



# Full wwPDB X-ray Structure Validation Report ⓘ

Aug 18, 2022 – 01:16 AM EDT

PDB ID : 3X0X  
Title : Crystal structure of apo-DszC from Rhodococcus erythropolis D-1  
Authors : Guan, L.J.; Lee, W.C.; Wang, S.P.; Ohtsuka, J.; Tanokura, M.  
Deposited on : 2014-10-23  
Resolution : 2.11 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](mailto: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>.

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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 : 2.29  
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) : 2.29

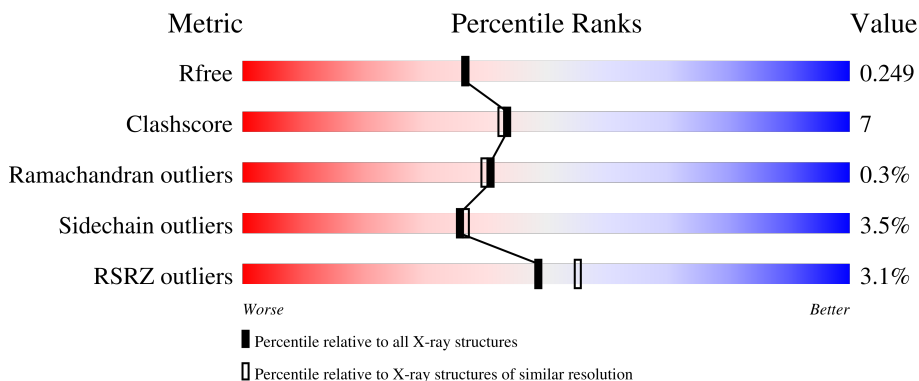
# 1 Overall quality at a glance i

The following experimental techniques were used to determine the structure:

*X-RAY DIFFRACTION*

The reported resolution of this entry is 2.11 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.



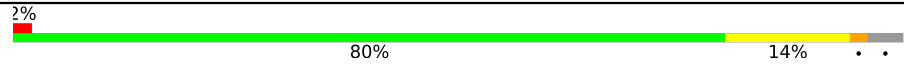

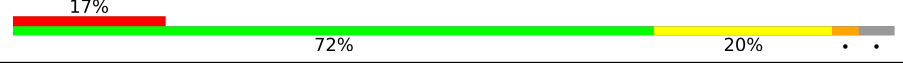
Metric	Whole archive (#Entries)	Similar resolution (#Entries, resolution range(Å))
$R_{free}$	130704	6241 (2.14-2.10)
Clashscore	141614	6778 (2.14-2.10)
Ramachandran outliers	138981	6705 (2.14-2.10)
Sidechain outliers	138945	6706 (2.14-2.10)
RSRZ outliers	127900	6112 (2.14-2.10)

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  $\geq 3$ , 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	417	<div style="display: flex; align-items: center;"> <div style="width: 5%; height: 10px; background-color: red; margin-right: 5px;"></div> <div style="width: 84%; height: 10px; background-color: green; margin-right: 5px;"></div> <div style="width: 12%; height: 10px; background-color: yellow; margin-right: 5px;"></div> <div style="width: 1%; height: 10px; background-color: orange; margin-right: 5px;"></div> <div style="width: 1%; height: 10px; background-color: grey;"></div> </div> <p style="text-align: center;">84% 12% .</p>
1	B	417	<div style="display: flex; align-items: center;"> <div style="width: 5%; height: 10px; background-color: red; margin-right: 5px;"></div> <div style="width: 82%; height: 10px; background-color: green; margin-right: 5px;"></div> <div style="width: 13%; height: 10px; background-color: yellow; margin-right: 5px;"></div> <div style="width: 1%; height: 10px; background-color: orange; margin-right: 5px;"></div> <div style="width: 1%; height: 10px; background-color: grey;"></div> </div> <p style="text-align: center;">82% 13% . .</p>
1	C	417	<div style="display: flex; align-items: center;"> <div style="width: 81%; height: 10px; background-color: green; margin-right: 5px;"></div> <div style="width: 13%; height: 10px; background-color: yellow; margin-right: 5px;"></div> <div style="width: 1%; height: 10px; background-color: orange; margin-right: 5px;"></div> <div style="width: 1%; height: 10px; background-color: grey;"></div> </div> <p style="text-align: center;">81% 13% . .</p>
1	D	417	<div style="display: flex; align-items: center;"> <div style="width: 5%; height: 10px; background-color: red; margin-right: 5px;"></div> <div style="width: 82%; height: 10px; background-color: green; margin-right: 5px;"></div> <div style="width: 13%; height: 10px; background-color: yellow; margin-right: 5px;"></div> <div style="width: 1%; height: 10px; background-color: orange; margin-right: 5px;"></div> <div style="width: 1%; height: 10px; background-color: grey;"></div> </div> <p style="text-align: center;">82% 13% . .</p>
1	E	417	<div style="display: flex; align-items: center;"> <div style="width: 80%; 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: 1%; height: 10px; background-color: grey;"></div> </div> <p style="text-align: center;">80% 15% .</p>

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Mol	Chain	Length	Quality of chain
1	F	417	 2% 80% 14% . .
1	G	417	 % 80% 15% . .
1	H	417	 17% 72% 20% . .

## 2 Entry composition [i](#)

There are 2 unique types of molecules in this entry. The entry contains 25802 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 DszC.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
1	A	400	3054	1918	545	587	4	0	0	0
1	B	400	3054	1918	545	587	4	0	0	0
1	D	400	3054	1918	545	587	4	0	0	0
1	C	400	3054	1918	545	587	4	0	0	0
1	E	400	3054	1918	545	587	4	0	0	0
1	F	400	3054	1918	545	587	4	0	0	0
1	G	400	3054	1918	545	587	4	0	0	0
1	H	400	3054	1918	545	587	4	0	0	0

- Molecule 2 is water.

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
2	A	189	Total 189	O 189	0	0
2	B	223	Total 223	O 223	0	0
2	D	196	Total 196	O 196	0	0
2	C	196	Total 196	O 196	0	0
2	E	191	Total 191	O 191	0	0
2	F	153	Total 153	O 153	0	0

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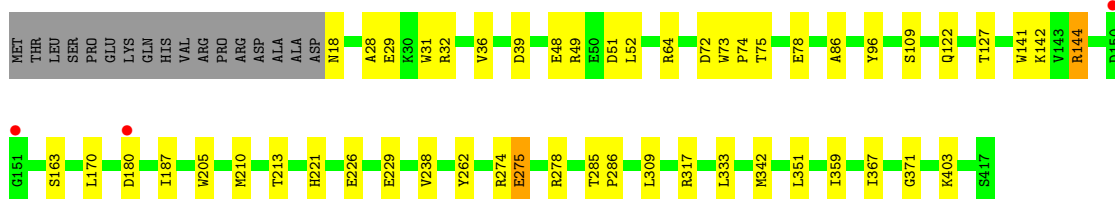
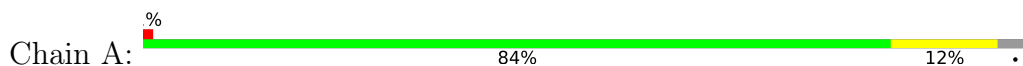
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<b>Mol</b>	<b>Chain</b>	<b>Residues</b>	<b>Atoms</b>		<b>ZeroOcc</b>	<b>AltConf</b>
2	G	146	Total 146	O 146	0	0
2	H	76	Total 76	O 76	0	0

