Full wwPDB X-ray Structure Validation Report ⓘ

May 14, 2020 – 01:58 am BST

PDB ID	:	6DC9
Title	:	Fab/epitope complex of human chimeric monoclonal antibody h4E6 targeting a phosphorylated tau epitope.
Authors	:	Chukwu, J.E.; Kong, X.-P.
Deposited on	:	2018-05-04
Resolution	:	3.00 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:

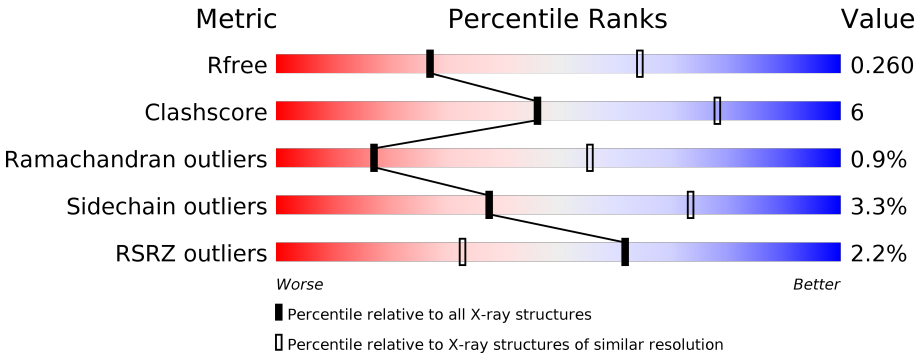
MolProbity	:	4.02b-467
Mogul	:	1.8.5 (274361), CSD as541be (2020)
Xtriage (Phenix)	:	1.13
EDS	:	2.11
Percentile statistics	:	20191225.v01 (using entries in the PDB archive December 25th 2019)
Refmac	:	5.8.0158
CCP4	:	7.0.044 (Gargrove)
Ideal geometry (proteins)	:	Engh & Huber (2001)
Ideal geometry (DNA, RNA)	:	Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP)	:	2.11

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 3.00 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	2092 (3.00-3.00)
Clashscore	141614	2416 (3.00-3.00)
Ramachandran outliers	138981	2333 (3.00-3.00)
Sidechain outliers	138945	2336 (3.00-3.00)
RSRZ outliers	127900	1990 (3.00-3.00)

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	H	219	% 78% 20% ··
1	I	219	6% 82% 14% · ·
2	L	215	85% 14%
2	M	215	86% 13% ·
3	P	30	10% 10% 80%
3	Q	30	7% 17% · 80%

2 Entry composition

There are 6 unique types of molecules in this entry. The entry contains 6618 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 Fab heavy chain.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
1	H	216	Total	C	N	O	S	0	0	0
			1598	996	270	326	6			
1	I	215	Total	C	N	O	S	0	0	0
			1591	991	269	325	6			

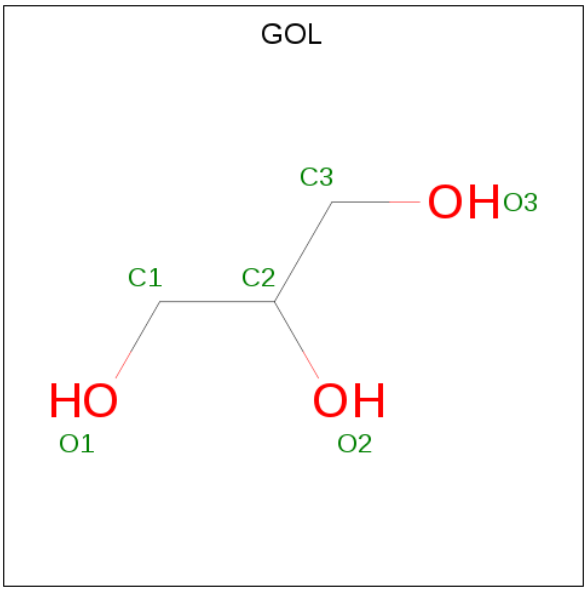
- Molecule 2 is a protein called Fab light chain.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
2	L	215	Total	C	N	O	S	0	0	0
			1651	1036	273	336	6			
2	M	215	Total	C	N	O	S	0	0	0
			1651	1036	273	336	6			

