Full wwPDB X-ray Structure Validation Report ⓘ

Aug 29, 2020 – 06:11 PM BST

PDB ID	:	6RQG
Title	:	P46, an immunodominant surface protein from Mycoplasma hyopneumoniae
Authors	:	Guasch, A.; Fita, I.
Deposited on	:	2019-05-15
Resolution	:	3.10 Å(reported)

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

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

The following versions of software and data (see references ①) were used in the production of this report:

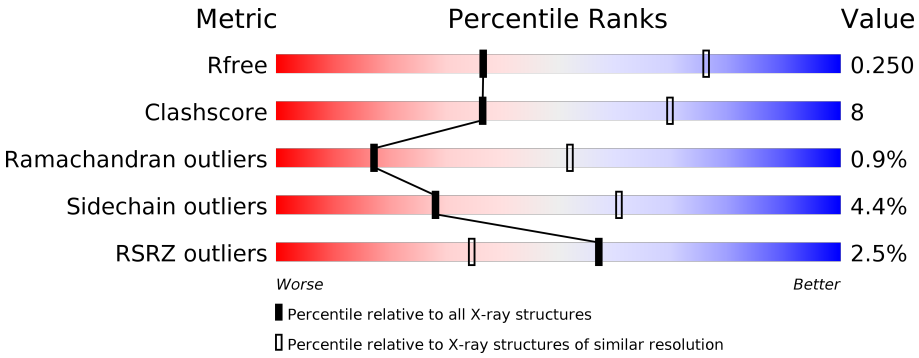
MolProbity	:	4.02b-467
Xtriage (Phenix)	:	1.13
EDS	:	2.13
Percentile statistics	:	20191225.v01 (using entries in the PDB archive December 25th 2019)
Refmac	:	5.8.0158
CCP4	:	7.0.044 (Gargrove)
Ideal geometry (proteins)	:	Engh & Huber (2001)
Ideal geometry (DNA, RNA)	:	Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP)	:	2.13

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 3.10 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	1094 (3.10-3.10)
Clashscore	141614	1184 (3.10-3.10)
Ramachandran outliers	138981	1141 (3.10-3.10)
Sidechain outliers	138945	1141 (3.10-3.10)
RSRZ outliers	127900	1067 (3.10-3.10)

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 on 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	387	2% 76% 19%
1	B	387	% 76% 18%
1	C	387	5% 70% 21% 6%

2 Entry composition

There are 3 unique types of molecules in this entry. The entry contains 8594 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 46 kDa surface antigen.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
1	A	373	Total	C	N	O	S	0	1	0
			2889	1823	485	575	6			
1	B	373	Total	C	N	O	S	0	2	0
			2892	1825	485	576	6			
1	C	362	Total	C	N	O	S	0	0	0
			2808	1775	469	558	6			

There are 9 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
A	32	MET	-	initiating methionine	UNP P0C0J8
A	417	LEU	-	expression tag	UNP P0C0J8
A	418	GLU	-	expression tag	UNP P0C0J8
B	32	MET	-	initiating methionine	UNP P0C0J8
B	417	LEU	-	expression tag	UNP P0C0J8
B	418	GLU	-	expression tag	UNP P0C0J8
C	32	MET	-	initiating methionine	UNP P0C0J8
C	417	LEU	-	expression tag	UNP P0C0J8
C	418	GLU	-	expression tag	UNP P0C0J8

- Molecule 2 is SODIUM ION (three-letter code: NA) (formula: Na).

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
2	B	1	Total	Na	0	0
			1	1		
2	A	1	Total	Na	0	0
			1	1		
2	C	1	Total	Na	0	0
			1	1		

- Molecule 3 is water.

