Full wwPDB X-ray Structure Validation Report ⓘ

Aug 17, 2023 – 02:19 PM JST

PDB ID	:	8I5C
Title	:	Crystal structure of a TCR in complex with HLA-A*11:01 bound to KRAS peptide (VVGAVGVGK)
Authors	:	Lu, D.; Chen, Y.; Jiang, M.; Tan, S.G.; Chai, Y.; Gao, G.F.
Deposited on	:	2023-01-24
Resolution	:	3.34 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:

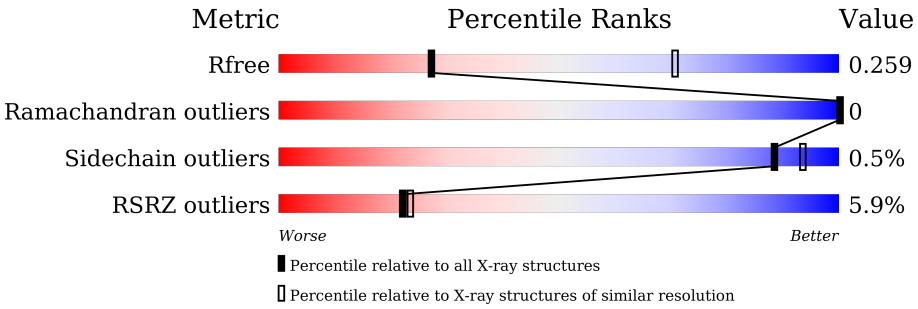
MolProbity	:	4.02b-467
Xtriage (Phenix)	:	1.13
EDS	:	2.35
Percentile statistics	:	20191225.v01 (using entries in the PDB archive December 25th 2019)
Refmac	:	5.8.0158
CCP4	:	7.0.044 (Gargrove)
Ideal geometry (proteins)	:	Engh & Huber (2001)
Ideal geometry (DNA, RNA)	:	Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP)	:	2.35

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 3.34 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	1060 (3.38-3.30)
Ramachandran outliers	138981	1090 (3.38-3.30)
Sidechain outliers	138945	1089 (3.38-3.30)
RSRZ outliers	127900	1028 (3.38-3.30)

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	274	99%
1	F	274	99%
1	K	274	99%
1	P	274	99%
1	U	274	99%
1	Z	274	99%
1	e	274	99%

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Mol	Chain	Length	Quality of chain
1	j	274	2% 99%
1	o	274	11% 99%
1	t	274	16% 99%
2	B	99	100%
2	G	99	100%
2	L	99	2% 100%
2	Q	99	100%
2	V	99	% 100%
2	a	99	% 100%
2	f	99	8% 100%
2	k	99	2% 100%
2	p	99	5% 100%
2	u	99	7% 99%
3	C	9	100%
3	H	9	100%
3	M	9	100%
3	R	9	100%
3	W	9	100%
3	b	9	100%
3	g	9	100%
3	l	9	100%
3	q	9	100%
3	v	9	100%
4	D	199	11% 99%
4	I	199	5% 99%

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Mol	Chain	Length	Quality of chain
4	N	199	6% 99%
4	S	199	7% 99%
4	X	199	14% 99%
4	c	199	14% 98%
4	h	199	16% 99%
4	m	199	14% 99%
4	r	199	7% 99%
4	w	199	9% 98%
5	E	242	99%
5	J	242	99%
5	O	242	99%
5	T	242	99%
5	Y	242	5% 99%
5	d	242	19% 99%
5	i	242	21% 99%
5	n	242	5% 99%
5	s	242	99%
5	x	242	5% 99%

2 Entry composition (i)

There are 5 unique types of molecules in this entry. The entry contains 65732 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 MHC class I antigen (Fragment).

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
1	A	274	Total	C	N	O	S	0	0	0
			2237	1391	408	429	9			
1	F	274	Total	C	N	O	S	0	0	0
			2237	1391	408	429	9			
1	K	274	Total	C	N	O	S	0	0	0
			2237	1391	408	429	9			
1	P	274	Total	C	N	O	S	0	0	0
			2237	1391	408	429	9			
1	U	274	Total	C	N	O	S	0	0	0
			2237	1391	408	429	9			
1	Z	274	Total	C	N	O	S	0	0	0
			2237	1391	408	429	9			
1	e	274	Total	C	N	O	S	0	0	0
			2237	1391	408	429	9			
1	j	274	Total	C	N	O	S	0	0	0
			2237	1391	408	429	9			
1	o	274	Total	C	N	O	S	0	0	0
			2237	1391	408	429	9			
1	t	274	Total	C	N	O	S	0	0	0
			2237	1391	408	429	9			

There are 20 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
A	245	VAL	ALA	engineered mutation	UNP U5YJJ6
A	253	GLN	GLU	engineered mutation	UNP U5YJJ6
F	245	VAL	ALA	engineered mutation	UNP U5YJJ6
F	253	GLN	GLU	engineered mutation	UNP U5YJJ6
K	245	VAL	ALA	engineered mutation	UNP U5YJJ6
K	253	GLN	GLU	engineered mutation	UNP U5YJJ6
P	245	VAL	ALA	engineered mutation	UNP U5YJJ6
P	253	GLN	GLU	engineered mutation	UNP U5YJJ6
U	245	VAL	ALA	engineered mutation	UNP U5YJJ6

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Chain	Residue	Modelled	Actual	Comment	Reference
U	253	GLN	GLU	engineered mutation	UNP U5YJJ6
Z	245	VAL	ALA	engineered mutation	UNP U5YJJ6
Z	253	GLN	GLU	engineered mutation	UNP U5YJJ6
e	245	VAL	ALA	engineered mutation	UNP U5YJJ6
e	253	GLN	GLU	engineered mutation	UNP U5YJJ6
j	245	VAL	ALA	engineered mutation	UNP U5YJJ6
j	253	GLN	GLU	engineered mutation	UNP U5YJJ6
o	245	VAL	ALA	engineered mutation	UNP U5YJJ6
o	253	GLN	GLU	engineered mutation	UNP U5YJJ6
t	245	VAL	ALA	engineered mutation	UNP U5YJJ6
t	253	GLN	GLU	engineered mutation	UNP U5YJJ6

- Molecule 2 is a protein called Beta-2-microglobulin.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
2	B	99	Total	C	N	O	S	0	0	0
			828	528	140	157	3			
2	G	99	Total	C	N	O	S	0	0	0
			828	528	140	157	3			
2	L	99	Total	C	N	O	S	0	0	0
			828	528	140	157	3			
2	Q	99	Total	C	N	O	S	0	0	0
			828	528	140	157	3			
2	V	99	Total	C	N	O	S	0	0	0
			828	528	140	157	3			
2	a	99	Total	C	N	O	S	0	0	0
			828	528	140	157	3			
2	f	99	Total	C	N	O	S	0	0	0
			828	528	140	157	3			
2	k	99	Total	C	N	O	S	0	0	0
			828	528	140	157	3			
2	p	99	Total	C	N	O	S	0	0	0
			828	528	140	157	3			
2	u	98	Total	C	N	O	S	0	0	0
			820	523	139	156	2			

- Molecule 3 is a protein called peptide KRAS-G12V-9.

Mol	Chain	Residues	Atoms				ZeroOcc	AltConf	Trace
3	C	9	Total	C	N	O	0	0	0
			55	35	10	10			
3	H	9	Total	C	N	O	0	0	0
			55	35	10	10			

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Mol	Chain	Residues	Atoms				ZeroOcc	AltConf	Trace
3	M	9	Total	C	N	O	0	0	0
			55	35	10	10			
3	R	9	Total	C	N	O	0	0	0
			55	35	10	10			
3	W	9	Total	C	N	O	0	0	0
			55	35	10	10			
3	b	9	Total	C	N	O	0	0	0
			55	35	10	10			
3	g	9	Total	C	N	O	0	0	0
			55	35	10	10			
3	l	9	Total	C	N	O	0	0	0
			55	35	10	10			
3	q	9	Total	C	N	O	0	0	0
			55	35	10	10			
3	v	9	Total	C	N	O	0	0	0
			55	35	10	10			

- Molecule 4 is a protein called TCR alpha chain.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
4	D	198	Total	C	N	O	S	0	0	0
			1562	974	266	312	10			
4	I	198	Total	C	N	O	S	0	0	0
			1562	974	266	312	10			
4	N	198	Total	C	N	O	S	0	0	0
			1562	974	266	312	10			
4	S	198	Total	C	N	O	S	0	0	0
			1562	974	266	312	10			
4	X	198	Total	C	N	O	S	0	0	0
			1562	974	266	312	10			
4	c	198	Total	C	N	O	S	0	0	0
			1562	974	266	312	10			
4	h	198	Total	C	N	O	S	0	0	0
			1562	974	266	312	10			
4	m	198	Total	C	N	O	S	0	0	0
			1562	974	266	312	10			
4	r	198	Total	C	N	O	S	0	0	0
			1562	974	266	312	10			
4	w	198	Total	C	N	O	S	0	0	0
			1562	974	266	312	10			

- Molecule 5 is a protein called TCR beta chain.

