



Full wwPDB X-ray Structure Validation Report ⓘ

Mar 6, 2026 – 03:46 AM UTC

PDB ID : 4PRH / pdb_00004prh
Title : Crystal structure of TK3 TCR-HLA-B*35:08-HPVG-D5 complex
Authors : Yu Chih, L.; Rossjohn, J.; Gras, S.
Deposited on : 2014-03-05
Resolution : 2.50 Å(reported)

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

We welcome your comments at validation@mail.wwpdb.org

A user guide is available at

<https://www.wwpdb.org/validation/2017/XrayValidationReportHelp>

with specific help available everywhere you see the ⓘ symbol.

The types of validation reports are described at

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

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

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

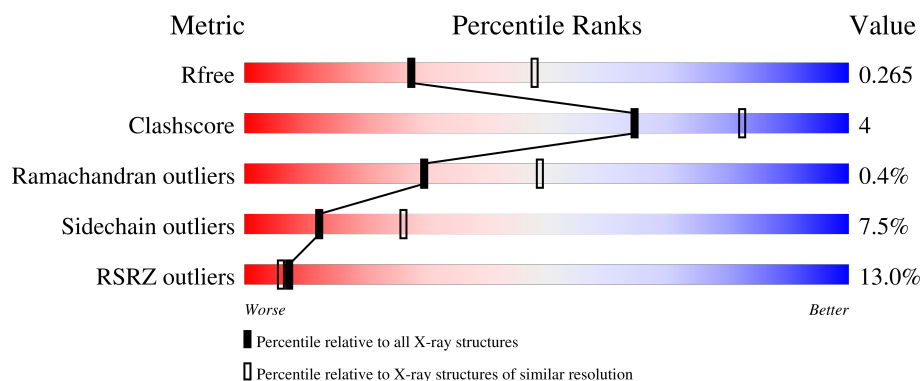
1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

X-RAY DIFFRACTION

The reported resolution of this entry is 2.50 Å.

Percentile scores (ranging between 0-100) for global validation metrics of the entry are shown in the following graphic. The table shows the number of entries on which the scores are based.



Metric	Whole archive (#Entries)	Similar resolution (#Entries, resolution range(Å))
R_{free}	180053	5829 (2.50-2.50)
Clashscore	190562	6492 (2.50-2.50)
Ramachandran outliers	187476	6378 (2.50-2.50)
Sidechain outliers	187428	6380 (2.50-2.50)
RSRZ outliers	180081	5833 (2.50-2.50)

The table below summarises the geometric issues observed across the polymeric chains and their fit to the electron density. The red, orange, yellow and green segments of the lower bar indicate the fraction of residues that contain outliers for ≥ 3 , 2, 1 and 0 types of geometric quality criteria respectively. A grey segment represents the fraction of residues that are not modelled. The numeric value for each fraction is indicated below the corresponding segment, with a dot representing fractions $\leq 5\%$. The upper red bar (where present) indicates the fraction of residues that have poor fit to the electron density. The numeric value is given above the bar.

Mol	Chain	Length	Quality of chain
1	A	272	17% 73% 14% • 12%
2	B	100	36% 63% 20% • 14%
3	C	11	82% 18%
4	D	208	6% 83% 12% • •
5	E	243	2% 80% 16% • •

2 Entry composition

There are 6 unique types of molecules in this entry. The entry contains 6346 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.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
1	A	240	Total	C	N	O	S	0	0	0
			1975	1236	362	370	7			

There are 2 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
A	?	-	GLN	deletion	UNP C5MK56
A	?	-	THR	deletion	UNP C5MK56

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

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
2	B	86	Total	C	N	O	S	0	0	0
			717	460	121	134	2			

There are 4 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
B	0	MET	-	expression tag	UNP P61769
B	1	ILE	-	expression tag	UNP P61769
B	2	GLN	-	expression tag	UNP P61769
B	46	LEU	ILE	conflict	UNP P61769

- Molecule 3 is a protein called Epstein-Barr nuclear antigen 1.

