Full wwPDB X-ray Structure Validation Report ⓘ

Jun 22, 2024 – 06:17 PM EDT

PDB ID	:	5MP5
Title	:	Crystal structure of DC8E8 Fab in the complex with a 14-mer tau peptide at pH 6.5
Authors	:	Skrabana, R.; Novak, M.
Deposited on	:	2016-12-15
Resolution	:	2.31 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:

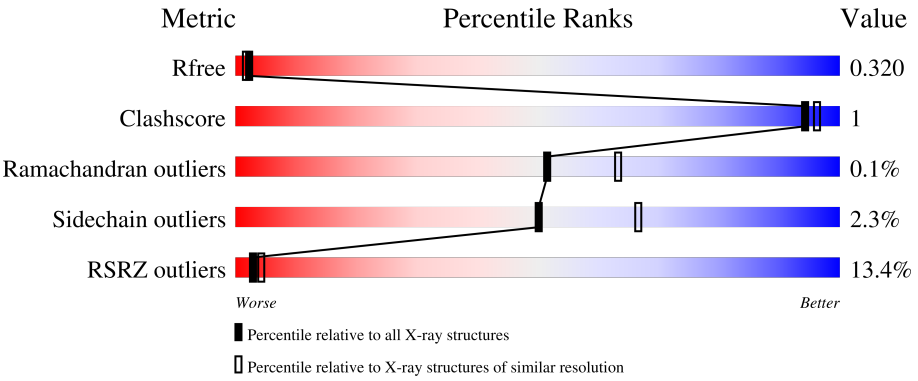
MolProbity	:	4.02b-467
Mogul	:	1.8.5 (274361), CSD as541be (2020)
Xtriage (Phenix)	:	1.13
EDS	:	2.37.1
Percentile statistics	:	20191225.v01 (using entries in the PDB archive December 25th 2019)
Refmac	:	5.8.0158
CCP4	:	7.0.044 (Gargrove)
Ideal geometry (proteins)	:	Engh & Huber (2001)
Ideal geometry (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 2.31 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	5974 (2.34-2.30)
Clashscore	141614	6604 (2.34-2.30)
Ramachandran outliers	138981	6523 (2.34-2.30)
Sidechain outliers	138945	6523 (2.34-2.30)
RSRZ outliers	127900	5855 (2.34-2.30)

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	220	11% 95% . .
1	C	220	10% 94% 6%
1	E	220	16% 94% 5% ..
1	H	220	7% 94% 5%
2	B	218	17% 97% .

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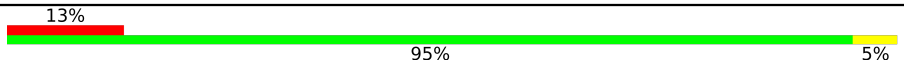
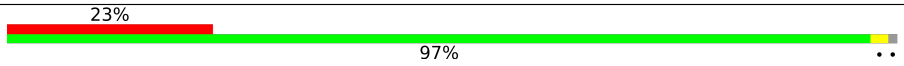
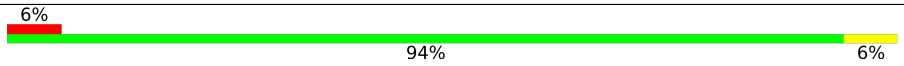
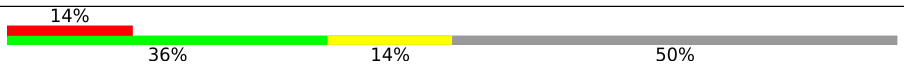
Mol	Chain	Length	Quality of chain
2	D	218	
2	F	218	
2	L	218	
3	I	14	
3	J	14	
3	K	14	

2 Entry composition (i)

There are 4 unique types of molecules in this entry. The entry contains 13516 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 Fab heavy chain.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
1	A	218	Total	C	N	O	S	0	0	0
			1646	1049	264	325	8			
1	C	220	Total	C	N	O	S	0	0	0
			1652	1051	265	328	8			
1	E	218	Total	C	N	O	S	0	0	0
			1636	1042	260	326	8			
1	H	219	Total	C	N	O	S	0	1	0
			1657	1057	265	327	8			

- Molecule 2 is a protein called antibody Fab light chain.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
2	B	217	Total	C	N	O	S	0	0	0
			1667	1040	280	340	7			
2	D	218	Total	C	N	O	S	0	0	0
			1671	1042	281	341	7			
2	F	216	Total	C	N	O	S	0	0	0
			1660	1036	279	338	7			
2	L	218	Total	C	N	O	S	0	0	0
			1684	1050	284	343	7			

- Molecule 3 is a protein called Microtubule-associated protein tau.

