Full wwPDB X-ray Structure Validation Report (i)

Jun 25, 2024 – 01:03 PM EDT

PDB ID	:	6FL0
Title	:	Crystal structure of the membrane attack complex assembly inhibitor BGA71 from Lyme disease agent Borreliella bavariensis
Authors	:	Brangulis, K.; Akopjana, I.; Petrovskis, I.; Kazaks, A.; Tars, K.
Deposited on	:	2018-01-25
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 (1)) were used in the production of this report:

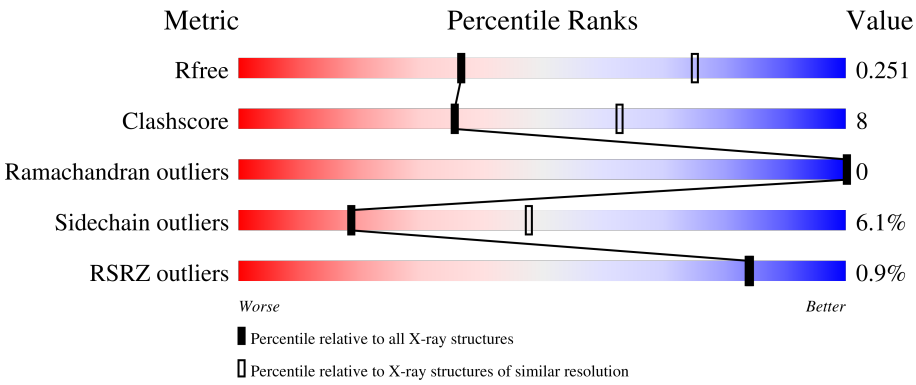
MolProbity	:	4.02b-467
Xtriage (Phenix)	:	1.13
EDS	:	2.37.1
Percentile statistics	:	20191225.v01 (using entries in the PDB archive December 25th 2019)
Refmac	:	5.8.0158
CCP4	:	7.0.044 (Gargrove)
Ideal geometry (proteins)	:	Engh & Huber (2001)
Ideal geometry (DNA, RNA)	:	Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP)	:	2.37.1

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 2.90 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	194	% 72% 22% • 6%
1	B	194	6% 74% 13% • 12%
1	C	194	3% 74% 18% • 7%
1	D	194	% 76% 15% • 6%
1	E	194	70% 23% •• 6%

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Mol	Chain	Length	Quality of chain
1	F	194	65% 20% • 11%
1	G	194	73% 14% • 12%
1	H	194	% 68% 21% • 11%
1	I	194	73% 17% • 7%
1	J	194	75% 17% • 7%
1	K	194	3% 68% 12% • 19%
1	L	194	72% 20% • 7%
1	M	194	% 70% 17% • 12%
1	N	194	59% 26% • 11%
1	O	194	70% 22% • 6%
1	P	194	68% 20% • 8%
1	Q	194	64% 24% • 10%
1	R	194	61% 22% • 14%

2 Entry composition (i)

There is only 1 type of molecule in this entry. The entry contains 26099 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 membrane attack complex assembly inhibitor BGA71.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
1	A	183	1517	956	253	304	4	0	0	0
			Total	C	N	O	S			
1	B	170	1332	837	224	268	3	0	0	0
			Total	C	N	O	S			
1	C	181	1503	947	251	301	4	0	0	0
			Total	C	N	O	S			
1	D	183	1517	956	253	304	4	0	0	0
			Total	C	N	O	S			
1	E	183	1514	953	253	304	4	0	0	0
			Total	C	N	O	S			
1	F	173	1434	908	237	285	4	0	0	0
			Total	C	N	O	S			
1	G	170	1411	895	232	280	4	0	0	0
			Total	C	N	O	S			
1	H	173	1433	906	236	287	4	0	0	0
			Total	C	N	O	S			
1	I	181	1502	947	250	301	4	0	0	0
			Total	C	N	O	S			
1	J	181	1503	947	251	301	4	0	0	0
			Total	C	N	O	S			
1	K	158	1268	795	215	254	4	0	0	0
			Total	C	N	O	S			
1	L	181	1503	947	251	301	4	0	0	0
			Total	C	N	O	S			
1	M	171	1418	897	233	284	4	0	0	0
			Total	C	N	O	S			
1	N	172	1425	901	234	286	4	0	0	0
			Total	C	N	O	S			
1	O	183	1514	953	253	304	4	0	0	0
			Total	C	N	O	S			
1	P	178	1475	931	244	296	4	0	0	0

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Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
1	Q	175	1450	918	239	289	4	0	0	0
			Total	C	N	O	S			
1	R	166	1380	874	228	274	4	0	0	0

There are 72 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
A	2	GLY	-	expression tag	UNP Q6ASF4
A	3	ALA	-	expression tag	UNP Q6ASF4
A	4	MET	-	expression tag	UNP Q6ASF4
A	5	GLY	-	expression tag	UNP Q6ASF4
B	2	GLY	-	expression tag	UNP Q6ASF4
B	3	ALA	-	expression tag	UNP Q6ASF4
B	4	MET	-	expression tag	UNP Q6ASF4
B	5	GLY	-	expression tag	UNP Q6ASF4
C	2	GLY	-	expression tag	UNP Q6ASF4
C	3	ALA	-	expression tag	UNP Q6ASF4
C	4	MET	-	expression tag	UNP Q6ASF4
C	5	GLY	-	expression tag	UNP Q6ASF4
D	2	GLY	-	expression tag	UNP Q6ASF4
D	3	ALA	-	expression tag	UNP Q6ASF4
D	4	MET	-	expression tag	UNP Q6ASF4
D	5	GLY	-	expression tag	UNP Q6ASF4
E	2	GLY	-	expression tag	UNP Q6ASF4
E	3	ALA	-	expression tag	UNP Q6ASF4
E	4	MET	-	expression tag	UNP Q6ASF4
E	5	GLY	-	expression tag	UNP Q6ASF4
F	2	GLY	-	expression tag	UNP Q6ASF4
F	3	ALA	-	expression tag	UNP Q6ASF4
F	4	MET	-	expression tag	UNP Q6ASF4
F	5	GLY	-	expression tag	UNP Q6ASF4
G	2	GLY	-	expression tag	UNP Q6ASF4
G	3	ALA	-	expression tag	UNP Q6ASF4
G	4	MET	-	expression tag	UNP Q6ASF4
G	5	GLY	-	expression tag	UNP Q6ASF4
H	2	GLY	-	expression tag	UNP Q6ASF4
H	3	ALA	-	expression tag	UNP Q6ASF4
H	4	MET	-	expression tag	UNP Q6ASF4
H	5	GLY	-	expression tag	UNP Q6ASF4
I	2	GLY	-	expression tag	UNP Q6ASF4
I	3	ALA	-	expression tag	UNP Q6ASF4

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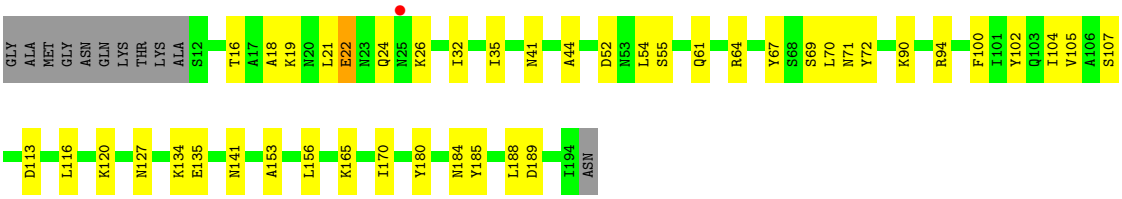
Chain	Residue	Modelled	Actual	Comment	Reference
I	4	MET	-	expression tag	UNP Q6ASF4
I	5	GLY	-	expression tag	UNP Q6ASF4
J	2	GLY	-	expression tag	UNP Q6ASF4
J	3	ALA	-	expression tag	UNP Q6ASF4
J	4	MET	-	expression tag	UNP Q6ASF4
J	5	GLY	-	expression tag	UNP Q6ASF4
K	2	GLY	-	expression tag	UNP Q6ASF4
K	3	ALA	-	expression tag	UNP Q6ASF4
K	4	MET	-	expression tag	UNP Q6ASF4
K	5	GLY	-	expression tag	UNP Q6ASF4
L	2	GLY	-	expression tag	UNP Q6ASF4
L	3	ALA	-	expression tag	UNP Q6ASF4
L	4	MET	-	expression tag	UNP Q6ASF4
L	5	GLY	-	expression tag	UNP Q6ASF4
M	2	GLY	-	expression tag	UNP Q6ASF4
M	3	ALA	-	expression tag	UNP Q6ASF4
M	4	MET	-	expression tag	UNP Q6ASF4
M	5	GLY	-	expression tag	UNP Q6ASF4
N	2	GLY	-	expression tag	UNP Q6ASF4
N	3	ALA	-	expression tag	UNP Q6ASF4
N	4	MET	-	expression tag	UNP Q6ASF4
N	5	GLY	-	expression tag	UNP Q6ASF4
O	2	GLY	-	expression tag	UNP Q6ASF4
O	3	ALA	-	expression tag	UNP Q6ASF4
O	4	MET	-	expression tag	UNP Q6ASF4
O	5	GLY	-	expression tag	UNP Q6ASF4
P	2	GLY	-	expression tag	UNP Q6ASF4
P	3	ALA	-	expression tag	UNP Q6ASF4
P	4	MET	-	expression tag	UNP Q6ASF4
P	5	GLY	-	expression tag	UNP Q6ASF4
Q	2	GLY	-	expression tag	UNP Q6ASF4
Q	3	ALA	-	expression tag	UNP Q6ASF4
Q	4	MET	-	expression tag	UNP Q6ASF4
Q	5	GLY	-	expression tag	UNP Q6ASF4
R	2	GLY	-	expression tag	UNP Q6ASF4
R	3	ALA	-	expression tag	UNP Q6ASF4
R	4	MET	-	expression tag	UNP Q6ASF4
R	5	GLY	-	expression tag	UNP Q6ASF4

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.

