



Full wwPDB X-ray Structure Validation Report ⓘ

May 7, 2026 – 09:08 AM EDT

PDB ID : 6P8D / pdb_00006p8d
Title : Vaccine-elicited murine FP-targeting antibody vFP6.01 in complex with HIV fusion peptide (residue 512-519)
Authors : Xu, K.; Liu, K.; Wang, Y.; Kwong, P.D.
Deposited on : 2019-06-07
Resolution : 2.10 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 types of validation reports are described at

<http://www.wwpdb.org/validation/2017/FAQs#types>.

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

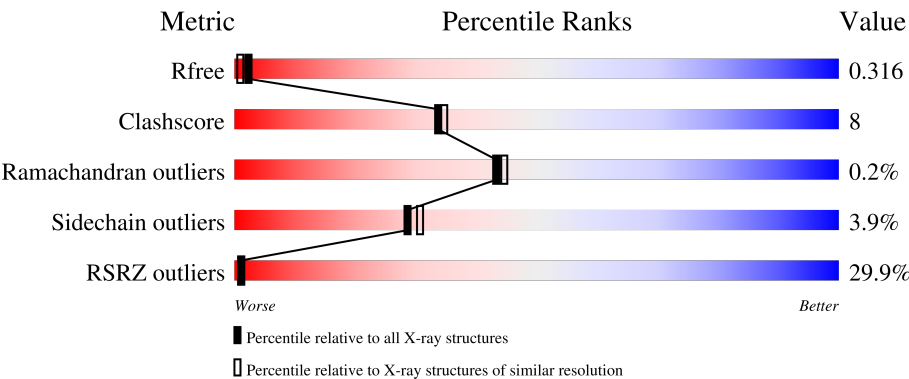
MolProbity	:	4-5-2 with Phenix2.0
Xtriage (Phenix)	:	2.0
EDS	:	3.0
Percentile statistics	:	20250101.v01 (using entries in the PDB archive January 1st 2025)
CCP4	:	9.0.010 (Gargrove)
Density-Fitness	:	1.0.12
Ideal geometry (proteins)	:	Engh & Huber (2001)
Ideal geometry (DNA, RNA)	:	Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP)	:	2.49

1 Overall quality at a glance i

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

The reported resolution of this entry is 2.10 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}	180053	6658 (2.10-2.10)
Clashscore	190562	7164 (2.10-2.10)
Ramachandran outliers	187476	7099 (2.10-2.10)
Sidechain outliers	187428	7100 (2.10-2.10)
RSRZ outliers	180081	6662 (2.10-2.10)

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 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 $\leq 5\%$. 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	218	39% 75% 20% ..
1	D	218	23% 76% 19% ..
2	B	219	21% 80% 16% ..
2	E	219	35% 81% 17% .
3	C	8	25% 88% 12%

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Mol	Chain	Length	Quality of chain
3	F	8	 A horizontal bar chart showing the quality of chain F. The bar is divided into three segments: a red segment on the left labeled '12%', a green segment in the middle labeled '88%', and an orange segment on the right labeled '12%'.

2 Entry composition [i](#)

There are 4 unique types of molecules in this entry. The entry contains 6824 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 Antibody VFP6.01 heavy chain.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
1	A	211	Total	C	N	O	S	0	0	0
			1614	1024	267	315	8			
1	D	210	Total	C	N	O	S	0	0	0
			1606	1020	265	313	8			

- Molecule 2 is a protein called Antibody VFP6.01 light chain.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
2	B	216	Total	C	N	O	S	0	0	0
			1683	1051	284	342	6			
2	E	216	Total	C	N	O	S	0	0	0
			1683	1051	284	342	6			

- Molecule 3 is a protein called HIV fusion peptide residue 512-519.

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

- Molecule 4 is water.

