



Full wwPDB X-ray Structure Validation Report ⓘ

Nov 3, 2024 – 08:34 am GMT

PDB ID : 4UW2
Title : Crystal structure of Csm1 in *T. onnurineus*
Authors : Jung, T.Y.; An, Y.; Park, K.H.; Lee, M.H.; Oh, B.H.; Woo, E.J.
Deposited on : 2014-08-08
Resolution : 2.63 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
Mogul : 1.8.4, CSD as541be (2020)
Xtriage (Phenix) : 1.13
EDS : 3.0
Percentile statistics : 20231227.v01 (using entries in the PDB archive December 27th 2023)
CCP4 : 9.0.003 (Gargrove)
Density-Fitness : 1.0.11
Ideal geometry (proteins) : Engh & Huber (2001)
Ideal geometry (DNA, RNA) : Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP) : 2.39

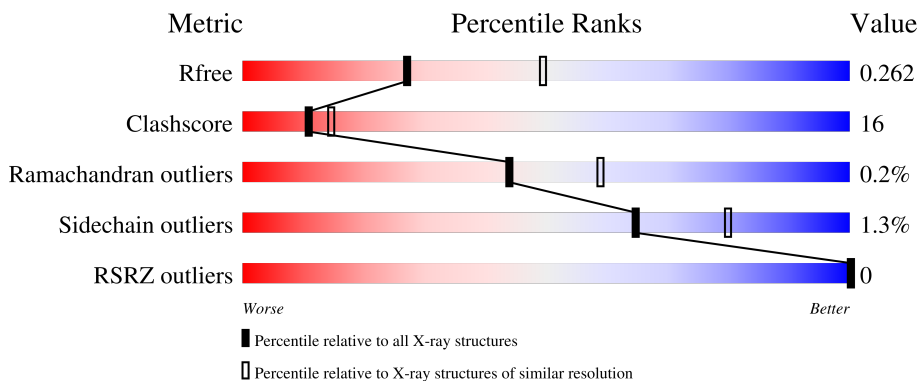
1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

X-RAY DIFFRACTION

The reported resolution of this entry is 2.63 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}	164625	1851 (2.66-2.62)
Clashscore	180529	1953 (2.66-2.62)
Ramachandran outliers	177936	1929 (2.66-2.62)
Sidechain outliers	177891	1929 (2.66-2.62)
RSRZ outliers	164620	1850 (2.66-2.62)

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	779	 64% 24% 11%
1	B	779	 64% 27% 8%
1	C	779	 17% 8% 74%
1	D	779	 8% 88%

2 Entry composition

There are 2 unique types of molecules in this entry. The entry contains 14308 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 CSM1.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace	
			Total	C	N	O	S				Se
1	A	696	Total 5586	C 3596	N 959	O 1016	S 1	Se 14	0	0	0
1	B	713	Total 5719	C 3679	N 987	O 1038	S 2	Se 13	0	0	0
1	C	201	Total 1640	C 1063	N 287	O 286	S 4	Se 4	0	0	0
1	D	92	Total 753	C 487	N 135	O 130	S 1	Se 1	0	0	0

There are 8 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
A	-1	ALA	-	expression tag	UNP B6YWB8
A	0	MSE	-	expression tag	UNP B6YWB8
B	-1	ALA	-	expression tag	UNP B6YWB8
B	0	MSE	-	expression tag	UNP B6YWB8
C	-1	ALA	-	expression tag	UNP B6YWB8
C	0	MSE	-	expression tag	UNP B6YWB8
D	-1	ALA	-	expression tag	UNP B6YWB8
D	0	MSE	-	expression tag	UNP B6YWB8

- Molecule 2 is water.

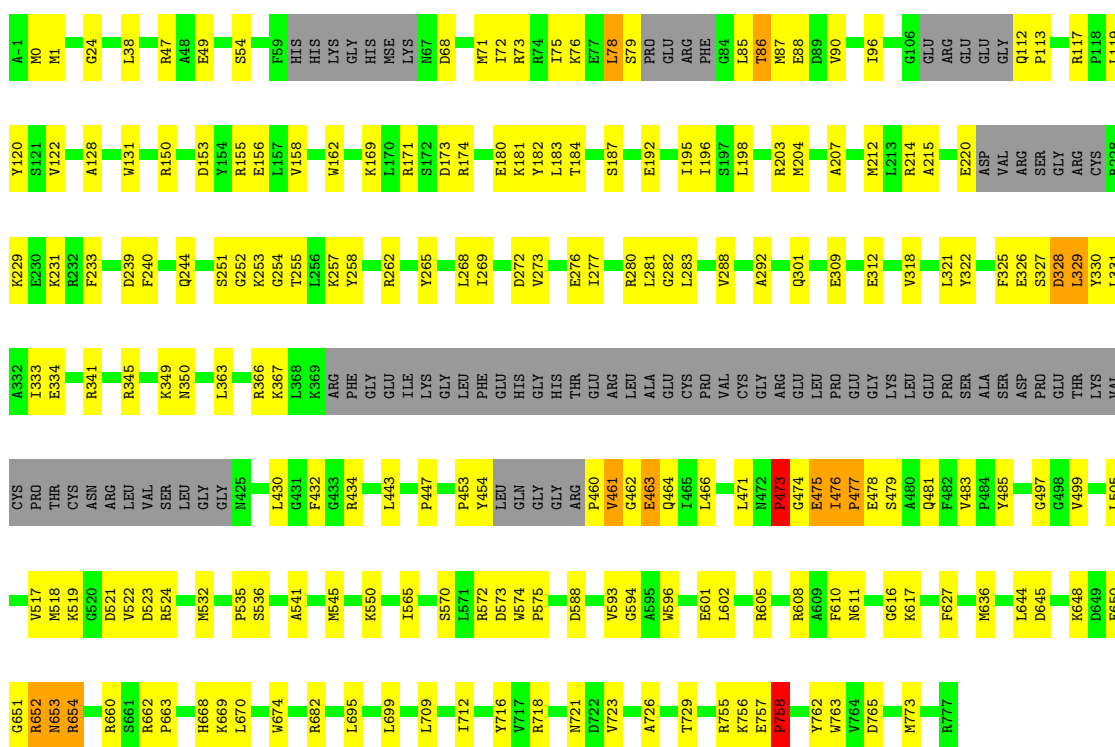
Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
2	A	236	Total 236	O 236	0	0
2	B	263	Total 263	O 263	0	0
2	C	73	Total 73	O 73	0	0
2	D	38	Total 38	O 38	0	0