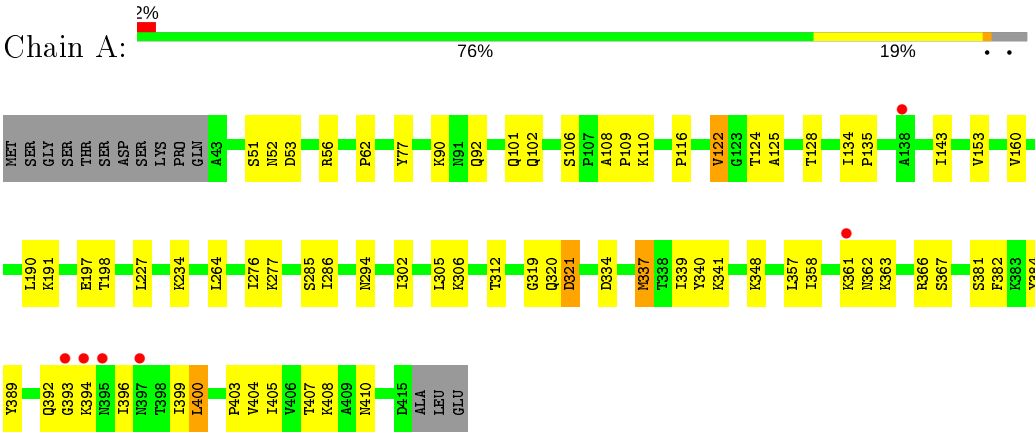
Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
3	B	2	Total O 2 2	0	0

3 Residue-property plots (i)

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

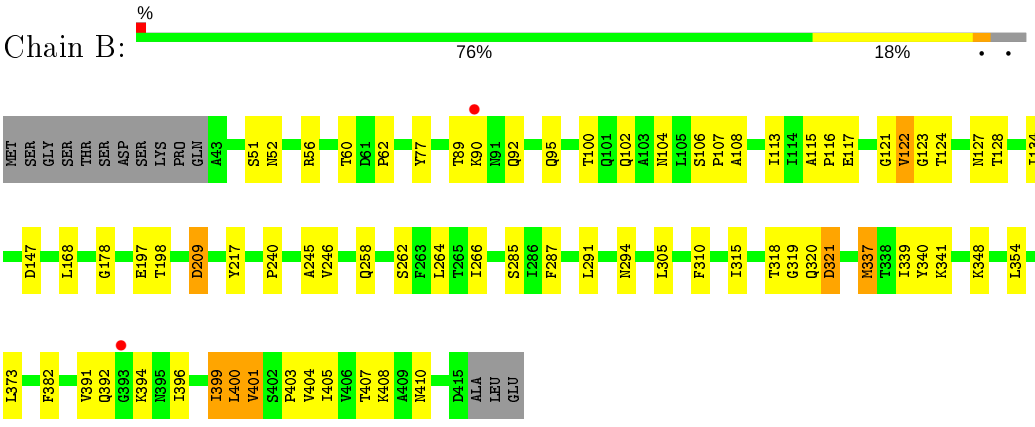
- Molecule 1: 46 kDa surface antigen

Chain A:



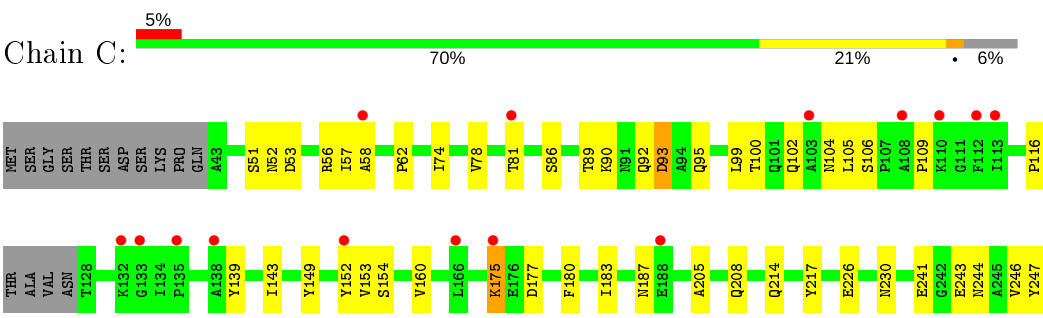
- Molecule 1: 46 kDa surface antigen

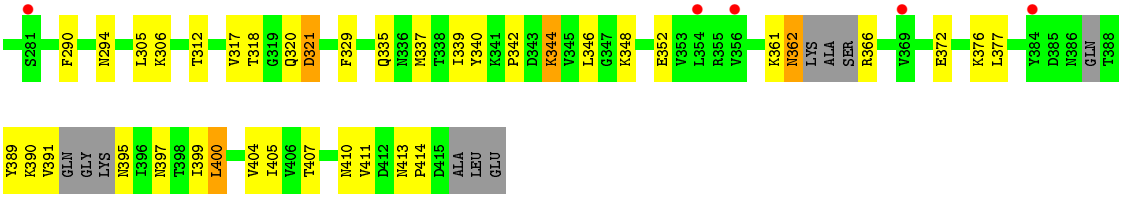
Chain B:



- Molecule 1: 46 kDa surface antigen

Chain C:




S281
F290
N294
L305
K306
T312
V317
T318
G319
Q320
D321
F329
Q335
N336
M337
T338
I339
Y340
K341
P342
D343
K344
V345
L346
G347
K348
E352
V353
L354
R355
V356
K361
N362
LYS
ALA
SER
R366
V369
E372
K376
L377
Y384
D385
N386
GLN
T388
Y389
K390
V391
GLN
GLY
LYS
N395
I396
N397
T398
I399
L400
V404
I405
V406
T407
N410
V411
D412
N413
P414
D415
ALA
LEU
GLU

4 Data and refinement statistics (i)

Property	Value	Source
Space group	P 31 2 1	Depositor
Cell constants a, b, c, α, β, γ	136.48Å 136.48Å 139.13Å 90.00° 90.00° 120.00°	Depositor
Resolution (Å)	54.39 – 3.10 59.95 – 3.09	Depositor EDS
% Data completeness (in resolution range)	96.9 (54.39-3.10) 96.7 (59.95-3.09)	Depositor EDS
R_{merge}	(Not available)	Depositor
R_{sym}	(Not available)	Depositor
$< I/\sigma(I) >$ [1]	1.35 (at 3.07Å)	Xtriage
Refinement program	PHENIX 1.17.1_3660, PHENIX 1.17.1_3660	Depositor
R, R_{free}	0.203 , 0.249 0.212 , 0.250	Depositor DCC
R_{free} test set	1388 reflections (5.16%)	wwPDB-VP
Wilson B-factor (Å^2)	89.9	Xtriage
Anisotropy	0.122	Xtriage
Bulk solvent k_{sol}(e/Å^3), B_{sol}(Å^2)	0.29 , 50.8	EDS
L-test for twinning[2]	$< \|L\| > = 0.47$, $< L^2 > = 0.29$	Xtriage
Estimated twinning fraction	0.039 for -h,-k,l	Xtriage
F_o,F_c correlation	0.94	EDS
Total number of atoms	8594	wwPDB-VP
Average B, all atoms (Å^2)	87.0	wwPDB-VP

Xtriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 8.98% of the height of the origin peak. No significant pseudotranslation is detected.*

[1] Intensities estimated from amplitudes.

[2] Theoretical values of $< |L| >$, $< L^2 >$ for acentric reflections are 0.5, 0.333 respectively for untwinned datasets, and 0.375, 0.2 for perfectly twinned datasets.

5 Model quality

5.1 Standard geometry

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

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	0.25	0/2943	0.46	0/3985
1	B	0.26	0/2949	0.47	0/3993
1	C	0.25	0/2855	0.46	0/3860
All	All	0.25	0/8747	0.47	0/11838

There are no bond length outliers.

There are no bond angle outliers.

There are no chirality outliers.

There are no planarity outliers.

5.2 Too-close contacts

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	2889	0	2880	42	0
1	B	2892	0	2885	45	0
1	C	2808	0	2789	48	0
2	A	1	0	0	0	0
2	B	1	0	0	0	0
2	C	1	0	0	0	0
3	B	2	0	0	1	0
All	All	8594	0	8554	135	0

The all-atom clashscore is defined as the number of clashes found per 1000 atoms (including hydrogen atoms). The all-atom clashscore for this structure is 8.