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
4	A	22	Total	O	0	0
			22	22		
4	B	36	Total	O	0	0
			36	36		
4	D	51	Total	O	0	0
			51	51		
4	E	23	Total	O	0	0
			23	23		

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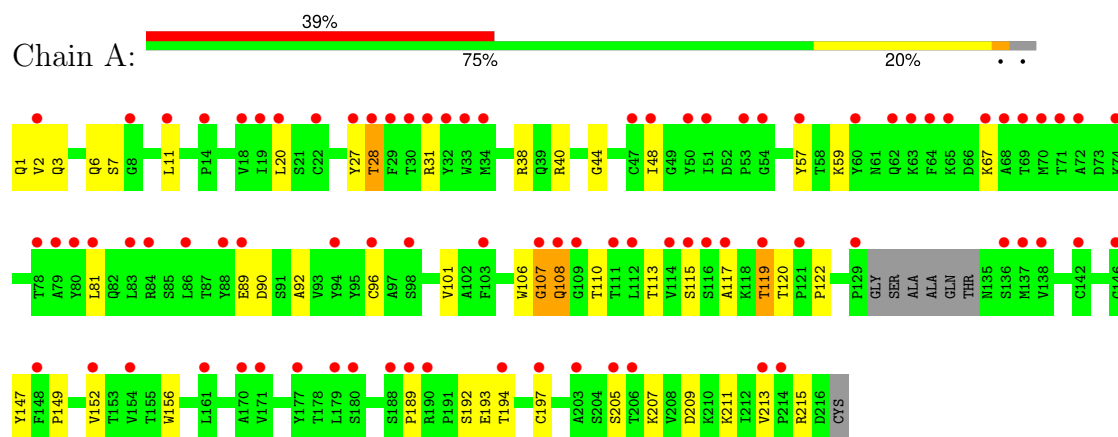
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Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
4	F	3	Total	O	0	0
			3	3		
4	C	1	Total	O	0	0
			1	1		

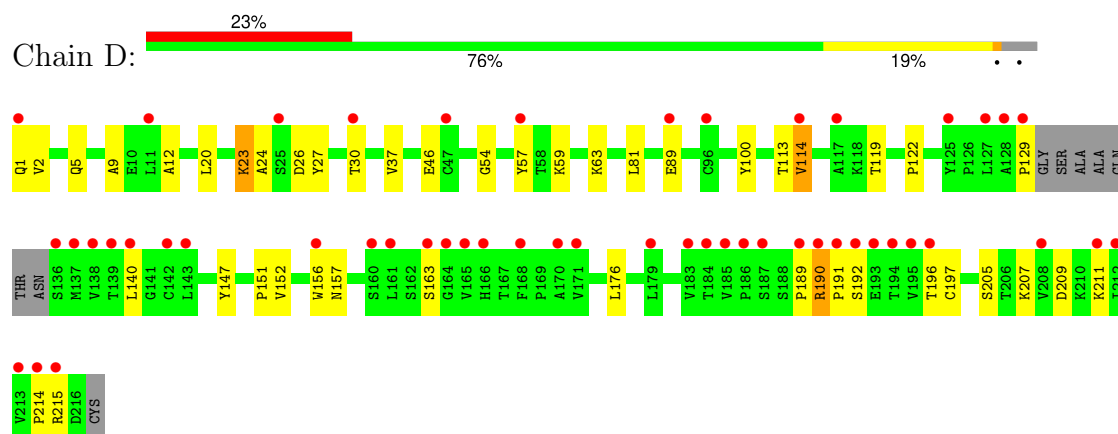
3 Residue-property plots [i](#)

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.

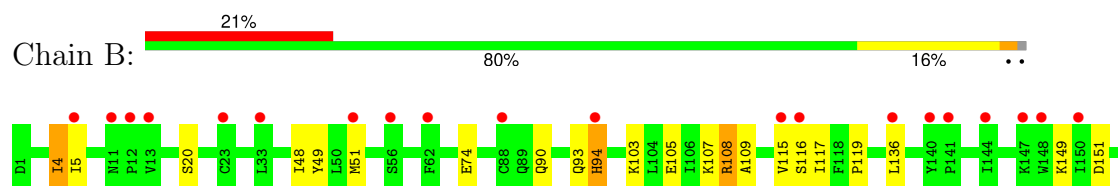
• Molecule 1: Antibody VFP6.01 heavy chain