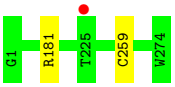
Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
5	E	240	Total	C	N	O	S	0	0	0
			1892	1186	331	369	6			
5	J	240	Total	C	N	O	S	0	0	0
			1892	1186	331	369	6			
5	O	240	Total	C	N	O	S	0	0	0
			1892	1186	331	369	6			
5	T	240	Total	C	N	O	S	0	0	0
			1892	1186	331	369	6			
5	Y	240	Total	C	N	O	S	0	0	0
			1892	1186	331	369	6			
5	d	240	Total	C	N	O	S	0	0	0
			1892	1186	331	369	6			
5	i	240	Total	C	N	O	S	0	0	0
			1892	1186	331	369	6			
5	n	240	Total	C	N	O	S	0	0	0
			1892	1186	331	369	6			
5	s	240	Total	C	N	O	S	0	0	0
			1892	1186	331	369	6			
5	x	240	Total	C	N	O	S	0	0	0
			1892	1186	331	369	6			

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.

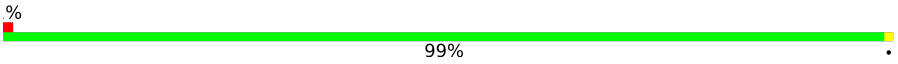
• Molecule 1: MHC class I antigen (Fragment)

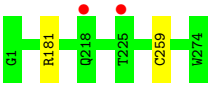
Chain A:



• Molecule 1: MHC class I antigen (Fragment)

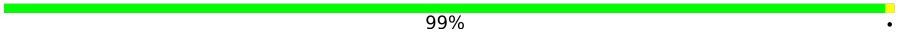
Chain F:





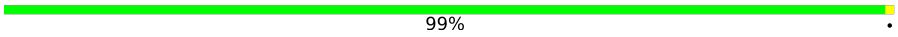
• Molecule 1: MHC class I antigen (Fragment)

Chain K:



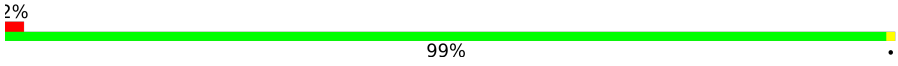
• Molecule 1: MHC class I antigen (Fragment)

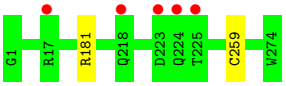
Chain P:



• Molecule 1: MHC class I antigen (Fragment)

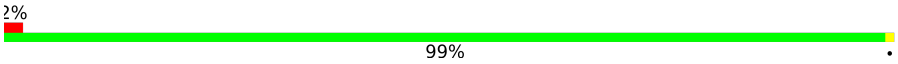
Chain U:

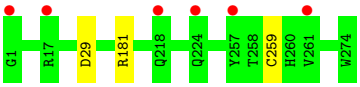




• Molecule 1: MHC class I antigen (Fragment)

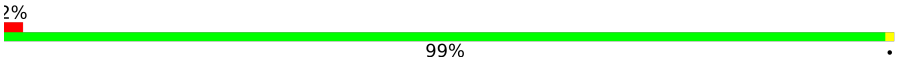
Chain Z:

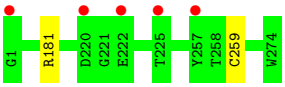




• Molecule 1: MHC class I antigen (Fragment)

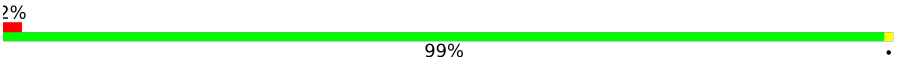
Chain e:

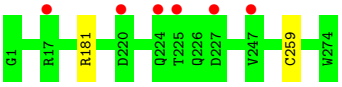




• Molecule 1: MHC class I antigen (Fragment)

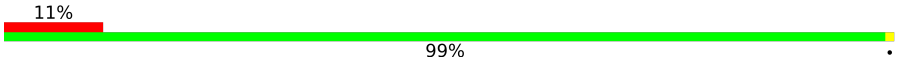
Chain j:

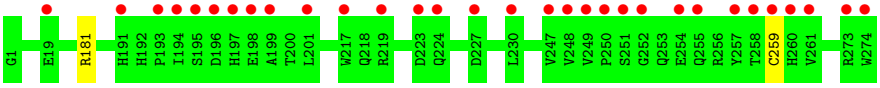




• Molecule 1: MHC class I antigen (Fragment)

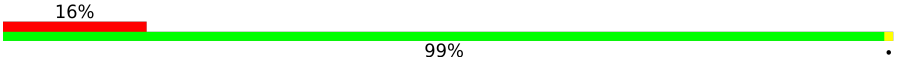
Chain o:

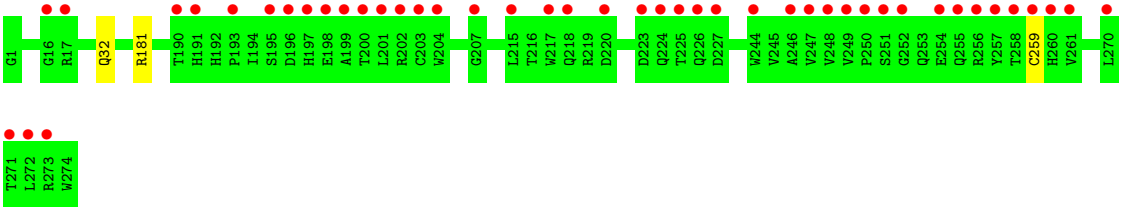




• Molecule 1: MHC class I antigen (Fragment)

Chain t:





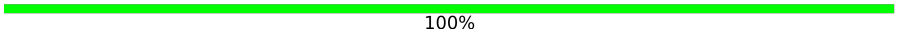
• Molecule 2: Beta-2-microglobulin

Chain B:

There are no outlier residues recorded for this chain.

• Molecule 2: Beta-2-microglobulin

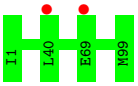
Chain G:



There are no outlier residues recorded for this chain.

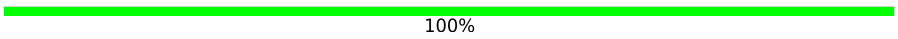
• Molecule 2: Beta-2-microglobulin

Chain L:



• Molecule 2: Beta-2-microglobulin

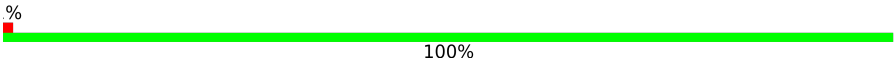
Chain Q:



There are no outlier residues recorded for this chain.

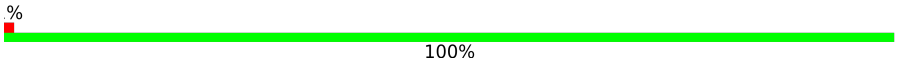
• Molecule 2: Beta-2-microglobulin

Chain V:



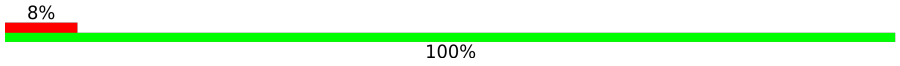
• Molecule 2: Beta-2-microglobulin

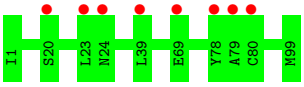
Chain a:



• Molecule 2: Beta-2-microglobulin

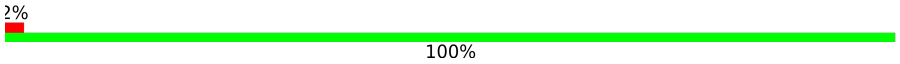
Chain f:

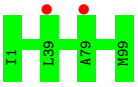




• Molecule 2: Beta-2-microglobulin

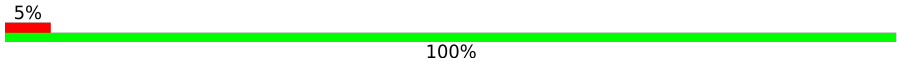
Chain k:

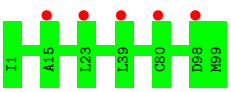




• Molecule 2: Beta-2-microglobulin

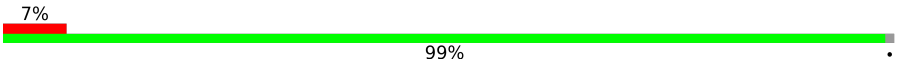
Chain p:

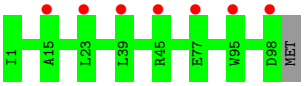




• Molecule 2: Beta-2-microglobulin

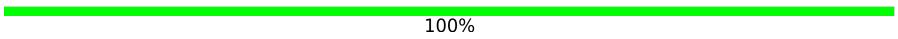
Chain u:





• Molecule 3: peptide KRAS-G12V-9

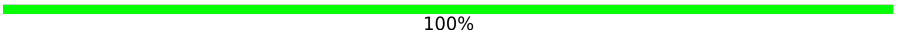
Chain C:



There are no outlier residues recorded for this chain.

