



Full wwPDB X-ray Structure Validation Report ⓘ

Sep 2, 2023 – 09:23 PM EDT

PDB ID : 3QP9
Title : The Structure of a C2-type Ketoreductase from a Modular Polyketide Synthase
Authors : Zheng, J.; Keatinge-Clay, A.T.
Deposited on : 2011-02-11
Resolution : 1.88 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

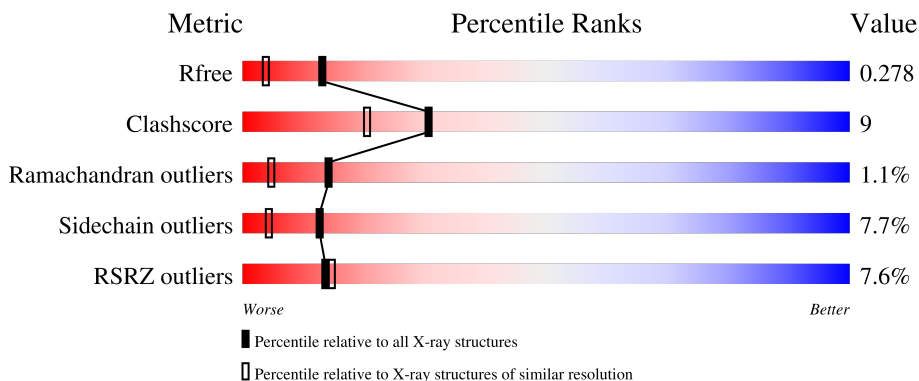
1 Overall quality at a glance i

The following experimental techniques were used to determine the structure:

X-RAY DIFFRACTION

The reported resolution of this entry is 1.88 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	9470 (1.90-1.86)
Clashscore	141614	10282 (1.90-1.86)
Ramachandran outliers	138981	10152 (1.90-1.86)
Sidechain outliers	138945	10152 (1.90-1.86)
RSRZ outliers	127900	9303 (1.90-1.86)

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	525	<div style="display: flex; align-items: center;"> <div style="width: 6%; height: 10px; background-color: red; margin-right: 5px;"></div> <div style="width: 71%; height: 10px; background-color: green; margin-right: 5px;"></div> <div style="width: 15%; height: 10px; background-color: yellow; margin-right: 5px;"></div> <div style="width: 10%; height: 10px; background-color: grey; margin-right: 5px;"></div> </div> <p style="text-align: center;">6% 71% 15% • 10%</p>
1	B	525	<div style="display: flex; align-items: center;"> <div style="width: 4%; height: 10px; background-color: red; margin-right: 5px;"></div> <div style="width: 70%; height: 10px; background-color: green; margin-right: 5px;"></div> <div style="width: 14%; height: 10px; background-color: yellow; margin-right: 5px;"></div> <div style="width: 12%; height: 10px; background-color: grey; margin-right: 5px;"></div> </div> <p style="text-align: center;">4% 70% 14% •• 12%</p>
1	C	525	<div style="display: flex; align-items: center;"> <div style="width: 7%; height: 10px; background-color: red; margin-right: 5px;"></div> <div style="width: 74%; height: 10px; background-color: green; margin-right: 5px;"></div> <div style="width: 14%; height: 10px; background-color: yellow; margin-right: 5px;"></div> <div style="width: 11%; height: 10px; background-color: grey; margin-right: 5px;"></div> </div> <p style="text-align: center;">7% 74% 14% • 11%</p>
1	D	525	<div style="display: flex; align-items: center;"> <div style="width: 10%; height: 10px; background-color: red; margin-right: 5px;"></div> <div style="width: 67%; height: 10px; background-color: green; margin-right: 5px;"></div> <div style="width: 17%; height: 10px; background-color: yellow; margin-right: 5px;"></div> <div style="width: 13%; height: 10px; background-color: grey; margin-right: 5px;"></div> </div> <p style="text-align: center;">10% 67% 17% • 13%</p>

2 Entry composition

There are 2 unique types of molecules in this entry. The entry contains 13673 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 Type I polyketide synthase PikAII.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
1	A	470	Total 3390	C 2118	N 620	O 647	S 5	0	0	0
1	B	460	Total 3317	C 2075	N 605	O 632	S 5	0	0	0
1	C	465	Total 3340	C 2088	N 609	O 638	S 5	0	0	0
1	D	457	Total 3283	C 2055	N 597	O 626	S 5	0	0	0

There are 84 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
A	-20	MET	-	expression tag	UNP Q9ZGI4
A	-19	GLY	-	expression tag	UNP Q9ZGI4
A	-18	SER	-	expression tag	UNP Q9ZGI4
A	-17	SER	-	expression tag	UNP Q9ZGI4
A	-16	HIS	-	expression tag	UNP Q9ZGI4
A	-15	HIS	-	expression tag	UNP Q9ZGI4
A	-14	HIS	-	expression tag	UNP Q9ZGI4
A	-13	HIS	-	expression tag	UNP Q9ZGI4
A	-12	HIS	-	expression tag	UNP Q9ZGI4
A	-11	HIS	-	expression tag	UNP Q9ZGI4
A	-10	SER	-	expression tag	UNP Q9ZGI4
A	-9	SER	-	expression tag	UNP Q9ZGI4
A	-8	GLY	-	expression tag	UNP Q9ZGI4
A	-7	LEU	-	expression tag	UNP Q9ZGI4
A	-6	VAL	-	expression tag	UNP Q9ZGI4
A	-5	PRO	-	expression tag	UNP Q9ZGI4
A	-4	ARG	-	expression tag	UNP Q9ZGI4
A	-3	GLY	-	expression tag	UNP Q9ZGI4
A	-2	SER	-	expression tag	UNP Q9ZGI4
A	-1	HIS	-	expression tag	UNP Q9ZGI4
A	0	MET	-	expression tag	UNP Q9ZGI4

