Full wwPDB X-ray Structure Validation Report (i)

Sep 25, 2023 – 07:56 PM EDT

PDB ID	:	6BA1
Title	:	Purine-Preferring Ribonucleoside Hydrolase from Gardnerella vaginalis
Authors	:	Renner, N.; Jacques, D.A.
Deposited on	:	2017-10-11
Resolution	:	2.90 Å(reported)

This is a Full wwPDB X-ray Structure Validation Report for a publicly released PDB entry.

We welcome your comments at *validation@mail.wwpdb.org*
A user guide is available at
https://www.wwpdb.org/validation/2017/XrayValidationReportHelp
with specific help available everywhere you see the (i) symbol.

The types of validation reports are described at
http://www.wwpdb.org/validation/2017/FAQs#types.

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

|		
MolProbity	:	4.02b-467
Xtriage (Phenix)	:	1.13
EDS	:	2.35.1
Percentile statistics	:	20191225.v01 (using entries in the PDB archive December 25th 2019)
Refmac	:	5.8.0158
CCP4	:	7.0.044 (Gargrove)
Ideal geometry (proteins)	:	Engh & Huber (2001)
Ideal geometry (DNA, RNA)	:	Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP)	:	2.35.1

1 Overall quality at a glance ⓘ

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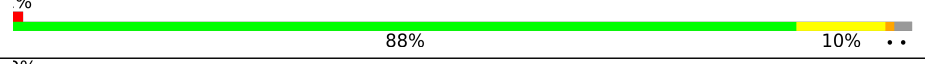*X-RAY DIFFRACTION*

The reported resolution of this entry is 2.90 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.
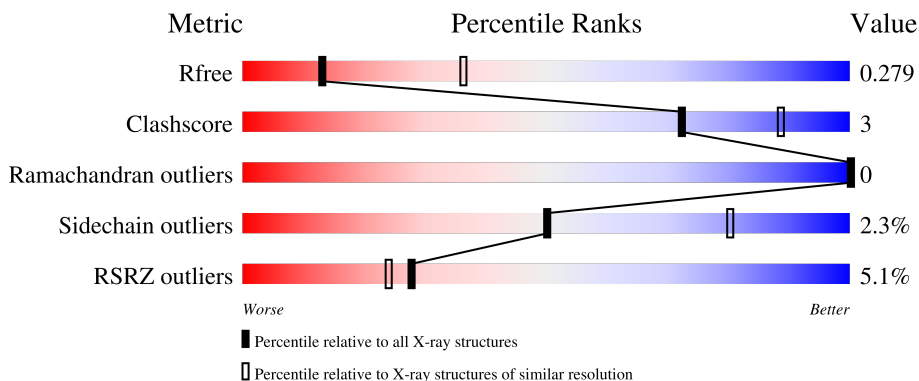
Metric	Whole archive (#Entries)	Similar resolution (#Entries, resolution range(Å))
R_{free}	130704	1957 (2.90-2.90)
Clashscore	141614	2172 (2.90-2.90)
Ramachandran outliers	138981	2115 (2.90-2.90)
Sidechain outliers	138945	2117 (2.90-2.90)
RSRZ outliers	127900	1906 (2.90-2.90)

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	321	
1	B	321	
1	C	321	
1	D	321	
1	E	321	

Continued on next page...

Continued from previous page...

Mol	Chain	Length	Quality of chain
1	F	321	2% ... 89% ... 9%
1	G	321	% ... 89% ... 9%
1	H	321	5% ... 89% ... 9%
1	I	321	9% ... 89% ... 9%
1	J	321	11% ... 88% ... 10%
1	K	321	4% ... 89% ... 9%
1	L	321	5% ... 88% ... 10%
1	M	321	10% ... 88% ... 10%
1	N	321	6% ... 91% ... 7%
1	O	321	3% ... 90% ... 8%
1	P	321	7% ... 87% ... 11%
1	Q	321	6% ... 88% ... 10%
1	R	321	14% ... 89% ... 9%

2 Entry composition ⓘ

There are 2 unique types of molecules in this entry. The entry contains 42469 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 Inosine-uridine preferring nucleoside hydrolase.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
1	A	316	Total	C	N	O	S	0	0	0
			2362	1499	389	464	10			
1	B	316	Total	C	N	O	S	0	0	0
			2370	1505	391	464	10			
1	C	316	Total	C	N	O	S	0	0	0
			2370	1505	391	464	10			
1	D	316	Total	C	N	O	S	0	0	0
			2370	1505	391	464	10			
1	E	316	Total	C	N	O	S	0	0	0
			2358	1496	388	464	10			
1	F	316	Total	C	N	O	S	0	0	0
			2359	1498	389	462	10			
1	G	316	Total	C	N	O	S	0	0	0
			2358	1496	388	464	10			
1	H	316	Total	C	N	O	S	0	0	0
			2359	1498	389	462	10			
1	I	316	Total	C	N	O	S	0	0	0
			2355	1495	388	462	10			
1	J	316	Total	C	N	O	S	0	0	0
			2349	1491	384	464	10			
1	K	316	Total	C	N	O	S	0	0	0
			2355	1494	387	464	10			
1	L	316	Total	C	N	O	S	0	0	0
			2362	1499	389	464	10			
1	M	316	Total	C	N	O	S	0	0	0
			2349	1492	385	462	10			
1	N	316	Total	C	N	O	S	0	0	0
			2349	1492	385	462	10			
1	O	316	Total	C	N	O	S	0	0	0
			2363	1500	389	464	10			
1	P	316	Total	C	N	O	S	0	0	0
			2362	1499	389	464	10			

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

Continued from previous page...

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
1	Q	316	2352	1493	385	464	10	0	0	0
1	R	316	Total	C	N	O	S	0	0	0
			2349	1492	385	462	10			

There are 54 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
A	-2	GLY	-	expression tag	UNP F5LUS2
A	-1	SER	-	expression tag	UNP F5LUS2
A	0	HIS	-	expression tag	UNP F5LUS2
B	-2	GLY	-	expression tag	UNP F5LUS2
B	-1	SER	-	expression tag	UNP F5LUS2
B	0	HIS	-	expression tag	UNP F5LUS2
C	-2	GLY	-	expression tag	UNP F5LUS2
C	-1	SER	-	expression tag	UNP F5LUS2
C	0	HIS	-	expression tag	UNP F5LUS2
D	-2	GLY	-	expression tag	UNP F5LUS2
D	-1	SER	-	expression tag	UNP F5LUS2
D	0	HIS	-	expression tag	UNP F5LUS2
E	-2	GLY	-	expression tag	UNP F5LUS2
E	-1	SER	-	expression tag	UNP F5LUS2
E	0	HIS	-	expression tag	UNP F5LUS2
F	-2	GLY	-	expression tag	UNP F5LUS2
F	-1	SER	-	expression tag	UNP F5LUS2
F	0	HIS	-	expression tag	UNP F5LUS2
G	-2	GLY	-	expression tag	UNP F5LUS2
G	-1	SER	-	expression tag	UNP F5LUS2
G	0	HIS	-	expression tag	UNP F5LUS2
H	-2	GLY	-	expression tag	UNP F5LUS2
H	-1	SER	-	expression tag	UNP F5LUS2
H	0	HIS	-	expression tag	UNP F5LUS2
I	-2	GLY	-	expression tag	UNP F5LUS2
I	-1	SER	-	expression tag	UNP F5LUS2
I	0	HIS	-	expression tag	UNP F5LUS2
J	-2	GLY	-	expression tag	UNP F5LUS2
J	-1	SER	-	expression tag	UNP F5LUS2
J	0	HIS	-	expression tag	UNP F5LUS2
K	-2	GLY	-	expression tag	UNP F5LUS2
K	-1	SER	-	expression tag	UNP F5LUS2
K	0	HIS	-	expression tag	UNP F5LUS2
L	-2	GLY	-	expression tag	UNP F5LUS2

Continued on next page...

Continued from previous page...

Chain	Residue	Modelled	Actual	Comment	Reference
L	-1	SER	-	expression tag	UNP F5LUS2
L	0	HIS	-	expression tag	UNP F5LUS2
M	-2	GLY	-	expression tag	UNP F5LUS2
M	-1	SER	-	expression tag	UNP F5LUS2
M	0	HIS	-	expression tag	UNP F5LUS2
N	-2	GLY	-	expression tag	UNP F5LUS2
N	-1	SER	-	expression tag	UNP F5LUS2
N	0	HIS	-	expression tag	UNP F5LUS2
O	-2	GLY	-	expression tag	UNP F5LUS2
O	-1	SER	-	expression tag	UNP F5LUS2
O	0	HIS	-	expression tag	UNP F5LUS2
P	-2	GLY	-	expression tag	UNP F5LUS2
P	-1	SER	-	expression tag	UNP F5LUS2
P	0	HIS	-	expression tag	UNP F5LUS2
Q	-2	GLY	-	expression tag	UNP F5LUS2
Q	-1	SER	-	expression tag	UNP F5LUS2
Q	0	HIS	-	expression tag	UNP F5LUS2
R	-2	GLY	-	expression tag	UNP F5LUS2
R	-1	SER	-	expression tag	UNP F5LUS2
R	0	HIS	-	expression tag	UNP F5LUS2

- Molecule 2 is CALCIUM ION (three-letter code: CA) (formula: Ca).

