Full wwPDB X-ray Structure Validation Report ⓘ

Jun 11, 2024 – 04:34 PM EDT

PDB ID	:	6MQE
Title	:	Vaccine-elicited NHP FP-targeting HIV neutralizing antibody DFPH-a.15 in complex with HIV fusion peptide (residue 512-519)
Authors	:	Xu, K.; Wang, Y.; Kwong, P.D.
Deposited on	:	2018-10-09
Resolution	:	2.46 Å(reported)

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

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

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

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

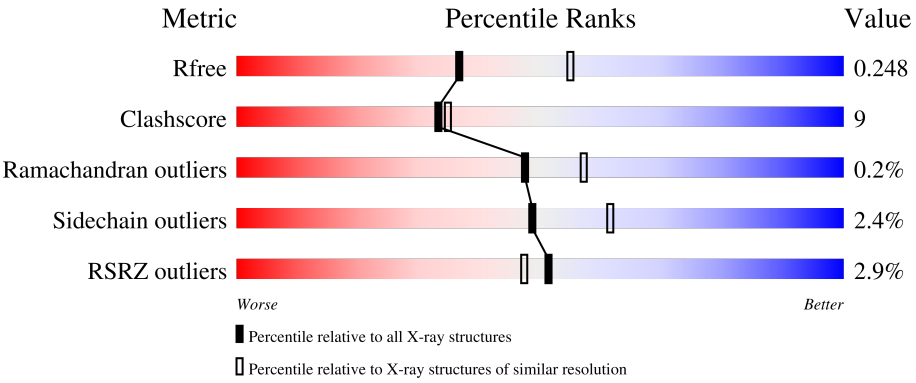
MolProbity	:	4.02b-467
Xtriage (Phenix)	:	1.13
EDS	:	2.36.2
Percentile statistics	:	20191225.v01 (using entries in the PDB archive December 25th 2019)
Refmac	:	5.8.0158
CCP4	:	7.0.044 (Gargrove)
Ideal geometry (proteins)	:	Engh & Huber (2001)
Ideal geometry (DNA, RNA)	:	Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP)	:	2.36.2

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 2.46 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	1544 (2.48-2.44)
Clashscore	141614	1613 (2.48-2.44)
Ramachandran outliers	138981	1598 (2.48-2.44)
Sidechain outliers	138945	1598 (2.48-2.44)
RSRZ outliers	127900	1523 (2.48-2.44)

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	B	214	% 77% 21%
1	L	214	74% 22%
2	A	232	4% 84% 12%
2	H	232	6% 78% 18%
3	C	8	88% 12%

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Mol	Chain	Length	Quality of chain
3	D	8	

2 Entry composition (i)

There are 4 unique types of molecules in this entry. The entry contains 6909 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 DFPHa.15 antibody Fab light chain.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
1	B	212	Total	C	N	O	S	0	0	0
			1612	1007	269	331	5			
1	L	212	Total	C	N	O	S	0	0	0
			1612	1007	269	331	5			

- Molecule 2 is a protein called DFPHa.15 antibody Fab heavy chain.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
2	A	224	Total	C	N	O	S	0	0	0
			1689	1064	283	337	5			
2	H	224	Total	C	N	O	S	0	0	0
			1689	1064	283	337	5			

- Molecule 3 is a protein called HIV fusion peptide.

Mol	Chain	Residues	Atoms				ZeroOcc	AltConf	Trace
3	C	8	Total	C	N	O	0	0	0
			51	35	8	8			
3	D	8	Total	C	N	O	0	0	0
			51	35	8	8			

- Molecule 4 is water.