• Molecule 1: Antibody VFP6.01 heavy chain

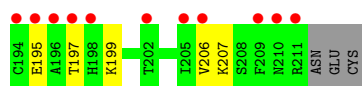
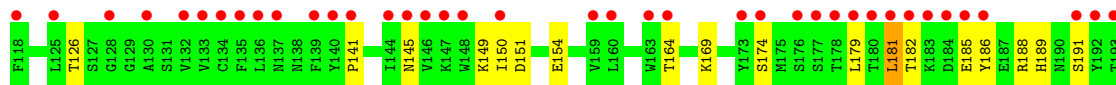
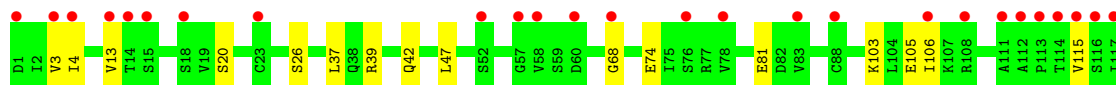
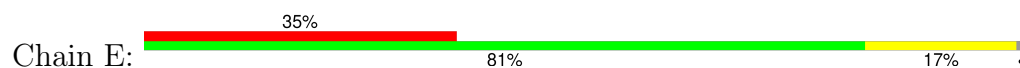


• Molecule 2: Antibody VFP6.01 light chain

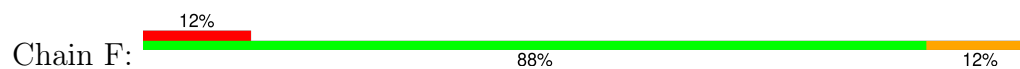




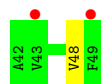
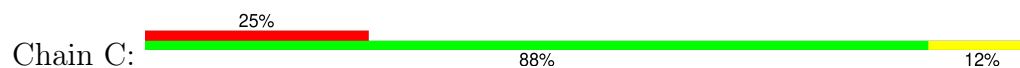
• Molecule 2: Antibody VFP6.01 light chain



• Molecule 3: HIV fusion peptide residue 512-519



• Molecule 3: HIV fusion peptide residue 512-519



4 Data and refinement statistics

Property	Value	Source
Space group	P 21 21 21	Depositor
Cell constants a, b, c, α , β , γ	42.31Å 119.78Å 185.50Å 90.00° 90.00° 90.00°	Depositor
Resolution (Å)	41.25 – 2.10 41.25 – 2.10	Depositor EDS
% Data completeness (in resolution range)	95.2 (41.25-2.10) 95.3 (41.25-2.10)	Depositor EDS
R_{merge}	0.09	Depositor
R_{sym}	(Not available)	Depositor
$\langle I/\sigma(I) \rangle$ ¹	2.42 (at 2.10Å)	Xtriage
Refinement program	PHENIX (1.15.2_3472: ???)	Depositor
R, R_{free}	0.271 , 0.309 0.281 , 0.316	Depositor DCC
R_{free} test set	2655 reflections (4.74%)	wwPDB-VP
Wilson B-factor (Å ²)	38.0	Xtriage
Anisotropy	0.847	Xtriage
Bulk solvent k_{sol} (e/Å ³), B_{sol} (Å ²)	0.34 , 43.3	EDS
L-test for twinning ²	$\langle L \rangle = 0.49$, $\langle L^2 \rangle = 0.32$	Xtriage
Estimated twinning fraction	No twinning to report.	Xtriage
F_o, F_c correlation	0.93	EDS
Total number of atoms	6824	wwPDB-VP
Average B, all atoms (Å ²)	60.0	wwPDB-VP

Xtriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 4.35% of the height of the origin peak. No significant pseudotranslation is detected.*

¹Intensities estimated from amplitudes.

²Theoretical values of $\langle |L| \rangle$, $\langle L^2 \rangle$ 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	0.21	0/1657	0.46	0/2263
1	D	0.26	0/1649	0.53	0/2252
2	B	0.21	0/1718	0.44	0/2329
2	E	0.20	0/1718	0.42	0/2329
3	C	0.15	0/51	0.28	0/68
3	F	0.37	0/51	0.62	0/68
All	All	0.22	0/6844	0.47	0/9309

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

There are no bond length outliers.

There are no bond angle outliers.

There are no chirality outliers.

All (1) planarity outliers are listed below:

Mol	Chain	Res	Type	Group
1	A	107	GLY	Peptide

5.2 Too-close contacts [i](#)

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

Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
1	A	1614	0	1577	37	0
1	D	1606	0	1571	26	0
2	B	1683	0	1630	24	0
2	E	1683	0	1630	23	0
3	C	51	0	53	1	0
3	F	51	0	53	1	0
4	A	22	0	0	4	0
4	B	36	0	0	6	0
4	C	1	0	0	0	0
4	D	51	0	0	0	0
4	E	23	0	0	2	0
4	F	3	0	0	0	0
All	All	6824	0	6514	102	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 (102) close contacts within the same asymmetric unit are listed below, sorted by their clash magnitude.

