



Full wwPDB X-ray Structure Validation Report ⓘ

Mar 5, 2026 – 12:50 PM UTC

PDB ID : 2VYE / pdb_00002vye
Title : Crystal Structure of the DnaC-ssDNA complex
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Deposited on : 2008-07-23
Resolution : 4.10 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

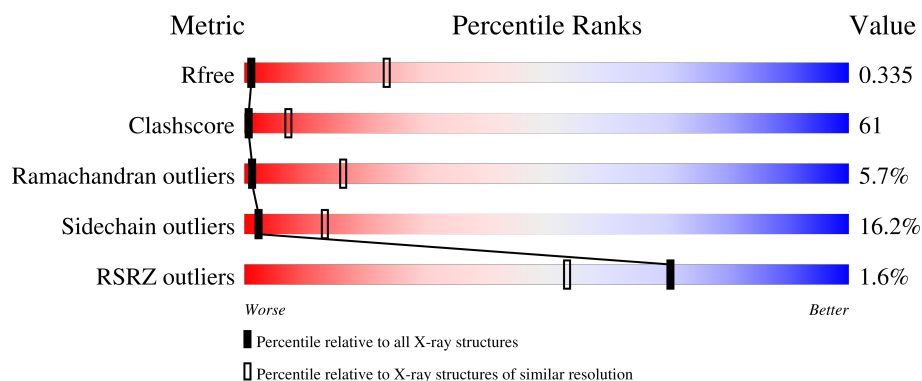
1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

X-RAY DIFFRACTION

The reported resolution of this entry is 4.10 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	1243 (4.40-3.80)
Clashscore	190562	1293 (4.40-3.80)
Ramachandran outliers	187476	1206 (4.40-3.80)
Sidechain outliers	187428	1193 (4.40-3.80)
RSRZ outliers	180081	1240 (4.40-3.80)

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	454	<div> <div> <div></div> <div>25%</div> <div>48%</div> <div>18%</div> <div>6%</div> </div> </div>
1	B	454	<div> <div> <div>2%</div> <div>23%</div> <div>42%</div> <div>16%</div> <div>16%</div> </div> </div>
2	C	9	<div> <div>11%</div> <div>44%</div> <div>44%</div> </div>

2 Entry composition

There are 2 unique types of molecules in this entry. The entry contains 6439 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 REPLICATIVE DNA HELICASE.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
1	A	425	Total	C	N	O	S	0	0	1
			3310	2058	586	652	14			
1	B	381	Total	C	N	O	S	0	0	1
			2952	1832	526	582	12			

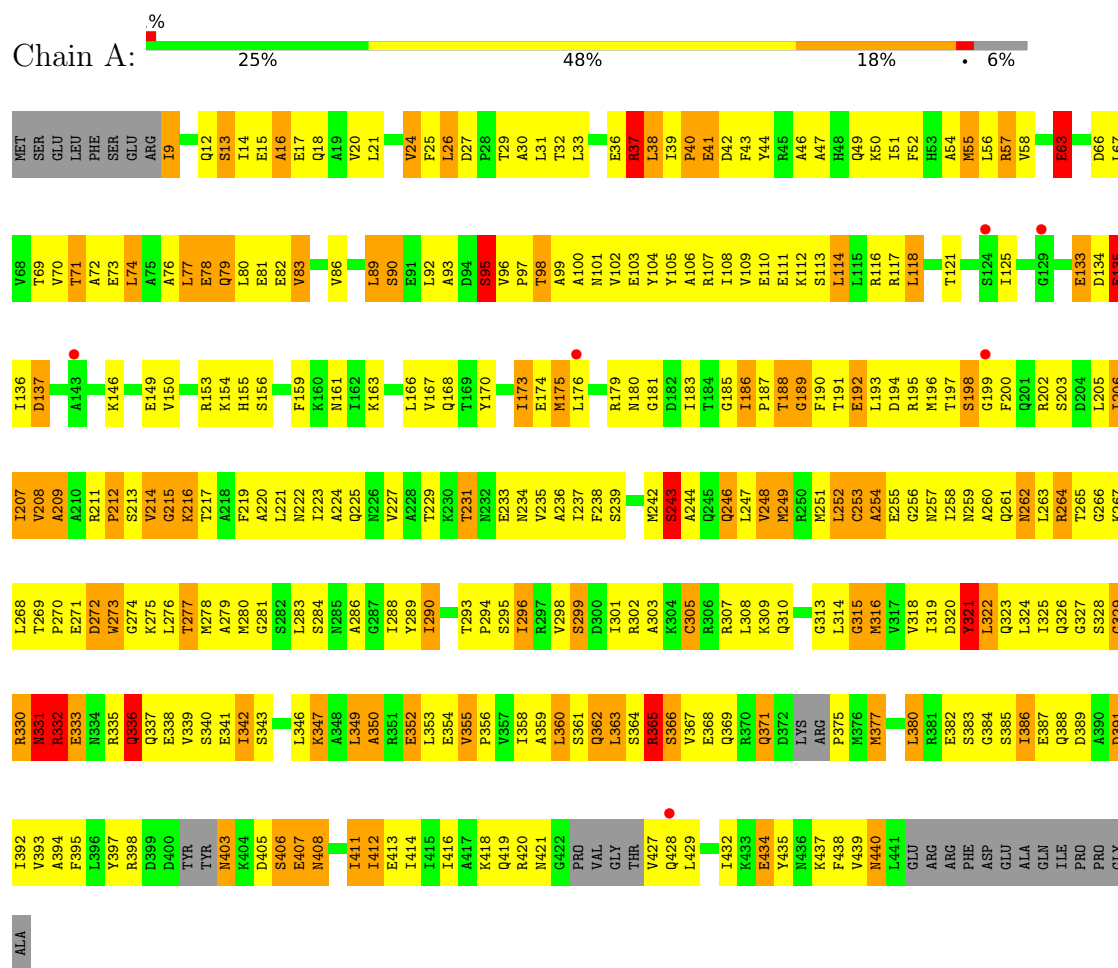
- Molecule 2 is a DNA chain called 5'-D(*TP*TP*TP*TP*TP*TP*TP*TP*TP)-3'.