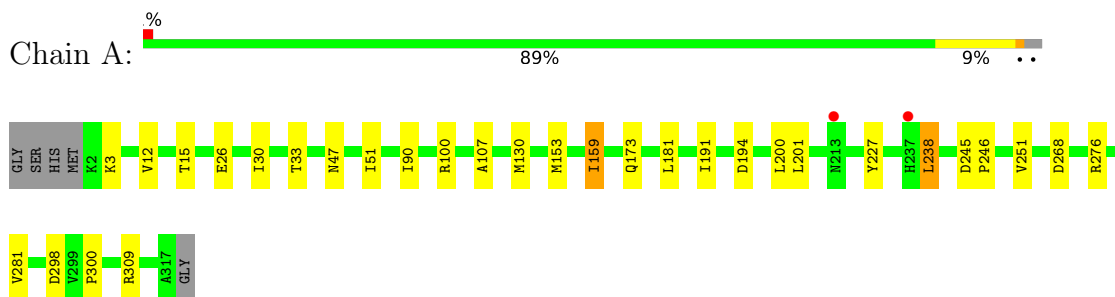| Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
2	A	1	Total 1	Ca 1	0	0
2	B	1	Total 1	Ca 1	0	0
2	C	1	Total 1	Ca 1	0	0
2	D	1	Total 1	Ca 1	0	0
2	E	1	Total 1	Ca 1	0	0
2	F	1	Total 1	Ca 1	0	0
2	G	1	Total 1	Ca 1	0	0
2	H	1	Total 1	Ca 1	0	0
2	I	1	Total 1	Ca 1	0	0

Continued from previous page...

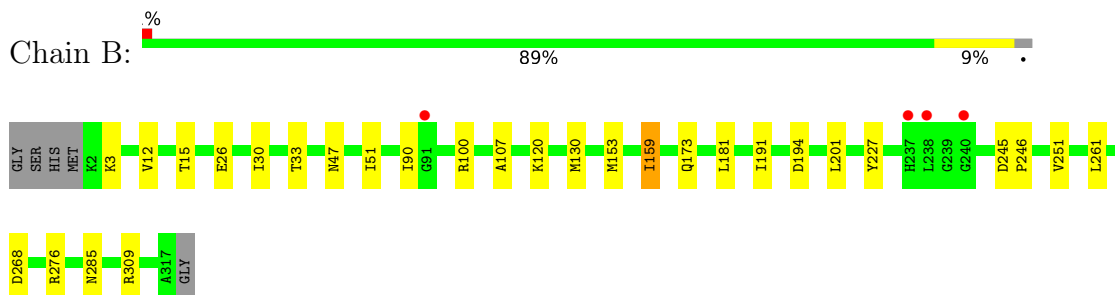| Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
2	J	1	Total 1	Ca 1	0	0
2	K	1	Total 1	Ca 1	0	0
2	L	1	Total 1	Ca 1	0	0
2	M	1	Total 1	Ca 1	0	0
2	N	1	Total 1	Ca 1	0	0
2	O	1	Total 1	Ca 1	0	0
2	P	1	Total 1	Ca 1	0	0
2	Q	1	Total 1	Ca 1	0	0
2	R	1	Total 1	Ca 1	0	0

3 Residue-property plots ⓘ

These plots are drawn for all protein, RNA, DNA and oligosaccharide chains in the entry. The first graphic for a chain summarises the proportions of the various outlier classes displayed in the second graphic. The second graphic shows the sequence view annotated by issues in geometry and electron density. Residues are color-coded according to the number of geometric quality criteria for which they contain at least one outlier: green = 0, yellow = 1, orange = 2 and red = 3 or more. A red dot above a residue indicates a poor fit to the electron density (RSRZ > 2). Stretches of 2 or more consecutive residues without any outlier are shown as a green connector. Residues present in the sample, but not in the model, are shown in grey.
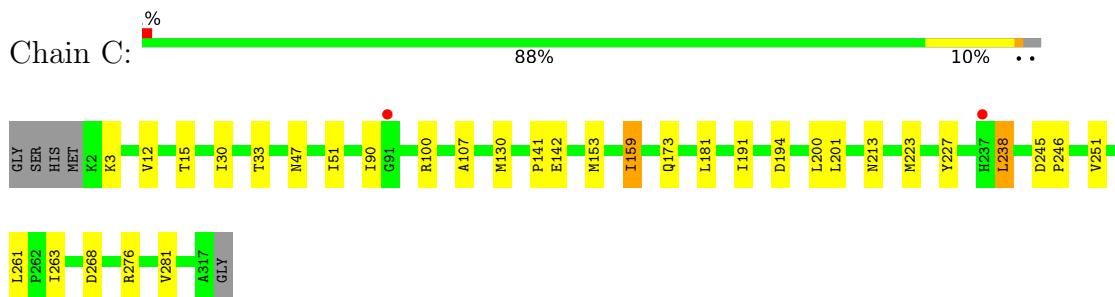
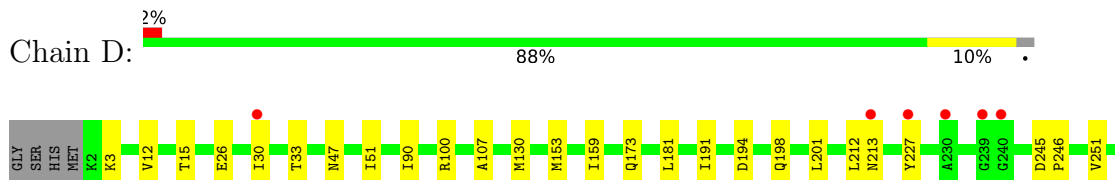• Molecule 1: Inosine-uridine preferring nucleoside hydrolase

• Molecule 1: Inosine-uridine preferring nucleoside hydrolase

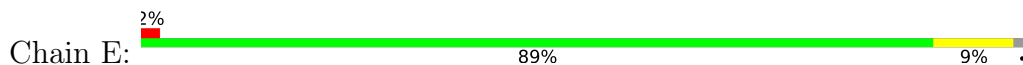• Molecule 1: Inosine-uridine preferring nucleoside hydrolase

• Molecule 1: Inosine-uridine preferring nucleoside hydrolase

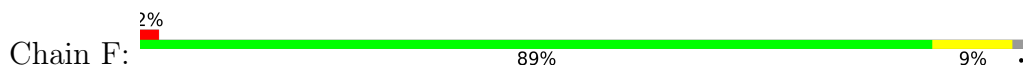- Molecule 1: Inosine-uridine preferring nucleoside hydrolase

Chain E:

- Molecule 1: Inosine-uridine preferring nucleoside hydrolase

Chain F:

- Molecule 1: Inosine-uridine preferring nucleoside hydrolase

Chain G:

- Molecule 1: Inosine-uridine preferring nucleoside hydrolase

Chain H:

- Molecule 1: Inosine-uridine preferring nucleoside hydrolase

Chain I:

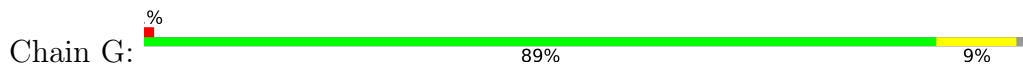- Molecule 1: Inosine-uridine preferring nucleoside hydrolase

Chain J:

- Molecule 1: Inosine-uridine preferring nucleoside hydrolase

Chain K:

- Molecule 1: Inosine-uridine preferring nucleoside hydrolase

Chain L:

- Molecule 1: Inosine-uridine preferring nucleoside hydrolase

Chain M:

• Molecule 1: Inosine-uridine preferring nucleoside hydrolase
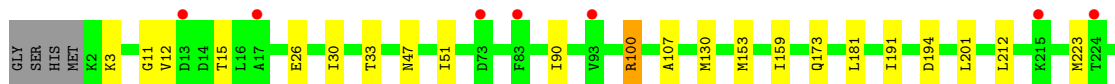

Chain N:

• Molecule 1: Inosine-uridine preferring nucleoside hydrolase

Chain O:

• Molecule 1: Inosine-uridine preferring nucleoside hydrolase

Chain P:

• Molecule 1: Inosine-uridine preferring nucleoside hydrolase

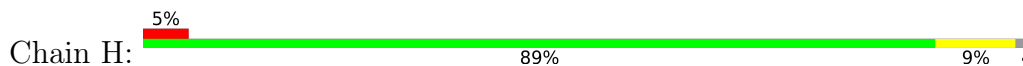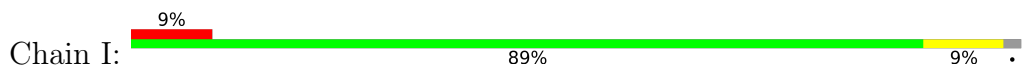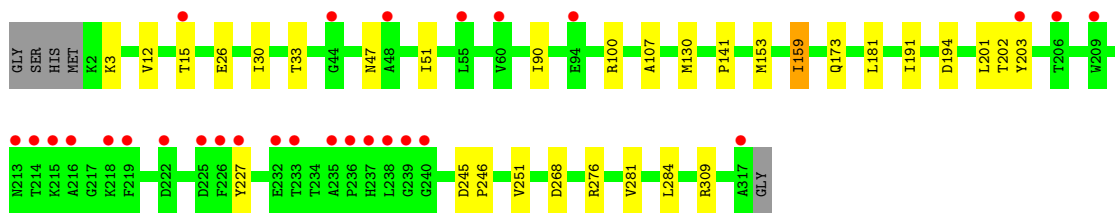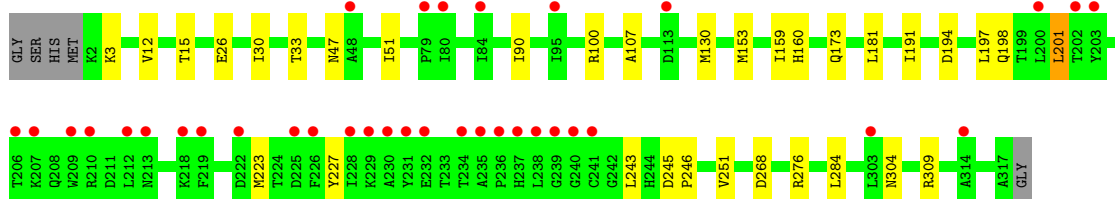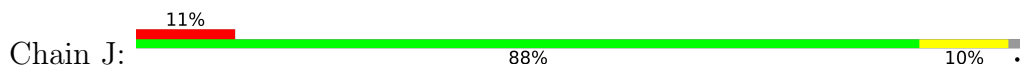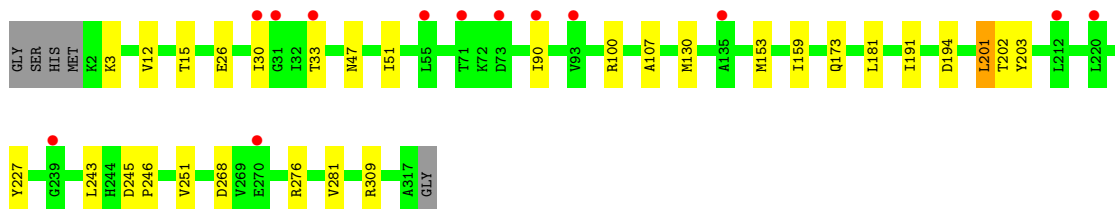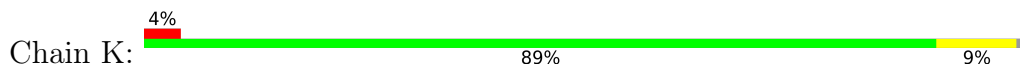