3 Residue-property plots

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

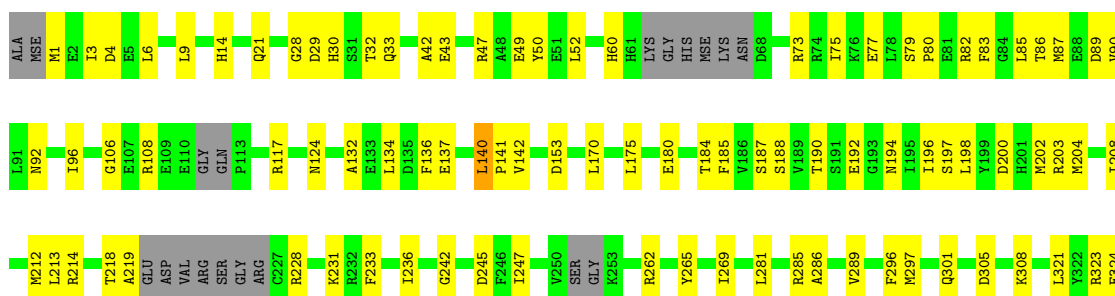
- Molecule 1: CSM1

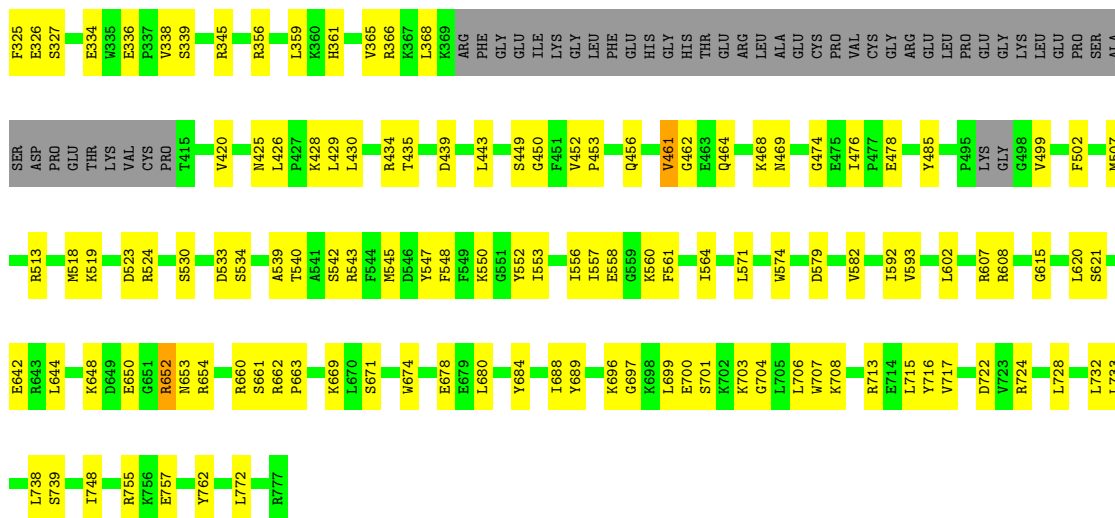
Chain A: 



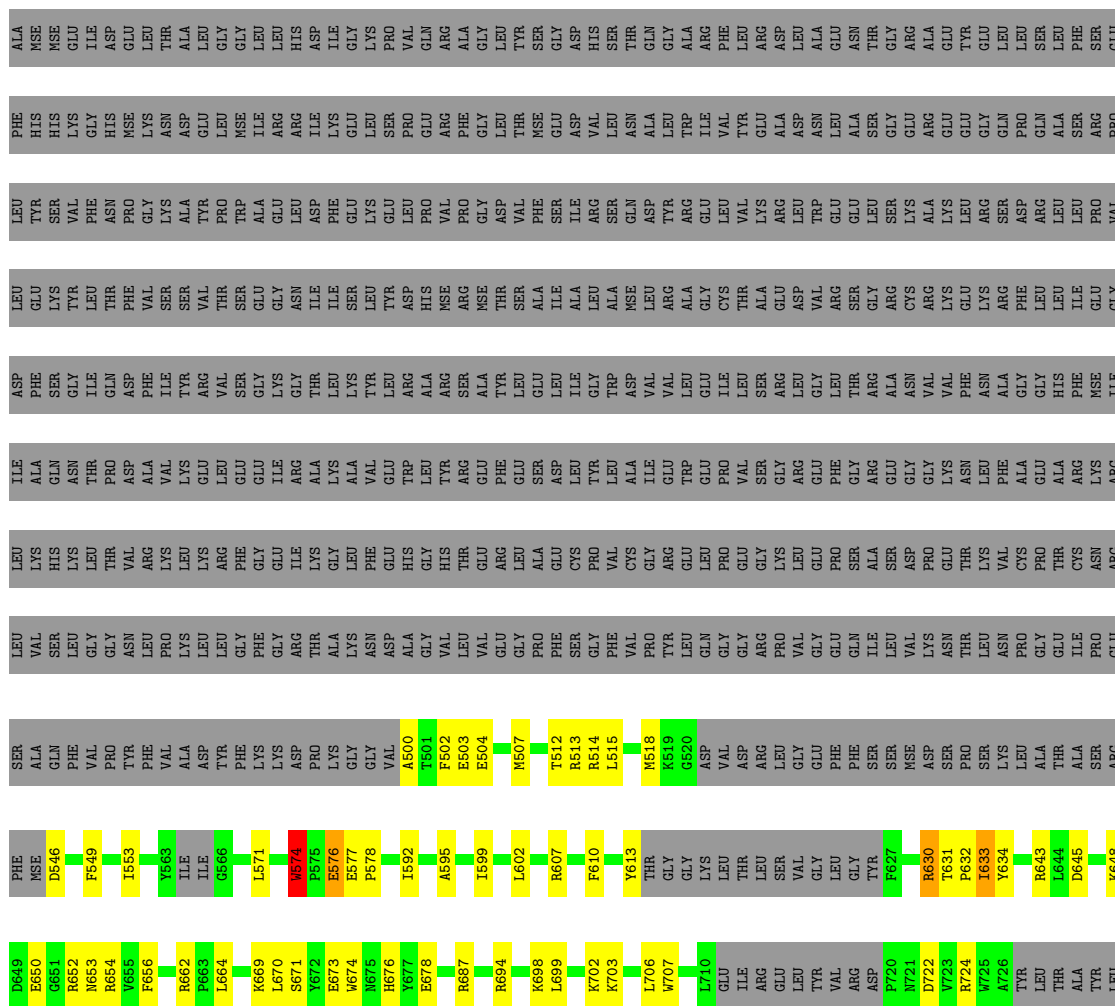
- Molecule 1: CSM1

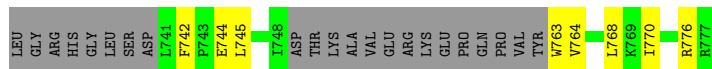
Chain B: 





● Molecule 1: CSM1





● Molecule 1: CSM1



ALA	MSE	MSE	GLU	HIS	GLY	ILE	ASP	LEU	GLU	THR	ASN	L741	F742	P743	E744	L745	I748	ASP	THR	LYS	ALA	VAL	GLU	PRO	LEU	VAL	TYR	W763	V764	L768	K769	I770	R776	R777					
PHE	HIS	HIS	LYS	VAL	PHE	ASN	PRO	GLY	LYS	THR	ASP	ALA	TYR	VAL	PRO	TRP	ALA	ILE	VAL	THR	LEU	ASN	ALA	ARG	LEU	GLY	THR	VAL	THR	THR	THR	THR	THR	THR	THR				
LEU	TYR	VAL	VAL	ASN	PRO	GLY	LYS	LYS	LYS	THR	ASP	ALA	TYR	VAL	PRO	TRP	ALA	ILE	VAL	THR	LEU	ASN	ALA	ARG	LEU	GLY	THR	VAL	THR	THR	THR	THR	THR	THR	THR				
LEU	GLU	LYS	TYR	LEU	THR	PHE	VAL	VAL	SER	THR	THR	VAL	VAL	VAL	THR	SER	GLY	GLY	ASN	ILE	ILE	THR	ALA	ARG	LEU	GLY	THR	VAL	THR	THR	THR	THR	THR	THR	THR				
ASP	PHE	SER	GLY	ILE	ASN	PHE	THR	VAL	THR	THR	THR	VAL	VAL	VAL	THR	SER	GLY	GLY	ASN	ILE	ILE	THR	ALA	ARG	LEU	GLY	THR	VAL	THR	THR	THR	THR	THR	THR	THR				
ILE	ALA	GLN	ASN	THR	PRO	ASP	ALA	VAL	VAL	VAL	LYS	GLY	GLY	GLY	GLY	GLY	ILE	ALA	ARG	ALA	ALA	VAL	VAL	GLU	PHE	GLU	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY				
LEU	LYS	HIS	LYS	THR	THR	VAL	ARG	VAL	ARG	THR	THR	GLY	GLY	GLY	GLY	GLY	ILE	ALA	ARG	THR	LYS	ALA	VAL	VAL	GLU	PHE	GLU	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY			
LEU	VAL	LEU	GLY	GLY	ASN	LEU	PRO	LYS	LYS	THR	THR	PHE	GLY	GLY	GLY	PHE	GLY	GLY	ASN	ILE	THR	ALA	ASN	VAL	GLU	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY			
SER	ALA	GLN	PHE	VAL	PRO	TYR	PHE	VAL	VAL	VAL	VAL	LYS	LYS	LYS	LYS	LYS	LYS	LYS	PRO	PRO	PRO	LYS	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY		
THR	ALA	SER	ARG	PHE	MSE	ASP	THR	TYR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	
PHE	GLU	L602	R607	Y813	THR	THR	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY		
LEU	TRP	ARG	THR	TYR	ALA	ALA	ARG	ARG	ARG	ARG	ARG	ARG	ARG	ARG	ARG	ARG	ARG	ARG	ARG	ARG	ARG	ARG	ARG	ARG	ARG	ARG	ARG	ARG	ARG	ARG	ARG	ARG	ARG	ARG	ARG	ARG	ARG	ARG	
T750	K751	A752	VAL	E754	Q759	P760	Y761	W762	W763	W764	D765	G766	VAL	LEU	LEU	LYS	ILE	VAL	VAL	MSE	ALA	VAL	VAL	ARG	ARG	ARG	ARG	ARG	ARG	ARG	ARG	ARG	ARG	ARG	ARG	ARG	ARG	ARG	
THR	ALA	ASP	TRP	PRO	ASP	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR
LEU	TRP	ARG	THR	TYR	ALA	ALA	ARG	ARG	ARG	ARG	ARG	ARG	ARG	ARG	ARG	ARG	ARG	ARG	ARG	ARG	ARG	ARG	ARG	ARG	ARG	ARG	ARG	ARG	ARG	ARG	ARG	ARG	ARG	ARG	ARG	ARG	ARG	ARG	ARG
L709	R713	R718	D719	P720	N721	D722	V723	W724	W725	A726	Y727	L728	THR	ALA	TYR	LEU	LEU	GLY	ARG	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	
R660	S661	L664	ASP	LYS	H668	E673	W674	N675	HIS	L741	F742	D749	THR	ALA	TYR	LEU	LEU	GLY	ARG	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY

4 Data and refinement statistics

Property	Value	Source
Space group	C 1 2 1	Depositor
Cell constants a, b, c, α , β , γ	57.89Å 158.29Å 299.27Å 90.00° 89.97° 90.00°	Depositor
Resolution (Å)	30.66 – 2.63 30.66 – 2.63	Depositor EDS
% Data completeness (in resolution range)	98.2 (30.66-2.63) 98.2 (30.66-2.63)	Depositor EDS
R_{merge}	0.07	Depositor
R_{sym}	(Not available)	Depositor
$\langle I/\sigma(I) \rangle$ ¹	4.60 (at 2.64Å)	Xtrriage
Refinement program	PHENIX (PHENIX.REFINE)	Depositor
R, R_{free}	0.203 , 0.261 0.208 , 0.262	Depositor DCC
R_{free} test set	1989 reflections (2.54%)	wwPDB-VP
Wilson B-factor (Å ²)	26.3	Xtrriage
Anisotropy	0.000	Xtrriage
Bulk solvent k_{sol} (e/Å ³), B_{sol} (Å ²)	0.32 , 33.3	EDS
L-test for twinning ²	$\langle L \rangle = 0.41$, $\langle L^2 \rangle = 0.24$	Xtrriage
Estimated twinning fraction	0.460 for h,-k,-l	Xtrriage
Reported twinning fraction	0.500 for h,-k,-l	Depositor
Outliers	1 of 78224 reflections (0.001%)	Xtrriage
F_o, F_c correlation	0.94	EDS
Total number of atoms	14308	wwPDB-VP
Average B, all atoms (Å ²)	30.0	wwPDB-VP

Xtrriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 2.80% 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	0.31	4/5695 (0.1%)	0.54	12/7657 (0.2%)
1	B	0.23	1/5834 (0.0%)	0.46	5/7849 (0.1%)
1	C	0.27	0/1674	0.46	1/2245 (0.0%)
1	D	0.22	0/765	0.41	1/1025 (0.1%)
All	All	0.27	5/13968 (0.0%)	0.49	19/18776 (0.1%)

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	B	0	1

All (5) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
1	A	473	PRO	N-CD	12.45	1.65	1.47
1	A	477	PRO	N-CD	5.56	1.55	1.47
1	B	141	PRO	N-CD	5.39	1.55	1.47
1	A	113	PRO	N-CD	5.31	1.55	1.47
1	A	758	PRO	N-CD	5.14	1.55	1.47

All (19) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	A	652	ARG	CB-CA-C	-17.39	75.63	110.40
1	B	652	ARG	N-CA-C	15.61	153.15	111.00
1	A	652	ARG	N-CA-C	14.01	148.83	111.00
1	B	652	ARG	CB-CA-C	-10.53	89.34	110.40
1	B	653	ASN	N-CA-C	-8.46	88.15	111.00
1	A	653	ASN	CB-CA-C	8.33	127.06	110.40
1	A	473	PRO	CA-N-CD	-7.45	101.07	111.50

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	A	473	PRO	N-CA-C	7.16	130.71	112.10
1	A	654	ARG	N-CA-CB	-7.07	97.88	110.60
1	A	654	ARG	N-CA-C	6.48	128.50	111.00
1	C	574	TRP	C-N-CD	6.04	141.09	128.40
1	A	653	ASN	N-CA-C	-6.01	94.76	111.00
1	A	473	PRO	N-CA-CB	-5.98	96.02	102.60
1	B	461	VAL	CB-CA-C	-5.88	100.22	111.40
1	A	757	GLU	C-N-CD	5.83	140.63	128.40
1	A	112	GLN	C-N-CD	5.59	140.14	128.40
1	B	140	LEU	C-N-CD	5.45	139.83	128.40
1	D	742	PHE	N-CA-C	5.35	125.45	111.00
1	A	497	GLY	N-CA-C	5.33	126.44	113.10

There are no chirality outliers.

All (1) planarity outliers are listed below:

Mol	Chain	Res	Type	Group
1	B	474	GLY	Peptide

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	5586	0	5595	174	0
1	B	5719	0	5710	182	0
1	C	1640	0	1619	59	0
1	D	753	0	733	37	0
2	A	236	0	0	21	0
2	B	263	0	0	17	0
2	C	73	0	0	8	0
2	D	38	0	0	5	0
All	All	14308	0	13657	447	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 16.