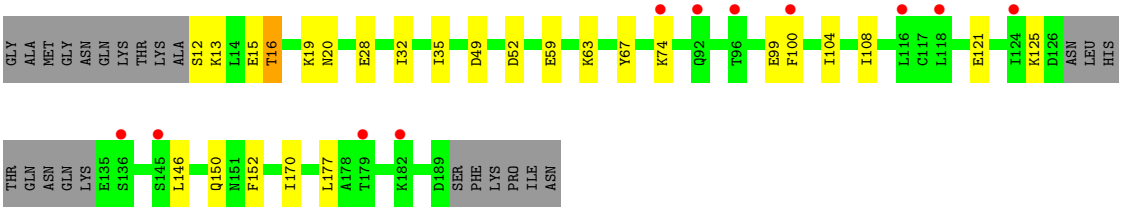
• Molecule 1: membrane attack complex assembly inhibitor BGA71

Chain A:



• Molecule 1: membrane attack complex assembly inhibitor BGA71

Chain B:

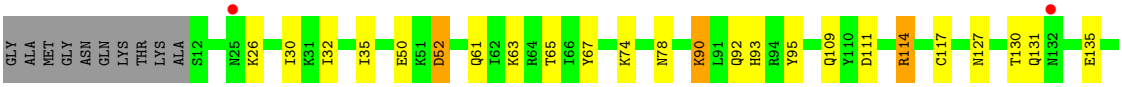


• Molecule 1: membrane attack complex assembly inhibitor BGA71

Chain C:

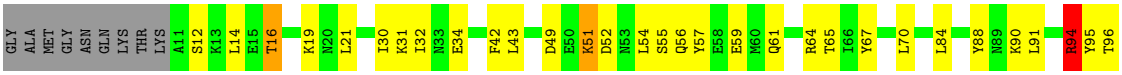
• Molecule 1: membrane attack complex assembly inhibitor BGA71

Chain D:



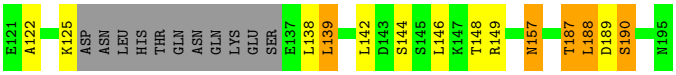
• Molecule 1: membrane attack complex assembly inhibitor BGA71

Chain E:



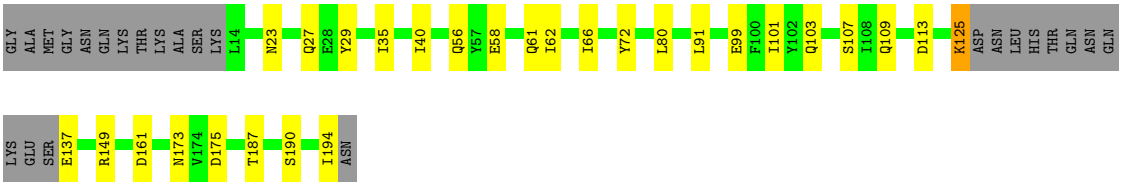
• Molecule 1: membrane attack complex assembly inhibitor BGA71

Chain F:



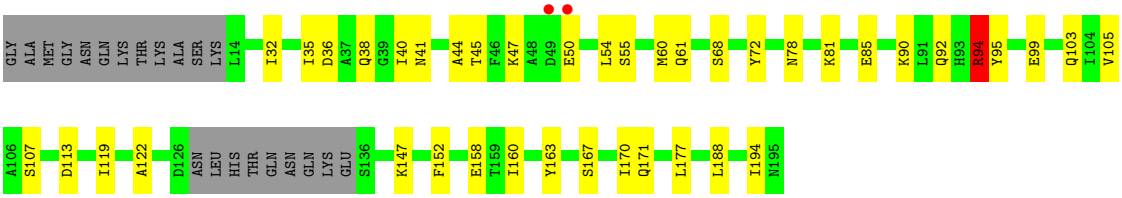
• Molecule 1: membrane attack complex assembly inhibitor BGA71

Chain G:



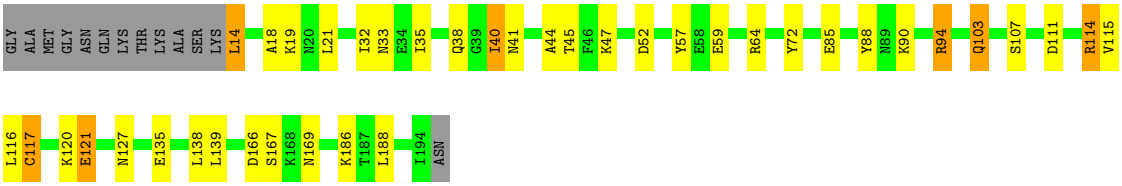
• Molecule 1: membrane attack complex assembly inhibitor BGA71

Chain H:



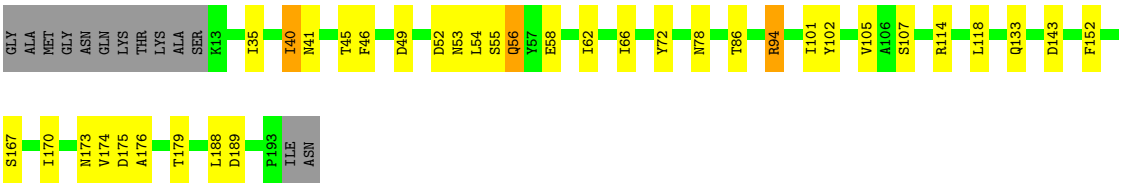
• Molecule 1: membrane attack complex assembly inhibitor BGA71

Chain I:



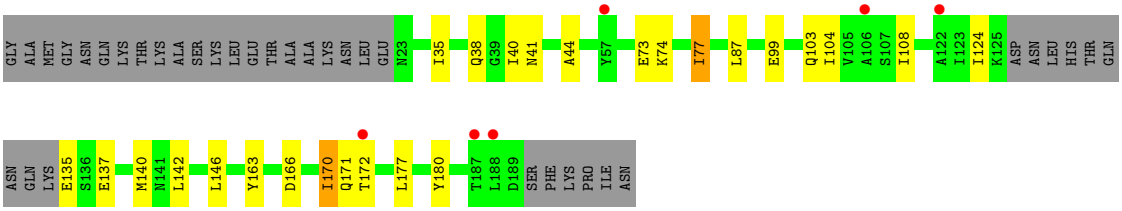
• Molecule 1: membrane attack complex assembly inhibitor BGA71

Chain J:



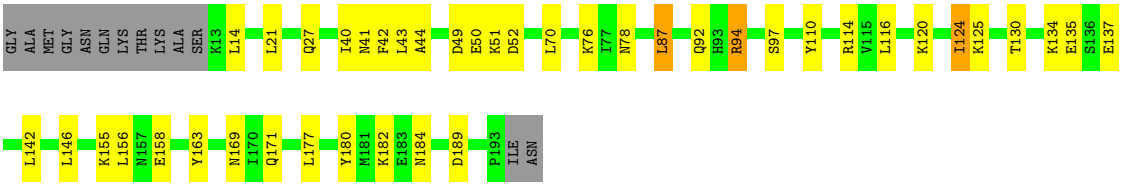
• Molecule 1: membrane attack complex assembly inhibitor BGA71

Chain K:



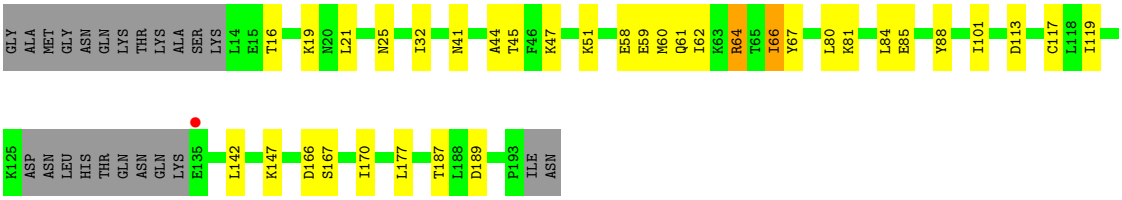
• Molecule 1: membrane attack complex assembly inhibitor BGA71

Chain L:



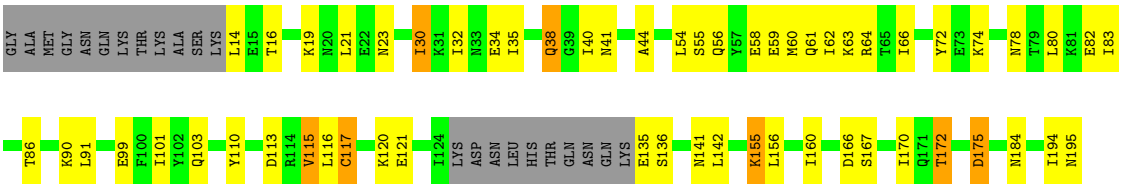
• Molecule 1: membrane attack complex assembly inhibitor BGA71

Chain M:



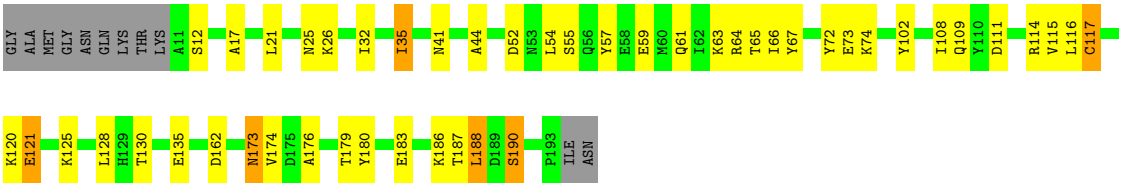
• Molecule 1: membrane attack complex assembly inhibitor BGA71

Chain N:



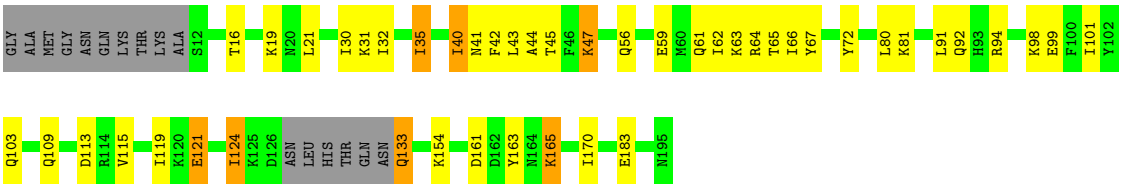
• Molecule 1: membrane attack complex assembly inhibitor BGA71

Chain O:



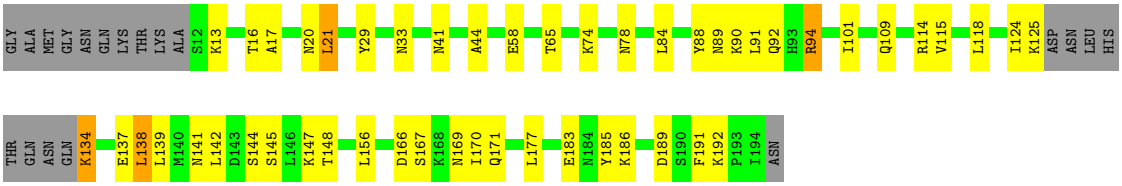
• Molecule 1: membrane attack complex assembly inhibitor BGA71

Chain P:



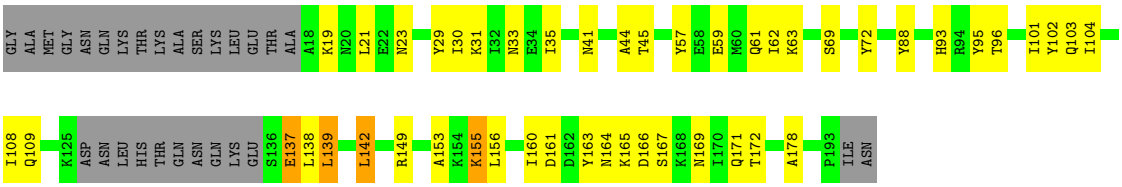
• Molecule 1: membrane attack complex assembly inhibitor BGA71

Chain Q:



• Molecule 1: membrane attack complex assembly inhibitor BGA71

Chain R:



4 Data and refinement statistics (i)

Property	Value	Source
Space group	P 31	Depositor
Cell constants a, b, c, α, β, γ	239.18Å 239.18Å 56.25Å 90.00° 90.00° 120.00°	Depositor
Resolution (Å)	59.87 – 2.90 59.79 – 2.90	Depositor EDS
% Data completeness (in resolution range)	99.9 (59.87-2.90) 99.9 (59.79-2.90)	Depositor EDS
R_{merge}	0.09	Depositor
R_{sym}	(Not available)	Depositor
$< I/\sigma(I) >$ [1]	15.71 (at 2.91Å)	Xtriage
Refinement program	REFMAC 5.8.0230	Depositor
R, R_{free}	0.192 , 0.248 0.201 , 0.251	Depositor DCC
R_{free} test set	4045 reflections (5.07%)	wwPDB-VP
Wilson B-factor (Å^2)	30.3	Xtriage
Anisotropy	0.063	Xtriage
Bulk solvent k_{sol}(e/Å^3), B_{sol}(Å^2)	0.35 , 33.5	EDS
L-test for twinning[2]	$< \|L\| > = 0.48$, $< L^2 > = 0.30$	Xtriage
Estimated twinning fraction	0.024 for -h,-k,l 0.005 for h,-h-k,-l 0.026 for -k,-h,-l	Xtriage
F_o,F_c correlation	0.92	EDS
Total number of atoms	26099	wwPDB-VP
Average B, all atoms (Å^2)	32.0	wwPDB-VP

Xtriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 16.49% 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	0.46	0/1535	0.61	0/2062
1	B	0.34	0/1343	0.49	0/1808
1	C	0.38	0/1521	0.58	0/2043
1	D	0.40	0/1535	0.57	0/2062
1	E	0.53	1/1532 (0.1%)	0.66	0/2058
1	F	0.55	0/1450	0.68	0/1946
1	G	0.39	0/1427	0.55	0/1916
1	H	0.54	1/1449 (0.1%)	0.63	0/1946
1	I	0.54	1/1520 (0.1%)	0.62	0/2043
1	J	0.44	0/1521	0.64	0/2043
1	K	0.37	0/1280	0.51	0/1719
1	L	0.39	0/1521	0.60	0/2043
1	M	0.46	0/1434	0.61	0/1925
1	N	0.48	0/1441	0.65	0/1936
1	O	0.59	1/1532 (0.1%)	0.67	0/2058
1	P	0.45	0/1491	0.63	1/2000 (0.1%)
1	Q	0.51	0/1466	0.67	0/1966
1	R	0.43	0/1396	0.58	0/1873
All	All	0.46	4/26394 (0.0%)	0.61	1/35447 (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	A	0	1
1	D	0	1
1	E	0	1
1	F	0	1
1	H	0	1
1	I	0	2
1	J	0	1

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Mol	Chain	#Chirality outliers	#Planarity outliers
1	L	0	1
1	M	0	1
1	N	0	1
1	P	0	1
1	Q	0	1
All	All	0	13

All (4) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
1	I	121	GLU	CD-OE1	-5.19	1.20	1.25
1	O	121	GLU	CD-OE2	-5.16	1.20	1.25
1	H	158	GLU	CD-OE2	-5.04	1.20	1.25
1	E	59	GLU	CD-OE2	-5.00	1.20	1.25

All (1) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
1	P	40	ILE	N-CA-C	-6.36	93.83	111.00

There are no chirality outliers.

All (13) planarity outliers are listed below:

Mol	Chain	Res	Type	Group
1	A	94	ARG	Sidechain
1	D	114	ARG	Sidechain
1	E	94	ARG	Sidechain
1	F	114	ARG	Sidechain
1	H	94	ARG	Sidechain
1	I	114	ARG	Sidechain
1	I	94	ARG	Sidechain
1	J	114	ARG	Sidechain
1	L	94	ARG	Sidechain
1	M	64	ARG	Sidechain
1	N	64	ARG	Sidechain
1	P	94	ARG	Sidechain
1	Q	114	ARG	Sidechain

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	1517	0	1528	23	0
1	B	1332	0	1280	11	0
1	C	1503	0	1513	22	0
1	D	1517	0	1529	25	2
1	E	1514	0	1523	28	1
1	F	1434	0	1453	43	0
1	G	1411	0	1428	20	0
1	H	1433	0	1444	29	0
1	I	1502	0	1511	30	1
1	J	1503	0	1512	20	0
1	K	1268	0	1230	16	0
1	L	1503	0	1513	23	0
1	M	1418	0	1429	16	2
1	N	1425	0	1433	44	0
1	O	1514	0	1523	33	0
1	P	1475	0	1488	24	0
1	Q	1450	0	1471	32	1
1	R	1380	0	1394	28	1
All	All	26099	0	26202	424	4

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 8.

All (424) 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:F:117:CYS:CB	1:O:117:CYS:SG	2.34	1.15
1:Q:84:LEU:HD13	1:Q:101:ILE:HD11	1.14	1.14
1:F:117:CYS:SG	1:O:117:CYS:CB	2.42	1.07
1:I:117:CYS:CB	1:N:117:CYS:SG	2.46	1.02
1:I:117:CYS:SG	1:N:117:CYS:CB	2.48	1.01
1:E:94:ARG:HG3	1:E:94:ARG:HH11	1.28	0.97
1:N:41:ASN:HB3	1:N:44:ALA:HB2	1.56	0.87
1:N:21:LEU:HD23	1:N:116:LEU:HD13	1.56	0.84
1:Q:84:LEU:CD1	1:Q:101:ILE:HD11	2.02	0.84

