



wwPDB X-ray Structure Validation Summary Report ⓘ

Apr 5, 2026 – 01:50 PM UTC

PDB ID : 3SVS / pdb_00003svs
Title : Crystal structure of mkate mutant S158A/S143C at pH 4.0
Authors : Wang, Q.; Bynres, L.; Sondermann, H.
Deposited on : 2011-07-12
Resolution : 1.74 Å(reported)

This is a wwPDB X-ray Structure Validation Summary 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
Mogul : 2022.3.0, CSD as543be (2022)
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

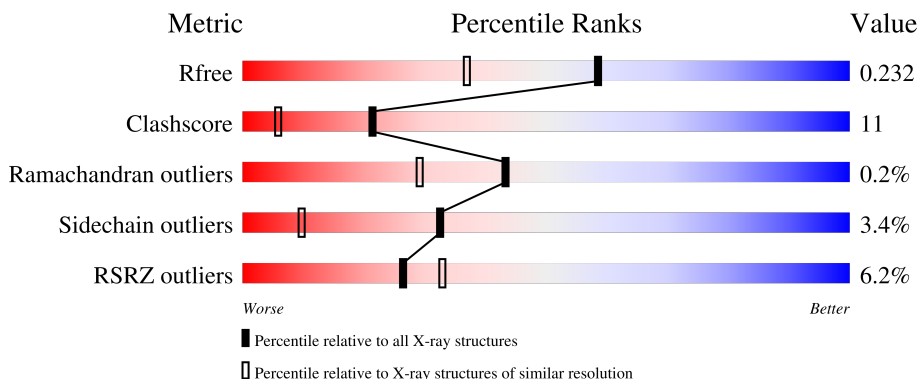
1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

X-RAY DIFFRACTION

The reported resolution of this entry is 1.74 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	1187 (1.74-1.74)
Clashscore	190562	1207 (1.74-1.74)
Ramachandran outliers	187476	1200 (1.74-1.74)
Sidechain outliers	187428	1200 (1.74-1.74)
RSRZ outliers	180081	1188 (1.74-1.74)

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	233	
1	B	233	
1	C	233	
1	D	233	
1	E	233	

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Mol	Chain	Length	Quality of chain
1	F	233	
1	G	233	
1	H	233	

The following table lists non-polymeric compounds, carbohydrate monomers and non-standard residues in protein, DNA, RNA chains that are outliers for geometric or electron-density-fit criteria:

Mol	Type	Chain	Res	Chirality	Geometry	Clashes	Electron density
1	NRQ	H	63[A]	-	-	X	-
1	NRQ	H	63[B]	-	-	X	-

2 Entry composition [i](#)

There are 2 unique types of molecules in this entry. The entry contains 16114 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 mKate S158A/S143C.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
1	A	223	Total 1801	C 1147	N 303	O 335	S 16	0	2	0
1	B	226	Total 1816	C 1156	N 306	O 338	S 16	0	2	0
1	C	223	Total 1801	C 1147	N 303	O 335	S 16	0	2	0
1	D	224	Total 1815	C 1155	N 305	O 339	S 16	0	3	0
1	E	223	Total 1801	C 1147	N 303	O 335	S 16	0	2	0
1	F	223	Total 1801	C 1147	N 303	O 335	S 16	0	2	0
1	G	223	Total 1801	C 1147	N 303	O 335	S 16	0	2	0
1	H	223	Total 1801	C 1147	N 303	O 335	S 16	0	2	0

- Molecule 2 is water.

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
2	A	255	Total 255	O 255	0	0
2	B	261	Total 261	O 261	0	0
2	C	261	Total 261	O 261	0	0
2	D	239	Total 239	O 239	0	0
2	E	201	Total 201	O 201	0	0
2	F	181	Total 181	O 181	0	0