Mol	Chain	Residues	Atoms				ZeroOcc	AltConf	Trace
3	C	11	Total	C	N	O	0	0	0
			94	61	13	20			

- Molecule 4 is a protein called TK3 TCR alpha chain.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
4	D	202	Total	C	N	O	S	0	1	0
			1583	985	261	330	7			

- Molecule 5 is a protein called TK3 TCR beta chain.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
5	E	240	Total	C	N	O	S	0	0	0
			1911	1203	333	370	5			

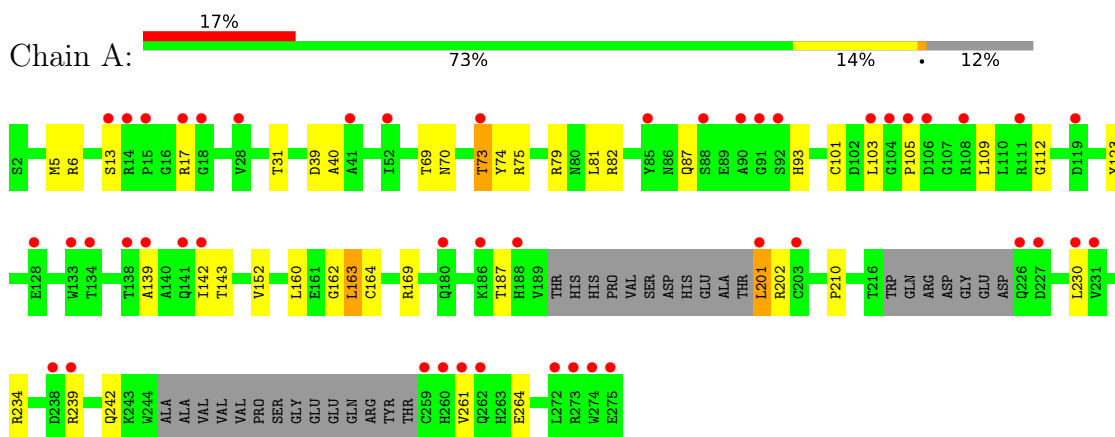
- Molecule 6 is water.

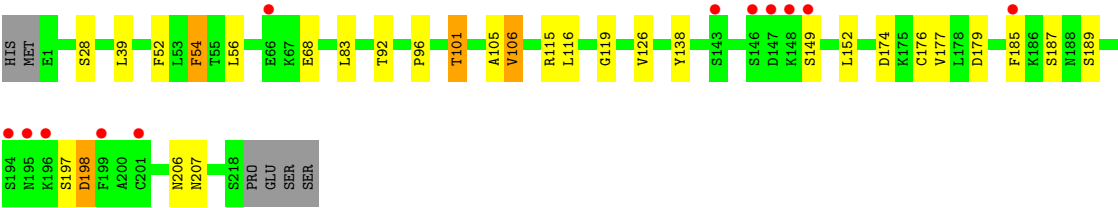
Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
6	A	11	Total	O	0	0
			11	11		
6	C	3	Total	O	0	0
			3	3		
6	D	26	Total	O	0	0
			26	26		
6	E	26	Total	O	0	0
			26	26		

3 Residue-property plots

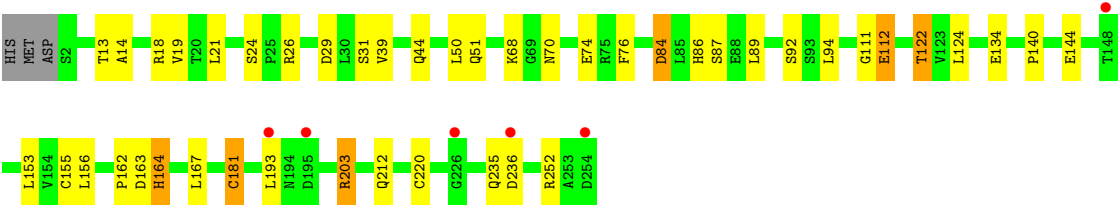
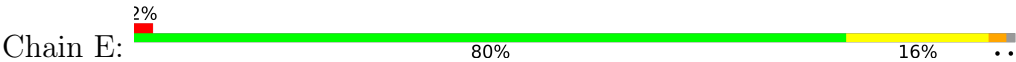
These plots are drawn for all protein, RNA, DNA and oligosaccharide chains in the entry. The first graphic for a chain summarises the proportions of the various outlier classes displayed in the second graphic. The second graphic shows the sequence view annotated by issues in geometry and electron density. 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