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
4	B	52	Total	O	0	0
			52	52		
4	A	52	Total	O	0	0
			52	52		
4	H	54	Total	O	0	0
			54	54		
4	L	44	Total	O	0	0
			44	44		

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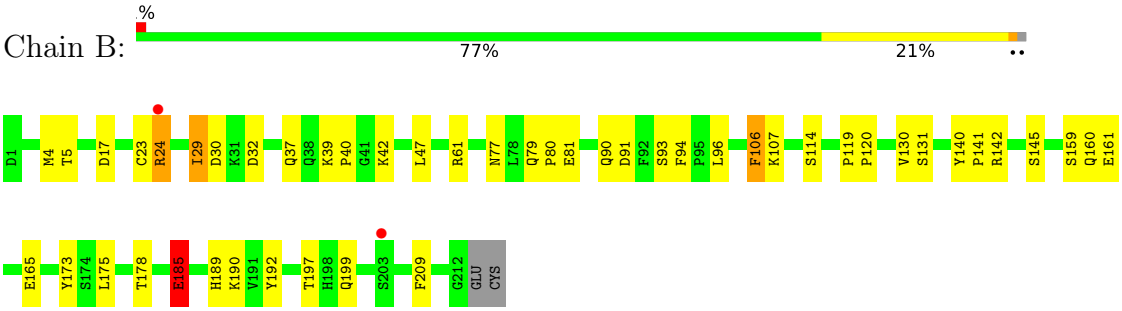
Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
4	C	1	Total O 1 1	0	0
4	D	2	Total O 2 2	0	0

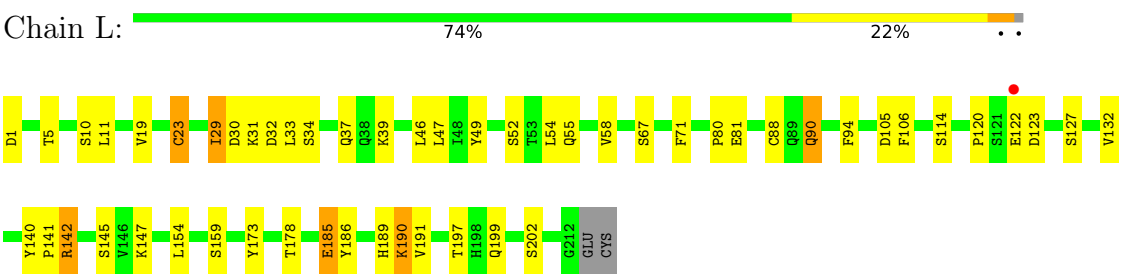
3 Residue-property plots (i)

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.

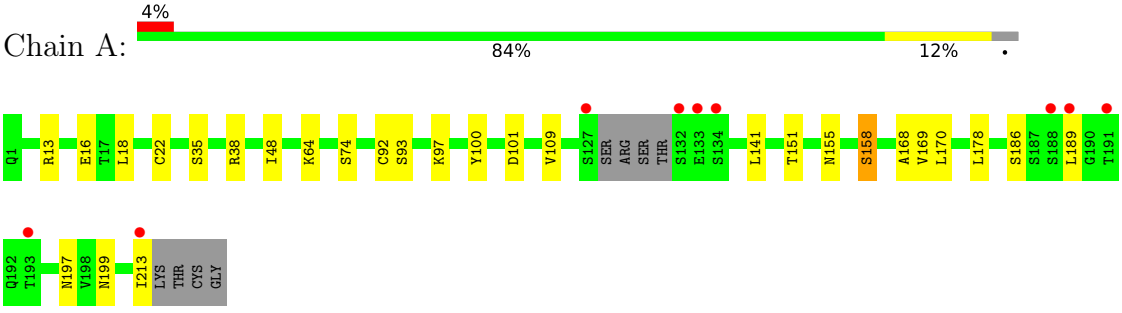
• Molecule 1: DFPHa.15 antibody Fab light chain



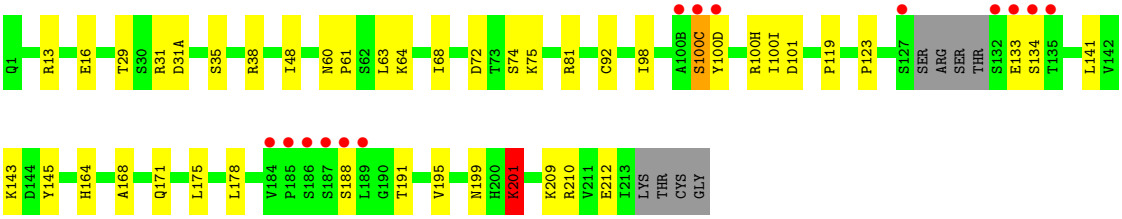
• Molecule 1: DFPHa.15 antibody Fab light chain