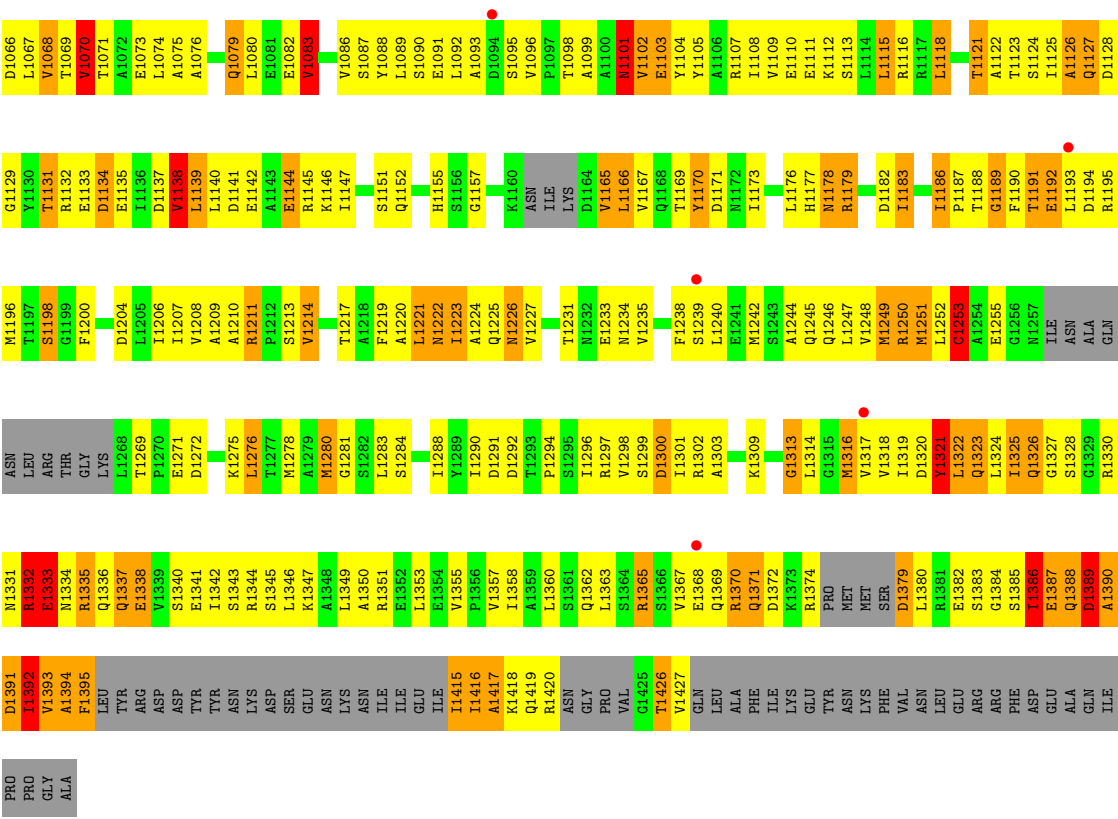
Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
2	C	9	Total	C	N	O	P	0	0	0
			177	90	18	61	8			

3 Residue-property plots

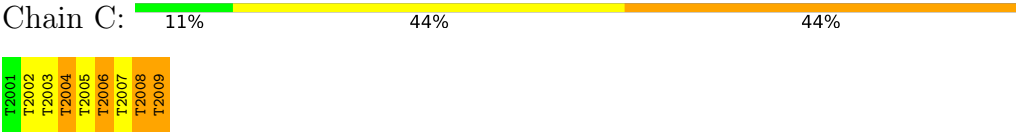
These plots are drawn for all protein, RNA, DNA and oligosaccharide chains in the entry. The first graphic for a chain summarises the proportions of the various outlier classes displayed in the second graphic. The second graphic shows the sequence view annotated by issues in geometry and electron density. 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: REPLICATIVE DNA HELICASE





• Molecule 2: 5'-D(*TP*TP*TP*TP*TP*TP*TP*TP)-3'



4 Data and refinement statistics

Property	Value	Source
Space group	P 63	Depositor
Cell constants a, b, c, α , β , γ	180.83Å 180.83Å 104.11Å 90.00° 90.00° 120.00°	Depositor
Resolution (Å)	29.94 – 4.10 29.94 – 4.10	Depositor EDS
% Data completeness (in resolution range)	76.4 (29.94-4.10) 85.3 (29.94-4.10)	Depositor EDS
R_{merge}	0.06	Depositor
R_{sym}	(Not available)	Depositor
$\langle I/\sigma(I) \rangle$ ¹	4.30 (at 4.11Å)	Xtriage
Refinement program	CNS 1.1	Depositor
R, R_{free}	0.302 , 0.374 0.271 , 0.335	Depositor DCC
R_{free} test set	1422 reflections (10.10%)	wwPDB-VP
Wilson B-factor (Å ²)	176.7	Xtriage
Anisotropy	0.520	Xtriage
Bulk solvent k_{sol} (e/Å ³), B_{sol} (Å ²)	0.31 , 172.8	EDS
L-test for twinning ²	$\langle L \rangle = 0.48$, $\langle L^2 \rangle = 0.31$	Xtriage
Estimated twinning fraction	0.044 for h,-h-k,-l	Xtriage
F_o, F_c correlation	0.90	EDS
Total number of atoms	6439	wwPDB-VP
Average B, all atoms (Å ²)	186.0	wwPDB-VP

Xtriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 2.77% 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	0.85	3/3345 (0.1%)	1.33	51/4513 (1.1%)
1	B	0.82	3/2980 (0.1%)	1.37	52/4018 (1.3%)
2	C	0.59	0/194	1.66	4/298 (1.3%)
All	All	0.83	6/6519 (0.1%)	1.36	107/8829 (1.2%)

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

Mol	Chain	#Chirality outliers	#Planarity outliers
1	B	1	1
2	C	1	1
All	All	2	2

All (6) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
1	A	253	CYS	CB-SG	9.72	2.13	1.81
1	B	1417	ALA	CA-CB	-8.57	1.41	1.54
1	B	1426	THR	C-N	-5.98	1.25	1.33
1	B	1332	ARG	C-O	-5.87	1.16	1.24
1	A	440	ASN	C-N	-5.60	1.25	1.33
1	A	248	VAL	CA-CB	-5.18	1.47	1.54

All (107) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	B	1395	PHE	CA-C-O	14.64	145.69	120.80
1	A	386	ILE	N-CA-C	-12.59	98.24	111.58
1	B	1008	ARG	N-CA-C	-12.42	92.06	108.34
1	B	1333	GLU	N-CA-C	11.25	127.86	110.42
1	A	407	GLU	N-CA-C	-10.93	97.28	111.92