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Chain	Residue	Modelled	Actual	Comment	Reference
B	-20	MET	-	expression tag	UNP Q9ZGI4
B	-19	GLY	-	expression tag	UNP Q9ZGI4
B	-18	SER	-	expression tag	UNP Q9ZGI4
B	-17	SER	-	expression tag	UNP Q9ZGI4
B	-16	HIS	-	expression tag	UNP Q9ZGI4
B	-15	HIS	-	expression tag	UNP Q9ZGI4
B	-14	HIS	-	expression tag	UNP Q9ZGI4
B	-13	HIS	-	expression tag	UNP Q9ZGI4
B	-12	HIS	-	expression tag	UNP Q9ZGI4
B	-11	HIS	-	expression tag	UNP Q9ZGI4
B	-10	SER	-	expression tag	UNP Q9ZGI4
B	-9	SER	-	expression tag	UNP Q9ZGI4
B	-8	GLY	-	expression tag	UNP Q9ZGI4
B	-7	LEU	-	expression tag	UNP Q9ZGI4
B	-6	VAL	-	expression tag	UNP Q9ZGI4
B	-5	PRO	-	expression tag	UNP Q9ZGI4
B	-4	ARG	-	expression tag	UNP Q9ZGI4
B	-3	GLY	-	expression tag	UNP Q9ZGI4
B	-2	SER	-	expression tag	UNP Q9ZGI4
B	-1	HIS	-	expression tag	UNP Q9ZGI4
B	0	MET	-	expression tag	UNP Q9ZGI4
C	-20	MET	-	expression tag	UNP Q9ZGI4
C	-19	GLY	-	expression tag	UNP Q9ZGI4
C	-18	SER	-	expression tag	UNP Q9ZGI4
C	-17	SER	-	expression tag	UNP Q9ZGI4
C	-16	HIS	-	expression tag	UNP Q9ZGI4
C	-15	HIS	-	expression tag	UNP Q9ZGI4
C	-14	HIS	-	expression tag	UNP Q9ZGI4
C	-13	HIS	-	expression tag	UNP Q9ZGI4
C	-12	HIS	-	expression tag	UNP Q9ZGI4
C	-11	HIS	-	expression tag	UNP Q9ZGI4
C	-10	SER	-	expression tag	UNP Q9ZGI4
C	-9	SER	-	expression tag	UNP Q9ZGI4
C	-8	GLY	-	expression tag	UNP Q9ZGI4
C	-7	LEU	-	expression tag	UNP Q9ZGI4
C	-6	VAL	-	expression tag	UNP Q9ZGI4
C	-5	PRO	-	expression tag	UNP Q9ZGI4
C	-4	ARG	-	expression tag	UNP Q9ZGI4
C	-3	GLY	-	expression tag	UNP Q9ZGI4
C	-2	SER	-	expression tag	UNP Q9ZGI4
C	-1	HIS	-	expression tag	UNP Q9ZGI4
C	0	MET	-	expression tag	UNP Q9ZGI4

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Chain	Residue	Modelled	Actual	Comment	Reference
D	-20	MET	-	expression tag	UNP Q9ZGI4
D	-19	GLY	-	expression tag	UNP Q9ZGI4
D	-18	SER	-	expression tag	UNP Q9ZGI4
D	-17	SER	-	expression tag	UNP Q9ZGI4
D	-16	HIS	-	expression tag	UNP Q9ZGI4
D	-15	HIS	-	expression tag	UNP Q9ZGI4
D	-14	HIS	-	expression tag	UNP Q9ZGI4
D	-13	HIS	-	expression tag	UNP Q9ZGI4
D	-12	HIS	-	expression tag	UNP Q9ZGI4
D	-11	HIS	-	expression tag	UNP Q9ZGI4
D	-10	SER	-	expression tag	UNP Q9ZGI4
D	-9	SER	-	expression tag	UNP Q9ZGI4
D	-8	GLY	-	expression tag	UNP Q9ZGI4
D	-7	LEU	-	expression tag	UNP Q9ZGI4
D	-6	VAL	-	expression tag	UNP Q9ZGI4
D	-5	PRO	-	expression tag	UNP Q9ZGI4
D	-4	ARG	-	expression tag	UNP Q9ZGI4
D	-3	GLY	-	expression tag	UNP Q9ZGI4
D	-2	SER	-	expression tag	UNP Q9ZGI4
D	-1	HIS	-	expression tag	UNP Q9ZGI4
D	0	MET	-	expression tag	UNP Q9ZGI4

- Molecule 2 is water.

Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
2	A	120	Total O 120 120	0	0
2	B	99	Total O 99 99	0	0
2	C	69	Total O 69 69	0	0
2	D	55	Total O 55 55	0	0

4 Data and refinement statistics

Property	Value	Source
Space group	P 1 21 1	Depositor
Cell constants a, b, c, α , β , γ	79.64Å 150.09Å 86.87Å 90.00° 105.12° 90.00°	Depositor
Resolution (Å)	31.23 – 1.88 31.23 – 1.88	Depositor EDS
% Data completeness (in resolution range)	91.0 (31.23-1.88) 91.0 (31.23-1.88)	Depositor EDS
R_{merge}	0.06	Depositor
R_{sym}	(Not available)	Depositor
$\langle I/\sigma(I) \rangle$ ¹	2.55 (at 1.88Å)	Xtrriage
Refinement program	REFMAC 5.5.0102	Depositor
R, R_{free}	0.227 , 0.276 0.228 , 0.278	Depositor DCC
R_{free} test set	7250 reflections (5.01%)	wwPDB-VP
Wilson B-factor (Å ²)	32.7	Xtrriage
Anisotropy	0.117	Xtrriage
Bulk solvent k_{sol} (e/Å ³), B_{sol} (Å ²)	0.37 , 46.4	EDS
L-test for twinning ²	$\langle L \rangle = 0.49$, $\langle L^2 \rangle = 0.32$	Xtrriage
Estimated twinning fraction	No twinning to report.	Xtrriage
F_o, F_c correlation	0.95	EDS
Total number of atoms	13673	wwPDB-VP
Average B, all atoms (Å ²)	43.0	wwPDB-VP

Xtrriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 3.95% 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