• Molecule 2: DFPHa.15 antibody Fab heavy chain



• Molecule 2: DFPHa.15 antibody Fab heavy chain



• Molecule 3: HIV fusion peptide

Chain C:

• Molecule 3: HIV fusion peptide

Chain D:

4 Data and refinement statistics (i)

Property	Value	Source
Space group	C 2 2 21	Depositor
Cell constants a, b, c, α, β, γ	71.23Å 147.73Å 172.71Å 90.00° 90.00° 90.00°	Depositor
Resolution (Å)	37.28 – 2.46 37.28 – 2.46	Depositor EDS
% Data completeness (in resolution range)	97.9 (37.28-2.46) 97.9 (37.28-2.46)	Depositor EDS
R_{merge}	0.19	Depositor
R_{sym}	(Not available)	Depositor
$< I/\sigma(I) >$ [1]	1.09 (at 2.45Å)	Xtriage
Refinement program	PHENIX (1.12_2829: ???)	Depositor
R, R_{free}	0.192 , 0.245 0.198 , 0.248	Depositor DCC
R_{free} test set	1630 reflections (4.96%)	wwPDB-VP
Wilson B-factor (Å^2)	41.1	Xtriage
Anisotropy	0.463	Xtriage
Bulk solvent k_{sol}(e/Å^3), B_{sol}(Å^2)	0.35 , 54.1	EDS
L-test for twinning[2]	$< \|L\| > = 0.49$, $< L^2 > = 0.33$	Xtriage
Estimated twinning fraction	No twinning to report.	Xtriage
F_o,F_c correlation	0.94	EDS
Total number of atoms	6909	wwPDB-VP
Average B, all atoms (Å^2)	43.0	wwPDB-VP

Xtriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 4.38% of the height of the origin peak. No significant pseudotranslation is detected.*

[1] Intensities estimated from amplitudes.

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

5 Model quality

5.1 Standard geometry

The Z score for a bond length (or angle) is the number of standard deviations the observed value is removed from the expected value. A bond length (or angle) with $|Z| > 5$ is considered an outlier worth inspection. RMSZ is the root-mean-square of all Z scores of the bond lengths (or angles).

Mol	Chain	Bond lengths		Bond angles	
		RMSZ	#$\|Z\|$ >5	RMSZ	#$\|Z\|$ >5
1	B	0.62	2/1645 (0.1%)	0.79	3/2234 (0.1%)
1	L	0.76	3/1645 (0.2%)	0.78	8/2234 (0.4%)
2	A	0.49	2/1729 (0.1%)	0.62	0/2358
2	H	0.65	1/1729 (0.1%)	0.70	2/2358 (0.1%)
3	C	0.76	0/51	0.59	0/68
3	D	0.45	0/51	0.51	0/68
All	All	0.63	8/6850 (0.1%)	0.72	13/9320 (0.1%)

Chiral center outliers are detected by calculating the chiral volume of a chiral center and verifying if the center is modelled as a planar moiety or with the opposite hand.A planarity outlier is detected by checking planarity of atoms in a peptide group, atoms in a mainchain group or atoms of a sidechain that are expected to be planar.

