



Full wwPDB X-ray Structure Validation Report ⓘ

Mar 6, 2026 – 07:19 PM UTC

PDB ID : 3DP7 / pdb_00003dp7
Title : CRYSTAL STRUCTURE OF SAM-dependent methyltransferase from *Bacteroides vulgatus* ATCC 8482
Authors : Malashkevich, V.N.; Toro, R.; Ramagopal, U.; Meyer, A.J.; Sauder, J.M.; Bursley, S.K.; Almo, S.C.; New York SGX Research Center for Structural Genomics (NYSGXRC)
Deposited on : 2008-07-07
Resolution : 2.33 Å(reported)

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

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

A user guide is available at

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

with specific help available everywhere you see the ⓘ symbol.

The types of validation reports are described at

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

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

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

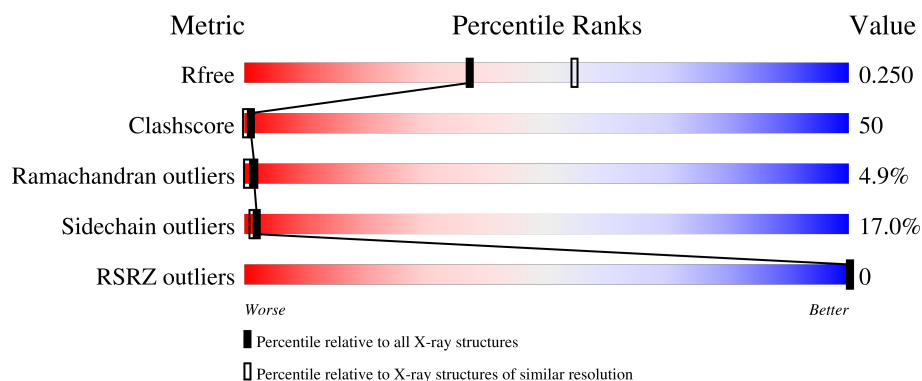
1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

X-RAY DIFFRACTION

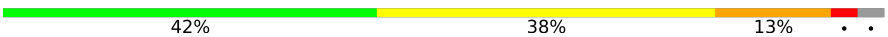
The reported resolution of this entry is 2.33 Å.

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



Metric	Whole archive (#Entries)	Similar resolution (#Entries, resolution range(Å))
R_{free}	180053	3031 (2.36-2.32)
Clashscore	190562	3127 (2.36-2.32)
Ramachandran outliers	187476	3095 (2.36-2.32)
Sidechain outliers	187428	3095 (2.36-2.32)
RSRZ outliers	180081	3033 (2.36-2.32)

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	363	
1	B	363	

2 Entry composition

There are 2 unique types of molecules in this entry. The entry contains 5694 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 SAM-dependent methyltransferase.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
1	A	351	Total	C	N	O	S	0	0	0
			2808	1789	477	527	15			
1	B	350	Total	C	N	O	S	0	0	0
			2796	1780	476	525	15			

There are 22 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
A	1	MET	-	expression tag	UNP A6KZ44
A	2	SER	-	expression tag	UNP A6KZ44
A	3	LEU	-	expression tag	UNP A6KZ44
A	356	GLU	-	expression tag	UNP A6KZ44
A	357	GLY	-	expression tag	UNP A6KZ44
A	358	HIS	-	expression tag	UNP A6KZ44
A	359	HIS	-	expression tag	UNP A6KZ44
A	360	HIS	-	expression tag	UNP A6KZ44
A	361	HIS	-	expression tag	UNP A6KZ44
A	362	HIS	-	expression tag	UNP A6KZ44
A	363	HIS	-	expression tag	UNP A6KZ44
B	1	MET	-	expression tag	UNP A6KZ44
B	2	SER	-	expression tag	UNP A6KZ44
B	3	LEU	-	expression tag	UNP A6KZ44
B	356	GLU	-	expression tag	UNP A6KZ44
B	357	GLY	-	expression tag	UNP A6KZ44
B	358	HIS	-	expression tag	UNP A6KZ44
B	359	HIS	-	expression tag	UNP A6KZ44
B	360	HIS	-	expression tag	UNP A6KZ44
B	361	HIS	-	expression tag	UNP A6KZ44
B	362	HIS	-	expression tag	UNP A6KZ44
B	363	HIS	-	expression tag	UNP A6KZ44

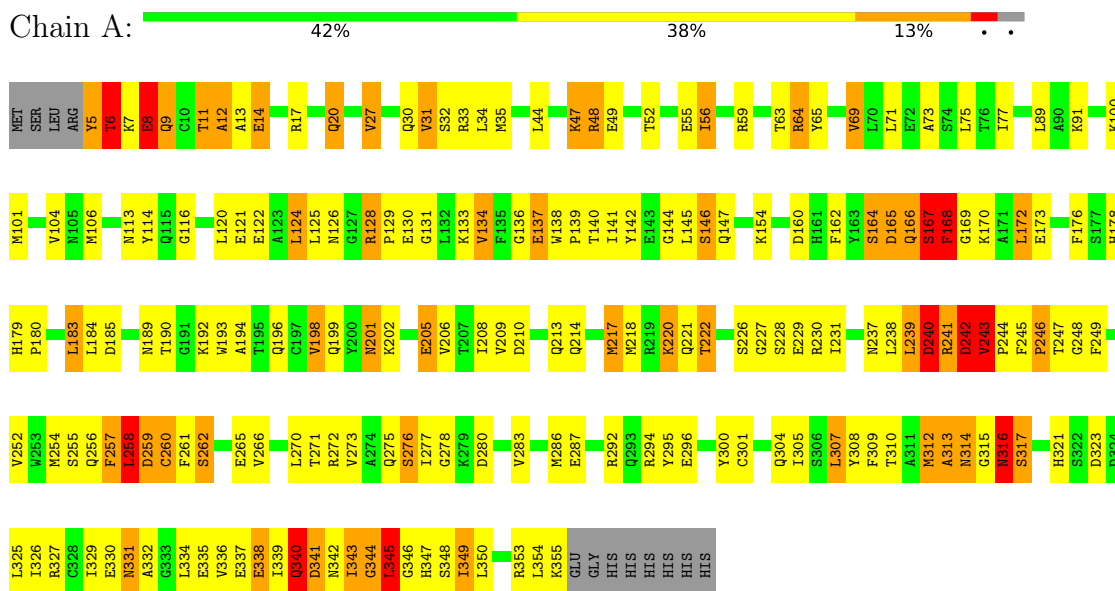
- Molecule 2 is water.

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
2	A	41	Total 41	O 41	0	0
2	B	49	Total 49	O 49	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: SAM-dependent methyltransferase



4 Data and refinement statistics

Property	Value	Source
Space group	P 64	Depositor
Cell constants a, b, c, α , β , γ	130.80Å 130.80Å 122.75Å 90.00° 90.00° 120.00°	Depositor
Resolution (Å)	19.82 – 2.33 19.82 – 2.33	Depositor EDS
% Data completeness (in resolution range)	65.0 (19.82-2.33) 65.1 (19.82-2.33)	Depositor EDS
R_{merge}	0.12	Depositor
R_{sym}	(Not available)	Depositor
$\langle I/\sigma(I) \rangle$ ¹	1.08 (at 2.33Å)	Xtriage
Refinement program	REFMAC	Depositor
R, R_{free}	0.183 , 0.253 0.182 , 0.250	Depositor DCC
R_{free} test set	1671 reflections (5.07%)	wwPDB-VP
Wilson B-factor (Å ²)	60.6	Xtriage
Anisotropy	0.073	Xtriage
Bulk solvent k_{sol} (e/Å ³), B_{sol} (Å ²)	0.30 , 53.6	EDS
L-test for twinning ²	$\langle L \rangle = 0.45$, $\langle L^2 \rangle = 0.28$	Xtriage
Estimated twinning fraction	0.114 for h,-h-k,-l	Xtriage
F_o, F_c correlation	0.98	EDS
Total number of atoms	5694	wwPDB-VP
Average B, all atoms (Å ²)	64.0	wwPDB-VP

Xtriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 3.51% of the height of the origin peak. No significant pseudotranslation is detected.*

¹Intensities estimated from amplitudes.