Mol	Chain	Residues	Atoms				ZeroOcc	AltConf	Trace
3	I	7	Total	C	N	O	0	0	0
			42	25	9	8			
3	J	6	Total	C	N	O	0	0	0
			36	22	8	6			
3	K	7	Total	C	N	O	0	0	0
			42	25	9	8			

- Molecule 4 is water.

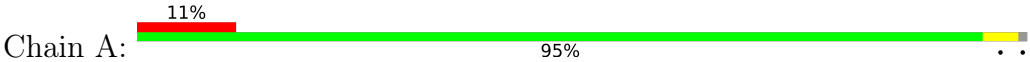
Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
4	A	16	Total O 16 16	0	0
4	B	15	Total O 15 15	0	0
4	C	18	Total O 18 18	0	0
4	D	14	Total O 14 14	0	0
4	E	18	Total O 18 18	0	0
4	F	10	Total O 10 10	0	0
4	H	18	Total O 18 18	0	0
4	L	14	Total O 14 14	0	0

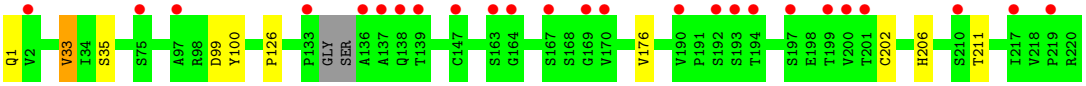
3 Residue-property plots (i)

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: antibody Fab heavy chain

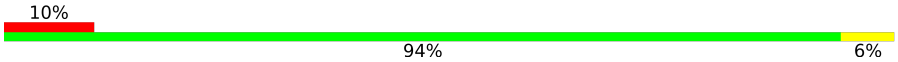
Chain A:

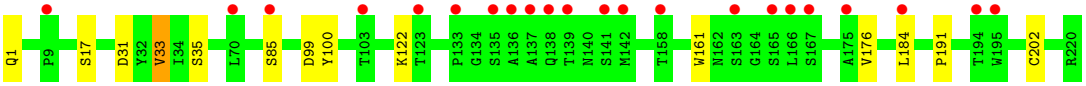




• Molecule 1: antibody Fab heavy chain

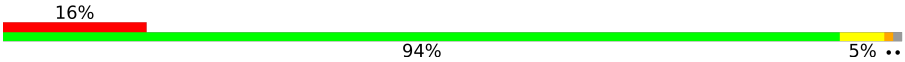
Chain C:

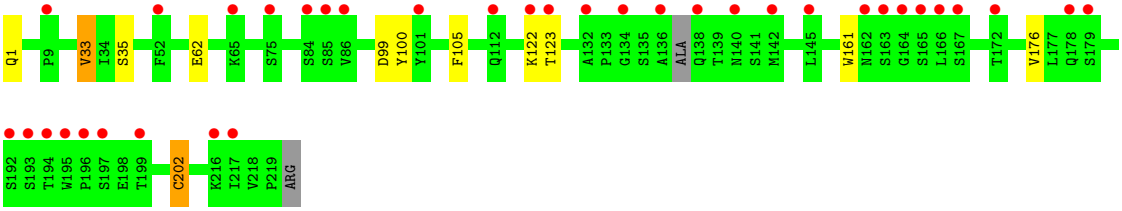




• Molecule 1: antibody Fab heavy chain

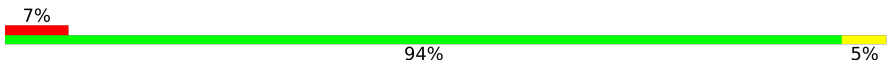
Chain E:

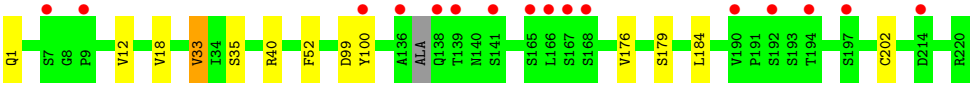




• Molecule 1: antibody Fab heavy chain

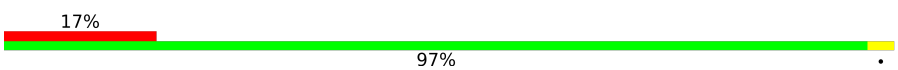
Chain H:

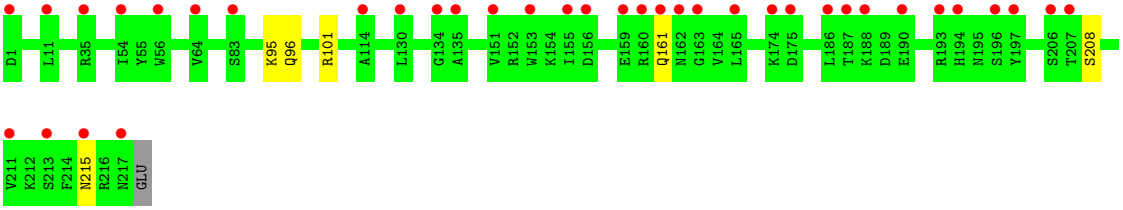




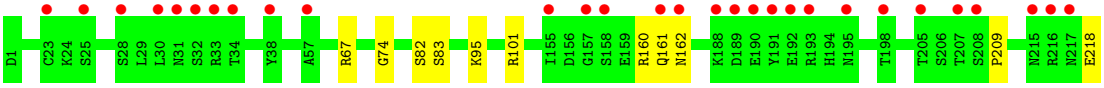
• Molecule 2: antibody Fab light chain

Chain B:

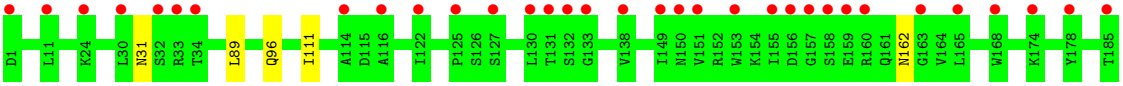




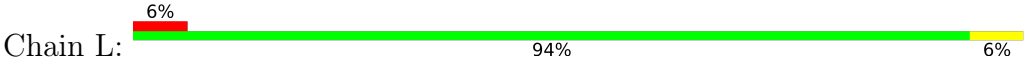
• Molecule 2: antibody Fab light chain



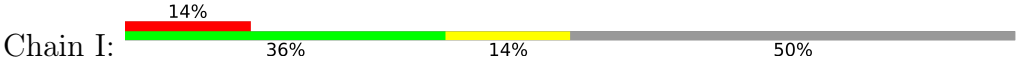
• Molecule 2: antibody Fab light chain

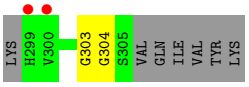


• Molecule 2: antibody Fab light chain

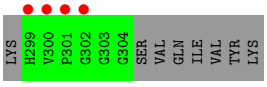


• Molecule 3: Microtubule-associated protein tau



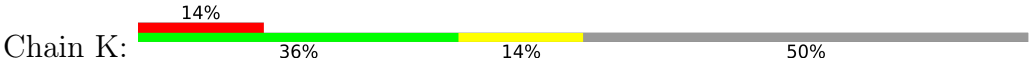


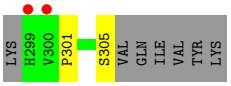
• Molecule 3: Microtubule-associated protein tau



• Molecule 3: Microtubule-associated protein tau

Chain K:





4 Data and refinement statistics (i)

Property	Value	Source
Space group	P 1	Depositor
Cell constants a, b, c, α, β, γ	60.75Å 82.12Å 89.04Å 92.35° 95.36° 89.86°	Depositor
Resolution (Å)	34.50 – 2.31 34.50 – 2.31	Depositor EDS
% Data completeness (in resolution range)	85.7 (34.50-2.31) 90.3 (34.50-2.31)	Depositor EDS
R_{merge}	0.05	Depositor
R_{sym}	(Not available)	Depositor
$< I/\sigma(I) >$ [1]	1.22 (at 2.31Å)	Xtriage
Refinement program	REFMAC 5.8.0135	Depositor
R, R_{free}	0.235 , 0.277 0.272 , 0.320	Depositor DCC
R_{free} test set	3343 reflections (4.91%)	wwPDB-VP
Wilson B-factor (Å^2)	37.1	Xtriage
Anisotropy	0.075	Xtriage
Bulk solvent k_{sol}(e/Å^3), B_{sol}(Å^2)	0.35 , 42.8	EDS
L-test for twinning[2]	$< \|L\| > = 0.52$, $< L^2 > = 0.37$	Xtriage
Estimated twinning fraction	0.000 for -h,k,-l	Xtriage
Reported twinning fraction	0.849 for H, K, L 0.151 for -H, K, -L	Depositor
Outliers	0 of 68044 reflections	Xtriage
F_o,F_c correlation	0.88	EDS
Total number of atoms	13516	wwPDB-VP
Average B, all atoms (Å^2)	38.0	wwPDB-VP

Xtriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 17.46% 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: PCA

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	0.57	0/1683	0.76	0/2301
1	C	0.57	0/1690	0.77	1/2312 (0.0%)
1	E	0.55	0/1673	0.77	1/2289 (0.0%)
1	H	0.57	0/1695	0.76	1/2318 (0.0%)
2	B	0.55	0/1703	0.79	0/2311
2	D	0.50	0/1707	0.75	0/2318
2	F	0.53	0/1696	0.78	0/2303
2	L	0.57	0/1720	0.80	1/2333 (0.0%)
3	I	0.63	0/43	0.76	0/57
3	J	0.53	0/37	0.54	0/49
3	K	0.66	0/43	0.52	0/57
All	All	0.55	0/13690	0.77	4/18648 (0.0%)

There are no bond length outliers.

All (4) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
1	H	40	ARG	CG-CD-NE	5.99	124.39	111.80
2	L	66	ASP	CB-CG-OD1	5.63	123.36	118.30
1	C	31	ASP	CB-CG-OD2	-5.22	113.60	118.30
1	E	176	VAL	CB-CA-C	5.18	121.25	111.40

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	1646	0	1598	4	0
1	C	1652	0	1594	4	0
1	E	1636	0	1577	6	0
1	H	1657	0	1597	6	0
2	B	1667	0	1594	1	0
2	D	1671	0	1587	3	0
2	F	1660	0	1586	3	0
2	L	1684	0	1618	7	0
3	I	42	0	36	3	0
3	J	36	0	30	0	0
3	K	42	0	36	1	0
4	A	16	0	0	0	0
4	B	15	0	0	0	0
4	C	18	0	0	0	0
4	D	14	0	0	0	0
4	E	18	0	0	1	0
4	F	10	0	0	0	0
4	H	18	0	0	1	0
4	L	14	0	0	1	0
All	All	13516	0	12853	34	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 1.

All (34) 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:A:206:HIS:HB3	1:A:211:THR:HG22	1.55	0.86
2:F:31:ASN:ND2	3:I:304:GLY:HA3	1.96	0.81
2:L:189:ASP:OD1	4:L:301:HOH:O	2.08	0.70
1:A:33:VAL:HG22	1:A:99:ASP:HB3	1.75	0.67
1:E:33:VAL:HG22	1:E:99:ASP:HB3	1.75	0.67
1:A:206:HIS:HB3	1:A:211:THR:CG2	2.25	0.67
1:C:33:VAL:HG22	1:C:99:ASP:HB3	1.76	0.65
1:H:12:VAL:HG21	1:H:18:VAL:HB	1.77	0.65
1:H:33:VAL:HG12	1:H:52[B]:PHE:CD1	2.33	0.62
1:H:33:VAL:HG22	1:H:99:ASP:HB3	1.80	0.62
1:H:33:VAL:HG11	1:H:52[B]:PHE:CE1	2.37	0.60
2:D:95:LYS:HE2	2:D:101:ARG:HD2	1.93	0.51