All (447) 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:A:653:ASN:O	1:A:674:TRP:CD1	1.80	1.34
1:C:654:ARG:NH1	1:C:671:SER:HB3	1.45	1.29
1:B:52:LEU:CD2	1:B:85:LEU:HD11	1.70	1.22
1:B:52:LEU:HD22	1:B:85:LEU:CD1	1.74	1.18
1:A:653:ASN:O	1:A:674:TRP:NE1	1.76	1.16
1:A:272:ASP:OD2	1:A:447:PRO:HD2	1.44	1.15
1:A:322:TYR:HA	1:A:326:GLU:HB2	1.28	1.15
1:B:52:LEU:CD2	1:B:85:LEU:CD1	2.28	1.12
1:A:322:TYR:O	1:A:326:GLU:HB3	1.51	1.10
1:B:52:LEU:HD22	1:B:85:LEU:HD11	1.16	1.10
1:D:521:ASP:OD1	2:D:2004:HOH:O	1.75	1.03
1:B:140:LEU:HD23	1:B:564:ILE:HD12	1.41	1.01
1:D:723:VAL:HG22	1:D:724:ARG:H	1.28	0.98
1:C:654:ARG:NH1	1:C:671:SER:CB	2.27	0.97
1:A:272:ASP:OD2	1:A:447:PRO:CD	2.13	0.96
1:A:322:TYR:HA	1:A:326:GLU:CB	1.95	0.95
1:C:654:ARG:HH11	1:C:671:SER:HB3	1.15	0.93
1:B:203:ARG:NH1	1:B:542:SER:OG	2.01	0.92
1:A:651:GLY:O	1:A:652:ARG:HB2	1.67	0.91
1:B:140:LEU:HD22	1:B:561:PHE:HB3	1.51	0.90
1:B:184:THR:HG23	1:B:543:ARG:HH12	1.38	0.89
1:B:661:SER:OG	1:B:713:ARG:NH1	2.05	0.88
1:A:85:LEU:HD13	1:A:90:VAL:HG22	1.57	0.86
1:B:89:ASP:OD1	1:B:90:VAL:N	2.11	0.83
1:B:52:LEU:HD21	1:B:85:LEU:CD1	2.07	0.83
1:B:140:LEU:CD2	1:B:564:ILE:HD12	2.08	0.83
1:B:523:ASP:OD2	1:B:652:ARG:O	1.97	0.82
1:C:654:ARG:CZ	1:C:671:SER:HB3	2.10	0.81
1:B:700:GLU:O	1:B:701:SER:OG	1.99	0.81
1:B:697:GLY:O	2:B:2234:HOH:O	1.99	0.80
1:B:434:ARG:NH1	1:B:464:GLN:OE1	2.14	0.80
1:C:607:ARG:HG2	1:C:674:TRP:CE2	2.17	0.80
1:B:140:LEU:HD23	1:B:564:ILE:CD1	2.11	0.80
1:B:117:ARG:NH1	1:B:192:GLU:OE1	2.14	0.80
1:B:140:LEU:HB3	1:B:564:ILE:CD1	2.12	0.80
1:B:52:LEU:CD2	1:B:85:LEU:HD13	2.12	0.79
1:C:654:ARG:HH11	1:C:671:SER:CB	1.89	0.79
1:A:601:GLU:OE2	1:A:605:ARG:NH2	2.14	0.79
1:D:719:ASP:OD2	1:D:722:ASP:HB2	1.85	0.77
1:A:322:TYR:HE1	1:A:330:TYR:HD2	1.32	0.76
1:D:660:ARG:NH2	1:D:762:TYR:O	2.20	0.75
1:A:660:ARG:NH1	1:A:670:LEU:O	2.20	0.74

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:723:VAL:HG13	1:A:726:ALA:HB3	1.68	0.74
1:B:435:THR:HB	1:B:462:GLY:HA2	1.71	0.73
1:B:579:ASP:OD2	2:B:2153:HOH:O	2.07	0.72
1:B:140:LEU:HD22	1:B:561:PHE:CB	2.20	0.72
1:B:703:LYS:HE2	1:B:707:TRP:HE1	1.54	0.71
1:B:42:ALA:HB2	1:B:50:TYR:HB2	1.71	0.71
1:D:741:LEU:N	2:D:2027:HOH:O	2.24	0.71
1:B:285:ARG:NH1	2:B:2111:HOH:O	2.10	0.71
1:A:0:MSE:HB2	1:A:1:MSE:HB2	1.73	0.70
1:A:723:VAL:CG1	1:A:726:ALA:HB3	2.20	0.70
1:B:52:LEU:HD21	1:B:85:LEU:CD2	2.21	0.70
1:A:272:ASP:OD2	1:A:447:PRO:CG	2.39	0.70
1:A:258:TYR:HB3	1:A:262:ARG:NH1	2.07	0.70
1:C:650:GLU:OE1	1:C:654:ARG:NH1	2.25	0.69
1:A:272:ASP:OD2	1:A:447:PRO:HG2	1.93	0.69
1:B:153:ASP:OD2	2:B:2056:HOH:O	2.09	0.69
1:D:723:VAL:HG22	1:D:724:ARG:N	2.03	0.69
1:A:122:VAL:HG23	1:A:195:ILE:HD12	1.74	0.68
1:A:653:ASN:O	1:A:674:TRP:HD1	1.67	0.68
1:B:6:LEU:HD22	1:B:85:LEU:HD21	1.76	0.68
1:B:558:GLU:OE1	1:B:560:LYS:NZ	2.23	0.67
1:A:322:TYR:HE1	1:A:330:TYR:CD2	2.13	0.67
1:B:49:GLU:OE1	1:B:49:GLU:N	2.28	0.67
1:A:617:LYS:NZ	2:A:2049:HOH:O	2.27	0.67
1:A:156:GLU:OE2	2:A:2063:HOH:O	2.14	0.66
1:B:621:SER:OG	1:B:652:ARG:O	2.12	0.66
1:B:228:ARG:HH22	1:B:233:PHE:HE2	1.43	0.66
1:D:725:TRP:CZ2	1:D:761:VAL:HG11	2.31	0.66
1:B:654:ARG:NH2	1:B:671:SER:O	2.29	0.65
1:B:4:ASP:HB3	1:B:214:ARG:HH22	1.62	0.65
1:B:642:GLU:OE2	2:B:2211:HOH:O	2.14	0.65
1:C:654:ARG:HD3	1:C:671:SER:HB3	1.79	0.64
1:A:322:TYR:CA	1:A:326:GLU:CB	2.75	0.64
1:B:79:SER:HB2	1:B:82:ARG:HB3	1.80	0.64
1:C:512:THR:HA	1:C:776:ARG:HD2	1.78	0.64
1:A:85:LEU:CD1	1:A:90:VAL:HG22	2.28	0.64
1:B:425:ASN:HA	1:B:429:LEU:HD22	1.77	0.64
1:C:648:LYS:HE3	1:C:652:ARG:NH1	2.12	0.64
1:A:755:ARG:NH1	2:A:2222:HOH:O	2.31	0.64
1:B:650:GLU:O	1:B:669:LYS:NZ	2.31	0.64
1:A:464:GLN:HG3	1:A:481:GLN:HB2	1.80	0.64

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:231:LYS:O	1:A:231:LYS:HG2	1.98	0.63
1:A:322:TYR:C	1:A:326:GLU:HB3	2.17	0.63
1:A:329:LEU:HG	1:A:330:TYR:N	2.13	0.63
1:B:140:LEU:CB	1:B:564:ILE:CD1	2.76	0.63
1:C:576:GLU:O	1:C:578:PRO:HD3	1.99	0.63
1:C:546:ASP:N	2:C:2016:HOH:O	2.31	0.63
1:D:725:TRP:NE1	1:D:761:VAL:HG11	2.14	0.63
1:B:608:ARG:NH1	1:B:678:GLU:OE1	2.31	0.63
1:C:650:GLU:HB3	1:C:669:LYS:HG2	1.80	0.63
1:B:86:THR:O	1:B:90:VAL:HG12	1.98	0.63
1:B:6:LEU:HD22	1:B:85:LEU:CD2	2.29	0.63
1:C:607:ARG:HG2	1:C:674:TRP:CD2	2.34	0.62
1:B:140:LEU:HD22	1:B:561:PHE:CG	2.34	0.62
1:B:755:ARG:NH2	1:B:757:GLU:OE2	2.31	0.62
1:D:725:TRP:HZ2	1:D:761:VAL:CG1	2.13	0.62
1:A:478:GLU:O	1:A:478:GLU:HG2	2.00	0.62
1:A:654:ARG:NH2	2:A:2190:HOH:O	2.25	0.62
1:A:660:ARG:HD2	1:A:765:ASP:OD2	1.99	0.62
1:D:725:TRP:HE1	1:D:761:VAL:HG11	1.65	0.62
1:B:140:LEU:CD2	1:B:561:PHE:HB3	2.25	0.62
1:C:763:TRP:N	2:C:2067:HOH:O	2.32	0.62
1:A:87:MSE:O	1:A:87:MSE:HG2	1.99	0.62
1:A:682:ARG:NH2	2:A:2202:HOH:O	2.33	0.62
1:B:200:ASP:OD2	1:B:540:THR:HA	1.99	0.61
1:C:699:LEU:HD11	1:C:706:LEU:HD11	1.83	0.61
1:A:322:TYR:CD1	1:A:326:GLU:OE1	2.53	0.61
1:A:85:LEU:HD13	1:A:90:VAL:CG2	2.29	0.61
1:A:292:ALA:HB1	1:A:550:LYS:HE2	1.83	0.61
1:A:350:ASN:ND2	1:A:532:MSE:O	2.30	0.61
1:B:428:LYS:HE2	1:B:456:GLN:HB3	1.83	0.60
1:B:180:GLU:O	1:B:184:THR:OG1	2.19	0.60
1:A:180:GLU:O	1:A:184:THR:OG1	2.18	0.60
1:A:117:ARG:NH1	1:A:192:GLU:HG3	2.17	0.60
1:B:140:LEU:CB	1:B:564:ILE:HD12	2.32	0.60
1:A:476:ILE:HG22	1:A:477:PRO:HD2	1.82	0.60
1:C:645:ASP:HA	1:C:648:LYS:HG3	1.84	0.60
1:A:521:ASP:OD2	1:A:648:LYS:NZ	2.23	0.59
1:A:180:GLU:OE2	2:A:2067:HOH:O	2.17	0.59
1:B:132:ALA:HB2	1:B:185:PHE:HB2	1.83	0.59
1:C:574:TRP:HA	1:C:574:TRP:CE3	2.37	0.59
1:B:136:PHE:O	1:B:137:GLU:HG2	2.01	0.59