• Molecule 3: peptide KRAS-G12V-9

Chain H:



There are no outlier residues recorded for this chain.

• Molecule 3: peptide KRAS-G12V-9

Chain M:

There are no outlier residues recorded for this chain.

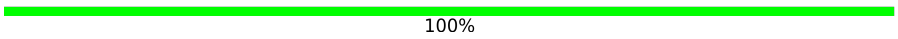
• Molecule 3: peptide KRAS-G12V-9

Chain R:

There are no outlier residues recorded for this chain.

• Molecule 3: peptide KRAS-G12V-9

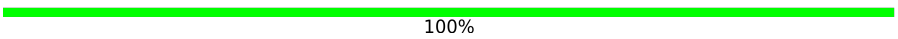
Chain W:



There are no outlier residues recorded for this chain.

• Molecule 3: peptide KRAS-G12V-9

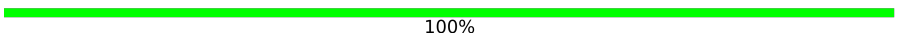
Chain b:



There are no outlier residues recorded for this chain.

• Molecule 3: peptide KRAS-G12V-9

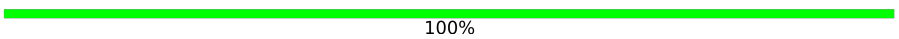
Chain g:



There are no outlier residues recorded for this chain.

• Molecule 3: peptide KRAS-G12V-9

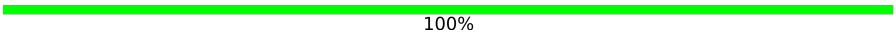
Chain l:



There are no outlier residues recorded for this chain.

• Molecule 3: peptide KRAS-G12V-9

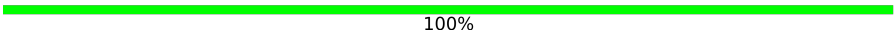
Chain q:



There are no outlier residues recorded for this chain.

• Molecule 3: peptide KRAS-G12V-9

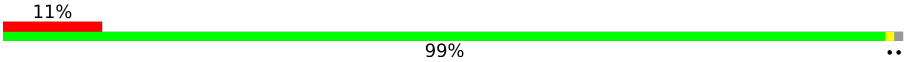
Chain v:

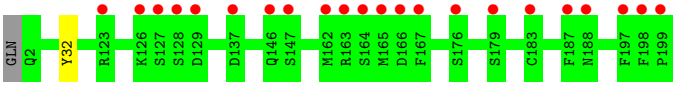


There are no outlier residues recorded for this chain.

• Molecule 4: TCR alpha chain

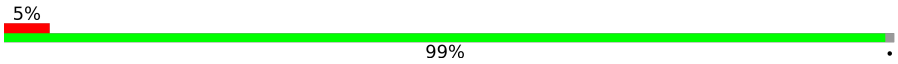
Chain D:

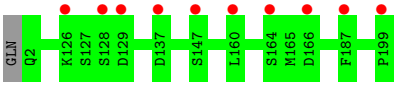




• Molecule 4: TCR alpha chain

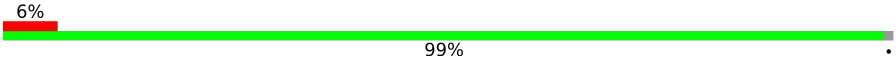
Chain I:

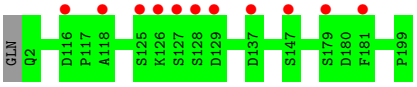




• Molecule 4: TCR alpha chain

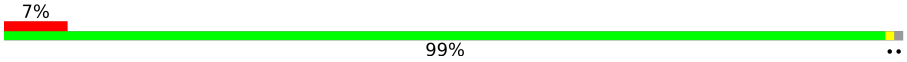
Chain N:

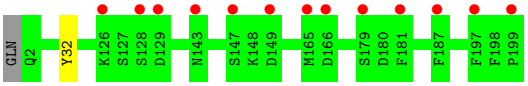




• Molecule 4: TCR alpha chain

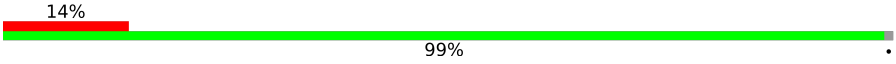
Chain S:

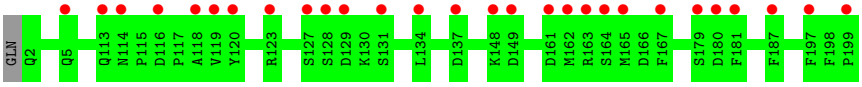




• Molecule 4: TCR alpha chain

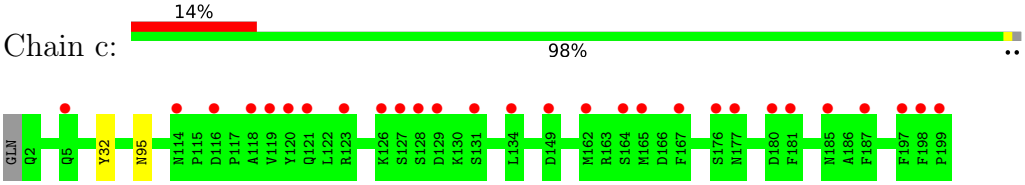
Chain X:





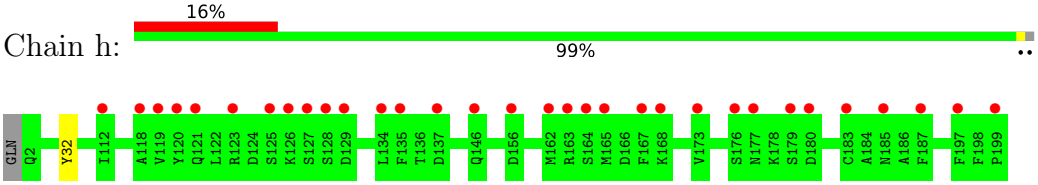
• Molecule 4: TCR alpha chain

Chain c:



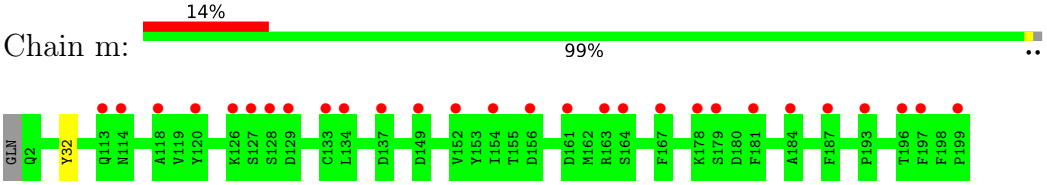
• Molecule 4: TCR alpha chain

Chain h:



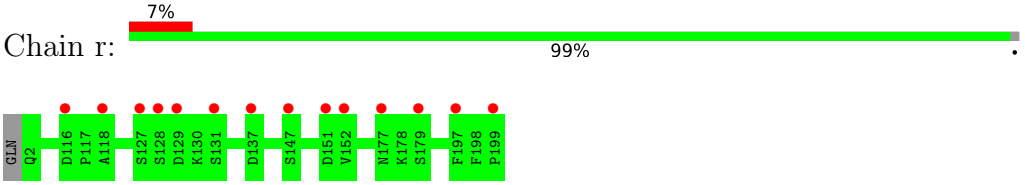
• Molecule 4: TCR alpha chain

Chain m:



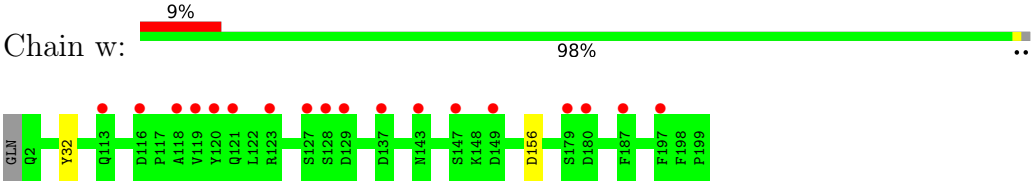
• Molecule 4: TCR alpha chain

Chain r:



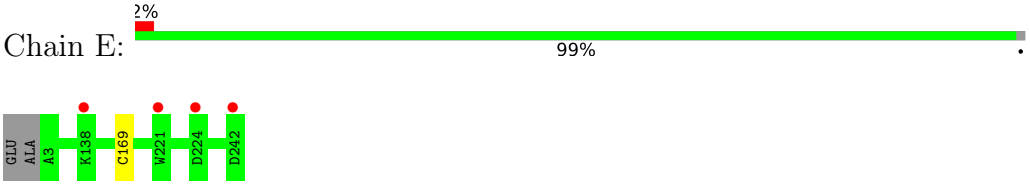
• Molecule 4: TCR alpha chain

Chain w:



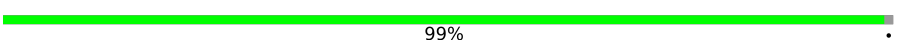
• Molecule 5: TCR beta chain

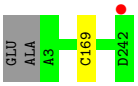
Chain E:



• Molecule 5: TCR beta chain

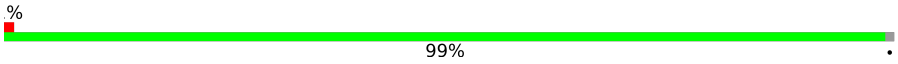
Chain J:

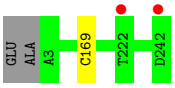




• Molecule 5: TCR beta chain

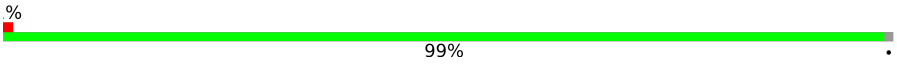
Chain O:

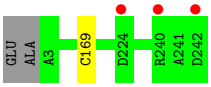




• Molecule 5: TCR beta chain

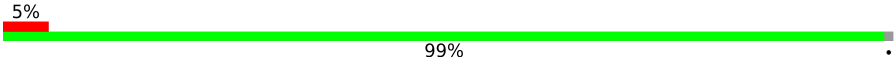
Chain T:

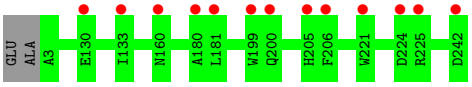




• Molecule 5: TCR beta chain

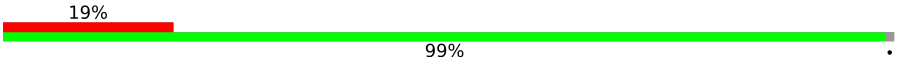
Chain Y:

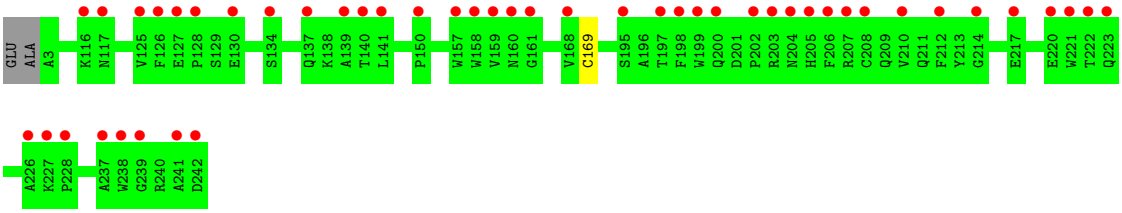




• Molecule 5: TCR beta chain

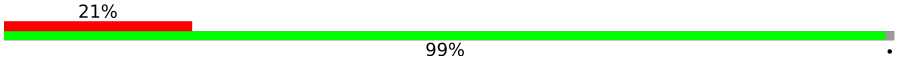
Chain d:

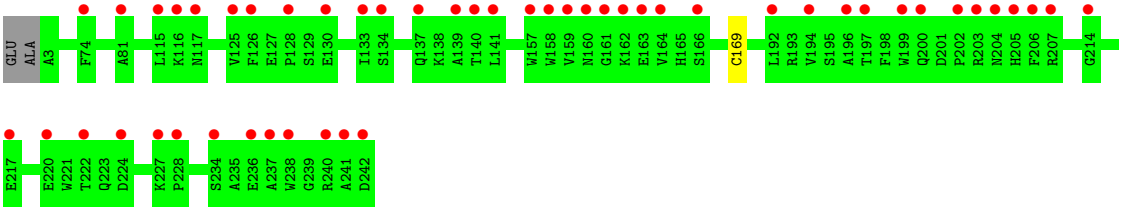




• Molecule 5: TCR beta chain

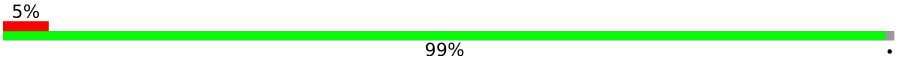
Chain i:

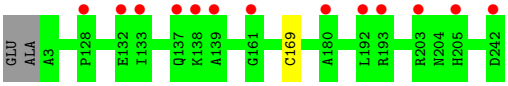




• Molecule 5: TCR beta chain

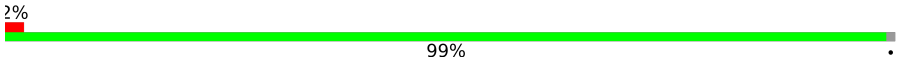
Chain n:





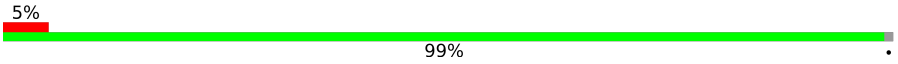
• Molecule 5: TCR beta chain

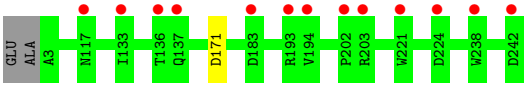
Chain s:



• Molecule 5: TCR beta chain

Chain x:





4 Data and refinement statistics (i)

Property	Value	Source
Space group	P 1	Depositor
Cell constants a, b, c, α, β, γ	156.86Å 156.89Å 191.97Å 77.37° 78.13° 82.27°	Depositor
Resolution (Å)	49.82 – 3.34 49.82 – 3.34	Depositor EDS
% Data completeness (in resolution range)	92.3 (49.82-3.34) 92.3 (49.82-3.34)	Depositor EDS
R_{merge}	0.20	Depositor
R_{sym}	(Not available)	Depositor
$< I/\sigma(I) >$ [1]	1.90 (at 3.33Å)	Xtriage
Refinement program	PHENIX 1.20.1_4487	Depositor
R, R_{free}	0.224 , 0.258 0.226 , 0.259	Depositor DCC
R_{free} test set	11615 reflections (4.98%)	wwPDB-VP
Wilson B-factor (Å^2)	79.1	Xtriage
Anisotropy	0.049	Xtriage
Bulk solvent k_{sol}(e/Å^3), B_{sol}(Å^2)	0.30 , 48.8	EDS
L-test for twinning[2]	$< \|L\| > = 0.48$, $< L^2 > = 0.30$	Xtriage
Estimated twinning fraction	0.035 for -k,-h,-l	Xtriage
F_o,F_c correlation	0.88	EDS
Total number of atoms	65732	wwPDB-VP
Average B, all atoms (Å^2)	88.0	wwPDB-VP

Xtriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 2.91% 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	A	0.23	0/2298	0.50	0/3120
1	F	0.23	0/2298	0.50	0/3120
1	K	0.23	0/2298	0.50	0/3120
1	P	0.23	0/2298	0.50	0/3120
1	U	0.23	0/2298	0.50	0/3120
1	Z	0.23	0/2298	0.50	0/3120
1	e	0.23	0/2298	0.50	0/3120
1	j	0.23	0/2298	0.50	0/3120
1	o	0.23	0/2298	0.50	0/3120
1	t	0.23	0/2298	0.50	0/3120
2	B	0.24	0/851	0.50	0/1152
2	G	0.24	0/851	0.49	0/1152
2	L	0.24	0/851	0.50	0/1152
2	Q	0.24	0/851	0.50	0/1152
2	V	0.24	0/851	0.49	0/1152
2	a	0.24	0/851	0.48	0/1152
2	f	0.24	0/851	0.49	0/1152
2	k	0.25	0/851	0.47	0/1152
2	p	0.24	0/851	0.46	0/1152
2	u	0.24	0/843	0.46	0/1142
3	C	0.25	0/54	0.37	0/70
3	H	0.30	0/54	0.42	0/70
3	M	0.29	0/54	0.46	0/70
3	R	0.27	0/54	0.46	0/70
3	W	0.28	0/54	0.41	0/70
3	b	0.26	0/54	0.37	0/70
3	g	0.28	0/54	0.44	0/70
3	l	0.28	0/54	0.44	0/70
3	q	0.23	0/54	0.35	0/70
3	v	0.28	0/54	0.44	0/70
4	D	0.25	0/1598	0.46	0/2163
4	I	0.25	0/1598	0.47	0/2163
4	N	0.25	0/1598	0.47	0/2163
4	S	0.24	0/1598	0.46	0/2163

Mol	Chain	Bond lengths		Bond angles	
		RMSZ	$\#\|Z\| > 5$	RMSZ	$\#\|Z\| > 5$
4	X	0.25	0/1598	0.46	0/2163
4	c	0.24	0/1598	0.46	0/2163
4	h	0.24	0/1598	0.46	0/2163
4	m	0.24	0/1598	0.46	0/2163
4	r	0.25	0/1598	0.47	0/2163
4	w	0.25	0/1598	0.47	0/2163
5	E	0.24	0/1944	0.47	0/2650
5	J	0.24	0/1944	0.48	0/2650
5	O	0.24	0/1944	0.47	0/2650
5	T	0.24	0/1944	0.48	0/2650
5	Y	0.25	0/1944	0.47	0/2650
5	d	0.24	0/1944	0.47	0/2650
5	i	0.24	0/1944	0.47	0/2650
5	n	0.24	0/1944	0.48	0/2650
5	s	0.24	0/1944	0.47	0/2650
5	x	0.24	0/1944	0.47	0/2650
All	All	0.24	0/67442	0.48	0/91540

There are no bond length outliers.

There are no bond angle outliers.

There are no chirality outliers.

There are no planarity outliers.

5.2 Too-close contacts

Due to software issues we are unable to calculate clashes - this section is therefore empty.

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	272/274 (99%)	270 (99%)	2 (1%)	0	100	100

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
1	F	272/274 (99%)	271 (100%)	1 (0%)	0	100	100
1	K	272/274 (99%)	271 (100%)	1 (0%)	0	100	100
1	P	272/274 (99%)	270 (99%)	2 (1%)	0	100	100
1	U	272/274 (99%)	269 (99%)	3 (1%)	0	100	100
1	Z	272/274 (99%)	271 (100%)	1 (0%)	0	100	100
1	e	272/274 (99%)	269 (99%)	3 (1%)	0	100	100
1	j	272/274 (99%)	269 (99%)	3 (1%)	0	100	100
1	o	272/274 (99%)	269 (99%)	3 (1%)	0	100	100
1	t	272/274 (99%)	269 (99%)	3 (1%)	0	100	100
2	B	97/99 (98%)	94 (97%)	3 (3%)	0	100	100
2	G	97/99 (98%)	96 (99%)	1 (1%)	0	100	100
2	L	97/99 (98%)	97 (100%)	0	0	100	100
2	Q	97/99 (98%)	95 (98%)	2 (2%)	0	100	100
2	V	97/99 (98%)	95 (98%)	2 (2%)	0	100	100
2	a	97/99 (98%)	95 (98%)	2 (2%)	0	100	100
2	f	97/99 (98%)	95 (98%)	2 (2%)	0	100	100
2	k	97/99 (98%)	96 (99%)	1 (1%)	0	100	100
2	p	97/99 (98%)	95 (98%)	2 (2%)	0	100	100
2	u	96/99 (97%)	92 (96%)	4 (4%)	0	100	100
3	C	7/9 (78%)	7 (100%)	0	0	100	100
3	H	7/9 (78%)	7 (100%)	0	0	100	100
3	M	7/9 (78%)	5 (71%)	2 (29%)	0	100	100
3	R	7/9 (78%)	5 (71%)	2 (29%)	0	100	100
3	W	7/9 (78%)	7 (100%)	0	0	100	100
3	b	7/9 (78%)	5 (71%)	2 (29%)	0	100	100
3	g	7/9 (78%)	6 (86%)	1 (14%)	0	100	100
3	l	7/9 (78%)	5 (71%)	2 (29%)	0	100	100
3	q	7/9 (78%)	7 (100%)	0	0	100	100
3	v	7/9 (78%)	7 (100%)	0	0	100	100
4	D	196/199 (98%)	193 (98%)	3 (2%)	0	100	100
4	I	196/199 (98%)	193 (98%)	3 (2%)	0	100	100

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
4	N	196/199 (98%)	192 (98%)	4 (2%)	0	100	100
4	S	196/199 (98%)	190 (97%)	6 (3%)	0	100	100
4	X	196/199 (98%)	194 (99%)	2 (1%)	0	100	100
4	c	196/199 (98%)	194 (99%)	2 (1%)	0	100	100
4	h	196/199 (98%)	193 (98%)	3 (2%)	0	100	100
4	m	196/199 (98%)	193 (98%)	3 (2%)	0	100	100
4	r	196/199 (98%)	192 (98%)	4 (2%)	0	100	100
4	w	196/199 (98%)	192 (98%)	4 (2%)	0	100	100
5	E	238/242 (98%)	237 (100%)	1 (0%)	0	100	100
5	J	238/242 (98%)	234 (98%)	4 (2%)	0	100	100
5	O	238/242 (98%)	236 (99%)	2 (1%)	0	100	100
5	T	238/242 (98%)	233 (98%)	5 (2%)	0	100	100
5	Y	238/242 (98%)	236 (99%)	2 (1%)	0	100	100
5	d	238/242 (98%)	236 (99%)	2 (1%)	0	100	100
5	i	238/242 (98%)	237 (100%)	1 (0%)	0	100	100
5	n	238/242 (98%)	233 (98%)	5 (2%)	0	100	100
5	s	238/242 (98%)	235 (99%)	3 (1%)	0	100	100
5	x	238/242 (98%)	233 (98%)	5 (2%)	0	100	100
All	All	8099/8230 (98%)	7985 (99%)	114 (1%)	0	100	100

There are no Ramachandran outliers to report.

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	232/232 (100%)	230 (99%)	2 (1%)	78	88
1	F	232/232 (100%)	230 (99%)	2 (1%)	78	88
1	K	232/232 (100%)	230 (99%)	2 (1%)	78	88

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Mol	Chain	Analysed	Rotameric	Outliers	Percentiles
1	P	232/232 (100%)	230 (99%)	2 (1%)	78 88
1	U	232/232 (100%)	230 (99%)	2 (1%)	78 88
1	Z	232/232 (100%)	229 (99%)	3 (1%)	69 83
1	e	232/232 (100%)	230 (99%)	2 (1%)	78 88
1	j	232/232 (100%)	230 (99%)	2 (1%)	78 88
1	o	232/232 (100%)	230 (99%)	2 (1%)	78 88
1	t	232/232 (100%)	229 (99%)	3 (1%)	69 83
2	B	94/94 (100%)	94 (100%)	0	100 100
2	G	94/94 (100%)	94 (100%)	0	100 100
2	L	94/94 (100%)	94 (100%)	0	100 100
2	Q	94/94 (100%)	94 (100%)	0	100 100
2	V	94/94 (100%)	94 (100%)	0	100 100
2	a	94/94 (100%)	94 (100%)	0	100 100
2	f	94/94 (100%)	94 (100%)	0	100 100
2	k	94/94 (100%)	94 (100%)	0	100 100
2	p	94/94 (100%)	94 (100%)	0	100 100
2	u	93/94 (99%)	93 (100%)	0	100 100
3	C	5/5 (100%)	5 (100%)	0	100 100
3	H	5/5 (100%)	5 (100%)	0	100 100
3	M	5/5 (100%)	5 (100%)	0	100 100
3	R	5/5 (100%)	5 (100%)	0	100 100
3	W	5/5 (100%)	5 (100%)	0	100 100
3	b	5/5 (100%)	5 (100%)	0	100 100
3	g	5/5 (100%)	5 (100%)	0	100 100
3	l	5/5 (100%)	5 (100%)	0	100 100
3	q	5/5 (100%)	5 (100%)	0	100 100
3	v	5/5 (100%)	5 (100%)	0	100 100
4	D	180/181 (99%)	179 (99%)	1 (1%)	86 92
4	I	180/181 (99%)	180 (100%)	0	100 100
4	N	180/181 (99%)	180 (100%)	0	100 100
4	S	180/181 (99%)	179 (99%)	1 (1%)	86 92