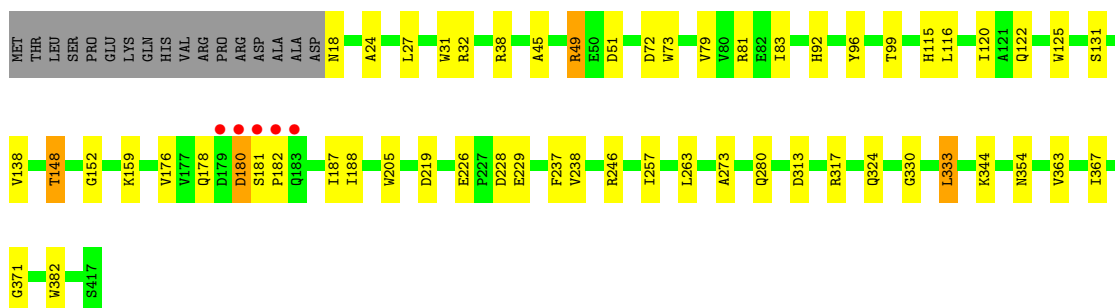
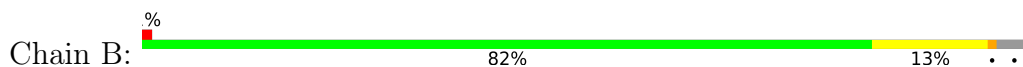
### 3 Residue-property plots [i](#)

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.

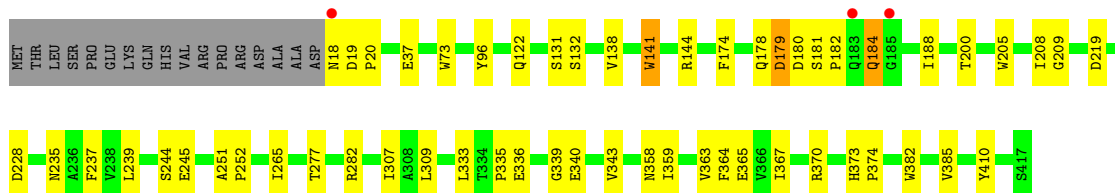
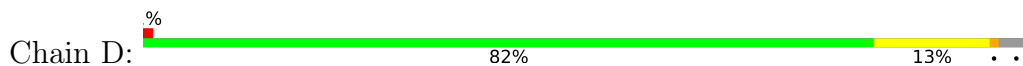
- Molecule 1: DszC



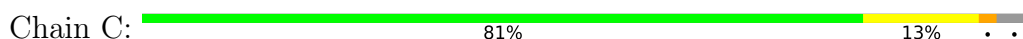
- Molecule 1: DszC

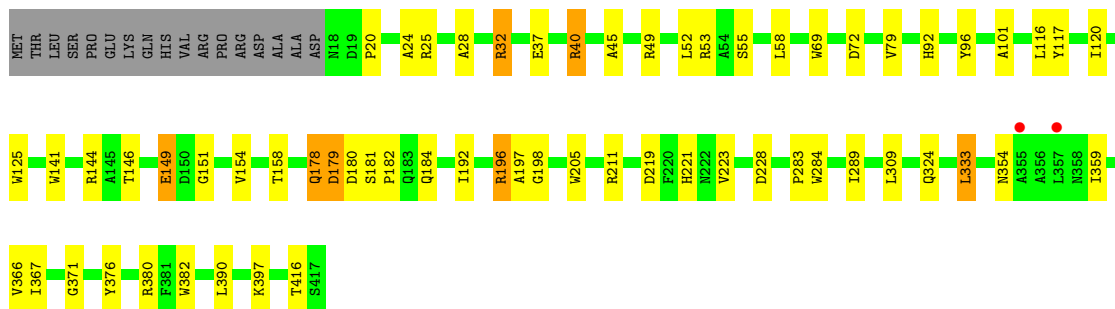


- Molecule 1: DszC

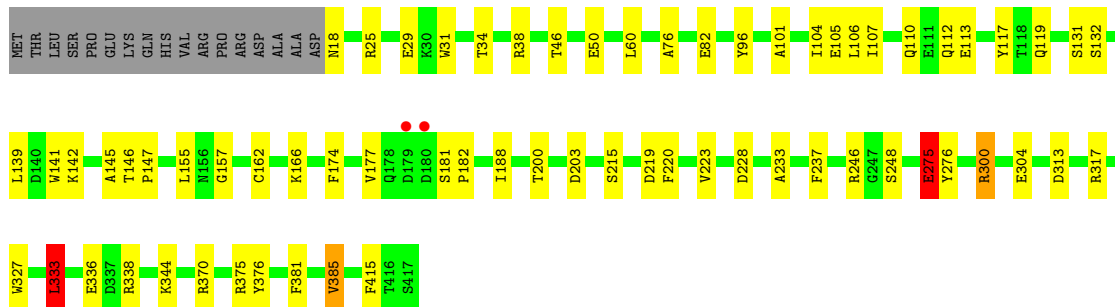
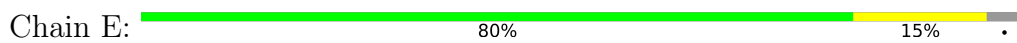


- Molecule 1: DszC

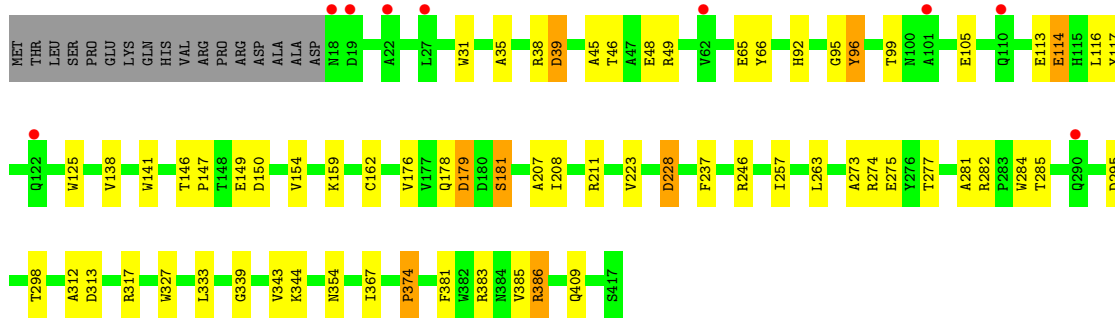
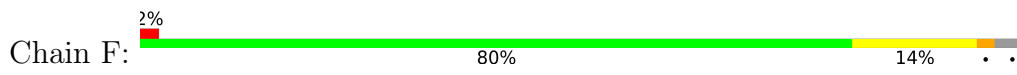




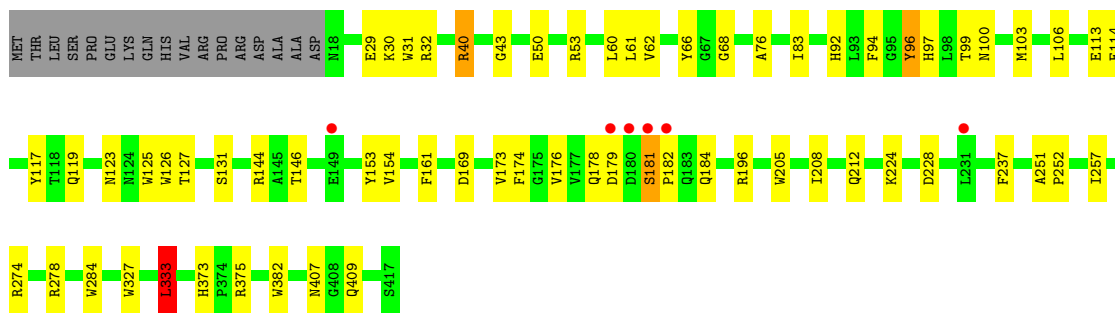
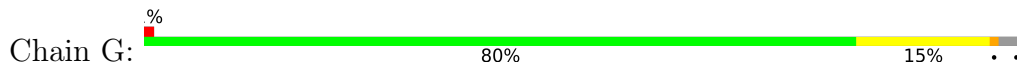
• Molecule 1: DszC



