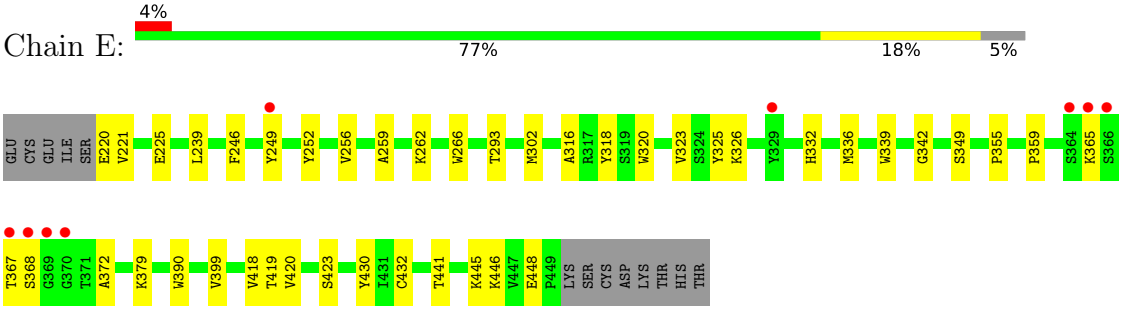
• Molecule 1: Synthetic Fab4 light chain



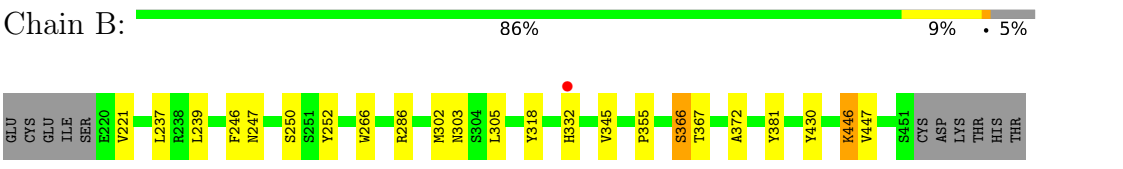
• Molecule 1: Synthetic Fab4 light chain



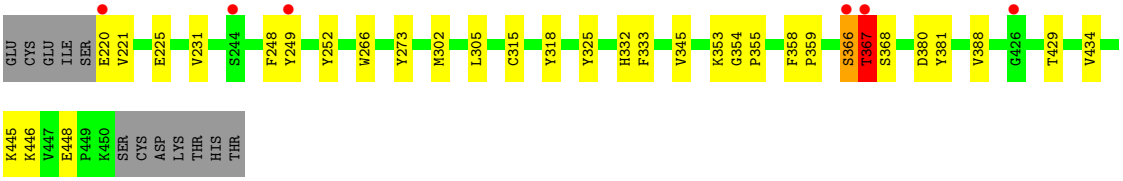
• Molecule 2: Synthetic Fab4 heavy chain



• Molecule 2: Synthetic Fab4 heavy chain

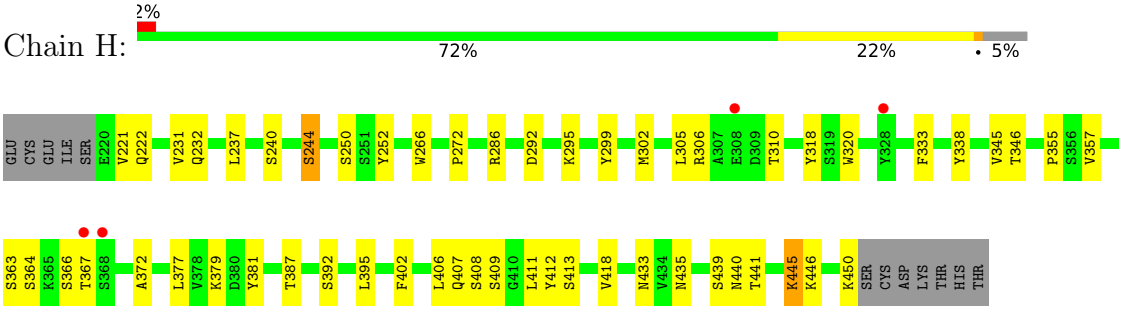


• Molecule 2: Synthetic Fab4 heavy chain



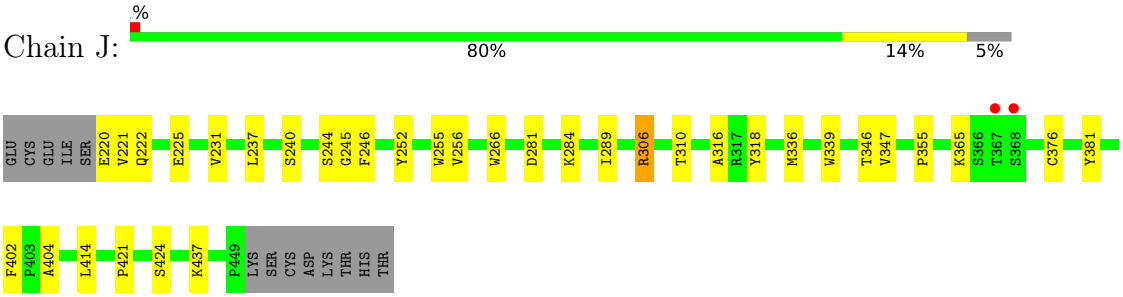
• Molecule 2: Synthetic Fab4 heavy chain

Chain H:



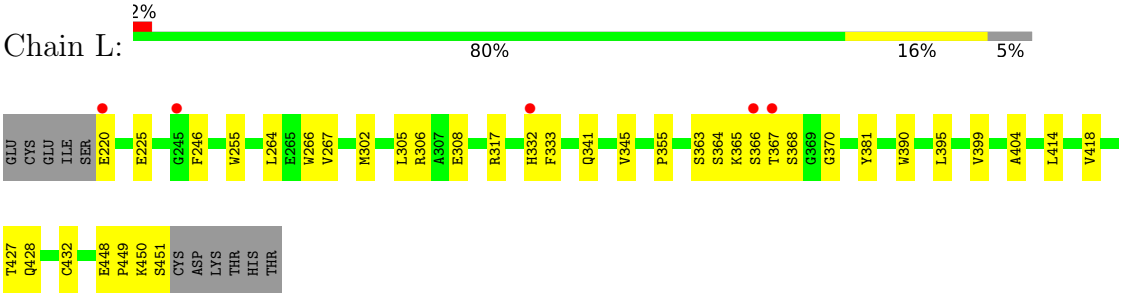
• Molecule 2: Synthetic Fab4 heavy chain

Chain J:



• Molecule 2: Synthetic Fab4 heavy chain

Chain L:

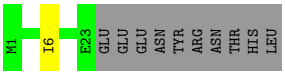


• Molecule 3: Terminase, large subunit

Chain M:

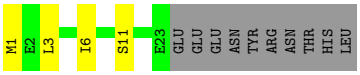
• Molecule 3: Terminase, large subunit

Chain N:



• Molecule 3: Terminase, large subunit

Chain O:



• Molecule 3: Terminase, large subunit

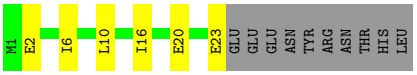
Chain P:

• Molecule 3: Terminase, large subunit

Chain Q:

• Molecule 3: Terminase, large subunit

Chain R:



4 Data and refinement statistics (i)

Property	Value	Source
Space group	P 1 21 1	Depositor
Cell constants a, b, c, α, β, γ	77.75Å 139.33Å 163.76Å 90.00° 98.30° 90.00°	Depositor
Resolution (Å)	14.98 – 2.40 14.98 – 2.40	Depositor EDS
% Data completeness (in resolution range)	94.0 (14.98-2.40) 93.6 (14.98-2.40)	Depositor EDS
R_{merge}	(Not available)	Depositor
R_{sym}	0.12	Depositor
$< I/\sigma(I) >$ [1]	1.53 (at 2.39Å)	Xtriage
Refinement program	PHENIX 1.17.1_3660	Depositor
R, R_{free}	0.189 , 0.239 0.195 , 0.246	Depositor DCC
R_{free} test set	1985 reflections (1.46%)	wwPDB-VP
Wilson B-factor (Å^2)	38.9	Xtriage
Anisotropy	0.140	Xtriage
Bulk solvent k_{sol}(e/Å^3), B_{sol}(Å^2)	0.36 , 52.2	EDS
L-test for twinning[2]	$< \|L\| > = 0.50$, $< L^2 > = 0.33$	Xtriage
Estimated twinning fraction	No twinning to report.	Xtriage
F_o,F_c correlation	0.94	EDS
Total number of atoms	22166	wwPDB-VP
Average B, all atoms (Å^2)	51.0	wwPDB-VP

Xtriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 2.92% 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	0.47	1/1663 (0.1%)	0.75	3/2257 (0.1%)
1	C	0.52	1/1663 (0.1%)	0.93	5/2257 (0.2%)
1	D	0.47	0/1663	0.75	2/2257 (0.1%)
1	G	0.45	0/1663	0.80	2/2257 (0.1%)
1	I	0.50	0/1663	0.85	5/2257 (0.2%)
1	K	0.44	0/1663	0.78	4/2257 (0.2%)
2	B	0.40	0/1798	0.66	3/2455 (0.1%)
2	E	0.43	0/1783	0.71	0/2436
2	F	0.48	0/1792	0.72	2/2447 (0.1%)
2	H	0.42	1/1792 (0.1%)	0.73	4/2447 (0.2%)
2	J	0.42	0/1783	0.74	3/2436 (0.1%)
2	L	0.43	0/1798	0.75	3/2455 (0.1%)
3	M	0.42	0/185	0.90	1/249 (0.4%)
3	N	0.50	0/185	0.81	0/249
3	O	0.46	0/185	0.69	0/249
3	P	0.37	0/185	0.60	0/249
3	Q	0.45	0/185	0.67	0/249
3	R	0.39	0/185	0.80	1/249 (0.4%)
All	All	0.45	3/21834 (0.0%)	0.76	38/29712 (0.1%)

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	A	0	2
1	C	0	2
1	D	0	2
1	G	0	2
1	I	0	2
1	K	0	2
2	E	0	1

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Mol	Chain	#Chirality outliers	#Planarity outliers
All	All	0	13

All (3) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
1	A	128	LYS	CG-CD	6.54	1.72	1.52
2	H	244	SER	CA-C	5.83	1.57	1.52
1	C	213	ARG	CZ-NH2	-5.06	1.26	1.33

All (38) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
1	C	189	GLU	CA-CB-CG	12.17	138.44	114.10
1	I	29	VAL	N-CA-C	-11.08	102.24	112.43
2	J	365	LYS	CG-CD-CE	-11.01	85.98	111.30
3	M	2	GLU	CA-CB-CG	8.65	131.40	114.10
1	G	109	LYS	CA-CB-CG	7.89	129.88	114.10
2	L	306	ARG	CG-CD-NE	7.81	129.19	112.00
1	K	101	GLY	CA-C-O	-7.39	116.11	121.88
1	C	189	GLU	N-CA-CB	7.09	122.79	110.39
2	J	220	GLU	N-CA-C	-6.80	91.97	111.00
1	I	100	PHE	CA-C-N	-6.78	108.12	121.41
1	I	100	PHE	C-N-CA	-6.78	108.12	121.41
2	B	332	HIS	CB-CA-C	6.77	120.20	110.79
1	I	192	LYS	CG-CD-CE	-6.74	95.79	111.30
2	B	332	HIS	N-CA-CB	-6.66	100.52	110.71
2	J	365	LYS	CD-CE-NZ	6.54	132.82	111.90
1	A	100	PHE	CA-C-N	-6.25	109.16	121.41
1	A	100	PHE	C-N-CA	-6.25	109.16	121.41
1	D	100	PHE	CA-C-N	-6.11	109.43	121.41
1	D	100	PHE	C-N-CA	-6.11	109.43	121.41
2	H	232	GLN	CB-CA-C	-6.05	98.31	109.51
1	C	105	LYS	CD-CE-NZ	-6.00	92.70	111.90
1	K	204	SER	CA-C-N	5.97	135.26	122.90
1	K	204	SER	C-N-CA	5.97	135.26	122.90
1	C	171	LYS	CB-CG-CD	-5.89	97.75	111.30
1	G	109	LYS	CB-CG-CD	-5.88	97.79	111.30
2	L	306	ARG	CD-NE-CZ	5.78	132.49	124.40
2	L	220	GLU	N-CA-C	-5.63	95.23	111.00
1	C	24	ARG	CB-CG-CD	5.52	124.00	111.30
2	F	248	PHE	CA-C-N	-5.51	112.90	120.28
2	F	248	PHE	C-N-CA	-5.51	112.90	120.28

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
2	H	408	SER	CA-C-N	5.50	129.48	120.63
2	H	408	SER	C-N-CA	5.50	129.48	120.63
1	A	128	LYS	N-CA-CB	-5.47	101.03	110.32
2	H	445	LYS	CG-CD-CE	5.29	123.48	111.30
2	B	446	LYS	CD-CE-NZ	-5.16	95.38	111.90
1	I	143	PRO	N-CA-C	-5.09	101.98	112.47
3	R	2	GLU	N-CA-CB	5.07	117.52	110.26
1	K	102	GLN	CA-CB-CG	5.04	124.19	114.10

There are no chirality outliers.