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	1.16	5/3457 (0.1%)	1.06	10/4737 (0.2%)
1	B	1.16	8/3387 (0.2%)	1.10	20/4645 (0.4%)
1	C	0.97	1/3408 (0.0%)	0.98	6/4671 (0.1%)
1	D	1.03	2/3350 (0.1%)	0.99	6/4592 (0.1%)
All	All	1.08	16/13602 (0.1%)	1.03	42/18645 (0.2%)

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

Mol	Chain	#Chirality outliers	#Planarity outliers
1	D	1	0

All (16) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
1	D	398	THR	CB-CG2	-9.73	1.20	1.52
1	B	415	VAL	CB-CG1	7.50	1.68	1.52
1	A	160	VAL	CB-CG1	7.04	1.67	1.52
1	A	138	VAL	CB-CG1	6.45	1.66	1.52
1	B	94	ALA	CA-CB	6.32	1.65	1.52
1	B	13	TRP	CE3-CZ3	6.02	1.48	1.38
1	A	167	GLU	CG-CD	5.99	1.60	1.51
1	C	420	TRP	CB-CG	-5.90	1.39	1.50
1	A	167	GLU	CB-CG	5.86	1.63	1.52
1	B	156	GLY	N-CA	5.75	1.54	1.46
1	B	143	ALA	CA-CB	5.65	1.64	1.52
1	A	415	VAL	CB-CG1	5.48	1.64	1.52
1	B	30	ARG	CG-CD	5.42	1.65	1.51
1	D	105	ALA	CA-CB	5.32	1.63	1.52
1	B	141	GLY	N-CA	5.18	1.53	1.46
1	B	35	VAL	CB-CG1	5.13	1.63	1.52

All (42) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	B	10	ARG	NE-CZ-NH1	-10.38	115.11	120.30
1	B	10	ARG	NE-CZ-NH2	10.22	125.41	120.30
1	C	10	ARG	NE-CZ-NH1	-9.62	115.49	120.30
1	B	68	ARG	NE-CZ-NH1	9.11	124.86	120.30
1	B	68	ARG	NE-CZ-NH2	-8.20	116.20	120.30
1	A	248	ARG	NE-CZ-NH1	-7.49	116.56	120.30
1	B	181	ARG	NE-CZ-NH2	-7.33	116.64	120.30
1	D	408	HIS	CB-CA-C	7.28	124.96	110.40
1	B	39	ARG	NE-CZ-NH1	-7.18	116.71	120.30
1	A	398	THR	CA-CB-CG2	7.16	122.42	112.40
1	D	322	LEU	CA-CB-CG	7.11	131.65	115.30
1	D	285	LEU	CB-CG-CD2	7.08	123.04	111.00
1	C	10	ARG	NE-CZ-NH2	7.05	123.83	120.30
1	A	490	ASP	CB-CG-OD1	7.02	124.62	118.30
1	C	96	ASP	CB-CG-OD1	6.91	124.52	118.30
1	B	15	ARG	NE-CZ-NH2	-6.90	116.85	120.30
1	A	471	ASP	CB-CG-OD1	6.65	124.28	118.30
1	C	211	ARG	NE-CZ-NH2	6.54	123.57	120.30
1	A	10	ARG	NE-CZ-NH2	6.33	123.47	120.30
1	A	347	ARG	NE-CZ-NH2	6.23	123.41	120.30
1	A	282	LEU	CA-CB-CG	6.16	129.47	115.30
1	D	398	THR	N-CA-CB	-6.07	98.77	110.30
1	B	180	ASP	CB-CG-OD1	5.99	123.69	118.30
1	B	30	ARG	NE-CZ-NH1	-5.96	117.32	120.30
1	B	168	ARG	NE-CZ-NH1	-5.64	117.48	120.30
1	C	398	THR	CA-CB-CG2	5.63	120.28	112.40
1	D	407	GLN	C-N-CA	-5.48	108.00	121.70
1	B	30	ARG	NE-CZ-NH2	5.44	123.02	120.30
1	B	181	ARG	CG-CD-NE	5.40	123.14	111.80
1	B	437	LEU	CA-CB-CG	5.38	127.68	115.30
1	D	10	ARG	NE-CZ-NH1	-5.35	117.62	120.30
1	B	181	ARG	NE-CZ-NH1	5.32	122.96	120.30
1	B	253	ASP	CB-CG-OD2	-5.31	113.52	118.30
1	A	311	ARG	NE-CZ-NH2	5.31	122.96	120.30
1	C	109	ARG	NE-CZ-NH1	-5.31	117.64	120.30
1	B	217	LEU	CA-CB-CG	5.27	127.42	115.30
1	B	253	ASP	CB-CG-OD1	5.13	122.92	118.30
1	A	212	LEU	CB-CG-CD1	-5.12	102.30	111.00
1	B	15	ARG	NE-CZ-NH1	5.12	122.86	120.30
1	B	402	ASP	CB-CG-OD2	5.07	122.86	118.30
1	B	401	LEU	CB-CG-CD1	-5.05	102.41	111.00
1	A	347	ARG	NE-CZ-NH1	-5.01	117.80	120.30

All (1) chirality outliers are listed below:

Mol	Chain	Res	Type	Atom
1	D	408	HIS	CA

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	3390	0	3364	63	0
1	B	3317	0	3287	61	0
1	C	3340	0	3309	54	0
1	D	3283	0	3259	72	0
2	A	120	0	0	1	0
2	B	99	0	0	1	0
2	C	69	0	0	1	0
2	D	55	0	0	5	0
All	All	13673	0	13219	243	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 9.