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

5 Model quality

5.1 Standard geometry

The Z score for a bond length (or angle) is the number of standard deviations the observed value is removed from the expected value. A bond length (or angle) with $|Z| > 5$ is considered an outlier worth inspection. RMSZ is the root-mean-square of all Z scores of the bond lengths (or angles).

Mol	Chain	Bond lengths		Bond angles	
		RMSZ	# Z >5	RMSZ	# Z >5
1	A	0.71	0/2867	1.07	16/3872 (0.4%)
1	B	0.70	0/2854	1.02	5/3854 (0.1%)
All	All	0.70	0/5721	1.04	21/7726 (0.3%)

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	A	0	1

There are no bond length outliers.

All (21) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed($^{\circ}$)	Ideal($^{\circ}$)
1	A	257	PHE	CA-C-N	-9.68	111.66	126.86
1	A	257	PHE	C-N-CA	-9.68	111.66	126.86
1	B	257	PHE	N-CA-C	-8.73	95.71	109.50
1	B	226	SER	N-CA-C	7.49	119.44	111.28
1	A	316	ASN	N-CA-C	-6.78	96.37	110.80
1	A	9	GLN	N-CA-C	6.75	125.17	110.80
1	B	259	ASP	N-CA-C	-6.50	105.33	113.20
1	A	258	LEU	N-CA-CB	-6.09	108.01	114.10
1	B	189	ASN	N-CA-C	6.09	119.81	112.38
1	A	259	ASP	N-CA-C	-6.03	105.89	113.18
1	A	167	SER	N-CA-C	5.99	123.55	110.80
1	A	8	GLU	CA-C-N	5.75	132.52	121.54
1	A	8	GLU	C-N-CA	5.75	132.52	121.54
1	A	164	SER	N-CA-C	-5.64	104.56	112.12
1	A	168	PHE	N-CA-CB	-5.63	100.98	110.49
1	A	27	VAL	CB-CA-C	-5.57	104.74	112.04

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	A	226	SER	N-CA-C	5.54	119.78	113.19
1	A	317	SER	N-CA-C	-5.26	96.28	111.00
1	A	277	ILE	N-CA-C	5.19	117.25	109.20
1	B	262	SER	N-CA-C	-5.04	103.83	110.43
1	A	11	THR	N-CA-C	5.00	117.21	108.76

There are no chirality outliers.

All (1) planarity outliers are listed below:

Mol	Chain	Res	Type	Group
1	A	167	SER	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	2808	0	2755	337	0
1	B	2796	0	2745	231	0
2	A	41	0	0	1	0
2	B	49	0	0	5	0
All	All	5694	0	5500	556	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 50.

All (556) 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:316:ASN:HB2	1:A:317:SER:CB	1.38	1.53
1:B:52:THR:CG2	1:B:55:GLU:HG3	1.39	1.50
1:B:33:ARG:HA	1:B:106:MET:CE	1.40	1.49
1:A:316:ASN:CB	1:A:317:SER:HB2	1.49	1.42
1:B:314:ASN:HB2	1:B:316:ASN:ND2	1.40	1.37
1:B:52:THR:HG22	1:B:55:GLU:CG	1.60	1.30
1:A:239:LEU:O	1:A:243:VAL:CG2	1.79	1.29

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:337:GLU:OE1	1:A:353:ARG:NH1	1.61	1.28
1:A:52:THR:OG1	1:A:55:GLU:HG3	1.35	1.22
1:B:52:THR:O	1:B:56:ILE:HG12	1.40	1.22
1:B:279:LYS:H	1:B:279:LYS:CD	1.50	1.21
1:A:7:LYS:O	1:A:8:GLU:HG3	1.42	1.18
1:B:33:ARG:HA	1:B:106:MET:HE3	1.18	1.17
1:A:6:THR:HG22	1:A:7:LYS:N	1.57	1.17
1:A:166:GLN:HG2	1:A:167:SER:N	1.57	1.15
1:B:12:ALA:HB3	1:B:14:GLU:OE2	1.45	1.15
1:B:140:THR:HG22	1:B:143:GLU:CG	1.77	1.15
1:A:64:ARG:HG2	1:A:64:ARG:HH21	1.12	1.13
1:B:257:PHE:O	1:B:258:LEU:CB	1.95	1.13
1:A:5:TYR:HD2	1:A:6:THR:N	1.45	1.13
1:A:314:ASN:HA	1:A:316:ASN:HD21	0.98	1.13
1:A:337:GLU:OE1	1:A:353:ARG:CZ	1.97	1.12
1:A:48:ARG:HD2	1:A:48:ARG:N	1.61	1.12
1:A:137:GLU:N	1:A:137:GLU:OE1	1.83	1.12
1:B:279:LYS:HD3	1:B:279:LYS:N	1.50	1.12
1:B:33:ARG:CA	1:B:106:MET:HE3	1.79	1.12
1:B:140:THR:HG22	1:B:143:GLU:HG2	1.24	1.11
1:B:63:THR:O	1:B:64:ARG:HB3	1.39	1.11
1:B:314:ASN:ND2	1:B:317:SER:OG	1.83	1.10
1:A:5:TYR:CD2	1:A:6:THR:N	2.18	1.10
1:B:198:VAL:HG13	1:B:227:GLY:HA3	1.25	1.10
1:B:314:ASN:CB	1:B:316:ASN:HD21	1.65	1.09
1:B:116:GLY:HA3	1:B:312:MET:HE1	1.21	1.09
1:B:43:LEU:HD23	1:B:43:LEU:C	1.77	1.08
1:A:239:LEU:O	1:A:243:VAL:HG23	1.46	1.07
1:B:42:GLN:C	1:B:42:GLN:HE21	1.62	1.07
1:B:33:ARG:CA	1:B:106:MET:CE	2.31	1.07
1:A:239:LEU:O	1:A:243:VAL:HG21	1.46	1.06
1:A:258:LEU:HA	1:A:261:PHE:CD1	1.89	1.06
1:A:258:LEU:HA	1:A:261:PHE:HD1	1.10	1.04
1:B:43:LEU:HD23	1:B:43:LEU:O	1.54	1.04
1:A:5:TYR:CD2	1:A:5:TYR:C	2.27	1.04
1:B:52:THR:O	1:B:56:ILE:CG1	2.06	1.03
1:A:343:ILE:HG13	1:A:344:GLY:N	1.72	1.01
1:B:33:ARG:HA	1:B:106:MET:HE1	1.39	1.01
1:B:35:MET:HE1	1:B:71:LEU:HD23	1.42	1.00
1:B:43:LEU:HD21	1:B:51:TYR:CD2	1.95	1.00
1:B:140:THR:CG2	1:B:143:GLU:HG2	1.91	1.00