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:H:33:VAL:CG1	1:H:52[B]:PHE:CE1	2.93	0.50
2:B:95:LYS:HE2	2:B:101:ARG:HD2	1.94	0.50
2:L:95:LYS:HE2	2:L:101:ARG:HD2	1.95	0.48
1:H:33:VAL:CG1	1:H:52[B]:PHE:CD1	2.97	0.47
1:A:126:PRO:HD2	1:A:211:THR:HG21	1.99	0.45
2:L:152:ARG:NH2	2:L:200:GLU:OE2	2.50	0.45
1:E:105:PHE:CE1	3:I:303:GLY:HA2	2.53	0.43
1:E:62:GLU:H	1:E:62:GLU:CD	2.22	0.43
1:E:123:THR:HG21	4:E:311:HOH:O	2.18	0.43
3:K:301:PRO:HD2	3:K:305:SER:OG	2.19	0.42
2:D:209:PRO:HG2	4:H:315:HOH:O	2.19	0.42
1:C:161:TRP:CZ3	1:C:202:CYS:HB3	2.55	0.42
1:E:122:LYS:HA	1:E:122:LYS:HD3	1.84	0.41
1:C:191:PRO:HG3	2:L:161:GLN:HG2	2.01	0.41
2:L:89:LEU:HB2	2:L:111:ILE:HD12	2.02	0.41
2:D:67:ARG:HB2	2:D:82:SER:O	2.21	0.41
1:C:122:LYS:HA	1:C:122:LYS:HD3	1.85	0.41
2:L:67:ARG:HB2	2:L:82:SER:O	2.21	0.41
1:E:161:TRP:CZ3	1:E:202:CYS:HB3	2.56	0.40
2:L:43:GLN:HB2	2:L:53:LEU:HD11	2.04	0.40
2:F:89:LEU:HB2	2:F:111:ILE:HD12	2.02	0.40
2:F:31:ASN:HD21	3:I:304:GLY:HA3	1.84	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	214/220 (97%)	210 (98%)	4 (2%)	0	100	100
1	C	218/220 (99%)	211 (97%)	7 (3%)	0	100	100
1	E	214/220 (97%)	209 (98%)	5 (2%)	0	100	100

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles
1	H	216/220 (98%)	212 (98%)	4 (2%)	0	100 100
2	B	215/218 (99%)	206 (96%)	9 (4%)	0	100 100
2	D	216/218 (99%)	207 (96%)	7 (3%)	2 (1%)	17 19
2	F	214/218 (98%)	204 (95%)	10 (5%)	0	100 100
2	L	216/218 (99%)	208 (96%)	8 (4%)	0	100 100
3	I	5/14 (36%)	4 (80%)	1 (20%)	0	100 100
3	J	4/14 (29%)	4 (100%)	0	0	100 100
3	K	5/14 (36%)	5 (100%)	0	0	100 100
All	All	1737/1794 (97%)	1680 (97%)	55 (3%)	2 (0%)	51 63

All (2) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
2	D	83	SER
2	D	74	GLY

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	185/189 (98%)	180 (97%)	5 (3%)	44 60
1	C	185/189 (98%)	178 (96%)	7 (4%)	33 46
1	E	184/189 (97%)	180 (98%)	4 (2%)	52 68
1	H	185/189 (98%)	178 (96%)	7 (4%)	33 46
2	B	188/194 (97%)	184 (98%)	4 (2%)	53 70
2	D	187/194 (96%)	183 (98%)	4 (2%)	53 70
2	F	187/194 (96%)	185 (99%)	2 (1%)	73 85
2	L	191/194 (98%)	190 (100%)	1 (0%)	88 95
3	I	4/11 (36%)	4 (100%)	0	100 100
3	J	3/11 (27%)	3 (100%)	0	100 100

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Mol	Chain	Analysed	Rotameric	Outliers	Percentiles
3	K	4/11 (36%)	4 (100%)	0	100 100
All	All	1503/1565 (96%)	1469 (98%)	34 (2%)	50 66

All (34) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	33	VAL
1	A	35	SER
1	A	100	TYR
1	A	176	VAL
1	A	202	CYS
2	B	96	GLN
2	B	161	GLN
2	B	208	SER
2	B	215	ASN
1	C	17	SER
1	C	33	VAL
1	C	35	SER
1	C	85	SER
1	C	100	TYR
1	C	176	VAL
1	C	184	LEU
2	D	160	ARG
2	D	161	GLN
2	D	162	ASN
2	D	218	GLU
1	E	33	VAL
1	E	35	SER
1	E	100	TYR
1	E	202	CYS
2	F	96	GLN
2	F	162	ASN
1	H	33	VAL
1	H	35	SER
1	H	100	TYR
1	H	176	VAL
1	H	179	SER
1	H	184	LEU
1	H	202	CYS
2	L	148	ASP

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (4) such

sidechains are listed below:

Mol	Chain	Res	Type
2	B	143	ASN
2	D	143	ASN
1	E	178	GLN
2	L	143	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)

4 non-standard protein/DNA/RNA residues are modelled in this entry.