All (13) planarity outliers are listed below:

Mol	Chain	Res	Type	Group
1	A	142	TYR	Peptide
1	A	7	SER	Peptide
1	C	142	TYR	Peptide
1	C	7	SER	Peptide
1	D	142	TYR	Peptide
1	D	7	SER	Peptide
2	E	365	LYS	Peptide
1	G	142	TYR	Peptide
1	G	7	SER	Peptide
1	I	142	TYR	Peptide
1	I	7	SER	Peptide
1	K	142	TYR	Peptide
1	K	7	SER	Peptide

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	1629	0	1596	25	0
1	C	1629	0	1596	39	0
1	D	1629	0	1596	26	0
1	G	1629	0	1596	30	0
1	I	1629	0	1596	33	0
1	K	1629	0	1596	27	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
2	B	1747	0	1687	20	0
2	E	1732	0	1669	52	0
2	F	1741	0	1682	54	0
2	H	1741	0	1682	41	0
2	J	1732	0	1669	19	0
2	L	1747	0	1687	31	0
3	M	186	0	182	3	0
3	N	186	0	182	1	0
3	O	186	0	182	3	0
3	P	186	0	182	2	0
3	Q	186	0	182	3	0
3	R	186	0	182	3	0
4	A	78	0	0	1	0
4	B	62	0	0	1	0
4	C	79	0	0	2	0
4	D	116	0	0	3	0
4	E	74	0	0	2	0
4	F	45	0	0	0	0
4	G	57	0	0	1	0
4	H	27	0	0	0	0
4	I	95	0	0	5	0
4	J	75	0	0	1	0
4	K	65	0	0	0	0
4	L	30	0	0	1	0
4	M	7	0	0	0	0
4	N	3	0	0	0	0
4	O	2	0	0	0	0
4	P	5	0	0	0	0
4	Q	11	0	0	0	0
4	R	5	0	0	0	0
All	All	22166	0	20744	373	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 9.

All (373) 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)
2:F:353:LYS:HZ2	2:F:380:ASP:CB	1.24	1.48
2:F:353:LYS:NZ	2:F:380:ASP:CB	1.82	1.38
2:F:353:LYS:NZ	2:F:380:ASP:HB3	1.31	1.37

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:24:ARG:NH1	1:C:69:THR:OG1	1.63	1.31
2:E:446:LYS:HE2	2:E:448:GLU:CD	1.63	1.23
2:E:446:LYS:HE2	2:E:448:GLU:OE2	1.41	1.17
2:F:353:LYS:NZ	2:F:380:ASP:O	1.85	1.09
2:E:446:LYS:HE2	2:E:448:GLU:CG	1.85	1.07
2:F:353:LYS:NZ	2:F:380:ASP:HB2	1.75	0.99
2:E:446:LYS:CE	2:E:448:GLU:HG3	1.94	0.97
2:E:446:LYS:CE	2:E:448:GLU:CG	2.44	0.96
2:F:249:TYR:CE1	2:F:273:TYR:CG	2.55	0.95
1:K:49:TYR:HE2	2:L:332:HIS:CE1	1.87	0.93
1:C:24:ARG:NH1	1:C:69:THR:HG1	1.69	0.89
1:G:122:PRO:HD3	1:G:134:VAL:HG12	1.52	0.89
1:C:189:GLU:HB3	1:C:213:ARG:HH21	1.40	0.86
1:C:153:ASP:OD2	1:C:192:LYS:HB3	1.77	0.84
1:K:49:TYR:CE2	2:L:332:HIS:CE1	2.67	0.83
1:C:189:GLU:HB3	1:C:213:ARG:NH2	1.94	0.82
2:E:256:VAL:HG21	2:E:336:MET:HE1	1.61	0.82
2:F:249:TYR:OH	2:F:273:TYR:CD2	2.32	0.82
1:K:49:TYR:CE2	2:L:332:HIS:HE1	1.98	0.82
1:G:134:VAL:HG22	1:G:181:LEU:HB3	1.62	0.81
2:E:316:ALA:HB3	2:E:336:MET:HE3	1.63	0.81
1:D:149:GLN:OE1	1:D:156:LEU:HD23	1.82	0.79
1:C:24:ARG:HH12	1:C:69:THR:HG1	1.28	0.79
2:L:448:GLU:HG3	2:L:449:PRO:HD2	1.65	0.79
1:G:190:LYS:O	1:G:191:HIS:ND1	2.18	0.77
1:K:147:LYS:HB3	1:K:199:THR:HG23	1.64	0.77
2:F:249:TYR:CE1	2:F:273:TYR:CB	2.68	0.76
1:C:189:GLU:HA	1:C:213:ARG:HE	1.49	0.76
2:F:353:LYS:NZ	2:F:380:ASP:C	2.43	0.76
2:F:353:LYS:HZ3	2:F:380:ASP:C	1.93	0.76
2:F:353:LYS:HZ1	2:F:380:ASP:CB	1.93	0.76
2:F:353:LYS:HZ2	2:F:380:ASP:CA	1.99	0.75
2:E:446:LYS:CE	2:E:448:GLU:OE2	2.29	0.75
2:F:353:LYS:CD	2:F:380:ASP:O	2.35	0.74
2:F:353:LYS:HZ2	2:F:380:ASP:HB3	0.57	0.74
1:I:143:PRO:HD2	1:I:200:HIS:CE1	2.22	0.74
2:F:249:TYR:OH	2:F:273:TYR:HD2	1.70	0.73
2:F:249:TYR:C	2:F:249:TYR:CD2	2.67	0.73
2:J:252:TYR:HB2	2:J:318:TYR:HB2	1.71	0.72
1:C:49:TYR:CE2	2:F:332:HIS:CE1	2.78	0.72
2:F:249:TYR:HE1	2:F:273:TYR:CG	2.04	0.71