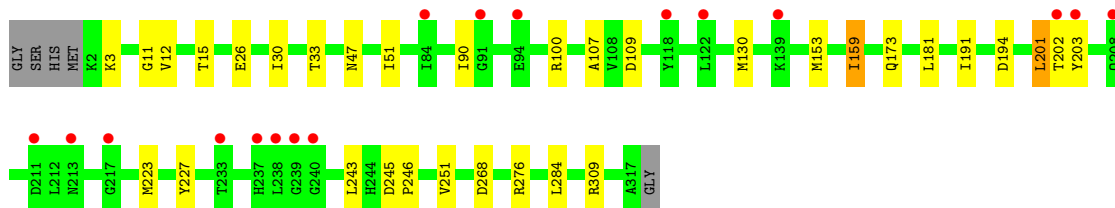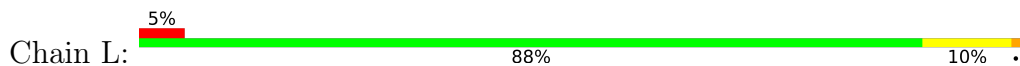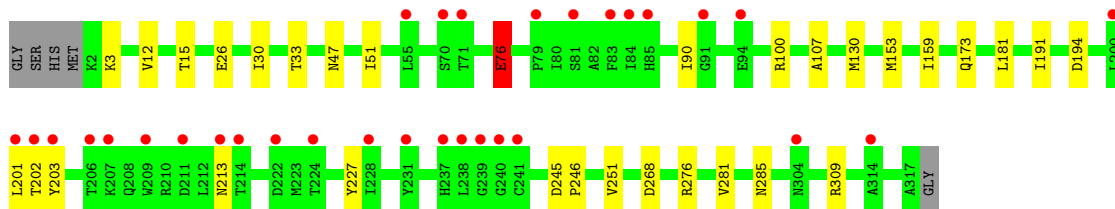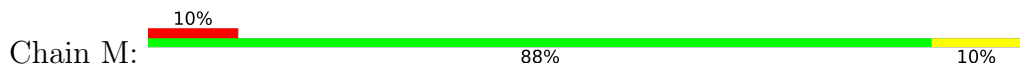Chain Q:

• Molecule 1: Inosine-uridine preferring nucleoside hydrolase

Chain R:

M130 L137 D145 G148 M153 I159 Q173 L181 F182 I191 D194 Q198 T199 L200 L201 T202 Y203 K204 E205 W209 R210 D211 L212 N213 D222 D225 F226 Y227 A230 Y231 E232 T233 T234 A235 P236 H237 L238 G239 G240 D245 P246 V251 D268

R276 T282 F306 R309 L313 A317 GLY

4 Data and refinement statistics (i)

Property	Value	Source
Space group	P 1 21 1	Depositor
Cell constants a, b, c, α, β, γ	163.27Å 80.24Å 223.82Å 90.00° 106.50° 90.00°	Depositor
Resolution (Å)	80.24 – 2.90 78.27 – 2.90	Depositor EDS
% Data completeness (in resolution range)	77.0 (80.24-2.90) 77.0 (78.27-2.90)	Depositor EDS
R_{merge}	0.23	Depositor
R_{sym}	(Not available)	Depositor
$< I/\sigma(I) >$ [1]	4.13 (at 2.91Å)	Xtriage
Refinement program	REFMAC 5.8.0158	Depositor
R, R_{free}	0.279 , 0.282 0.277 , 0.279	Depositor DCC
R_{free} test set	4795 reflections (5.04%)	wwPDB-VP
Wilson B-factor (Å^2)	30.4	Xtriage
Anisotropy	0.180	Xtriage
Bulk solvent k_{sol}(e/Å^3), B_{sol}(Å^2)	0.30 , 1.9	EDS
L-test for twinning[2]	$< |L| > = 0.48, < L^2 > = 0.31$	Xtriage
Estimated twinning fraction	No twinning to report.	Xtriage
F_o,F_c correlation	0.81	EDS
Total number of atoms	42469	wwPDB-VP
Average B, all atoms (Å^2)	44.0	wwPDB-VP

Xtriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 9.56% 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)

Bond lengths and bond angles in the following residue types are not validated in this section: CA

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	0.43	0/2404	0.68	3/3278 (0.1%)
1	B	0.42	0/2412	0.65	0/3286
1	C	0.43	0/2412	0.67	3/3286 (0.1%)
1	D	0.41	0/2412	0.64	1/3286 (0.0%)
1	E	0.41	0/2400	0.75	2/3274 (0.1%)
1	F	0.44	0/2401	0.65	1/3274 (0.0%)
1	G	0.39	0/2400	0.63	0/3274
1	H	0.42	0/2401	0.69	3/3274 (0.1%)
1	I	0.40	0/2397	0.64	1/3270 (0.0%)
1	J	0.41	0/2391	0.64	0/3264
1	K	0.40	0/2397	0.63	0/3271
1	L	0.40	0/2404	0.64	0/3278
1	M	0.44	2/2391 (0.1%)	0.64	1/3263 (0.0%)
1	N	0.40	0/2391	0.63	0/3263
1	O	0.41	0/2405	0.64	1/3279 (0.0%)
1	P	0.41	0/2404	0.64	1/3278 (0.0%)
1	Q	0.40	0/2394	0.64	0/3267
1	R	0.41	0/2391	0.64	0/3263
All	All	0.41	2/43207 (0.0%)	0.65	17/58928 (0.0%)

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	E	0	1
1	H	0	1
All	All	0	2

All (2) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
1	M	76	GLU	CG-CD	6.53	1.61	1.51
1	M	76	GLU	CD-OE2	-5.27	1.19	1.25

All (17) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
1	E	100	ARG	NE-CZ-NH1	-19.41	110.59	120.30
1	H	100	ARG	NE-CZ-NH1	-11.63	114.48	120.30
1	H	100	ARG	NE-CZ-NH2	10.57	125.58	120.30
1	E	100	ARG	NE-CZ-NH2	9.60	125.10	120.30
1	C	238	LEU	CA-CB-CG	6.92	131.21	115.30
1	A	238	LEU	CA-CB-CG	6.77	130.88	115.30
1	D	100	ARG	NE-CZ-NH2	6.52	123.56	120.30
1	C	100	ARG	NE-CZ-NH2	6.51	123.56	120.30
1	A	100	ARG	NE-CZ-NH2	6.50	123.55	120.30
1	M	100	ARG	NE-CZ-NH2	6.45	123.52	120.30
1	I	100	ARG	NE-CZ-NH2	6.43	123.51	120.30
1	A	238	LEU	CB-CG-CD1	6.36	121.81	111.00
1	O	100	ARG	NE-CZ-NH2	6.33	123.46	120.30
1	C	238	LEU	CB-CG-CD1	6.20	121.55	111.00
1	P	183	ARG	NE-CZ-NH2	-5.35	117.62	120.30
1	H	100	ARG	NH1-CZ-NH2	-5.18	113.70	119.40
1	F	201	LEU	CA-CB-CG	5.05	126.91	115.30

There are no chirality outliers.

All (2) planarity outliers are listed below:

Mol	Chain	Res	Type	Group
1	E	100	ARG	Sidechain
1	H	100	ARG	Sidechain

5.2 Too-close contacts ⓘ

In the following table, the Non-H and H(model) columns list the number of non-hydrogen atoms and hydrogen atoms in the chain respectively. The H(added) column lists the number of hydrogen atoms added and optimized by MolProbity. The Clashes column lists the number of clashes within the asymmetric unit, whereas Symm-Clashes lists symmetry-related clashes.

Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
1	A	2362	0	2361	20	0
1	B	2370	0	2383	19	0
1	C	2370	0	2383	19	2

Continued on next page...

Continued from previous page...

Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
1	D	2370	0	2383	21	0
1	E	2358	0	2350	19	0
1	F	2359	0	2359	13	0
1	G	2358	0	2350	18	0
1	H	2359	0	2359	16	0
1	I	2355	0	2348	18	0
1	J	2349	0	2330	20	2
1	K	2355	0	2341	16	0
1	L	2362	0	2361	20	1
1	M	2349	0	2337	16	3
1	N	2349	0	2337	14	0
1	O	2363	0	2363	16	0
1	P	2362	0	2361	25	0
1	Q	2352	0	2339	23	0
1	R	2349	0	2337	15	2
2	A	1	0	0	0	0
2	B	1	0	0	0	0
2	C	1	0	0	0	0
2	D	1	0	0	0	0
2	E	1	0	0	0	0
2	F	1	0	0	0	0
2	G	1	0	0	0	0
2	H	1	0	0	0	0
2	I	1	0	0	0	0
2	J	1	0	0	0	0
2	K	1	0	0	0	0
2	L	1	0	0	0	0
2	M	1	0	0	0	0
2	N	1	0	0	0	0
2	O	1	0	0	0	0
2	P	1	0	0	0	0
2	Q	1	0	0	0	0
2	R	1	0	0	0	0
All	All	42469	0	42382	292	5

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 3.