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:314:ASN:HA	1:A:316:ASN:ND2	1.74	1.00
1:B:198:VAL:CG1	1:B:227:GLY:HA3	1.92	1.00
1:A:257:PHE:O	1:A:258:LEU:HB3	1.58	1.00
1:B:354:LEU:O	1:B:355:LYS:HB2	1.58	1.00
1:B:321:HIS:HD2	1:B:323:ASP:H	1.03	1.00
1:B:314:ASN:CB	1:B:316:ASN:ND2	2.22	0.99
1:B:192:LYS:HE3	1:B:196:GLN:NE2	1.77	0.99
1:A:312:MET:O	1:A:313:ALA:HB3	1.60	0.98
1:A:166:GLN:HE22	1:A:286:MET:HE1	1.26	0.98
1:B:116:GLY:HA3	1:B:312:MET:CE	1.93	0.97
1:A:314:ASN:CA	1:A:316:ASN:HD21	1.76	0.97
1:B:43:LEU:C	1:B:43:LEU:CD2	2.37	0.97
1:A:48:ARG:HD2	1:A:48:ARG:H	1.29	0.96
1:A:259:ASP:O	1:A:317:SER:OG	1.82	0.95
1:A:55:GLU:O	1:A:59:ARG:HG2	1.66	0.95
1:A:7:LYS:O	1:A:8:GLU:CG	2.14	0.95
1:B:137:GLU:OE1	1:B:137:GLU:N	1.99	0.95
1:A:316:ASN:CB	1:A:317:SER:CB	2.21	0.94
1:B:257:PHE:O	1:B:258:LEU:HB2	1.68	0.94
1:B:52:THR:CG2	1:B:55:GLU:CG	2.32	0.94
1:B:257:PHE:O	1:B:258:LEU:HB3	1.64	0.94
1:A:312:MET:O	1:A:313:ALA:CB	2.15	0.94
1:A:164:SER:O	1:A:165:ASP:O	1.87	0.93
1:B:42:GLN:HE21	1:B:42:GLN:CA	1.78	0.93
1:A:33:ARG:CA	1:A:106:MET:HE2	1.99	0.93
1:B:321:HIS:CD2	1:B:323:ASP:H	1.85	0.93
1:A:337:GLU:O	1:A:338:GLU:HB3	1.69	0.93
1:B:52:THR:CG2	1:B:55:GLU:H	1.82	0.92
1:B:190:THR:HB	1:B:221:GLN:HE22	1.33	0.92
1:A:33:ARG:HA	1:A:106:MET:CE	1.99	0.92
1:A:166:GLN:HG2	1:A:167:SER:H	1.26	0.91
1:A:238:LEU:CA	1:A:243:VAL:HG11	2.00	0.91
1:A:33:ARG:CA	1:A:106:MET:CE	2.47	0.91
1:A:167:SER:O	1:A:168:PHE:HD1	1.53	0.91
1:A:325:LEU:O	1:A:329:ILE:CD1	2.18	0.91
1:A:116:GLY:HA3	1:A:312:MET:HE1	1.53	0.91
1:A:314:ASN:CA	1:A:316:ASN:ND2	2.34	0.90
1:A:126:ASN:HB3	1:A:128:ARG:HH21	1.36	0.90
1:A:64:ARG:HG2	1:A:64:ARG:NH2	1.84	0.90
1:A:237:ASN:OD1	1:A:239:LEU:HG	1.70	0.90
1:B:101:MET:HG3	1:B:162:PHE:CZ	2.07	0.90

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:239:LEU:C	1:A:243:VAL:HG21	1.97	0.89
1:A:101:MET:HE3	1:A:345:LEU:HD11	1.51	0.89
1:B:52:THR:HG22	1:B:55:GLU:H	1.35	0.89
1:A:238:LEU:HA	1:A:243:VAL:HG11	1.54	0.89
1:B:12:ALA:CB	1:B:14:GLU:OE2	2.20	0.89
1:A:48:ARG:N	1:A:48:ARG:CD	2.35	0.87
1:A:239:LEU:H	1:A:243:VAL:HG21	1.38	0.87
1:A:27:VAL:O	1:A:31:VAL:HG12	1.73	0.87
1:A:339:ILE:O	1:A:339:ILE:HG22	1.72	0.87
1:B:116:GLY:CA	1:B:312:MET:HE1	2.05	0.87
1:A:33:ARG:HA	1:A:106:MET:HE2	1.55	0.86
1:A:101:MET:HG3	1:A:162:PHE:CE2	2.10	0.86
1:A:33:ARG:CB	1:A:106:MET:HE2	2.05	0.86
1:A:33:ARG:N	1:A:106:MET:HE1	1.91	0.85
1:B:43:LEU:HD21	1:B:51:TYR:CE2	2.11	0.85
1:A:337:GLU:O	1:A:338:GLU:CB	2.24	0.85
1:A:167:SER:O	1:A:168:PHE:CD1	2.29	0.85
1:A:246:PRO:HB2	1:A:249:PHE:HE2	1.42	0.84
1:B:42:GLN:CA	1:B:42:GLN:NE2	2.36	0.84
1:A:314:ASN:C	1:A:316:ASN:ND2	2.35	0.83
1:A:325:LEU:O	1:A:329:ILE:HD13	1.78	0.83
1:B:8:GLU:HA	2:B:408:HOH:O	1.76	0.83
1:A:259:ASP:OD1	1:A:287:GLU:OE2	1.97	0.83
1:A:262:SER:HB2	1:A:265:GLU:HG3	1.61	0.83
1:A:321:HIS:HD2	1:A:323:ASP:H	1.23	0.83
1:B:140:THR:HG22	1:B:143:GLU:HG3	1.61	0.82
1:A:166:GLN:CG	1:A:167:SER:H	1.86	0.82
1:B:192:LYS:HE3	1:B:196:GLN:HE21	1.39	0.82
1:A:12:ALA:HB3	1:A:14:GLU:OE2	1.78	0.82
1:B:314:ASN:ND2	1:B:317:SER:CB	2.42	0.82
1:B:263:GLU:HG2	1:B:328:CYS:SG	2.19	0.82
1:B:42:GLN:NE2	1:B:42:GLN:HA	1.95	0.82
1:A:238:LEU:O	1:A:239:LEU:CD2	2.28	0.81
1:A:129:PRO:HB3	1:A:314:ASN:H	1.44	0.81
1:A:239:LEU:N	1:A:243:VAL:HG21	1.95	0.81
1:A:331:ASN:HD22	1:A:331:ASN:N	1.78	0.80
1:A:166:GLN:NE2	1:A:286:MET:HE1	1.95	0.80
1:B:316:ASN:N	1:B:316:ASN:HD22	1.79	0.80
1:B:33:ARG:CB	1:B:106:MET:HE3	2.10	0.80
1:A:341:ASP:HB2	1:A:348:SER:CB	2.12	0.79
1:B:63:THR:O	1:B:64:ARG:CB	2.25	0.79

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:35:MET:HE1	1:A:71:LEU:HD23	1.64	0.79
1:B:321:HIS:HD2	1:B:323:ASP:N	1.80	0.79
1:A:48:ARG:H	1:A:48:ARG:CD	1.94	0.78
1:A:160:ASP:O	1:A:164:SER:OG	2.01	0.78
1:B:314:ASN:HD21	1:B:317:SER:CB	1.95	0.78
1:A:316:ASN:CG	1:A:317:SER:HB3	2.09	0.78
1:A:337:GLU:CD	1:A:353:ARG:HG2	2.09	0.78
1:A:325:LEU:O	1:A:329:ILE:HD12	1.84	0.77
1:B:279:LYS:H	1:B:279:LYS:HD3	0.65	0.77
1:A:238:LEU:O	1:A:239:LEU:HD23	1.83	0.76
1:A:48:ARG:HD3	1:A:49:GLU:H	1.51	0.76
1:A:343:ILE:HG23	1:A:347:HIS:O	1.86	0.76
1:A:63:THR:HG22	1:A:65:TYR:N	2.01	0.75
1:A:166:GLN:OE1	1:A:343:ILE:HD11	1.85	0.75
1:A:101:MET:HG3	1:A:162:PHE:CZ	2.19	0.75
1:A:201:ASN:C	1:A:201:ASN:OD1	2.29	0.75
1:B:52:THR:CB	1:B:55:GLU:HG3	2.16	0.75
1:B:339:ILE:HG23	1:B:339:ILE:O	1.86	0.75
1:B:238:LEU:O	1:B:272:ARG:NH2	2.19	0.75
1:A:33:ARG:CA	1:A:106:MET:HE1	2.16	0.75
1:A:113:ASN:HA	1:A:312:MET:HE3	1.67	0.75
1:B:167:SER:O	1:B:168:PHE:HB2	1.85	0.75
1:A:6:THR:HG22	1:A:7:LYS:H	1.51	0.74
1:A:345:LEU:HA	2:A:401:HOH:O	1.84	0.74
1:B:190:THR:CB	1:B:221:GLN:HE22	2.01	0.74
1:B:101:MET:HG3	1:B:162:PHE:CE2	2.22	0.74
1:A:9:GLN:HE21	1:A:11:THR:H	1.36	0.73
1:A:314:ASN:O	1:A:316:ASN:CG	2.32	0.73
1:B:52:THR:HG22	1:B:55:GLU:HG3	0.74	0.73
1:B:190:THR:HB	1:B:221:GLN:NE2	2.04	0.73
1:A:126:ASN:HB3	1:A:128:ARG:NH2	2.04	0.72
1:A:316:ASN:HB2	1:A:317:SER:CA	2.18	0.72
1:A:245:PHE:O	1:A:246:PRO:O	2.08	0.72
1:A:316:ASN:CG	1:A:317:SER:CB	2.63	0.72
1:B:10:CYS:SG	2:B:407:HOH:O	2.47	0.72
1:B:43:LEU:CD2	1:B:51:TYR:CD2	2.71	0.72
1:B:271:THR:HG22	1:B:332:ALA:HA	1.72	0.71
1:A:20:GLN:HG3	1:B:301:CYS:SG	2.30	0.71
1:A:339:ILE:O	1:A:340:GLN:C	2.32	0.71
1:A:5:TYR:HD2	1:A:6:THR:H	1.34	0.71
1:A:169:GLY:O	1:A:170:LYS:C	2.34	0.71