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:D:49:TYR:HE2	2:E:332:HIS:NE2	1.89	0.71
1:I:2:ILE:CG2	1:I:90:GLN:OE1	2.40	0.69
2:L:448:GLU:HG3	2:L:449:PRO:CD	2.22	0.69
2:F:353:LYS:CE	2:F:380:ASP:O	2.40	0.69
2:H:252:TYR:HB2	2:H:318:TYR:HB2	1.73	0.69
2:H:445:LYS:HD2	2:H:446:LYS:N	2.07	0.69
1:I:151:LYS:NZ	4:I:301:HOH:O	2.26	0.69
1:G:149:GLN:HB2	1:G:197:GLU:HB3	1.75	0.69
1:K:147:LYS:HB3	1:K:199:THR:CG2	2.22	0.69
1:C:49:TYR:HE2	2:F:332:HIS:CE1	2.10	0.69
2:F:249:TYR:CE1	2:F:273:TYR:HB2	2.28	0.68
1:I:144:ARG:NH1	4:I:302:HOH:O	2.26	0.68
1:C:151:LYS:HG3	1:C:195:ALA:HB3	1.75	0.68
2:F:249:TYR:C	2:F:249:TYR:HD2	2.00	0.67
2:F:353:LYS:NZ	2:F:380:ASP:CA	2.55	0.67
2:F:249:TYR:CZ	2:F:273:TYR:CB	2.77	0.67
2:E:220:GLU:HG3	2:E:221:VAL:H	1.58	0.67
2:E:326:LYS:NZ	4:E:502:HOH:O	2.27	0.66
1:D:143:PRO:HD2	1:D:200:HIS:CE1	2.30	0.66
2:F:249:TYR:CD2	2:F:249:TYR:O	2.49	0.66
1:G:143:PRO:HD2	1:G:200:HIS:CE1	2.31	0.66
1:A:143:PRO:HD2	1:A:200:HIS:CE1	2.31	0.65
1:C:189:GLU:HA	1:C:213:ARG:NE	2.12	0.65
1:C:189:GLU:CB	1:C:213:ARG:HH21	2.08	0.65
1:K:4:MET:HE3	1:K:23:CYS:SG	2.37	0.65
2:H:355:PRO:HB3	2:H:381:TYR:HB3	1.79	0.64
2:E:359:PRO:HD3	2:E:445:LYS:HE3	1.80	0.64
1:C:39:LYS:NZ	1:C:81:GLU:O	2.30	0.64
1:C:163:GLU:OE2	4:C:301:HOH:O	2.14	0.64
2:E:446:LYS:HE3	2:E:448:GLU:HG3	1.76	0.64
2:H:392:SER:H	2:H:433:ASN:ND2	1.96	0.64
2:J:221:VAL:HG22	2:J:246:PHE:HB3	1.78	0.63
2:E:446:LYS:CD	2:E:448:GLU:HG3	2.27	0.63
2:B:252:TYR:HB2	2:B:318:TYR:HB2	1.79	0.63
1:A:4:MET:HE3	1:A:23:CYS:SG	2.39	0.63
2:B:430:TYR:H	2:B:446:LYS:NZ	1.96	0.63
1:I:2:ILE:HG22	1:I:90:GLN:OE1	1.97	0.63
2:J:256:VAL:HG21	2:J:336:MET:HE1	1.79	0.63
2:L:308:GLU:OE1	2:L:308:GLU:N	2.31	0.62
1:C:143:PRO:HD2	1:C:200:HIS:CE1	2.34	0.62
2:H:392:SER:H	2:H:433:ASN:HD21	1.45	0.62

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:F:249:TYR:CE1	2:F:273:TYR:CD2	2.87	0.62
2:F:359:PRO:HD3	2:F:445:LYS:HE3	1.82	0.61
2:J:437:LYS:NZ	4:J:504:HOH:O	2.32	0.61
2:E:399:VAL:HG22	2:E:418:VAL:HG12	1.82	0.61
1:C:185:LYS:HD3	1:C:189:GLU:OE2	2.00	0.61
2:F:353:LYS:HZ3	2:F:380:ASP:CB	2.07	0.61
2:H:407:GLN:HB2	2:H:409:SER:HB3	1.83	0.60
2:F:249:TYR:CZ	2:F:273:TYR:CD2	2.89	0.60
1:I:122:PRO:HD3	1:I:134:VAL:HG22	1.83	0.60
1:K:97:PRO:HA	2:L:266:TRP:CZ3	2.37	0.60
2:F:353:LYS:HZ1	2:F:380:ASP:HB2	1.57	0.60
1:C:110:ARG:HB2	4:C:307:HOH:O	2.02	0.59
2:L:448:GLU:HG3	2:L:449:PRO:N	2.17	0.59
1:K:122:PRO:HD3	1:K:134:VAL:HG22	1.83	0.59
1:A:107:GLU:HG2	1:A:108:ILE:N	2.18	0.59
2:J:355:PRO:HB3	2:J:381:TYR:HB3	1.83	0.59
2:E:325:TYR:O	3:M:1:MET:N	2.34	0.59
1:G:185:LYS:NZ	1:G:189:GLU:OE1	2.36	0.59
1:I:168:GLN:HG3	1:I:175:TYR:CE2	2.37	0.59
1:D:18:ARG:NH2	4:D:307:HOH:O	2.35	0.59
2:F:249:TYR:HD2	2:F:249:TYR:O	1.86	0.59
2:F:353:LYS:HD3	2:F:354:GLY:O	2.03	0.59
1:K:107:GLU:HG3	1:K:175:TYR:OH	2.03	0.59
2:E:349:SER:OG	1:C:18:ARG:NH2	2.36	0.58
2:H:395:LEU:HD21	2:H:418:VAL:HG21	1.85	0.58
1:D:4:MET:HE3	1:D:23:CYS:SG	2.43	0.58
2:B:430:TYR:H	2:B:446:LYS:HZ1	1.49	0.58
2:H:295:LYS:NZ	2:H:299:TYR:OH	2.18	0.58
2:F:325:TYR:O	3:O:1:MET:N	2.37	0.58
1:K:143:PRO:HD2	1:K:200:HIS:CE1	2.37	0.58
2:L:450:LYS:HE2	2:L:451:SER:H	1.68	0.58
1:K:144:ARG:HB2	1:K:175:TYR:CE2	2.39	0.58
1:A:112:VAL:HA	1:A:142:TYR:O	2.04	0.58
1:I:185:LYS:NZ	4:I:308:HOH:O	2.37	0.57
2:F:302:MET:HE1	2:F:345:VAL:HG21	1.86	0.57
2:F:252:TYR:HB2	2:F:318:TYR:HB2	1.86	0.57
2:H:310:THR:HG23	2:H:346:THR:HA	1.85	0.57
1:I:168:GLN:HG3	1:I:175:TYR:CZ	2.39	0.57
2:F:220:GLU:OE1	2:F:221:VAL:N	2.36	0.57
1:C:4:MET:HE3	1:C:23:CYS:SG	2.44	0.57
1:I:83:PHE:CE1	1:I:168:GLN:HB3	2.39	0.57