● Molecule 5: TK3 TCR beta chain



4 Data and refinement statistics

Property	Value	Source
Space group	P 1	Depositor
Cell constants a, b, c, α , β , γ	44.84Å 62.08Å 98.33Å 92.70° 101.92° 108.21°	Depositor
Resolution (Å)	35.68 – 2.50 35.68 – 2.50	Depositor EDS
% Data completeness (in resolution range)	97.0 (35.68-2.50) 97.0 (35.68-2.50)	Depositor EDS
R_{merge}	0.07	Depositor
R_{sym}	(Not available)	Depositor
$\langle I/\sigma(I) \rangle$ ¹	3.08 (at 2.51Å)	Xtriage
Refinement program	PHENIX, BUSTER 2.10.0	Depositor
R, R_{free}	0.212 , 0.253 0.219 , 0.265	Depositor DCC
R_{free} test set	1635 reflections (4.83%)	wwPDB-VP
Wilson B-factor (Å ²)	49.2	Xtriage
Anisotropy	0.432	Xtriage
Bulk solvent k_{sol} (e/Å ³), B_{sol} (Å ²)	0.30 , 75.8	EDS
L-test for twinning ²	$\langle L \rangle = 0.46$, $\langle L^2 \rangle = 0.29$	Xtriage
Estimated twinning fraction	No twinning to report.	Xtriage
F_o, F_c correlation	0.93	EDS
Total number of atoms	6346	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 5.23% of the height of the origin peak. No significant pseudotranslation is detected.*

¹Intensities estimated from amplitudes.

²Theoretical values of $\langle |L| \rangle$, $\langle L^2 \rangle$ for acentric reflections are 0.5, 0.333 respectively for untwinned datasets, and 0.375, 0.2 for perfectly twinned datasets.

5 Model quality

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	0.80	0/2026	1.34	13/2745 (0.5%)
2	B	0.82	0/737	1.34	4/997 (0.4%)
3	C	0.90	0/98	1.20	0/132
4	D	0.81	0/1615	1.25	8/2187 (0.4%)
5	E	0.79	0/1960	1.28	9/2664 (0.3%)
All	All	0.80	0/6436	1.29	34/8725 (0.4%)

There are no bond length outliers.

All (34) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
4	D	28	SER	N-CA-C	-7.39	103.16	111.14
2	B	95	TRP	CA-C-N	6.77	133.89	121.70
2	B	95	TRP	C-N-CA	6.77	133.89	121.70
5	E	162	PRO	CA-C-N	6.77	134.47	121.54
5	E	162	PRO	C-N-CA	6.77	134.47	121.54
2	B	67	TYR	N-CA-C	5.89	118.82	108.75
4	D	197	SER	N-CA-C	5.86	118.00	108.63
1	A	105	PRO	CA-C-N	5.76	127.94	120.44
1	A	105	PRO	C-N-CA	5.76	127.94	120.44
1	A	210	PRO	CA-C-N	5.59	127.77	120.28
1	A	210	PRO	C-N-CA	5.59	127.77	120.28
5	E	76	PHE	CA-CB-CG	5.57	119.37	113.80
5	E	163	ASP	CA-CB-CG	5.53	118.13	112.60
4	D	177	VAL	N-CA-C	5.43	115.77	108.17
4	D	54	PHE	N-CA-C	5.33	116.90	108.96
1	A	169	ARG	CA-C-N	5.33	127.85	120.29
1	A	169	ARG	C-N-CA	5.33	127.85	120.29
1	A	74	TYR	CA-C-N	5.31	127.67	120.44
1	A	74	TYR	C-N-CA	5.31	127.67	120.44
1	A	69	THR	N-CA-C	-5.27	105.61	111.36
4	D	179	ASP	CA-CB-CG	5.27	117.87	112.60
1	A	163	LEU	CA-C-N	5.26	127.33	120.28

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	A	163	LEU	C-N-CA	5.26	127.33	120.28
2	B	93	VAL	N-CA-C	5.22	113.89	106.53
5	E	74	GLU	CA-C-N	5.20	128.92	120.60
5	E	74	GLU	C-N-CA	5.20	128.92	120.60
5	E	134	GLU	N-CA-C	-5.20	100.77	109.24
4	D	119	GLY	N-CA-C	-5.09	104.66	112.85
4	D	101	THR	CB-CA-C	5.08	118.13	109.75
4	D	54	PHE	CA-CB-CG	5.07	118.87	113.80
5	E	111	GLY	N-CA-C	5.06	118.99	113.58
5	E	164	HIS	N-CA-C	5.04	117.40	109.39
1	A	162	GLY	CA-C-N	5.00	128.32	120.82
1	A	162	GLY	C-N-CA	5.00	128.32	120.82