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:6:THR:CG2	1:A:7:LYS:N	2.31	0.71
1:B:43:LEU:CD2	1:B:51:TYR:CE2	2.74	0.70
1:B:271:THR:O	1:B:275:GLN:HG3	1.91	0.70
1:A:314:ASN:CG	1:A:315:GLY:N	2.48	0.70
1:A:238:LEU:C	1:A:239:LEU:HD23	2.16	0.70
1:A:336:VAL:HG23	1:A:336:VAL:O	1.89	0.70
1:A:137:GLU:H	1:A:137:GLU:CD	1.96	0.69
1:A:165:ASP:CG	1:A:166:GLN:H	2.00	0.69
1:A:242:ASP:OD2	1:A:244:PRO:HG3	1.92	0.69
1:A:205:GLU:OE2	1:A:230:ARG:HG2	1.92	0.69
1:B:129:PRO:HG3	1:B:313:ALA:O	1.92	0.69
1:A:91:LYS:H	1:B:9:GLN:HE22	1.40	0.69
1:B:35:MET:HE1	1:B:71:LEU:CD2	2.19	0.69
1:A:257:PHE:O	1:A:258:LEU:CB	2.32	0.69
1:B:68:GLN:O	1:B:72:GLU:HG3	1.92	0.69
1:A:165:ASP:O	1:A:166:GLN:CB	2.41	0.68
1:A:314:ASN:OD1	1:A:316:ASN:ND2	2.26	0.68
1:A:341:ASP:C	1:A:341:ASP:OD1	2.36	0.68
1:A:11:THR:C	1:A:12:ALA:O	2.36	0.68
1:A:12:ALA:CB	1:A:14:GLU:OE2	2.41	0.68
1:B:222:THR:HA	1:B:225:LEU:HD12	1.76	0.68
1:A:337:GLU:OE1	1:A:353:ARG:CD	2.42	0.68
1:A:131:GLY:O	1:A:134:VAL:CG1	2.42	0.67
1:B:35:MET:HE3	1:B:70:LEU:HB3	1.76	0.67
1:A:33:ARG:N	1:A:106:MET:CE	2.57	0.67
1:A:192:LYS:O	1:A:196:GLN:HG2	1.95	0.67
1:A:239:LEU:CA	1:A:243:VAL:HG21	2.24	0.67
1:A:116:GLY:CA	1:A:312:MET:HE1	2.23	0.67
1:A:241:ARG:O	1:A:242:ASP:C	2.38	0.67
1:A:343:ILE:HG13	1:A:344:GLY:H	1.54	0.67
1:A:7:LYS:HB3	1:B:75:LEU:HD11	1.76	0.66
1:A:237:ASN:OD1	1:A:239:LEU:CG	2.41	0.66
1:B:240:ASP:C	1:B:242:ASP:H	2.01	0.66
1:A:142:TYR:OH	1:A:260:CYS:HB3	1.95	0.66
1:A:259:ASP:HB3	1:A:287:GLU:OE2	1.95	0.66
1:A:218:MET:O	1:A:222:THR:HB	1.96	0.66
1:A:337:GLU:OE1	1:A:353:ARG:HG2	1.96	0.66
1:B:258:LEU:HA	1:B:261:PHE:HD1	1.58	0.66
1:B:128:ARG:HB2	1:B:129:PRO:HD2	1.76	0.66
1:B:314:ASN:HB2	1:B:316:ASN:HD21	0.71	0.66
1:B:49:GLU:OE1	1:B:49:GLU:HA	1.94	0.66

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:337:GLU:OE1	1:B:353:ARG:NE	2.29	0.66
1:A:134:VAL:CG2	1:A:134:VAL:O	2.43	0.65
1:B:52:THR:O	1:B:56:ILE:CD1	2.43	0.65
1:B:38:PHE:CD2	1:B:62:LEU:HD11	2.32	0.65
1:A:141:ILE:HG22	1:A:313:ALA:HB2	1.78	0.65
1:A:337:GLU:OE1	1:A:353:ARG:NE	2.29	0.65
1:A:121:GLU:OE2	1:B:37:LYS:HE2	1.96	0.65
1:A:116:GLY:HA3	1:A:312:MET:CE	2.24	0.65
1:A:198:VAL:HG12	1:A:199:GLN:N	2.12	0.65
1:A:247:THR:HG23	1:A:276:SER:O	1.96	0.64
1:A:309:PHE:O	1:A:314:ASN:HA	1.97	0.64
1:B:133:LYS:HA	1:B:136:GLY:O	1.97	0.64
1:A:7:LYS:H	1:A:7:LYS:HD3	1.63	0.64
1:A:245:PHE:C	1:A:246:PRO:O	2.38	0.64
1:B:42:GLN:O	1:B:43:LEU:C	2.40	0.64
1:A:7:LYS:C	1:A:8:GLU:HG3	2.21	0.64
1:A:316:ASN:C	1:A:316:ASN:HD22	2.04	0.63
1:A:242:ASP:OD2	1:A:244:PRO:CG	2.46	0.63
1:B:128:ARG:HB2	1:B:129:PRO:CD	2.29	0.63
1:B:261:PHE:HB3	1:B:265:GLU:HB2	1.81	0.63
1:A:35:MET:HE1	1:A:71:LEU:CD2	2.29	0.63
1:A:189:ASN:HB3	1:A:210:ASP:OD2	1.99	0.63
1:A:198:VAL:HG13	1:A:227:GLY:HA3	1.79	0.63
1:A:335:GLU:OE2	1:A:353:ARG:NE	2.32	0.63
1:A:237:ASN:OD1	1:A:239:LEU:HB2	1.99	0.62
1:A:238:LEU:O	1:A:239:LEU:HD22	1.99	0.62
1:A:7:LYS:O	1:A:8:GLU:CD	2.42	0.62
1:A:12:ALA:N	1:A:14:GLU:OE2	2.32	0.62
1:B:6:THR:HB	1:B:7:LYS:HD2	1.82	0.62
1:B:33:ARG:HA	1:B:106:MET:HE2	1.69	0.62
1:A:165:ASP:O	1:A:166:GLN:HB2	1.99	0.62
1:B:339:ILE:O	1:B:339:ILE:CG2	2.46	0.62
1:A:52:THR:OG1	1:A:55:GLU:CG	2.29	0.62
1:A:262:SER:CB	1:A:265:GLU:HG3	2.30	0.62
1:A:314:ASN:OD1	1:A:315:GLY:N	2.33	0.61
1:B:271:THR:CG2	1:B:332:ALA:HA	2.29	0.61
1:A:341:ASP:O	1:A:342:ASN:HB3	2.00	0.61
1:A:30:GLN:HE22	1:A:33:ARG:HE	1.48	0.61
1:A:341:ASP:HB2	1:A:348:SER:HA	1.82	0.61
1:B:140:THR:CG2	1:B:143:GLU:H	2.12	0.61
1:B:262:SER:OG	1:B:265:GLU:HG3	1.99	0.61