All (292) 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:P:300:PRO:HB3	1:Q:87:ASP:OD2	1.66	0.95
1:P:300:PRO:CB	1:Q:87:ASP:OD2	2.24	0.85
1:A:300:PRO:HG2	1:G:75:PHE:O	1.86	0.76
1:P:300:PRO:CB	1:Q:87:ASP:CG	2.57	0.72
1:P:300:PRO:HB2	1:Q:87:ASP:CG	2.10	0.71
1:M:285:ASN:OD1	1:R:198:GLN:HA	1.97	0.64
1:D:33:THR:HG23	1:D:107:ALA:HB1	1.82	0.62
1:F:33:THR:HG23	1:F:107:ALA:HB1	1.82	0.62
1:M:33:THR:HG23	1:M:107:ALA:HB1	1.83	0.61
1:Q:33:THR:HG23	1:Q:107:ALA:HB1	1.82	0.61
1:C:33:THR:HG23	1:C:107:ALA:HB1	1.82	0.61
1:P:33:THR:HG23	1:P:107:ALA:HB1	1.83	0.61
1:E:33:THR:HG23	1:E:107:ALA:HB1	1.83	0.61
1:G:33:THR:HG23	1:G:107:ALA:HB1	1.83	0.60
1:B:33:THR:HG23	1:B:107:ALA:HB1	1.83	0.60
1:J:33:THR:HG23	1:J:107:ALA:HB1	1.83	0.60
1:N:33:THR:HG23	1:N:107:ALA:HB1	1.83	0.60
1:H:33:THR:HG23	1:H:107:ALA:HB1	1.82	0.60
1:K:33:THR:HG23	1:K:107:ALA:HB1	1.83	0.60
1:O:33:THR:HG23	1:O:107:ALA:HB1	1.83	0.60
1:A:33:THR:HG23	1:A:107:ALA:HB1	1.83	0.60
1:L:33:THR:HG23	1:L:107:ALA:HB1	1.82	0.60
1:R:33:THR:HG23	1:R:107:ALA:HB1	1.83	0.60
1:I:33:THR:HG23	1:I:107:ALA:HB1	1.83	0.59
1:J:198:GLN:HA	1:P:285:ASN:OD1	2.05	0.56
1:Q:33:THR:HG23	1:Q:107:ALA:CB	2.37	0.55
1:C:33:THR:HG23	1:C:107:ALA:CB	2.37	0.55
1:L:33:THR:HG23	1:L:107:ALA:CB	2.37	0.55
1:A:33:THR:HG23	1:A:107:ALA:CB	2.37	0.55
1:E:33:THR:HG23	1:E:107:ALA:CB	2.37	0.55
1:R:33:THR:HG23	1:R:107:ALA:CB	2.37	0.55
1:O:33:THR:HG23	1:O:107:ALA:CB	2.37	0.55
1:F:33:THR:HG23	1:F:107:ALA:CB	2.37	0.55
1:K:33:THR:HG23	1:K:107:ALA:CB	2.37	0.54
1:P:33:THR:HG23	1:P:107:ALA:CB	2.37	0.54
1:N:33:THR:HG23	1:N:107:ALA:CB	2.37	0.54
1:B:33:THR:HG23	1:B:107:ALA:CB	2.37	0.54
1:G:33:THR:HG23	1:G:107:ALA:CB	2.37	0.54
1:I:33:THR:HG23	1:I:107:ALA:CB	2.37	0.54
1:A:159:ILE:HD11	1:E:281:VAL:HA	1.90	0.54
1:H:33:THR:HG23	1:H:107:ALA:CB	2.37	0.54
1:D:33:THR:HG23	1:D:107:ALA:CB	2.37	0.54

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:J:33:THR:HG23	1:J:107:ALA:CB	2.37	0.54
1:M:33:THR:HG23	1:M:107:ALA:CB	2.37	0.54
1:D:212:LEU:HD22	1:D:315:LYS:HG3	1.90	0.52
1:D:15:THR:HG21	1:D:51:ILE:HD13	1.92	0.52
1:L:15:THR:HG21	1:L:51:ILE:HD13	1.92	0.52
1:F:15:THR:HG21	1:F:51:ILE:HD13	1.91	0.52
1:L:268:ASP:OD2	1:L:276:ARG:NH1	2.43	0.52
1:F:15:THR:CG2	1:F:51:ILE:HD13	2.40	0.52
1:G:159:ILE:CD1	1:L:284:LEU:HD22	2.40	0.52
1:O:268:ASP:OD2	1:O:276:ARG:NH1	2.43	0.52
1:A:281:VAL:CG2	1:E:160:HIS:HB2	2.40	0.51
1:C:268:ASP:OD2	1:C:276:ARG:NH1	2.43	0.51
1:P:268:ASP:OD2	1:P:276:ARG:NH1	2.43	0.51
1:C:15:THR:HG21	1:C:51:ILE:HD13	1.93	0.51
1:H:268:ASP:OD2	1:H:276:ARG:NH1	2.43	0.51
1:I:15:THR:HG21	1:I:51:ILE:HD13	1.92	0.51
1:J:268:ASP:OD2	1:J:276:ARG:NH1	2.43	0.51
1:M:268:ASP:OD2	1:M:276:ARG:NH1	2.43	0.51
1:Q:268:ASP:OD2	1:Q:276:ARG:NH1	2.43	0.51
1:P:15:THR:HG21	1:P:51:ILE:HD13	1.93	0.51
1:E:268:ASP:OD2	1:E:276:ARG:NH1	2.43	0.51
1:G:15:THR:HG21	1:G:51:ILE:HD13	1.92	0.51
1:K:268:ASP:OD2	1:K:276:ARG:NH1	2.43	0.51
1:D:268:ASP:OD2	1:D:276:ARG:NH1	2.43	0.51
1:G:268:ASP:OD2	1:G:276:ARG:NH1	2.43	0.51
1:N:268:ASP:OD2	1:N:276:ARG:NH1	2.43	0.51
1:R:15:THR:HG21	1:R:51:ILE:HD13	1.92	0.51
1:R:268:ASP:OD2	1:R:276:ARG:NH1	2.43	0.51
1:A:15:THR:HG21	1:A:51:ILE:HD13	1.93	0.51
1:F:268:ASP:OD2	1:F:276:ARG:NH1	2.43	0.51
1:E:15:THR:CG2	1:E:51:ILE:HD13	2.41	0.51
1:J:15:THR:HG21	1:J:51:ILE:HD13	1.92	0.51
1:M:15:THR:HG21	1:M:51:ILE:HD13	1.93	0.51
1:H:15:THR:HG21	1:H:51:ILE:HD13	1.92	0.51
1:K:15:THR:CG2	1:K:51:ILE:HD13	2.41	0.51
1:J:160:HIS:NE2	1:P:266:GLN:NE2	2.59	0.51
1:A:159:ILE:CD1	1:E:284:LEU:HD22	2.41	0.51
1:I:268:ASP:OD2	1:I:276:ARG:NH1	2.44	0.51
1:J:15:THR:CG2	1:J:51:ILE:HD13	2.41	0.51
1:K:15:THR:HG21	1:K:51:ILE:HD13	1.92	0.51
1:N:15:THR:HG21	1:N:51:ILE:HD13	1.93	0.51

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:Q:15:THR:CG2	1:Q:51:ILE:HD13	2.41	0.51
1:A:268:ASP:OD2	1:A:276:ARG:NH1	2.44	0.50
1:E:15:THR:HG21	1:E:51:ILE:HD13	1.92	0.50
1:O:15:THR:HG21	1:O:51:ILE:HD13	1.92	0.50
1:D:15:THR:CG2	1:D:51:ILE:HD13	2.41	0.50
1:G:15:THR:CG2	1:G:51:ILE:HD13	2.42	0.50
1:R:15:THR:CG2	1:R:51:ILE:HD13	2.41	0.50
1:B:15:THR:CG2	1:B:51:ILE:HD13	2.42	0.50
1:B:268:ASP:OD2	1:B:276:ARG:NH1	2.44	0.50
1:L:15:THR:CG2	1:L:51:ILE:HD13	2.41	0.50
1:Q:15:THR:HG21	1:Q:51:ILE:HD13	1.92	0.50
1:L:202:THR:HG22	1:L:203:TYR:H	1.77	0.50
1:Q:202:THR:HG22	1:Q:203:TYR:H	1.77	0.50
1:G:202:THR:HG22	1:G:203:TYR:H	1.76	0.50
1:H:15:THR:CG2	1:H:51:ILE:HD13	2.41	0.50
1:I:15:THR:CG2	1:I:51:ILE:HD13	2.42	0.50
1:M:202:THR:HG22	1:M:203:TYR:H	1.77	0.50
1:N:15:THR:CG2	1:N:51:ILE:HD13	2.42	0.50
1:F:202:THR:HG22	1:F:203:TYR:H	1.77	0.50
1:R:202:THR:HG22	1:R:203:TYR:H	1.77	0.50
1:B:15:THR:HG21	1:B:51:ILE:HD13	1.93	0.49
1:K:202:THR:HG22	1:K:203:TYR:H	1.77	0.49
1:C:15:THR:CG2	1:C:51:ILE:HD13	2.42	0.49
1:O:15:THR:CG2	1:O:51:ILE:HD13	2.42	0.49
1:M:15:THR:CG2	1:M:51:ILE:HD13	2.42	0.49
1:I:202:THR:HG22	1:I:203:TYR:H	1.77	0.49
1:P:202:THR:HG22	1:P:203:TYR:H	1.77	0.49
1:E:130:MET:HE2	1:E:181:LEU:CD2	2.43	0.49
1:P:15:THR:CG2	1:P:51:ILE:HD13	2.42	0.49
1:O:159:ILE:HD11	1:Q:281:VAL:HA	1.95	0.49
1:R:3:LYS:HB3	1:R:30:ILE:HD11	1.95	0.49
1:J:3:LYS:HB3	1:J:30:ILE:HD11	1.95	0.49
1:P:130:MET:HE2	1:P:181:LEU:CD2	2.43	0.49
1:F:3:LYS:HB3	1:F:30:ILE:HD11	1.95	0.48
1:A:12:VAL:HG11	1:A:227:TYR:HB2	1.95	0.48
1:A:15:THR:CG2	1:A:51:ILE:HD13	2.42	0.48
1:Q:3:LYS:HB3	1:Q:30:ILE:HD11	1.95	0.48
1:M:3:LYS:HB3	1:M:30:ILE:HD11	1.95	0.48
1:M:12:VAL:HG11	1:M:227:TYR:HB2	1.96	0.48
1:N:3:LYS:HB3	1:N:30:ILE:HD11	1.95	0.48
1:G:12:VAL:HG11	1:G:227:TYR:HB2	1.96	0.48