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:257:LYS:HZ3	1:A:499:VAL:HB	1.66	0.59
1:A:645:ASP:OD1	2:A:2182:HOH:O	2.17	0.59
1:B:426:LEU:HD11	1:B:499:VAL:HG23	1.84	0.58
1:A:345:ARG:NH2	2:A:2116:HOH:O	2.36	0.58
1:A:212:MSE:HE2	1:A:233:PHE:HZ	1.66	0.58
1:A:648:LYS:O	1:A:652:ARG:NH1	2.36	0.58
1:B:187:SER:OG	1:B:194:ASN:ND2	2.37	0.58
1:B:435:THR:OG1	1:B:439:ASP:OD2	2.21	0.58
1:C:694:ARG:NH1	2:C:2061:HOH:O	2.11	0.58
1:D:725:TRP:CZ2	1:D:761:VAL:CG1	2.87	0.58
1:B:661:SER:HG	1:B:713:ARG:NH1	2.01	0.58
2:A:2119:HOH:O	1:B:722:ASP:OD2	2.17	0.57
1:D:725:TRP:CE2	1:D:761:VAL:HG11	2.39	0.57
1:A:214:ARG:NH1	1:A:281:LEU:O	2.38	0.57
1:A:273:VAL:O	1:A:277:ILE:HG13	2.05	0.57
1:B:662:ARG:NH2	2:B:2219:HOH:O	2.34	0.57
1:D:762:TYR:HD2	1:D:763:TRP:CE2	2.23	0.57
1:A:463:GLU:O	1:A:481:GLN:N	2.38	0.57
1:A:648:LYS:HB3	1:A:652:ARG:NH1	2.19	0.57
1:C:698:LYS:O	1:C:698:LYS:HG2	2.04	0.57
1:C:592:ILE:O	2:C:2014:HOH:O	2.18	0.56
1:A:24:GLY:HA3	1:A:155:ARG:HH11	1.68	0.56
1:A:182:TYR:O	2:A:2069:HOH:O	2.18	0.56
1:A:517:VAL:HG22	1:A:593:VAL:HG12	1.87	0.56
1:B:134:LEU:HD11	1:B:136:PHE:CE1	2.40	0.56
1:A:215:ALA:HB2	1:A:301:GLN:HB2	1.87	0.56
1:A:239:ASP:OD1	1:A:240:PHE:N	2.38	0.56
1:B:77:GLU:O	1:B:80:PRO:HD3	2.06	0.56
1:B:706:LEU:HB2	1:B:772:LEU:HD21	1.86	0.56
1:B:52:LEU:HD21	1:B:85:LEU:HD13	1.83	0.56
1:A:329:LEU:HG	1:A:330:TYR:H	1.72	0.55
1:C:654:ARG:HD3	1:C:671:SER:CB	2.36	0.55
1:A:755:ARG:O	1:A:756:LYS:HB3	2.06	0.54
1:B:184:THR:HG23	1:B:543:ARG:NH1	2.17	0.54
1:A:611:ASN:O	1:A:616:GLY:N	2.40	0.54
1:A:709:LEU:HD22	1:A:729:THR:HG23	1.88	0.54
1:A:463:GLU:HG3	1:A:464:GLN:NE2	2.22	0.54
1:A:258:TYR:HB3	1:A:262:ARG:HH12	1.73	0.54
1:A:244:GLN:NE2	2:A:2087:HOH:O	2.40	0.53
1:A:318:VAL:O	2:A:2112:HOH:O	2.18	0.53
1:B:539:ALA:HA	1:B:542:SER:HB3	1.90	0.53

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:D:724:ARG:O	1:D:724:ARG:HG2	2.08	0.53
1:A:122:VAL:HG21	1:A:541:ALA:HB2	1.90	0.53
1:B:86:THR:HG22	1:B:87:MSE:H	1.74	0.53
1:B:660:ARG:NH2	1:B:762:TYR:O	2.40	0.53
1:A:183:LEU:HB3	1:A:198:LEU:HD23	1.89	0.53
1:A:322:TYR:CE1	1:A:330:TYR:HD2	2.21	0.53
1:A:463:GLU:HG3	1:A:464:GLN:OE1	2.09	0.53
1:D:607:ARG:HE	1:D:674:TRP:HB3	1.74	0.53
1:A:72:ILE:HG13	1:A:73:ARG:HG2	1.91	0.53
1:B:29:ASP:N	1:B:32:THR:OG1	2.42	0.53
1:D:764:VAL:HG22	1:D:764:VAL:O	2.09	0.53
1:A:572:ARG:NE	1:A:573:ASP:O	2.42	0.52
1:A:309:GLU:HA	1:A:312:GLU:HB3	1.92	0.52
1:B:542:SER:HA	1:B:545:MSE:HE3	1.90	0.52
1:B:550:LYS:NZ	2:B:2177:HOH:O	2.11	0.52
1:A:463:GLU:HG3	1:A:464:GLN:CD	2.30	0.52
1:A:171:ARG:NE	1:A:173:ASP:OD1	2.43	0.52
1:A:523:ASP:HB3	1:A:652:ARG:HD2	1.91	0.52
1:A:325:PHE:O	1:A:328:ASP:HB2	2.10	0.52
1:A:169:LYS:HB2	1:A:174:ARG:HG3	1.91	0.52
1:A:325:PHE:HB3	1:A:328:ASP:HB2	1.91	0.52
1:A:522:VAL:HG21	1:A:545:MSE:HE2	1.90	0.52
1:B:86:THR:HB	1:B:89:ASP:CG	2.30	0.52
1:B:204:MSE:HE1	1:B:289:VAL:HA	1.92	0.52
1:B:212:MSE:HE2	1:B:233:PHE:HZ	1.74	0.52
1:B:524:ARG:NH2	2:B:2170:HOH:O	2.42	0.52
1:B:680:LEU:HD22	1:B:684:TYR:HE2	1.75	0.51
1:A:181:LYS:HG3	1:A:471:LEU:HD12	1.92	0.51
1:B:716:TYR:N	2:B:2240:HOH:O	2.39	0.51
1:D:661:SER:OG	1:D:713:ARG:NH1	2.42	0.51
1:B:108:ARG:NH2	1:B:188:SER:HB2	2.25	0.51
1:C:576:GLU:C	1:C:578:PRO:HD3	2.30	0.51
1:A:229:LYS:HG3	1:A:341:ARG:HB2	1.92	0.51
1:A:322:TYR:CA	1:A:326:GLU:HB3	2.41	0.51
1:A:476:ILE:HG22	1:A:477:PRO:CD	2.41	0.51
1:A:24:GLY:HA3	1:A:155:ARG:NH1	2.24	0.51
1:A:240:PHE:CD2	1:A:329:LEU:HD21	2.46	0.51
1:D:762:TYR:CD2	1:D:763:TRP:CE2	2.98	0.51
1:A:96:ILE:HG23	1:A:212:MSE:SE	2.61	0.51
1:A:322:TYR:CE1	1:A:330:TYR:CD2	2.97	0.51
1:B:140:LEU:O	1:B:142:VAL:HG23	2.11	0.51