Mol	Chain	#Chirality outliers	#Planarity outliers
1	B	0	1
1	L	0	1
All	All	0	2

All (8) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
1	L	94	PHE	C-N	7.81	1.49	1.34
2	A	92	CYS	CB-SG	-7.12	1.70	1.82
1	L	186	TYR	CE1-CZ	-7.08	1.29	1.38
2	A	22	CYS	CB-SG	-6.34	1.71	1.82
2	H	201	LYS	CD-CE	5.38	1.64	1.51
1	B	192	TYR	C-O	-5.32	1.13	1.23
1	B	185	GLU	CD-OE2	-5.28	1.19	1.25
1	L	185	GLU	CD-OE2	-5.09	1.20	1.25

All (13) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
1	L	142	ARG	NE-CZ-NH1	7.02	123.81	120.30
2	H	201	LYS	CB-CG-CD	-6.93	93.57	111.60
1	L	23	CYS	CA-CB-SG	6.84	126.31	114.00
1	L	142	ARG	CB-CA-C	6.70	123.80	110.40
1	L	142	ARG	N-CA-CB	-6.42	99.04	110.60
1	L	199	GLN	CA-CB-CG	6.22	127.09	113.40
1	B	185	GLU	N-CA-CB	6.11	121.60	110.60
2	H	100(C)	SER	N-CA-C	-5.62	95.82	111.00
1	L	190	LYS	CB-CA-C	-5.60	99.20	110.40
1	B	24	ARG	CB-CA-C	-5.42	99.56	110.40
1	L	142	ARG	CA-CB-CG	5.21	124.86	113.40
1	L	189	HIS	C-N-CA	-5.14	108.84	121.70
1	B	81	GLU	CA-CB-CG	5.02	124.44	113.40

There are no chirality outliers.

All (2) planarity outliers are listed below:

Mol	Chain	Res	Type	Group
1	B	29	ILE	Peptide
1	L	29	ILE	Peptide

5.2 Too-close contacts (i)

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

Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
1	B	1612	0	1564	40	1
1	L	1612	0	1564	35	0
2	A	1689	0	1657	16	0
2	H	1689	0	1657	31	0
3	C	51	0	53	1	0
3	D	51	0	53	3	0
4	A	52	0	0	2	1
4	B	52	0	0	4	0
4	C	1	0	0	0	0
4	D	2	0	0	3	0
4	H	54	0	0	2	1
4	L	44	0	0	9	0
All	All	6909	0	6548	114	2

The all-atom clashscore is defined as the number of clashes found per 1000 atoms (including hydrogen atoms). The all-atom clashscore for this structure is 9.

All (114) 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:185:GLU:CD	1:B:189:HIS:HE2	1.57	1.08
2:H:29:THR:HG22	2:H:31:ARG:H	1.29	0.96
1:B:199:GLN:NE2	4:B:301:HOH:O	1.87	0.92
1:L:122:GLU:OE2	4:L:301:HOH:O	1.88	0.90
1:B:185:GLU:CD	1:B:189:HIS:NE2	2.32	0.83
3:D:512:ALA:N	4:D:601:HOH:O	2.13	0.82
2:H:13:ARG:NH1	4:H:301:HOH:O	2.13	0.81
1:L:80:PRO:HA	1:L:106:PHE:HE2	1.46	0.79
2:A:101:ASP:O	4:A:301:HOH:O	2.00	0.79
1:B:160:GLN:HE22	2:H:64:LYS:HG2	1.51	0.76
1:B:185:GLU:OE2	1:B:189:HIS:NE2	2.20	0.75
1:L:32:ASP:OD1	4:L:302:HOH:O	2.08	0.70
2:H:199:ASN:HD21	2:H:201:LYS:HE3	1.56	0.70
1:B:61:ARG:HB3	4:B:304:HOH:O	1.92	0.70
2:H:38:ARG:HB3	2:H:48:ILE:HD11	1.75	0.68
1:L:32:ASP:OD2	4:L:302:HOH:O	2.13	0.66
1:B:77:ASN:N	4:B:304:HOH:O	2.29	0.66
2:H:199:ASN:HD21	2:H:201:LYS:CE	2.10	0.65
1:B:32:ASP:OD1	4:D:601:HOH:O	2.13	0.65
1:L:122:GLU:HG3	1:L:123:ASP:N	2.12	0.64
1:B:93:SER:HB2	1:L:147:LYS:HD3	1.81	0.63
1:L:114:SER:OG	4:L:304:HOH:O	2.16	0.62
2:H:123:PRO:HD3	2:H:209:LYS:HE2	1.81	0.62
1:B:120:PRO:HG3	1:B:130:VAL:CG1	2.30	0.62
1:B:161:GLU:HG2	1:B:175:LEU:HD21	1.81	0.61
1:L:142:ARG:HB2	1:L:173:TYR:CE2	2.35	0.61
1:L:145:SER:HB3	1:L:197:THR:OG1	2.00	0.61
2:H:72:ASP:OD1	2:H:74:SER:OG	2.18	0.61
1:L:55:GLN:O	1:L:58:VAL:HG13	2.01	0.61
2:H:100(H):ARG:HD3	1:L:49:TYR:CD1	2.35	0.60
1:L:147:LYS:HE3	1:L:154:LEU:HD22	1.82	0.60
2:H:199:ASN:ND2	2:H:201:LYS:HE3	2.17	0.59
1:B:185:GLU:OE2	1:B:189:HIS:CD2	2.55	0.59
1:B:185:GLU:OE1	1:B:189:HIS:NE2	2.27	0.59
1:B:142:ARG:HD2	1:B:173:TYR:CE1	2.37	0.58
1:L:142:ARG:HB2	1:L:173:TYR:CD2	2.39	0.58
1:L:32:ASP:CG	4:L:302:HOH:O	2.42	0.58