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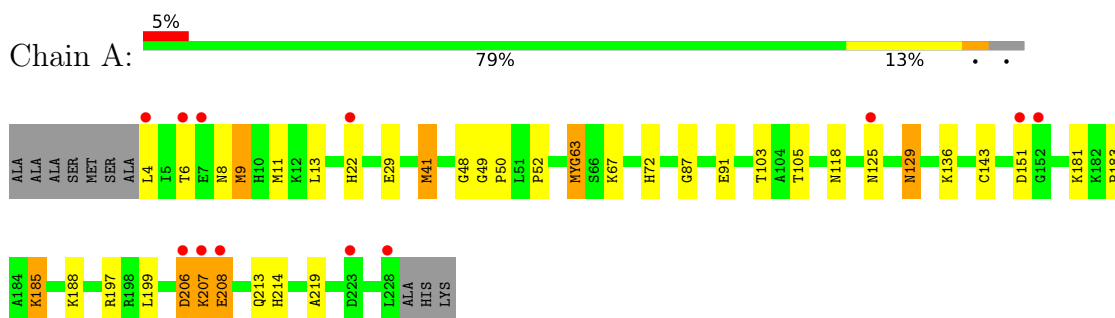
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Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
2	G	143	Total 143	O 143	0	0
2	H	136	Total 136	O 136	0	0

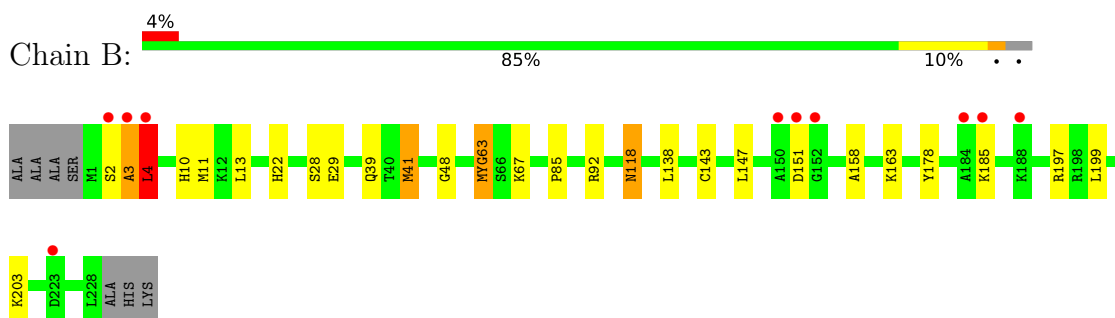
3 Residue-property plots [i](#)

These plots are drawn for all protein, RNA, DNA and oligosaccharide chains in the entry. The first graphic for a chain summarises the proportions of the various outlier classes displayed in the second graphic. The second graphic shows the sequence view annotated by issues in geometry and electron density. Residues are color-coded according to the number of geometric quality criteria for which they contain at least one outlier: green = 0, yellow = 1, orange = 2 and red = 3 or more. A red dot above a residue indicates a poor fit to the electron density ($RSRZ > 2$). Stretches of 2 or more consecutive residues without any outlier are shown as a green connector. Residues present in the sample, but not in the model, are shown in grey.