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

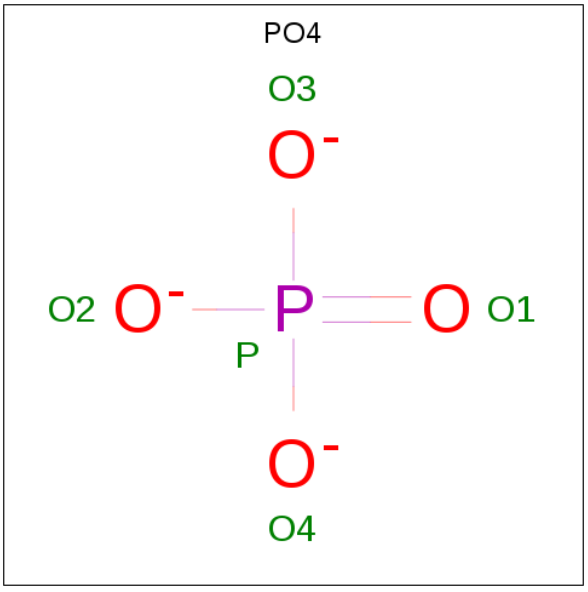
Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
3	P	6	Total	C	N	O	P	0	0	0
			53	30	11	11	1			
3	Q	6	Total	C	N	O	P	0	0	0
			53	30	11	11	1			

- Molecule 4 is GLYCEROL (three-letter code: GOL) (formula: $C_3H_8O_3$).



Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
4	L	1	Total C O 6 3 3	0	0

- Molecule 5 is PHOSPHATE ION (three-letter code: PO4) (formula: O_4P).



Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
5	L	1	Total O P 5 4 1	0	0
5	M	1	Total O P 5 4 1	0	0

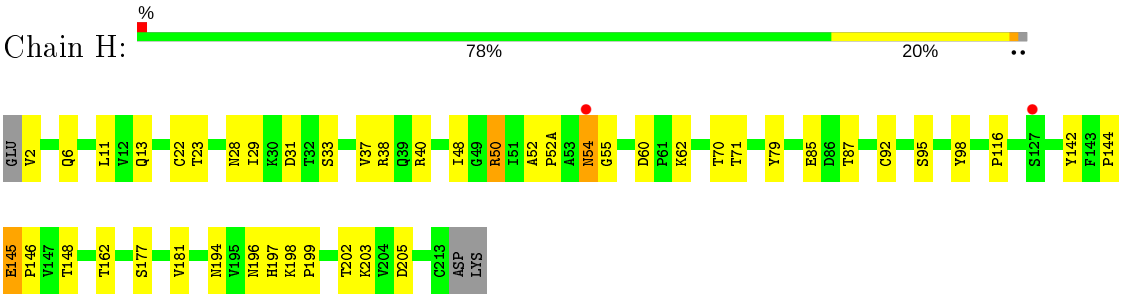
- Molecule 6 is water.

Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
6	H	2	Total O 2 2	0	0
6	M	3	Total O 3 3	0	0

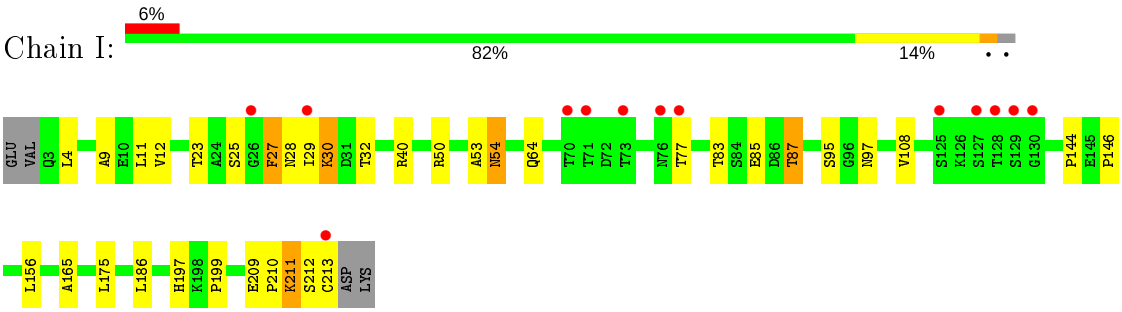
3 Residue-property plots (i)

These plots are drawn for all protein, RNA and DNA 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.