All (243) 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:C:384:ALA:HB2	1:C:398:THR:HG23	1.16	1.16
1:A:384:ALA:HB2	1:A:398:THR:HG23	1.34	1.08
1:B:384:ALA:HB2	1:B:398:THR:HG23	1.34	1.07
1:A:29:GLY:HA3	1:A:87:ASP:OD2	1.55	1.06
1:D:384:ALA:HB2	1:D:398:THR:CG2	1.90	1.02
1:B:434:GLY:HA2	1:B:436:ARG:N	1.74	1.02
1:D:186:ARG:HH11	1:D:186:ARG:HG3	1.24	1.01
1:A:334:SER:HB2	1:A:390:GLY:O	1.60	0.98
1:C:384:ALA:HB2	1:C:398:THR:CG2	1.93	0.98
1:B:384:ALA:HB2	1:B:398:THR:CG2	1.93	0.97
1:A:384:ALA:HB2	1:A:398:THR:CG2	1.96	0.95

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:42:GLU:O	1:B:43:ALA:HB3	1.64	0.93
1:B:42:GLU:O	1:B:43:ALA:CB	2.12	0.92
1:D:384:ALA:HB2	1:D:398:THR:HG22	1.52	0.90
1:D:49:ALA:HA	1:D:181:ARG:NH2	1.86	0.89
1:C:384:ALA:CB	1:C:398:THR:HG23	2.01	0.88
1:D:199:GLN:NE2	1:D:210:ARG:HD3	1.90	0.86
1:D:49:ALA:HA	1:D:181:ARG:HH21	1.40	0.86
1:B:384:ALA:CB	1:B:398:THR:HG23	2.05	0.86
1:D:228:GLN:HG3	2:D:525:HOH:O	1.77	0.84
1:B:434:GLY:CA	1:B:437:LEU:H	1.92	0.82
1:B:149:PRO:HG3	1:B:407:GLN:NE2	1.94	0.82
1:A:384:ALA:CB	1:A:398:THR:HG23	2.10	0.81
1:D:384:ALA:HB2	1:D:398:THR:HG23	1.62	0.81
1:D:334:SER:HB2	1:D:390:GLY:O	1.81	0.80
1:D:427:ARG:HG2	1:D:427:ARG:HH11	1.48	0.79
1:D:186:ARG:HH11	1:D:186:ARG:CG	1.97	0.78
1:B:68:ARG:HD2	1:B:123:ASP:OD1	1.82	0.78
1:D:36:PRO:HD3	1:D:93:LEU:HD23	1.66	0.76
1:C:100:HIS:HD2	1:C:102:GLY:H	1.30	0.76
1:C:303:LEU:HD21	1:C:312:LEU:HD22	1.68	0.76
1:B:434:GLY:CA	1:B:436:ARG:N	2.50	0.74
1:C:149:PRO:HG3	1:C:407:GLN:NE2	2.01	0.74
1:A:103:HIS:HE1	1:A:343:ASP:OD2	1.69	0.74
1:B:434:GLY:HA2	1:B:435:GLU:C	2.07	0.73
1:A:42:GLU:O	1:A:43:ALA:CB	2.37	0.72
1:D:426:SER:O	1:D:427:ARG:HB3	1.90	0.71
1:B:70:ARG:NH2	1:C:38:ASP:HB3	2.07	0.69
1:D:153:MET:HE1	1:D:397:GLY:HA2	1.75	0.69
1:A:68:ARG:HD2	1:A:123:ASP:OD1	1.92	0.69
1:A:10:ARG:HG2	1:A:215:ALA:HB2	1.74	0.69
1:D:245:GLU:OE2	1:D:248:ARG:NH2	2.27	0.68
1:C:100:HIS:CD2	1:C:102:GLY:H	2.10	0.68
1:B:489:ALA:O	1:B:495:ARG:NH1	2.27	0.68
1:D:262:THR:HG21	1:D:282:LEU:HD11	1.77	0.66
1:A:236:THR:OG1	1:A:327:HIS:HD2	1.79	0.65
1:D:199:GLN:HE21	1:D:210:ARG:HD3	1.61	0.65
1:B:434:GLY:HA3	1:B:437:LEU:H	1.62	0.65
1:D:153:MET:CE	1:D:397:GLY:HA2	2.27	0.65
1:C:340:THR:HG22	1:C:344:ALA:HB3	1.78	0.65
1:C:186:ARG:HB3	1:C:207:LEU:HD21	1.78	0.63
1:D:100:HIS:HD2	1:D:102:GLY:H	1.44	0.63

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:236:THR:OG1	1:B:327:HIS:HD2	1.81	0.63
1:B:434:GLY:HA2	1:B:437:LEU:N	2.14	0.62
1:C:30:ARG:HH11	1:C:82:ALA:HA	1.65	0.62
1:C:476:ALA:HB3	1:C:477:PRO:HD3	1.81	0.62
1:D:297:THR:HB	2:D:508:HOH:O	1.98	0.62
1:D:327:HIS:HE1	2:D:507:HOH:O	1.81	0.61
1:C:234:LEU:HD13	1:C:259:LEU:HD23	1.83	0.61
1:C:303:LEU:HD21	1:C:312:LEU:CD2	2.31	0.61
1:B:70:ARG:HH12	1:C:38:ASP:HA	1.66	0.61
1:A:340:THR:HG22	1:A:344:ALA:HB3	1.83	0.60
1:D:433:THR:O	1:D:437:LEU:HD13	2.01	0.60
1:B:100:HIS:HD2	1:B:102:GLY:H	1.49	0.60
1:C:149:PRO:HG3	1:C:407:GLN:HE21	1.67	0.60
1:D:409:ARG:HD3	1:D:413:PRO:O	2.01	0.60
1:D:394:TYR:O	1:D:398:THR:HB	2.02	0.60
1:A:30:ARG:HD3	1:A:58:VAL:HG23	1.84	0.59
1:D:153:MET:CE	1:D:400:PHE:HB2	2.32	0.59
1:B:434:GLY:CA	1:B:437:LEU:N	2.65	0.59
1:D:153:MET:HE2	1:D:400:PHE:HB2	1.83	0.59
1:A:90:LEU:HD11	1:A:133:VAL:CG2	2.33	0.59
1:C:335:GLU:OE2	1:C:340:THR:HG23	2.03	0.58
1:C:394:TYR:O	1:C:398:THR:HB	2.03	0.58
1:A:199:GLN:HE21	1:A:210:ARG:HD3	1.66	0.58
1:B:261:HIS:HE1	1:B:263:THR:HG23	1.68	0.58
1:A:69:GLN:HE21	1:A:69:GLN:HA	1.68	0.58
1:A:340:THR:HG22	1:A:341:ASP:H	1.67	0.58
1:A:3:VAL:HG12	1:A:4:GLN:N	2.17	0.58
1:A:69:GLN:HA	1:A:69:GLN:NE2	2.18	0.58
1:B:149:PRO:HG3	1:B:407:GLN:HE21	1.65	0.58
1:C:327:HIS:HE1	2:C:509:HOH:O	1.86	0.58
1:A:39:ARG:NH2	1:A:95:TRP:O	2.37	0.58
1:A:427:ARG:O	1:A:430:GLU:HB3	2.04	0.57
1:D:47:LEU:HD22	1:D:57:PRO:HB2	1.85	0.57
1:D:30:ARG:NH1	1:D:56:ASP:OD2	2.37	0.57
1:D:186:ARG:HG3	1:D:186:ARG:NH1	2.03	0.57
1:B:434:GLY:HA2	1:B:437:LEU:H	1.66	0.57
1:B:220:HIS:CD2	1:B:221:GLY:H	2.23	0.57
1:B:70:ARG:CZ	1:C:38:ASP:HB3	2.35	0.56
1:C:159:ARG:HD3	1:C:199:GLN:HE22	1.71	0.56
1:D:199:GLN:HE22	1:D:210:ARG:HH21	1.53	0.56
1:D:30:ARG:HD3	1:D:56:ASP:O	2.05	0.56