In the following table, the Counts columns list the number of bonds (or angles) for which Mogul statistics could be retrieved, the number of bonds (or angles) that are observed in the model and the number of bonds (or angles) that are defined in the Chemical Component Dictionary. The Link column lists molecule types, if any, to which the group is linked. 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 $|Z| > 2$ is considered an outlier worth inspection. RMSZ is the root-mean-square of all Z scores of the bond lengths (or angles).

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	$\#\|Z\| > 2$	Counts	RMSZ	$\#\|Z\| > 2$
1	PCA	H	1	1	7,8,9	0.32	0	9,10,12	1.69	2 (22%)
1	PCA	A	1	1	7,8,9	0.58	0	9,10,12	1.17	1 (11%)
1	PCA	C	1	1	7,8,9	0.69	0	9,10,12	1.31	1 (11%)
1	PCA	E	1	1	7,8,9	0.64	0	9,10,12	1.71	1 (11%)

In the following table, the Chirals column lists the number of chiral outliers, the number of chiral centers analysed, the number of these observed in the model and the number defined in the Chemical Component Dictionary. Similar counts are reported in the Torsion and Rings columns. '-' means no outliers of that kind were identified.

Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
1	PCA	H	1	1	-	0/0/11/13	0/1/1/1
1	PCA	A	1	1	-	0/0/11/13	0/1/1/1
1	PCA	C	1	1	-	0/0/11/13	0/1/1/1
1	PCA	E	1	1	-	0/0/11/13	0/1/1/1

There are no bond length outliers.

All (5) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
1	E	1	PCA	CB-CA-C	-4.27	106.83	112.70
1	H	1	PCA	CB-CA-C	-3.72	107.58	112.70
1	C	1	PCA	OE-CD-CG	-2.57	122.28	126.76
1	H	1	PCA	OE-CD-CG	-2.50	122.40	126.76
1	A	1	PCA	OE-CD-CG	-2.25	122.84	126.76

There are no chirality outliers.

There are no torsion outliers.

There are no ring outliers.

No monomer is involved in short contacts.

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

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	217/220 (98%)	0.95	25 (11%) 4 7	19, 34, 60, 76	0
1	C	219/220 (99%)	0.88	22 (10%) 7 10	18, 31, 59, 84	0
1	E	217/220 (98%)	1.12	36 (16%) 1 2	22, 36, 70, 87	0
1	H	218/220 (99%)	0.80	16 (7%) 15 20	18, 32, 52, 71	0
2	B	217/218 (99%)	1.15	37 (17%) 1 2	19, 37, 75, 96	0
2	D	218/218 (100%)	1.13	29 (13%) 3 4	25, 41, 67, 88	0
2	F	216/218 (99%)	1.24	50 (23%) 0 1	21, 38, 77, 100	0
2	L	218/218 (100%)	0.70	12 (5%) 25 31	17, 31, 49, 78	0
3	I	7/14 (50%)	1.63	2 (28%) 0 0	42, 46, 49, 51	0
3	J	6/14 (42%)	3.05	4 (66%) 0 0	48, 49, 51, 56	6 (100%)
3	K	7/14 (50%)	1.47	2 (28%) 0 0	42, 47, 53, 54	0
All	All	1760/1794 (98%)	1.01	235 (13%) 3 4	17, 35, 67, 100	6 (0%)

All (235) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
2	D	30	LEU	7.5
2	L	217	ASN	7.1
3	J	300	VAL	6.5
1	C	135	SER	6.4
1	E	199	THR	6.3
1	H	138	GLN	5.7
1	C	138	GLN	5.6
1	A	139	THR	5.6
2	F	197	TYR	5.4
1	E	138	GLN	5.4
1	E	164	GLY	5.4
2	B	197	TYR	5.3