All (135) 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:B:89:THR:HG21	1:B:95:GLN:HB2	1.52	0.92
1:C:290:PHE:HB3	1:C:317:VAL:HG12	1.56	0.86
1:B:399:ILE:HD11	1:B:401:VAL:HG13	1.69	0.75
1:C:93:ASP:N	1:C:93:ASP:OD1	2.21	0.72
1:C:372:GLU:OE2	1:C:376:LYS:NZ	2.22	0.72
1:C:317:VAL:HG23	1:C:335:GLN:HA	1.74	0.69
1:B:382:PHE:HA	1:B:403:PRO:HD2	1.74	0.69
1:C:208:GLN:OE1	1:C:244:ASN:ND2	2.30	0.65
1:B:147:ASP:HB3	1:B:391:VAL:HG11	1.78	0.63
1:A:176:GLU:O	1:A:408:LYS:NZ	2.32	0.62
1:A:306:LYS:NZ	1:A:312:THR:OG1	2.33	0.62
1:C:389:TYR:HD2	1:C:399:ILE:HD13	1.64	0.62
1:B:340:TYR:HD2	1:B:405:ILE:HD11	1.65	0.61
1:C:340:TYR:CE2	1:C:342:PRO:HB3	2.36	0.60
1:B:92:GLN:HG2	1:B:121:GLY:HA3	1.85	0.59
1:A:53:ASP:HA	1:A:109:PRO:HA	1.85	0.59
1:C:57:ILE:HB	1:C:86:SER:HB2	1.85	0.58
1:B:178:GLY:HA2	1:B:408:LYS:HE3	1.84	0.58
1:C:187:ASN:OD1	1:C:230:ASN:ND2	2.37	0.58
1:B:318:THR:HB	1:B:337:MET:HE2	1.86	0.58
1:A:392:GLN:O	1:A:394:LYS:N	2.37	0.57
1:A:319:GLY:H	1:A:337:MET:HE3	1.70	0.57
1:B:56:ARG:NH1	1:B:102:GLN:OE1	2.38	0.57
1:B:341:LYS:HG2	1:B:404:VAL:HG11	1.86	0.56
1:C:175:LYS:HD2	1:C:180:PHE:CE1	2.40	0.56
1:B:294:ASN:HA	1:B:320:GLN:HB3	1.87	0.56
1:B:320:GLN:HG3	1:B:339:ILE:HB	1.87	0.56
1:A:294:ASN:HA	1:A:320:GLN:HB3	1.87	0.55
1:A:51:SER:OG	1:A:52:ASN:N	2.37	0.55
1:A:382:PHE:HA	1:A:403:PRO:HD2	1.88	0.55
1:B:116:PRO:HG3	1:B:143:ILE:HG12	1.88	0.55
1:B:100:THR:O	1:B:104:ASN:ND2	2.37	0.55
1:A:56:ARG:NH1	1:A:102:GLN:OE1	2.39	0.54
1:B:217:TYR:OH	3:B:601:HOH:O	2.18	0.54
1:B:410:ASN:O	1:B:410:ASN:ND2	2.40	0.54
1:C:56:ARG:NH1	1:C:102:GLN:OE1	2.41	0.54
1:B:92:GLN:NE2	1:B:122:VAL:HG13	2.24	0.53
1:A:389:TYR:HD2	1:A:399:ILE:HD13	1.73	0.53
1:C:410:ASN:O	1:C:410:ASN:ND2	2.40	0.53
1:C:362:ASN:OD1	1:C:366:ARG:NH2	2.34	0.53