• Molecule 1: DszC

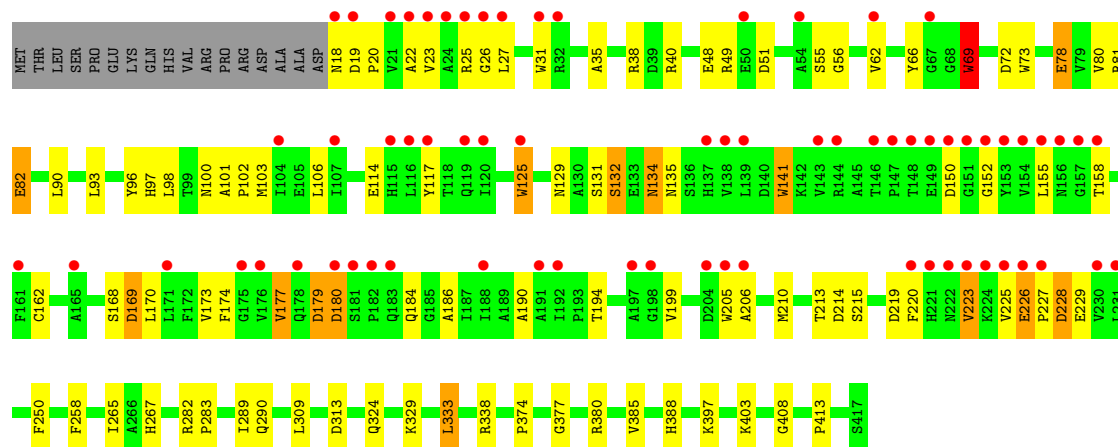


• Molecule 1: DszC



- Molecule 1: DszC

Chain H: 17% 72% 20%





## 4 Data and refinement statistics

Property	Value	Source
Space group	C 1 2 1	Depositor
Cell constants a, b, c, $\alpha$ , $\beta$ , $\gamma$	146.13Å 123.25Å 184.27Å 90.00° 101.21° 90.00°	Depositor
Resolution (Å)	43.91 – 2.11 43.91 – 2.11	Depositor EDS
% Data completeness (in resolution range)	98.2 (43.91-2.11) 98.2 (43.91-2.11)	Depositor EDS
$R_{merge}$	(Not available)	Depositor
$R_{sym}$	(Not available)	Depositor
$\langle I/\sigma(I) \rangle$ <sup>1</sup>	3.37 (at 2.12Å)	Xtrriage
Refinement program	REFMAC 5.6.0117	Depositor
R, $R_{free}$	0.186 , 0.253 0.184 , 0.249	Depositor DCC
$R_{free}$ test set	8996 reflections (5.01%)	wwPDB-VP
Wilson B-factor (Å <sup>2</sup> )	30.1	Xtrriage
Anisotropy	0.092	Xtrriage
Bulk solvent $k_{sol}$ (e/Å <sup>3</sup> ), $B_{sol}$ (Å <sup>2</sup> )	0.33 , 42.4	EDS
L-test for twinning <sup>2</sup>	$\langle  L  \rangle = 0.44$ , $\langle L^2 \rangle = 0.26$	Xtrriage
Estimated twinning fraction	No twinning to report.	Xtrriage
$F_o, F_c$ correlation	0.95	EDS
Total number of atoms	25802	wwPDB-VP
Average B, all atoms (Å <sup>2</sup> )	40.0	wwPDB-VP

Xtrriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 2.99% of the height of the origin peak. No significant pseudotranslation is detected.*

<sup>1</sup>Intensities estimated from amplitudes.

<sup>2</sup>Theoretical 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	0.89	4/3129 (0.1%)	0.86	3/4265 (0.1%)
1	B	0.94	4/3129 (0.1%)	0.90	5/4265 (0.1%)
1	C	0.96	5/3129 (0.2%)	0.90	4/4265 (0.1%)
1	D	0.92	5/3129 (0.2%)	0.87	0/4265
1	E	0.91	4/3129 (0.1%)	0.88	3/4265 (0.1%)
1	F	0.87	4/3129 (0.1%)	0.85	1/4265 (0.0%)
1	G	0.85	6/3129 (0.2%)	0.84	1/4265 (0.0%)
1	H	0.78	4/3129 (0.1%)	0.77	2/4265 (0.0%)
All	All	0.89	36/25032 (0.1%)	0.86	19/34120 (0.1%)

All (36) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
1	E	275	GLU	CD-OE2	7.89	1.34	1.25
1	F	141	TRP	CD2-CE2	6.69	1.49	1.41
1	B	125	TRP	CD2-CE2	6.33	1.49	1.41
1	C	382	TRP	CD2-CE2	6.17	1.48	1.41
1	B	205	TRP	CD2-CE2	6.14	1.48	1.41
1	A	205	TRP	CD2-CE2	6.09	1.48	1.41
1	G	205	TRP	CD2-CE2	6.01	1.48	1.41
1	E	327	TRP	CD2-CE2	5.97	1.48	1.41
1	C	205	TRP	CD2-CE2	5.97	1.48	1.41
1	B	73	TRP	CD2-CE2	5.82	1.48	1.41
1	E	141	TRP	CD2-CE2	5.80	1.48	1.41
1	A	262	TYR	CB-CG	-5.73	1.43	1.51
1	H	125	TRP	CD2-CE2	5.71	1.48	1.41
1	D	205	TRP	CD2-CE2	5.68	1.48	1.41
1	H	69	TRP	CD2-CE2	5.64	1.48	1.41
1	A	73	TRP	CD2-CE2	5.63	1.48	1.41
1	D	73	TRP	CD2-CE2	5.60	1.48	1.41
1	D	365	GLU	CG-CD	5.54	1.60	1.51
1	F	125	TRP	CD2-CE2	5.48	1.48	1.41
1	G	382	TRP	CD2-CE2	5.44	1.47	1.41

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
1	H	141	TRP	CD2-CE2	5.39	1.47	1.41
1	D	382	TRP	CD2-CE2	5.28	1.47	1.41
1	H	205	TRP	CD2-CE2	5.27	1.47	1.41
1	C	141	TRP	CD2-CE2	5.22	1.47	1.41
1	D	141	TRP	CD2-CE2	5.22	1.47	1.41
1	A	141	TRP	CD2-CE2	5.21	1.47	1.41
1	F	327	TRP	CD2-CE2	5.21	1.47	1.41
1	F	284	TRP	CD2-CE2	5.21	1.47	1.41
1	B	382	TRP	CD2-CE2	5.19	1.47	1.41
1	G	125	TRP	CD2-CE2	5.18	1.47	1.41
1	G	126	TRP	CD2-CE2	5.17	1.47	1.41
1	E	31	TRP	CD2-CE2	5.10	1.47	1.41
1	C	284	TRP	CD2-CE2	5.08	1.47	1.41
1	C	125	TRP	CD2-CE2	5.05	1.47	1.41
1	G	31	TRP	CD2-CE2	5.04	1.47	1.41
1	G	284	TRP	CD2-CE2	5.01	1.47	1.41