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	B	1152	GLN	N-CA-C	10.14	125.29	110.28
1	B	1045	ARG	N-CA-C	9.72	125.21	110.14
1	B	1151	SER	N-CA-C	9.19	124.62	113.41
1	B	1009	ILE	N-CA-C	9.09	128.52	108.88
1	A	331	ASN	N-CA-C	9.00	123.37	109.60
1	A	90	SER	N-CA-C	-8.81	101.36	110.97
1	B	1170	TYR	N-CA-C	-8.06	103.04	113.12
1	B	1070	VAL	N-CA-C	-7.86	103.58	110.74
2	C	2008	DT	N1-C1'-C2'	7.86	125.30	113.50
1	A	133	GLU	N-CA-C	-7.86	100.79	111.87
1	A	332	ARG	N-CA-C	7.66	120.59	111.02
1	A	71	THR	N-CA-C	-7.62	102.11	111.33
1	B	1101	ASN	N-CA-C	-7.50	104.63	114.31
1	A	384	GLY	N-CA-C	7.37	130.65	113.18
1	A	408	ASN	N-CA-C	7.32	126.39	110.80
1	B	1144	GLU	N-CA-C	-7.29	102.94	111.03
1	A	79	GLN	N-CA-C	7.23	122.27	113.38
1	A	63	GLU	CA-C-N	6.97	127.38	119.92
1	A	63	GLU	C-N-CA	6.97	127.38	119.92
1	A	95	SER	N-CA-C	6.96	125.63	110.80
1	A	305	CYS	N-CA-C	-6.92	103.35	111.03
1	B	1390	ALA	CA-C-N	-6.92	113.52	122.79
1	B	1390	ALA	C-N-CA	-6.92	113.52	122.79
1	B	1166	LEU	N-CA-C	-6.82	102.70	111.02
1	A	336	GLN	N-CA-C	-6.77	102.98	111.11
1	B	1362	GLN	N-CA-C	6.70	120.43	109.24
1	B	1335	ARG	N-CA-C	-6.69	104.86	113.16
1	A	333	GLU	N-CA-C	6.64	124.95	110.80
1	B	1386	ILE	N-CA-C	-6.56	104.09	110.72
1	B	1379	ASP	CB-CA-C	6.55	122.55	110.10
1	B	1249	MET	N-CA-C	-6.54	104.08	111.07
1	A	350	ALA	N-CA-C	-6.53	104.58	112.54
1	B	1416	ILE	N-CA-C	6.52	120.08	109.78
1	A	266	GLY	N-CA-C	-6.50	106.72	115.36
1	B	1083	VAL	N-CA-C	-6.49	104.18	113.07
1	A	273	TRP	N-CA-C	-6.39	104.36	111.71
1	A	118	LEU	N-CA-C	-6.31	104.45	111.71
1	B	1118	LEU	N-CA-C	-6.22	104.12	111.03
1	B	1155	HIS	N-CA-C	6.22	118.33	110.24
1	A	264	ARG	N-CA-C	-6.21	104.51	111.28
1	A	366	SER	N-CA-C	6.19	118.03	111.28
1	B	1189	GLY	N-CA-C	-6.18	106.71	115.30

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	A	352	GLU	N-CA-C	6.15	117.65	111.07
1	A	9	ILE	CA-C-N	6.14	126.71	120.38
1	A	9	ILE	C-N-CA	6.14	126.71	120.38
1	A	321	TYR	CA-CB-CG	6.14	124.95	113.90
1	A	198	SER	N-CA-C	-6.14	105.74	113.23
1	B	1052	PHE	N-CA-C	-6.12	103.92	111.33
1	B	1337	GLN	N-CA-C	6.12	117.82	111.03
1	A	188	THR	N-CA-C	6.04	120.23	112.26
1	B	1096	VAL	CA-C-N	5.87	127.18	119.84
1	B	1096	VAL	C-N-CA	5.87	127.18	119.84
1	B	1214	VAL	N-CA-C	-5.84	97.19	109.34
1	A	391	ASP	N-CA-C	-5.80	106.03	113.23
1	A	347	LYS	N-CA-C	-5.80	104.96	111.28
1	B	1394	ALA	N-CA-C	5.79	118.94	108.69
1	B	1284	SER	N-CA-C	-5.79	104.88	111.07
1	B	1392	ILE	CA-C-N	-5.77	115.09	123.06
1	B	1392	ILE	C-N-CA	-5.77	115.09	123.06
1	A	89	LEU	N-CA-C	-5.75	105.15	111.82
1	B	1395	PHE	N-CA-C	5.72	127.03	111.00
1	A	209	ALA	N-CA-C	5.69	118.34	109.52
1	A	254	ALA	N-CA-C	5.68	117.15	111.07
1	A	16	ALA	N-CA-C	-5.68	103.92	111.24
1	A	186	ILE	CA-C-N	5.64	125.92	119.83
1	A	186	ILE	C-N-CA	5.64	125.92	119.83
1	A	243	SER	N-CA-C	5.63	118.15	110.55
1	B	1192	GLU	N-CA-C	-5.60	104.19	111.02
1	B	1389	ASP	N-CA-C	5.59	122.71	110.80
1	A	382	GLU	N-CA-C	-5.58	105.19	111.28
1	B	1131	THR	N-CA-C	5.58	119.63	113.21
1	B	1322	LEU	N-CA-C	5.57	119.33	112.54
1	A	377	MET	N-CA-C	5.50	117.71	111.11
1	A	365	ARG	N-CA-C	5.50	122.52	110.80
2	C	2005	DT	C4'-C3'-O3'	5.50	118.25	110.00
1	A	181	GLY	N-CA-C	5.48	120.42	111.27
1	A	253	CYS	N-CA-C	-5.44	105.43	111.36
1	A	137	ASP	N-CA-C	-5.42	104.60	111.11
1	A	207	ILE	N-CA-C	5.39	115.66	108.11
1	B	1371	GLN	N-CA-C	5.38	117.90	111.71
1	A	206	ILE	N-CA-C	5.37	115.50	107.51
1	B	1179	ARG	N-CA-C	-5.34	106.07	112.58
1	B	1300	ASP	N-CA-C	-5.33	105.14	111.69
1	B	1211	ARG	CA-C-N	5.32	125.63	119.93