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:129:PRO:CB	1:A:313:ALA:H	2.13	0.61
1:B:52:THR:HG22	1:B:55:GLU:CB	2.29	0.61
1:B:237:ASN:O	1:B:239:LEU:N	2.33	0.61
1:A:48:ARG:CD	1:A:49:GLU:H	2.14	0.61
1:A:64:ARG:HH21	1:A:64:ARG:CG	1.99	0.61
1:B:140:THR:HG23	1:B:142:TYR:H	1.65	0.61
1:A:63:THR:HG22	1:A:64:ARG:N	2.16	0.61
1:A:189:ASN:HB2	1:A:214:GLN:HG3	1.82	0.61
1:A:314:ASN:CG	1:A:315:GLY:H	2.08	0.61
1:B:52:THR:HG22	1:B:55:GLU:N	2.12	0.61
1:A:184:LEU:HD11	1:A:209:VAL:HG23	1.82	0.60
1:A:314:ASN:OD1	1:A:316:ASN:N	2.35	0.60
1:A:63:THR:HG21	1:A:65:TYR:HB3	1.83	0.60
1:A:194:ALA:CB	1:A:206:VAL:HG11	2.32	0.60
1:A:262:SER:HB2	1:A:265:GLU:H	1.65	0.60
1:B:239:LEU:O	1:B:241:ARG:N	2.35	0.60
1:B:229:GLU:CD	1:B:229:GLU:H	2.10	0.60
1:B:283:VAL:HG13	1:B:352:CYS:HB2	1.84	0.60
1:A:238:LEU:N	1:A:243:VAL:HG11	2.17	0.59
1:A:11:THR:O	1:A:12:ALA:O	2.19	0.59
1:A:63:THR:HG22	1:A:65:TYR:H	1.65	0.59
1:B:95:PHE:O	1:B:99:ASP:HB3	2.02	0.59
1:B:240:ASP:O	1:B:242:ASP:N	2.36	0.59
1:B:11:THR:C	1:B:12:ALA:O	2.41	0.59
1:B:17:ARG:O	1:B:21:GLU:HG3	2.02	0.59
1:B:263:GLU:O	1:B:267:ILE:HG13	2.03	0.59
1:A:213:GLN:CD	1:A:213:GLN:H	2.11	0.59
1:A:239:LEU:H	1:A:243:VAL:CG2	2.12	0.59
1:A:260:CYS:HA	1:A:317:SER:OG	2.03	0.59
1:B:140:THR:HG23	1:B:142:TYR:N	2.18	0.59
1:A:337:GLU:OE1	1:A:353:ARG:CG	2.50	0.59
1:A:194:ALA:HB2	1:A:206:VAL:HG11	1.84	0.58
1:B:192:LYS:CE	1:B:196:GLN:HE21	2.13	0.58
1:A:33:ARG:HB2	1:A:106:MET:HE2	1.84	0.58
1:A:133:LYS:HA	1:A:136:GLY:O	2.04	0.58
1:A:331:ASN:N	1:A:331:ASN:ND2	2.46	0.58
1:A:48:ARG:HD3	1:A:49:GLU:N	2.18	0.58
1:A:241:ARG:O	1:A:243:VAL:N	2.37	0.58
1:A:137:GLU:N	1:A:137:GLU:CD	2.56	0.58
1:A:330:GLU:HA	1:A:334:LEU:O	2.03	0.57
1:B:8:GLU:CA	2:B:408:HOH:O	2.42	0.57

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:100:LYS:O	1:A:104:VAL:HG23	2.04	0.57
1:B:33:ARG:CA	1:B:106:MET:HE1	2.21	0.57
1:A:345:LEU:HG	1:A:345:LEU:O	2.02	0.57
1:B:142:TYR:OH	1:B:260:CYS:HB3	2.04	0.57
1:B:43:LEU:HD22	1:B:44:LEU:HD12	1.87	0.57
1:B:341:ASP:HB3	1:B:348:SER:CB	2.34	0.57
1:B:310:THR:O	1:B:315:GLY:HA2	2.04	0.57
1:A:341:ASP:O	1:A:342:ASN:CB	2.50	0.56
1:B:42:GLN:C	1:B:42:GLN:NE2	2.46	0.56
1:A:131:GLY:O	1:A:134:VAL:HG13	2.04	0.56
1:A:313:ALA:O	1:A:314:ASN:O	2.22	0.56
1:A:141:ILE:CG2	1:A:313:ALA:HB2	2.35	0.56
1:A:145:LEU:C	1:A:147:GLN:H	2.11	0.56
1:A:247:THR:HG22	1:A:248:GLY:N	2.20	0.56
1:A:292:ARG:NH1	1:A:341:ASP:OD2	2.38	0.56
1:B:237:ASN:C	1:B:239:LEU:N	2.60	0.56
1:B:277:ILE:HB	1:B:281:SER:HB2	1.87	0.56
1:A:301:CYS:SG	1:B:20:GLN:HG2	2.46	0.56
1:A:314:ASN:C	1:A:316:ASN:CG	2.74	0.56
1:A:350:LEU:N	1:A:350:LEU:HD12	2.21	0.56
1:B:185:ASP:C	1:B:185:ASP:OD1	2.49	0.56
1:A:131:GLY:O	1:A:134:VAL:HG12	2.05	0.56
1:B:192:LYS:CE	1:B:196:GLN:NE2	2.61	0.56
1:A:129:PRO:HB3	1:A:313:ALA:N	2.21	0.56
1:A:185:ASP:OD1	1:A:185:ASP:C	2.48	0.56
1:A:128:ARG:HB2	1:A:129:PRO:HD2	1.88	0.56
1:A:69:VAL:HG13	1:B:307:LEU:HD21	1.86	0.55
1:A:341:ASP:HB2	1:A:348:SER:CA	2.37	0.55
1:B:55:GLU:O	1:B:59:ARG:HG2	2.06	0.55
1:A:6:THR:HG22	1:A:7:LYS:CA	2.32	0.55
1:A:217:MET:HE2	1:A:220:LYS:HG3	1.89	0.55
1:A:245:PHE:O	1:A:246:PRO:C	2.49	0.55
1:B:314:ASN:ND2	1:B:317:SER:HB3	2.20	0.55
1:A:326:ILE:HD11	1:A:339:ILE:HD11	1.88	0.55
1:B:53:LEU:HA	1:B:56:ILE:HG13	1.88	0.55
1:A:7:LYS:O	1:A:8:GLU:OE2	2.24	0.55
1:A:237:ASN:CG	1:A:237:ASN:O	2.49	0.55
1:B:35:MET:HE3	1:B:70:LEU:CB	2.37	0.55
1:B:113:ASN:HA	1:B:312:MET:HE3	1.89	0.55
1:A:134:VAL:O	1:A:134:VAL:HG23	2.05	0.55
1:A:217:MET:CE	1:A:220:LYS:HG3	2.37	0.55