All (19) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	B	49	ARG	NE-CZ-NH2	-9.19	115.71	120.30
1	F	386	ARG	NE-CZ-NH1	6.80	123.70	120.30
1	H	333	LEU	CA-CB-CG	6.42	130.05	115.30
1	E	300	ARG	NE-CZ-NH1	6.22	123.41	120.30
1	E	385	VAL	CB-CA-C	-6.20	99.63	111.40
1	B	49	ARG	NE-CZ-NH1	5.75	123.17	120.30
1	A	342	MET	CG-SD-CE	5.66	109.25	100.20
1	C	333	LEU	CA-CB-CG	5.62	128.24	115.30
1	B	333	LEU	CA-CB-CG	5.58	128.13	115.30
1	G	333	LEU	CA-CB-CG	5.54	128.05	115.30
1	B	38	ARG	NE-CZ-NH1	-5.49	117.56	120.30
1	E	333	LEU	CA-CB-CG	5.48	127.91	115.30
1	C	211	ARG	NE-CZ-NH2	-5.45	117.58	120.30
1	A	39	ASP	CB-CG-OD1	5.35	123.11	118.30
1	B	317	ARG	NE-CZ-NH1	5.30	122.95	120.30
1	C	366	VAL	CG1-CB-CG2	-5.25	102.50	110.90
1	C	380	ARG	NE-CZ-NH2	-5.18	117.71	120.30
1	H	90	LEU	CA-CB-CG	5.13	127.11	115.30
1	A	51	ASP	CB-CG-OD1	5.01	122.81	118.30

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	3054	0	2932	26	0
1	B	3054	0	2932	36	0
1	C	3054	0	2932	31	0
1	D	3054	0	2932	36	0
1	E	3054	0	2932	40	0
1	F	3054	0	2932	48	0
1	G	3054	0	2932	36	0
1	H	3054	0	2932	76	0
2	A	189	0	0	10	0
2	B	223	0	0	8	0
2	C	196	0	0	3	0
2	D	196	0	0	7	0
2	E	191	0	0	7	0
2	F	153	0	0	3	0
2	G	146	0	0	1	0
2	H	76	0	0	9	0
All	All	25802	0	23456	319	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 7.

All (319) close contacts within the same asymmetric unit are listed below, sorted by their clash magnitude.

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:H:31:TRP:O	1:H:38:ARG:NH2	1.87	1.08
1:D:282:ARG:HD2	1:D:370:ARG:NH1	1.73	1.02
1:G:97:HIS:ND1	1:G:127:THR:HG22	1.75	1.01
1:E:370:ARG:HD3	1:G:161:PHE:CZ	2.06	0.91
1:B:181:SER:HB2	1:B:182:PRO:HD2	1.52	0.89
1:H:101:ALA:HB3	1:H:102:PRO:HD3	1.55	0.89
1:D:282:ARG:CD	1:D:370:ARG:NH1	2.43	0.81
1:D:282:ARG:HD2	1:D:370:ARG:HH12	1.47	0.80
1:H:377:GLY:O	1:H:380:ARG:NH1	2.14	0.80
1:D:282:ARG:CD	1:D:370:ARG:HH12	1.96	0.79
1:F:31:TRP:HB3	1:F:38:ARG:HH22	1.49	0.77

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:H:199:VAL:HG23	1:H:223:VAL:HG11	1.67	0.77
1:E:155:LEU:HB2	1:E:223:VAL:HB	1.66	0.76
1:H:62:VAL:HG13	1:H:117:TYR:HD2	1.51	0.75
1:F:31:TRP:HB3	1:F:38:ARG:NH2	2.01	0.74
1:E:370:ARG:HD3	1:G:161:PHE:HZ	1.55	0.72
1:D:282:ARG:HD2	1:D:370:ARG:HH11	1.54	0.71
1:G:181:SER:HB2	1:G:182:PRO:CD	2.21	0.70
1:H:56:GLY:O	1:H:69:TRP:NE1	2.22	0.69
1:D:181:SER:HB2	1:D:182:PRO:HD2	1.73	0.69
1:B:180:ASP:OD1	1:B:180:ASP:N	2.26	0.68
1:B:354:ASN:ND2	2:B:642:HOH:O	2.19	0.68
1:H:132:SER:OG	1:H:134:ASN:OD1	2.09	0.67
1:F:45:ALA:O	1:F:49:ARG:HG3	1.95	0.66
1:E:106:LEU:HD22	1:E:246:ARG:O	1.95	0.66
1:B:280:GLN:OE1	1:F:409:GLN:HG3	1.96	0.66
1:F:99:THR:HG22	1:F:257:ILE:HD13	1.78	0.65
1:A:221:HIS:ND1	2:A:566:HOH:O	2.29	0.65
1:D:277:THR:HG23	2:D:580:HOH:O	1.96	0.65
1:G:181:SER:HB2	1:G:182:PRO:HD2	1.77	0.65
1:H:173:VAL:O	1:H:174:PHE:HD1	1.79	0.65
1:H:177:VAL:CG1	1:H:186:ALA:HB3	2.27	0.65
1:H:66:TYR:CE1	1:H:114:GLU:HA	2.32	0.64
1:C:376:TYR:OH	2:C:563:HOH:O	2.15	0.64
1:H:380:ARG:NH2	2:H:553:HOH:O	2.27	0.64
1:H:155:LEU:HB2	1:H:223:VAL:HG23	1.79	0.64
1:F:113:GLU:O	1:F:117:TYR:HB2	1.98	0.64
1:H:82:GLU:OE2	1:H:82:GLU:HA	1.96	0.63
1:G:61:LEU:HD21	1:G:76:ALA:HB2	1.81	0.63
1:F:381:PHE:O	1:F:385:VAL:HG23	1.99	0.62
1:H:152:GLY:HA3	1:H:225:VAL:O	1.99	0.62
1:E:300:ARG:O	1:E:304:GLU:HG3	2.00	0.62
1:G:99:THR:HG22	1:G:257:ILE:HD12	1.82	0.62
1:H:132:SER:HB2	1:H:141:TRP:CH2	2.35	0.61
1:H:329:LYS:NZ	2:H:523:HOH:O	2.25	0.61
1:H:81:ARG:HH22	1:H:313:ASP:CG	2.03	0.60
1:H:413:PRO:O	2:H:566:HOH:O	2.17	0.60
1:H:31:TRP:HZ2	1:H:51:ASP:HB2	1.66	0.59
1:A:142:LYS:NZ	2:A:583:HOH:O	2.35	0.59
1:A:48:GLU:OE2	2:A:649:HOH:O	2.15	0.59
1:F:207:ALA:HA	1:H:374:PRO:HD3	1.84	0.59
1:H:226:GLU:HB3	1:H:228:ASP:OD1	2.03	0.58