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:37:GLN:HB2	1:B:47:LEU:HD11	1.86	0.57
2:H:68:ILE:HB	2:H:81:ARG:HB2	1.86	0.57
2:A:13:ARG:O	2:A:16:GLU:HB2	2.05	0.57
1:L:80:PRO:HA	1:L:106:PHE:CE2	2.34	0.57
2:A:186:SER:HA	2:A:189:LEU:HD13	1.87	0.57
1:B:145:SER:HB3	1:B:197:THR:OG1	2.05	0.56
2:H:141:LEU:HG	2:H:143:LYS:HG3	1.88	0.55
2:H:75:LYS:HA	2:H:75:LYS:HE2	1.87	0.55
2:A:168:ALA:HA	2:A:178:LEU:HB3	1.88	0.54
1:L:185:GLU:HA	1:L:185:GLU:OE1	2.08	0.53
2:A:18:LEU:HD13	2:A:109:VAL:HG11	1.91	0.53
1:L:142:ARG:HG3	1:L:173:TYR:CE1	2.44	0.52
1:B:91:ASP:HA	1:B:96:LEU:HD22	1.92	0.52
2:A:38:ARG:HB3	2:A:48:ILE:HD11	1.91	0.52
1:L:11:LEU:HD21	1:L:19:VAL:HG11	1.91	0.52
2:H:164:HIS:ND1	4:H:303:HOH:O	2.34	0.52
1:L:37:GLN:HB2	1:L:47:LEU:HD11	1.92	0.51
1:L:52:SER:OG	4:L:305:HOH:O	2.19	0.51
1:L:33:LEU:HD22	1:L:71:PHE:CG	2.46	0.51
1:B:40:PRO:HB3	1:B:165:GLU:OE2	2.10	0.51
1:B:120:PRO:HG3	1:B:130:VAL:HG11	1.93	0.50
1:B:77:ASN:O	1:B:79:GLN:HG2	2.11	0.50
2:A:213:ILE:HD12	2:A:213:ILE:H	1.76	0.50
3:D:512:ALA:N	4:D:602:HOH:O	2.45	0.50
1:B:94:PHE:CE1	3:D:513:VAL:HG22	2.46	0.49
1:B:161:GLU:OE1	4:B:303:HOH:O	2.20	0.49
1:L:120:PRO:HG3	1:L:132:VAL:HG22	1.95	0.49
1:L:33:LEU:HG	1:L:34:SER:N	2.29	0.48
1:B:5:THR:O	1:B:23:CYS:HA	2.14	0.48
2:H:98:ILE:HD11	2:H:100(I):ILE:HG13	1.96	0.48
2:H:29:THR:HB	2:H:31(A):ASP:OD1	2.13	0.48
1:B:159:SER:O	2:H:61:PRO:HB3	2.14	0.48
1:L:54:LEU:HD11	1:L:58:VAL:HG22	1.97	0.47
2:H:133:GLU:HG3	2:H:134:SER:H	1.80	0.46
1:B:160:GLN:NE2	2:H:64:LYS:NZ	2.63	0.46
1:B:93:SER:CB	1:L:147:LYS:HD3	2.45	0.46
2:A:35:SER:HB2	2:A:93:SER:OG	2.16	0.46
1:L:140:TYR:CD1	1:L:141:PRO:HA	2.50	0.46