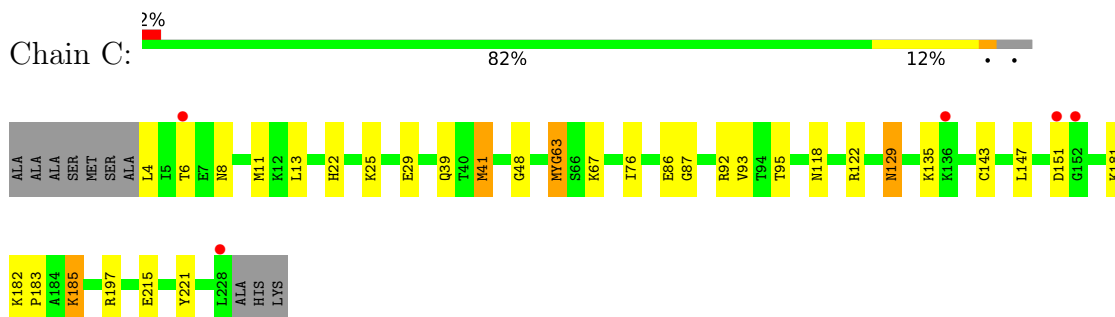
- Molecule 1: mKate S158A/S143C



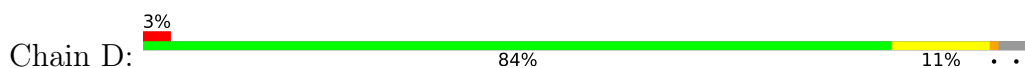
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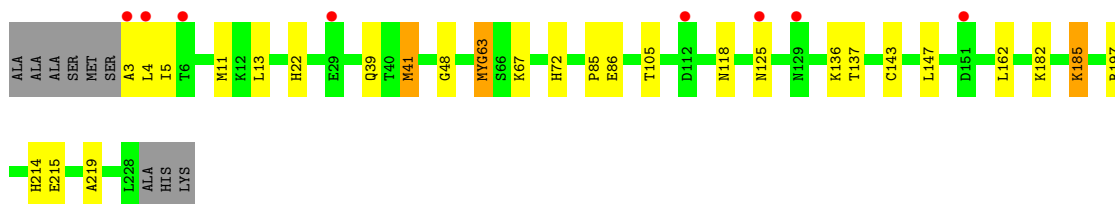


- Molecule 1: mKate S158A/S143C

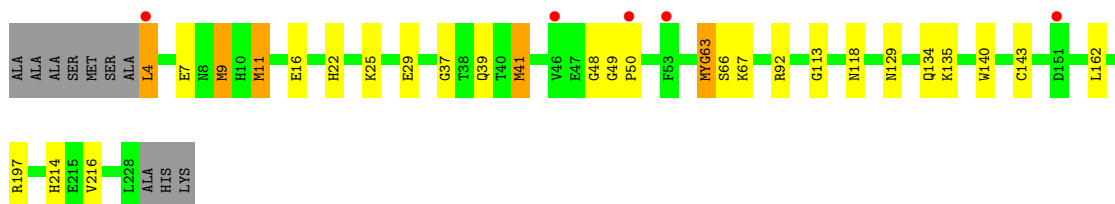
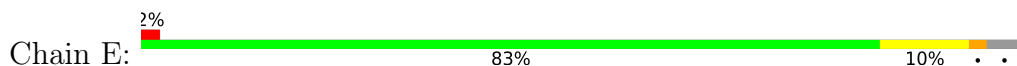


- Molecule 1: mKate S158A/S143C

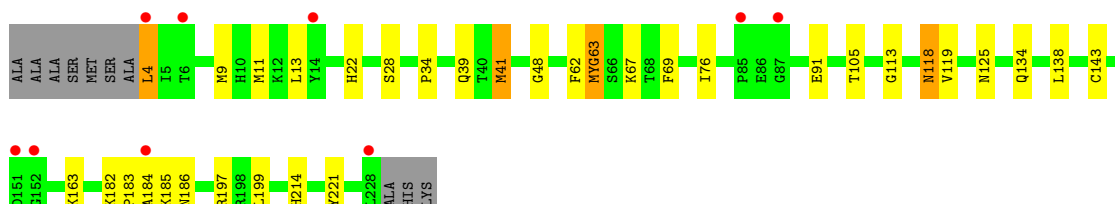
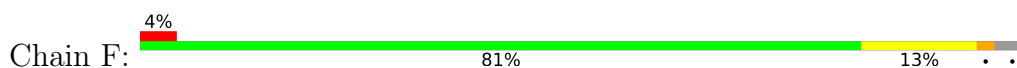




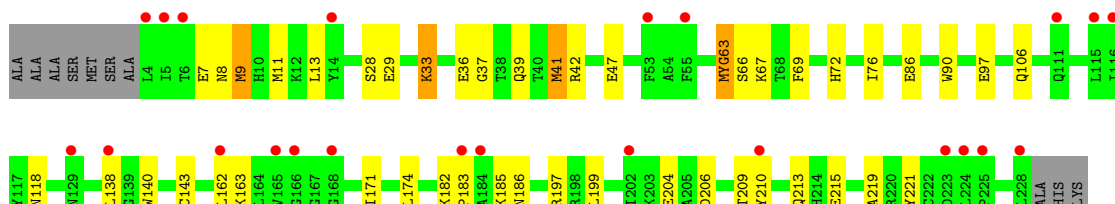
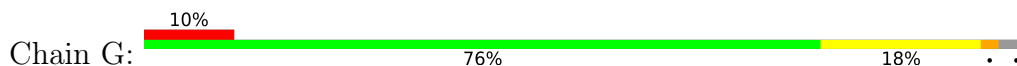
• Molecule 1: mKate S158A/S143C