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:321:LEU:O	1:B:325:PHE:N	2.44	0.51
1:C:500:ALA:N	1:C:504:GLU:OE1	2.44	0.51
1:D:749:ASP:OD2	1:D:760:PRO:HG3	2.10	0.51
1:B:14:HIS:HB2	1:B:60:HIS:CE1	2.46	0.51
1:B:345:ARG:NH1	1:B:533:ASP:OD2	2.44	0.51
1:A:272:ASP:OD1	1:A:434:ARG:NH2	2.38	0.51
1:B:79:SER:N	1:B:80:PRO:HD3	2.26	0.51
1:A:119:LEU:HD13	1:A:187:SER:HA	1.92	0.51
1:A:466:LEU:O	1:A:485:TYR:HE1	1.94	0.51
1:A:758:PRO:HD2	2:A:2228:HOH:O	2.11	0.51
1:B:86:THR:HG22	1:B:87:MSE:N	2.27	0.51
1:B:203:ARG:HD3	1:B:539:ALA:HB1	1.92	0.51
1:B:485:TYR:O	2:B:2143:HOH:O	2.19	0.51
1:A:627:PHE:CD2	1:A:636:MSE:HB2	2.46	0.50
1:B:47:ARG:HB3	1:B:49:GLU:OE1	2.11	0.50
1:D:668:HIS:N	2:D:2018:HOH:O	2.44	0.50
1:D:722:ASP:OD1	1:D:723:VAL:N	2.44	0.50
1:B:21:GLN:OE1	1:B:30:HIS:N	2.44	0.50
1:C:632:PRO:HB2	1:C:634:TYR:HD2	1.76	0.50
1:B:728:LEU:O	1:B:732:LEU:N	2.44	0.50
1:B:4:ASP:CB	1:B:214:ARG:HH22	2.22	0.50
1:B:52:LEU:HD22	1:B:85:LEU:HD13	1.72	0.50
1:A:203:ARG:NH1	2:A:2076:HOH:O	2.35	0.50
1:B:543:ARG:HB3	1:B:547:TYR:CZ	2.46	0.50
1:D:723:VAL:CG2	1:D:724:ARG:H	2.11	0.50
1:C:518:MSE:HE1	1:C:602:LEU:HB3	1.93	0.50
1:B:108:ARG:NH2	1:B:196:ILE:HB	2.27	0.50
1:C:518:MSE:N	2:C:2014:HOH:O	2.45	0.50
1:A:570:SER:OG	1:A:572:ARG:O	2.29	0.49
1:C:652:ARG:HG3	1:C:653:ASN:H	1.76	0.49
1:C:703:LYS:NZ	1:C:707:TRP:HE1	2.10	0.49
1:A:479:SER:O	2:A:2129:HOH:O	2.19	0.49
1:A:321:LEU:CD2	1:A:325:PHE:CE2	2.95	0.49
1:B:648:LYS:NZ	2:B:2215:HOH:O	2.15	0.49
1:A:473:PRO:O	1:A:475:GLU:HG3	2.12	0.49
1:A:650:GLU:HB3	1:A:669:LYS:HD3	1.95	0.49
1:D:725:TRP:HZ2	1:D:761:VAL:HG12	1.78	0.49
1:A:203:ARG:NH2	1:A:288:VAL:O	2.45	0.49
1:B:231:LYS:NZ	2:B:2090:HOH:O	2.44	0.49
1:D:751:LYS:O	1:D:752:ALA:HB3	2.12	0.49
1:B:689:TYR:O	2:B:2230:HOH:O	2.20	0.49