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:340:THR:HG22	1:B:344:ALA:HB3	1.87	0.56
1:C:30:ARG:HH21	1:C:58:VAL:HG21	1.71	0.56
1:D:384:ALA:CB	1:D:398:THR:HG23	2.35	0.56
1:A:59:GLN:NE2	1:A:61:ASP:OD1	2.38	0.56
1:A:42:GLU:O	1:A:43:ALA:HB3	2.07	0.55
1:A:100:HIS:CD2	1:A:102:GLY:H	2.24	0.55
1:D:15:ARG:HH21	1:D:206:GLY:HA3	1.71	0.55
1:D:42:GLU:O	1:D:43:ALA:HB3	2.06	0.55
1:B:220:HIS:CG	1:B:221:GLY:H	2.25	0.55
1:A:10:ARG:NH2	1:A:12:ASP:OD1	2.40	0.54
1:A:332:VAL:HG21	1:A:348:VAL:HG13	1.88	0.54
1:C:363:LEU:HB2	1:C:413:PRO:HG3	1.88	0.54
1:D:364:ARG:HG2	1:D:412:GLY:O	2.07	0.54
1:B:7:TRP:CZ3	1:B:445:LEU:HG	2.42	0.54
1:A:100:HIS:HD2	1:A:102:GLY:H	1.54	0.54
1:A:430:GLU:HG3	1:A:432:ALA:H	1.73	0.54
1:B:181:ARG:HH11	1:B:181:ARG:HG3	1.72	0.54
1:D:236:THR:OG1	1:D:327:HIS:HD2	1.91	0.53
1:B:44:ALA:N	1:B:45:PRO:CD	2.72	0.53
1:D:228:GLN:CG	2:D:525:HOH:O	2.48	0.53
1:D:427:ARG:HH11	1:D:427:ARG:CG	2.21	0.53
1:C:162:ALA:HB2	1:C:169:TRP:CD1	2.45	0.52
1:B:303:LEU:HD21	1:B:312:LEU:HD22	1.90	0.52
1:B:70:ARG:HH22	1:C:38:ASP:HB3	1.72	0.52
1:B:199:GLN:HE21	1:B:210:ARG:HD3	1.75	0.52
1:B:384:ALA:HB2	1:B:398:THR:HG22	1.83	0.52
1:D:186:ARG:CG	1:D:186:ARG:NH1	2.66	0.52
1:B:434:GLY:H	1:B:436:ARG:H	1.57	0.52
1:D:440:LEU:O	1:D:475:PHE:HA	2.10	0.52
1:C:153:MET:HG2	1:C:396:ALA:O	2.10	0.52
1:B:100:HIS:CD2	1:B:102:GLY:H	2.27	0.51
1:C:10:ARG:HD2	1:C:12:ASP:OD2	2.10	0.51
1:A:62:VAL:HG21	1:A:71:LEU:HG	1.93	0.51
1:B:38:ASP:HB2	1:C:70:ARG:NH2	2.24	0.51
1:A:90:LEU:HD11	1:A:133:VAL:HG23	1.93	0.51
1:A:228:GLN:OE1	1:A:372:ARG:HD3	2.11	0.51
1:A:167:GLU:OE2	1:A:168:ARG:HG2	2.10	0.50
1:C:100:HIS:HD2	1:C:102:GLY:N	2.06	0.50
1:B:70:ARG:O	1:B:74:THR:HG23	2.12	0.50
1:A:384:ALA:HB2	1:A:398:THR:HG22	1.88	0.50
1:A:431:GLY:HA2	1:A:438:ARG:HH12	1.77	0.50