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:H:380:ARG:NH1	2:H:553:HOH:O	2.20	0.58
1:G:106:LEU:HD21	1:G:327:TRP:HZ3	1.69	0.58
1:B:92:HIS:HE1	2:B:651:HOH:O	1.85	0.58
1:F:105:GLU:HG2	1:F:246:ARG:HH12	1.68	0.58
1:B:226:GLU:HG2	1:B:229:GLU:OE1	2.04	0.58
1:C:158:THR:OG1	1:C:219:ASP:OD1	2.13	0.57
1:C:144:ARG:HD2	1:C:178:GLN:HG2	1.86	0.57
1:D:200:THR:HB	1:D:219:ASP:HB2	1.85	0.57
1:F:317:ARG:NH2	2:F:558:HOH:O	2.37	0.57
1:H:177:VAL:HG13	1:H:186:ALA:HB3	1.87	0.57
1:A:49:ARG:NH2	2:A:542:HOH:O	2.05	0.57
1:E:34:THR:HG21	2:E:669:HOH:O	2.04	0.57
1:H:132:SER:HB2	1:H:141:TRP:HH2	1.69	0.57
1:E:375:ARG:NH1	2:E:579:HOH:O	2.36	0.57
1:H:180:ASP:HA	1:H:184:GLN:NE2	2.19	0.57
1:A:317:ARG:HD3	2:A:646:HOH:O	2.06	0.56
1:B:148:THR:HG22	1:B:152:GLY:N	2.20	0.56
1:E:18:ASN:N	2:E:525:HOH:O	2.38	0.56
1:C:149:GLU:C	1:C:151:GLY:H	2.08	0.55
1:H:220:PHE:HD1	1:H:223:VAL:HG21	1.70	0.55
1:C:28:ALA:O	1:C:32:ARG:HD3	2.07	0.55
1:D:37:GLU:HB2	2:D:599:HOH:O	2.05	0.55
1:C:181:SER:HB2	1:C:182:PRO:HD2	1.88	0.55
1:E:174:PHE:HE2	1:E:415:PHE:CE1	2.25	0.55
1:H:100:ASN:OD1	1:H:129:ASN:HB3	2.07	0.55
1:H:35:ALA:HB1	2:H:555:HOH:O	2.06	0.55
1:F:105:GLU:CG	1:F:246:ARG:HH12	2.20	0.55
1:B:115:HIS:ND1	2:B:631:HOH:O	2.33	0.55
1:E:34:THR:HG23	1:E:38:ARG:HE	1.71	0.54
1:B:344:LYS:HD3	2:B:697:HOH:O	2.05	0.54
1:F:31:TRP:HB3	1:F:38:ARG:NH1	2.22	0.54
1:C:37:GLU:OE2	1:C:40:ARG:NH1	2.40	0.54
1:F:39:ASP:O	1:F:211:ARG:NH1	2.40	0.54
1:G:100:ASN:HB2	1:G:127:THR:HG21	1.89	0.54
1:H:103:MET:HA	1:H:106:LEU:HD12	1.87	0.54
1:H:38:ARG:HD3	1:H:48:GLU:HG2	1.90	0.54
1:D:235:ASN:O	1:D:239:LEU:HG	2.07	0.54
1:E:375:ARG:NH2	1:E:376:TYR:OH	2.40	0.54
1:C:146:THR:OG1	1:C:154:VAL:CG1	2.57	0.53
1:G:106:LEU:HD21	1:G:327:TRP:CZ3	2.43	0.53
1:C:52:LEU:O	1:C:55:SER:OG	2.24	0.53

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:F:31:TRP:HB3	1:F:38:ARG:CZ	2.38	0.53
1:D:181:SER:HB2	1:D:182:PRO:CD	2.39	0.53
1:C:116:LEU:O	1:C:120:ILE:HG13	2.08	0.53
1:A:274:ARG:NH1	1:A:278:ARG:NH1	2.56	0.53
1:F:374:PRO:HG2	1:H:206:ALA:HB1	1.90	0.53
1:F:263:LEU:HD21	1:F:312:ALA:HB1	1.91	0.53
1:G:53:ARG:NH2	1:G:169:ASP:OD2	2.41	0.53
1:H:23:VAL:HG11	1:H:55:SER:HB2	1.89	0.53
1:B:116:LEU:O	1:B:120:ILE:HG13	2.09	0.52
1:G:119:GLN:O	1:G:123:ASN:HB2	2.09	0.52
1:G:100:ASN:OD1	1:G:127:THR:HG23	2.10	0.52
1:H:31:TRP:CZ2	1:H:51:ASP:HB2	2.45	0.52
1:B:181:SER:CB	1:B:182:PRO:HD2	2.34	0.52
1:D:174:PHE:HA	1:D:188:ILE:O	2.08	0.52
1:F:66:TYR:CE1	1:F:114:GLU:HG3	2.45	0.52
1:H:226:GLU:HB2	1:H:229:GLU:HG3	1.92	0.52
1:G:113:GLU:O	1:G:117:TYR:HB2	2.10	0.52
1:A:31:TRP:HH2	1:A:52:LEU:HG	1.76	0.51
1:B:72:ASP:HB2	1:B:324:GLN:OE1	2.09	0.51
1:D:358:ASN:HB2	2:D:642:HOH:O	2.10	0.51
1:G:99:THR:HG22	1:G:257:ILE:CD1	2.41	0.51
1:F:38:ARG:HD3	1:F:48:GLU:CD	2.30	0.51
1:H:19:ASP:HB2	1:H:20:PRO:HD2	1.93	0.51
1:H:49:ARG:NH1	1:H:93:LEU:HD11	2.26	0.51
1:C:196:ARG:HG3	1:C:197:ALA:N	2.24	0.51
1:E:317:ARG:HD3	2:E:582:HOH:O	2.11	0.50
1:B:18:ASN:N	1:E:18:ASN:HD21	2.10	0.50
1:H:210:MET:CE	1:H:388:HIS:HB2	2.42	0.50
1:H:173:VAL:HG13	1:H:190:ALA:HB3	1.93	0.50
1:H:283:PRO:HG3	1:H:290:GLN:O	2.11	0.50
1:C:354:ASN:ND2	2:C:584:HOH:O	2.45	0.50
1:E:101:ALA:O	1:E:104:ILE:HD12	2.12	0.50
1:C:146:THR:OG1	1:C:154:VAL:HG12	2.11	0.50
1:A:285:THR:N	1:A:286:PRO:CD	2.75	0.50
1:E:381:PHE:O	1:E:385:VAL:HG23	2.11	0.50
1:F:92:HIS:NE2	1:F:96:TYR:HD2	2.09	0.50
1:G:333:LEU:HD13	1:G:333:LEU:O	2.11	0.50
1:F:31:TRP:HB3	1:F:38:ARG:HH12	1.76	0.50
1:G:146:THR:O	1:G:153:TYR:HA	2.11	0.50
1:H:265:ILE:HG21	1:H:385:VAL:HG23	1.94	0.50
1:G:61:LEU:HD21	1:G:76:ALA:CB	2.42	0.49

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:F:95:GLY:O	1:F:99:THR:HG23	2.12	0.49
1:B:122:GLN:HG2	2:B:717:HOH:O	2.11	0.49
1:F:149:GLU:H	1:F:149:GLU:CD	2.15	0.49
1:G:251:ALA:HB3	1:G:252:PRO:HD3	1.95	0.49
1:A:403:LYS:NZ	2:A:679:HOH:O	2.21	0.49
1:G:60:LEU:HD21	1:G:76:ALA:HA	1.94	0.49
1:E:333:LEU:HD13	1:E:333:LEU:O	2.13	0.49
1:A:74:PRO:O	1:A:78:GLU:HG2	2.12	0.49
1:H:23:VAL:CG1	1:H:55:SER:HB2	2.43	0.49
1:B:176:VAL:HG12	1:B:178:GLN:HG3	1.95	0.48
1:G:43:GLY:O	1:G:212:GLN:HG2	2.13	0.48
1:E:313:ASP:OD2	2:E:585:HOH:O	2.20	0.48
1:H:25:ARG:HG2	1:H:25:ARG:O	2.12	0.48
1:A:226:GLU:HG2	1:A:229:GLU:OE1	2.13	0.48
1:C:92:HIS:HE1	2:C:615:HOH:O	1.95	0.48
1:E:174:PHE:CE2	1:E:415:PHE:CE1	3.01	0.48
1:C:179:ASP:OD1	1:C:180:ASP:N	2.47	0.48
1:D:339:GLY:O	1:D:343:VAL:HG23	2.14	0.48
1:H:27:LEU:O	1:H:31:TRP:HB2	2.13	0.48
1:H:173:VAL:C	1:H:174:PHE:HD1	2.15	0.48
1:D:340:GLU:OE2	1:D:410:TYR:OH	2.25	0.48
1:F:274:ARG:NH2	1:F:275:GLU:OE1	2.47	0.48
1:B:45:ALA:O	1:B:49:ARG:HG3	2.14	0.47
1:H:162:CYS:O	1:H:215:SER:HA	2.15	0.47
1:A:144:ARG:NE	2:A:652:HOH:O	2.46	0.47
1:B:226:GLU:HG3	2:B:632:HOH:O	2.15	0.47
1:E:139:LEU:HD13	2:E:684:HOH:O	2.14	0.47
1:A:210:MET:HB3	1:A:213:THR:CG2	2.45	0.47
1:G:373:HIS:ND1	1:G:375:ARG:HG2	2.30	0.47
1:D:144:ARG:NH2	2:D:671:HOH:O	2.47	0.47
1:A:309:LEU:HG	1:A:359:ILE:CD1	2.46	0.46
1:F:38:ARG:HD3	1:F:48:GLU:OE2	2.15	0.46
1:A:210:MET:HB3	1:A:213:THR:HG21	1.97	0.46
1:A:275:GLU:HG2	2:A:553:HOH:O	2.15	0.46
1:G:40:ARG:NH1	2:G:595:HOH:O	2.48	0.46
1:H:40:ARG:NH1	2:H:512:HOH:O	2.48	0.46
1:H:179:ASP:O	1:H:184:GLN:NE2	2.48	0.46
1:B:99:THR:HG22	1:B:257:ILE:CD1	2.46	0.46
1:D:244:SER:HB3	1:D:335:PRO:HA	1.97	0.46
1:E:200:THR:OG1	1:E:219:ASP:HB2	2.16	0.46
1:H:101:ALA:HB3	1:H:102:PRO:CD	2.38	0.46