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:160:VAL:HG22	1:C:404:VAL:HG21	1.90	0.53
1:C:294:ASN:HA	1:C:320:GLN:HB3	1.91	0.53
1:C:390:LYS:HE2	1:C:395:ASN:HB3	1.91	0.52
1:B:373:LEU:HD13	1:B:400:LEU:HD21	1.92	0.52
1:C:264:LEU:O	1:C:268:LYS:HB3	2.10	0.52
1:B:319:GLY:H	1:B:337:MET:HE3	1.76	0.51
1:A:381:SER:O	1:A:403:PRO:HD2	2.10	0.51
1:C:306:LYS:NZ	1:C:312:THR:OG1	2.44	0.51
1:A:116:PRO:HG3	1:A:143:ILE:HG12	1.93	0.51
1:C:100:THR:O	1:C:104:ASN:ND2	2.44	0.50
1:B:209:ASP:N	1:B:209:ASP:OD1	2.38	0.50
1:A:341:LYS:HG2	1:A:404:VAL:HG11	1.94	0.49
1:C:317:VAL:CG2	1:C:335:GLN:HA	2.41	0.49
1:C:62:PRO:HG2	1:C:90:LYS:HG2	1.94	0.49
1:B:123:GLY:O	1:B:127:ASN:ND2	2.46	0.49
1:B:262:SER:O	1:B:266:ILE:HG12	2.12	0.49
1:A:361:LYS:C	1:A:363:LYS:H	2.15	0.49
1:C:116:PRO:HG3	1:C:143:ILE:HG12	1.94	0.49
1:B:52:ASN:HB2	1:B:107:PRO:HD2	1.95	0.48
1:C:92:GLN:HG2	1:C:121:GLY:HA3	1.96	0.48
1:C:183:ILE:HD13	1:C:226:GLU:OE1	2.12	0.48
1:C:51:SER:O	1:C:56:ARG:NH2	2.45	0.48
1:C:58:ALA:HB2	1:C:99:LEU:HD21	1.95	0.48
1:A:197:GLU:O	1:A:234:LYS:HD2	2.14	0.48
1:B:168:LEU:HD22	1:B:291:LEU:HB2	1.96	0.48
1:C:153:VAL:HG12	1:C:400:LEU:HB3	1.95	0.48
1:A:177:ASP:OD1	1:A:177:ASP:N	2.47	0.47
1:B:106:SER:HB3	1:B:107:PRO:HD3	1.96	0.47
1:C:264:LEU:HD11	1:C:305:LEU:HD23	1.97	0.47
1:C:205:ALA:HB3	1:C:247:TYR:HA	1.97	0.47
1:B:399:ILE:HG12	1:B:400:LEU:N	2.28	0.47
1:A:92:GLN:NE2	1:A:122:VAL:HG13	2.30	0.47
1:A:153:VAL:HG22	1:A:400:LEU:HB2	1.96	0.47
1:B:198:THR:HG22	1:B:285:SER:HB3	1.97	0.46
1:A:108:ALA:HB1	1:A:134:ILE:HD11	1.98	0.46
1:A:110:LYS:HB3	1:A:358:ILE:HD13	1.96	0.46
1:C:344:LYS:HE3	1:C:344:LYS:HB3	1.67	0.46
1:C:340:TYR:HD2	1:C:405:ILE:HD11	1.79	0.46
1:B:52:ASN:CB	1:B:107:PRO:HD2	2.46	0.46
1:A:77:TYR:CD1	1:A:348:LYS:HG2	2.50	0.46
1:B:60:THR:HG21	1:B:117:GLU:HB2	1.97	0.46