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:D:64:PRO:HG2	1:D:96:ASP:OD2	2.11	0.50
1:B:70:ARG:NH1	1:C:38:ASP:HA	2.26	0.49
1:D:199:GLN:HE22	1:D:210:ARG:NH2	2.10	0.49
1:C:199:GLN:NE2	1:C:210:ARG:HD3	2.27	0.49
1:D:182:ALA:O	1:D:186:ARG:HG2	2.12	0.49
1:D:13:TRP:CD1	1:D:140:VAL:HA	2.47	0.49
1:D:146:VAL:HG12	1:D:149:PRO:HD3	1.93	0.49
1:A:437:LEU:HD13	1:A:442:LEU:HD12	1.94	0.49
1:C:30:ARG:NH2	1:C:58:VAL:HG21	2.28	0.49
1:A:431:GLY:HA2	1:A:438:ARG:NH1	2.28	0.48
1:A:30:ARG:HD2	1:A:58:VAL:HG21	1.93	0.48
1:B:90:LEU:HD11	1:B:133:VAL:CG2	2.43	0.48
1:C:412:GLY:HA2	1:C:413:PRO:C	2.33	0.48
1:A:236:THR:OG1	1:A:327:HIS:CD2	2.62	0.48
1:C:395:ALA:HA	1:C:398:THR:HG22	1.95	0.48
1:A:327:HIS:HE1	2:A:522:HOH:O	1.97	0.48
1:D:307:GLU:HG2	1:D:311:ARG:HH22	1.77	0.48
1:C:37:GLU:HG3	1:C:62:VAL:O	2.14	0.48
1:B:159:ARG:HD3	1:B:199:GLN:HE22	1.79	0.48
1:B:327:HIS:HE1	2:B:526:HOH:O	1.96	0.48
1:A:395:ALA:HA	1:A:398:THR:HG22	1.96	0.48
1:A:394:TYR:O	1:A:398:THR:HB	2.14	0.47
1:A:178:ASP:O	1:A:179:ALA:HB3	2.15	0.47
1:C:199:GLN:HE22	1:C:210:ARG:NH2	2.13	0.47
1:C:39:ARG:HG3	1:C:39:ARG:HH11	1.79	0.47
1:C:44:ALA:HB3	1:C:45:PRO:HD3	1.97	0.47
1:B:249:ARG:HD3	1:B:252:ARG:HD2	1.97	0.46
1:B:70:ARG:NH1	1:C:38:ASP:HB3	2.31	0.46
1:A:90:LEU:HD11	1:A:133:VAL:HG21	1.96	0.46
1:D:153:MET:HE1	1:D:349:VAL:HG13	1.97	0.46
1:D:418:VAL:CG1	1:D:467:ILE:HD12	2.46	0.46
1:B:199:GLN:NE2	1:B:210:ARG:HD3	2.30	0.45
1:D:8:ARG:HG2	2:D:526:HOH:O	2.16	0.45
1:D:337:LEU:HD21	1:D:392:GLY:HA3	1.98	0.45
1:B:434:GLY:N	1:B:436:ARG:H	2.14	0.45
1:C:488:LEU:HD12	1:C:488:LEU:N	2.31	0.45
1:A:199:GLN:NE2	1:A:210:ARG:HD3	2.31	0.45
1:A:360:ASP:O	1:A:364:ARG:HB2	2.17	0.45
1:B:326:LEU:HD23	1:B:377:VAL:HB	1.99	0.45
1:C:167:GLU:CD	1:C:167:GLU:H	2.20	0.45
1:C:437:LEU:HA	1:C:440:LEU:HG	1.98	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:D:307:GLU:HG2	1:D:311:ARG:NH2	2.32	0.45
1:A:3:VAL:HG12	1:A:4:GLN:H	1.82	0.45
1:D:27:LEU:HD12	1:D:192:ALA:HA	1.99	0.45
1:A:42:GLU:O	1:A:43:ALA:HB2	2.15	0.44
1:A:352:LYS:HE2	1:A:394:TYR:HE1	1.82	0.44
1:B:47:LEU:CD1	1:B:57:PRO:HB2	2.47	0.44
1:D:153:MET:HG2	1:D:396:ALA:O	2.18	0.44
1:B:424:GLU:HB2	1:B:447:PRO:HD3	2.00	0.44
1:C:47:LEU:HD22	1:C:57:PRO:HB2	1.99	0.44
1:B:10:ARG:HD2	1:B:12:ASP:OD2	2.17	0.44
1:B:394:TYR:O	1:B:398:THR:HB	2.18	0.44
1:B:47:LEU:HD13	1:B:57:PRO:HB2	1.99	0.43
1:C:443:ARG:HD3	1:C:443:ARG:N	2.33	0.43
1:D:35:VAL:HG12	1:D:36:PRO:O	2.19	0.43
1:D:115:LEU:HD21	1:D:340:THR:HG23	2.00	0.43
1:D:304:THR:O	1:D:358:HIS:HE1	2.01	0.43
1:D:149:PRO:HB2	1:D:400:PHE:CE1	2.53	0.43
1:B:42:GLU:H	1:B:42:GLU:HG3	1.63	0.43
1:B:30:ARG:NH1	1:B:56:ASP:OD2	2.51	0.43
1:B:258:LEU:HD12	1:B:289:LEU:HD13	2.00	0.43
1:C:440:LEU:O	1:C:475:PHE:HA	2.19	0.43
1:A:199:GLN:HE22	1:A:210:ARG:NH2	2.16	0.43
1:C:95:TRP:N	1:C:95:TRP:CD1	2.87	0.43
1:C:473:SER:O	1:C:474:SER:HB3	2.18	0.43
1:B:428:VAL:O	1:B:433:THR:O	2.36	0.43
1:C:332:VAL:HG21	1:C:348:VAL:HG13	2.01	0.43
1:D:39:ARG:NH1	1:D:42:GLU:OE2	2.52	0.42
1:D:418:VAL:HG11	1:D:467:ILE:HD12	2.01	0.42
1:A:388:GLY:HA3	1:A:391:GLN:NE2	2.34	0.42
1:D:114:THR:O	1:D:118:VAL:HG23	2.19	0.42
1:D:334:SER:CB	1:D:390:GLY:O	2.60	0.42
1:A:446:ALA:HA	1:A:447:PRO:HD3	1.87	0.42
1:D:55:ALA:O	1:D:57:PRO:HD3	2.19	0.42
1:A:68:ARG:HH11	1:A:123:ASP:CG	2.23	0.42
1:C:159:ARG:HD3	1:C:199:GLN:NE2	2.33	0.42
1:C:332:VAL:HG11	1:C:348:VAL:HG13	2.02	0.42
1:D:416:THR:HA	1:D:463:THR:O	2.20	0.42
1:A:64:PRO:HG2	1:A:96:ASP:OD2	2.20	0.42
1:C:348:VAL:HB	1:C:393:ALA:HB1	2.01	0.42
1:D:477:PRO:C	1:D:479:PHE:H	2.23	0.42
1:D:186:ARG:CZ	1:D:206:GLY:HA2	2.50	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:32:LEU:HD13	1:A:60:LEU:HD11	2.03	0.41
1:D:153:MET:CE	1:D:349:VAL:HG13	2.51	0.41
1:A:263:THR:HA	1:A:264:PRO:HD3	1.92	0.41
1:D:231:GLY:O	1:D:257:HIS:HB2	2.20	0.41
1:A:199:GLN:HE22	1:A:210:ARG:HH21	1.69	0.41
1:D:31:TRP:CZ3	1:D:191:LEU:HD22	2.55	0.41
1:A:373:PRO:HB3	1:A:412:GLY:HA3	2.02	0.41
1:B:68:ARG:HB2	1:B:116:THR:HG23	2.03	0.41
1:A:372:ARG:HG2	1:A:372:ARG:HH11	1.85	0.41
1:B:35:VAL:HG22	1:B:92:LEU:HD12	2.03	0.41
1:C:103:HIS:HE1	1:C:343:ASP:OD2	2.04	0.41
1:D:282:LEU:N	1:D:282:LEU:HD12	2.35	0.41
1:A:30:ARG:CD	1:A:58:VAL:HG23	2.49	0.41
1:A:90:LEU:HD12	1:A:90:LEU:HA	1.92	0.41
1:A:244:ALA:O	1:A:248:ARG:HG3	2.21	0.41
1:A:360:ASP:OD2	1:A:409:ARG:NE	2.51	0.41
1:C:388:GLY:HA3	1:C:391:GLN:HE21	1.86	0.41
1:C:388:GLY:CA	1:C:391:GLN:HE21	2.34	0.41
1:D:41:ALA:HB3	1:D:42:GLU:OE1	2.21	0.41
1:A:30:ARG:HG2	1:A:86:VAL:HG22	2.03	0.41
1:B:238:ALA:HA	1:B:243:ALA:CB	2.51	0.41
1:B:258:LEU:CD1	1:B:289:LEU:HD13	2.51	0.41
1:D:80:ALA:C	1:D:82:ALA:H	2.24	0.41
1:B:233:VAL:HG11	1:B:250:LEU:HD13	2.03	0.40
1:B:238:ALA:HA	1:B:243:ALA:HB3	2.03	0.40
1:D:330:PRO:O	1:D:352:LYS:HE2	2.21	0.40
1:A:100:HIS:HA	1:A:101:PRO:HD3	1.91	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	460/525 (88%)	441 (96%)	13 (3%)	6 (1%)	12	3
1	B	452/525 (86%)	433 (96%)	14 (3%)	5 (1%)	14	5
1	C	455/525 (87%)	441 (97%)	12 (3%)	2 (0%)	34	22
1	D	447/525 (85%)	420 (94%)	20 (4%)	7 (2%)	9	2
All	All	1814/2100 (86%)	1735 (96%)	59 (3%)	20 (1%)	14	5