1:B:80:PRO:HA	1:B:106:PHE:CZ	2.51	0.45
2:A:151:THR:OG1	2:A:199:ASN:HB3	2.16	0.45
2:A:97:LYS:HE2	2:A:97:LYS:HB3	1.50	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:H:188:SER:HA	2:H:191:THR:HG22	2.00	0.44
1:L:39:LYS:HE2	1:L:81:GLU:O	2.18	0.44
1:B:120:PRO:CB	1:B:130:VAL:HG13	2.48	0.44
2:H:35:SER:O	2:H:92:CYS:HA	2.17	0.43
2:A:64:LYS:HB2	2:A:64:LYS:HE3	1.68	0.43
2:H:195:VAL:HG22	2:H:210:ARG:HG2	2.01	0.43
1:L:29:ILE:HG21	1:L:90:GLN:HG3	2.01	0.43
1:B:80:PRO:HA	1:B:106:PHE:HZ	1.83	0.43
1:L:31:LYS:NZ	4:L:310:HOH:O	2.48	0.43
1:B:120:PRO:HB3	1:B:130:VAL:HG13	2.00	0.43
2:H:101:ASP:HB3	1:L:46:LEU:HD22	2.01	0.43
2:H:212:GLU:OE2	2:H:212:GLU:HA	2.18	0.43
1:B:160:GLN:HE21	1:B:160:GLN:HB3	1.49	0.42
2:A:155:ASN:O	2:A:158:SER:HB3	2.19	0.42
1:L:33:LEU:HD11	1:L:88:CYS:HB2	2.01	0.42
1:L:159:SER:HA	1:L:178:THR:O	2.18	0.42
1:B:131:SER:HB2	2:A:141:LEU:HD21	2.02	0.42
2:H:100(H):ARG:HD3	1:L:49:TYR:CG	2.54	0.42
2:H:119:PRO:HB3	2:H:145:TYR:HB3	2.02	0.42
1:B:4:MET:HE1	1:B:29:ILE:HD13	2.02	0.42
1:B:159:SER:HA	1:B:178:THR:O	2.19	0.42
1:B:120:PRO:HG3	1:B:130:VAL:HG13	1.98	0.42
2:H:60:ASN:HB3	2:H:63:LEU:HD12	2.02	0.42
2:H:171:GLN:HB2	2:H:175:LEU:O	2.19	0.42
1:B:4:MET:HA	1:B:24:ARG:O	2.20	0.42
1:B:140:TYR:CG	1:B:141:PRO:HA	2.55	0.42
2:H:13:ARG:HB2	2:H:16:GLU:OE1	2.20	0.42
2:H:168:ALA:HA	2:H:178:LEU:HB3	2.02	0.42
4:L:302:HOH:O	3:C:512:ALA:N	2.53	0.41
1:L:1:ASP:N	4:L:307:HOH:O	2.36	0.41
2:A:100:TYR:OH	4:A:302:HOH:O	2.20	0.41
1:L:5:THR:O	1:L:23:CYS:HA	2.20	0.41
1:B:39:LYS:HB2	1:B:42:LYS:HD3	2.01	0.41
1:B:119:PRO:HB3	1:B:209:PHE:CE1	2.56	0.41
1:B:160:GLN:OE1	2:A:169:VAL:HG11	2.20	0.41
2:A:170:LEU:O	2:H:64:LYS:HE3	2.21	0.41