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Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
4	X	180/181 (99%)	180 (100%)	0	100	100
4	c	180/181 (99%)	178 (99%)	2 (1%)	73	86
4	h	180/181 (99%)	179 (99%)	1 (1%)	86	92
4	m	180/181 (99%)	179 (99%)	1 (1%)	86	92
4	r	180/181 (99%)	180 (100%)	0	100	100
4	w	180/181 (99%)	178 (99%)	2 (1%)	73	86
5	E	205/206 (100%)	204 (100%)	1 (0%)	88	93
5	J	205/206 (100%)	204 (100%)	1 (0%)	88	93
5	O	205/206 (100%)	204 (100%)	1 (0%)	88	93
5	T	205/206 (100%)	204 (100%)	1 (0%)	88	93
5	Y	205/206 (100%)	205 (100%)	0	100	100
5	d	205/206 (100%)	204 (100%)	1 (0%)	88	93
5	i	205/206 (100%)	204 (100%)	1 (0%)	88	93
5	n	205/206 (100%)	204 (100%)	1 (0%)	88	93
5	s	205/206 (100%)	205 (100%)	0	100	100
5	x	205/206 (100%)	204 (100%)	1 (0%)	88	93
All	All	7159/7180 (100%)	7121 (100%)	38 (0%)	88	93

All (38) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	181	ARG
1	A	259	CYS
4	D	32	TYR
5	E	169	CYS
1	F	181	ARG
1	F	259	CYS
5	J	169	CYS
1	K	181	ARG
1	K	259	CYS
5	O	169	CYS
1	P	181	ARG
1	P	259	CYS
4	S	32	TYR
5	T	169	CYS
1	U	181	ARG

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Mol	Chain	Res	Type
1	U	259	CYS
1	Z	29	ASP
1	Z	181	ARG
1	Z	259	CYS
4	c	32	TYR
4	c	95	ASN
5	d	169	CYS
1	e	181	ARG
1	e	259	CYS
4	h	32	TYR
5	i	169	CYS
1	j	181	ARG
1	j	259	CYS
4	m	32	TYR
5	n	169	CYS
1	o	181	ARG
1	o	259	CYS
1	t	32	GLN
1	t	181	ARG
1	t	259	CYS
4	w	32	TYR
4	w	156	ASP
5	x	171	ASP

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

5.3.3 RNA (i)

There are no RNA molecules in this entry.

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

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

5.5 Carbohydrates (i)

There are no monosaccharides in this entry.

5.6 Ligand geometry

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	A	274/274 (100%)	-0.04	1 (0%) 92 94	38, 61, 98, 129	0
1	F	274/274 (100%)	0.01	2 (0%) 87 90	46, 66, 101, 127	0
1	K	274/274 (100%)	0.05	0 100 100	41, 68, 105, 130	0
1	P	274/274 (100%)	-0.02	0 100 100	39, 61, 100, 136	0
1	U	274/274 (100%)	0.13	5 (1%) 68 67	42, 71, 113, 151	0
1	Z	274/274 (100%)	0.18	6 (2%) 62 61	50, 73, 108, 155	0
1	e	274/274 (100%)	0.21	5 (1%) 68 67	49, 80, 110, 128	0
1	j	274/274 (100%)	0.11	6 (2%) 62 61	50, 75, 111, 142	0
1	o	274/274 (100%)	0.62	31 (11%) 5 5	48, 83, 175, 197	0
1	t	274/274 (100%)	0.71	45 (16%) 1 1	52, 91, 175, 192	0
2	B	99/99 (100%)	-0.13	0 100 100	45, 66, 97, 122	0
2	G	99/99 (100%)	0.08	0 100 100	54, 76, 111, 126	0
2	L	99/99 (100%)	0.07	2 (2%) 65 64	50, 77, 109, 120	0
2	Q	99/99 (100%)	-0.08	0 100 100	44, 65, 97, 120	0
2	V	99/99 (100%)	0.20	1 (1%) 82 83	59, 87, 116, 132	0
2	a	99/99 (100%)	0.18	1 (1%) 82 83	59, 82, 111, 120	0
2	f	99/99 (100%)	0.62	8 (8%) 12 12	63, 102, 142, 148	0
2	k	99/99 (100%)	0.18	2 (2%) 65 64	62, 86, 111, 138	0
2	p	99/99 (100%)	0.27	5 (5%) 28 28	64, 96, 136, 143	0
2	u	98/99 (98%)	0.58	7 (7%) 16 17	67, 108, 133, 153	0
3	C	9/9 (100%)	0.11	0 100 100	47, 52, 58, 66	0
3	H	9/9 (100%)	0.24	0 100 100	54, 60, 64, 64	0
3	M	9/9 (100%)	0.27	0 100 100	47, 58, 66, 69	0
3	R	9/9 (100%)	0.30	0 100 100	41, 55, 58, 69	0

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Mol	Chain	Analysed	<RSRZ>	#RSRZ>2	OWAB(Å^2)	Q<0.9
3	W	9/9 (100%)	0.31	0 100 100	52, 60, 65, 69	0
3	b	9/9 (100%)	0.47	0 100 100	52, 67, 70, 74	0
3	g	9/9 (100%)	0.35	0 100 100	59, 69, 80, 81	0
3	l	9/9 (100%)	0.39	0 100 100	58, 67, 73, 80	0
3	q	9/9 (100%)	0.35	0 100 100	58, 60, 62, 63	0
3	v	9/9 (100%)	0.64	0 100 100	62, 74, 78, 95	0
4	D	198/199 (99%)	0.50	22 (11%) 5 5	42, 81, 160, 177	0
4	I	198/199 (99%)	0.29	10 (5%) 28 28	41, 78, 144, 176	0
4	N	198/199 (99%)	0.30	11 (5%) 24 25	36, 77, 143, 187	0
4	S	198/199 (99%)	0.38	13 (6%) 18 19	43, 79, 154, 174	0
4	X	198/199 (99%)	0.76	28 (14%) 2 2	46, 86, 169, 190	0
4	c	198/199 (99%)	0.74	28 (14%) 2 2	48, 92, 177, 198	0
4	h	198/199 (99%)	0.85	32 (16%) 1 1	56, 92, 176, 196	0
4	m	198/199 (99%)	0.80	28 (14%) 2 2	49, 93, 164, 196	0
4	r	198/199 (99%)	0.53	14 (7%) 16 17	44, 86, 151, 197	0
4	w	198/199 (99%)	0.57	18 (9%) 9 9	45, 85, 161, 195	0
5	E	240/242 (99%)	0.10	4 (1%) 70 69	47, 74, 117, 143	0
5	J	240/242 (99%)	0.07	1 (0%) 92 94	41, 65, 114, 136	0
5	O	240/242 (99%)	0.08	2 (0%) 86 87	41, 66, 113, 135	0
5	T	240/242 (99%)	0.12	3 (1%) 77 78	43, 73, 118, 155	0
5	Y	240/242 (99%)	0.36	13 (5%) 25 26	47, 93, 145, 182	0
5	d	240/242 (99%)	0.92	47 (19%) 1 1	56, 131, 176, 190	0
5	i	240/242 (99%)	1.02	50 (20%) 1 1	66, 136, 181, 198	0
5	n	240/242 (99%)	0.44	13 (5%) 25 26	46, 94, 151, 186	0
5	s	240/242 (99%)	0.11	6 (2%) 57 56	48, 78, 125, 151	0
5	x	240/242 (99%)	0.44	13 (5%) 25 26	54, 98, 147, 180	0
All	All	8199/8230 (99%)	0.34	483 (5%) 22 23	36, 79, 156, 198	0

All (483) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
4	r	129	ASP	9.3
4	r	128	SER	8.4