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:J:94:ARG:HG3	1:J:94:ARG:HH11	1.43	0.82
1:M:61:GLN:OE1	1:M:113:ASP:OD2	1.98	0.81
1:O:59:GLU:O	1:O:63:LYS:HG3	1.80	0.81
1:I:116:LEU:HG	1:I:120:LYS:HE3	1.64	0.80
1:H:61:GLN:NE2	1:H:113:ASP:OD2	2.16	0.79
1:Q:84:LEU:HD13	1:Q:101:ILE:CD1	2.07	0.77
1:D:172:THR:HG22	1:N:91:LEU:HG	1.64	0.77
1:F:12:SER:HB3	1:F:15:GLU:HB2	1.67	0.77
1:A:54:LEU:HD13	1:A:102:TYR:HE1	1.50	0.76
1:I:114:ARG:NH2	1:N:121:GLU:OE2	2.18	0.76
1:H:94:ARG:HG3	1:H:94:ARG:NH1	2.02	0.73
1:R:109:GLN:HE22	1:R:149:ARG:HH11	1.37	0.73
1:I:117:CYS:SG	1:N:117:CYS:SG	0.73	0.73
1:F:94:ARG:O	1:F:94:ARG:HG3	1.90	0.71
1:N:35:ILE:HG22	1:N:40:ILE:HD11	1.72	0.71
1:O:65:THR:OG1	1:O:109:GLN:NE2	2.24	0.71
1:K:172:THR:HG23	1:Q:89:ASN:HB3	1.72	0.71
1:K:172:THR:CG2	1:Q:89:ASN:HB3	2.21	0.70
1:P:62:ILE:HD13	1:P:101:ILE:HG23	1.73	0.69
1:H:147:LYS:HE3	1:L:158:GLU:HG3	1.74	0.69
1:Q:41:ASN:HB3	1:Q:44:ALA:HB2	1.74	0.68
1:F:65:THR:OG1	1:F:109:GLN:NE2	2.26	0.68
1:I:40:ILE:HD13	1:I:40:ILE:N	2.09	0.67
1:D:166:ASP:OD2	1:D:172:THR:HG23	1.94	0.67
1:J:55:SER:HB3	1:J:58:GLU:OE1	1.94	0.67
1:L:87:LEU:HD13	1:L:177:LEU:HD23	1.77	0.67
1:C:131:GLN:HE21	1:C:131:GLN:HA	1.60	0.66
1:N:194:ILE:O	1:N:195:ASN:ND2	2.28	0.66
1:F:61:GLN:NE2	1:F:113:ASP:OD2	2.29	0.66
1:K:104:ILE:O	1:K:108:ILE:HG12	1.96	0.66
1:R:163:TYR:CE1	1:R:171:GLN:HG3	2.31	0.66
1:M:60:MET:O	1:M:64:ARG:HG3	1.96	0.66
1:J:175:ASP:O	1:J:179:THR:HG23	1.96	0.66
1:O:179:THR:O	1:O:183:GLU:HG2	1.96	0.65
1:A:19:LYS:HG3	1:G:56:GLN:OE1	1.97	0.65
1:J:94:ARG:HG3	1:J:94:ARG:NH1	2.10	0.65
1:R:161:ASP:O	1:R:165:LYS:HG2	1.96	0.65
1:H:40:ILE:HD12	1:H:78:ASN:HD21	1.63	0.64
1:I:188:LEU:HD23	1:I:188:LEU:C	2.18	0.64
1:Q:29:TYR:O	1:Q:33:ASN:ND2	2.29	0.64
1:E:14:LEU:HD22	1:E:135:GLU:HG2	1.80	0.64

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:F:88:TYR:O	1:F:94:ARG:NH2	2.30	0.63
1:Q:124:ILE:O	1:Q:124:ILE:HG22	1.97	0.63
1:D:171:GLN:HG2	1:N:91:LEU:HD11	1.81	0.63
1:I:107:SER:HB3	1:I:188:LEU:HD12	1.81	0.63
1:F:117:CYS:SG	1:O:117:CYS:SG	0.63	0.62
1:F:187:THR:HG23	1:F:190:SER:HB3	1.81	0.62
1:N:116:LEU:HG	1:N:120:LYS:HE3	1.79	0.62
1:O:64:ARG:HG2	1:O:64:ARG:HH11	1.65	0.61
1:H:35:ILE:HD11	1:H:72:TYR:HB3	1.82	0.61
1:D:171:GLN:HG2	1:N:91:LEU:CD1	2.30	0.61
1:D:172:THR:HG22	1:N:91:LEU:CG	2.30	0.61
1:M:62:ILE:HD13	1:M:101:ILE:HG23	1.82	0.61
1:N:61:GLN:OE1	1:N:113:ASP:OD2	2.18	0.61
1:H:32:ILE:HD13	1:H:60:MET:HE3	1.83	0.60
1:R:45:THR:CG2	1:R:88:TYR:CD2	2.84	0.60
1:C:29:TYR:O	1:C:33:ASN:ND2	2.29	0.60
1:D:172:THR:HG22	1:N:91:LEU:CD1	2.32	0.60
1:N:41:ASN:CB	1:N:44:ALA:HB2	2.30	0.60
1:I:21:LEU:HD23	1:I:116:LEU:HD13	1.84	0.60
1:P:35:ILE:HD11	1:P:72:TYR:HB3	1.84	0.60
1:E:94:ARG:HG3	1:E:94:ARG:NH1	2.06	0.59
1:F:88:TYR:CE2	1:F:94:ARG:HD2	2.37	0.59
1:M:41:ASN:HB3	1:M:44:ALA:HB2	1.83	0.59
1:A:22:GLU:OE1	1:A:22:GLU:HA	2.01	0.59
1:J:66:ILE:HD11	1:J:105:VAL:HG21	1.84	0.59
1:N:115:VAL:HG11	1:N:142:LEU:HA	1.84	0.58
1:O:41:ASN:HB3	1:O:44:ALA:HB2	1.86	0.58
1:O:114:ARG:O	1:O:114:ARG:HG2	2.01	0.58
1:J:56:GLN:HE22	1:P:19:LYS:HE3	1.68	0.58
1:C:42:PHE:HA	1:C:81:LYS:HE2	1.85	0.58
1:L:180:TYR:O	1:L:184:ASN:ND2	2.36	0.58
1:R:35:ILE:HD11	1:R:72:TYR:HB3	1.86	0.58
1:F:14:LEU:HD12	1:F:139:LEU:HD13	1.86	0.58
1:G:109:GLN:HE22	1:G:149:ARG:HH11	1.52	0.58
1:I:57:TYR:CE2	1:N:120:LYS:HG2	2.39	0.58
1:G:56:GLN:CD	1:G:56:GLN:H	2.07	0.57
1:Q:74:LYS:O	1:Q:78:ASN:ND2	2.37	0.57
1:D:90:LYS:N	1:D:90:LYS:HD3	2.19	0.57
1:F:108:ILE:HD13	1:F:188:LEU:HD12	1.86	0.57
1:P:61:GLN:NE2	1:P:113:ASP:OD2	2.36	0.57
1:N:32:ILE:HD13	1:N:60:MET:HE3	1.85	0.57

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:I:111:ASP:O	1:I:115:VAL:HG23	2.04	0.57
1:A:54:LEU:HD13	1:A:102:TYR:CE1	2.36	0.57
1:K:40:ILE:HD12	1:K:77:ILE:HD11	1.87	0.57
1:M:167:SER:O	1:M:170:ILE:HG12	2.06	0.56
1:A:100:PHE:O	1:A:105:VAL:HG23	2.05	0.56
1:R:163:TYR:CZ	1:R:171:GLN:HG3	2.40	0.56
1:N:59:GLU:O	1:N:63:LYS:HG3	2.05	0.56
1:F:120:LYS:HE2	1:O:57:TYR:CE1	2.40	0.56
1:I:35:ILE:HD11	1:I:72:TYR:O	2.06	0.56
1:N:82:GLU:O	1:N:86:THR:OG1	2.22	0.56
1:P:42:PHE:HA	1:P:81:LYS:HD2	1.87	0.56
1:N:34:GLU:O	1:N:38:GLN:NE2	2.39	0.55
1:H:107:SER:HB3	1:H:188:LEU:HD12	1.88	0.55
1:L:110:TYR:OH	1:L:114:ARG:NH1	2.39	0.55
1:P:161:ASP:O	1:P:165:LYS:HG2	2.06	0.55
1:B:16:THR:HA	1:B:19:LYS:HG2	1.89	0.55
1:C:134:LYS:HA	1:C:134:LYS:HE3	1.88	0.55
1:F:110:TYR:OH	1:O:121:GLU:HG3	2.06	0.55
1:A:61:GLN:NE2	1:A:113:ASP:OD2	2.39	0.55
1:A:61:GLN:O	1:A:64:ARG:HB2	2.07	0.55
1:F:90:LYS:HG2	1:F:93:HIS:HD2	1.72	0.55
1:R:156:LEU:O	1:R:160:ILE:HG12	2.07	0.54
1:D:52:ASP:OD1	1:D:52:ASP:N	2.40	0.54
1:O:162:ASP:OD2	1:O:180:TYR:OH	2.26	0.54
1:Q:167:SER:O	1:Q:170:ILE:HG12	2.07	0.54
1:D:131:GLN:HE22	1:D:135:GLU:CG	2.21	0.54
1:J:167:SER:O	1:J:170:ILE:HG12	2.07	0.54
1:R:104:ILE:O	1:R:108:ILE:HG12	2.07	0.54
1:L:41:ASN:HB3	1:L:44:ALA:HB2	1.90	0.54
1:N:62:ILE:HD13	1:N:101:ILE:HG23	1.88	0.54
1:E:54:LEU:HD13	1:E:102:TYR:HE1	1.72	0.54
1:M:21:LEU:HD11	1:M:142:LEU:HD11	1.90	0.54
1:R:61:GLN:HE21	1:R:109:GLN:HG3	1.73	0.54
1:J:56:GLN:HE22	1:P:19:LYS:CE	2.21	0.54
1:B:170:ILE:HG12	1:B:177:LEU:HD13	1.90	0.53
1:F:88:TYR:CD2	1:F:94:ARG:HD2	2.43	0.53
1:N:167:SER:O	1:N:170:ILE:HG12	2.09	0.53
1:F:119:ILE:CD1	1:F:138:LEU:HB3	2.39	0.53
1:N:90:LYS:NZ	1:N:175:ASP:OD1	2.41	0.53
1:O:54:LEU:HD13	1:O:102:TYR:HE1	1.73	0.53
1:J:94:ARG:HH11	1:J:94:ARG:CG	2.17	0.53