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:L:363:SER:OG	2:L:365:LYS:HG3	2.04	0.57
3:R:16:ILE:O	3:R:20:GLU:HG3	2.04	0.57
2:E:446:LYS:HD3	2:E:448:GLU:HG3	1.86	0.57
2:E:256:VAL:CG2	2:E:336:MET:HE1	2.32	0.56
2:E:446:LYS:CE	2:E:448:GLU:CD	2.57	0.56
2:J:222:GLN:HB2	2:J:244:SER:OG	2.05	0.56
2:E:399:VAL:HG22	2:E:418:VAL:CG1	2.35	0.56
1:D:49:TYR:CE2	2:E:332:HIS:CE1	2.94	0.56
1:G:167:GLU:HA	4:G:325:HOH:O	2.04	0.56
2:E:445:LYS:HE2	4:E:524:HOH:O	2.05	0.56
2:J:281:ASP:HA	2:J:284:LYS:HG3	1.87	0.56
1:A:144:ARG:HB2	1:A:175:TYR:CE2	2.41	0.56
1:G:148:VAL:HG12	1:G:198:VAL:HG22	1.87	0.56
2:B:302:MET:HB3	2:B:305:LEU:HD21	1.86	0.55
1:D:39:LYS:NZ	1:D:81:GLU:O	2.34	0.55
1:A:124:ASP:O	1:A:128:LYS:HB2	2.06	0.55
1:I:109:LYS:NZ	4:I:309:HOH:O	2.38	0.55
1:I:154:ASN:HB3	4:I:301:HOH:O	2.06	0.55
1:A:97:PRO:HA	2:B:266:TRP:CZ3	2.42	0.55
3:Q:3:LEU:HA	3:Q:6:ILE:HD12	1.88	0.55
1:G:97:PRO:HA	2:H:266:TRP:CZ3	2.42	0.55
2:E:367:THR:HG22	2:E:368:SER:H	1.72	0.55
2:F:249:TYR:CZ	2:F:273:TYR:HB3	2.41	0.55
2:J:231:VAL:HG21	2:J:237:LEU:HG	1.89	0.55
2:E:252:TYR:HB2	2:E:318:TYR:HB2	1.89	0.55
1:A:7:SER:OG	1:A:22:THR:HB	2.08	0.54
2:H:409:SER:OG	2:H:411:LEU:HD13	2.08	0.54
2:E:446:LYS:HE3	2:E:448:GLU:CG	2.31	0.54
1:G:118:PHE:HD1	2:H:366:SER:HA	1.72	0.54
2:L:404:ALA:HA	2:L:414:LEU:HB3	1.90	0.54
2:F:353:LYS:HD2	2:F:380:ASP:O	2.07	0.54
1:D:49:TYR:HE2	2:E:332:HIS:CE1	2.25	0.54
2:E:390:TRP:CH2	2:E:432:CYS:HB3	2.43	0.53
2:F:249:TYR:CZ	2:F:273:TYR:CG	2.95	0.53
2:H:222:GLN:HB2	2:H:244:SER:HB2	1.90	0.53
1:I:4:MET:HB3	1:I:23:CYS:SG	2.49	0.53
2:E:259:ALA:HB3	2:E:262:LYS:HE3	1.90	0.53
2:B:446:LYS:HD2	2:B:447:VAL:N	2.24	0.53
1:C:4:MET:HB3	1:C:23:CYS:SG	2.49	0.53
1:I:90:GLN:O	1:I:90:GLN:HG3	2.09	0.53
2:B:446:LYS:HZ2	2:B:447:VAL:C	2.16	0.53

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:F:366:SER:O	2:F:368:SER:N	2.42	0.53
2:J:310:THR:HG23	2:J:346:THR:HA	1.91	0.53
2:E:220:GLU:CG	2:E:221:VAL:H	2.20	0.53
2:H:286:ARG:NE	2:H:306:ARG:HH21	2.07	0.53
1:I:153:ASP:OD2	1:I:192:LYS:N	2.42	0.53
1:A:39:LYS:HE3	1:A:83:PHE:O	2.09	0.52
1:G:110:ARG:HG3	1:G:142:TYR:CD2	2.45	0.52
2:E:336:MET:HE2	2:E:339:TRP:CZ2	2.45	0.52
1:G:89:GLN:NE2	1:G:98:LEU:HD23	2.24	0.52
3:N:6:ILE:HD12	3:N:6:ILE:H	1.75	0.52
1:D:4:MET:HB3	1:D:23:CYS:SG	2.50	0.51
2:L:308:GLU:CD	2:L:308:GLU:H	2.18	0.51
2:H:221:VAL:HG11	2:H:338:TYR:CD1	2.46	0.51
1:G:185:LYS:HD3	1:G:189:GLU:HG3	1.92	0.51
1:G:107:GLU:HG3	1:G:175:TYR:OH	2.10	0.51
2:E:220:GLU:HA	2:E:220:GLU:OE2	2.10	0.51
1:A:1:ASP:CG	1:A:2:ILE:H	2.19	0.51
1:G:107:GLU:HG2	1:G:108:ILE:N	2.26	0.51
2:L:364:SER:C	2:L:366:SER:H	2.19	0.50
1:A:167:GLU:HA	4:A:330:HOH:O	2.11	0.50
2:E:320:TRP:CZ2	3:M:2:GLU:HG2	2.47	0.50
2:E:249:TYR:CE2	2:E:293:THR:HB	2.47	0.50
2:H:445:LYS:HD2	2:H:446:LYS:H	1.76	0.50
1:D:143:PRO:HG3	1:D:201:GLN:NE2	2.27	0.49
1:K:12:SER:OG	1:K:107:GLU:OE1	2.29	0.49
1:D:115:PRO:HB3	1:D:141:PHE:CD1	2.48	0.49
1:G:134:VAL:CG2	1:G:181:LEU:HB3	2.38	0.49
1:K:169:ASP:OD1	1:K:171:LYS:HB2	2.12	0.49
1:C:40:PRO:CB	1:C:167:GLU:HG3	2.43	0.49
2:L:355:PRO:HB3	2:L:381:TYR:HB3	1.95	0.49
2:H:439:SER:OG	2:H:441:THR:OG1	2.27	0.49
2:L:367:THR:O	2:L:370:GLY:N	2.46	0.49
1:I:107:GLU:HG3	1:I:175:TYR:OH	2.13	0.49
1:G:32:ALA:O	1:G:90:GLN:HA	2.13	0.48
1:K:112:VAL:HA	1:K:142:TYR:O	2.13	0.48
1:C:112:VAL:HA	1:C:142:TYR:O	2.13	0.48
1:D:112:VAL:HA	1:D:142:TYR:O	2.14	0.48
2:E:323:VAL:HG13	3:M:3:LEU:HB2	1.95	0.48
1:I:4:MET:HE3	1:I:23:CYS:SG	2.53	0.48
2:L:390:TRP:CH2	2:L:432:CYS:HB3	2.48	0.48
1:C:107:GLU:HG3	1:C:175:TYR:OH	2.13	0.48