All (20) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	A	4	GLN
1	A	430	GLU
1	B	220	HIS
1	B	435	GLU
1	C	179	ALA
1	C	474	SER
1	D	84	GLY
1	D	490	ASP
1	A	41	ALA
1	A	43	ALA
1	B	43	ALA
1	D	42	GLU
1	D	179	ALA
1	D	427	ARG
1	B	222	THR
1	D	41	ALA
1	D	481	THR
1	A	177	SER
1	B	264	PRO
1	A	179	ALA

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	328/365 (90%)	301 (92%)	27 (8%)	11	4

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Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
1	B	322/365 (88%)	298 (92%)	24 (8%)	13	5
1	C	323/365 (88%)	303 (94%)	20 (6%)	18	7
1	D	318/365 (87%)	290 (91%)	28 (9%)	10	3
All	All	1291/1460 (88%)	1192 (92%)	99 (8%)	13	4

All (99) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	4	GLN
1	A	5	ASP
1	A	39	ARG
1	A	40	SER
1	A	47	LEU
1	A	68	ARG
1	A	69	GLN
1	A	71	LEU
1	A	178	ASP
1	A	222	THR
1	A	282	LEU
1	A	285	LEU
1	A	295	THR
1	A	297	THR
1	A	311	ARG
1	A	322	LEU
1	A	331	THR
1	A	333	ASP
1	A	340	THR
1	A	364	ARG
1	A	373	PRO
1	A	375	VAL
1	A	398	THR
1	A	437	LEU
1	A	440	LEU
1	A	445	LEU
1	A	500	GLU
1	B	10	ARG
1	B	18	VAL
1	B	30	ARG
1	B	62	VAL
1	B	68	ARG
1	B	71	LEU

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Mol	Chain	Res	Type
1	B	178	ASP
1	B	181	ARG
1	B	214	ARG
1	B	217	LEU
1	B	228	GLN
1	B	248	ARG
1	B	252	ARG
1	B	263	THR
1	B	265	SER
1	B	295	THR
1	B	312	LEU
1	B	333	ASP
1	B	340	THR
1	B	398	THR
1	B	430	GLU
1	B	440	LEU
1	B	493	GLU
1	B	495	ARG
1	C	10	ARG
1	C	38	ASP
1	C	39	ARG
1	C	74	THR
1	C	167	GLU
1	C	178	ASP
1	C	181	ARG
1	C	217	LEU
1	C	252	ARG
1	C	261	HIS
1	C	285	LEU
1	C	307	GLU
1	C	322	LEU
1	C	340	THR
1	C	365	GLU
1	C	372	ARG
1	C	398	THR
1	C	438	ARG
1	C	445	LEU
1	C	491	LEU
1	D	14	LYS
1	D	15	ARG
1	D	30	ARG
1	D	38	ASP

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Mol	Chain	Res	Type
1	D	51	SER
1	D	61	ASP
1	D	68	ARG
1	D	71	LEU
1	D	167	GLU
1	D	177	SER
1	D	181	ARG
1	D	186	ARG
1	D	216	SER
1	D	265	SER
1	D	285	LEU
1	D	297	THR
1	D	322	LEU
1	D	364	ARG
1	D	398	THR
1	D	409	ARG
1	D	411	ASP
1	D	427	ARG
1	D	438	ARG
1	D	440	LEU
1	D	445	LEU
1	D	463	THR
1	D	473	SER
1	D	490	ASP

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (30) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	4	GLN
1	A	69	GLN
1	A	100	HIS
1	A	103	HIS
1	A	199	GLN
1	A	228	GLN
1	A	257	HIS
1	A	327	HIS
1	A	358	HIS
1	A	391	GLN
1	B	100	HIS
1	B	103	HIS
1	B	199	GLN
1	B	327	HIS