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:70:LEU:HD21	1:A:156:LEU:HG	1.90	0.53
1:C:188:LEU:HD12	1:C:188:LEU:N	2.24	0.53
1:L:94:ARG:O	1:L:97:SER:HB3	2.09	0.52
1:R:62:ILE:HD13	1:R:101:ILE:HG12	1.91	0.52
1:C:54:LEU:HD13	1:C:102:TYR:HE1	1.73	0.52
1:A:107:SER:HB3	1:A:188:LEU:HD22	1.91	0.52
1:D:130:THR:HG22	1:D:130:THR:O	2.09	0.52
1:R:155:LYS:O	1:R:155:LYS:HG3	2.10	0.52
1:A:35:ILE:HD11	1:A:72:TYR:HB3	1.92	0.52
1:H:94:ARG:HG3	1:H:94:ARG:HH11	1.72	0.52
1:J:46:PHE:O	1:J:49:ASP:HB3	2.10	0.52
1:O:67:TYR:HB3	1:O:72:TYR:CD1	2.45	0.52
1:N:156:LEU:O	1:N:160:ILE:HG12	2.10	0.52
1:P:65:THR:OG1	1:P:109:GLN:OE1	2.28	0.52
1:N:80:LEU:HA	1:N:83:ILE:HD12	1.91	0.51
1:C:131:GLN:HE21	1:C:131:GLN:CA	2.24	0.51
1:F:90:LYS:HG3	1:F:92:GLN:OE1	2.09	0.51
1:I:38:GLN:O	1:I:40:ILE:HD13	2.10	0.51
1:M:25:ASN:O	1:M:64:ARG:NH1	2.37	0.51
1:A:41:ASN:HB3	1:A:44:ALA:HB2	1.92	0.51
1:O:187:THR:O	1:O:190:SER:OG	2.29	0.51
1:R:21:LEU:HD21	1:R:142:LEU:HD21	1.93	0.51
1:G:40:ILE:HG23	1:G:40:ILE:O	2.11	0.51
1:P:59:GLU:OE2	1:P:63:LYS:NZ	2.29	0.51
1:A:18:ALA:O	1:A:22:GLU:HB2	2.11	0.51
1:A:165:LYS:O	1:A:165:LYS:HG2	2.11	0.51
1:F:41:ASN:HB3	1:F:44:ALA:HB2	1.93	0.51
1:A:26:LYS:HD3	1:G:29:TYR:OH	2.11	0.51
1:I:121:GLU:HG3	1:N:110:TYR:OH	2.11	0.51
1:Q:94:ARG:HH11	1:Q:94:ARG:CG	2.22	0.51
1:D:61:GLN:O	1:D:109:GLN:HG3	2.12	0.50
1:H:47:LYS:HG3	1:H:54:LEU:HD23	1.92	0.50
1:I:135:GLU:N	1:Q:137:GLU:OE2	2.45	0.50
1:L:21:LEU:HD11	1:L:142:LEU:HD11	1.93	0.50
1:R:41:ASN:HB3	1:R:44:ALA:HB2	1.94	0.50
1:J:54:LEU:HD13	1:J:102:TYR:HE1	1.77	0.50
1:H:32:ILE:HD13	1:H:60:MET:CE	2.40	0.50
1:H:167:SER:O	1:H:170:ILE:HG12	2.12	0.50
1:N:99:GLU:O	1:N:103:GLN:HB3	2.11	0.50
1:F:35:ILE:HD11	1:F:72:TYR:HB3	1.92	0.50
1:K:171:GLN:OE1	1:Q:91:LEU:HD11	2.12	0.50

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:100:PHE:O	1:C:105:VAL:HG23	2.11	0.50
1:A:127:ASN:OD1	1:G:58:GLU:OE2	2.30	0.49
1:E:32:ILE:HG12	1:E:67:TYR:CD2	2.47	0.49
1:C:107:SER:HB3	1:C:188:LEU:HD23	1.94	0.49
1:E:134:LYS:HD2	1:G:137:GLU:HB2	1.94	0.49
1:I:188:LEU:HD23	1:I:188:LEU:O	2.12	0.49
1:K:166:ASP:HB2	1:Q:91:LEU:HD12	1.94	0.49
1:O:61:GLN:HA	1:O:64:ARG:HD2	1.94	0.49
1:R:62:ILE:CD1	1:R:101:ILE:HG12	2.41	0.49
1:G:173:ASN:OD1	1:G:175:ASP:HB2	2.11	0.49
1:M:80:LEU:O	1:M:84:LEU:HG	2.12	0.49
1:N:74:LYS:O	1:N:78:ASN:OD1	2.30	0.49
1:I:117:CYS:HG	1:N:117:CYS:CB	2.10	0.49
1:F:90:LYS:HE3	1:F:92:GLN:OE1	2.13	0.49
1:F:29:TYR:CZ	1:O:26:LYS:CD	2.96	0.49
1:I:88:TYR:CE2	1:I:94:ARG:HD3	2.48	0.49
1:N:35:ILE:CG2	1:N:40:ILE:HD11	2.43	0.49
1:H:163:TYR:HD1	1:H:170:ILE:HG22	1.78	0.48
1:F:88:TYR:CD2	1:F:94:ARG:CD	2.96	0.48
1:K:38:GLN:OE1	1:K:74:LYS:HD3	2.14	0.48
1:I:41:ASN:HB3	1:I:44:ALA:HB2	1.96	0.48
1:F:29:TYR:CZ	1:O:26:LYS:HD3	2.48	0.48
1:F:30:ILE:HG13	1:F:31:LYS:N	2.28	0.48
1:O:66:ILE:HG22	1:O:67:TYR:HD1	1.78	0.48
1:O:173:ASN:O	1:O:176:ALA:HB3	2.14	0.48
1:O:64:ARG:HG2	1:O:64:ARG:NH1	2.26	0.48
1:R:59:GLU:OE2	1:R:63:LYS:NZ	2.44	0.48
1:B:35:ILE:HD11	1:B:67:TYR:CD2	2.48	0.48
1:F:119:ILE:HD11	1:F:138:LEU:HB3	1.96	0.48
1:H:92:GLN:O	1:H:95:TYR:HE1	1.96	0.48
1:I:45:THR:HG21	1:I:85:GLU:HG2	1.95	0.48
1:N:56:GLN:CD	1:N:56:GLN:H	2.17	0.48
1:O:17:ALA:O	1:O:21:LEU:HB2	2.14	0.48
1:R:137:GLU:HG3	1:R:138:LEU:N	2.29	0.48
1:F:112:ILE:HD13	1:F:146:LEU:HD23	1.94	0.48
1:O:67:TYR:HD1	1:O:67:TYR:N	2.10	0.48
1:R:109:GLN:HE22	1:R:149:ARG:NH1	2.07	0.48
1:E:180:TYR:HD1	1:E:181:MET:HE2	1.79	0.48
1:N:21:LEU:HD22	1:N:142:LEU:HD11	1.94	0.48
1:L:40:ILE:HG13	1:L:78:ASN:HD21	1.78	0.47
1:O:125:LYS:HD2	1:O:130:THR:HG23	1.96	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:Q:115:VAL:O	1:Q:118:LEU:N	2.47	0.47
1:C:41:ASN:HB3	1:C:44:ALA:HB2	1.96	0.47
1:G:23:ASN:O	1:G:27:GLN:HG2	2.14	0.47
1:H:107:SER:HB3	1:H:188:LEU:CD1	2.43	0.47
1:O:67:TYR:N	1:O:67:TYR:CD1	2.81	0.47
1:L:125:LYS:HD3	1:L:130:THR:O	2.15	0.47
1:F:70:LEU:HD23	1:F:157:ASN:ND2	2.29	0.47
1:K:142:LEU:HG	1:K:146:LEU:HD12	1.96	0.47
1:P:115:VAL:HG12	1:P:119:ILE:HD12	1.95	0.47
1:B:146:LEU:O	1:B:150:GLN:HG2	2.14	0.47
1:D:63:LYS:O	1:D:67:TYR:HB2	2.13	0.47
1:D:171:GLN:CG	1:N:91:LEU:HD11	2.44	0.47
1:J:107:SER:HB2	1:J:188:LEU:HD13	1.97	0.47
1:D:171:GLN:HE22	1:E:90:LYS:NZ	2.13	0.47
1:H:41:ASN:HB3	1:H:44:ALA:HB2	1.96	0.47
1:I:47:LYS:NZ	1:I:59:GLU:OE2	2.45	0.47
1:I:47:LYS:CE	1:I:59:GLU:OE2	2.63	0.47
1:N:166:ASP:OD1	1:N:172:THR:HG22	2.14	0.47
1:O:111:ASP:O	1:O:115:VAL:HG23	2.15	0.47
1:P:42:PHE:CD2	1:P:43:LEU:HG	2.50	0.47
1:Q:170:ILE:HD12	1:Q:177:LEU:HA	1.95	0.47
1:B:59:GLU:HG2	1:B:63:LYS:HE3	1.96	0.47
1:D:65:THR:OG1	1:D:109:GLN:HG2	2.14	0.47
1:H:163:TYR:CE1	1:H:171:GLN:HA	2.50	0.47
1:E:32:ILE:HD11	1:E:64:ARG:HA	1.96	0.47
1:F:35:ILE:HG22	1:F:40:ILE:HD11	1.97	0.47
1:A:21:LEU:HA	1:A:24:GLN:HG2	1.97	0.47
1:P:98:LYS:O	1:P:99:GLU:C	2.53	0.47
1:D:74:LYS:HB3	1:E:172:THR:HG23	1.96	0.46
1:G:91:LEU:HD13	1:R:172:THR:CG2	2.45	0.46
1:H:95:TYR:O	1:H:99:GLU:N	2.41	0.46
1:C:107:SER:CB	1:C:188:LEU:HD23	2.45	0.46
1:F:41:ASN:CB	1:F:44:ALA:HB2	2.45	0.46
1:H:40:ILE:HD12	1:H:78:ASN:ND2	2.30	0.46
1:J:40:ILE:HD11	1:J:78:ASN:HD21	1.80	0.46
1:J:118:LEU:HB3	1:J:133:GLN:HE22	1.80	0.46
1:Q:88:TYR:O	1:Q:94:ARG:NH1	2.48	0.46
1:D:158:GLU:HG3	1:M:147:LYS:HE3	1.96	0.46
1:G:109:GLN:HE22	1:G:149:ARG:NH1	2.14	0.46
1:Q:124:ILE:O	1:Q:124:ILE:CG2	2.63	0.46
1:R:29:TYR:O	1:R:33:ASN:ND2	2.49	0.46