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:12:VAL:HG11	1:B:227:TYR:HB2	1.95	0.48
1:D:3:LYS:HB3	1:D:30:ILE:HD11	1.95	0.48
1:G:3:LYS:HB3	1:G:30:ILE:HD11	1.96	0.48
1:J:160:HIS:HB2	1:P:281:VAL:CG2	2.44	0.48
1:E:12:VAL:HG11	1:E:227:TYR:HB2	1.96	0.48
1:I:3:LYS:HB3	1:I:30:ILE:HD11	1.96	0.48
1:J:130:MET:HE2	1:J:181:LEU:CD2	2.44	0.48
1:P:12:VAL:HG11	1:P:227:TYR:HB2	1.96	0.48
1:G:281:VAL:HA	1:L:159:ILE:HD11	1.96	0.48
1:H:12:VAL:HG11	1:H:227:TYR:HB2	1.96	0.48
1:I:12:VAL:HG11	1:I:227:TYR:HB2	1.96	0.48
1:L:3:LYS:HB3	1:L:30:ILE:HD11	1.95	0.48
1:O:12:VAL:HG11	1:O:227:TYR:HB2	1.95	0.48
1:D:12:VAL:HG11	1:D:227:TYR:HB2	1.96	0.47
1:I:130:MET:HE2	1:I:181:LEU:CD2	2.44	0.47
1:N:12:VAL:HG11	1:N:227:TYR:HB2	1.95	0.47
1:Q:12:VAL:HG11	1:Q:227:TYR:HB2	1.96	0.47
1:C:159:ILE:CD1	1:I:284:LEU:HD22	2.44	0.47
1:K:3:LYS:HB3	1:K:30:ILE:HD11	1.95	0.47
1:O:3:LYS:HB3	1:O:30:ILE:HD11	1.96	0.47
1:C:200:LEU:HD13	1:C:238:LEU:HG	1.96	0.47
1:J:197:LEU:HB2	1:P:284:LEU:HD23	1.96	0.47
1:L:12:VAL:HG11	1:L:227:TYR:HB2	1.96	0.47
1:N:130:MET:HE2	1:N:181:LEU:CD2	2.45	0.47
1:P:3:LYS:HB3	1:P:30:ILE:HD11	1.97	0.47
1:B:3:LYS:HB3	1:B:30:ILE:HD11	1.96	0.47
1:L:130:MET:HE2	1:L:181:LEU:CD2	2.44	0.47
1:C:3:LYS:HB3	1:C:30:ILE:HD11	1.96	0.47
1:C:12:VAL:HG11	1:C:227:TYR:HB2	1.95	0.47
1:C:159:ILE:HD11	1:I:281:VAL:HA	1.96	0.47
1:B:285:ASN:OD1	1:D:198:GLN:HA	2.14	0.47
1:A:159:ILE:HD12	1:E:284:LEU:HD22	1.95	0.47
1:A:298:ASP:OD1	1:G:74:SER:HB2	2.14	0.47
1:E:3:LYS:HB3	1:E:30:ILE:HD11	1.96	0.47
1:F:130:MET:HE2	1:F:181:LEU:CD2	2.44	0.47
1:H:3:LYS:HB3	1:H:30:ILE:HD11	1.95	0.47
1:K:281:VAL:HA	1:N:159:ILE:HD11	1.96	0.47
1:A:3:LYS:HB3	1:A:30:ILE:HD11	1.96	0.47
1:K:12:VAL:HG11	1:K:227:TYR:HB2	1.96	0.47
1:A:130:MET:HE2	1:A:181:LEU:CD2	2.44	0.46
1:Q:130:MET:HE2	1:Q:181:LEU:CD2	2.45	0.46

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:159:ILE:HD11	1:D:281:VAL:HA	1.96	0.46
1:F:12:VAL:HG11	1:F:227:TYR:HB2	1.97	0.46
1:J:12:VAL:HG11	1:J:227:TYR:HB2	1.97	0.46
1:P:212:LEU:HD22	1:P:315:LYS:HE3	1.97	0.46
1:G:159:ILE:HD12	1:L:284:LEU:HD22	1.97	0.46
1:D:130:MET:HE2	1:D:181:LEU:CD2	2.46	0.46
1:B:159:ILE:CD1	1:D:284:LEU:HD22	2.46	0.46
1:K:130:MET:HE2	1:K:181:LEU:CD2	2.46	0.46
1:M:130:MET:HE2	1:M:181:LEU:CD2	2.46	0.45
1:C:130:MET:HE2	1:C:181:LEU:CD2	2.46	0.45
1:B:159:ILE:HG12	1:D:281:VAL:HG22	1.99	0.45
1:R:12:VAL:HG11	1:R:227:TYR:HB2	1.97	0.45
1:A:200:LEU:HD13	1:A:238:LEU:HG	1.98	0.45
1:E:191:ILE:HD11	1:E:251:VAL:HG11	1.99	0.45
1:G:191:ILE:HD11	1:G:251:VAL:HG11	1.99	0.45
1:C:191:ILE:HD11	1:C:251:VAL:HG11	1.99	0.44
1:D:191:ILE:HD11	1:D:251:VAL:HG11	2.00	0.44
1:M:281:VAL:HA	1:R:159:ILE:HD11	1.97	0.44
1:F:191:ILE:HD11	1:F:251:VAL:HG11	1.99	0.44
1:N:191:ILE:HD11	1:N:251:VAL:HG11	2.00	0.44
1:P:191:ILE:HD11	1:P:251:VAL:HG11	1.99	0.44
1:B:261:LEU:HD11	1:D:295:VAL:HG11	1.98	0.44
1:B:130:MET:HE2	1:B:181:LEU:CD2	2.47	0.44
1:Q:191:ILE:HD11	1:Q:251:VAL:HG11	2.00	0.44
1:J:191:ILE:HD11	1:J:251:VAL:HG11	1.99	0.44
1:L:191:ILE:HD11	1:L:251:VAL:HG11	1.99	0.44
1:O:191:ILE:HD11	1:O:251:VAL:HG11	2.00	0.44
1:C:245:ASP:N	1:C:246:PRO:CD	2.81	0.44
1:K:245:ASP:N	1:K:246:PRO:CD	2.81	0.44
1:M:191:ILE:HD11	1:M:251:VAL:HG11	2.00	0.44
1:O:245:ASP:N	1:O:246:PRO:CD	2.81	0.44
1:D:245:ASP:N	1:D:246:PRO:CD	2.81	0.43
1:H:12:VAL:HA	1:H:223:MET:HE1	2.00	0.43
1:H:191:ILE:HD11	1:H:251:VAL:HG11	1.99	0.43
1:I:245:ASP:N	1:I:246:PRO:CD	2.81	0.43
1:D:47:ASN:CG	1:D:90:ILE:HD11	2.39	0.43
1:G:47:ASN:CG	1:G:90:ILE:HD11	2.39	0.43
1:M:245:ASP:N	1:M:246:PRO:CD	2.81	0.43
1:Q:245:ASP:N	1:Q:246:PRO:CD	2.81	0.43
1:A:245:ASP:N	1:A:246:PRO:CD	2.81	0.43
1:N:47:ASN:CG	1:N:90:ILE:HD11	2.39	0.43