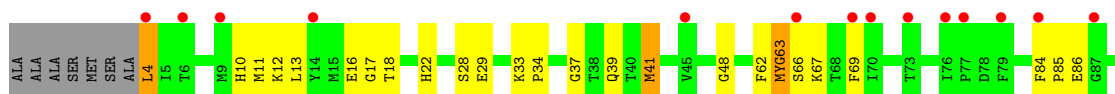
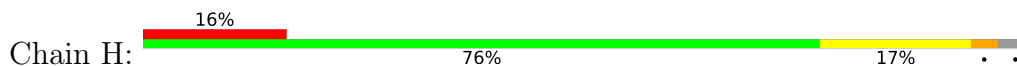
• Molecule 1: mKate S158A/S143C

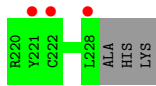
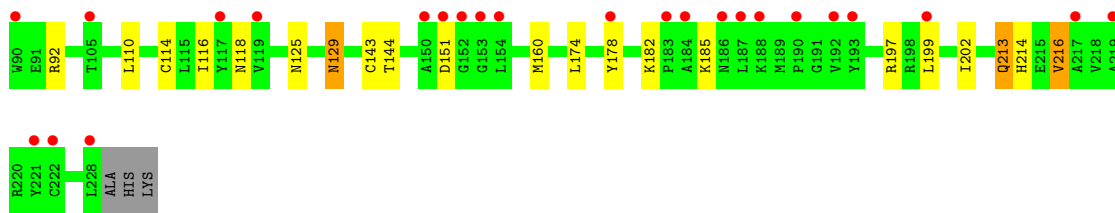


• Molecule 1: mKate S158A/S143C



• Molecule 1: mKate S158A/S143C





4 Data and refinement statistics

Property	Value	Source
Space group	P 21 21 21	Depositor
Cell constants a, b, c, α , β , γ	68.71Å 101.97Å 276.47Å 90.00° 90.00° 90.00°	Depositor
Resolution (Å)	43.97 – 1.74 43.97 – 1.74	Depositor EDS
% Data completeness (in resolution range)	99.2 (43.97-1.74) 99.4 (43.97-1.74)	Depositor EDS
R_{merge}	(Not available)	Depositor
R_{sym}	(Not available)	Depositor
$\langle I/\sigma(I) \rangle$ ¹	3.22 (at 1.74Å)	Xtrriage
Refinement program	PHENIX (phenix.refine: 1.6.1_357)	Depositor
R, R_{free}	0.199 , 0.236 0.195 , 0.232	Depositor DCC
R_{free} test set	10037 reflections (5.01%)	wwPDB-VP
Wilson B-factor (Å ²)	19.2	Xtrriage
Anisotropy	0.076	Xtrriage
Bulk solvent k_{sol} (e/Å ³), B_{sol} (Å ²)	0.36 , 45.3	EDS
L-test for twinning ²	$\langle L \rangle = 0.46$, $\langle L^2 \rangle = 0.29$	Xtrriage
Estimated twinning fraction	No twinning to report.	Xtrriage
F_o, F_c correlation	0.95	EDS
Total number of atoms	16114	wwPDB-VP
Average B, all atoms (Å ²)	22.0	wwPDB-VP

Xtrriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 3.83% of the height of the origin peak. No significant pseudotranslation is detected.*

¹Intensities estimated from amplitudes.

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

5 Model quality [i](#)

5.1 Standard geometry [i](#)

Bond lengths and bond angles in the following residue types are not validated in this section: NRQ

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	0.47	0/1797	0.76	0/2424
1	B	0.46	0/1812	0.77	1/2445 (0.0%)
1	C	0.47	0/1797	0.75	0/2424
1	D	0.41	0/1811	0.73	0/2443
1	E	0.41	0/1797	0.73	0/2424
1	F	0.37	0/1797	0.75	0/2424
1	G	0.39	0/1797	0.74	2/2424 (0.1%)
1	H	0.37	0/1797	0.74	2/2424 (0.1%)
All	All	0.42	0/14405	0.75	5/19432 (0.0%)

There are no bond length outliers.