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	1975	0	1872	13	0
2	B	717	0	680	7	0
3	C	94	0	74	2	0
4	D	1583	0	1508	9	0
5	E	1911	0	1818	18	0
6	A	11	0	0	0	0
6	C	3	0	0	0	0
6	D	26	0	0	0	0
6	E	26	0	0	0	0
All	All	6346	0	5952	44	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 4.

All (44) 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)
4:D:176:CYS:HG	5:E:181:CYS:HG	0.86	0.81
1:A:13:SER:HB2	1:A:93:HIS:H	1.51	0.75
1:A:101:CYS:HG	1:A:164:CYS:HG	1.35	0.73
2:B:33:SER:HB2	2:B:54:LEU:HD21	1.71	0.73
2:B:94:LYS:HG3	2:B:95:TRP:H	1.60	0.66
5:E:84:ASP:OD2	5:E:86:HIS:HD2	1.79	0.65
2:B:84:HIS:ND1	2:B:86:THR:HG22	2.16	0.60
1:A:70:ASN:HA	1:A:73:THR:HG23	1.83	0.59
1:A:201:LEU:HB2	1:A:202:ARG:HA	1.84	0.58
2:B:4:THR:HA	2:B:86:THR:HG21	1.85	0.57
1:A:75:ARG:HH21	1:A:79:ARG:HH21	1.54	0.55
2:B:27:VAL:HG11	2:B:37:VAL:HG21	1.87	0.55
5:E:167:LEU:HD21	5:E:220:CYS:SG	2.48	0.54
4:D:39:LEU:HD23	4:D:106:VAL:HG23	1.90	0.54
1:A:82:ARG:HB2	1:A:87:GLN:HB2	1.90	0.53
1:A:139:ALA:HA	1:A:142:ILE:HD12	1.92	0.52
5:E:212:GLN:HA	5:E:252:ARG:O	2.10	0.52
5:E:21:LEU:HD12	5:E:89:LEU:HD23	1.94	0.50
5:E:84:ASP:OD2	5:E:86:HIS:CD2	2.62	0.50
5:E:44:GLN:HB2	5:E:50:LEU:HD13	1.95	0.49
5:E:122:THR:OG1	5:E:164:HIS:HE1	1.96	0.48
4:D:39:LEU:CD2	4:D:106:VAL:HG23	2.44	0.48
4:D:105:ALA:HB1	4:D:116:LEU:HB3	1.94	0.48
4:D:138:TYR:CE2	5:E:144:GLU:HG3	2.49	0.47
1:A:81:LEU:HD21	1:A:123:TYR:CZ	2.49	0.47
1:A:234:ARG:HE	1:A:242:GLN:HE21	1.62	0.47
5:E:39:VAL:HG11	5:E:87:SER:CB	2.44	0.47
1:A:187:THR:HG21	1:A:261:VAL:HG21	1.96	0.46
5:E:155:CYS:CB	5:E:220:CYS:HG	2.24	0.46
2:B:54:LEU:HD11	2:B:62:PHE:HB3	1.98	0.46
5:E:19:VAL:HG22	5:E:94:LEU:HD11	1.99	0.45
5:E:140:PRO:HD3	5:E:153:LEU:HG	1.98	0.45
4:D:52:PHE:CZ	5:E:112:GLU:HG2	2.52	0.44
5:E:14:ALA:HA	5:E:124:LEU:O	2.18	0.44
4:D:96:PRO:HA	4:D:126:VAL:HB	2.01	0.42
4:D:56:LEU:HD13	4:D:83:LEU:HB2	2.01	0.42
1:A:112:GLY:HA3	1:A:160:LEU:HD13	2.03	0.41
4:D:185:PHE:CE2	4:D:187:SER:HB2	2.55	0.41
5:E:18:ARG:HG3	5:E:92:SER:HB3	2.03	0.41
5:E:181:CYS:HB3	5:E:203:ARG:HD2	2.03	0.41
1:A:152:VAL:HG22	3:C:9:PHE:CE2	2.56	0.41
5:E:26:ARG:HB3	5:E:29:ASP:OD2	2.21	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:B:23:LEU:HB2	2:B:70:PHE:CE2	2.55	0.40
1:A:143:THR:HG23	3:C:11:TYR:HA	2.03	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	232/272 (85%)	218 (94%)	13 (6%)	1 (0%)	30	49
2	B	82/100 (82%)	70 (85%)	11 (13%)	1 (1%)	10	20
3	C	9/11 (82%)	8 (89%)	1 (11%)	0	100	100
4	D	201/208 (97%)	192 (96%)	8 (4%)	1 (0%)	24	43
5	E	238/243 (98%)	230 (97%)	8 (3%)	0	100	100
All	All	762/834 (91%)	718 (94%)	41 (5%)	3 (0%)	30	49