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	B	1211	ARG	C-N-CA	5.32	125.63	119.93
1	A	411	ILE	N-CA-C	5.32	115.25	108.12
1	A	38	LEU	N-CA-C	5.32	117.60	109.95
1	A	117	ARG	N-CA-C	5.29	117.05	111.28
1	B	1086	VAL	N-CA-C	5.26	115.98	110.62
1	B	1365	ARG	N-CA-C	5.25	117.68	111.33
2	C	2006	DT	N1-C1'-C2'	5.23	121.34	113.50
2	C	2004	DT	C5'-C4'-C3'	5.21	122.71	114.90
1	B	1026	LEU	N-CA-C	5.19	116.93	111.28
1	B	1186	ILE	CA-C-N	5.14	126.27	119.84
1	B	1186	ILE	C-N-CA	5.14	126.27	119.84
1	A	37	ARG	N-CA-C	5.14	119.59	112.45
1	A	175	MET	N-CA-C	-5.09	105.86	111.71
1	B	1253	CYS	N-CA-C	-5.09	105.82	111.36
1	A	363	LEU	N-CA-C	5.08	116.02	108.60
1	B	1046	ALA	N-CA-C	5.04	121.52	110.80
1	B	1370	ARG	N-CA-C	5.03	116.58	111.14
1	B	1079	GLN	N-CA-C	-5.03	105.24	113.19

All (2) chirality outliers are listed below:

Mol	Chain	Res	Type	Atom
1	B	1415	ILE	CA
2	C	2008	DT	C1'

All (2) planarity outliers are listed below:

Mol	Chain	Res	Type	Group
1	B	1321	TYR	Sidechain
2	C	2009	DT	Sidechain

5.2 Too-close contacts

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	3310	0	3333	415	0
1	B	2952	0	2975	371	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
2	C	177	0	110	21	0
All	All	6439	0	6418	784	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 61.

All (784) 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:253:CYS:SG	1:A:253:CYS:CB	2.13	1.36
1:A:253:CYS:SG	1:A:260:ALA:HB2	1.75	1.24
1:B:1340:SER:CB	1:B:1388:GLN:HG2	1.68	1.22
1:A:335:ARG:HH21	1:A:338:GLU:HG2	1.10	1.12
1:B:1340:SER:HB2	1:B:1388:GLN:HG2	1.28	1.09
1:A:365:ARG:HH11	1:A:365:ARG:HB3	1.09	1.09
1:B:1333:GLU:OE1	1:B:1337:GLN:HG2	1.52	1.09
1:B:1380:LEU:CD1	1:B:1417:ALA:HB1	1.84	1.08
1:A:363:LEU:HD23	1:A:367:VAL:HG13	1.37	1.07
1:B:1340:SER:HB2	1:B:1388:GLN:CG	1.83	1.07
1:B:1024:VAL:HG21	1:B:1055:MET:HE3	1.35	1.06
1:B:1051:ILE:HG12	1:B:1074:LEU:HD21	1.34	1.05
1:B:1219:PHE:HA	1:B:1222:ASN:HD22	1.20	1.05
1:A:365:ARG:HB3	1:A:365:ARG:NH1	1.72	1.05
1:A:77:LEU:HB3	1:A:79:GLN:HG3	1.37	1.04
1:A:398:ARG:HB3	1:A:412:ILE:HG12	1.38	1.04
1:A:192:GLU:HB3	1:A:427:VAL:HG13	1.39	1.03
1:A:321:TYR:CE2	1:A:324:LEU:HD11	1.94	1.02
1:B:1234:ASN:HB2	1:B:1314:LEU:HB2	1.42	1.02
1:A:253:CYS:SG	1:A:260:ALA:CB	2.50	1.00
1:A:268:LEU:HB2	1:A:273:TRP:CZ3	2.01	0.96
1:B:1391:ASP:HB3	1:B:1420:ARG:HG3	1.45	0.96
1:A:234:ASN:HB2	1:A:313:GLY:O	1.64	0.95
1:A:314:LEU:HD13	1:A:353:LEU:HD23	1.48	0.95
1:B:1333:GLU:CB	1:B:1337:GLN:HB3	1.96	0.95
1:A:302:ARG:HH12	1:A:352:GLU:CD	1.75	0.95
1:B:1101:ASN:H	1:B:1101:ASN:HD22	1.11	0.95
1:B:1380:LEU:HD11	1:B:1417:ALA:HB1	1.47	0.95
1:B:1384:GLY:O	1:B:1387:GLU:HG3	1.65	0.95
1:B:1188:THR:HG23	1:B:1190:PHE:H	1.31	0.95
1:A:315:GLY:O	1:A:355:VAL:HG13	1.68	0.94
1:A:321:TYR:CZ	1:A:324:LEU:HD11	2.03	0.92