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:349:LYS:NZ	1:D:718:ARG:HG2	2.28	0.49
1:B:86:THR:HB	1:B:89:ASP:OD1	2.12	0.49
1:B:502:PHE:HE1	1:B:593:VAL:HG21	1.76	0.49
1:B:43:GLU:O	1:B:43:GLU:HG2	2.12	0.48
1:C:678:GLU:OE1	2:C:2024:HOH:O	2.19	0.48
1:B:231:LYS:H	1:B:339:SER:HA	1.78	0.48
1:B:461:VAL:O	1:B:461:VAL:CG1	2.59	0.48
1:B:704:GLY:HA2	1:B:707:TRP:HD1	1.77	0.48
1:A:322:TYR:N	2:A:2112:HOH:O	2.34	0.48
1:B:1:MSE:SE	1:B:49:GLU:HG2	2.63	0.48
1:B:47:ARG:HD2	1:B:170:LEU:HD23	1.95	0.48
1:B:461:VAL:O	1:B:461:VAL:HG13	2.14	0.48
1:A:325:PHE:HB3	1:A:328:ASP:CB	2.43	0.48
1:B:136:PHE:C	1:B:137:GLU:HG2	2.34	0.48
1:C:503:GLU:HG3	1:C:630:ARG:NH1	2.29	0.48
1:C:507:MSE:HA	1:C:513:ARG:HD3	1.96	0.48
1:C:744:GLU:H	1:C:744:GLU:HG2	1.40	0.48
1:A:443:LEU:HB2	1:A:453:PRO:HD3	1.96	0.47
1:A:268:LEU:O	2:A:2098:HOH:O	2.20	0.47
1:A:204:MSE:SE	1:A:535:PRO:HB2	2.64	0.47
1:B:198:LEU:HG	1:B:202:MSE:HE3	1.95	0.47
1:B:242:GLY:HA2	1:B:245:ASP:OD2	2.15	0.47
1:B:557:ILE:O	1:B:574:TRP:NE1	2.41	0.47
1:D:754:GLU:N	2:D:2033:HOH:O	2.47	0.47
1:B:184:THR:CG2	1:B:543:ARG:HH12	2.16	0.47
1:B:696:LYS:HB3	1:B:699:LEU:HD12	1.95	0.47
1:C:512:THR:HG22	1:C:514:ARG:HG2	1.95	0.47
1:C:662:ARG:HD3	1:C:670:LEU:HD11	1.96	0.47
1:B:296:PHE:N	2:B:2095:HOH:O	2.40	0.47
1:B:607:ARG:NH1	1:B:678:GLU:OE2	2.48	0.47
1:A:321:LEU:HD22	1:A:325:PHE:CD2	2.50	0.47
1:B:52:LEU:HD21	1:B:85:LEU:HD21	1.96	0.47
1:B:607:ARG:HG3	1:B:674:TRP:CD2	2.50	0.47
1:C:631:THR:HB	1:C:632:PRO:HD2	1.97	0.47
1:A:131:TRP:CE2	1:A:153:ASP:HB3	2.50	0.47
1:B:553:ILE:HA	1:B:556:ILE:HD12	1.96	0.47
1:A:158:VAL:O	1:A:162:TRP:N	2.46	0.47
1:A:334:GLU:OE2	1:A:366:ARG:NH1	2.48	0.47
1:C:549:PHE:HA	1:C:553:ILE:HG13	1.97	0.47
1:D:759:GLN:OE1	2:D:2028:HOH:O	2.20	0.47
1:A:75:ILE:O	1:A:78:LEU:O	2.33	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:188:SER:OG	1:B:198:LEU:HA	2.15	0.47
1:A:76:LYS:HD3	1:A:87:MSE:SE	2.65	0.46
1:A:565:ILE:O	1:A:608:ARG:NH1	2.45	0.46
1:B:654:ARG:NH2	1:B:669:LYS:HD3	2.31	0.46
1:B:469:ASN:N	2:B:2143:HOH:O	2.44	0.46
1:A:430:LEU:N	1:A:454:TYR:O	2.46	0.46
1:A:432:PHE:O	1:A:466:LEU:N	2.49	0.46
1:B:108:ARG:CZ	1:B:188:SER:HB2	2.46	0.46
1:B:197:SER:HB3	1:B:200:ASP:OD2	2.15	0.46
1:B:305:ASP:HA	1:B:308:LYS:HB3	1.97	0.46
1:B:733:LEU:HB3	1:B:738:LEU:O	2.16	0.46
1:A:150:ARG:NH2	2:A:2060:HOH:O	2.48	0.46
1:A:648:LYS:CA	1:A:652:ARG:NH1	2.78	0.46
1:A:505:LEU:HD13	1:A:594:GLY:HA2	1.98	0.46
1:B:548:PHE:HA	1:B:552:TYR:HD2	1.81	0.46
1:A:120:TYR:HA	1:A:128:ALA:HA	1.98	0.46
1:A:276:GLU:OE2	1:A:280:ARG:NE	2.49	0.46
1:A:0:MSE:HE2	1:A:0:MSE:HB3	1.90	0.46
1:B:323:ARG:HB2	1:B:324:GLU:OE1	2.15	0.46
1:A:281:LEU:HD23	1:A:283:LEU:HD11	1.97	0.45
1:C:706:LEU:HD23	1:C:768:LEU:HD11	1.97	0.45
1:A:758:PRO:HG2	1:A:763:TRP:HE1	1.81	0.45
1:B:663:PRO:HG3	1:B:717:VAL:HA	1.97	0.45
1:A:321:LEU:HD23	1:A:325:PHE:CE2	2.51	0.45
1:C:722:ASP:HB3	1:C:724:ARG:HG2	1.99	0.45
1:A:474:GLY:C	1:A:475:GLU:HG3	2.34	0.45
1:B:247:ILE:HA	1:B:262:ARG:HE	1.81	0.45
1:A:662:ARG:NH1	1:A:670:LEU:HG	2.32	0.45
1:B:704:GLY:O	1:B:708:LYS:HG2	2.16	0.45
1:D:761:VAL:O	1:D:761:VAL:HG22	2.16	0.45
1:A:269:ILE:O	1:A:273:VAL:HG23	2.17	0.45
1:A:85:LEU:CD1	1:A:90:VAL:CG2	2.93	0.45
1:B:476:ILE:HG12	1:B:478:GLU:H	1.80	0.45
1:B:669:LYS:O	1:B:762:TYR:OH	2.27	0.45
1:A:38:LEU:HD12	1:A:54:SER:HA	1.98	0.45
1:C:633:ILE:O	1:C:633:ILE:HG13	2.17	0.45
1:B:9:LEU:HD22	1:B:175:LEU:HD12	1.99	0.44
1:B:82:ARG:O	1:B:83:PHE:HB2	2.16	0.44
1:B:208:ILE:HG22	1:B:212:MSE:HE3	2.00	0.44
1:C:687:ARG:NH1	1:C:744:GLU:OE2	2.49	0.44
1:B:265:TYR:CZ	1:B:269:ILE:HD11	2.53	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:688:ILE:HA	1:B:699:LEU:CD1	2.47	0.44
1:A:204:MSE:HE2	1:A:204:MSE:HB3	1.84	0.44
1:A:651:GLY:O	1:A:652:ARG:CB	2.48	0.44
1:A:758:PRO:HG2	1:A:763:TRP:NE1	2.32	0.44
1:C:698:LYS:HE2	1:C:702:LYS:NZ	2.33	0.44
1:B:124:ASN:HB2	1:B:615:GLY:HA3	1.99	0.44
1:B:420:VAL:O	1:B:443:LEU:HD21	2.18	0.44
1:C:595:ALA:O	1:C:599:ILE:HG12	2.18	0.44
1:D:726:ALA:O	1:D:727:TYR:CD1	2.70	0.44
1:A:220:GLU:N	2:A:2083:HOH:O	2.50	0.44
1:A:574:TRP:HA	1:A:575:PRO:HD3	1.80	0.44
1:A:596:TRP:CH2	1:A:773:MSE:HG3	2.53	0.44
1:B:86:THR:CB	1:B:89:ASP:CG	2.86	0.44
1:A:331:LEU:HD21	1:A:333:ILE:HD11	1.99	0.43
1:A:648:LYS:HB3	1:A:652:ARG:HH12	1.83	0.43
1:B:106:GLY:H	1:B:534:SER:HB3	1.83	0.43
1:B:82:ARG:HG3	1:B:83:PHE:CD1	2.52	0.43
1:B:334:GLU:OE2	1:B:366:ARG:NH1	2.51	0.43
1:B:361:HIS:O	1:B:365:VAL:HG13	2.18	0.43
1:A:231:LYS:HB3	1:A:231:LYS:HE2	1.59	0.43
1:B:47:ARG:HD2	1:B:170:LEU:CB	2.48	0.43
1:B:247:ILE:O	1:B:262:ARG:NH2	2.39	0.43
1:B:47:ARG:HD2	1:B:170:LEU:HB3	1.99	0.43
1:B:281:LEU:O	1:B:301:GLN:NE2	2.39	0.43
1:B:507:MSE:HA	1:B:513:ARG:HG3	1.99	0.43
1:A:518:MSE:HE1	1:A:602:LEU:HD23	1.99	0.43
1:B:218:THR:HA	1:B:219:ALA:HA	1.69	0.43
1:B:607:ARG:HA	1:B:620:LEU:HD12	2.00	0.43
1:A:326:GLU:HA	1:A:327:SER:HA	1.69	0.43
1:B:47:ARG:HD2	1:B:170:LEU:CD2	2.48	0.43
1:C:643:ARG:HH12	1:C:656:PHE:HZ	1.56	0.43
1:D:720:PRO:HG2	1:D:721:ASN:ND2	2.33	0.43
1:C:652:ARG:NH1	2:C:2049:HOH:O	2.51	0.43
1:A:709:LEU:HD23	1:A:712:ILE:HD12	2.01	0.43
1:B:4:ASP:HA	1:B:213:LEU:HD21	2.00	0.43
1:C:673:GLU:HB3	1:C:676:HIS:CB	2.49	0.43
1:A:253:LYS:HA	1:A:254:GLY:HA3	1.47	0.43
1:A:466:LEU:HA	1:A:483:VAL:O	2.18	0.43
1:B:73:ARG:HA	1:B:75:ILE:HG22	2.01	0.43
1:B:336:GLU:HB3	1:B:359:LEU:HD23	2.00	0.43
1:C:654:ARG:CD	1:C:671:SER:HB3	2.47	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:582:VAL:HA	1:B:592:ILE:HG23	2.00	0.42
1:A:301:GLN:OE1	1:A:301:GLN:N	2.52	0.42
1:B:697:GLY:O	1:B:699:LEU:N	2.46	0.42
1:A:325:PHE:C	1:A:328:ASP:HB2	2.39	0.42
1:B:28:GLY:O	1:B:33:GLN:NE2	2.44	0.42
1:A:252:GLY:N	2:A:2090:HOH:O	2.52	0.42
1:C:653:ASN:OD1	1:C:674:TRP:CD1	2.71	0.42
1:D:673:GLU:HG2	1:D:675:ASN:H	1.85	0.42
1:A:695:LEU:HD13	1:A:699:LEU:HD23	2.01	0.42
1:B:571:LEU:HA	1:B:689:TYR:HE2	1.84	0.42
1:A:473:PRO:CG	1:A:474:GLY:H	2.32	0.42
1:A:716:TYR:CE2	1:A:762:TYR:HB2	2.54	0.42
1:B:233:PHE:HB2	1:B:338:VAL:HG23	2.01	0.42
1:B:326:GLU:O	1:B:327:SER:OG	2.33	0.42
1:B:715:LEU:HB3	1:B:724:ARG:HE	1.84	0.42
1:B:755:ARG:NH2	2:B:2256:HOH:O	2.52	0.42
1:D:762:TYR:HD2	1:D:763:TRP:NE1	2.18	0.42
1:A:519:LYS:NZ	1:A:644:LEU:HD23	2.35	0.42
1:B:518:MSE:HE1	1:B:602:LEU:HB3	2.01	0.42
1:B:92:ASN:O	1:B:96:ILE:N	2.45	0.42
1:B:117:ARG:HB2	1:B:190:THR:HG22	2.01	0.42
1:B:739:SER:OG	1:D:751:LYS:HD2	2.19	0.42
1:C:662:ARG:HG3	1:C:664:LEU:CD2	2.50	0.42
1:A:460:PRO:HB2	1:A:476:ILE:HD11	2.02	0.42
1:A:545:MSE:HE1	1:A:610:PHE:CE1	2.55	0.42
1:C:502:PHE:HB3	1:C:515:LEU:HD22	2.01	0.42
1:C:722:ASP:O	1:C:724:ARG:N	2.52	0.42
1:B:6:LEU:CD2	1:B:85:LEU:CD2	2.98	0.41
1:D:607:ARG:HD2	1:D:674:TRP:HE3	1.84	0.41
1:A:461:VAL:HA	1:A:462:GLY:HA2	1.64	0.41
1:B:4:ASP:HB3	1:B:214:ARG:NH2	2.31	0.41
1:A:321:LEU:N	2:A:2112:HOH:O	2.53	0.41
1:A:254:GLY:HA2	1:A:255:THR:HA	1.81	0.41
1:A:341:ARG:HD2	1:A:341:ARG:HA	1.81	0.41
1:A:721:ASN:O	1:C:722:ASP:OD1	2.39	0.41
1:B:430:LEU:O	1:B:468:LYS:N	2.53	0.41
1:C:768:LEU:N	2:C:2068:HOH:O	2.52	0.41
1:A:196:ILE:HG23	1:A:536:SER:HB3	2.01	0.41
1:A:321:LEU:CD2	1:A:325:PHE:HE2	2.33	0.41
1:B:3:ILE:HD12	1:B:89:ASP:HB2	2.03	0.41
1:B:324:GLU:OE1	1:B:324:GLU:N	2.54	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:452:VAL:HA	1:B:453:PRO:HD3	1.92	0.41
1:A:268:LEU:O	1:A:272:ASP:HB2	2.21	0.41
1:B:449:SER:OG	1:B:450:GLY:N	2.54	0.41
1:B:715:LEU:HD13	1:B:724:ARG:HG3	2.02	0.41
1:A:204:MSE:HA	1:A:207:ALA:HB3	2.03	0.41
1:A:214:ARG:NH2	1:A:282:GLY:O	2.54	0.41
1:A:321:LEU:HD23	1:A:325:PHE:HE2	1.85	0.41
1:B:52:LEU:HD21	1:B:85:LEU:HD22	2.00	0.41
1:B:356:ARG:HH22	1:B:530:SER:HA	1.86	0.41
1:B:523:ASP:CG	1:B:652:ARG:O	2.58	0.41
1:C:571:LEU:HD11	1:C:770:ILE:HG22	2.03	0.41
1:C:610:PHE:O	1:C:613:TYR:HB3	2.20	0.41
1:C:643:ARG:NH1	1:C:656:PHE:CZ	2.69	0.41
1:C:742:PHE:HB2	1:C:745:LEU:HB3	2.03	0.41
1:D:519:LYS:HE3	1:D:519:LYS:HB3	1.60	0.41
1:A:588:ASP:OD1	1:A:588:ASP:N	2.53	0.41
1:A:718:ARG:NH2	1:B:368:LEU:HD11	2.36	0.41
1:B:203:ARG:O	1:B:286:ALA:HB1	2.21	0.41
1:B:236:ILE:O	1:B:297:MSE:HA	2.21	0.41
1:B:688:ILE:C	1:B:696:LYS:HB2	2.41	0.41
1:D:713:ARG:HG3	1:D:761:VAL:O	2.21	0.41
1:A:363:LEU:HB3	1:A:367:LYS:NZ	2.36	0.40
1:A:466:LEU:N	1:A:466:LEU:HD12	2.37	0.40
1:A:523:ASP:CB	1:A:652:ARG:HD2	2.51	0.40
1:B:75:ILE:O	2:B:2021:HOH:O	2.22	0.40
1:B:519:LYS:HG2	1:B:644:LEU:HD22	2.03	0.40
1:A:68:ASP:HA	1:A:71:MSE:HG2	2.03	0.40
1:B:748:ILE:HG21	1:D:726:ALA:HB3	2.02	0.40
1:A:86:THR:C	1:A:88:GLU:N	2.74	0.40
1:A:524:ARG:CZ	1:A:652:ARG:HH21	2.34	0.40
1:A:663:PRO:HG2	1:A:668:HIS:CG	2.57	0.40
1:A:329:LEU:CG	1:A:330:TYR:N	2.83	0.40
1:A:541:ALA:O	1:A:545:MSE:HB2	2.21	0.40
1:B:552:TYR:O	1:B:556:ILE:HG13	2.21	0.40
1:C:648:LYS:HE2	1:C:648:LYS:HB3	1.90	0.40
1:C:652:ARG:CG	1:C:653:ASN:H	2.35	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	682/779 (88%)	622 (91%)	57 (8%)	3 (0%)	30	43
1	B	699/779 (90%)	609 (87%)	90 (13%)	0	100	100
1	C	187/779 (24%)	165 (88%)	21 (11%)	1 (0%)	25	37
1	D	76/779 (10%)	64 (84%)	12 (16%)	0	100	100
All	All	1644/3116 (53%)	1460 (89%)	180 (11%)	4 (0%)	44	59