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:160:VAL:HG13	1:C:339:ILE:HG13	1.98	0.45
1:A:62:PRO:HG2	1:A:90:LYS:HG2	1.98	0.45
1:B:240:PRO:HB2	1:B:245:ALA:HB1	1.99	0.45
1:C:320:GLN:HG3	1:C:339:ILE:HB	1.98	0.45
1:A:125:ALA:O	1:A:128:THR:HG22	2.17	0.45
1:C:320:GLN:O	1:C:321:ASP:HB2	2.18	0.44
1:B:77:TYR:CD1	1:B:348:LYS:HG2	2.51	0.44
1:A:160:VAL:HG22	1:A:404:VAL:HG21	1.99	0.44
1:B:373:LEU:CD1	1:B:400:LEU:HD21	2.48	0.44
1:B:264:LEU:HA	1:B:264:LEU:HD23	1.87	0.44
1:B:340:TYR:CD2	1:B:405:ILE:HD11	2.51	0.44
1:A:190:LEU:HD22	1:A:227:LEU:HD12	1.99	0.43
1:B:287:PHE:HD2	1:B:315:ILE:HD13	1.82	0.43
1:A:366:ARG:HG3	1:A:384:TYR:CE2	2.52	0.43
1:B:108:ALA:HB1	1:B:134:ILE:HD11	2.00	0.43
1:A:164:GLN:HG2	1:A:337:MET:HE2	2.00	0.43
1:B:51:SER:O	1:B:56:ARG:NH2	2.47	0.43
1:A:51:SER:O	1:A:56:ARG:NH2	2.51	0.43
1:B:363:LYS:HB3	1:B:363:LYS:HE2	1.82	0.43
1:B:60:THR:HG22	1:B:89:THR:HG22	2.01	0.42
1:C:52:ASN:OD1	1:C:105:LEU:HD13	2.18	0.42
1:C:348:LYS:HE3	1:C:377:LEU:HD22	2.01	0.42
1:A:264:LEU:HD23	1:A:264:LEU:HA	1.86	0.42
1:A:410:ASN:ND2	1:A:410:ASN:O	2.49	0.42
1:C:329:PHE:HB3	1:C:335:GLN:HB2	2.02	0.42
1:C:391:VAL:HG23	1:C:397:ASN:OD1	2.19	0.42
1:C:74:ILE:O	1:C:78:VAL:HG23	2.19	0.42
1:A:386:ASN:O	1:A:396:ILE:HG23	2.20	0.42
1:B:382:PHE:HA	1:B:403:PRO:CD	2.47	0.42
1:B:62:PRO:HG2	1:B:90:LYS:HG2	2.02	0.42
1:C:53:ASP:HA	1:C:109:PRO:HA	2.01	0.42
1:C:389:TYR:HB2	1:C:399:ILE:HD11	2.02	0.41
1:A:276:ILE:HG22	1:A:277:LYS:O	2.19	0.41
1:A:191:LYS:HB3	1:A:191:LYS:HE3	1.82	0.41
1:A:340:TYR:HB3	1:A:405:ILE:HG23	2.02	0.41
1:B:115:ALA:HB2	1:B:139:TYR:HB3	2.02	0.41
1:A:389:TYR:HB2	1:A:399:ILE:HD11	2.03	0.41
1:A:198:THR:HG22	1:A:285:SER:HB3	2.01	0.41
1:A:302:ILE:HD13	1:A:334:ASP:HB3	2.02	0.41
1:A:264:LEU:HD11	1:A:305:LEU:HD23	2.01	0.41
1:A:320:GLN:O	1:A:321:ASP:HB2	2.20	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:305:LEU:O	1:B:310:PHE:HB2	2.20	0.41
1:B:320:GLN:O	1:B:321:ASP:HB2	2.20	0.41
1:C:143:ILE:HB	1:C:149:TYR:CZ	2.55	0.41
1:A:160:VAL:HG13	1:A:339:ILE:HG21	2.03	0.41
1:C:152:TYR:CZ	1:C:154:SER:HB2	2.55	0.41
1:C:217:TYR:CZ	1:C:246:VAL:HG21	2.55	0.41
1:C:318:THR:HA	1:C:337:MET:HG3	2.03	0.41
1:A:135:PRO:HB3	1:A:357:LEU:HB3	2.04	0.41
1:A:382:PHE:HA	1:A:403:PRO:CD	2.51	0.40
1:B:113:ILE:HG13	1:B:354:LEU:HD22	2.03	0.40
1:C:139:TYR:OH	1:C:346:LEU:O	2.23	0.40
1:C:340:TYR:CD2	1:C:414:PRO:HB2	2.56	0.40
1:C:89:THR:HG21	1:C:95:GLN:HA	2.03	0.40

There are no symmetry-related clashes.