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:1191:THR:HA	1:B:1194:ASP:HB2	1.51	0.92
1:B:1043:PHE:HD2	1:B:1048:HIS:HB3	1.35	0.91
1:A:326:GLN:NE2	2:C:2009:DT:H71	1.86	0.91
1:A:343:SER:HA	1:A:346:LEU:HD12	1.52	0.91
1:A:216:LYS:HG2	1:A:217:THR:N	1.87	0.90
1:A:437:LYS:HG2	1:A:438:PHE:H	1.35	0.90
1:B:1333:GLU:CD	1:B:1337:GLN:HG2	1.96	0.90
1:B:1024:VAL:HA	1:B:1030:ALA:HB3	1.51	0.89
1:A:321:TYR:CE1	1:A:324:LEU:HD21	2.08	0.89
2:C:2002:DT:H4'	2:C:2003:DT:OP2	1.73	0.88
1:A:239:SER:HA	1:A:320:ASP:HB3	1.54	0.87
1:A:257:ASN:OD1	1:A:437:LYS:NZ	2.07	0.87
1:A:321:TYR:HB3	1:A:362:GLN:NE2	1.88	0.87
1:B:1075:ALA:HB2	1:B:1080:LEU:HD22	1.56	0.87
1:B:1188:THR:HG21	1:B:1193:LEU:HB2	1.57	0.86
1:A:326:GLN:NE2	2:C:2009:DT:C7	2.37	0.86
1:A:216:LYS:HD2	1:A:362:GLN:HB3	1.58	0.85
1:A:363:LEU:HD21	1:A:366:SER:OG	1.74	0.85
1:B:1391:ASP:O	1:B:1392:ILE:HG13	1.75	0.85
1:A:358:ILE:HG13	1:A:358:ILE:O	1.73	0.85
1:A:403:ASN:ND2	1:A:405:ASP:OD2	2.10	0.84
1:B:1340:SER:HB3	1:B:1388:GLN:HE21	1.43	0.84
1:A:216:LYS:HE3	1:A:362:GLN:CD	2.03	0.83
1:A:212:PRO:HD3	1:A:367:VAL:CG2	2.09	0.83
1:A:335:ARG:NH2	1:A:338:GLU:HG2	1.92	0.83
1:B:1380:LEU:CD1	1:B:1417:ALA:CB	2.56	0.82
1:B:1415:ILE:HG23	1:B:1426:THR:OG1	1.79	0.82
1:A:227:VAL:O	1:A:231:THR:HG23	1.78	0.82
1:B:1031:LEU:HD13	1:B:1055:MET:HG2	1.62	0.82
1:A:219:PHE:CE1	1:A:223:ILE:HD11	2.15	0.82
1:B:1079:GLN:NE2	2:C:2004:DT:OP2	2.12	0.81
1:B:1340:SER:CB	1:B:1388:GLN:CG	2.48	0.81
1:A:413:GLU:HG2	1:A:428:GLN:HE21	1.45	0.81
1:B:1272:ASP:O	1:B:1276:LEU:HB2	1.80	0.81
1:B:1335:ARG:HH12	1:B:1383:SER:HA	1.44	0.81
1:A:58:VAL:HG13	1:A:63:GLU:HB3	1.61	0.80
1:A:212:PRO:HD3	1:A:367:VAL:HG21	1.62	0.80
1:A:225:GLN:OE1	1:A:255:GLU:HG2	1.82	0.80
1:B:1335:ARG:NH2	1:B:1384:GLY:H	1.80	0.80
1:A:136:ILE:HD12	1:A:137:ASP:N	1.97	0.80
1:A:314:LEU:HD23	1:A:315:GLY:N	1.97	0.80

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:1340:SER:HB3	1:B:1388:GLN:HG2	1.64	0.79
1:A:27:ASP:OD1	1:A:29:THR:HG23	1.83	0.79
1:A:320:ASP:HA	1:A:360:LEU:HD13	1.64	0.79
1:B:1105:TYR:O	1:B:1109:VAL:HG23	1.80	0.79
1:B:1330:ARG:NH2	2:C:2008:DT:H3	1.81	0.79
1:A:21:LEU:HB2	1:A:92:LEU:HD22	1.63	0.78
1:A:203:SER:HA	1:A:350:ALA:O	1.83	0.78
1:B:1024:VAL:HG13	1:B:1031:LEU:HB2	1.65	0.78
1:B:1219:PHE:O	1:B:1222:ASN:HB2	1.82	0.78
1:B:1244:ALA:O	1:B:1248:VAL:HG12	1.83	0.78
1:A:102:VAL:HA	1:A:105:TYR:HD1	1.48	0.78
1:B:1384:GLY:C	1:B:1387:GLU:HG3	2.08	0.78
1:A:268:LEU:HB2	1:A:273:TRP:HZ3	1.49	0.78
1:B:1219:PHE:CA	1:B:1222:ASN:HD22	1.96	0.78
1:A:302:ARG:NH1	1:A:352:GLU:OE2	2.14	0.78
1:B:1384:GLY:HA2	1:B:1387:GLU:CG	2.14	0.77
1:A:211:ARG:HG2	1:A:367:VAL:HB	1.66	0.77
1:A:322:LEU:HD23	1:A:323:GLN:N	2.00	0.77
1:A:331:ASN:CG	1:A:332:ARG:H	1.92	0.77
1:B:1101:ASN:H	1:B:1101:ASN:ND2	1.82	0.77
1:A:321:TYR:HB3	1:A:362:GLN:CD	2.10	0.76
1:B:1333:GLU:HB3	1:B:1337:GLN:HB3	1.65	0.76
1:A:254:ALA:O	1:A:437:LYS:HE2	1.85	0.76
1:A:293:THR:HG23	1:A:294:PRO:HD2	1.66	0.76
1:A:33:LEU:O	1:A:36:GLU:HB2	1.85	0.76
1:A:326:GLN:HE22	2:C:2009:DT:C7	1.99	0.76
2:C:2004:DT:O2	2:C:2004:DT:H2'	1.85	0.76
1:B:1321:TYR:HA	1:B:1360:LEU:O	1.86	0.76
1:A:74:LEU:HD21	1:A:83:VAL:HG21	1.68	0.76
1:A:259:ASN:HB3	1:A:262:ASN:HB2	1.67	0.76
1:A:321:TYR:CD2	1:A:362:GLN:NE2	2.55	0.75
1:A:318:VAL:HB	1:A:358:ILE:HD11	1.66	0.75
1:B:1234:ASN:HB2	1:B:1314:LEU:CB	2.16	0.74
1:A:216:LYS:HG2	1:A:217:THR:H	1.50	0.74
1:A:377:MET:O	1:A:380:LEU:HD13	1.85	0.74
1:A:412:ILE:HD13	1:A:413:GLU:H	1.52	0.74
1:B:1221:LEU:HB3	1:B:1225:GLN:HE21	1.53	0.74
1:B:1392:ILE:HA	1:B:1418:LYS:O	1.88	0.74
1:A:259:ASN:O	1:A:262:ASN:N	2.21	0.73
1:B:1211:ARG:HH21	1:B:1367:VAL:HB	1.53	0.73
1:A:79:GLN:O	1:A:82:GLU:HB3	1.89	0.73