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Mol	Chain	Res	Type	RSRZ
2	B	134	GLY	5.1
2	F	214	PHE	5.1
2	F	157	GLY	5.0
2	F	195	ASN	4.9
2	D	31	ASN	4.8
2	F	192	GLU	4.7
2	B	162	ASN	4.7
2	F	189	ASP	4.7
2	F	193	ARG	4.5
1	H	7	SER	4.4
2	B	215	ASN	4.4
1	E	197	SER	4.4
1	E	142	MET	4.3
1	E	136	ALA	4.3
1	E	140	ASN	4.3
1	E	193	SER	4.3
2	B	155	ILE	4.2
2	B	206	SER	4.2
2	F	155	ILE	4.1
3	I	299	HIS	4.1
2	B	135	ALA	4.0
1	C	137	ALA	4.0
2	D	193	ARG	4.0
2	F	215	ASN	4.0
2	F	160	ARG	4.0
2	F	185	THR	3.9
3	K	300	VAL	3.9
1	A	163	SER	3.8
1	H	139	THR	3.8
2	F	158	SER	3.7
1	C	139	THR	3.7
2	D	188	LYS	3.7
1	C	136	ALA	3.7
1	A	169	GLY	3.6
1	C	165	SER	3.6
1	H	165	SER	3.6
2	L	1	ASP	3.6
2	B	211	VAL	3.6
1	A	197	SER	3.6
1	A	194	THR	3.5
2	F	132	SER	3.5
1	H	190	VAL	3.5

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Mol	Chain	Res	Type	RSRZ
1	E	165	SER	3.5
2	B	193	ARG	3.5
2	D	192	GLU	3.5
1	E	101	TYR	3.5
2	F	30	LEU	3.4
1	H	141	SER	3.4
1	E	196	PRO	3.4
3	J	301	PRO	3.4
2	L	161	GLN	3.3
1	E	194	THR	3.3
2	F	187	THR	3.3
2	F	116	ALA	3.3
2	D	33	ARG	3.3
1	E	179	SER	3.3
2	D	34	THR	3.3
2	F	213	SER	3.3
2	D	32	SER	3.2
2	D	217	ASN	3.2
1	C	163	SER	3.2
2	F	165	LEU	3.2
2	D	216	ARG	3.2
1	E	134	GLY	3.1
2	F	130	LEU	3.1
2	B	196	SER	3.1
1	E	167	SER	3.1
2	D	195	ASN	3.1
2	B	161	GLN	3.0
2	F	131	THR	3.0
2	D	25	SER	3.0
2	F	191	TYR	3.0
2	D	157	GLY	3.0
1	C	158	THR	3.0
2	B	160	ARG	3.0
1	C	123	THR	3.0
1	H	166	LEU	2.9
2	F	159	GLU	2.9
3	J	302	GLY	2.9
1	A	137	ALA	2.9
1	A	192	SER	2.9
1	A	190	VAL	2.9
1	C	142	MET	2.9
2	F	174	LYS	2.9

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Mol	Chain	Res	Type	RSRZ
2	D	191	TYR	2.9
1	C	85	SER	2.8
1	C	166	LEU	2.8
1	E	9	PRO	2.8
1	A	75	SER	2.8
2	D	215	ASN	2.8
2	F	207	THR	2.8
2	F	33	ARG	2.8
1	A	210	SER	2.8
2	B	163	GLY	2.8
2	F	163	GLY	2.8
2	F	190	GLU	2.8
2	B	11	LEU	2.8
2	D	208	SER	2.8
2	B	156	ASP	2.8
1	A	170	VAL	2.8
1	E	163	SER	2.7
2	D	162	ASN	2.7
1	C	70	LEU	2.7
1	E	75	SER	2.7
1	E	195	TRP	2.7
2	F	206	SER	2.7
2	D	198	THR	2.7
1	A	2	VAL	2.7
1	C	194	THR	2.7
2	B	186	LEU	2.7
1	H	167	SER	2.6
2	B	151	VAL	2.6
2	B	165	LEU	2.6
2	D	207	THR	2.6
2	B	83	SER	2.6
1	H	100	TYR	2.6
1	E	178	GLN	2.6
2	F	114	ALA	2.6
2	L	190	GLU	2.6
2	F	24	LYS	2.6
1	A	138	GLN	2.6
2	D	158	SER	2.6
2	F	125	PRO	2.6
1	H	197	SER	2.6
1	E	217	ILE	2.6
1	A	193	SER	2.5