All (5) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	B	3	ALA	N-CA-C	6.97	118.95	107.73
1	G	33	LYS	CA-C-N	6.28	126.02	119.05
1	G	33	LYS	C-N-CA	6.28	126.02	119.05
1	H	33	LYS	CA-C-N	5.55	125.91	119.47
1	H	33	LYS	C-N-CA	5.55	125.91	119.47

There are no chirality outliers.

There are no planarity outliers.

5.2 Too-close contacts [i](#)

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

Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
1	A	1801	0	1764	51	0
1	B	1816	0	1776	32	0
1	C	1801	0	1764	33	0
1	D	1815	0	1774	31	0
1	E	1801	0	1764	29	0
1	F	1801	0	1764	33	0
1	G	1801	0	1764	40	0
1	H	1801	0	1765	69	0
2	A	255	0	0	6	0
2	B	261	0	0	4	0
2	C	261	0	0	6	0
2	D	239	0	0	2	0
2	E	201	0	0	2	0
2	F	181	0	0	3	0
2	G	143	0	0	1	0
2	H	136	0	0	1	0
All	All	16114	0	14135	311	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 11.

The worst 5 of 311 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:B:28:SER:CB	1:B:41:MET:HE1	1.79	1.12
1:B:28:SER:HB2	1:B:41:MET:HE1	1.33	1.11
1:H:63[B]:NRQ:HD2	1:H:63[B]:NRQ:O2	1.55	1.06
1:D:41:MET:HG3	1:D:63[A]:NRQ:HE3	1.40	1.01
1:A:41:MET:HG3	1:A:63[B]:NRQ:HE3	1.43	1.00

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	219/233 (94%)	212 (97%)	4 (2%)	3 (1%)	9	1
1	B	222/233 (95%)	218 (98%)	3 (1%)	1 (0%)	24	12
1	C	219/233 (94%)	217 (99%)	2 (1%)	0	100	100
1	D	221/233 (95%)	219 (99%)	2 (1%)	0	100	100
1	E	219/233 (94%)	218 (100%)	1 (0%)	0	100	100
1	F	219/233 (94%)	215 (98%)	4 (2%)	0	100	100
1	G	219/233 (94%)	216 (99%)	3 (1%)	0	100	100
1	H	219/233 (94%)	215 (98%)	4 (2%)	0	100	100
All	All	1757/1864 (94%)	1730 (98%)	23 (1%)	4 (0%)	43	29

All (4) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	A	207	LYS
1	A	208	GLU
1	B	4	LEU
1	A	206	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	191/195 (98%)	183 (96%)	8 (4%)	26	6
1	B	191/195 (98%)	185 (97%)	6 (3%)	35	12
1	C	191/195 (98%)	185 (97%)	6 (3%)	35	12
1	D	192/195 (98%)	189 (98%)	3 (2%)	55	35
1	E	191/195 (98%)	184 (96%)	7 (4%)	30	8
1	F	191/195 (98%)	185 (97%)	6 (3%)	35	12
1	G	191/195 (98%)	186 (97%)	5 (3%)	40	17
1	H	191/195 (98%)	181 (95%)	10 (5%)	21	4
All	All	1529/1560 (98%)	1478 (97%)	51 (3%)	32	10

5 of 51 residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	E	118	ASN
1	F	185	LYS
1	H	213	GLN
1	E	135	LYS
1	F	118	ASN

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. 5 of 32 such sidechains are listed below:

Mol	Chain	Res	Type
1	H	173	ASN
1	H	186	ASN
1	D	22	HIS
1	C	129	ASN
1	H	213	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](#)

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

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

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	# Z > 2	Counts	RMSZ	# Z > 2
1	NRQ	E	63[B]	1	24,24,25	3.43	4 (16%)	24,32,34	2.47	10 (41%)
1	NRQ	G	63[B]	1	24,24,25	3.47	4 (16%)	24,32,34	2.44	10 (41%)
1	NRQ	C	63[B]	1	24,24,25	3.36	4 (16%)	24,32,34	2.39	11 (45%)
1	NRQ	A	63[B]	1	24,24,25	3.37	4 (16%)	24,32,34	2.52	11 (45%)
1	NRQ	B	63[A]	1	24,24,25	3.27	4 (16%)	24,32,34	2.96	10 (41%)
1	NRQ	F	63[A]	1	24,24,25	3.39	4 (16%)	24,32,34	3.02	9 (37%)