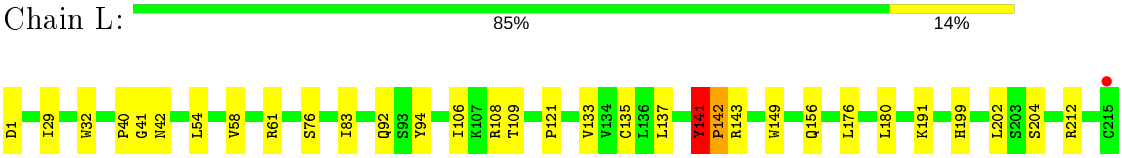
- Molecule 1: Fab heavy chain



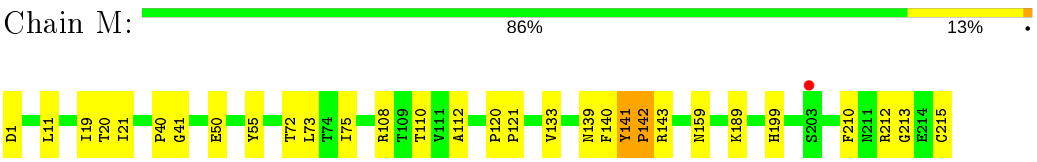
- Molecule 1: Fab heavy chain



- Molecule 2: Fab light chain



- Molecule 2: Fab light chain

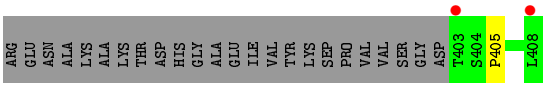


- Molecule 3: Microtubule-associated protein tau

Chain P:

• Molecule 3: Microtubule-associated protein tau

Chain Q:



4 Data and refinement statistics (i)

Property	Value	Source
Space group	P 1 21 1	Depositor
Cell constants a, b, c, α, β, γ	79.21Å 65.08Å 97.44Å 90.00° 112.11° 90.00°	Depositor
Resolution (Å)	48.69 – 3.00 48.69 – 3.00	Depositor EDS
% Data completeness (in resolution range)	99.2 (48.69-3.00) 92.0 (48.69-3.00)	Depositor EDS
R_{merge}	(Not available)	Depositor
R_{sym}	(Not available)	Depositor
$< I/\sigma(I) >$ [1]	1.45 (at 3.01Å)	Xtriage
Refinement program	PHENIX (1.13_2998: ???)	Depositor
R, R_{free}	0.202 , 0.260 0.202 , 0.260	Depositor DCC
R_{free} test set	1859 reflections (10.01%)	wwPDB-VP
Wilson B-factor (Å^2)	50.2	Xtriage
Anisotropy	0.527	Xtriage
Bulk solvent k_{sol}(e/Å^3), B_{sol}(Å^2)	0.30 , 26.0	EDS
L-test for twinning[2]	$< \|L\| > = 0.47$, $< L^2 > = 0.30$	Xtriage
Estimated twinning fraction	0.033 for h,-k,-h-l	Xtriage
F_o,F_c correlation	0.91	EDS
Total number of atoms	6618	wwPDB-VP
Average B, all atoms (Å^2)	59.0	wwPDB-VP

Xtriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 5.47% 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: GOL, PO4, SEP

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	H	0.25	0/1634	0.48	0/2230
1	I	0.25	0/1627	0.46	0/2220
2	L	0.26	0/1689	0.47	1/2298 (0.0%)
2	M	0.26	0/1689	0.45	0/2298
3	P	0.21	0/43	0.45	0/55
3	Q	0.19	0/43	0.46	0/55
All	All	0.26	0/6725	0.46	1/9156 (0.0%)

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

Mol	Chain	#Chirality outliers	#Planarity outliers
1	H	0	1
2	L	0	1
2	M	0	1
All	All	0	3

There are no bond length outliers.

All (1) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
2	L	141	TYR	C-N-CD	-5.03	109.54	120.60

There are no chirality outliers.

All (3) planarity outliers are listed below:

Mol	Chain	Res	Type	Group
1	H	145	GLU	Peptide
2	L	141	TYR	Peptide
2	M	141	TYR	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	H	1598	0	1557	25	0
1	I	1591	0	1548	22	0
2	L	1651	0	1594	19	0
2	M	1651	0	1594	18	0
3	P	53	0	47	2	0
3	Q	53	0	48	1	0
4	L	6	0	8	0	0
5	L	5	0	0	0	0
5	M	5	0	0	0	0
6	H	2	0	0	0	0
6	M	3	0	0	0	0
All	All	6618	0	6396	82	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 6.