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:G:32:ARG:HH11	1:G:32:ARG:HB2	1.81	0.46
1:D:122:GLN:NE2	2:D:627:HOH:O	2.48	0.46
1:C:45:ALA:O	1:C:49:ARG:HG3	2.16	0.46
1:F:317:ARG:NH1	2:F:629:HOH:O	2.15	0.46
1:D:138:VAL:HA	1:D:141:TRP:CD1	2.51	0.45
1:C:149:GLU:C	1:C:151:GLY:N	2.69	0.45
1:F:179:ASP:HB3	1:F:181:SER:H	1.80	0.45
1:G:100:ASN:O	1:G:103:MET:HB3	2.16	0.45
1:G:407:ASN:HB2	1:G:409:GLN:HG3	1.96	0.45
1:H:180:ASP:HA	1:H:184:GLN:HE21	1.81	0.45
1:H:282:ARG:NE	2:H:570:HOH:O	2.49	0.45
1:B:181:SER:HB2	1:B:182:PRO:CD	2.35	0.45
1:E:142:LYS:O	1:E:157:GLY:HA3	2.16	0.45
1:H:73:TRP:HD1	1:H:324:GLN:OE1	1.99	0.45
1:F:146:THR:HA	1:F:147:PRO:HD3	1.86	0.45
1:H:199:VAL:HG22	1:H:220:PHE:CE1	2.52	0.45
1:H:403:LYS:HD2	2:H:564:HOH:O	2.17	0.45
1:F:66:TYR:HE1	1:F:114:GLU:HG3	1.81	0.45
1:H:210:MET:HE3	1:H:388:HIS:HB2	1.97	0.45
1:F:49:ARG:HE	1:F:49:ARG:HB3	1.48	0.45
1:F:149:GLU:OE1	1:F:149:GLU:N	2.37	0.45
1:A:109:SER:OG	2:A:636:HOH:O	2.18	0.45
1:B:187:ILE:HD12	1:B:238:VAL:CG2	2.47	0.45
1:F:386:ARG:HA	1:F:386:ARG:NE	2.32	0.45
1:B:138:VAL:CG1	1:B:187:ILE:HD11	2.47	0.45
1:F:154:VAL:HA	1:F:223:VAL:O	2.17	0.45
1:D:363:VAL:O	1:D:367:ILE:HG13	2.16	0.44
1:A:36:VAL:HB	2:A:658:HOH:O	2.18	0.44
1:C:397:LYS:NZ	1:C:416:THR:O	2.35	0.44
1:G:196:ARG:NH1	1:G:224:LYS:O	2.49	0.44
1:H:78:GLU:OE1	1:H:78:GLU:HA	2.18	0.44
1:E:60:LEU:HD21	1:E:76:ALA:HA	1.98	0.44
1:H:22:ALA:O	1:H:26:GLY:N	2.48	0.44
1:B:31:TRP:HZ3	1:B:83:ILE:HG23	1.83	0.44
1:B:367:ILE:CG2	1:B:371:GLY:HA3	2.47	0.44
1:G:83:ILE:HD12	1:G:94:PHE:CD2	2.53	0.44
1:B:138:VAL:HG11	1:B:187:ILE:HD11	2.00	0.44
1:A:351:LEU:HG	1:D:307:ILE:CG2	2.48	0.44
1:E:220:PHE:HD2	1:E:223:VAL:HG21	1.82	0.44
1:B:81:ARG:HH22	1:B:313:ASP:CG	2.22	0.43
1:B:24:ALA:HB2	1:B:79:VAL:HG13	1.99	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:24:ALA:HB2	1:C:79:VAL:HG13	1.99	0.43
1:D:358:ASN:ND2	2:D:642:HOH:O	2.33	0.43
1:E:107:ILE:HD13	1:E:237:PHE:CE2	2.53	0.43
1:F:149:GLU:CD	1:F:149:GLU:N	2.72	0.43
1:H:168:SER:O	1:H:194:THR:HB	2.18	0.43
1:H:173:VAL:HG22	1:H:174:PHE:N	2.32	0.43
1:B:188:ILE:HD13	1:B:188:ILE:N	2.32	0.43
1:H:101:ALA:CB	1:H:102:PRO:HD3	2.37	0.43
1:E:145:ALA:O	1:E:177:VAL:HA	2.17	0.43
1:H:62:VAL:HG13	1:H:117:TYR:CD2	2.42	0.43
1:H:125:TRP:HA	1:H:169:ASP:OD2	2.18	0.43
1:H:380:ARG:CZ	2:H:553:HOH:O	2.55	0.43
1:C:53:ARG:HA	1:C:58:LEU:HD12	2.00	0.43
1:E:131:SER:OG	1:E:132:SER:N	2.48	0.43
1:D:131:SER:OG	1:D:132:SER:N	2.52	0.43
1:F:273:ALA:HA	1:F:367:ILE:HD11	2.01	0.43
1:H:97:HIS:CD2	1:H:98:LEU:HD23	2.54	0.43
1:D:144:ARG:HG3	1:D:178:GLN:HB2	2.00	0.43
1:E:146:THR:HA	1:E:147:PRO:HD3	1.91	0.43
1:B:18:ASN:N	1:E:18:ASN:ND2	2.67	0.42
1:G:274:ARG:NH1	1:G:278:ARG:NH1	2.66	0.42
1:D:336:GLU:O	1:D:340:GLU:HG2	2.19	0.42
1:C:72:ASP:HB2	1:C:324:GLN:OE1	2.18	0.42
1:F:159:LYS:HG2	1:F:162:CYS:SG	2.59	0.42
1:E:25:ARG:NH1	1:E:82:GLU:OE2	2.52	0.42
1:E:275:GLU:HG2	1:E:276:TYR:N	2.32	0.42
1:D:184:GLN:C	1:D:184:GLN:HE21	2.23	0.42
1:F:263:LEU:HD13	1:F:313:ASP:OD1	2.20	0.42
1:G:32:ARG:HH11	1:G:32:ARG:CB	2.32	0.42
1:C:20:PRO:HG3	1:C:69:TRP:CE3	2.54	0.42
1:F:176:VAL:HB	1:F:178:GLN:NE2	2.34	0.42
1:G:131:SER:HB2	1:G:174:PHE:CE2	2.55	0.42
1:D:179:ASP:O	1:D:184:GLN:HG3	2.20	0.42
1:D:364:PHE:HB3	1:C:390:LEU:HD11	2.00	0.42
1:B:263:LEU:HD23	1:B:263:LEU:HA	1.80	0.42
1:D:309:LEU:HG	1:D:359:ILE:CD1	2.50	0.42
1:H:97:HIS:O	1:H:100:ASN:HB2	2.19	0.42
1:H:150:ASP:OD2	1:H:227:PRO:HD3	2.20	0.42
1:D:208:ILE:HG13	1:D:209:GLY:N	2.34	0.42
1:C:40:ARG:CZ	1:C:40:ARG:HB3	2.47	0.42
1:C:283:PRO:HB2	1:C:289:ILE:O	2.20	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:367:ILE:CG2	1:C:371:GLY:HA3	2.50	0.42
1:E:177:VAL:HG23	1:E:188:ILE:HG12	2.01	0.42
1:E:181:SER:HB2	1:E:182:PRO:HD2	2.02	0.42
1:H:213:THR:O	1:H:214:ASP:C	2.59	0.42
1:F:295:ASP:HB3	1:F:298:THR:HB	2.02	0.41
1:A:187:ILE:HD12	1:A:238:VAL:HG23	2.02	0.41
1:E:112:GLN:O	1:E:113:GLU:C	2.57	0.41
1:F:99:THR:CG2	1:F:257:ILE:HD13	2.48	0.41
1:H:258:PHE:CG	1:H:388:HIS:HE1	2.37	0.41
1:E:166:LYS:HE3	1:E:203:ASP:HB2	2.02	0.41
1:H:283:PRO:HB2	1:H:289:ILE:O	2.21	0.41
1:A:72:ASP:OD1	1:A:75:THR:CB	2.68	0.41
1:B:246:ARG:NE	1:B:330:GLY:HA2	2.35	0.41
1:B:273:ALA:CB	1:B:363:VAL:HB	2.51	0.41
1:F:138:VAL:HG12	1:F:176:VAL:HG11	2.03	0.41
1:G:176:VAL:HG12	1:G:178:GLN:HG3	2.02	0.41
1:H:170:LEU:HD12	1:H:170:LEU:HA	1.94	0.41
1:A:187:ILE:HD12	1:A:238:VAL:CG2	2.50	0.41
1:D:251:ALA:O	1:D:252:PRO:C	2.58	0.41
1:D:265:ILE:HG21	1:D:385:VAL:HG23	2.01	0.41
1:D:373:HIS:CG	1:D:374:PRO:HD2	2.55	0.41
1:A:29:GLU:HG2	1:A:32:ARG:HH22	1.85	0.41
1:B:18:ASN:HA	2:B:661:HOH:O	2.19	0.41
1:C:198:GLY:O	1:C:221:HIS:N	2.38	0.41
1:G:66:TYR:HE1	1:G:114:GLU:HG2	1.86	0.41
1:C:192:ILE:HD13	1:C:192:ILE:HG21	1.79	0.41
1:E:119:GLN:NE2	2:E:590:HOH:O	2.54	0.41
1:E:336:GLU:N	1:E:336:GLU:CD	2.74	0.41
1:F:31:TRP:CB	1:F:38:ARG:HH22	2.26	0.41
1:G:92:HIS:O	1:G:96:TYR:HB2	2.21	0.41
1:H:22:ALA:O	1:H:25:ARG:N	2.54	0.41
1:B:131:SER:O	1:B:159:LYS:HE2	2.21	0.41
1:C:154:VAL:HA	1:C:223:VAL:O	2.20	0.41
1:C:309:LEU:HG	1:C:359:ILE:CD1	2.51	0.41
1:F:228:ASP:OD1	1:F:228:ASP:N	2.51	0.41
1:F:354:ASN:HB2	2:F:600:HOH:O	2.21	0.41
1:H:338:ARG:HD3	1:H:338:ARG:O	2.21	0.41
1:A:367:ILE:CG2	1:A:371:GLY:HA3	2.51	0.41
1:D:18:ASN:HB3	2:D:622:HOH:O	2.20	0.41
1:E:101:ALA:HB1	1:E:117:TYR:HE1	1.86	0.41
1:F:208:ILE:O	1:F:383:ARG:HD2	2.20	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:F:277:THR:HA	1:F:281:ALA:HB2	2.02	0.41
1:F:282:ARG:NH2	1:H:135:ASN:O	2.54	0.41
1:H:27:LEU:HD22	1:H:31:TRP:CH2	2.56	0.41
1:A:28:ALA:HB1	1:A:86:ALA:HB2	2.02	0.40
1:D:19:ASP:HA	1:D:20:PRO:HD2	1.92	0.40
1:C:101:ALA:HB1	1:C:117:TYR:CE1	2.57	0.40
1:G:62:VAL:HB	1:G:68:GLY:HA3	2.03	0.40
1:H:267:HIS:CD2	1:H:309:LEU:HD13	2.56	0.40
1:B:273:ALA:HB2	1:B:363:VAL:HB	2.04	0.40
1:H:80:VAL:O	1:H:80:VAL:HG12	2.21	0.40
1:B:32:ARG:NE	2:B:633:HOH:O	2.48	0.40
1:E:139:LEU:HD23	1:E:139:LEU:HA	1.94	0.40
1:E:162:CYS:O	1:E:215:SER:HA	2.21	0.40
1:B:27:LEU:HD22	1:B:51:ASP:HB3	2.02	0.40
1:H:73:TRP:CD1	1:H:324:GLN:OE1	2.73	0.40
1:A:127:THR:HA	1:A:170:LEU:O	2.21	0.40
1:D:18:ASN:O	1:D:20:PRO:HD3	2.22	0.40
1:E:248:SER:OG	1:E:338:ARG:HG3	2.22	0.40
1:F:116:LEU:HA	1:F:116:LEU:HD23	1.88	0.40
1:F:339:GLY:O	1:F:343:VAL:HG23	2.22	0.40
1:G:181:SER:CB	1:G:182:PRO:CD	2.96	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	398/417 (95%)	381 (96%)	17 (4%)	0	100	100
1	B	398/417 (95%)	388 (98%)	10 (2%)	0	100	100
1	C	398/417 (95%)	384 (96%)	13 (3%)	1 (0%)	41	40
1	D	398/417 (95%)	388 (98%)	9 (2%)	1 (0%)	41	40