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:D:131:GLN:HE22	1:D:135:GLU:HG2	1.81	0.46
1:G:99:GLU:O	1:G:103:GLN:HB2	2.16	0.46
1:P:32:ILE:HD11	1:P:64:ARG:HA	1.97	0.46
1:C:63:LYS:O	1:C:64:ARG:C	2.54	0.46
1:F:70:LEU:HD23	1:F:157:ASN:HD21	1.81	0.46
1:J:105:VAL:HG22	1:J:152:PHE:CZ	2.50	0.46
1:F:49:ASP:HB2	1:F:88:TYR:OH	2.16	0.46
1:G:61:GLN:NE2	1:G:113:ASP:OD2	2.48	0.46
1:H:170:ILE:HD12	1:H:177:LEU:HA	1.98	0.46
1:P:41:ASN:HB3	1:P:44:ALA:HB2	1.96	0.46
1:A:71:ASN:CG	1:A:71:ASN:O	2.54	0.46
1:C:121:GLU:HG3	1:C:125:LYS:HE2	1.97	0.45
1:E:95:TYR:CG	1:E:96:THR:N	2.84	0.45
1:Q:183:GLU:O	1:Q:186:LYS:HG3	2.16	0.45
1:R:30:ILE:HG13	1:R:31:LYS:N	2.32	0.45
1:L:92:GLN:HE21	1:P:91:LEU:HD13	1.81	0.45
1:Q:134:LYS:O	1:Q:138:LEU:HB2	2.16	0.45
1:O:32:ILE:HG12	1:O:67:TYR:CD2	2.50	0.45
1:E:158:GLU:HG3	1:Q:147:LYS:HE3	1.98	0.45
1:P:121:GLU:HG2	1:P:133:GLN:NE2	2.32	0.45
1:E:21:LEU:HD23	1:E:116:LEU:HD13	1.98	0.45
1:H:81:LYS:O	1:H:85:GLU:HG3	2.16	0.45
1:E:30:ILE:HG13	1:E:31:LYS:N	2.32	0.45
1:G:91:LEU:HD22	1:R:166:ASP:HB2	1.98	0.45
1:K:73:GLU:O	1:K:77:ILE:HG23	2.17	0.45
1:E:70:LEU:HD21	1:E:156:LEU:HG	1.97	0.45
1:G:62:ILE:HD13	1:G:101:ILE:HG23	1.99	0.45
1:H:107:SER:CB	1:H:188:LEU:HD12	2.46	0.45
1:L:87:LEU:HD13	1:L:177:LEU:CD2	2.45	0.45
1:C:30:ILE:HG13	1:C:31:LYS:N	2.32	0.45
1:F:109:GLN:HE22	1:F:149:ARG:HH11	1.64	0.45
1:F:122:ALA:O	1:F:125:LYS:N	2.47	0.45
1:E:84:LEU:HD13	1:E:101:ILE:HD11	1.99	0.45
1:B:100:PHE:O	1:B:104:ILE:HG23	2.17	0.44
1:C:188:LEU:HD12	1:C:188:LEU:H	1.82	0.44
1:D:93:HIS:HE1	1:D:175:ASP:OD1	2.00	0.44
1:E:51:LYS:H	1:E:51:LYS:HG2	1.50	0.44
1:H:94:ARG:HH11	1:H:94:ARG:CG	2.29	0.44
1:N:35:ILE:HD11	1:N:72:TYR:HB3	1.98	0.44
1:G:187:THR:HG23	1:G:190:SER:HB3	1.99	0.44
1:I:18:ALA:HA	1:I:116:LEU:HD11	1.99	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:P:16:THR:O	1:P:16:THR:HG22	2.17	0.44
1:Q:148:THR:HA	1:Q:191:PHE:O	2.17	0.44
1:B:12:SER:HB3	1:B:15:GLU:HB2	2.00	0.44
1:B:12:SER:OG	1:B:13:LYS:N	2.50	0.44
1:E:42:PHE:CD2	1:E:43:LEU:HG	2.53	0.44
1:J:86:THR:HG22	1:J:174:VAL:HG23	1.98	0.44
1:A:180:TYR:CZ	1:A:184:ASN:ND2	2.86	0.44
1:L:14:LEU:HG	1:L:135:GLU:HG3	2.00	0.44
1:R:57:TYR:CZ	1:R:61:GLN:OE1	2.70	0.44
1:A:104:ILE:HD13	1:A:185:TYR:HB3	2.00	0.44
1:C:96:THR:HG22	1:C:182:LYS:HD3	1.99	0.44
1:F:144:SER:O	1:F:148:THR:OG1	2.26	0.43
1:G:103:GLN:O	1:G:107:SER:OG	2.24	0.43
1:P:67:TYR:HB3	1:P:72:TYR:CD1	2.53	0.43
1:E:84:LEU:HD21	1:E:100:PHE:CD2	2.53	0.43
1:G:35:ILE:HD11	1:G:72:TYR:HB3	2.00	0.43
1:N:62:ILE:CD1	1:N:101:ILE:HG23	2.48	0.43
1:R:139:LEU:O	1:R:139:LEU:HD12	2.19	0.43
1:N:115:VAL:HG11	1:N:142:LEU:CA	2.48	0.43
1:C:61:GLN:HE22	1:C:64:ARG:HE	1.66	0.43
1:M:81:LYS:O	1:M:85:GLU:HG3	2.18	0.43
1:B:104:ILE:O	1:B:108:ILE:HG13	2.18	0.43
1:E:12:SER:O	1:E:16:THR:OG1	2.36	0.43
1:I:14:LEU:HD23	1:I:139:LEU:HD21	2.01	0.43
1:O:128:LEU:HB2	1:O:130:THR:HG22	1.99	0.43
1:R:101:ILE:HG23	1:R:102:TYR:CD2	2.54	0.43
1:C:88:TYR:CE1	1:C:94:ARG:NH1	2.86	0.43
1:Q:94:ARG:CG	1:Q:94:ARG:NH1	2.80	0.43
1:C:62:ILE:HD13	1:C:101:ILE:HD11	2.00	0.43
1:I:103:GLN:OE1	1:I:103:GLN:HA	2.18	0.43
1:J:173:ASN:O	1:J:176:ALA:HB3	2.19	0.43
1:L:70:LEU:HD21	1:L:156:LEU:HG	2.00	0.43
1:A:32:ILE:HG12	1:A:67:TYR:CD2	2.54	0.43
1:C:118:LEU:HD22	1:C:133:GLN:HE22	1.84	0.43
1:F:108:ILE:CD1	1:F:148:THR:HG22	2.48	0.43
1:L:116:LEU:HG	1:L:120:LYS:HE2	2.01	0.43
1:D:32:ILE:HG12	1:D:67:TYR:CD2	2.54	0.43
1:L:21:LEU:HD11	1:L:142:LEU:CD1	2.49	0.43
1:L:87:LEU:CD1	1:L:177:LEU:HD23	2.48	0.43
1:M:32:ILE:HD11	1:M:64:ARG:HA	2.01	0.43
1:O:173:ASN:OD1	1:O:173:ASN:C	2.57	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:P:30:ILE:HG13	1:P:31:LYS:N	2.33	0.43
1:Q:189:ASP:OD1	1:Q:192:LYS:HE2	2.19	0.43
1:R:95:TYR:CZ	1:R:96:THR:HG23	2.53	0.43
1:L:120:LYS:O	1:L:124:ILE:HG23	2.18	0.42
1:R:166:ASP:OD1	1:R:169:ASN:HA	2.19	0.42
1:B:28:GLU:O	1:B:32:ILE:HD12	2.19	0.42
1:B:121:GLU:O	1:B:125:LYS:HG3	2.19	0.42
1:E:180:TYR:HD1	1:E:181:MET:CE	2.31	0.42
1:H:99:GLU:O	1:H:103:GLN:HB2	2.19	0.42
1:J:45:THR:HG23	1:J:46:PHE:CD2	2.54	0.42
1:K:35:ILE:CG2	1:K:40:ILE:HD11	2.49	0.42
1:G:125:LYS:O	1:G:125:LYS:HG3	2.20	0.42
1:L:27:GLN:NE2	1:Q:74:LYS:HE2	2.35	0.42
1:P:163:TYR:HA	1:P:170:ILE:CG2	2.49	0.42
1:F:40:ILE:O	1:F:40:ILE:HG13	2.20	0.42
1:H:119:ILE:O	1:H:122:ALA:HB3	2.18	0.42
1:H:194:ILE:HB	1:L:155:LYS:HD2	2.00	0.42
1:L:42:PHE:CD2	1:L:43:LEU:HG	2.55	0.42
1:M:170:ILE:HD12	1:M:177:LEU:HA	2.00	0.42
1:E:61:GLN:O	1:E:109:GLN:HG2	2.20	0.42
1:F:57:TYR:CZ	1:F:61:GLN:HG3	2.54	0.42
1:H:170:ILE:HG23	1:H:177:LEU:HD13	2.00	0.42
1:I:127:ASN:OD1	1:N:58:GLU:OE1	2.38	0.42
1:C:61:GLN:NE2	1:C:64:ARG:HE	2.18	0.42
1:E:156:LEU:O	1:E:159:THR:HB	2.19	0.42
1:L:78:ASN:HD22	1:L:78:ASN:HA	1.76	0.42
1:L:163:TYR:CE1	1:L:171:GLN:HA	2.54	0.42
1:C:14:LEU:HD23	1:C:14:LEU:HA	1.95	0.42
1:D:26:LYS:O	1:D:30:ILE:HG12	2.20	0.42
1:F:61:GLN:O	1:F:109:GLN:HG2	2.20	0.42
1:N:66:ILE:HD12	1:N:80:LEU:CD2	2.50	0.42
1:A:69:SER:HB3	1:A:153:ALA:HA	2.02	0.41
1:F:65:THR:O	1:F:69:SER:OG	2.25	0.41
1:H:188:LEU:C	1:H:188:LEU:HD23	2.40	0.41
1:K:170:ILE:HD11	1:K:180:TYR:HB2	2.02	0.41
1:O:108:ILE:HG13	1:O:188:LEU:HD13	2.02	0.41
1:P:40:ILE:HG23	1:P:40:ILE:O	2.20	0.41
1:M:66:ILE:HG22	1:M:67:TYR:HD1	1.85	0.41
1:Q:17:ALA:O	1:Q:21:LEU:HB2	2.20	0.41
1:D:95:TYR:OH	1:D:182:LYS:HD3	2.20	0.41
1:D:130:THR:O	1:D:130:THR:CG2	2.68	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:F:65:THR:OG1	1:F:109:GLN:HB2	2.21	0.41
1:I:188:LEU:C	1:I:188:LEU:CD2	2.86	0.41
1:J:62:ILE:HD13	1:J:101:ILE:HG23	2.02	0.41
1:L:49:ASP:OD1	1:L:49:ASP:C	2.58	0.41
1:O:35:ILE:HD11	1:O:72:TYR:O	2.20	0.41
1:A:116:LEU:HG	1:A:120:LYS:HE3	2.02	0.41
1:K:87:LEU:HD11	1:K:177:LEU:HG	2.02	0.41
1:N:194:ILE:O	1:N:195:ASN:CG	2.59	0.41
1:O:116:LEU:HD11	1:O:120:LYS:HE3	2.03	0.41
1:Q:65:THR:OG1	1:Q:109:GLN:OE1	2.34	0.41
1:A:41:ASN:HD22	1:A:41:ASN:HA	1.67	0.41
1:E:57:TYR:O	1:E:61:GLN:HG2	2.20	0.41
1:K:163:TYR:HA	1:K:170:ILE:HG22	2.02	0.41
1:R:93:HIS:ND1	1:R:178:ALA:CB	2.83	0.41
1:E:88:TYR:O	1:E:94:ARG:NH1	2.54	0.41
1:K:140:MET:SD	1:K:140:MET:C	2.98	0.41
1:P:47:LYS:HE3	1:P:47:LYS:HB3	1.34	0.41
1:P:66:ILE:HD12	1:P:80:LEU:HD21	2.02	0.41
1:G:66:ILE:HD12	1:G:80:LEU:CD2	2.51	0.41
1:I:47:LYS:HE3	1:I:59:GLU:OE2	2.21	0.41
1:N:30:ILE:O	1:N:30:ILE:HG13	2.21	0.41
1:F:61:GLN:NE2	1:F:109:GLN:HG3	2.36	0.41
1:I:166:ASP:OD1	1:I:169:ASN:HA	2.21	0.41
1:N:155:LYS:NZ	1:N:184:ASN:OD1	2.54	0.41
1:Q:138:LEU:HD12	1:Q:138:LEU:HA	1.81	0.41
1:Q:166:ASP:OD1	1:Q:171:GLN:HB3	2.20	0.41
1:F:90:LYS:HG2	1:F:93:HIS:CD2	2.53	0.41
1:H:160:ILE:O	1:H:160:ILE:CG2	2.69	0.41
1:M:45:THR:CG2	1:M:88:TYR:CD1	3.03	0.41
1:M:170:ILE:HD13	1:M:170:ILE:HA	1.86	0.41
1:P:124:ILE:HD13	1:P:124:ILE:N	2.36	0.41
1:Q:124:ILE:C	1:Q:125:LYS:HG2	2.41	0.41
1:D:156:LEU:O	1:D:159:THR:N	2.53	0.41
1:J:35:ILE:HD11	1:J:72:TYR:HB3	2.02	0.41
1:Q:156:LEU:HA	1:Q:185:TYR:OH	2.21	0.41
1:D:78:ASN:HD21	1:E:172:THR:HG22	1.85	0.40
1:E:49:ASP:OD1	1:E:51:LYS:CG	2.69	0.40
1:E:65:THR:OG1	1:E:109:GLN:NE2	2.45	0.40
1:R:69:SER:HA	1:R:153:ALA:HB1	2.03	0.40
1:I:32:ILE:HD11	1:I:64:ARG:HA	2.03	0.40
1:M:47:LYS:CE	1:M:59:GLU:OE2	2.69	0.40