All (82) 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:H:54:ASN:N	1:H:54:ASN:OD1	2.21	0.72
1:I:95:SER:HB3	3:Q:405:PRO:HG2	1.72	0.71
1:I:30:LYS:HB3	1:I:53:ALA:HB2	1.73	0.69
2:M:20:THR:HG23	2:M:72:THR:HG23	1.76	0.68
1:H:54:ASN:ND2	1:H:71:THR:OG1	2.28	0.67
2:L:142:PRO:HD2	2:L:199:HIS:NE2	2.11	0.65
1:H:60:ASP:OD2	1:H:62:LYS:HG2	1.96	0.65
2:L:121:PRO:HD3	2:L:133:VAL:HG12	1.80	0.64
1:H:95:SER:HB3	3:P:405:PRO:HB2	1.79	0.63
1:I:9:ALA:HB3	1:I:199:PRO:HD3	1.81	0.63

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:M:142:PRO:HD2	2:M:199:HIS:CE1	2.34	0.62
2:L:142:PRO:HD2	2:L:199:HIS:HE2	1.66	0.60
2:L:83:ILE:HD11	2:L:106:ILE:HG12	1.83	0.60
1:I:165:ALA:HB2	1:I:175:LEU:HD23	1.84	0.60
2:M:108:ARG:HB3	2:M:141:TYR:CD2	2.37	0.59
1:I:11:LEU:HB2	1:I:144:PRO:HG3	1.85	0.59
2:L:142:PRO:HD2	2:L:199:HIS:CE1	2.38	0.58
2:L:32:TRP:HD1	2:L:92:GLN:HG2	1.72	0.55
1:H:2:VAL:HG11	1:H:98:TYR:HD2	1.72	0.55
2:M:142:PRO:HD2	2:M:199:HIS:NE2	2.22	0.55
2:M:21:ILE:HB	2:M:73:LEU:HB3	1.89	0.54
1:I:40:ARG:NH1	1:I:85:GLU:O	2.41	0.53
1:H:38:ARG:HB3	1:H:48:ILE:HD11	1.91	0.51
2:L:29:ILE:HA	2:L:92:GLN:HG3	1.90	0.51
1:I:12:VAL:HG23	1:I:108:VAL:HG12	1.93	0.51
1:H:40:ARG:NH1	1:H:85:GLU:O	2.43	0.51
1:I:27:PHE:CE1	1:I:32:THR:HG21	2.46	0.51
2:M:120:PRO:HB3	2:M:210:PHE:CE1	2.47	0.50
2:M:11:LEU:HD21	2:M:19:ILE:HB	1.94	0.49
1:H:6:GLN:HG2	1:H:22:CYS:HB3	1.95	0.49
1:H:194:ASN:ND2	1:H:205:ASP:OD2	2.45	0.49
1:I:23:THR:HG22	1:I:77:THR:HG22	1.95	0.48
1:H:197:HIS:HB3	1:H:202:THR:HB	1.95	0.48
2:L:61:ARG:HB2	2:L:76:SER:O	2.12	0.48
2:M:121:PRO:HD3	2:M:133:VAL:HG22	1.96	0.48
1:I:165:ALA:HA	1:I:175:LEU:HB3	1.94	0.48
2:M:213:GLY:C	2:M:215:CYS:H	2.16	0.47
2:M:19:ILE:HD11	2:M:75:ILE:HD12	1.97	0.47
1:I:209:GLU:HG2	1:I:210:PRO:HD2	1.97	0.47
1:I:209:GLU:O	1:I:211:LYS:N	2.47	0.46
2:M:112:ALA:HB3	2:M:140:PHE:HA	1.97	0.46
1:I:186:LEU:HB3	1:I:210:PRO:HG3	1.97	0.46
1:H:196:ASN:OD1	1:H:203:LYS:HG3	2.15	0.46
2:L:191:LYS:HA	2:L:212:ARG:HG2	1.98	0.46
2:M:189:LYS:HA	2:M:212:ARG:HH22	1.81	0.46
1:H:54:ASN:HA	1:H:55:GLY:HA3	1.56	0.45
1:H:70:THR:HG23	1:H:79:TYR:HB2	1.97	0.45
2:L:135:CYS:HB2	2:L:149:TRP:CH2	2.51	0.45
1:H:11:LEU:HB2	1:H:144:PRO:HG3	1.98	0.45
2:L:40:PRO:HA	2:L:41:GLY:HA2	1.51	0.45