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
1	E	398/417 (95%)	385 (97%)	12 (3%)	1 (0%)	41	40
1	F	398/417 (95%)	383 (96%)	12 (3%)	3 (1%)	19	14
1	G	398/417 (95%)	381 (96%)	16 (4%)	1 (0%)	41	40
1	H	398/417 (95%)	365 (92%)	29 (7%)	4 (1%)	15	10
All	All	3184/3336 (95%)	3055 (96%)	118 (4%)	11 (0%)	41	40

All (11) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	C	179	ASP
1	G	181	SER
1	H	131	SER
1	D	179	ASP
1	H	179	ASP
1	H	134	ASN
1	H	408	GLY
1	F	35	ALA
1	F	179	ASP
1	F	374	PRO
1	E	233	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	308/323 (95%)	299 (97%)	9 (3%)	42	44
1	B	308/323 (95%)	301 (98%)	7 (2%)	50	53
1	C	308/323 (95%)	298 (97%)	10 (3%)	39	40
1	D	308/323 (95%)	301 (98%)	7 (2%)	50	53
1	E	308/323 (95%)	298 (97%)	10 (3%)	39	40
1	F	308/323 (95%)	296 (96%)	12 (4%)	32	32
1	G	308/323 (95%)	294 (96%)	14 (4%)	27	26