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:315:GLY:O	1:A:355:VAL:CG1	2.37	0.73
1:B:1391:ASP:CB	1:B:1420:ARG:HG3	2.18	0.73
1:A:173:ILE:O	1:A:176:LEU:HB3	1.89	0.73
1:A:335:ARG:O	1:A:339:VAL:HG12	1.88	0.73
1:B:1380:LEU:HD12	1:B:1417:ALA:CB	2.18	0.72
1:A:412:ILE:HD13	1:A:413:GLU:N	2.04	0.72
1:B:1393:VAL:HG22	1:B:1417:ALA:HB3	1.71	0.72
1:B:1384:GLY:HA2	1:B:1387:GLU:HG3	1.70	0.72
1:A:40:PRO:HB2	1:A:41:GLU:OE1	1.89	0.72
1:B:1222:ASN:O	1:B:1225:GLN:HB2	1.90	0.72
1:A:102:VAL:HA	1:A:105:TYR:CD1	2.24	0.72
1:B:1043:PHE:CD2	1:B:1048:HIS:HB3	2.23	0.72
1:A:223:ILE:O	1:A:227:VAL:HG23	1.90	0.71
1:A:237:ILE:HA	1:A:318:VAL:HG13	1.72	0.71
1:A:302:ARG:NH1	1:A:352:GLU:CD	2.46	0.71
1:A:113:SER:HA	1:A:116:ARG:NH2	2.04	0.71
1:A:118:LEU:CD1	1:A:150:VAL:HG11	2.19	0.71
1:B:1223:ILE:O	1:B:1227:VAL:HG23	1.90	0.71
1:B:1101:ASN:HD22	1:B:1102:VAL:H	1.38	0.71
1:A:239:SER:OG	1:A:242:MET:HB3	1.90	0.71
1:B:1333:GLU:HB2	1:B:1337:GLN:HB3	1.71	0.71
1:A:321:TYR:CB	1:A:362:GLN:HG3	2.20	0.71
1:A:58:VAL:CG1	1:A:63:GLU:HB3	2.21	0.70
1:B:1070:VAL:HG12	1:B:1071:THR:N	2.06	0.70
1:B:1365:ARG:H	1:B:1365:ARG:HD2	1.56	0.70
1:B:1092:LEU:O	1:B:1095:SER:HB3	1.91	0.70
1:B:1188:THR:HG22	1:B:1194:ASP:CG	2.15	0.70
1:A:406:SER:HA	1:A:408:ASN:ND2	2.07	0.70
1:A:69:THR:O	1:A:72:ALA:HB3	1.92	0.70
1:B:1322:LEU:HA	1:B:1325:ILE:HG13	1.73	0.70
1:A:412:ILE:HG22	1:A:429:LEU:O	1.92	0.69
1:A:227:VAL:HG13	1:A:231:THR:HG21	1.73	0.69
1:A:31:LEU:HD21	1:A:56:LEU:HD12	1.73	0.69
1:A:247:LEU:HD22	1:A:290:ILE:HD13	1.75	0.69
1:B:1134:ASP:O	1:B:1135:GLU:HG3	1.91	0.69
1:B:1368:GLU:O	1:B:1372:ASP:OD2	2.11	0.69
1:A:40:PRO:HG3	1:A:52:PHE:HD2	1.56	0.69
1:A:118:LEU:HD13	1:A:150:VAL:HG11	1.75	0.68
1:B:1298:VAL:HA	1:B:1301:ILE:HD12	1.75	0.68
1:B:1340:SER:HB3	1:B:1388:GLN:NE2	2.07	0.68
1:B:1211:ARG:HH21	1:B:1367:VAL:CB	2.06	0.68

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:1271:GLU:O	1:B:1275:LYS:HG2	1.94	0.68
1:B:1325:ILE:HB	1:B:1342:ILE:HD13	1.76	0.68
1:A:216:LYS:HD2	1:A:362:GLN:CB	2.22	0.68
1:A:258:ILE:HD11	1:A:276:LEU:HA	1.75	0.68
1:A:326:GLN:HE22	2:C:2009:DT:H71	1.59	0.68
1:B:1238:PHE:CE2	1:B:1301:ILE:HG23	2.28	0.68
1:A:321:TYR:HD1	1:A:323:GLN:HG2	1.59	0.67
1:B:1051:ILE:HG12	1:B:1074:LEU:CD2	2.20	0.67
1:B:1380:LEU:HD11	1:B:1417:ALA:CB	2.24	0.67
1:A:269:THR:HB	1:A:270:PRO:HD2	1.74	0.67
1:B:1220:ALA:HB2	1:B:1360:LEU:HD11	1.75	0.67
1:A:220:ALA:HB2	1:A:360:LEU:HD21	1.75	0.67
1:B:1363:LEU:HD11	1:B:1395:PHE:HE1	1.60	0.67
1:A:355:VAL:HG13	1:A:356:PRO:HD2	1.75	0.67
1:B:1134:ASP:C	1:B:1135:GLU:HG3	2.20	0.67
1:B:1335:ARG:NH1	1:B:1383:SER:HA	2.10	0.67
1:B:1290:ILE:HG22	1:B:1291:ASP:H	1.60	0.67
1:B:1319:ILE:O	1:B:1360:LEU:HG	1.93	0.67
1:A:238:PHE:CD2	1:A:319:ILE:HG12	2.30	0.67
1:B:1039:ILE:O	1:B:1040:PRO:C	2.37	0.67
1:B:1224:ALA:HB2	1:B:1318:VAL:HG21	1.76	0.67
1:B:1188:THR:HG23	1:B:1190:PHE:N	2.09	0.66
1:B:1249:MET:O	1:B:1253:CYS:HB2	1.95	0.66
1:B:1393:VAL:CG2	1:B:1417:ALA:HB3	2.26	0.66
1:B:1340:SER:CA	1:B:1388:GLN:HG2	2.25	0.66
1:B:1384:GLY:CA	1:B:1387:GLU:HG3	2.26	0.66
1:B:1125:ILE:O	1:B:1128:ASP:HB2	1.96	0.66
1:A:238:PHE:HD2	1:A:319:ILE:HG12	1.61	0.66
1:B:1333:GLU:OE1	1:B:1337:GLN:CG	2.39	0.66
1:B:1101:ASN:O	1:B:1104:TYR:N	2.20	0.66
1:A:21:LEU:HD22	1:A:55:MET:CE	2.26	0.65
1:B:1208:VAL:HG23	1:B:1208:VAL:O	1.96	0.65
1:A:206:ILE:HB	1:A:358:ILE:HA	1.78	0.65
1:B:1053:HIS:O	1:B:1054:ALA:C	2.39	0.65
1:B:1090:SER:O	1:B:1093:ALA:HB3	1.96	0.65
1:A:428:GLN:O	1:A:429:LEU:HD12	1.96	0.65
1:A:37:ARG:HH22	1:A:107:ARG:HE	1.43	0.65
1:A:188:THR:HB	1:A:194:ASP:OD2	1.97	0.65
1:A:188:THR:O	1:A:190:PHE:N	2.30	0.65
1:B:1290:ILE:HG22	1:B:1291:ASP:N	2.11	0.65
1:B:1080:LEU:O	1:B:1083:VAL:HG22	1.97	0.64