2:M:189:LYS:HA	2:M:212:ARG:NH2	2.32	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:I:211:LYS:HB3	1:I:211:LYS:HE2	1.68	0.44
2:L:191:LYS:HE2	2:L:212:ARG:NH2	2.32	0.44
2:M:141:TYR:CG	2:M:141:TYR:O	2.69	0.44
1:H:148:THR:OG1	1:H:196:ASN:HB2	2.18	0.43
1:I:83:THR:O	1:I:108:VAL:HG21	2.19	0.43
2:L:108:ARG:HB3	2:L:141:TYR:CD1	2.53	0.43
2:L:137:LEU:HD22	2:L:176:LEU:HD22	2.00	0.43
1:H:162:THR:HG22	1:H:177:SER:OG	2.18	0.43
1:H:50:ARG:NH1	1:H:52:ALA:HB2	2.34	0.43
2:M:40:PRO:HA	2:M:41:GLY:HA2	1.50	0.43
1:H:50:ARG:HH11	1:H:52:ALA:HB2	1.83	0.43
1:H:33:SER:OG	1:H:52(A):PRO:HD3	2.19	0.43
1:H:29:ILE:HA	1:H:29:ILE:HD13	1.94	0.42
1:I:197:HIS:NE2	1:I:199:PRO:HG2	2.35	0.42
2:L:202:LEU:C	2:L:204:SER:H	2.22	0.42
1:I:87:THR:HB	1:I:108:VAL:HG22	2.01	0.42
2:M:108:ARG:HG2	2:M:110:THR:H	1.85	0.42
1:H:198:LYS:N	1:H:199:PRO:HD2	2.35	0.42
1:H:50:ARG:HD3	2:L:94:TYR:OH	2.19	0.42
1:H:116:PRO:HB3	1:H:142:TYR:HB3	2.02	0.41
2:L:156:GLN:HG2	2:L:180:LEU:HD11	2.02	0.41
2:L:54:LEU:HD22	2:L:58:VAL:HB	2.01	0.41
2:M:159:ASN:N	2:M:159:ASN:OD1	2.53	0.41
1:H:11:LEU:HD22	1:H:144:PRO:HD3	2.03	0.41
1:I:97:ASN:HB3	2:M:55:TYR:HE1	1.84	0.41
1:I:4:LEU:HD21	1:I:27:PHE:HE2	1.83	0.41
1:I:210:PRO:O	1:I:212:SER:N	2.53	0.41
1:I:28:ASN:OD1	1:I:29:ILE:N	2.52	0.41
2:L:32:TRP:CD2	3:P:406:ARG:HD2	2.55	0.41
1:I:30:LYS:C	1:I:30:LYS:HE3	2.42	0.40
1:H:28:ASN:HB3	1:H:31:ASP:HB2	2.04	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	H	214/219 (98%)	203 (95%)	9 (4%)	2 (1%)	17 55
1	I	213/219 (97%)	192 (90%)	18 (8%)	3 (1%)	11 43
2	L	213/215 (99%)	200 (94%)	12 (6%)	1 (0%)	29 68
2	M	213/215 (99%)	194 (91%)	17 (8%)	2 (1%)	17 55
3	P	3/30 (10%)	3 (100%)	0	0	100 100
3	Q	3/30 (10%)	3 (100%)	0	0	100 100
All	All	859/928 (93%)	795 (92%)	56 (6%)	8 (1%)	17 55

All (8) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	H	145	GLU
1	H	146	PRO
2	L	142	PRO
1	I	211	LYS
2	M	142	PRO
1	I	54	ASN
2	M	139	ASN
1	I	146	PRO

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	H	183/186 (98%)	175 (96%)	8 (4%)	28 65
1	I	182/186 (98%)	173 (95%)	9 (5%)	25 61
2	L	189/189 (100%)	185 (98%)	4 (2%)	53 82
2	M	189/189 (100%)	186 (98%)	3 (2%)	62 86
3	P	5/23 (22%)	4 (80%)	1 (20%)	1 7
3	Q	5/23 (22%)	5 (100%)	0	100 100