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:E:42:GLN:OE1	4:E:301:HOH:O	1.92	0.86
2:B:184:ASP:O	4:B:301:HOH:O	1.97	0.81
2:B:183:LYS:O	4:B:302:HOH:O	1.98	0.79
2:E:185:GLU:OE2	4:E:302:HOH:O	2.01	0.78
1:D:57:TYR:OH	1:D:59:LYS:NZ	2.17	0.77
1:A:205:SER:HB3	1:D:211:LYS:HB3	1.68	0.73
2:B:175:MET:O	4:B:303:HOH:O	2.09	0.70
1:A:96:CYS:H	1:A:108:GLN:HG3	1.56	0.70
2:E:103:LYS:NZ	2:E:105:GLU:OE1	2.25	0.69
1:A:7:SER:O	4:A:301:HOH:O	2.09	0.69
2:B:117:ILE:HG22	2:B:207:LYS:HE3	1.73	0.68
1:A:192:SER:O	4:A:302:HOH:O	2.11	0.68
1:A:122:PRO:HB3	1:A:147:TYR:HB3	1.78	0.66
2:B:108:ARG:HG2	2:B:171:SER:HB2	1.81	0.62
2:B:4:ILE:HD11	2:B:90:GLN:HB3	1.82	0.61
1:A:11:LEU:HD23	1:A:119:THR:HG22	1.83	0.61
1:A:107:GLY:O	1:A:108:GLN:HB2	2.01	0.60
2:E:115:VAL:O	2:E:207:LYS:NZ	2.32	0.60
2:B:188:ARG:N	4:B:301:HOH:O	2.33	0.60
2:B:94:HIS:NE2	3:C:48:VAL:O	2.35	0.60
2:E:13:VAL:HG23	2:E:106:ILE:HD12	1.84	0.59
1:A:20:LEU:HD22	1:A:110:THR:HG21	1.83	0.59