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:H:105:VAL:HG22	1:H:152:PHE:CZ	2.55	0.40
1:K:41:ASN:HB3	1:K:44:ALA:HB2	2.03	0.40
1:Q:16:THR:O	1:Q:20:ASN:ND2	2.54	0.40
1:K:99:GLU:O	1:K:103:GLN:HB2	2.21	0.40
1:O:61:GLN:O	1:O:109:GLN:HG2	2.21	0.40

All (4) 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:D:117:CYS:SG	1:M:117:CYS:SG[1_556]	1.65	0.55
1:E:127:ASN:OD1	1:Q:58:GLU:OE1[1_554]	2.06	0.14
1:I:90:LYS:NZ	1:R:164:ASN:OD1[1_556]	2.12	0.08
1:D:127:ASN:OD1	1:M:58:GLU:OE2[1_556]	2.18	0.02

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	181/194 (93%)	170 (94%)	11 (6%)	0	100	100
1	B	166/194 (86%)	161 (97%)	5 (3%)	0	100	100
1	C	179/194 (92%)	169 (94%)	10 (6%)	0	100	100
1	D	181/194 (93%)	173 (96%)	8 (4%)	0	100	100
1	E	181/194 (93%)	174 (96%)	7 (4%)	0	100	100
1	F	169/194 (87%)	163 (96%)	6 (4%)	0	100	100
1	G	166/194 (86%)	158 (95%)	8 (5%)	0	100	100
1	H	169/194 (87%)	164 (97%)	5 (3%)	0	100	100
1	I	179/194 (92%)	173 (97%)	6 (3%)	0	100	100
1	J	179/194 (92%)	168 (94%)	11 (6%)	0	100	100

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
1	K	154/194 (79%)	148 (96%)	6 (4%)	0	100	100
1	L	179/194 (92%)	176 (98%)	3 (2%)	0	100	100
1	M	167/194 (86%)	157 (94%)	10 (6%)	0	100	100
1	N	168/194 (87%)	157 (94%)	11 (6%)	0	100	100
1	O	181/194 (93%)	171 (94%)	10 (6%)	0	100	100
1	P	174/194 (90%)	164 (94%)	10 (6%)	0	100	100
1	Q	171/194 (88%)	162 (95%)	9 (5%)	0	100	100
1	R	162/194 (84%)	157 (97%)	5 (3%)	0	100	100
All	All	3106/3492 (89%)	2965 (96%)	141 (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	172/179 (96%)	162 (94%)	10 (6%)	20	50
1	B	136/179 (76%)	129 (95%)	7 (5%)	24	56
1	C	170/179 (95%)	160 (94%)	10 (6%)	19	49
1	D	172/179 (96%)	160 (93%)	12 (7%)	15	41
1	E	171/179 (96%)	159 (93%)	12 (7%)	15	41
1	F	162/179 (90%)	152 (94%)	10 (6%)	18	47
1	G	159/179 (89%)	156 (98%)	3 (2%)	57	84
1	H	162/179 (90%)	154 (95%)	8 (5%)	25	57
1	I	170/179 (95%)	160 (94%)	10 (6%)	19	49
1	J	170/179 (95%)	162 (95%)	8 (5%)	26	59
1	K	135/179 (75%)	130 (96%)	5 (4%)	34	68
1	L	170/179 (95%)	158 (93%)	12 (7%)	14	40
1	M	160/179 (89%)	152 (95%)	8 (5%)	24	57

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Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
1	N	161/179 (90%)	145 (90%)	16 (10%)	8	24
1	O	171/179 (96%)	157 (92%)	14 (8%)	11	32
1	P	167/179 (93%)	154 (92%)	13 (8%)	12	34
1	Q	164/179 (92%)	151 (92%)	13 (8%)	12	34
1	R	156/179 (87%)	148 (95%)	8 (5%)	24	56
All	All	2928/3222 (91%)	2749 (94%)	179 (6%)	18	48