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:341:ASP:OD1	1:A:342:ASN:N	2.40	0.55
1:A:327:ARG:O	1:A:331:ASN:ND2	2.40	0.55
1:B:198:VAL:CG1	1:B:227:GLY:CA	2.78	0.54
1:B:300:TYR:O	1:B:304:GLN:HG2	2.07	0.54
1:A:209:VAL:O	1:A:210:ASP:HB2	2.07	0.54
1:A:341:ASP:HB2	1:A:348:SER:HB3	1.89	0.54
1:B:314:ASN:C	1:B:316:ASN:ND2	2.65	0.54
1:A:261:PHE:HB3	1:A:265:GLU:HB2	1.90	0.54
1:A:190:THR:HA	1:A:221:GLN:NE2	2.22	0.54
1:A:205:GLU:HG3	1:A:230:ARG:HB3	1.89	0.54
1:B:137:GLU:N	1:B:137:GLU:CD	2.66	0.54
1:B:258:LEU:HA	1:B:261:PHE:CD1	2.41	0.54
1:A:198:VAL:CG1	1:A:227:GLY:HA3	2.38	0.54
1:A:124:LEU:HD13	1:A:310:THR:HG21	1.89	0.54
1:A:278:GLY:C	1:A:280:ASP:H	2.15	0.54
1:A:336:VAL:O	1:A:336:VAL:CG2	2.55	0.54
1:B:52:THR:HG21	1:B:55:GLU:HG3	1.70	0.54
1:A:184:LEU:HD11	1:A:209:VAL:CG2	2.38	0.53
1:B:51:TYR:HB2	1:B:56:ILE:HD13	1.89	0.53
1:B:245:PHE:CE2	1:B:273:VAL:HG23	2.43	0.53
1:A:166:GLN:OE1	1:A:168:PHE:HA	2.08	0.53
1:A:7:LYS:N	1:A:7:LYS:HD3	2.23	0.53
1:B:240:ASP:C	1:B:242:ASP:N	2.66	0.53
1:A:7:LYS:C	1:A:8:GLU:CG	2.81	0.53
1:A:238:LEU:N	1:A:243:VAL:CG1	2.72	0.53
1:B:33:ARG:CG	1:B:106:MET:HE3	2.37	0.53
1:A:6:THR:O	1:A:7:LYS:C	2.50	0.53
1:A:343:ILE:O	1:A:344:GLY:C	2.51	0.53
1:B:314:ASN:OD1	1:B:315:GLY:N	2.42	0.53
1:A:12:ALA:C	1:A:14:GLU:H	2.17	0.53
1:A:247:THR:HG22	1:A:248:GLY:H	1.74	0.52
1:A:165:ASP:CG	1:A:166:GLN:N	2.67	0.52
1:A:63:THR:CG2	1:A:64:ARG:N	2.73	0.52
1:A:345:LEU:O	1:A:345:LEU:CG	2.58	0.52
1:A:237:ASN:OD1	1:A:239:LEU:CB	2.58	0.52
1:B:51:TYR:CB	1:B:56:ILE:HD13	2.39	0.52
1:B:53:LEU:HD13	1:B:71:LEU:HD12	1.91	0.52
1:B:73:ALA:O	1:B:77:ILE:HG13	2.09	0.52
1:B:184:LEU:HD11	1:B:209:VAL:CG2	2.40	0.51
1:B:7:LYS:HA	2:B:406:HOH:O	2.09	0.51
1:B:8:GLU:O	1:B:8:GLU:HG3	1.99	0.51