All (3) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
2	B	15	ALA
1	A	40	ALA
4	D	198	ASP

5.3.2 Protein sidechains [i](#)

In the following table, the Percentiles column shows the percent sidechain outliers of the chain as a percentile score with respect to all X-ray entries followed by that with respect to entries of similar resolution.

The Analysed column shows the number of residues for which the sidechain conformation was analysed, and the total number of residues.

Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
1	A	204/231 (88%)	191 (94%)	13 (6%)	16	33
2	B	81/95 (85%)	71 (88%)	10 (12%)	4	10
3	C	9/9 (100%)	9 (100%)	0	100	100
4	D	181/186 (97%)	168 (93%)	13 (7%)	13	28
5	E	208/211 (99%)	193 (93%)	15 (7%)	13	28
All	All	683/732 (93%)	632 (92%)	51 (8%)	12	26

All (51) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	5	MET
1	A	6	ARG
1	A	17	ARG
1	A	31	THR
1	A	39	ASP
1	A	73	THR
1	A	103	LEU
1	A	109	LEU
1	A	163	LEU
1	A	201	LEU
1	A	230	LEU
1	A	239	ARG
1	A	264	GLU
2	B	7	ILE
2	B	16	GLU
2	B	35	ILE
2	B	42	ASN
2	B	45	ARG
2	B	46	LEU
2	B	50	GLU
2	B	64	LEU
2	B	67	TYR
2	B	70	PHE
4	D	54	PHE
4	D	68	GLU
4	D	92	THR
4	D	101	THR
4	D	106	VAL
4	D	115	ARG
4	D	149	SER
4	D	152	LEU

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Mol	Chain	Res	Type
4	D	174	ASP
4	D	189	SER
4	D	198	ASP
4	D	206	ASN
4	D	207	ASN
5	E	13	THR
5	E	24	SER
5	E	31	SER
5	E	51	GLN
5	E	68	LYS
5	E	70	ASN
5	E	84	ASP
5	E	112	GLU
5	E	122	THR
5	E	156	LEU
5	E	181	CYS
5	E	193	LEU
5	E	203	ARG
5	E	235	GLN
5	E	236	ASP

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (16) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	93	HIS
1	A	127	ASN
1	A	141	GLN
1	A	144	GLN
1	A	226	GLN
1	A	242	GLN
2	B	31	HIS
4	D	44	GLN
4	D	131	GLN
5	E	44	GLN
5	E	70	ASN
5	E	79	GLN
5	E	86	HIS
5	E	164	HIS
5	E	212	GLN
5	E	243	GLN

5.3.3 RNA [i](#)

There are no RNA molecules in this entry.

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

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

5.5 Carbohydrates [i](#)

There are no oligosaccharides in this entry.

5.6 Ligand geometry [i](#)

There are no ligands in this entry.

5.7 Other polymers [i](#)

There are no such residues in this entry.

5.8 Polymer linkage issues [i](#)

There are no chain breaks in this entry.