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:E:221:VAL:HG13	2:E:246:PHE:CD1	2.49	0.48
1:I:2:ILE:HB	1:I:90:GLN:OE1	2.12	0.48
2:F:355:PRO:HB3	2:F:381:TYR:HB3	1.96	0.47
1:I:112:VAL:HA	1:I:142:TYR:O	2.14	0.47
1:K:107:GLU:HG2	1:K:108:ILE:N	2.29	0.47
2:E:239:LEU:HG	2:E:302:MET:HE2	1.97	0.47
1:A:4:MET:HB3	1:A:23:CYS:SG	2.55	0.47
1:G:37:GLN:HB2	1:G:47:LEU:HD11	1.96	0.47
1:G:112:VAL:HA	1:G:142:TYR:O	2.14	0.47
2:J:225:GLU:HA	2:J:240:SER:O	2.14	0.47
1:C:24:ARG:CZ	1:C:69:THR:OG1	2.54	0.47
2:H:387:THR:CG2	2:H:435:ASN:HB3	2.44	0.47
2:J:336:MET:HE2	2:J:339:TRP:CZ2	2.49	0.47
2:E:221:VAL:HG13	2:E:246:PHE:HD1	1.78	0.47
2:E:316:ALA:HB3	2:E:336:MET:CE	2.38	0.47
1:A:182:THR:C	1:A:183:LEU:HD12	2.39	0.47
2:B:250:SER:O	2:B:250:SER:OG	2.29	0.47
1:C:32:ALA:HB2	2:F:333:PHE:CD1	2.50	0.47
1:G:4:MET:HE3	1:G:23:CYS:SG	2.55	0.47
2:H:379:LYS:HG3	2:H:413:SER:HB2	1.97	0.47
1:I:15:VAL:HA	1:I:108:ILE:HD11	1.97	0.47
2:E:249:TYR:HD2	2:E:249:TYR:N	2.13	0.47
2:F:302:MET:HB3	2:F:305:LEU:HD21	1.95	0.47
2:B:286:ARG:HB3	2:B:303:ASN:O	2.15	0.47
1:K:210:SER:O	2:L:365:LYS:HE3	2.15	0.47
1:D:161:SER:HB3	4:D:350:HOH:O	2.16	0.46
1:A:37:GLN:HB2	1:A:47:LEU:HD11	1.97	0.46
1:G:4:MET:HB3	1:G:23:CYS:SG	2.55	0.46
1:D:159:GLY:O	1:C:8:PRO:HA	2.15	0.46
2:L:363:SER:OG	2:L:364:SER:N	2.48	0.46
2:H:320:TRP:CH2	3:P:2:GLU:HG2	2.50	0.46
1:I:110:ARG:HD2	1:I:173:SER:HB2	1.97	0.46
1:A:121:PRO:HB3	1:A:211:PHE:CE2	2.50	0.46
1:C:123:SER:OG	2:F:358:PHE:HB3	2.16	0.46
1:G:134:VAL:HG23	1:G:150:TRP:CH2	2.51	0.46
1:G:153:ASP:HA	1:G:193:VAL:HG12	1.98	0.46
1:K:144:ARG:HH12	1:K:165:VAL:HG21	1.80	0.46
2:B:237:LEU:HD22	4:B:528:HOH:O	2.16	0.46
2:H:363:SER:O	2:H:367:THR:HG23	2.16	0.46
3:Q:16:ILE:O	3:Q:20:GLU:HG3	2.15	0.46
1:D:107:GLU:HG2	1:D:108:ILE:N	2.30	0.46