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Mol	Chain	Res	Type	RSRZ
4	w	128	SER	8.0
1	o	258	THR	8.0
4	h	128	SER	7.7
4	m	129	ASP	7.6
1	o	257	TYR	7.5
1	t	251	SER	7.4
4	X	129	ASP	7.3
1	t	255	GLN	7.2
4	h	118	ALA	7.1
5	T	242	ASP	7.1
1	o	249	VAL	6.8
4	X	128	SER	6.7
1	o	196	ASP	6.6
1	t	259	CYS	6.6
1	o	224	GLN	6.5
1	t	257	TYR	6.3
1	o	261	VAL	6.3
4	N	128	SER	6.2
4	h	129	ASP	6.2
4	m	128	SER	6.2
4	I	128	SER	6.2
5	i	125	VAL	6.2
4	D	147	SER	6.1
1	t	249	VAL	6.1
1	o	201	LEU	6.0
1	t	224	GLN	5.9
4	c	128	SER	5.8
4	c	127	SER	5.8
1	t	201	LEU	5.7
1	o	251	SER	5.6
1	t	196	ASP	5.5
4	h	119	VAL	5.5
5	i	242	ASP	5.4
5	i	159	VAL	5.3
4	w	129	ASP	5.3
4	m	184	ALA	5.1
5	i	202	PRO	5.0
1	t	198	GLU	5.0
5	d	242	ASP	5.0
5	d	206	PHE	5.0
4	X	163	ARG	4.9
4	c	129	ASP	4.9

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Mol	Chain	Res	Type	RSRZ
4	r	116	ASP	4.9
4	h	185	ASN	4.8
4	m	118	ALA	4.8
4	X	164	SER	4.7
4	c	131	SER	4.7
4	c	164	SER	4.7
1	t	252	GLY	4.6
1	o	248	VAL	4.6
4	c	119	VAL	4.6
1	o	197	HIS	4.5
1	o	255	GLN	4.5
5	d	202	PRO	4.5
5	i	203	ARG	4.5
4	m	149	ASP	4.5
1	o	247	VAL	4.5
2	u	23	LEU	4.4
5	Y	242	ASP	4.4
1	t	247	VAL	4.4
4	h	134	LEU	4.4
5	i	214	GLY	4.4
5	d	158	TRP	4.4
5	d	161	GLY	4.4
4	c	185	ASN	4.3
5	i	141	LEU	4.3
5	d	198	PHE	4.3
1	t	197	HIS	4.3
1	t	248	VAL	4.3
4	m	179	SER	4.3
4	c	123	ARG	4.3
5	d	239	GLY	4.3
1	o	195	SER	4.3
1	Z	17	ARG	4.2
1	t	217	TRP	4.2
1	o	259	CYS	4.2
1	t	258	THR	4.2
5	n	133	ILE	4.2
5	d	214	GLY	4.2
5	i	206	PHE	4.2
5	n	242	ASP	4.2
4	w	127	SER	4.1
1	o	273	ARG	4.1
4	h	162	MET	4.1

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Mol	Chain	Res	Type	RSRZ
1	t	254	GLU	4.1
4	c	197	PHE	4.0
1	t	191	HIS	4.0
5	d	205	HIS	4.0
4	X	165	MET	4.0
4	m	127	SER	4.0
4	h	187	PHE	4.0
4	h	180	ASP	4.0
4	N	147	SER	4.0
4	X	181	PHE	4.0
2	u	15	ALA	4.0
4	h	164	SER	4.0
5	d	238	TRP	4.0
5	d	130	GLU	3.9
4	S	199	PRO	3.9
4	r	197	PHE	3.9
4	h	197	PHE	3.9
4	D	167	PHE	3.9
4	c	181	PHE	3.9
4	I	147	SER	3.8
4	c	165	MET	3.8
4	N	129	ASP	3.8
4	m	197	PHE	3.8
1	t	271	THR	3.8
1	o	252	GLY	3.8
5	i	217	GLU	3.7
5	i	160	ASN	3.7
4	w	180	ASP	3.7
5	d	128	PRO	3.7
5	O	242	ASP	3.7
5	d	220	GLU	3.7
2	f	24	ASN	3.7
1	o	199	ALA	3.7
5	d	160	ASN	3.7
4	S	128	SER	3.7
4	h	167	PHE	3.7
5	i	130	GLU	3.7
5	d	126	PHE	3.7
4	N	125	SER	3.6
4	X	134	LEU	3.6
4	D	197	PHE	3.6
4	m	137	ASP	3.6

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Mol	Chain	Res	Type	RSRZ
5	x	224	ASP	3.6
4	w	187	PHE	3.6
5	i	137	GLN	3.6
4	D	164	SER	3.6
4	m	134	LEU	3.6
4	m	199	PRO	3.5
4	c	162	MET	3.5
4	c	118	ALA	3.5
4	D	166	ASP	3.5
4	h	179	SER	3.5
4	r	127	SER	3.5
5	s	242	ASP	3.5
1	t	199	ALA	3.5
1	e	1	GLY	3.5
1	o	227	ASP	3.5
4	X	199	PRO	3.5
5	i	234	SER	3.4
1	o	254	GLU	3.4
5	i	199	TRP	3.4
5	i	238	TRP	3.4
5	d	195	SER	3.4
1	o	191	HIS	3.4
5	d	117	ASN	3.4
4	m	187	PHE	3.4
4	X	161	ASP	3.4
4	r	131	SER	3.4
5	i	139	ALA	3.3
5	n	137	GLN	3.3
4	m	133	CYS	3.3
4	c	167	PHE	3.3
5	d	204	ASN	3.3
5	d	207	ARG	3.3
1	t	195	SER	3.3
4	I	129	ASP	3.3
5	i	140	THR	3.3
5	n	161	GLY	3.3
4	c	149	ASP	3.3
5	d	203	ARG	3.3
4	S	147	SER	3.3
4	X	167	PHE	3.3
1	o	198	GLU	3.2
4	c	176	SER	3.2

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Mol	Chain	Res	Type	RSRZ
5	E	242	ASP	3.2
4	X	131	SER	3.2
5	O	222	THR	3.2
5	i	240	ARG	3.2
1	t	207	GLY	3.2
4	D	128	SER	3.2
4	c	180	ASP	3.2
4	X	197	PHE	3.2
4	w	179	SER	3.2
1	t	273	ARG	3.2
5	i	236	GLU	3.2
4	c	187	PHE	3.2
4	X	120	TYR	3.2
4	X	187	PHE	3.1
4	h	177	ASN	3.1
5	i	196	ALA	3.1
5	i	241	ALA	3.1
4	X	116	ASP	3.1
4	c	198	PHE	3.1
4	D	179	SER	3.1
1	t	261	VAL	3.1
4	I	126	LYS	3.1
1	t	227	ASP	3.1
2	f	39	LEU	3.1
1	t	260	HIS	3.1
4	h	126	LYS	3.1
4	h	163	ARG	3.1
4	h	127	SER	3.0
2	a	23	LEU	3.0
4	D	129	ASP	3.0
5	d	222	THR	3.0
1	e	257	TYR	3.0
4	I	137	ASP	3.0
5	d	199	TRP	3.0
1	t	220	ASP	3.0
2	f	23	LEU	3.0
4	h	121	GLN	3.0
4	X	118	ALA	3.0
4	m	114	ASN	3.0
4	D	199	PRO	3.0
4	S	187	PHE	3.0
4	m	120	TYR	3.0

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Mol	Chain	Res	Type	RSRZ
5	n	180	ALA	3.0
4	c	121	GLN	3.0
5	d	226	ALA	3.0
1	U	223	ASP	3.0
4	r	199	PRO	3.0
5	x	117	ASN	2.9
4	c	199	PRO	2.9
4	h	125	SER	2.9
4	m	163	ARG	2.9
4	w	197	PHE	2.9
5	i	161	GLY	2.9
4	h	123	ARG	2.9
4	X	179	SER	2.9
2	f	69	GLU	2.9
4	c	120	TYR	2.9
5	d	228	PRO	2.9
4	h	173	VAL	2.9
1	o	223	ASP	2.9
4	S	126	LYS	2.9
4	h	146	GLN	2.9
4	h	137	ASP	2.9
4	D	165	MET	2.8
4	h	120	TYR	2.8
4	h	156	ASP	2.8
4	w	147	SER	2.8
5	i	227	LYS	2.8
4	D	187	PHE	2.8
1	U	218	GLN	2.8
1	t	190	THR	2.8
5	d	197	THR	2.8
5	i	197	THR	2.8
1	o	250	PRO	2.8
1	t	246	ALA	2.8
4	m	164	SER	2.8
5	n	139	ALA	2.8
5	x	221	TRP	2.8
2	f	80	CYS	2.8
4	X	123	ARG	2.8
4	h	165	MET	2.8
1	t	250	PRO	2.8
5	d	157	TRP	2.8
4	m	167	PHE	2.8