All (179) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	16	THR
1	A	22	GLU
1	A	52	ASP
1	A	55	SER
1	A	90	LYS
1	A	134	LYS
1	A	135	GLU
1	A	141	ASN
1	A	170	ILE
1	A	189	ASP
1	B	16	THR
1	B	20	ASN
1	B	49	ASP
1	B	52	ASP
1	B	74	LYS
1	B	99	GLU
1	B	152	PHE
1	C	13	LYS
1	C	26	LYS
1	C	52	ASP
1	C	71	ASN
1	C	89	ASN
1	C	90	LYS
1	C	101	ILE
1	C	131	GLN
1	C	134	LYS
1	C	144	SER
1	D	35	ILE
1	D	50	GLU
1	D	52	ASP

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Mol	Chain	Res	Type
1	D	90	LYS
1	D	92	GLN
1	D	111	ASP
1	D	114	ARG
1	D	155	LYS
1	D	158	GLU
1	D	171	GLN
1	D	188	LEU
1	D	189	ASP
1	E	16	THR
1	E	19	LYS
1	E	34	GLU
1	E	51	LYS
1	E	52	ASP
1	E	55	SER
1	E	56	GLN
1	E	91	LEU
1	E	94	ARG
1	E	131	GLN
1	E	145	SER
1	E	187	THR
1	F	45	THR
1	F	94	ARG
1	F	117	CYS
1	F	139	LEU
1	F	142	LEU
1	F	157	ASN
1	F	187	THR
1	F	188	LEU
1	F	189	ASP
1	F	190	SER
1	G	125	LYS
1	G	161	ASP
1	G	194	ILE
1	H	36	ASP
1	H	38	GLN
1	H	45	THR
1	H	50	GLU
1	H	55	SER
1	H	68	SER
1	H	90	LYS
1	H	94	ARG

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Mol	Chain	Res	Type
1	I	14	LEU
1	I	19	LYS
1	I	33	ASN
1	I	40	ILE
1	I	52	ASP
1	I	103	GLN
1	I	117	CYS
1	I	138	LEU
1	I	167	SER
1	I	186	LYS
1	J	40	ILE
1	J	41	ASN
1	J	52	ASP
1	J	53	ASN
1	J	56	GLN
1	J	94	ARG
1	J	143	ASP
1	J	189	ASP
1	K	77	ILE
1	K	124	ILE
1	K	135	GLU
1	K	137	GLU
1	K	170	ILE
1	L	50	GLU
1	L	51	LYS
1	L	52	ASP
1	L	76	LYS
1	L	87	LEU
1	L	124	ILE
1	L	134	LYS
1	L	137	GLU
1	L	146	LEU
1	L	169	ASN
1	L	182	LYS
1	L	189	ASP
1	M	16	THR
1	M	19	LYS
1	M	51	LYS
1	M	66	ILE
1	M	119	ILE
1	M	166	ASP
1	M	187	THR

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Mol	Chain	Res	Type
1	M	189	ASP
1	N	14	LEU
1	N	16	THR
1	N	19	LYS
1	N	23	ASN
1	N	30	ILE
1	N	38	GLN
1	N	54	LEU
1	N	55	SER
1	N	115	VAL
1	N	117	CYS
1	N	135	GLU
1	N	136	SER
1	N	141	ASN
1	N	155	LYS
1	N	172	THR
1	N	175	ASP
1	O	12	SER
1	O	25	ASN
1	O	35	ILE
1	O	52	ASP
1	O	55	SER
1	O	73	GLU
1	O	74	LYS
1	O	117	CYS
1	O	135	GLU
1	O	173	ASN
1	O	174	VAL
1	O	186	LYS
1	O	188	LEU
1	O	190	SER
1	P	21	LEU
1	P	35	ILE
1	P	45	THR
1	P	47	LYS
1	P	56	GLN
1	P	92	GLN
1	P	103	GLN
1	P	121	GLU
1	P	124	ILE
1	P	133	GLN
1	P	154	LYS

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Mol	Chain	Res	Type
1	P	165	LYS
1	P	183	GLU
1	Q	13	LYS
1	Q	21	LEU
1	Q	90	LYS
1	Q	92	GLN
1	Q	94	ARG
1	Q	134	LYS
1	Q	138	LEU
1	Q	139	LEU
1	Q	141	ASN
1	Q	142	LEU
1	Q	144	SER
1	Q	145	SER
1	Q	169	ASN
1	R	19	LYS
1	R	23	ASN
1	R	103	GLN
1	R	137	GLU
1	R	139	LEU
1	R	142	LEU
1	R	155	LYS
1	R	167	SER

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (74) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	20	ASN
1	A	41	ASN
1	A	127	ASN
1	A	133	GLN
1	A	141	ASN
1	B	92	GLN
1	C	61	GLN
1	C	131	GLN
1	C	133	GLN
1	C	169	ASN
1	D	56	GLN
1	D	78	ASN
1	D	93	HIS
1	D	109	GLN
1	D	131	GLN

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Mol	Chain	Res	Type
1	D	169	ASN
1	D	171	GLN
1	E	27	GLN
1	E	56	GLN
1	E	61	GLN
1	E	92	GLN
1	E	109	GLN
1	E	131	GLN
1	F	41	ASN
1	F	109	GLN
1	F	169	ASN
1	G	61	GLN
1	G	109	GLN
1	G	151	ASN
1	H	38	GLN
1	H	78	ASN
1	H	151	ASN
1	I	33	ASN
1	I	89	ASN
1	I	127	ASN
1	I	169	ASN
1	J	56	GLN
1	J	78	ASN
1	J	127	ASN
1	J	133	GLN
1	J	141	ASN
1	K	33	ASN
1	K	61	GLN
1	K	93	HIS
1	L	23	ASN
1	L	27	GLN
1	L	33	ASN
1	L	41	ASN
1	L	78	ASN
1	L	89	ASN
1	L	151	ASN
1	L	169	ASN
1	M	61	GLN
1	M	89	ASN
1	M	164	ASN
1	N	53	ASN
1	N	78	ASN

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Mol	Chain	Res	Type
1	N	93	HIS
1	N	141	ASN
1	N	195	ASN
1	O	41	ASN
1	O	93	HIS
1	O	109	GLN
1	O	127	ASN
1	O	131	GLN
1	O	141	ASN
1	P	78	ASN
1	P	92	GLN
1	P	103	GLN
1	Q	23	ASN
1	Q	93	HIS
1	Q	103	GLN
1	Q	141	ASN
1	R	109	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 monosaccharides 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 (i)

6.1 Protein, DNA and RNA chains (i)

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	183/194 (94%)	-0.16	1 (0%)	91	91	13, 25, 48, 57	0
1	B	170/194 (87%)	0.97	11 (6%)	18	14	55, 75, 89, 102	0
1	C	181/194 (93%)	0.21	5 (2%)	53	49	19, 41, 65, 84	0
1	D	183/194 (94%)	-0.06	2 (1%)	80	80	14, 28, 52, 67	0
1	E	183/194 (94%)	-0.19	0	100	100	12, 25, 46, 55	0
1	F	173/194 (89%)	-0.19	0	100	100	13, 24, 46, 63	0
1	G	170/194 (87%)	-0.24	0	100	100	12, 22, 42, 66	0
1	H	173/194 (89%)	-0.10	2 (1%)	79	79	14, 28, 52, 87	0
1	I	181/194 (93%)	-0.16	0	100	100	11, 24, 49, 66	0
1	J	181/194 (93%)	-0.22	0	100	100	9, 22, 45, 58	0
1	K	158/194 (81%)	0.77	6 (3%)	40	36	48, 65, 87, 104	0
1	L	181/194 (93%)	-0.20	0	100	100	9, 22, 39, 52	0
1	M	171/194 (88%)	-0.08	1 (0%)	89	89	16, 27, 50, 71	0
1	N	172/194 (88%)	-0.11	0	100	100	14, 26, 51, 60	0
1	O	183/194 (94%)	-0.18	0	100	100	10, 27, 46, 63	0
1	P	178/194 (91%)	-0.23	0	100	100	11, 22, 46, 73	0
1	Q	175/194 (90%)	-0.24	0	100	100	12, 24, 42, 58	0
1	R	166/194 (85%)	-0.02	0	100	100	19, 32, 54, 67	0
All	All	3162/3492 (90%)	-0.03	28 (0%)	84	84	9, 28, 72, 104	0

All (28) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	C	136	SER	3.9
1	C	132	ASN	3.7
1	D	132	ASN	3.2

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Mol	Chain	Res	Type	RSRZ
1	C	133	GLN	3.0
1	M	135	GLU	2.9
1	B	136	SER	2.9
1	C	130	THR	2.8
1	B	145	SER	2.6
1	H	49	ASP	2.5
1	K	122	ALA	2.5
1	C	193	PRO	2.3
1	K	106	ALA	2.3
1	A	25	ASN	2.3
1	H	50	GLU	2.2
1	K	57	TYR	2.2
1	B	74	LYS	2.2
1	B	118	LEU	2.2
1	B	100	PHE	2.2
1	K	187	THR	2.1
1	B	179	THR	2.1
1	B	96	THR	2.1
1	B	116	LEU	2.1
1	K	172	THR	2.1
1	B	124	ILE	2.0
1	B	92	GLN	2.0
1	D	25	ASN	2.0
1	B	182	LYS	2.0
1	K	188	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 monosaccharides in this entry.

6.4 Ligands (i)

There are no ligands in this entry.

6.5 Other polymers (i)

There are no such residues in this entry.