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:300:TYR:O	1:A:304:GLN:HG2	2.11	0.51
1:A:167:SER:O	1:A:168:PHE:HB2	2.10	0.51
1:A:270:LEU:O	1:A:273:VAL:HB	2.11	0.51
1:B:88:VAL:HG12	1:B:89:LEU:O	2.11	0.51
1:B:341:ASP:HB3	1:B:348:SER:HB3	1.92	0.51
1:B:52:THR:O	1:B:56:ILE:HD11	2.11	0.51
1:B:201:ASN:O	1:B:230:ARG:NH1	2.44	0.51
1:A:237:ASN:O	1:A:239:LEU:HD23	2.12	0.50
1:A:255:SER:C	1:A:257:PHE:N	2.68	0.50
1:B:7:LYS:HD2	1:B:7:LYS:N	2.26	0.50
1:B:201:ASN:OD1	1:B:201:ASN:C	2.54	0.50
1:A:6:THR:O	1:A:8:GLU:CD	2.55	0.50
1:A:238:LEU:H	1:A:243:VAL:CG1	2.25	0.50
1:A:238:LEU:HA	1:A:243:VAL:CG1	2.35	0.50
1:A:164:SER:C	1:A:165:ASP:O	2.52	0.50
1:A:113:ASN:O	1:A:114:TYR:C	2.54	0.49
1:B:38:PHE:HD2	1:B:62:LEU:HD11	1.76	0.49
1:A:167:SER:O	1:A:168:PHE:CB	2.60	0.49
1:A:32:SER:C	1:A:106:MET:HE1	2.37	0.49
1:B:140:THR:HG22	1:B:143:GLU:H	1.75	0.49
1:B:350:LEU:HD12	1:B:350:LEU:N	2.27	0.49
1:A:178:HIS:O	1:A:179:HIS:C	2.56	0.49
1:B:237:ASN:C	1:B:239:LEU:H	2.20	0.49
1:B:116:GLY:CA	1:B:312:MET:CE	2.75	0.49
1:A:331:ASN:HD22	1:A:331:ASN:H	1.59	0.48
1:B:63:THR:O	1:B:63:THR:CG2	2.60	0.48
1:B:321:HIS:CD2	1:B:321:HIS:C	2.91	0.48
1:A:259:ASP:CB	1:A:287:GLU:OE2	2.60	0.48
1:B:170:LYS:O	1:B:174:ILE:HG13	2.12	0.48
1:A:52:THR:O	1:A:56:ILE:HG13	2.13	0.48
1:A:354:LEU:O	1:A:355:LYS:HB3	2.14	0.48
1:B:263:GLU:CD	1:B:327:ARG:HH21	2.22	0.48
1:A:129:PRO:CB	1:A:313:ALA:N	2.77	0.48
1:A:316:ASN:HB2	1:A:317:SER:HB2	0.56	0.48
1:A:240:ASP:O	1:A:241:ARG:O	2.32	0.48
1:A:355:LYS:HG3	1:A:355:LYS:O	2.13	0.48
1:A:254:MET:HG2	1:A:257:PHE:CD1	2.49	0.47
1:B:237:ASN:O	1:B:238:LEU:C	2.57	0.47
1:B:314:ASN:CG	1:B:316:ASN:ND2	2.72	0.47
1:A:239:LEU:O	1:A:241:ARG:N	2.47	0.47
1:B:113:ASN:O	1:B:114:TYR:C	2.57	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:168:PHE:O	1:A:172:LEU:HB2	2.15	0.47
1:A:259:ASP:CG	1:A:287:GLU:OE2	2.57	0.47
1:B:162:PHE:C	1:B:162:PHE:CD2	2.92	0.47
1:A:255:SER:C	1:A:257:PHE:H	2.21	0.47
1:A:321:HIS:CD2	1:A:323:ASP:H	2.14	0.47
1:A:344:GLY:O	1:A:346:GLY:N	2.40	0.47
1:B:48:ARG:HH21	1:B:48:ARG:HB2	1.79	0.47
1:B:172:LEU:HD13	1:B:200:TYR:CD1	2.50	0.47
1:B:286:MET:HA	1:B:348:SER:O	2.15	0.47
1:B:250:ASP:OD1	1:B:250:ASP:N	2.47	0.47
1:A:33:ARG:NH2	1:A:34:LEU:HD21	2.29	0.47
1:A:183:LEU:CD1	1:A:183:LEU:C	2.87	0.47
1:A:185:ASP:O	1:A:208:ILE:HA	2.15	0.47
1:A:47:LYS:C	1:A:48:ARG:HD2	2.35	0.47
1:B:17:ARG:HD3	1:B:21:GLU:OE2	2.15	0.47
1:B:338:GLU:HG2	1:B:339:ILE:H	1.80	0.47
1:A:349:ILE:C	1:A:350:LEU:HD12	2.40	0.46
1:B:316:ASN:ND2	1:B:316:ASN:N	2.51	0.46
1:A:237:ASN:O	1:A:238:LEU:C	2.58	0.46
1:A:341:ASP:HB2	1:A:348:SER:OG	2.16	0.46
1:B:64:ARG:CG	1:B:65:TYR:N	2.75	0.46
1:B:162:PHE:CD2	1:B:162:PHE:O	2.68	0.46
1:A:33:ARG:HA	1:A:106:MET:HE1	1.78	0.46
1:A:138:TRP:CD2	1:A:144:GLY:HA3	2.50	0.46
1:A:168:PHE:CD2	1:A:193:TRP:CE3	3.03	0.46
1:B:52:THR:HG23	1:B:55:GLU:H	1.75	0.46
1:A:145:LEU:O	1:A:147:GLN:N	2.48	0.46
1:A:313:ALA:O	1:A:316:ASN:OD1	2.34	0.46
1:B:190:THR:CA	1:B:221:GLN:HE22	2.29	0.46
1:B:325:LEU:HD12	1:B:325:LEU:O	2.15	0.46
1:A:5:TYR:O	1:A:7:LYS:HG2	2.15	0.46
1:A:130:GLU:OE1	1:A:133:LYS:HE2	2.14	0.46
1:B:109:ASN:O	1:B:114:TYR:N	2.49	0.46
1:B:128:ARG:CB	1:B:129:PRO:CD	2.92	0.46
1:A:101:MET:HG3	1:A:162:PHE:HE2	1.75	0.46
1:B:121:GLU:HB3	1:B:122:GLU:OE1	2.16	0.46
1:B:239:LEU:O	1:B:240:ASP:C	2.57	0.46
1:B:341:ASP:HB3	1:B:348:SER:OG	2.16	0.46
1:B:24:PHE:O	1:B:25:GLY:C	2.58	0.46
1:A:252:VAL:HB	1:A:283:VAL:HG22	1.97	0.45
1:B:42:GLN:O	1:B:45:SER:N	2.49	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:294:ARG:HD2	1:A:295:TYR:CE1	2.51	0.45
1:A:198:VAL:CG1	1:A:199:GLN:N	2.74	0.45
1:A:145:LEU:C	1:A:147:GLN:N	2.73	0.45
1:A:166:GLN:CG	1:A:167:SER:N	2.35	0.45
1:B:12:ALA:C	1:B:14:GLU:H	2.24	0.45
1:A:335:GLU:O	1:A:335:GLU:HG2	2.16	0.45
1:A:339:ILE:O	1:A:340:GLN:O	2.33	0.45
1:A:64:ARG:NH2	1:A:64:ARG:CG	2.62	0.45
1:A:316:ASN:ND2	1:A:316:ASN:C	2.71	0.45
1:B:46:GLY:HA3	2:B:397:HOH:O	2.16	0.45
1:B:259:ASP:OD1	1:B:287:GLU:OE2	2.34	0.45
1:A:5:TYR:O	1:A:6:THR:C	2.59	0.45
1:B:338:GLU:HG2	1:B:339:ILE:N	2.31	0.45
1:A:273:VAL:C	1:A:275:GLN:H	2.24	0.45
1:B:279:LYS:CD	1:B:279:LYS:N	2.33	0.45
1:A:33:ARG:CB	1:A:106:MET:CE	2.85	0.44
1:A:75:LEU:HD11	1:B:7:LYS:HG2	2.00	0.44
1:A:89:LEU:HD12	1:A:89:LEU:HA	1.72	0.44
1:A:238:LEU:C	1:A:239:LEU:CD2	2.84	0.44
1:B:100:LYS:O	1:B:104:VAL:HG23	2.17	0.44
1:A:12:ALA:C	1:A:14:GLU:N	2.75	0.44
1:A:301:CYS:SG	1:B:20:GLN:CG	3.05	0.44
1:A:266:VAL:O	1:A:270:LEU:HG	2.17	0.44
1:A:228:SER:HA	1:A:231:ILE:HD12	1.99	0.44
1:A:176:PHE:CD2	1:A:180:PRO:HD2	2.53	0.44
1:A:183:LEU:HD13	1:A:184:LEU:N	2.32	0.44
1:B:51:TYR:HD1	1:B:55:GLU:OE1	2.01	0.44
1:A:7:LYS:NZ	1:A:296:GLU:OE2	2.50	0.43
1:A:305:ILE:C	1:A:307:LEU:N	2.75	0.43
1:A:343:ILE:O	1:A:344:GLY:O	2.36	0.43
1:B:27:VAL:O	1:B:28:VAL:C	2.61	0.43
1:B:316:ASN:HD22	1:B:316:ASN:H	1.61	0.43
1:A:20:GLN:CG	1:B:301:CYS:SG	3.05	0.43
1:A:33:ARG:HB2	1:A:106:MET:CE	2.48	0.43
1:A:69:VAL:HG23	1:B:318:LYS:HE2	2.00	0.43
1:A:129:PRO:HB3	1:A:314:ASN:N	2.24	0.43
1:A:245:PHE:HE2	1:A:272:ARG:HB2	1.82	0.43
1:B:130:GLU:OE1	1:B:133:LYS:HE2	2.18	0.43
1:A:238:LEU:H	1:A:243:VAL:HG13	1.82	0.43
1:A:198:VAL:HG12	1:A:199:GLN:HG3	2.00	0.43
1:A:166:GLN:HE22	1:A:286:MET:CE	2.14	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:36:LEU:HD23	1:B:36:LEU:HA	1.85	0.43
1:B:145:LEU:C	1:B:147:GLN:H	2.27	0.43
1:B:178:HIS:O	1:B:179:HIS:C	2.60	0.43
1:A:124:LEU:HD12	1:B:66:ALA:HA	2.00	0.43
1:A:139:PRO:C	1:A:140:THR:HG23	2.44	0.43
1:A:344:GLY:C	1:A:346:GLY:H	2.25	0.43
1:B:262:SER:O	1:B:266:VAL:HG23	2.18	0.43
1:A:271:THR:CG2	1:A:332:ALA:HA	2.49	0.43
1:A:314:ASN:OD1	1:A:316:ASN:O	2.37	0.43
1:A:339:ILE:O	1:A:339:ILE:CG2	2.44	0.43
1:B:190:THR:O	1:B:221:GLN:NE2	2.52	0.43
1:B:189:ASN:CB	1:B:214:GLN:HG3	2.48	0.43
1:B:35:MET:HE3	1:B:70:LEU:C	2.44	0.42
1:A:73:ALA:O	1:A:77:ILE:HG13	2.19	0.42
1:B:201:ASN:OD1	1:B:202:LYS:N	2.51	0.42
1:A:245:PHE:HD2	1:A:272:ARG:O	2.03	0.42
1:A:120:LEU:HG	1:A:124:LEU:HD22	2.02	0.42
1:A:134:VAL:O	1:A:134:VAL:HG22	2.20	0.42
1:B:64:ARG:HG3	1:B:65:TYR:N	2.19	0.42
1:B:290:TRP:HA	1:B:302:LEU:HD12	2.02	0.42
1:A:5:TYR:CD2	1:A:5:TYR:O	2.68	0.42
1:A:20:GLN:NE2	1:B:105:ASN:OD1	2.53	0.42
1:A:34:LEU:HD23	1:A:34:LEU:HA	1.80	0.42
1:A:341:ASP:OD1	1:A:342:ASN:HB2	2.20	0.42
1:B:277:ILE:HB	1:B:281:SER:CB	2.50	0.42
1:B:51:TYR:HB2	1:B:56:ILE:CD1	2.50	0.42
1:B:133:LYS:HG2	1:B:137:GLU:HB3	2.02	0.42
1:A:35:MET:CE	1:A:71:LEU:HD23	2.43	0.42
1:B:354:LEU:O	1:B:355:LYS:CB	2.45	0.42
1:A:305:ILE:O	1:A:307:LEU:N	2.53	0.42
1:A:33:ARG:CG	1:A:106:MET:HE2	2.50	0.42
1:A:166:GLN:NE2	1:A:286:MET:CE	2.77	0.42
1:B:167:SER:O	1:B:168:PHE:CB	2.54	0.41
1:A:11:THR:O	1:A:12:ALA:C	2.63	0.41
1:A:237:ASN:O	1:A:237:ASN:ND2	2.53	0.41
1:B:88:VAL:CG1	1:B:89:LEU:N	2.79	0.41
1:A:278:GLY:C	1:A:280:ASP:N	2.78	0.41
1:A:339:ILE:C	1:A:340:GLN:O	2.63	0.41
1:B:335:GLU:O	1:B:335:GLU:HG3	2.21	0.41
1:A:309:PHE:O	1:A:314:ASN:CA	2.67	0.41
1:B:14:GLU:C	1:B:16:GLN:N	2.78	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:63:THR:CG2	1:A:65:TYR:HB3	2.47	0.41
1:A:262:SER:O	1:A:266:VAL:HG23	2.21	0.41
1:B:51:TYR:O	1:B:87:TYR:N	2.48	0.41
1:B:101:MET:HG3	1:B:162:PHE:HZ	1.76	0.41
1:B:314:ASN:C	1:B:316:ASN:HD22	2.27	0.41
1:B:192:LYS:HE3	1:B:196:GLN:HE22	1.78	0.41
1:B:291:ASP:OD2	1:B:322:SER:OG	2.39	0.41
1:A:167:SER:C	1:A:168:PHE:CD1	2.97	0.40
1:B:28:VAL:HG13	1:B:77:ILE:HD13	2.03	0.40
1:A:176:PHE:CE2	1:A:201:ASN:HB3	2.56	0.40
1:A:325:LEU:CD1	1:A:329:ILE:HD11	2.52	0.40
1:B:63:THR:HG22	1:B:65:TYR:H	1.86	0.40
1:B:254:MET:HE1	1:B:270:LEU:CD2	2.51	0.40
1:A:314:ASN:C	1:A:314:ASN:OD1	2.65	0.40
1:B:25:GLY:N	1:B:26:PRO:CD	2.84	0.40
1:B:228:SER:C	1:B:230:ARG:H	2.29	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	349/363 (96%)	294 (84%)	33 (10%)	22 (6%)	1	0
1	B	348/363 (96%)	315 (90%)	21 (6%)	12 (3%)	3	1
All	All	697/726 (96%)	609 (87%)	54 (8%)	34 (5%)	1	0