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:I:97:PRO:HA	2:J:266:TRP:CZ3	2.51	0.46
1:K:177:LEU:HD23	1:K:178:SER:N	2.31	0.46
1:C:37:GLN:HB2	1:C:47:LEU:HD11	1.98	0.45
2:H:450:LYS:HE2	2:H:450:LYS:HA	1.97	0.45
2:L:399:VAL:HG22	2:L:418:VAL:HG22	1.98	0.45
1:C:150:TRP:O	1:C:156:LEU:HD12	2.17	0.45
2:L:302:MET:HB3	2:L:305:LEU:HD21	1.98	0.45
1:A:107:GLU:HG3	1:A:175:TYR:OH	2.17	0.45
2:H:250:SER:O	2:H:250:SER:OG	2.26	0.45
2:B:239:LEU:HG	2:B:302:MET:HE2	1.97	0.45
1:C:97:PRO:HA	2:F:266:TRP:CZ3	2.52	0.45
1:K:210:SER:O	2:L:365:LYS:CE	2.64	0.45
2:B:221:VAL:HG13	2:B:246:PHE:CD1	2.52	0.45
1:C:49:TYR:CD2	2:F:332:HIS:CE1	3.05	0.45
1:K:37:GLN:HB2	1:K:47:LEU:HD11	1.99	0.45
2:L:302:MET:HE1	2:L:345:VAL:HG21	1.98	0.45
1:A:122:PRO:HD3	1:A:134:VAL:HG22	1.99	0.45
2:E:379:LYS:HB2	2:E:379:LYS:HE2	1.78	0.44
1:I:2:ILE:CB	1:I:90:GLN:OE1	2.66	0.44
2:L:427:THR:OG1	2:L:428:GLN:N	2.50	0.44
2:H:221:VAL:HG11	2:H:338:TYR:CE1	2.53	0.44
2:H:240:SER:HB3	2:H:299:TYR:CE1	2.52	0.44
2:B:237:LEU:HD23	2:B:237:LEU:HA	1.74	0.44
1:I:168:GLN:HB2	1:I:175:TYR:CE1	2.52	0.44
2:J:306:ARG:NH2	3:P:17:GLU:OE1	2.49	0.44
2:E:420:VAL:HG11	2:E:430:TYR:CE1	2.52	0.44
2:H:406:LEU:HD23	2:H:412:TYR:CE1	2.52	0.44
1:A:118:PHE:CD1	2:B:366:SER:HA	2.51	0.44
1:C:143:PRO:HD2	1:C:200:HIS:NE2	2.32	0.44
2:J:255:TRP:HD1	2:J:289:ILE:HD12	1.83	0.44
3:R:6:ILE:HG22	3:R:10:LEU:HD11	1.99	0.44
1:C:130:GLY:C	1:C:185:LYS:HB2	2.43	0.44
2:H:302:MET:HB3	2:H:305:LEU:HD21	2.00	0.44
2:H:302:MET:HE1	2:H:345:VAL:HG21	2.00	0.43
2:H:379:LYS:HE2	2:H:407:GLN:OE1	2.18	0.43
2:L:246:PHE:HB2	2:L:317:ARG:NH2	2.33	0.43
1:C:186:ALA:HB1	1:C:190:LYS:HE3	1.99	0.43
2:F:225:GLU:CD	2:F:315:CYS:H	2.26	0.43
1:I:168:GLN:HB2	1:I:175:TYR:CZ	2.53	0.43
1:D:49:TYR:HE2	2:E:332:HIS:HE2	1.62	0.43
2:E:249:TYR:N	2:E:249:TYR:CD2	2.86	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:102:GLN:CD	1:A:102:GLN:H	2.26	0.43
2:F:366:SER:C	2:F:368:SER:H	2.25	0.43
1:G:188:TYR:CZ	1:G:213:ARG:HG3	2.53	0.43
1:I:203:LEU:HD23	1:I:203:LEU:HA	1.81	0.43
2:E:368:SER:O	2:E:423:SER:OG	2.35	0.43
1:I:166:THR:HG23	2:J:402:PHE:CE1	2.52	0.43
2:F:249:TYR:HE1	2:F:273:TYR:CD2	2.31	0.43
2:H:231:VAL:HG11	2:H:305:LEU:HD13	1.99	0.43
1:D:182:THR:OG1	4:D:301:HOH:O	2.18	0.43
2:H:237:LEU:HD23	2:H:237:LEU:HA	1.83	0.43
1:I:143:PRO:HD2	1:I:200:HIS:NE2	2.32	0.43
1:A:181:LEU:HG	1:A:183:LEU:CD1	2.49	0.43
1:C:142:TYR:CD2	1:C:142:TYR:C	2.97	0.43
1:I:167:GLU:O	1:I:168:GLN:C	2.57	0.43
1:K:142:TYR:CD2	1:K:142:TYR:C	2.97	0.42
3:O:3:LEU:HA	3:O:6:ILE:HD12	2.00	0.42
2:E:336:MET:HE2	2:E:339:TRP:CH2	2.55	0.42
2:B:367:THR:HA	2:B:372:ALA:HA	2.01	0.42
2:B:446:LYS:HD2	2:B:447:VAL:H	1.84	0.42
1:A:93:SER:OG	1:A:96:GLY:HA3	2.19	0.42
2:B:446:LYS:NZ	2:B:447:VAL:O	2.43	0.42
2:J:316:ALA:HB3	2:J:336:MET:HE3	2.01	0.42
1:K:4:MET:HB3	1:K:23:CYS:SG	2.58	0.42
1:K:210:SER:O	2:L:365:LYS:NZ	2.52	0.42
3:R:20:GLU:HA	3:R:23:GLU:HG3	2.01	0.42
1:D:49:TYR:CE2	2:E:332:HIS:NE2	2.79	0.42
1:A:143:PRO:HD2	1:A:200:HIS:NE2	2.35	0.42
2:H:252:TYR:CE1	2:H:272:PRO:HD2	2.54	0.42
3:Q:21:LEU:HD23	3:Q:21:LEU:HA	1.92	0.42
1:A:161:SER:HA	1:A:180:THR:O	2.19	0.42
1:D:203:LEU:HD22	1:D:207:VAL:HG21	2.01	0.42
2:B:355:PRO:HB3	2:B:381:TYR:HB3	2.01	0.42
2:F:446:LYS:HE3	2:F:448:GLU:OE1	2.20	0.42
1:G:144:ARG:HB2	1:G:175:TYR:CE2	2.55	0.42
2:J:421:PRO:O	2:J:424:SER:OG	2.34	0.42
1:C:121:PRO:HB3	1:C:211:PHE:CE2	2.55	0.42
1:C:189:GLU:CG	1:C:213:ARG:HH21	2.33	0.42
1:D:97:PRO:HA	2:E:266:TRP:CZ3	2.55	0.41
2:F:367:THR:O	2:F:367:THR:CG2	2.68	0.41
1:G:35:TRP:CD2	1:G:73:LEU:HB2	2.54	0.41
1:I:160:ASN:OD1	1:I:160:ASN:N	2.53	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:E:372:ALA:O	2:E:419:THR:HA	2.20	0.41
1:C:161:SER:HA	1:C:180:THR:O	2.20	0.41
2:H:357:VAL:HA	2:H:377:LEU:O	2.20	0.41
2:H:440:ASN:C	2:H:440:ASN:HD22	2.28	0.41
1:K:127:LEU:O	1:K:185:LYS:HD3	2.20	0.41
2:L:255:TRP:O	2:L:267:VAL:HG22	2.21	0.41
1:D:203:LEU:HD13	1:D:207:VAL:HG23	2.01	0.41
2:H:367:THR:HG22	2:H:372:ALA:HB2	2.01	0.41
1:D:98:LEU:HD12	2:E:266:TRP:CD1	2.55	0.41
1:A:159:GLY:HA3	3:O:11:SER:HB2	2.02	0.41
1:G:98:LEU:HB2	2:H:266:TRP:CG	2.55	0.41
1:K:78:LEU:HD21	1:K:108:ILE:HD13	2.02	0.41
1:K:144:ARG:NH1	1:K:165:VAL:HG21	2.35	0.41
2:L:225:GLU:H	2:L:341:GLN:HE22	1.69	0.41
1:D:121:PRO:HB3	1:D:211:PHE:CE2	2.55	0.41
2:H:292:ASP:OD2	2:H:295:LYS:HE3	2.20	0.41
1:I:110:ARG:HG3	1:I:142:TYR:CD2	2.56	0.41
2:J:404:ALA:HA	2:J:414:LEU:HB3	2.03	0.41
2:E:225:GLU:CD	2:E:342:GLY:H	2.28	0.41
1:A:7:SER:HG	1:A:22:THR:HB	1.85	0.41
1:D:6:GLN:HA	1:D:22:THR:O	2.21	0.41
2:H:364:SER:HA	2:H:367:THR:OG1	2.20	0.41
2:L:367:THR:O	2:L:368:SER:C	2.63	0.41
2:F:429:THR:HG22	2:F:446:LYS:NZ	2.36	0.41
2:H:364:SER:C	2:H:366:SER:H	2.29	0.41
2:J:231:VAL:O	2:J:347:VAL:HA	2.21	0.41
1:G:165:VAL:HG22	1:G:177:LEU:HD12	2.03	0.41
2:L:264:LEU:N	4:L:504:HOH:O	2.54	0.41
1:D:13:ALA:HB3	1:D:78:LEU:HD22	2.03	0.40
2:F:388:VAL:HG22	2:F:434:VAL:HG22	2.01	0.40
1:I:169:ASP:OD1	1:I:171:LYS:N	2.46	0.40
2:B:247:ASN:HB3	2:B:250:SER:HB3	2.03	0.40
2:B:302:MET:HE1	2:B:345:VAL:HG21	2.02	0.40
1:G:32:ALA:HB2	2:H:333:PHE:CD1	2.56	0.40
1:I:152:VAL:HG23	1:I:157:GLN:HG3	2.03	0.40
1:C:169:ASP:OD1	1:C:171:LYS:HD3	2.22	0.40
2:F:231:VAL:HG11	2:F:305:LEU:HD13	2.02	0.40
2:L:395:LEU:HD21	2:L:418:VAL:HG11	2.02	0.40
1:D:18:ARG:HG3	1:D:76:SER:HA	2.04	0.40
2:E:355:PRO:HD2	2:E:441:THR:HG21	2.02	0.40
1:G:178:SER:HB2	2:H:402:PHE:CZ	2.56	0.40

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:K:32:ALA:HB2	2:L:333:PHE:CD1	2.57	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	212/215 (99%)	201 (95%)	10 (5%)	1 (0%)	24	37
1	C	212/215 (99%)	198 (93%)	13 (6%)	1 (0%)	24	37
1	D	212/215 (99%)	205 (97%)	6 (3%)	1 (0%)	24	37
1	G	212/215 (99%)	204 (96%)	7 (3%)	1 (0%)	24	37
1	I	212/215 (99%)	203 (96%)	8 (4%)	1 (0%)	24	37
1	K	212/215 (99%)	201 (95%)	10 (5%)	1 (0%)	24	37
2	B	230/243 (95%)	220 (96%)	10 (4%)	0	100	100
2	E	228/243 (94%)	223 (98%)	5 (2%)	0	100	100
2	F	229/243 (94%)	219 (96%)	9 (4%)	1 (0%)	30	43
2	H	229/243 (94%)	222 (97%)	7 (3%)	0	100	100
2	J	228/243 (94%)	221 (97%)	6 (3%)	1 (0%)	30	43
2	L	230/243 (95%)	224 (97%)	6 (3%)	0	100	100
3	M	21/33 (64%)	21 (100%)	0	0	100	100
3	N	21/33 (64%)	21 (100%)	0	0	100	100
3	O	21/33 (64%)	21 (100%)	0	0	100	100
3	P	21/33 (64%)	21 (100%)	0	0	100	100
3	Q	21/33 (64%)	21 (100%)	0	0	100	100
3	R	21/33 (64%)	21 (100%)	0	0	100	100
All	All	2772/2946 (94%)	2667 (96%)	97 (4%)	8 (0%)	36	50