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Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
1	H	308/323 (95%)	290 (94%)	18 (6%)	20	17
All	All	2464/2584 (95%)	2377 (96%)	87 (4%)	36	37

All (87) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	18	ASN
1	A	64	ARG
1	A	96	TYR
1	A	122	GLN
1	A	144	ARG
1	A	163	SER
1	A	180	ASP
1	A	275	GLU
1	A	333	LEU
1	B	96	TYR
1	B	148	THR
1	B	180	ASP
1	B	219	ASP
1	B	228	ASP
1	B	237	PHE
1	B	333	LEU
1	D	96	TYR
1	D	180	ASP
1	D	184	GLN
1	D	228	ASP
1	D	237	PHE
1	D	245	GLU
1	D	333	LEU
1	C	25	ARG
1	C	32	ARG
1	C	40	ARG
1	C	96	TYR
1	C	149	GLU
1	C	178	GLN
1	C	184	GLN
1	C	196	ARG
1	C	228	ASP
1	C	333	LEU
1	E	29	GLU
1	E	46	THR
1	E	50	GLU

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<b>Mol</b>	<b>Chain</b>	<b>Res</b>	<b>Type</b>
1	E	96	TYR
1	E	105	GLU
1	E	110	GLN
1	E	228	ASP
1	E	275	GLU
1	E	333	LEU
1	E	344	LYS
1	F	39	ASP
1	F	46	THR
1	F	65	GLU
1	F	96	TYR
1	F	114	GLU
1	F	150	ASP
1	F	181	SER
1	F	228	ASP
1	F	237	PHE
1	F	285	THR
1	F	333	LEU
1	F	344	LYS
1	G	29	GLU
1	G	30	LYS
1	G	40	ARG
1	G	50	GLU
1	G	96	TYR
1	G	144	ARG
1	G	154	VAL
1	G	173	VAL
1	G	179	ASP
1	G	184	GLN
1	G	208	ILE
1	G	228	ASP
1	G	237	PHE
1	G	333	LEU
1	H	18	ASN
1	H	69	TRP
1	H	72	ASP
1	H	78	GLU
1	H	82	GLU
1	H	96	TYR
1	H	132	SER
1	H	158	THR
1	H	169	ASP

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Mol	Chain	Res	Type
1	H	177	VAL
1	H	180	ASP
1	H	219	ASP
1	H	223	VAL
1	H	226	GLU
1	H	228	ASP
1	H	250	PHE
1	H	333	LEU
1	H	397	LYS

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (9) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	110	GLN
1	A	321	HIS
1	D	184	GLN
1	D	409	GLN
1	C	178	GLN
1	E	280	GLN
1	G	137	HIS
1	H	18	ASN
1	H	184	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 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 [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, 95<sup>th</sup> 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 <sup>2</sup> )	Q<0.9
1	A	400/417 (95%)	-0.20	3 (0%) 86 88	17, 35, 56, 84	0
1	B	400/417 (95%)	-0.20	5 (1%) 77 80	16, 30, 54, 108	0
1	C	400/417 (95%)	-0.01	2 (0%) 91 92	17, 34, 57, 104	0
1	D	400/417 (95%)	-0.10	3 (0%) 86 88	16, 33, 56, 95	0
1	E	400/417 (95%)	-0.06	2 (0%) 91 92	17, 34, 60, 105	0
1	F	400/417 (95%)	0.08	9 (2%) 60 65	19, 39, 67, 109	0
1	G	400/417 (95%)	-0.04	6 (1%) 73 77	20, 40, 63, 101	0
1	H	400/417 (95%)	0.74	69 (17%) 1 1	20, 57, 94, 125	0
All	All	3200/3336 (95%)	0.03	99 (3%) 49 55	16, 36, 72, 125	0

All (99) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	H	151	GLY	6.2
1	H	148	THR	5.4
1	H	147	PRO	5.3
1	H	150	ASP	5.2
1	H	175	GLY	5.2
1	G	182	PRO	5.2
1	H	18	ASN	5.0
1	B	180	ASP	4.7
1	H	180	ASP	4.6
1	H	156	ASN	4.5
1	H	197	ALA	4.5
1	H	146	THR	4.1
1	H	149	GLU	4.0
1	H	224	LYS	4.0
1	B	179	ASP	4.0
1	H	139	LEU	4.0

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<b>Mol</b>	<b>Chain</b>	<b>Res</b>	<b>Type</b>	<b>RSRZ</b>
1	H	54	ALA	3.9
1	H	221	HIS	3.8
1	B	181	SER	3.8
1	H	154	VAL	3.7
1	H	144	ARG	3.7
1	H	120	ILE	3.7
1	H	155	LEU	3.6
1	D	183	GLN	3.6
1	H	225	VAL	3.4
1	H	220	PHE	3.4
1	F	27	LEU	3.4
1	H	157	GLY	3.4
1	F	18	ASN	3.3
1	G	180	ASP	3.3
1	B	183	GLN	3.3
1	H	117	TYR	3.3
1	H	178	GLN	3.2
1	H	227	PRO	3.2
1	H	223	VAL	3.2
1	H	125	TRP	3.1
1	G	149	GLU	3.1
1	H	24	ALA	3.1
1	H	231	LEU	3.1
1	H	62	VAL	3.0
1	H	183	GLN	3.0
1	H	67	GLY	3.0
1	E	179	ASP	3.0
1	H	26	GLY	3.0
1	H	152	GLY	3.0
1	H	31	TRP	2.9
1	H	182	PRO	2.9
1	H	23	VAL	2.9
1	H	188	ILE	2.9
1	F	101	ALA	2.8
1	A	150	ASP	2.7
1	H	158	THR	2.7
1	H	205	TRP	2.7
1	B	182	PRO	2.7
1	H	176	VAL	2.6
1	H	22	ALA	2.6
1	H	32	ARG	2.6
1	H	104	ILE	2.6

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<b>Mol</b>	<b>Chain</b>	<b>Res</b>	<b>Type</b>	<b>RSRZ</b>
1	F	290	GLN	2.6
1	G	231	LEU	2.5
1	H	50	GLU	2.5
1	F	110	GLN	2.5
1	H	161	PHE	2.5
1	H	25	ARG	2.4
1	D	18	ASN	2.4
1	H	119	GLN	2.4
1	H	206	ALA	2.4
1	H	181	SER	2.4
1	C	355	ALA	2.4
1	C	357	LEU	2.4
1	A	151	GLY	2.3
1	G	179	ASP	2.3
1	H	191	ALA	2.3
1	H	222	ASN	2.3
1	G	181	SER	2.3
1	H	153	TYR	2.3
1	F	19	ASP	2.3
1	H	19	ASP	2.3
1	H	107	ILE	2.3
1	F	22	ALA	2.2
1	A	180	ASP	2.2
1	H	143	VAL	2.2
1	H	204	ASP	2.2
1	F	62	VAL	2.2
1	E	180	ASP	2.2
1	H	165	ALA	2.2
1	H	192	ILE	2.2
1	F	122	GLN	2.2
1	D	185	GLY	2.2
1	H	138	VAL	2.2
1	H	171	LEU	2.1
1	H	137	HIS	2.1
1	H	116	LEU	2.1
1	H	198	GLY	2.1
1	H	27	LEU	2.1
1	H	21	VAL	2.1
1	H	226	GLU	2.1
1	H	115	HIS	2.0
1	H	230	VAL	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.