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:2:VAL:HG22	1:A:27:TYR:HB3	1.85	0.59
1:D:5:GLN:HB3	1:D:23:LYS:HG2	1.85	0.59
1:D:1:GLN:NE2	1:D:26:ASP:HB3	2.18	0.58
1:A:189:PRO:O	1:A:193:GLU:N	2.29	0.58
1:A:57:TYR:OH	1:A:59:LYS:NZ	2.31	0.58
1:D:190:ARG:HH22	1:D:214:PRO:HG3	1.69	0.57
2:E:181:LEU:HD23	2:E:186:TYR:HB2	1.87	0.56
2:B:116:SER:HA	2:B:207:LYS:HE2	1.88	0.56
1:D:122:PRO:HB3	1:D:147:TYR:HB3	1.87	0.56
2:B:195:GLU:HG2	2:B:206:VAL:HG22	1.89	0.55
2:B:193:THR:HG22	2:B:208:SER:HB2	1.88	0.55
1:D:129:PRO:HG3	1:D:215:ARG:HE	1.72	0.55
1:A:211:LYS:HB3	1:D:205:SER:HB3	1.89	0.53
2:E:149:LYS:HE2	2:E:154:GLU:HG2	1.90	0.53
2:E:151:ASP:HA	2:E:191:SER:HB3	1.90	0.53
2:E:3:VAL:HG12	2:E:26:SER:HB3	1.89	0.53
2:B:108:ARG:HD3	2:B:109:ALA:O	2.08	0.53
2:E:39:ARG:NH1	2:E:81:GLU:O	2.29	0.52
1:A:89:GLU:OE1	1:A:89:GLU:N	2.41	0.52
1:A:11:LEU:HB2	1:A:149:PRO:HG3	1.92	0.52
2:E:150:ILE:HD11	2:E:179:LEU:HD21	1.92	0.51
1:A:28:THR:HG21	1:A:31:ARG:HE	1.75	0.51
1:A:96:CYS:H	1:A:108:GLN:CG	2.23	0.50
1:A:115:SER:C	1:A:117:ALA:H	2.20	0.50
1:A:1:GLN:O	1:A:3:GLN:HG2	2.11	0.50
1:A:96:CYS:SG	1:A:108:GLN:NE2	2.84	0.50
2:B:151:ASP:HA	2:B:191:SER:HB3	1.93	0.50
2:E:20:SER:OG	2:E:74:GLU:OE2	2.23	0.50
1:A:40:ARG:HG2	1:A:92:ALA:HB2	1.92	0.50
1:D:190:ARG:C	1:D:190:ARG:HE	2.20	0.50
1:D:46:GLU:OE2	1:D:63:LYS:HD3	2.12	0.50
2:E:149:LYS:HG2	2:E:154:GLU:HA	1.94	0.49
2:E:181:LEU:HD22	2:E:181:LEU:H	1.77	0.49
2:B:149:LYS:HB2	2:B:193:THR:OG1	2.13	0.49
1:A:67:LYS:HE2	1:A:90:ASP:OD2	2.12	0.49
1:A:6:GLN:N	1:A:6:GLN:OE1	2.47	0.48
1:A:106:TRP:C	1:A:107:GLY:O	2.52	0.48
2:B:51:MET:HG2	4:B:318:HOH:O	2.14	0.47
2:E:115:VAL:HB	2:E:207:LYS:HD3	1.96	0.47
1:A:215:ARG:CZ	2:B:119:PRO:HG2	2.44	0.47
2:E:37:LEU:HB2	2:E:47:LEU:HD11	1.97	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:B:20:SER:OG	2:B:74:GLU:OE2	2.25	0.46
1:D:157:ASN:OD1	1:D:196:THR:N	2.35	0.46
1:D:100:TYR:HE2	3:F:157:VAL:HG13	1.80	0.46
1:D:12:ALA:O	1:D:114:VAL:HA	2.15	0.46
1:D:156:TRP:CZ3	1:D:197:CYS:HB3	2.51	0.46
2:E:164:THR:HG22	2:E:174:SER:H	1.81	0.46
1:D:24:ALA:HB1	1:D:27:TYR:CE1	2.51	0.45
1:D:2:VAL:HG13	1:D:27:TYR:CE1	2.51	0.45
2:B:115:VAL:HG22	2:B:136:LEU:HD22	1.99	0.45
1:D:189:PRO:HA	1:D:192:SER:OG	2.17	0.45
1:D:163:SER:HA	2:E:169:LYS:HE3	1.97	0.45
2:E:151:ASP:OD2	2:E:189:HIS:HB3	2.17	0.45
2:E:141:PRO:HD3	2:E:199:LYS:HE2	1.99	0.44
1:A:6:GLN:HB3	1:A:108:GLN:NE2	2.32	0.44
1:A:207:LYS:HB2	1:D:209:ASP:HB2	1.99	0.44
1:D:190:ARG:HA	1:D:191:PRO:HA	1.76	0.44
1:A:11:LEU:HD22	1:A:149:PRO:HD3	1.99	0.44
2:E:145:ASN:HB2	2:E:197:THR:OG1	2.18	0.44
1:A:38:ARG:HB2	1:A:48:ILE:HD11	2.00	0.43
1:D:1:GLN:NE2	1:D:26:ASP:O	2.47	0.43
1:D:9:ALA:HB2	1:D:151:PRO:HD2	1.98	0.43
1:A:2:VAL:HG13	1:A:27:TYR:CD1	2.53	0.43
2:B:164:THR:HG22	2:B:174:SER:O	2.19	0.43
1:A:194:THR:HA	4:A:317:HOH:O	2.19	0.43
1:A:156:TRP:CZ3	1:A:197:CYS:HB3	2.53	0.42
1:D:89:GLU:OE1	1:D:89:GLU:N	2.49	0.42
1:A:101:VAL:HG11	2:B:49:TYR:CD1	2.53	0.42
2:B:190:ASN:O	2:B:210:ASN:HA	2.20	0.42
1:D:140:LEU:HD11	1:D:190:ARG:HG3	2.02	0.42
2:B:186:TYR:N	4:B:302:HOH:O	2.52	0.42
2:B:193:THR:HG22	2:B:208:SER:CB	2.48	0.41
1:A:44:GLY:HA3	4:A:310:HOH:O	2.20	0.41
1:D:30:THR:HG23	1:D:54:GLY:CA	2.51	0.41
2:E:195:GLU:HG2	2:E:206:VAL:HG22	2.02	0.41
1:A:11:LEU:HD12	1:A:113:THR:O	2.21	0.41
2:B:103:LYS:HE2	2:B:105:GLU:OE2	2.21	0.41
1:A:67:LYS:HE2	1:A:90:ASP:CG	2.46	0.40
1:A:120:THR:HG22	2:E:126:THR:HG21	2.04	0.40
1:A:209:ASP:HB2	1:D:207:LYS:HB2	2.02	0.40

There are no symmetry-related clashes.