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Mol	Chain	Res	Type	RSRZ
1	E	85	SER	2.5
1	H	214	ASP	2.5
1	E	132	ALA	2.5
1	A	167	SER	2.5
1	E	192	SER	2.5
2	B	217	ASN	2.5
2	F	211	VAL	2.5
1	E	84	SER	2.5
2	F	188	LYS	2.5
2	D	190	GLU	2.5
1	E	52	PHE	2.5
1	H	194	THR	2.5
2	B	187	THR	2.5
2	B	35	ARG	2.4
1	E	122	LYS	2.4
1	E	162	ASN	2.4
1	A	201	THR	2.4
1	E	65	LYS	2.4
2	F	196	SER	2.4
2	F	122	ILE	2.4
1	A	164	GLY	2.4
2	B	194	HIS	2.4
1	A	200	VAL	2.4
2	B	207	THR	2.4
1	E	86	VAL	2.4
2	B	64	VAL	2.4
1	C	141	SER	2.4
1	C	175	ALA	2.4
1	A	217	ILE	2.3
2	D	28	SER	2.3
1	E	166	LEU	2.3
2	F	150	ASN	2.3
2	D	189	ASP	2.3
2	B	130	LEU	2.3
2	B	175	ASP	2.3
2	F	153	TRP	2.3
1	H	136	ALA	2.3
2	F	11	LEU	2.3
2	F	32	SER	2.3
2	L	32	SER	2.3
2	F	138	VAL	2.3
1	A	219	PRO	2.3

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Mol	Chain	Res	Type	RSRZ
2	B	159	GLU	2.2
1	H	9	PRO	2.2
2	B	213	SER	2.2
3	J	299	HIS	2.2
2	F	168	TRP	2.2
2	F	34	THR	2.2
2	F	133	GLY	2.2
3	K	299	HIS	2.2
1	C	167	SER	2.2
2	F	1	ASP	2.2
2	L	19	VAL	2.2
2	L	214	PHE	2.2
1	A	136	ALA	2.2
2	L	162	ASN	2.2
1	E	112	GLN	2.2
1	C	184	LEU	2.2
1	E	145	LEU	2.2
2	L	30	LEU	2.2
2	F	178	TYR	2.2
3	I	300	VAL	2.2
1	E	123	THR	2.2
2	F	149	ILE	2.2
1	H	192	SER	2.2
2	L	110	ASP	2.2
1	E	216	LYS	2.1
1	A	199	THR	2.1
2	D	155	ILE	2.1
1	A	147	CYS	2.1
2	F	205	THR	2.1
2	L	59	THR	2.1
1	C	9	PRO	2.1
1	C	133	PRO	2.1
1	C	195	TRP	2.1
2	F	127	SER	2.1
2	D	23	CYS	2.1
2	F	156	ASP	2.1
2	F	151	VAL	2.1
2	D	161	GLN	2.1
2	B	114	ALA	2.1
2	B	153	TRP	2.1
2	D	57	ALA	2.1
1	H	168	SER	2.1

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Mol	Chain	Res	Type	RSRZ
2	B	174	LYS	2.1
2	B	188	LYS	2.1
2	D	205	THR	2.1
2	B	56	TRP	2.1
1	A	133	PRO	2.1
2	B	54	ILE	2.0
1	C	103	THR	2.0
2	B	190	GLU	2.0
2	D	38	TYR	2.0
1	E	172	THR	2.0
2	B	1	ASP	2.0
2	L	160	ARG	2.0
1	A	97	ALA	2.0

6.2 Non-standard residues in protein, DNA, RNA chains (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
1	PCA	C	1	8/9	0.80	0.26	31,40,43,47	0
1	PCA	A	1	8/9	0.83	0.16	36,37,39,46	0
1	PCA	E	1	8/9	0.86	0.18	32,38,39,42	0
1	PCA	H	1	8/9	0.88	0.25	28,39,41,45	0

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.