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:O:266:GLN:NE2	1:Q:160:HIS:NE2	2.67	0.43
1:R:245:ASP:N	1:R:246:PRO:CD	2.81	0.43
1:C:281:VAL:HA	1:I:159:ILE:HD11	2.01	0.43
1:L:245:ASP:N	1:L:246:PRO:CD	2.81	0.43
1:B:245:ASP:N	1:B:246:PRO:CD	2.81	0.43
1:E:47:ASN:CG	1:E:90:ILE:HD11	2.39	0.43
1:J:245:ASP:N	1:J:246:PRO:CD	2.82	0.43
1:B:47:ASN:CG	1:B:90:ILE:HD11	2.39	0.43
1:F:245:ASP:N	1:F:246:PRO:CD	2.81	0.43
1:H:245:ASP:N	1:H:246:PRO:CD	2.81	0.43
1:L:47:ASN:CG	1:L:90:ILE:HD11	2.39	0.43
1:B:191:ILE:HD11	1:B:251:VAL:HG11	2.00	0.43
1:C:47:ASN:CG	1:C:90:ILE:HD11	2.39	0.43
1:F:47:ASN:CG	1:F:90:ILE:HD11	2.39	0.43
1:G:130:MET:HE2	1:G:181:LEU:CD2	2.48	0.43
1:N:12:VAL:HA	1:N:223:MET:HE1	1.99	0.43
1:D:213:ASN:HD22	1:I:141:PRO:HG3	1.83	0.43
1:M:47:ASN:CG	1:M:90:ILE:HD11	2.39	0.43
1:Q:47:ASN:CG	1:Q:90:ILE:HD11	2.39	0.43
1:A:191:ILE:HD11	1:A:251:VAL:HG11	1.99	0.43
1:G:245:ASP:N	1:G:246:PRO:CD	2.81	0.43
1:N:245:ASP:N	1:N:246:PRO:CD	2.81	0.43
1:A:47:ASN:CG	1:A:90:ILE:HD11	2.39	0.43
1:I:191:ILE:HD11	1:I:251:VAL:HG11	1.99	0.43
1:J:12:VAL:HA	1:J:223:MET:HE1	2.00	0.43
1:P:245:ASP:N	1:P:246:PRO:CD	2.81	0.43
1:R:130:MET:HE2	1:R:181:LEU:CD2	2.48	0.43
1:H:47:ASN:CG	1:H:90:ILE:HD11	2.39	0.42
1:J:284:LEU:HD22	1:P:159:ILE:CD1	2.49	0.42
1:O:47:ASN:CG	1:O:90:ILE:HD11	2.39	0.42
1:H:130:MET:HE2	1:H:181:LEU:CD2	2.49	0.42
1:I:47:ASN:CG	1:I:90:ILE:HD11	2.39	0.42
1:J:47:ASN:CG	1:J:90:ILE:HD11	2.39	0.42
1:O:130:MET:HE2	1:O:181:LEU:CD2	2.48	0.42
1:R:47:ASN:CG	1:R:90:ILE:HD11	2.39	0.42
1:E:245:ASP:N	1:E:246:PRO:CD	2.82	0.42
1:P:47:ASN:CG	1:P:90:ILE:HD11	2.39	0.42
1:P:130:MET:HE2	1:P:181:LEU:HD22	2.01	0.42
1:K:47:ASN:CG	1:K:90:ILE:HD11	2.39	0.42
1:R:191:ILE:HD11	1:R:251:VAL:HG11	2.00	0.42
1:K:191:ILE:HD11	1:K:251:VAL:HG11	2.00	0.42

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:120:LYS:HD3	1:C:213:ASN:CG	2.40	0.42
1:C:130:MET:HE2	1:C:181:LEU:HD22	2.02	0.42
1:L:12:VAL:HA	1:L:223:MET:HE1	2.02	0.42
1:A:130:MET:HE2	1:A:181:LEU:HD22	2.01	0.41
1:P:300:PRO:HG2	1:Q:87:ASP:OD1	2.20	0.41
1:A:26:GLU:OE1	1:A:309:ARG:NH2	2.54	0.41
1:I:130:MET:HE2	1:I:181:LEU:HD22	2.02	0.41
1:O:281:VAL:CG2	1:Q:160:HIS:HB2	2.50	0.41
1:R:26:GLU:OE1	1:R:309:ARG:NH2	2.54	0.41
1:K:26:GLU:OE1	1:K:309:ARG:NH2	2.54	0.41
1:M:26:GLU:OE1	1:M:309:ARG:NH2	2.54	0.41
1:E:130:MET:HE2	1:E:181:LEU:HD22	2.02	0.41
1:K:130:MET:HE2	1:K:181:LEU:HD22	2.03	0.41
1:O:26:GLU:OE1	1:O:309:ARG:NH2	2.54	0.41
1:B:26:GLU:OE1	1:B:309:ARG:NH2	2.54	0.41
1:C:12:VAL:HA	1:C:223:MET:HE1	2.03	0.41
1:E:12:VAL:HA	1:E:223:MET:HE1	2.03	0.41
1:E:26:GLU:OE1	1:E:309:ARG:NH2	2.54	0.41
1:G:26:GLU:OE1	1:G:309:ARG:NH2	2.54	0.41
1:H:26:GLU:OE1	1:H:309:ARG:NH2	2.54	0.41
1:I:26:GLU:OE1	1:I:309:ARG:NH2	2.54	0.41
1:Q:26:GLU:OE1	1:Q:309:ARG:NH2	2.54	0.41
1:D:26:GLU:OE1	1:D:309:ARG:NH2	2.54	0.41
1:D:130:MET:HE2	1:D:181:LEU:HD22	2.03	0.40
1:F:26:GLU:OE1	1:F:309:ARG:NH2	2.54	0.40
1:L:26:GLU:OE1	1:L:309:ARG:NH2	2.54	0.40
1:L:130:MET:HE2	1:L:181:LEU:HD22	2.03	0.40
1:N:130:MET:HE2	1:N:181:LEU:HD22	2.03	0.40
1:P:26:GLU:OE1	1:P:309:ARG:NH2	2.54	0.40
1:H:212:LEU:HD22	1:H:315:LYS:CG	2.52	0.40
1:J:26:GLU:OE1	1:J:309:ARG:NH2	2.54	0.40
1:B:261:LEU:CD1	1:D:295:VAL:HG11	2.51	0.40
1:E:11:GLY:O	1:E:15:THR:HG23	2.22	0.40
1:J:201:LEU:HG	1:J:243:LEU:HD21	2.04	0.40
1:H:11:GLY:O	1:H:15:THR:HG23	2.22	0.40
1:H:212:LEU:HD22	1:H:315:LYS:HG3	2.03	0.40
1:K:201:LEU:HG	1:K:243:LEU:HD21	2.04	0.40
1:L:201:LEU:HG	1:L:243:LEU:HD21	2.04	0.40
1:Q:12:VAL:HA	1:Q:223:MET:HE1	2.03	0.40
1:C:261:LEU:O	1:C:263:ILE:HG22	2.22	0.40
1:J:130:MET:HE2	1:J:181:LEU:HD22	2.03	0.40

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:L:11:GLY:O	1:L:15:THR:HG23	2.22	0.40
1:M:130:MET:HE2	1:M:181:LEU:HD22	2.02	0.40
1:O:130:MET:HE2	1:O:181:LEU:HD22	2.04	0.40
1:Q:11:GLY:O	1:Q:15:THR:HG23	2.22	0.40

All (5) symmetry-related close contacts are listed below. The label for Atom-2 includes the symmetry operator and encoded unit-cell translations to be applied.

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:142:GLU:N	1:M:213:ASN:ND2[1_454]	1.96	0.24
1:J:304:ASN:OD1	1:R:204:LYS:CB[2_8514]	1.99	0.21
1:J:304:ASN:CG	1:R:204:LYS:CB[2_8514]	2.08	0.12
1:L:109:ASP:CG	1:M:76:GLU:OE2[2_9414]	2.15	0.05
1:C:141:PRO:C	1:M:213:ASN:ND2[1_454]	2.19	0.01

5.3 Torsion angles ⓘ

5.3.1 Protein backbone ⓘ

In the following table, the Percentiles column shows the percent Ramachandran outliers of the chain as a percentile score with respect to all X-ray entries followed by that with respect to entries of similar resolution.

The Analysed column shows the number of residues for which the backbone conformation was analysed, and the total number of residues.

Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
1	A	314/321 (98%)	295 (94%)	19 (6%)	0	100	100
1	B	314/321 (98%)	295 (94%)	19 (6%)	0	100	100
1	C	314/321 (98%)	295 (94%)	19 (6%)	0	100	100
1	D	314/321 (98%)	295 (94%)	19 (6%)	0	100	100
1	E	314/321 (98%)	295 (94%)	19 (6%)	0	100	100
1	F	314/321 (98%)	295 (94%)	19 (6%)	0	100	100
1	G	314/321 (98%)	295 (94%)	19 (6%)	0	100	100
1	H	314/321 (98%)	295 (94%)	19 (6%)	0	100	100
1	I	314/321 (98%)	295 (94%)	19 (6%)	0	100	100
1	J	314/321 (98%)	295 (94%)	19 (6%)	0	100	100

Continued on next page...

Continued from previous page...

Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
1	K	314/321 (98%)	295 (94%)	19 (6%)	0	100	100
1	L	314/321 (98%)	295 (94%)	19 (6%)	0	100	100
1	M	314/321 (98%)	295 (94%)	19 (6%)	0	100	100
1	N	314/321 (98%)	295 (94%)	19 (6%)	0	100	100
1	O	314/321 (98%)	295 (94%)	19 (6%)	0	100	100
1	P	314/321 (98%)	295 (94%)	19 (6%)	0	100	100
1	Q	314/321 (98%)	295 (94%)	19 (6%)	0	100	100
1	R	314/321 (98%)	295 (94%)	19 (6%)	0	100	100
All	All	5652/5778 (98%)	5310 (94%)	342 (6%)	0	100	100

There are no Ramachandran outliers to report.

5.3.2 Protein sidechains ⓘ

In the following table, the Percentiles column shows the percent sidechain outliers of the chain as a percentile score with respect to all X-ray entries followed by that with respect to entries of similar resolution.

The Analysed column shows the number of residues for which the sidechain conformation was analysed, and the total number of residues.

Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
1	A	255/263 (97%)	250 (98%)	5 (2%)	55	82
1	B	257/263 (98%)	251 (98%)	6 (2%)	50	80
1	C	257/263 (98%)	252 (98%)	5 (2%)	57	84
1	D	257/263 (98%)	252 (98%)	5 (2%)	57	84
1	E	254/263 (97%)	248 (98%)	6 (2%)	49	79
1	F	254/263 (97%)	247 (97%)	7 (3%)	43	76
1	G	254/263 (97%)	248 (98%)	6 (2%)	49	79
1	H	254/263 (97%)	249 (98%)	5 (2%)	55	82
1	I	253/263 (96%)	248 (98%)	5 (2%)	55	82
1	J	252/263 (96%)	246 (98%)	6 (2%)	49	79
1	K	253/263 (96%)	247 (98%)	6 (2%)	49	79
1	L	255/263 (97%)	249 (98%)	6 (2%)	49	79
1	M	252/263 (96%)	246 (98%)	6 (2%)	49	79

Continued on next page...

Continued from previous page...

Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
1	N	252/263 (96%)	246 (98%)	6 (2%)	49	79
1	O	255/263 (97%)	250 (98%)	5 (2%)	55	82
1	P	255/263 (97%)	249 (98%)	6 (2%)	49	79
1	Q	253/263 (96%)	247 (98%)	6 (2%)	49	79
1	R	252/263 (96%)	246 (98%)	6 (2%)	49	79
All	All	4574/4734 (97%)	4471 (98%)	103 (2%)	50	80

All (103) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	153	MET
1	A	159	ILE
1	A	173	GLN
1	A	194	ASP
1	A	201	LEU
1	B	100	ARG
1	B	153	MET
1	B	159	ILE
1	B	173	GLN
1	B	194	ASP
1	B	201	LEU
1	C	153	MET
1	C	159	ILE
1	C	173	GLN
1	C	194	ASP
1	C	201	LEU
1	D	153	MET
1	D	159	ILE
1	D	173	GLN
1	D	194	ASP
1	D	201	LEU
1	E	100	ARG
1	E	153	MET
1	E	159	ILE
1	E	173	GLN
1	E	194	ASP
1	E	201	LEU
1	F	72	LYS
1	F	100	ARG
1	F	153	MET

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type
1	F	159	ILE
1	F	173	GLN
1	F	194	ASP
1	F	201	LEU
1	G	100	ARG
1	G	153	MET
1	G	159	ILE
1	G	173	GLN
1	G	194	ASP
1	G	201	LEU
1	H	153	MET
1	H	159	ILE
1	H	173	GLN
1	H	194	ASP
1	H	201	LEU
1	I	153	MET
1	I	159	ILE
1	I	173	GLN
1	I	194	ASP
1	I	201	LEU
1	J	100	ARG
1	J	153	MET
1	J	159	ILE
1	J	173	GLN
1	J	194	ASP
1	J	201	LEU
1	K	100	ARG
1	K	153	MET
1	K	159	ILE
1	K	173	GLN
1	K	194	ASP
1	K	201	LEU
1	L	100	ARG
1	L	153	MET
1	L	159	ILE
1	L	173	GLN
1	L	194	ASP
1	L	201	LEU
1	M	76	GLU
1	M	153	MET
1	M	159	ILE
1	M	173	GLN

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type
1	M	194	ASP
1	M	201	LEU
1	N	100	ARG
1	N	153	MET
1	N	159	ILE
1	N	173	GLN
1	N	194	ASP
1	N	201	LEU
1	O	153	MET
1	O	159	ILE
1	O	173	GLN
1	O	194	ASP
1	O	201	LEU
1	P	100	ARG
1	P	153	MET
1	P	159	ILE
1	P	173	GLN
1	P	194	ASP
1	P	201	LEU
1	Q	100	ARG
1	Q	153	MET
1	Q	159	ILE
1	Q	173	GLN
1	Q	194	ASP
1	Q	201	LEU
1	R	100	ARG
1	R	153	MET
1	R	159	ILE
1	R	173	GLN
1	R	194	ASP
1	R	201	LEU

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (27) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	85	HIS
1	A	266	GLN
1	B	85	HIS
1	B	266	GLN
1	C	85	HIS
1	D	85	HIS
1	D	213	ASN

Continued from previous page...

Mol	Chain	Res	Type
1	E	85	HIS
1	F	85	HIS
1	G	85	HIS
1	G	266	GLN
1	H	85	HIS
1	H	266	GLN
1	I	85	HIS
1	J	85	HIS
1	K	85	HIS
1	L	85	HIS
1	M	85	HIS
1	M	266	GLN
1	N	85	HIS
1	N	266	GLN
1	O	85	HIS
1	O	266	GLN
1	P	85	HIS
1	P	266	GLN
1	Q	85	HIS
1	R	85	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 monosaccharides in this entry.

5.6 Ligand geometry ⓘ

Of 18 ligands modelled in this entry, 18 are monoatomic - leaving 0 for Mogul analysis.

There are no bond length outliers.

There are no bond angle outliers.

There are no chirality outliers.

There are no torsion outliers.

There are no ring outliers.

No monomer is involved in short contacts.

5.7 Other polymers ⓘ

There are no such residues in this entry.

5.8 Polymer linkage issues ⓘ

There are no chain breaks in this entry.

6 Fit of model and data ⓘ

6.1 Protein, DNA and RNA chains ⓘ

In the following table, the column labelled '#RSRZ> 2' contains the number (and percentage) of RSRZ outliers, followed by percent RSRZ outliers for the chain as percentile scores relative to all X-ray entries and entries of similar resolution. The OWAB column contains the minimum, median, 95th percentile and maximum values of the occupancy-weighted average B-factor per residue. The column labelled 'Q< 0.9' lists the number of (and percentage) of residues with an average occupancy less than 0.9.

Mol	Chain	Analysed	<RSRZ>	#RSRZ>2			OWAB(Å^2)	Q<0.9
1	A	316/321 (98%)	0.08	2 (0%)	89	89	20, 30, 41, 47	0
1	B	316/321 (98%)	0.29	4 (1%)	77	77	26, 37, 51, 60	0
1	C	316/321 (98%)	0.12	2 (0%)	89	89	23, 33, 46, 51	0
1	D	316/321 (98%)	0.29	7 (2%)	62	59	25, 37, 59, 72	0
1	E	316/321 (98%)	0.22	8 (2%)	57	55	30, 39, 54, 101	0
1	F	316/321 (98%)	0.29	7 (2%)	62	59	29, 39, 51, 56	0
1	G	316/321 (98%)	0.24	4 (1%)	77	77	27, 39, 56, 72	0
1	H	316/321 (98%)	0.41	16 (5%)	28	24	31, 41, 64, 121	0
1	I	316/321 (98%)	0.59	28 (8%)	9	7	26, 42, 73, 96	0
1	J	316/321 (98%)	0.72	35 (11%)	5	4	26, 42, 80, 150	0
1	K	316/321 (98%)	0.50	13 (4%)	37	32	35, 50, 68, 78	0
1	L	316/321 (98%)	0.62	17 (5%)	25	22	34, 50, 69, 83	0
1	M	316/321 (98%)	0.69	31 (9%)	7	5	28, 45, 91, 121	0
1	N	316/321 (98%)	0.55	19 (6%)	21	18	36, 49, 68, 94	0
1	O	316/321 (98%)	0.34	10 (3%)	47	43	27, 41, 62, 74	0
1	P	316/321 (98%)	0.59	24 (7%)	13	10	27, 44, 68, 81	0
1	Q	316/321 (98%)	0.58	19 (6%)	21	18	33, 47, 68, 118	0
1	R	316/321 (98%)	1.03	44 (13%)	2	2	44, 62, 87, 104	0
All	All	5688/5778 (98%)	0.45	290 (5%)	28	24	20, 42, 69, 150	0

All (290) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	J	236	PRO	9.1
1	F	240	GLY	8.6
1	M	240	GLY	8.4

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type	RSRZ
1	J	240	GLY	7.0
1	J	239	GLY	7.0
1	J	235	ALA	6.5
1	M	91	GLY	5.9
1	Q	240	GLY	5.6
1	R	137	LEU	5.2
1	I	240	GLY	5.2
1	J	238	LEU	5.2
1	I	239	GLY	5.1
1	R	235	ALA	5.0
1	B	237	HIS	4.9
1	I	238	LEU	4.9
1	M	94	GLU	4.9
1	H	240	GLY	4.7
1	B	238	LEU	4.7
1	M	213	ASN	4.6
1	I	213	ASN	4.6
1	P	237	HIS	4.5
1	I	209	TRP	4.4
1	R	212	LEU	4.4
1	J	209	TRP	4.4
1	J	241	CYS	4.4
1	J	203	TYR	4.4
1	E	240	GLY	4.3
1	L	238	LEU	4.1
1	Q	84	ILE	4.1
1	J	232	GLU	4.1
1	P	106	SER	4.1
1	P	102	ALA	4.0
1	D	311	SER	4.0
1	M	241	CYS	4.0
1	N	222	ASP	4.0
1	P	86	GLY	3.9
1	M	228	ILE	3.9
1	E	237	HIS	3.9
1	I	225	ASP	3.9
1	N	94	GLU	3.8
1	P	71	THR	3.8
1	J	225	ASP	3.8
1	E	91	GLY	3.8
1	J	237	HIS	3.8
1	J	210	ARG	3.7

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type	RSRZ
1	E	235	ALA	3.7
1	L	91	GLY	3.7
1	I	236	PRO	3.7
1	M	237	HIS	3.7
1	O	238	LEU	3.7
1	I	237	HIS	3.6
1	R	113	ASP	3.6
1	J	200	LEU	3.6
1	E	80	ILE	3.6
1	H	236	PRO	3.6
1	M	238	LEU	3.5
1	D	240	GLY	3.5
1	R	148	GLY	3.5
1	J	231	TYR	3.5
1	G	213	ASN	3.5
1	L	239	GLY	3.4
1	O	86	GLY	3.4
1	R	239	GLY	3.4
1	R	71	THR	3.4
1	C	237	HIS	3.4
1	L	237	HIS	3.4
1	I	55	LEU	3.4
1	H	83	PHE	3.4
1	P	73	ASP	3.4
1	I	317	ALA	3.4
1	J	228	ILE	3.3
1	F	200	LEU	3.3
1	L	217	GLY	3.3
1	R	115	VAL	3.3
1	Q	233	THR	3.3
1	Q	238	LEU	3.3
1	R	209	TRP	3.3
1	E	238	LEU	3.3
1	M	202	THR	3.3
1	B	91	GLY	3.3
1	P	213	ASN	3.2
1	R	211	ASP	3.2
1	Q	237	HIS	3.2
1	M	79	PRO	3.2
1	R	236	PRO	3.2
1	I	232	GLU	3.2
1	Q	91	GLY	3.2