6 Fit of model and data ⓘ

6.1 Protein, DNA and RNA chains ⓘ

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

Mol	Chain	Analysed	<RSRZ>	#RSRZ>2	OWAB(Å ²)	Q<0.9
1	A	240/272 (88%)	1.16	47 (19%) 3 2	36, 62, 88, 105	61 (25%)
2	B	86/100 (86%)	2.06	36 (41%) 0 0	11, 71, 101, 120	40 (46%)
3	C	11/11 (100%)	0.18	0 100 100	38, 43, 52, 60	0
4	D	202/208 (97%)	0.43	12 (5%) 28 24	24, 46, 73, 96	30 (14%)
5	E	240/243 (98%)	0.35	6 (2%) 58 54	25, 46, 72, 96	18 (7%)
All	All	779/834 (93%)	0.81	101 (12%) 7 6	11, 53, 85, 120	149 (19%)

All (101) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
2	B	95	TRP	10.1
1	A	18	GLY	8.6
2	B	16	GLU	8.5
2	B	94	LYS	7.1
4	D	147	ASP	6.9
4	D	196	LYS	5.3
1	A	227	ASP	5.0
2	B	87	LEU	4.8
4	D	146	SER	4.4
2	B	66	TYR	4.3
1	A	14	ARG	4.1
2	B	17	ASN	4.0
2	B	18	GLY	3.8
1	A	105	PRO	3.8
1	A	239	ARG	3.8
1	A	201	LEU	3.8
1	A	108	ARG	3.7
1	A	260	HIS	3.7
1	A	180	GLN	3.7
2	B	96	ASP	3.6

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Mol	Chain	Res	Type	RSRZ
2	B	29	GLY	3.6
1	A	231	VAL	3.6
4	D	148	LYS	3.5
2	B	39	LEU	3.4
2	B	37	VAL	3.3
1	A	272	LEU	3.3
1	A	15	PRO	3.2
1	A	104	GLY	3.2
1	A	273	ARG	3.1
1	A	91	GLY	3.1
5	E	254	ASP	3.1
1	A	261	VAL	3.1
2	B	38	ASP	3.0
1	A	134	THR	3.0
2	B	88	SER	2.9
1	A	138	THR	2.9
1	A	186	LYS	2.9
1	A	259	CYS	2.8
5	E	148	THR	2.8
1	A	275	GLU	2.7
2	B	99	MET	2.6
1	A	92	SER	2.6
1	A	262	GLN	2.6
2	B	58	LYS	2.6
1	A	274	TRP	2.6
2	B	21	ASN	2.6
1	A	106	ASP	2.5
5	E	236	ASP	2.5
1	A	28	VAL	2.5
2	B	51	HIS	2.5
4	D	195	ASN	2.5
2	B	92	ILE	2.5
2	B	40	LEU	2.5
2	B	3	ARG	2.5
1	A	52	ILE	2.4
2	B	52	SER	2.4
1	A	128	GLU	2.4
2	B	69	GLU	2.4
1	A	238	ASP	2.4
5	E	193	LEU	2.4
1	A	111	ARG	2.4
1	A	119	ASP	2.4

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Mol	Chain	Res	Type	RSRZ
1	A	17	ARG	2.4
1	A	226	GLN	2.4
1	A	230	LEU	2.4
1	A	142	ILE	2.3
1	A	41	ALA	2.3
2	B	13	HIS	2.3
4	D	199	PHE	2.3
1	A	141	GLN	2.3
2	B	20	SER	2.3
2	B	54	LEU	2.3
2	B	15	ALA	2.3
4	D	143	SER	2.3
5	E	226	GLY	2.2
2	B	35	ILE	2.2
1	A	90	ALA	2.2
1	A	203	CYS	2.2
1	A	188	HIS	2.2
2	B	11	SER	2.2
4	D	66	GLU	2.2
2	B	67	TYR	2.2
1	A	133	TRP	2.2
2	B	22	PHE	2.2
4	D	185	PHE	2.2
2	B	49	VAL	2.1
2	B	93	VAL	2.1
4	D	194	SER	2.1
2	B	60	TRP	2.1
1	A	103	LEU	2.1
1	A	85	TYR	2.1
1	A	139	ALA	2.1
1	A	88	SER	2.1
5	E	195	ASP	2.1
2	B	9	VAL	2.1
4	D	201	CYS	2.1
2	B	82	VAL	2.0
2	B	91	LYS	2.0
4	D	149	SER	2.0
1	A	73	THR	2.0
1	A	13	SER	2.0

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

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

6.3 Carbohydrates [i](#)

There are no oligosaccharides in this entry.

6.4 Ligands [i](#)

There are no ligands in this entry.

6.5 Other polymers [i](#)

There are no such residues in this entry.