All (2) 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:B:17:ASP:OD1	1:B:107:LYS:NZ[3_657]	2.08	0.12
4:A:311:HOH:O	4:H:312:HOH:O[1_655]	2.10	0.10

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	B	210/214 (98%)	201 (96%)	8 (4%)	1 (0%)	29	34
1	L	210/214 (98%)	202 (96%)	7 (3%)	1 (0%)	29	34
2	A	220/232 (95%)	216 (98%)	4 (2%)	0	100	100
2	H	220/232 (95%)	214 (97%)	6 (3%)	0	100	100
3	C	6/8 (75%)	6 (100%)	0	0	100	100
3	D	6/8 (75%)	6 (100%)	0	0	100	100
All	All	872/908 (96%)	845 (97%)	25 (3%)	2 (0%)	47	57

All (2) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	B	30	ASP
1	L	30	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	B	187/189 (99%)	182 (97%)	5 (3%)	44	57
1	L	187/189 (99%)	179 (96%)	8 (4%)	29	38
2	A	197/204 (97%)	194 (98%)	3 (2%)	65	76
2	H	197/204 (97%)	194 (98%)	3 (2%)	65	76
3	C	4/4 (100%)	4 (100%)	0	100	100
3	D	4/4 (100%)	4 (100%)	0	100	100
All	All	776/794 (98%)	757 (98%)	19 (2%)	49	61

All (19) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	B	90	GLN
1	B	106	PHE
1	B	114	SER
1	B	185	GLU
1	B	190	LYS
2	A	74	SER
2	A	158	SER
2	A	197	ASN
2	H	100(C)	SER
2	H	100(D)	TYR
2	H	201	LYS
1	L	10	SER
1	L	67	SER
1	L	90	GLN
1	L	105	ASP
1	L	127	SER
1	L	190	LYS
1	L	191	VAL
1	L	202	SER

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (3) such sidechains are listed below:

Mol	Chain	Res	Type
1	B	160	GLN
1	B	187	GLN
2	H	199	ASN

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

There are no ligands in this entry.

5.7 Other polymers

There are no such residues in this entry.

5.8 Polymer linkage issues

There are no chain breaks in this entry.

6 Fit of model and data

6.1 Protein, DNA and RNA chains

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

Mol	Chain	Analysed	<RSRZ>	#RSRZ>2	OWAB(Å^2)	Q<0.9
1	B	212/214 (99%)	-0.12	2 (0%) 84 85	32, 42, 56, 67	0
1	L	212/214 (99%)	-0.11	1 (0%) 91 92	30, 41, 53, 67	0
2	A	224/232 (96%)	-0.01	9 (4%) 38 35	29, 42, 63, 94	0
2	H	224/232 (96%)	0.04	14 (6%) 20 16	30, 40, 73, 95	0
3	C	8/8 (100%)	-0.28	0 100 100	31, 35, 40, 48	0
3	D	8/8 (100%)	-0.37	0 100 100	35, 37, 42, 45	0
All	All	888/908 (97%)	-0.05	26 (2%) 51 47	29, 41, 62, 95	0

All (26) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
2	H	100(D)	TYR	6.1
2	A	132	SER	5.2
2	H	100(C)	SER	4.9
2	H	100(B)	ALA	4.1
2	H	127	SER	3.4
2	H	133	GLU	3.4
2	H	135	THR	3.3
2	H	188	SER	3.2
2	A	213	ILE	3.1
2	A	133	GLU	2.9
1	B	24	ARG	2.9
2	A	193	THR	2.8
2	H	189	LEU	2.4
2	A	127	SER	2.4
2	H	185	PRO	2.3
2	H	186	SER	2.3
1	B	203	SER	2.3
2	H	132	SER	2.2
1	L	122	GLU	2.2

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Mol	Chain	Res	Type	RSRZ
2	A	188	SER	2.2
2	A	189	LEU	2.1
2	H	187	SER	2.1
2	A	134	SER	2.1
2	H	184	VAL	2.0
2	A	191	THR	2.0
2	H	134	SER	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.