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Mol	Chain	Analysed	Rotameric	Outliers	Percentiles
All	All	753/796 (95%)	728 (97%)	25 (3%)	38 73

All (25) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	H	13	GLN
1	H	23	THR
1	H	37	VAL
1	H	50	ARG
1	H	54	ASN
1	H	87	THR
1	H	92	CYS
1	H	181	VAL
2	L	1	ASP
2	L	42	ASN
2	L	109	THR
2	L	143	ARG
3	P	408	LEU
1	I	25	SER
1	I	27	PHE
1	I	30	LYS
1	I	50	ARG
1	I	54	ASN
1	I	64	GLN
1	I	87	THR
1	I	156	LEU
1	I	213	CYS
2	M	1	ASP
2	M	50	GLU
2	M	143	ARG

Some sidechains can be flipped to improve hydrogen bonding and reduce clashes. There are no such sidechains identified.

5.3.3 RNA

There are no RNA molecules in this entry.

5.4 Non-standard residues in protein, DNA, RNA chains

2 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	$\#\|Z\| > 2$
3	SEP	Q	404	3	8,9,10	1.56	1 (12%)	8,12,14	1.46	2 (25%)
3	SEP	P	404	3	8,9,10	1.55	1 (12%)	8,12,14	1.67	2 (25%)

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
3	SEP	Q	404	3	-	0/5/8/10	-
3	SEP	P	404	3	-	0/5/8/10	-

All (2) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
3	P	404	SEP	P-O1P	3.39	1.61	1.50
3	Q	404	SEP	P-O1P	3.38	1.61	1.50

All (4) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
3	P	404	SEP	OG-CB-CA	3.10	111.16	108.14
3	P	404	SEP	P-OG-CB	-3.06	109.86	118.30
3	Q	404	SEP	P-OG-CB	-2.84	110.47	118.30
3	Q	404	SEP	OG-CB-CA	2.44	110.52	108.14

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 carbohydrates in this entry.

5.6 Ligand geometry (i)

3 ligands 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	$\#\|Z\| > 2$
5	PO4	L	302	-	4,4,4	0.92	0	6,6,6	0.46	0
4	GOL	L	301	-	5,5,5	0.93	0	5,5,5	0.96	0
5	PO4	M	301	-	4,4,4	0.93	0	6,6,6	0.41	0

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
4	GOL	L	301	-	-	0/4/4/4	-

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

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	H	216/219 (98%)	0.03	2 (0%) 84 63	31, 48, 84, 114	0
1	I	215/219 (98%)	0.48	13 (6%) 21 7	40, 72, 118, 130	0
2	L	215/215 (100%)	-0.06	1 (0%) 91 75	31, 45, 61, 119	0
2	M	215/215 (100%)	0.19	1 (0%) 91 75	42, 64, 82, 127	0
3	P	5/30 (16%)	-0.14	0 100 100	41, 48, 56, 79	0
3	Q	5/30 (16%)	1.43	2 (40%) 0 0	78, 82, 96, 108	0
All	All	871/928 (93%)	0.16	19 (2%) 62 33	31, 54, 104, 130	0

All (19) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	I	71	THR	5.8
1	H	54	ASN	5.3
1	I	77	THR	4.2
1	I	130	GLY	4.2
1	I	129	SER	3.8
1	I	213	CYS	3.7
1	I	125	SER	3.0
3	Q	408	LEU	2.8
2	L	215	CYS	2.7
1	I	76	ASN	2.7
1	I	26	GLY	2.7
2	M	203	SER	2.5
1	I	127	SER	2.4
1	I	73	THR	2.2
1	I	70	THR	2.2
1	I	29	ILE	2.2
1	I	128	THR	2.2
3	Q	403	THR	2.2
1	H	127	SER	2.1

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
3	SEP	Q	404	10/11	0.85	0.16	96,104,111,114	0
3	SEP	P	404	10/11	0.93	0.12	52,66,73,75	0

6.3 Carbohydrates (i)

There are no carbohydrates 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
4	GOL	L	301	6/6	0.83	0.25	38,43,44,48	0
5	PO4	M	301	5/5	0.86	0.20	85,90,97,101	0
5	PO4	L	302	5/5	0.97	0.16	53,57,65,67	0

6.5 Other polymers (i)

There are no such residues in this entry.