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	207/218 (95%)	200 (97%)	6 (3%)	1 (0%)	24	22
1	D	206/218 (94%)	200 (97%)	6 (3%)	0	100	100
2	B	214/219 (98%)	211 (99%)	3 (1%)	0	100	100
2	E	214/219 (98%)	208 (97%)	5 (2%)	1 (0%)	24	22
3	C	6/8 (75%)	6 (100%)	0	0	100	100
3	F	6/8 (75%)	6 (100%)	0	0	100	100
All	All	853/890 (96%)	831 (97%)	20 (2%)	2 (0%)	43	44

All (2) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	A	108	GLN
2	E	68	GLY

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	182/186 (98%)	177 (97%)	5 (3%)	39	45
1	D	181/186 (97%)	171 (94%)	10 (6%)	19	18
2	B	195/198 (98%)	185 (95%)	10 (5%)	21	21
2	E	195/198 (98%)	191 (98%)	4 (2%)	47	54
3	C	4/4 (100%)	4 (100%)	0	100	100

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Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
3	F	4/4 (100%)	3 (75%)	1 (25%)	0	0
All	All	761/776 (98%)	731 (96%)	30 (4%)	28	31

All (30) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	28	THR
1	A	81	LEU
1	A	119	THR
1	A	152	VAL
1	A	213	VAL
2	B	4	ILE
2	B	5	ILE
2	B	48	ILE
2	B	93	GLN
2	B	94	HIS
2	B	107	LYS
2	B	108	ARG
2	B	157	ASN
2	B	179	LEU
2	B	207	LYS
1	D	20	LEU
1	D	23	LYS
1	D	37	VAL
1	D	81	LEU
1	D	113	THR
1	D	114	VAL
1	D	119	THR
1	D	152	VAL
1	D	176	LEU
1	D	190	ARG
2	E	4	ILE
2	E	181	LEU
2	E	182	THR
2	E	188	ARG
3	F	157	VAL

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (6) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	39	GLN

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Mol	Chain	Res	Type
1	A	43	GLN
1	A	104	HIS
2	B	38	GLN
2	E	27	GLN
2	E	161	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 oligosaccharides 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

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	211/218 (96%)	1.80	84 (39%) 1 1	49, 66, 83, 92	0
1	D	210/218 (96%)	1.42	51 (24%) 2 2	32, 47, 86, 100	0
2	B	216/219 (98%)	1.38	46 (21%) 2 2	38, 59, 85, 93	0
2	E	216/219 (98%)	1.71	76 (35%) 1 1	34, 71, 88, 100	0
3	C	8/8 (100%)	1.53	2 (25%) 2 2	48, 58, 72, 73	0
3	F	8/8 (100%)	1.03	1 (12%) 8 8	34, 39, 40, 43	0
All	All	869/890 (97%)	1.57	260 (29%) 1 1	32, 60, 87, 100	0

All (260) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
2	B	205	ILE	5.1
1	D	129	PRO	5.0
1	D	212	ILE	5.0
1	A	142	CYS	4.6
2	E	113	PRO	4.5
1	D	195	VAL	4.5
2	E	118	PHE	4.4
1	D	161	LEU	4.4
1	D	142	CYS	4.4
2	E	194	CYS	4.3
2	E	115	VAL	4.2
1	D	138	VAL	4.0
1	D	127	LEU	4.0
1	A	18	VAL	4.0
1	D	191	PRO	3.9
2	B	180	THR	3.9
2	E	136	LEU	3.9
1	D	89	GLU	3.8
1	D	185	VAL	3.8