5.3 Torsion angles (i)

5.3.1 Protein backbone (i)

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

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

Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
1	A	372/387 (96%)	352 (95%)	17 (5%)	3 (1%)	19	54
1	B	373/387 (96%)	348 (93%)	22 (6%)	3 (1%)	19	54
1	C	352/387 (91%)	320 (91%)	28 (8%)	4 (1%)	14	46
All	All	1097/1161 (94%)	1020 (93%)	67 (6%)	10 (1%)	17	52

All (10) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	A	393	GLY
1	C	361	LYS
1	B	321	ASP
1	B	365	SER

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Mol	Chain	Res	Type
1	A	321	ASP
1	B	197	GLU
1	C	243	GLU
1	C	321	ASP
1	A	362	ASN
1	C	177	ASP

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	316/327 (97%)	305 (96%)	11 (4%)	36	68
1	B	317/327 (97%)	302 (95%)	15 (5%)	26	59
1	C	307/327 (94%)	292 (95%)	15 (5%)	25	57
All	All	940/981 (96%)	899 (96%)	41 (4%)	28	61

All (41) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	101	GLN
1	A	106	SER
1	A	122	VAL
1	A	124	THR
1	A	177	ASP
1	A	286	ILE
1	A	337	MET
1	A	367	SER
1	A	388	THR
1	A	400	LEU
1	A	407	THR
1	B	122	VAL
1	B	124	THR
1	B	128	THR
1	B	209	ASP
1	B	246	VAL

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Mol	Chain	Res	Type
1	B	258	GLN
1	B	337	MET
1	B	363	LYS
1	B	392	GLN
1	B	394	LYS
1	B	396	ILE
1	B	399	ILE
1	B	400	LEU
1	B	401	VAL
1	B	407	THR
1	C	81	THR
1	C	93	ASP
1	C	106	SER
1	C	122	VAL
1	C	175	LYS
1	C	214	GLN
1	C	241	GLU
1	C	268	LYS
1	C	344	LYS
1	C	352	GLU
1	C	362	ASN
1	C	400	LEU
1	C	407	THR
1	C	411	VAL
1	C	413	ASN

Some sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (2) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	157	ASN
1	C	157	ASN

5.3.3 RNA (i)

There are no RNA molecules in this entry.

5.4 Non-standard residues in protein, DNA, RNA chains (i)

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

5.5 Carbohydrates (i)

There are no monosaccharides in this entry.

5.6 Ligand geometry (i)

Of 3 ligands modelled in this entry, 3 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 (i)

There are no such residues in this entry.

5.8 Polymer linkage issues (i)

There are no chain breaks in this entry.

6 Fit of model and data

6.1 Protein, DNA and RNA chains

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

Mol	Chain	Analysed	<RSRZ>	#RSRZ>2	OWAB(Å^2)	Q<0.9
1	A	373/387 (96%)	-0.22	6 (1%) 72 51	48, 72, 109, 149	0
1	B	373/387 (96%)	-0.14	2 (0%) 91 81	47, 74, 114, 180	0
1	C	362/387 (93%)	0.45	20 (5%) 25 11	58, 111, 148, 168	0
All	All	1108/1161 (95%)	0.03	28 (2%) 57 34	47, 81, 139, 180	0

All (28) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	B	393	GLY	11.7
1	C	81	THR	4.2
1	C	133	GLY	4.1
1	C	108	ALA	3.6
1	A	361	LYS	3.2
1	C	112	PHE	3.2
1	A	394	LYS	3.1
1	C	135	PRO	3.0
1	C	356	VAL	2.9
1	C	188	GLU	2.9
1	A	395	ASN	2.8
1	C	152	TYR	2.6
1	C	132	LYS	2.5
1	C	281	SER	2.4
1	C	166	LEU	2.4
1	C	384	TYR	2.4
1	C	138	ALA	2.4
1	C	110	LYS	2.3
1	A	393	GLY	2.3
1	C	354	LEU	2.2
1	C	369	VAL	2.2
1	C	103	ALA	2.1
1	B	90	LYS	2.1

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Mol	Chain	Res	Type	RSRZ
1	A	138	ALA	2.1
1	A	397	ASN	2.1
1	C	175	LYS	2.0
1	C	113	ILE	2.0
1	C	58	ALA	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)

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, 95^{th} 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	NA	C	501	1/1	0.82	0.16	81,81,81,81	0
2	NA	A	501	1/1	0.90	0.10	73,73,73,73	0
2	NA	B	501	1/1	0.96	0.07	67,67,67,67	0

6.5 Other polymers (i)

There are no such residues in this entry.