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:1166:LEU:O	1:B:1169:THR:N	2.30	0.64
1:A:12:GLN:OE1	1:A:44:TYR:CE2	2.50	0.64
1:A:238:PHE:CB	1:A:319:ILE:HG23	2.27	0.64
1:A:321:TYR:HB3	1:A:362:GLN:CG	2.28	0.64
1:A:208:VAL:O	1:A:360:LEU:HA	1.98	0.64
1:B:1107:ARG:O	1:B:1111:GLU:HG2	1.98	0.64
1:A:321:TYR:HB2	1:A:362:GLN:HG3	1.78	0.64
1:B:1272:ASP:HA	1:B:1275:LYS:HG2	1.80	0.64
1:B:1211:ARG:NH2	1:B:1367:VAL:HB	2.13	0.64
1:B:1391:ASP:CG	1:B:1420:ARG:HD2	2.21	0.64
1:A:170:TYR:HA	1:A:173:ILE:HG22	1.80	0.64
1:B:1187:PRO:HA	1:B:1194:ASP:OD1	1.98	0.64
1:B:1048:HIS:O	1:B:1049:GLN:C	2.39	0.63
1:B:1221:LEU:HD11	1:B:1247:LEU:HD11	1.80	0.63
1:B:1031:LEU:CD1	1:B:1055:MET:HG2	2.29	0.63
1:B:1037:ARG:HH21	1:B:1107:ARG:HH12	1.44	0.63
1:A:216:LYS:CE	1:A:362:GLN:CD	2.72	0.63
1:B:1217:THR:O	1:B:1221:LEU:HD22	1.98	0.63
1:A:202:ARG:O	1:A:203:SER:HB2	1.99	0.63
1:A:193:LEU:HA	1:A:427:VAL:HG21	1.81	0.63
1:B:1252:LEU:HA	1:B:1255:GLU:HB3	1.79	0.63
1:B:1340:SER:HB2	1:B:1388:GLN:HG3	1.78	0.63
1:A:283:LEU:HA	1:A:286:ALA:HB2	1.81	0.63
1:A:21:LEU:CB	1:A:92:LEU:HD22	2.29	0.62
1:A:13:SER:O	1:A:17:GLU:HG3	1.99	0.62
1:A:299:SER:HB3	1:B:1036:GLU:O	1.99	0.62
1:A:326:GLN:HE21	2:C:2009:DT:H71	1.65	0.62
1:B:1031:LEU:HD22	1:B:1065:VAL:HG11	1.78	0.62
1:B:1347:LYS:HZ1	1:B:1420:ARG:HH12	1.46	0.62
1:A:283:LEU:O	1:A:286:ALA:N	2.31	0.62
1:B:1326:GLN:HE21	1:B:1331:ASN:HD21	1.47	0.62
1:B:1328:SER:HB3	1:B:1338:GLU:OE1	1.99	0.62
1:A:242:MET:HG3	1:A:246:GLN:HE21	1.63	0.62
1:A:238:PHE:HB2	1:A:319:ILE:HG23	1.82	0.62
1:B:1110:GLU:O	1:B:1113:SER:HB3	2.00	0.62
1:A:274:GLY:O	1:A:275:LYS:C	2.39	0.62
1:A:437:LYS:HG2	1:A:438:PHE:N	2.11	0.61
1:A:154:LYS:O	1:A:156:SER:N	2.33	0.61
1:A:326:GLN:NE2	2:C:2009:DT:H72	2.16	0.61
1:A:146:LYS:O	1:A:149:GLU:HB2	2.01	0.61
1:A:212:PRO:HB2	1:A:368:GLU:OE1	2.00	0.61

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:283:LEU:HA	1:A:286:ALA:CB	2.31	0.61
1:A:298:VAL:HB	1:A:342:ILE:HG12	1.83	0.61
1:B:1101:ASN:HD22	1:B:1102:VAL:N	1.97	0.61
1:A:71:THR:HG23	1:A:86:VAL:HG12	1.82	0.61
1:A:112:LYS:O	1:A:116:ARG:HG3	2.01	0.61
1:A:224:ALA:HB1	1:A:235:VAL:HG11	1.83	0.60
1:A:335:ARG:HA	1:A:338:GLU:HB3	1.82	0.60
1:A:18:GLN:NE2	1:A:95:SER:OG	2.34	0.60
1:A:318:VAL:HG13	1:A:318:VAL:O	2.01	0.60
1:B:1070:VAL:HG13	1:B:1074:LEU:HD13	1.83	0.60
1:A:321:TYR:CD2	1:A:362:GLN:CD	2.79	0.60
1:B:1024:VAL:CG1	1:B:1031:LEU:HB2	2.31	0.60
1:B:1170:TYR:O	1:B:1173:ILE:HG22	2.01	0.60
1:B:1325:ILE:O	1:B:1325:ILE:HG22	2.02	0.60
1:A:206:ILE:HD12	1:A:356:PRO:HB2	1.84	0.60
1:B:1045:ARG:NH1	2:C:2006:DT:H73	2.17	0.60
1:A:263:LEU:HA	1:A:268:LEU:HD21	1.83	0.60
1:A:283:LEU:O	1:A:284:SER:C	2.43	0.60
1:B:1296:ILE:HG12	1:B:1297:ARG:N	2.17	0.59
1:A:219:PHE:O	1:A:223:ILE:HG13	2.02	0.59
1:B:1101:ASN:HD22	1:B:1101:ASN:N	1.83	0.59
1:B:1195:ARG:HD2	1:B:1196:MET:HG2	1.84	0.59
1:B:1251:MET:HB3	1:B:1283:LEU:HD21	1.84	0.59
1:A:249:MET:O	1:A:253:CYS:SG	2.58	0.59
1:B:1386:ILE:HD12	1:B:1393:VAL:HG11	1.83	0.59
1:A:238:PHE:HB2	1:A:319:ILE:HA	1.85	0.59
1:A:326:GLN:HE22	2:C:2009:DT:H72	1.68	0.59
1:A:216:LYS:HD2	1:A:362:GLN:CG	2.33	0.59
1:A:57:ARG:HH22	1:A:77:LEU:HD23	1.68	0.59
1:B:1024:VAL:HG21	1:B:1055:MET:CE	2.24	0.59
1:A:67:LEU:C	1:A:67:LEU:HD23	2.27	0.59
1:B:1347:LYS:NZ	1:B:1420:ARG:HH12	1.99	0.59
1:A:121:THR:O	1:A:125:ILE:HG13	2.02	0.59
1:A:220:ALA:HB1	1:A:318:VAL:HG21	1.85	0.59
1:A:331:ASN:ND2	1:A:332:ARG:H	2.01	0.59
1:A:420:ARG:NH1	1:A:421:ASN:OD1	2.36	0.59
1:A:104:TYR:O	1:A:108:ILE:HG13	2.02	0.58
1:A:223:ILE:O	1:A:224:ALA:C	2.45	0.58
1:A:293:THR:CG2	1:A:296:ILE:HG12	2.34	0.58
1:B:1211:ARG:HB3	1:B:1367:VAL:HG21	1.83	0.58
1:A:13:SER:HB3	1:A:16:ALA:HB3	1.85	0.58