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Mol	Chain	Res	Type
1	B	358	HIS
1	B	391	GLN
1	B	407	GLN
1	C	100	HIS
1	C	103	HIS
1	C	199	GLN
1	C	257	HIS
1	C	327	HIS
1	C	391	GLN
1	C	407	GLN
1	D	100	HIS
1	D	103	HIS
1	D	199	GLN
1	D	228	GLN
1	D	327	HIS
1	D	358	HIS

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 [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

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	470/525 (89%)	0.15	30 (6%) 19 20	21, 36, 59, 75	0
1	B	460/525 (87%)	0.12	19 (4%) 37 39	19, 37, 63, 72	0
1	C	465/525 (88%)	0.42	39 (8%) 11 12	24, 47, 68, 80	0
1	D	457/525 (87%)	0.54	53 (11%) 4 5	22, 48, 80, 88	0
All	All	1852/2100 (88%)	0.31	141 (7%) 13 15	19, 40, 70, 88	0

All (141) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	C	266	GLY	7.9
1	D	221	GLY	7.1
1	D	85	ALA	6.8
1	D	410	ALA	5.8
1	A	221	GLY	5.3
1	C	265	SER	5.3
1	C	432	ALA	5.3
1	D	482	ALA	5.2
1	D	41	ALA	5.0
1	A	19	ALA	4.6
1	C	281	GLY	4.6
1	D	491	LEU	4.6
1	D	217	LEU	4.5
1	B	265	SER	4.5
1	D	83	GLY	4.4
1	A	222	THR	4.2
1	D	80	ALA	4.0
1	C	370	GLY	4.0
1	D	65	LEU	3.9
1	D	74	THR	3.9
1	A	18	VAL	3.7

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Mol	Chain	Res	Type	RSRZ
1	C	3	VAL	3.6
1	D	265	SER	3.6
1	C	334	SER	3.5
1	D	132	CYS	3.5
1	D	64	PRO	3.5
1	D	216	SER	3.5
1	C	282	LEU	3.5
1	D	222	THR	3.5
1	B	18	VAL	3.4
1	A	132	CYS	3.4
1	A	66	GLY	3.4
1	D	280	SER	3.3
1	C	431	GLY	3.3
1	D	411	ASP	3.3
1	A	65	LEU	3.3
1	D	436	ARG	3.3
1	A	431	GLY	3.3
1	C	326	LEU	3.3
1	A	90	LEU	3.3
1	C	473	SER	3.3
1	A	133	VAL	3.1
1	C	371	GLY	3.1
1	D	154	VAL	3.0
1	D	16	LEU	3.0
1	C	427	ARG	3.0
1	B	286	VAL	3.0
1	D	133	VAL	3.0
1	D	172	LEU	2.9
1	C	83	GLY	2.9
1	B	379	PHE	2.9
1	A	265	SER	2.9
1	B	222	THR	2.9
1	D	28	SER	2.9
1	D	81	ALA	2.8
1	B	295	THR	2.8
1	A	172	LEU	2.8
1	B	317	SER	2.8
1	C	85	ALA	2.8
1	D	143	ALA	2.8
1	D	155	TRP	2.7
1	C	366	ALA	2.7
1	C	438	ARG	2.7

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Mol	Chain	Res	Type	RSRZ
1	A	143	ALA	2.7
1	C	287	ALA	2.7
1	D	38	ASP	2.7
1	C	481	THR	2.7
1	B	429	THR	2.6
1	C	84	GLY	2.6
1	A	3	VAL	2.6
1	C	439	ARG	2.6
1	D	61	ASP	2.6
1	B	326	LEU	2.6
1	A	173	ILE	2.6
1	C	132	CYS	2.6
1	C	378	LEU	2.5
1	A	131	TRP	2.5
1	A	410	ALA	2.5
1	D	17	ALA	2.5
1	D	427	ARG	2.5
1	D	481	THR	2.5
1	D	63	SER	2.5
1	B	319	ALA	2.5
1	A	70	ARG	2.5
1	B	478	GLY	2.5
1	A	130	LEU	2.5
1	C	319	ALA	2.4
1	D	223	ALA	2.4
1	C	133	VAL	2.4
1	D	86	VAL	2.4
1	C	328	LEU	2.4
1	C	440	LEU	2.4
1	D	27	LEU	2.4
1	D	484	PRO	2.4
1	D	84	GLY	2.4
1	D	178	ASP	2.4
1	D	77	GLU	2.4
1	A	281	GLY	2.4
1	C	293	GLY	2.4
1	C	379	PHE	2.4
1	D	167	GLU	2.4
1	A	155	TRP	2.4
1	D	430	GLU	2.4
1	B	495	ARG	2.3
1	D	439	ARG	2.3

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Mol	Chain	Res	Type	RSRZ
1	D	142	ARG	2.3
1	B	290	ALA	2.3
1	D	71	LEU	2.3
1	D	438	ARG	2.3
1	B	431	GLY	2.3
1	C	380	SER	2.3
1	A	411	ASP	2.3
1	A	169	TRP	2.2
1	C	230	ASP	2.2
1	D	412	GLY	2.2
1	B	287	ALA	2.2
1	D	73	ALA	2.2
1	C	235	VAL	2.2
1	D	281	GLY	2.2
1	C	325	VAL	2.2
1	C	291	ASP	2.2
1	B	301	CYS	2.2
1	A	436	ARG	2.2
1	C	53	ALA	2.2
1	B	285	LEU	2.1
1	A	67	ASP	2.1
1	A	432	ALA	2.1
1	D	54	GLY	2.1
1	C	26	GLY	2.1
1	A	439	ARG	2.1
1	B	229	ALA	2.1
1	C	344	ALA	2.1
1	C	28	SER	2.1
1	B	219	ALA	2.1
1	D	130	LEU	2.1
1	A	38	ASP	2.0
1	A	500	GLU	2.0
1	D	33	VAL	2.0
1	C	425	GLY	2.0
1	D	492	PRO	2.0
1	A	328	LEU	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.