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	# Z > 2	Counts	RMSZ	# Z > 2
1	NRQ	G	63[A]	1	24,24,25	3.37	4 (16%)	24,32,34	3.28	13 (54%)
1	NRQ	H	63[A]	1	24,24,25	3.26	4 (16%)	24,32,34	3.02	12 (50%)
1	NRQ	B	63[B]	1	24,24,25	3.39	4 (16%)	24,32,34	2.40	10 (41%)
1	NRQ	F	63[B]	1	24,24,25	3.41	4 (16%)	24,32,34	2.46	10 (41%)
1	NRQ	D	63[A]	1	24,24,25	3.36	4 (16%)	24,32,34	3.17	13 (54%)
1	NRQ	D	63[B]	1	24,24,25	3.48	4 (16%)	24,32,34	2.59	12 (50%)
1	NRQ	H	63[B]	1	24,24,25	5.40	8 (33%)	24,32,34	4.25	6 (25%)
1	NRQ	E	63[A]	1	24,24,25	3.43	4 (16%)	24,32,34	3.18	12 (50%)
1	NRQ	C	63[A]	1	24,24,25	3.34	4 (16%)	24,32,34	2.84	11 (45%)
1	NRQ	A	63[A]	1	24,24,25	3.26	4 (16%)	24,32,34	3.01	11 (45%)

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

Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
1	NRQ	E	63[B]	1	-	5/9/31/32	0/2/2/2
1	NRQ	G	63[B]	1	-	4/9/31/32	0/2/2/2
1	NRQ	C	63[B]	1	-	5/9/31/32	0/2/2/2
1	NRQ	A	63[B]	1	-	4/9/31/32	0/2/2/2
1	NRQ	B	63[A]	1	-	1/9/31/32	0/2/2/2
1	NRQ	F	63[A]	1	-	3/9/31/32	0/2/2/2
1	NRQ	G	63[A]	1	-	2/9/31/32	0/2/2/2
1	NRQ	H	63[A]	1	-	1/9/31/32	0/2/2/2
1	NRQ	B	63[B]	1	-	5/9/31/32	0/2/2/2
1	NRQ	F	63[B]	1	-	5/9/31/32	0/2/2/2
1	NRQ	D	63[A]	1	-	2/9/31/32	0/2/2/2
1	NRQ	D	63[B]	1	-	4/9/31/32	0/2/2/2
1	NRQ	H	63[B]	1	-	5/9/31/32	0/2/2/2
1	NRQ	E	63[A]	1	-	3/9/31/32	0/2/2/2
1	NRQ	C	63[A]	1	-	0/9/31/32	0/2/2/2
1	NRQ	A	63[A]	1	-	1/9/31/32	0/2/2/2

The worst 5 of 68 bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
1	H	63[B]	NRQ	CB2-CA2	18.73	1.53	1.35
1	D	63[B]	NRQ	CB2-CA2	12.06	1.46	1.35
1	H	63[B]	NRQ	CA2-C2	-11.85	1.35	1.48
1	E	63[B]	NRQ	CB2-CA2	11.74	1.46	1.35
1	F	63[B]	NRQ	CB2-CA2	11.74	1.46	1.35

The worst 5 of 171 bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	H	63[B]	NRQ	CG2-CB2-CA2	-17.19	109.44	129.87
1	F	63[A]	NRQ	CG2-CB2-CA2	-9.58	118.48	129.87
1	H	63[A]	NRQ	CG2-CB2-CA2	-8.36	119.93	129.87
1	A	63[A]	NRQ	CG2-CB2-CA2	-8.36	119.93	129.87
1	B	63[A]	NRQ	CG2-CB2-CA2	-8.26	120.05	129.87

There are no chirality outliers.