All (8) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	I	8	PRO
1	D	8	PRO
1	A	8	PRO
1	C	8	PRO
1	G	8	PRO
1	K	8	PRO
2	F	367	THR
2	J	245	GLY

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	188/189 (100%)	188 (100%)	0	100 100
1	C	188/189 (100%)	186 (99%)	2 (1%)	65 82
1	D	188/189 (100%)	188 (100%)	0	100 100
1	G	188/189 (100%)	188 (100%)	0	100 100
1	I	188/189 (100%)	187 (100%)	1 (0%)	81 91
1	K	188/189 (100%)	187 (100%)	1 (0%)	81 91
2	B	194/205 (95%)	193 (100%)	1 (0%)	81 91
2	E	192/205 (94%)	192 (100%)	0	100 100
2	F	193/205 (94%)	191 (99%)	2 (1%)	68 84
2	H	193/205 (94%)	193 (100%)	0	100 100
2	J	192/205 (94%)	190 (99%)	2 (1%)	68 84
2	L	194/205 (95%)	194 (100%)	0	100 100
3	M	22/32 (69%)	22 (100%)	0	100 100
3	N	22/32 (69%)	22 (100%)	0	100 100
3	O	22/32 (69%)	22 (100%)	0	100 100
3	P	22/32 (69%)	22 (100%)	0	100 100
3	Q	22/32 (69%)	22 (100%)	0	100 100

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Mol	Chain	Analysed	Rotameric	Outliers	Percentiles
3	R	22/32 (69%)	22 (100%)	0	100 100
All	All	2418/2556 (95%)	2409 (100%)	9 (0%)	84 92

All (9) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
2	B	366	SER
1	C	31	SER
1	C	102	GLN
2	F	366	SER
2	F	367	THR
1	I	31	SER
2	J	306	ARG
2	J	376	CYS
1	K	31	SER

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (26) such sidechains are listed below:

Mol	Chain	Res	Type
1	D	37	GLN
1	D	162	GLN
1	D	201	GLN
2	E	407	GLN
1	A	140	ASN
2	B	332	HIS
2	B	400	HIS
1	C	38	GLN
1	C	140	ASN
1	C	162	GLN
2	F	222	GLN
2	F	247	ASN
2	F	258	GLN
2	F	332	HIS
1	G	212	ASN
2	H	301	GLN
2	H	433	ASN
2	H	440	ASN
1	I	37	GLN
1	I	79	GLN
1	I	139	ASN
2	J	301	GLN

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Mol	Chain	Res	Type
2	J	303	ASN
1	K	162	GLN
2	L	222	GLN
2	L	332	HIS

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 oligosaccharides 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, 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	214/215 (99%)	-0.43	2 (0%)	81	78	27, 42, 71, 81	0
1	C	214/215 (99%)	-0.28	3 (1%)	73	69	27, 44, 95, 117	0
1	D	214/215 (99%)	-0.50	2 (0%)	81	78	28, 41, 61, 83	0
1	G	214/215 (99%)	-0.21	1 (0%)	87	85	31, 53, 87, 109	0
1	I	214/215 (99%)	-0.11	11 (5%)	33	30	27, 45, 82, 97	0
1	K	214/215 (99%)	-0.31	2 (0%)	81	78	35, 51, 75, 92	0
2	B	232/243 (95%)	-0.44	1 (0%)	88	86	27, 47, 70, 92	0
2	E	230/243 (94%)	-0.38	9 (3%)	43	39	29, 45, 76, 110	0
2	F	231/243 (95%)	-0.19	6 (2%)	57	53	32, 56, 85, 119	0
2	H	231/243 (95%)	-0.04	4 (1%)	69	65	36, 62, 84, 95	0
2	J	230/243 (94%)	-0.44	2 (0%)	81	78	29, 46, 68, 103	0
2	L	232/243 (95%)	-0.01	5 (2%)	62	58	39, 65, 92, 125	0
3	M	23/33 (69%)	-0.53	0	100	100	34, 43, 54, 62	0
3	N	23/33 (69%)	-0.54	0	100	100	38, 47, 61, 63	0
3	O	23/33 (69%)	-0.60	0	100	100	34, 42, 54, 59	0
3	P	23/33 (69%)	-0.47	0	100	100	39, 49, 65, 69	0
3	Q	23/33 (69%)	-0.59	0	100	100	33, 42, 52, 62	0
3	R	23/33 (69%)	-0.35	0	100	100	43, 55, 70, 72	0
All	All	2808/2946 (95%)	-0.29	48 (1%)	69	65	27, 50, 82, 125	0

All (48) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	I	170	SER	6.9
2	L	366	SER	5.4
2	F	249	TYR	5.2

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Mol	Chain	Res	Type	RSRZ
2	L	367	THR	5.0
2	E	249	TYR	4.1
2	J	367	THR	3.9
2	E	368	SER	3.7
2	H	367	THR	3.7
1	I	168	GLN	3.7
1	I	214	GLY	3.6
1	G	1	ASP	3.2
2	E	364	SER	3.2
2	F	366	SER	3.0
2	H	308	GLU	2.8
1	I	186	ALA	2.8
2	F	367	THR	2.7
1	C	159	GLY	2.6
1	K	186	ALA	2.6
2	F	220	GLU	2.6
1	D	214	GLY	2.5
1	A	214	GLY	2.5
2	L	220	GLU	2.5
2	L	332	HIS	2.5
1	I	169	ASP	2.5
1	I	189	GLU	2.5
1	I	171	LYS	2.5
2	E	329	TYR	2.4
2	H	328	TYR	2.4
1	A	7	SER	2.4
2	F	244	SER	2.4
1	I	142	TYR	2.3
1	I	143	PRO	2.3
2	B	332	HIS	2.3
2	E	365	LYS	2.3
2	E	367	THR	2.2
2	H	368	SER	2.2
2	E	370	GLY	2.2
1	I	172	ASP	2.2
1	I	212	ASN	2.2
1	D	23	CYS	2.2
1	C	214	GLY	2.2
2	E	369	GLY	2.2
2	L	245	GLY	2.1
1	C	186	ALA	2.1
1	K	214	GLY	2.1

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Mol	Chain	Res	Type	RSRZ
2	E	366	SER	2.1
2	J	368	SER	2.1
2	F	426	GLY	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.