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Mol	Chain	Res	Type	RSRZ
1	D	214	PRO	3.8
2	E	209	PHE	3.7
2	E	140	TYR	3.7
2	E	193	THR	3.6
2	E	130	ALA	3.6
1	A	60	TYR	3.6
2	B	5	ILE	3.5
1	D	140	LEU	3.5
1	A	48	ILE	3.5
2	B	204	PRO	3.5
2	E	196	ALA	3.5
1	A	109	GLY	3.5
2	B	148	TRP	3.5
2	E	144	ILE	3.5
1	A	203	ALA	3.5
2	E	173	TYR	3.5
1	A	28	THR	3.4
1	D	165	VAL	3.4
1	A	2	VAL	3.4
2	E	178	THR	3.4
2	E	192	TYR	3.4
2	B	206	VAL	3.4
1	A	152	VAL	3.3
2	B	202	THR	3.3
2	E	164	THR	3.3
2	E	206	VAL	3.3
1	D	128	ALA	3.3
2	B	209	PHE	3.3
2	E	14	THR	3.2
2	E	125	LEU	3.2
1	D	1	GLN	3.2
1	D	47	CYS	3.2
1	A	67	LYS	3.2
2	B	159	VAL	3.2
2	E	205	ILE	3.2
1	A	65	LYS	3.2
1	A	114	VAL	3.1
1	A	161	LEU	3.1
2	B	150	ILE	3.1
1	D	189	PRO	3.1
1	A	62	GLN	3.1
1	A	72	ALA	3.1

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Mol	Chain	Res	Type	RSRZ
2	E	179	LEU	3.1
2	B	116	SER	3.1
2	E	160	LEU	3.1
1	D	156	TRP	3.0
1	D	190	ARG	3.0
1	A	112	LEU	3.0
2	E	181	LEU	3.0
2	B	141	PRO	3.0
1	A	137	MET	3.0
1	D	192	SER	3.0
2	E	182	THR	3.0
2	E	184	ASP	3.0
1	D	183	VAL	3.0
2	E	117	ILE	3.0
1	D	139	THR	3.0
2	B	23	CYS	2.9
1	A	154	VAL	2.9
2	E	150	ILE	2.9
1	A	88	TYR	2.9
2	B	211	ARG	2.9
2	E	148	TRP	2.9
1	D	163	SER	2.9
1	A	11	LEU	2.9
2	E	4	ILE	2.9
1	A	50	TYR	2.9
2	B	62	PHE	2.9
2	E	147	LYS	2.9
1	A	81	LEU	2.9
1	A	22	CYS	2.9
1	D	137	MET	2.9
2	B	194	CYS	2.8
1	A	51	ILE	2.8
1	A	57	TYR	2.8
1	A	107	GLY	2.8
2	E	128	GLY	2.8
1	D	143	LEU	2.8
2	E	13	VAL	2.8
1	A	53	PRO	2.8
1	D	168	PHE	2.8
1	A	179	LEU	2.8
1	A	119	THR	2.8
2	E	3	VAL	2.8

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Mol	Chain	Res	Type	RSRZ
2	E	106	ILE	2.8
1	A	79	ALA	2.8
1	D	125	TYR	2.8
1	A	190	ARG	2.7
1	A	83	LEU	2.7
1	A	69	THR	2.7
1	D	171	VAL	2.7
1	A	68	ALA	2.7
2	E	139	PHE	2.7
1	A	194	THR	2.7
2	E	114	THR	2.7
2	E	186	TYR	2.7
2	E	58	VAL	2.7
2	B	200	THR	2.6
1	A	129	PRO	2.6
2	B	210	ASN	2.6
1	A	177	TYR	2.6
1	D	213	VAL	2.6
1	A	84	ARG	2.6
2	B	158	GLY	2.6
1	A	29	PHE	2.6
2	B	195	GLU	2.6
1	D	196	THR	2.6
2	E	197	THR	2.6
1	A	20	LEU	2.6
1	A	108	GLN	2.6
1	D	96	CYS	2.6
1	A	117	ALA	2.6
1	D	136	SER	2.6
2	E	133	VAL	2.5
1	A	34	MET	2.5
2	E	180	THR	2.5
1	D	187	SER	2.5
2	E	15	SER	2.5
1	D	193	GLU	2.5
3	C	43	VAL	2.5
1	D	186	PRO	2.5
2	E	68	GLY	2.5
1	A	138	VAL	2.5
1	A	80	TYR	2.5
1	A	30	THR	2.5
2	E	76	SER	2.5