All (4) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	C	633	ILE
1	A	461	VAL
1	A	473	PRO
1	A	758	PRO

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	584/638 (92%)	571 (98%)	13 (2%)	47	67
1	B	596/638 (93%)	596 (100%)	0	100	100
1	C	166/638 (26%)	161 (97%)	5 (3%)	36	55
1	D	77/638 (12%)	76 (99%)	1 (1%)	65	80
All	All	1423/2552 (56%)	1404 (99%)	19 (1%)	65	80

All (19) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	47	ARG
1	A	49	GLU
1	A	78	LEU
1	A	79	SER
1	A	86	THR
1	A	251	SER
1	A	265	TYR
1	A	328	ASP
1	A	329	LEU
1	A	463	GLU
1	A	473	PRO
1	A	475	GLU
1	A	476	ILE
1	C	574	TRP
1	C	576	GLU
1	C	577	GLU
1	C	630	ARG
1	C	764	VAL
1	D	521	ASP

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (4) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	44	ASN
1	B	60	HIS
1	B	194	ASN
1	D	759	GLN

5.3.3 RNA [i](#)

There are no RNA molecules in this entry.

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

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

5.5 Carbohydrates [i](#)

There are no oligosaccharides in this entry.

5.6 Ligand geometry [i](#)

There are no ligands in this entry.

5.7 Other polymers [i](#)

There are no such residues in this entry.

5.8 Polymer linkage issues [i](#)

There are no chain breaks in this entry.

6 Fit of model and data [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	682/779 (87%)	-1.82	0 100 100	5, 26, 54, 82	0
1	B	700/779 (89%)	-1.83	0 100 100	5, 24, 56, 92	0
1	C	197/779 (25%)	-1.55	0 100 100	22, 41, 71, 97	0
1	D	91/779 (11%)	-1.52	0 100 100	19, 39, 71, 98	0
All	All	1670/3116 (53%)	-1.78	0 100 100	5, 28, 61, 98	0

There are no RSRZ outliers to report.

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.