All (34) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	A	6	THR
1	A	8	GLU

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Mol	Chain	Res	Type
1	A	12	ALA
1	A	165	ASP
1	A	166	GLN
1	A	168	PHE
1	A	241	ARG
1	A	243	VAL
1	A	246	PRO
1	A	314	ASN
1	A	338	GLU
1	B	64	ARG
1	B	240	ASP
1	A	242	ASP
1	A	256	GLN
1	A	316	ASN
1	A	340	GLN
1	A	344	GLY
1	A	345	LEU
1	B	12	ALA
1	B	42	GLN
1	B	238	LEU
1	B	241	ARG
1	B	258	LEU
1	A	146	SER
1	A	240	ASP
1	A	262	SER
1	A	313	ALA
1	B	46	GLY
1	B	316	ASN
1	A	13	ALA
1	B	313	ALA
1	B	47	LYS
1	B	168	PHE

5.3.2 Protein sidechains ⓘ

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	301/312 (96%)	252 (84%)	49 (16%)	2	1
1	B	300/312 (96%)	247 (82%)	53 (18%)	2	1
All	All	601/624 (96%)	499 (83%)	102 (17%)	2	1

All (102) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	5	TYR
1	A	6	THR
1	A	8	GLU
1	A	14	GLU
1	A	17	ARG
1	A	20	GLN
1	A	31	VAL
1	A	44	LEU
1	A	47	LYS
1	A	48	ARG
1	A	56	ILE
1	A	64	ARG
1	A	69	VAL
1	A	122	GLU
1	A	124	LEU
1	A	125	LEU
1	A	128	ARG
1	A	134	VAL
1	A	137	GLU
1	A	146	SER
1	A	154	LYS
1	A	172	LEU
1	A	173	GLU
1	A	183	LEU
1	A	198	VAL
1	A	201	ASN
1	A	202	LYS
1	A	205	GLU
1	A	217	MET
1	A	220	LYS
1	A	222	THR
1	A	229	GLU
1	A	239	LEU
1	A	240	ASP
1	A	242	ASP

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Mol	Chain	Res	Type
1	A	243	VAL
1	A	258	LEU
1	A	260	CYS
1	A	276	SER
1	A	307	LEU
1	A	308	TYR
1	A	312	MET
1	A	316	ASN
1	A	331	ASN
1	A	340	GLN
1	A	341	ASP
1	A	343	ILE
1	A	345	LEU
1	A	349	ILE
1	B	8	GLU
1	B	14	GLU
1	B	18	LEU
1	B	35	MET
1	B	42	GLN
1	B	43	LEU
1	B	48	ARG
1	B	49	GLU
1	B	52	THR
1	B	56	ILE
1	B	57	SER
1	B	63	THR
1	B	64	ARG
1	B	69	VAL
1	B	81	LEU
1	B	97	LEU
1	B	128	ARG
1	B	130	GLU
1	B	134	VAL
1	B	137	GLU
1	B	140	THR
1	B	143	GLU
1	B	146	SER
1	B	147	GLN
1	B	170	LYS
1	B	179	HIS
1	B	192	LYS
1	B	198	VAL

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Mol	Chain	Res	Type
1	B	201	ASN
1	B	203	GLU
1	B	213	GLN
1	B	214	GLN
1	B	218	MET
1	B	220	LYS
1	B	229	GLU
1	B	238	LEU
1	B	239	LEU
1	B	250	ASP
1	B	257	PHE
1	B	260	CYS
1	B	262	SER
1	B	267	ILE
1	B	276	SER
1	B	279	LYS
1	B	283	VAL
1	B	289	LEU
1	B	308	TYR
1	B	316	ASN
1	B	336	VAL
1	B	343	ILE
1	B	345	LEU
1	B	353	ARG
1	B	355	LYS

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (32) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	9	GLN
1	A	20	GLN
1	A	30	GLN
1	A	42	GLN
1	A	105	ASN
1	A	115	GLN
1	A	119	HIS
1	A	126	ASN
1	A	179	HIS
1	A	221	GLN
1	A	232	HIS
1	A	275	GLN
1	A	316	ASN

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Mol	Chain	Res	Type
1	A	321	HIS
1	A	331	ASN
1	A	340	GLN
1	B	9	GLN
1	B	20	GLN
1	B	30	GLN
1	B	42	GLN
1	B	98	ASN
1	B	105	ASN
1	B	126	ASN
1	B	147	GLN
1	B	178	HIS
1	B	196	GLN
1	B	221	GLN
1	B	304	GLN
1	B	316	ASN
1	B	321	HIS
1	B	331	ASN
1	B	340	GLN

5.3.3 RNA ⓘ

There are no RNA molecules in this entry.

5.4 Non-standard residues in protein, DNA, RNA chains ⓘ

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

5.5 Carbohydrates ⓘ

There are no oligosaccharides in this entry.

5.6 Ligand geometry ⓘ

There are no ligands in this entry.

5.7 Other polymers ⓘ

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 [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	351/363 (96%)	-1.60	0 100 100	43, 62, 84, 104	0
1	B	350/363 (96%)	-1.56	0 100 100	46, 63, 80, 94	0
All	All	701/726 (96%)	-1.58	0 100 100	43, 62, 83, 104	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 oligosaccharides in this entry.

6.4 Ligands [i](#)

There are no ligands in this entry.

6.5 Other polymers [i](#)

There are no such residues in this entry.