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Mol	Chain	Res	Type	RSRZ
1	U	17	ARG	2.8
1	t	202	ARG	2.8
5	i	222	THR	2.8
4	N	127	SER	2.8
5	Y	160	ASN	2.8
4	D	198	PHE	2.8
2	u	45	ARG	2.8
5	x	202	PRO	2.8
5	i	116	LYS	2.7
5	Y	206	PHE	2.7
5	i	228	PRO	2.7
4	c	116	ASP	2.7
4	r	152	VAL	2.7
4	w	120	TYR	2.7
1	t	200	THR	2.7
1	t	204	TRP	2.7
4	X	149	ASP	2.7
1	o	193	PRO	2.7
4	S	129	ASP	2.7
4	X	180	ASP	2.7
4	m	193	PRO	2.7
5	d	141	LEU	2.7
5	i	204	ASN	2.7
5	d	125	VAL	2.7
5	Y	224	ASP	2.7
5	i	207	ARG	2.7
4	w	119	VAL	2.7
5	i	157	TRP	2.7
4	S	179	SER	2.7
1	t	272	LEU	2.7
1	o	274	TRP	2.7
1	U	225	THR	2.6
5	d	116	LYS	2.6
4	w	137	ASP	2.6
5	J	242	ASP	2.6
1	t	16	GLY	2.6
5	d	159	VAL	2.6
1	j	225	THR	2.6
4	D	146	GLN	2.6
4	D	163	ARG	2.6
5	x	183	ASP	2.6
5	n	128	PRO	2.6

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Mol	Chain	Res	Type	RSRZ
1	Z	1	GLY	2.6
1	Z	261	VAL	2.6
4	X	119	VAL	2.6
1	Z	224	GLN	2.6
4	N	126	LYS	2.6
5	i	126	PHE	2.6
4	m	126	LYS	2.6
5	Y	181	LEU	2.6
5	i	81	ALA	2.6
5	i	220	GLU	2.6
1	o	217	TRP	2.5
4	S	197	PHE	2.5
5	d	137	GLN	2.5
2	u	39	LEU	2.5
5	n	138	LYS	2.5
5	x	137	GLN	2.5
5	d	134	SER	2.5
4	c	134	LEU	2.5
4	N	181	PHE	2.5
5	Y	180	ALA	2.5
4	D	126	LYS	2.5
1	Z	257	TYR	2.5
4	S	165	MET	2.5
4	m	161	ASP	2.5
4	m	178	LYS	2.5
5	i	133	ILE	2.5
1	o	19	GLU	2.5
2	L	69	GLU	2.5
5	i	194	VAL	2.5
1	t	270	LEU	2.5
1	t	17	ARG	2.5
5	d	241	ALA	2.5
1	j	224	GLN	2.5
4	D	137	ASP	2.5
4	S	181	PHE	2.5
1	t	244	TRP	2.5
4	h	183	CYS	2.5
2	f	78	TYR	2.5
4	w	118	ALA	2.5
1	U	224	GLN	2.5
1	t	193	PRO	2.5
4	D	162	MET	2.4

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Mol	Chain	Res	Type	RSRZ
1	t	203	CYS	2.4
1	t	225	THR	2.4
4	r	151	ASP	2.4
2	f	20	SER	2.4
4	D	127	SER	2.4
5	i	117	ASN	2.4
1	F	218	GLN	2.4
5	n	203	ARG	2.4
2	u	98	ASP	2.4
4	N	137	ASP	2.4
5	d	208	CYS	2.4
4	N	179	SER	2.4
5	i	134	SER	2.4
2	p	98	ASP	2.4
5	i	224	ASP	2.4
1	t	256	ARG	2.4
4	w	123	ARG	2.4
5	d	221	TRP	2.4
4	X	148	LYS	2.4
4	X	162	MET	2.4
4	c	177	ASN	2.4
5	d	237	ALA	2.4
4	N	116	ASP	2.4
2	k	39	LEU	2.4
4	h	199	PRO	2.4
5	d	139	ALA	2.4
5	T	240	ARG	2.4
5	Y	200	GLN	2.3
4	X	127	SER	2.3
2	p	39	LEU	2.3
1	A	225	THR	2.3
4	r	179	SER	2.3
5	x	194	VAL	2.3
5	i	192	LEU	2.3
5	i	166	SER	2.3
2	u	95	TRP	2.3
4	D	188	ASN	2.3
4	X	114	ASN	2.3
5	i	164	VAL	2.3
1	t	226	GLN	2.3
5	Y	221	TRP	2.3
5	i	205	HIS	2.3

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Mol	Chain	Res	Type	RSRZ
1	e	225	THR	2.3
1	j	227	ASP	2.3
4	h	135	PHE	2.3
4	X	137	ASP	2.3
5	x	133	ILE	2.3
5	i	128	PRO	2.3
2	p	15	ALA	2.3
4	I	187	PHE	2.3
4	S	166	ASP	2.2
4	c	126	LYS	2.2
5	n	192	LEU	2.2
4	w	116	ASP	2.2
5	d	217	GLU	2.2
5	i	162	LYS	2.2
1	t	215	LEU	2.2
4	N	118	ALA	2.2
5	d	127	GLU	2.2
5	x	136	THR	2.2
4	c	5	GLN	2.2
1	Z	218	GLN	2.2
2	k	79	ALA	2.2
5	d	200	GLN	2.2
5	n	193	ARG	2.2
5	Y	133	ILE	2.2
5	Y	199	TRP	2.2
4	I	166	ASP	2.2
5	d	223	GLN	2.2
5	Y	130	GLU	2.2
5	i	237	ALA	2.2
4	S	149	ASP	2.2
5	d	212	PHE	2.2
5	s	206	PHE	2.2
1	e	222	GLU	2.2
2	p	23	LEU	2.1
4	r	147	SER	2.1
1	j	220	ASP	2.1
1	o	194	ILE	2.1
5	E	138	LYS	2.1
5	Y	205	HIS	2.1
4	w	121	GLN	2.1
4	c	114	ASN	2.1
5	d	140	THR	2.1

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Mol	Chain	Res	Type	RSRZ
5	n	205	HIS	2.1
5	d	150	PRO	2.1
1	t	223	ASP	2.1
5	x	238	TRP	2.1
5	E	224	ASP	2.1
5	s	183	ASP	2.1
5	i	158	TRP	2.1
2	L	40	LEU	2.1
5	x	242	ASP	2.1
2	u	77	GLU	2.1
5	i	163	GLU	2.1
1	F	225	THR	2.1
4	w	113	GLN	2.1
1	o	219	ARG	2.1
4	w	149	ASP	2.1
4	m	152	VAL	2.1
5	s	177	GLU	2.1
5	E	221	TRP	2.1
4	h	176	SER	2.1
4	h	168	LYS	2.1
1	o	230	LEU	2.1
4	X	113	GLN	2.1
5	i	115	LEU	2.1
4	S	143	ASN	2.1
1	e	220	ASP	2.1
4	D	183	CYS	2.1
4	m	181	PHE	2.1
5	Y	225	ARG	2.1
5	x	193	ARG	2.1
4	m	156	ASP	2.1
4	X	5	GLN	2.1
4	r	177	ASN	2.1
5	d	227	LYS	2.1
4	I	199	PRO	2.1
5	s	128	PRO	2.1
4	m	154	ILE	2.1
1	o	260	HIS	2.1
4	m	113	GLN	2.0
4	r	137	ASP	2.1
5	n	132	GLU	2.0
2	f	79	ALA	2.0
4	h	112	ILE	2.0

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Mol	Chain	Res	Type	RSRZ
4	I	164	SER	2.0
5	T	224	ASP	2.0
5	i	200	GLN	2.0
4	D	123	ARG	2.0
5	i	74	PHE	2.0
1	t	218	GLN	2.0
4	r	118	ALA	2.0
5	d	168	VAL	2.0
2	p	80	CYS	2.0
4	w	143	ASN	2.0
5	x	203	ARG	2.0
1	j	247	VAL	2.0
4	D	176	SER	2.0
4	I	160	LEU	2.0
4	m	196	THR	2.0
1	j	17	ARG	2.0
2	V	23	LEU	2.0
5	d	210	VAL	2.0
5	s	193	ARG	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.