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type	RSRZ
1	P	238	LEU	3.2
1	Q	239	GLY	3.2
1	F	236	PRO	3.1
1	R	111	ILE	3.1
1	I	216	ALA	3.1
1	O	91	GLY	3.1
1	R	240	GLY	3.1
1	J	48	ALA	3.0
1	R	99	PRO	3.0
1	I	218	LYS	3.0
1	M	203	TYR	3.0
1	J	230	ALA	3.0
1	R	27	MET	3.0
1	M	209	TRP	3.0
1	F	230	ALA	3.0
1	J	202	THR	3.0
1	L	240	GLY	3.0
1	R	233	THR	3.0
1	P	68	HIS	3.0
1	M	224	THR	3.0
1	R	73	ASP	3.0
1	N	213	ASN	2.9
1	R	234	THR	2.9
1	N	154	GLY	2.9
1	L	84	ILE	2.9
1	M	84	ILE	2.9
1	H	73	ASP	2.9
1	M	304	ASN	2.9
1	L	211	ASP	2.9
1	H	241	CYS	2.8
1	I	233	THR	2.8
1	O	80	ILE	2.8
1	K	220	LEU	2.8
1	N	35	THR	2.8
1	J	222	ASP	2.8
1	P	60	VAL	2.8
1	K	270	GLU	2.8
1	R	95	ILE	2.8
1	P	91	GLY	2.8
1	H	231	TYR	2.8
1	I	44	GLY	2.7
1	M	55	LEU	2.7

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type	RSRZ
1	I	94	GLU	2.7
1	I	15	THR	2.7
1	P	84	ILE	2.7
1	F	239	GLY	2.7
1	G	67	SER	2.7
1	O	213	ASN	2.7
1	G	240	GLY	2.7
1	N	203	TYR	2.6
1	I	227	TYR	2.6
1	J	219	PHE	2.6
1	J	206	THR	2.6
1	Q	219	PHE	2.6
1	L	118	TYR	2.6
1	Q	86	GLY	2.6
1	N	224	THR	2.6
1	P	146	GLU	2.6
1	J	234	THR	2.5
1	H	234	THR	2.5
1	N	226	PHE	2.5
1	J	80	ILE	2.5
1	N	240	GLY	2.5
1	M	71	THR	2.5
1	J	226	PHE	2.5
1	M	200	LEU	2.5
1	A	213	ASN	2.5
1	M	201	LEU	2.5
1	I	215	LYS	2.5
1	L	94	GLU	2.5
1	H	237	HIS	2.5
1	O	85	HIS	2.5
1	J	113	ASP	2.5
1	P	143	ILE	2.5
1	R	313	LEU	2.5
1	M	211	ASP	2.4
1	J	314	ALA	2.4
1	K	135	ALA	2.4
1	K	55	LEU	2.4
1	D	213	ASN	2.4
1	R	93	VAL	2.4
1	K	239	GLY	2.4
1	Q	85	HIS	2.4
1	D	30	ILE	2.4

Continued from previous page...

Mol	Chain	Res	Type	RSRZ
1	M	206	THR	2.4
1	R	200	LEU	2.4
1	Q	79	PRO	2.4
1	R	213	ASN	2.4
1	K	30	ILE	2.4
1	M	85	HIS	2.4
1	D	239	GLY	2.4
1	L	122	LEU	2.4
1	I	222	ASP	2.4
1	P	121	ASP	2.4
1	N	241	CYS	2.4
1	J	303	LEU	2.4
1	N	65	GLY	2.3
1	E	236	PRO	2.3
1	K	73	ASP	2.3
1	P	104	ASP	2.3
1	R	68	HIS	2.3
1	I	206	THR	2.3
1	H	232	GLU	2.3
1	I	235	ALA	2.3
1	N	238	LEU	2.3
1	P	202	THR	2.3
1	J	229	LYS	2.3
1	M	222	ASP	2.3
1	M	314	ALA	2.3
1	Q	202	THR	2.3
1	H	93	VAL	2.3
1	R	60	VAL	2.3
1	F	241	CYS	2.3
1	N	90	ILE	2.3
1	I	226	PHE	2.3
1	A	237	HIS	2.3
1	N	237	HIS	2.3
1	R	69	ALA	2.3
1	I	60	VAL	2.3
1	Q	209	TRP	2.3
1	K	90	ILE	2.3
1	M	239	GLY	2.3
1	R	83	PHE	2.3
1	K	93	VAL	2.3
1	L	213	ASN	2.3
1	Q	232	GLU	2.3

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type	RSRZ
1	H	244	HIS	2.3
1	P	85	HIS	2.3
1	I	219	PHE	2.3
1	F	33	THR	2.2
1	H	17	ALA	2.2
1	R	75	PHE	2.2
1	M	81	SER	2.2
1	Q	236	PRO	2.2
1	J	84	ILE	2.2
1	P	118	TYR	2.2
1	P	119	GLY	2.2
1	R	282	THR	2.2
1	I	48	ALA	2.2
1	P	285	ASN	2.2
1	H	224	THR	2.2
1	M	214	THR	2.2
1	P	147	ILE	2.2
1	L	203	TYR	2.2
1	J	212	LEU	2.2
1	N	38	ASN	2.2
1	R	232	GLU	2.2
1	J	218	LYS	2.2
1	Q	90	ILE	2.2
1	R	32	ILE	2.2
1	L	233	THR	2.2
1	K	31	GLY	2.2
1	K	212	LEU	2.2
1	N	232	GLU	2.2
1	D	227	TYR	2.2
1	R	225	ASP	2.1
1	Q	137	LEU	2.1
1	C	91	GLY	2.1
1	M	207	LYS	2.1
1	Q	235	ALA	2.1
1	M	70	SER	2.1
1	P	75	PHE	2.1
1	R	230	ALA	2.1
1	J	207	LYS	2.1
1	O	237	HIS	2.1
1	K	33	THR	2.1
1	O	71	THR	2.1
1	R	6	LEU	2.1

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type	RSRZ
1	N	236	PRO	2.1
1	P	99	PRO	2.1
1	R	237	HIS	2.1
1	I	203	TYR	2.1
1	L	202	THR	2.1
1	R	16	LEU	2.1
1	N	216	ALA	2.1
1	E	33	THR	2.1
1	L	139	LYS	2.1
1	H	235	ALA	2.1
1	B	240	GLY	2.1
1	H	13	ASP	2.1
1	M	231	TYR	2.1
1	R	205	GLU	2.1
1	J	79	PRO	2.1
1	M	83	PHE	2.1
1	R	201	LEU	2.0
1	D	230	ALA	2.0
1	J	95	ILE	2.0
1	R	222	ASP	2.0
1	R	182	PHE	2.0
1	R	306	PHE	2.0
1	J	213	ASN	2.0
1	H	215	LYS	2.0
1	O	222	ASP	2.0
1	G	239	GLY	2.0
1	R	80	ILE	2.0
1	K	71	THR	2.0
1	R	62	VAL	2.0
1	N	239	GLY	2.0
1	R	145	ASP	2.0
1	O	231	TYR	2.0
1	I	214	THR	2.0
1	Q	83	PHE	2.0
1	L	208	GLN	2.0

6.2 Non-standard residues in protein, DNA, RNA chains ⓘ

There are no non-standard protein/DNA/RNA residues in this entry.

6.3 Carbohydrates (i)

There are no monosaccharides in this entry.

6.4 Ligands (i)

In the following table, the Atoms column lists the number of modelled atoms in the group and the number defined in the chemical component dictionary. The B-factors column lists the minimum, median, 95th percentile and maximum values of B factors of atoms in the group. The column labelled 'Q< 0.9' lists the number of atoms with occupancy less than 0.9.

Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors(Å^2)	Q<0.9
2	CA	K	400	1/1	0.86	0.09	39,39,39,39	0
2	CA	H	400	1/1	0.89	0.11	36,36,36,36	0
2	CA	R	400	1/1	0.89	0.10	46,46,46,46	0
2	CA	I	400	1/1	0.91	0.11	32,32,32,32	0
2	CA	N	400	1/1	0.91	0.11	43,43,43,43	0
2	CA	P	400	1/1	0.91	0.15	32,32,32,32	0
2	CA	J	400	1/1	0.91	0.13	31,31,31,31	0
2	CA	L	400	1/1	0.94	0.10	39,39,39,39	0
2	CA	A	400	1/1	0.94	0.09	21,21,21,21	0
2	CA	B	400	1/1	0.95	0.17	27,27,27,27	0
2	CA	D	400	1/1	0.95	0.11	29,29,29,29	0
2	CA	O	400	1/1	0.95	0.12	32,32,32,32	0
2	CA	E	400	1/1	0.95	0.10	32,32,32,32	0
2	CA	F	400	1/1	0.95	0.13	30,30,30,30	0
2	CA	G	400	1/1	0.96	0.16	28,28,28,28	0
2	CA	M	400	1/1	0.96	0.10	32,32,32,32	0
2	CA	Q	400	1/1	0.97	0.11	38,38,38,38	0
2	CA	C	400	1/1	0.97	0.11	24,24,24,24	0

6.5 Other polymers (i)

There are no such residues in this entry.