5 of 50 torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
1	A	63[A]	NRQ	CA1-CB1-CG1-SD
1	A	63[B]	NRQ	N2-CA2-CB2-CG2
1	A	63[B]	NRQ	C2-CA2-CB2-CG2
1	A	63[B]	NRQ	C3-CA3-N3-C1
1	A	63[B]	NRQ	C3-CA3-N3-C2

There are no ring outliers.

16 monomers are involved in 107 short contacts:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
1	E	63[B]	NRQ	5	0
1	G	63[B]	NRQ	4	0
1	C	63[B]	NRQ	5	0
1	A	63[B]	NRQ	6	0
1	B	63[A]	NRQ	4	0
1	F	63[A]	NRQ	6	0
1	G	63[A]	NRQ	5	0
1	H	63[A]	NRQ	13	0
1	B	63[B]	NRQ	3	0
1	F	63[B]	NRQ	5	0
1	D	63[A]	NRQ	5	0
1	D	63[B]	NRQ	5	0
1	H	63[B]	NRQ	22	0

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Mol	Chain	Res	Type	Clashes	Symm-Clashes
1	E	63[A]	NRQ	6	0
1	C	63[A]	NRQ	6	0
1	A	63[A]	NRQ	7	0

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 [i](#)

6.1 Protein, DNA and RNA chains [i](#)

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	222/233 (95%)	-0.03	12 (5%) 31 38	8, 16, 32, 47	1 (0%)
1	B	225/233 (96%)	-0.08	10 (4%) 39 48	9, 16, 29, 52	1 (0%)
1	C	222/233 (95%)	-0.24	5 (2%) 61 69	8, 14, 26, 42	1 (0%)
1	D	223/233 (95%)	0.11	8 (3%) 46 55	9, 19, 33, 49	2 (0%)
1	E	222/233 (95%)	0.34	5 (2%) 61 69	11, 21, 35, 45	1 (0%)
1	F	222/233 (95%)	0.50	9 (4%) 41 51	11, 22, 39, 58	1 (0%)
1	G	222/233 (95%)	1.06	23 (10%) 11 15	12, 26, 44, 53	1 (0%)
1	H	222/233 (95%)	1.21	38 (17%) 4 5	12, 29, 46, 63	1 (0%)
All	All	1780/1864 (95%)	0.36	110 (6%) 26 33	8, 20, 38, 63	9 (0%)

The worst 5 of 110 RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	D	3	ALA	5.9
1	A	207	LYS	5.4
1	B	3	ALA	5.2
1	B	2	SER	4.6
1	D	29[A]	GLU	4.6

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, 95th percentile and maximum values of B factors of atoms in the group. The column labelled ‘Q < 0.9’ lists the number of atoms with occupancy less than 0.9.

Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors(Å ²)	Q<0.9
1	NRQ	H	63[A]	23/24	0.79	0.18	11,13,21,23	23

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Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors(Å ²)	Q<0.9
1	NRQ	H	63[B]	23/24	0.79	0.18	11,14,17,22	23
1	NRQ	F	63[A]	23/24	0.85	0.12	17,20,25,28	23
1	NRQ	F	63[B]	23/24	0.85	0.12	18,20,25,28	23
1	NRQ	G	63[A]	23/24	0.89	0.11	19,24,31,35	23
1	NRQ	G	63[B]	23/24	0.89	0.11	19,23,29,34	23
1	NRQ	D	63[A]	23/24	0.92	0.09	14,18,20,24	23
1	NRQ	D	63[B]	23/24	0.92	0.09	15,18,19,22	23
1	NRQ	E	63[A]	23/24	0.93	0.08	16,19,22,29	23
1	NRQ	E	63[B]	23/24	0.93	0.08	14,19,22,28	23
1	NRQ	C	63[A]	23/24	0.93	0.09	11,13,17,23	23
1	NRQ	C	63[B]	23/24	0.93	0.09	11,13,15,21	23
1	NRQ	A	63[A]	23/24	0.95	0.08	11,13,21,23	23
1	NRQ	A	63[B]	23/24	0.95	0.08	11,14,17,22	23
1	NRQ	B	63[A]	23/24	0.95	0.08	12,16,17,21	23
1	NRQ	B	63[B]	23/24	0.95	0.08	11,15,17,18	23

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.