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Mol	Chain	Res	Type	RSRZ
1	D	117	ALA	2.5
1	A	86	LEU	2.5
2	E	211	ARG	2.5
2	B	190	ASN	2.5
2	E	1	ASP	2.4
1	A	96	CYS	2.4
2	B	192	TYR	2.4
1	A	74	LYS	2.4
1	A	31	ARG	2.4
1	D	215	ARG	2.4
1	D	114	VAL	2.4
2	E	132	VAL	2.4
2	E	146	VAL	2.4
2	E	159	VAL	2.4
1	D	211	LYS	2.4
2	B	147	LYS	2.4
2	B	136	LEU	2.4
2	E	198	HIS	2.4
3	C	49	PHE	2.4
1	A	70	MET	2.4
1	D	25	SER	2.4
2	B	197	THR	2.4
1	A	14	PRO	2.4
1	A	54	GLY	2.4
2	E	135	PHE	2.4
1	D	160	SER	2.4
1	D	194	THR	2.4
1	D	57	TYR	2.3
1	A	136	SER	2.3
2	B	144	ILE	2.3
1	A	213	VAL	2.3
2	E	174	SER	2.3
1	D	30	THR	2.3
2	E	202	THR	2.3
2	E	23	CYS	2.3
2	B	186	TYR	2.3
2	B	11	ASN	2.3
2	B	175	MET	2.3
2	B	207	LYS	2.3
2	B	56	SER	2.3
1	D	208	VAL	2.3
1	A	189	PRO	2.3

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Mol	Chain	Res	Type	RSRZ
2	E	141	PRO	2.3
2	E	210	ASN	2.3
1	A	94	TYR	2.3
2	E	163	TRP	2.3
1	A	89	GLU	2.3
1	A	98	SER	2.3
1	A	19	ILE	2.3
2	E	83	VAL	2.3
2	E	88	CYS	2.3
2	E	112	ALA	2.3
1	A	121	PRO	2.2
2	B	140	TYR	2.2
2	E	18	SER	2.2
1	A	103	PHE	2.2
2	E	78	VAL	2.2
2	B	88	CYS	2.2
2	E	134	CYS	2.2
2	E	116	SER	2.2
1	A	63	LYS	2.2
2	B	157	ASN	2.2
1	A	206	THR	2.2
3	F	163	PHE	2.2
1	A	171	VAL	2.2
2	B	115	VAL	2.2
2	E	57	GLY	2.2
2	B	33	LEU	2.2
2	B	181	LEU	2.2
2	E	176	SER	2.2
1	A	33	TRP	2.2
1	A	214	PRO	2.1
1	A	64	PHE	2.1
1	A	205	SER	2.1
2	B	208	SER	2.1
2	E	177	SER	2.1
1	A	27	TYR	2.1
2	E	185	GLU	2.1
1	A	71	THR	2.1
1	A	111	THR	2.1
1	D	164	GLY	2.1
2	B	13	VAL	2.1
2	E	108	ARG	2.1
1	A	47	CYS	2.1

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Mol	Chain	Res	Type	RSRZ
1	A	115	SER	2.1
1	A	116	SER	2.1
2	B	51	MET	2.1
1	A	32	TYR	2.1
1	A	78	THR	2.1
1	A	8	GLY	2.1
1	A	148	PHE	2.1
1	D	170	ALA	2.1
1	A	188	SER	2.1
1	D	179	LEU	2.1
2	E	52	SER	2.1
2	E	191	SER	2.1
2	E	195	GLU	2.1
2	B	94	HIS	2.1
1	A	170	ALA	2.1
1	A	180	SER	2.1
2	E	111	ALA	2.1
2	E	137	ASN	2.0
2	E	60	ASP	2.0
1	D	166	HIS	2.0
1	D	184	THR	2.0
2	B	12	PRO	2.0
2	B	178	THR	2.0
1	A	146	GLY	2.0
2	B	168	SER	2.0
2	E	145	ASN	2.0
1	D	11	LEU	2.0
1	A	197	CYS	2.0
2	B	183	LYS	2.0
2	E	183	LYS	2.0
2	B	193	THR	2.0

6.2 Non-standard residues in protein, DNA, RNA chains [i](#)

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

6.3 Carbohydrates [i](#)

There are no oligosaccharides in this entry.

6.4 Ligands [i](#)

There are no ligands in this entry.

6.5 Other polymers [i](#)

There are no such residues in this entry.