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:274:GLY:O	1:A:278:MET:N	2.36	0.58
1:A:258:ILE:O	1:A:435:TYR:HD1	1.86	0.58
1:A:330:ARG:NH2	1:B:1041:GLU:CD	2.61	0.58
1:B:1211:ARG:HH21	1:B:1367:VAL:C	2.11	0.58
1:A:249:MET:SD	1:A:263:LEU:HD23	2.44	0.58
1:A:368:GLU:O	1:A:371:GLN:NE2	2.36	0.58
1:B:1220:ALA:CB	1:B:1360:LEU:HD11	2.33	0.58
1:A:418:LYS:HG2	1:A:419:GLN:N	2.18	0.58
1:B:1169:THR:HG22	1:B:1169:THR:O	2.03	0.58
1:B:1341:GLU:O	1:B:1345:SER:HB2	2.04	0.58
1:B:1137:ASP:HB3	1:B:1297:ARG:HH22	1.67	0.58
1:B:1165:VAL:O	1:B:1166:LEU:C	2.44	0.58
1:A:167:VAL:HG23	1:A:168:GLN:N	2.18	0.58
1:A:193:LEU:O	1:A:196:MET:N	2.35	0.58
1:A:367:VAL:HG23	1:A:368:GLU:N	2.18	0.58
1:A:411:ILE:O	1:A:411:ILE:HG23	2.04	0.58
1:B:1024:VAL:CA	1:B:1030:ALA:HB3	2.29	0.58
1:B:1211:ARG:HE	1:B:1367:VAL:HG21	1.69	0.58
1:A:220:ALA:CB	1:A:360:LEU:HD21	2.33	0.58
1:B:1251:MET:HE1	1:B:1288:ILE:HG21	1.86	0.58
1:B:1322:LEU:HB2	1:B:1325:ILE:HD12	1.86	0.58
1:B:1343:SER:O	1:B:1346:LEU:HB2	2.03	0.58
1:A:318:VAL:HA	1:A:358:ILE:HG13	1.86	0.57
1:B:1321:TYR:CE1	1:B:1324:LEU:HG	2.39	0.57
1:A:269:THR:H	1:A:272:ASP:HB2	1.69	0.57
1:A:27:ASP:CG	1:A:29:THR:HG23	2.28	0.57
1:A:227:VAL:HG21	1:A:316:MET:HE2	1.86	0.57
1:A:319:ILE:O	1:A:360:LEU:HD12	2.05	0.57
1:A:321:TYR:CG	1:A:362:GLN:CD	2.82	0.57
1:A:380:LEU:C	1:A:380:LEU:HD22	2.29	0.57
1:A:406:SER:HA	1:A:408:ASN:HD22	1.69	0.57
1:B:1302:ARG:HB3	1:B:1349:LEU:HD13	1.86	0.57
1:A:212:PRO:HG3	1:A:363:LEU:O	2.05	0.57
1:A:321:TYR:HB3	1:A:362:GLN:HG3	1.85	0.57
1:B:1224:ALA:HB1	1:B:1235:VAL:HG21	1.86	0.57
1:A:70:VAL:HG13	1:A:71:THR:N	2.19	0.57
1:A:207:ILE:CD1	1:A:386:ILE:HG22	2.33	0.57
1:A:274:GLY:HA2	1:A:277:THR:OG1	2.05	0.57
1:A:380:LEU:HD12	1:A:395:PHE:HZ	1.70	0.57
1:B:1346:LEU:O	1:B:1347:LYS:C	2.48	0.57
1:A:368:GLU:O	1:A:371:GLN:HG3	2.05	0.56

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:211:ARG:CG	1:A:367:VAL:HB	2.34	0.56
1:A:211:ARG:HB3	1:A:212:PRO:CD	2.35	0.56
1:B:1247:LEU:HD23	1:B:1290:ILE:HD13	1.86	0.56
1:A:41:GLU:OE1	1:A:41:GLU:N	2.37	0.56
1:A:106:ALA:O	1:A:109:VAL:HB	2.04	0.56
1:A:206:ILE:HA	1:A:392:ILE:HG23	1.88	0.56
1:A:249:MET:SD	1:A:263:LEU:CD2	2.93	0.56
1:B:1054:ALA:O	1:B:1055:MET:C	2.48	0.56
1:B:1384:GLY:HA2	1:B:1387:GLU:HG2	1.87	0.56
1:A:323:GLN:NE2	1:A:361:SER:HA	2.21	0.56
1:B:1088:TYR:O	1:B:1091:GLU:HB2	2.06	0.56
1:A:321:TYR:CB	1:A:362:GLN:CD	2.78	0.56
1:A:380:LEU:HD21	1:A:387:GLU:HB2	1.87	0.56
1:A:67:LEU:O	1:A:70:VAL:HG12	2.05	0.56
1:A:427:VAL:HG12	1:A:428:GLN:N	2.20	0.56
1:B:1056:LEU:O	1:B:1059:ALA:HB3	2.06	0.56
1:B:1365:ARG:HD2	1:B:1365:ARG:N	2.20	0.56
1:A:289:TYR:CE2	1:A:308:LEU:HD11	2.41	0.56
1:A:360:LEU:HD12	1:A:360:LEU:N	2.20	0.56
1:A:411:ILE:HD11	1:A:428:GLN:CD	2.30	0.56
1:B:1302:ARG:HG3	1:B:1303:ALA:N	2.19	0.56
1:B:1326:GLN:HE21	1:B:1331:ASN:ND2	2.03	0.56
1:B:1023:ALA:O	1:B:1024:VAL:C	2.46	0.56
1:B:1240:LEU:HD21	1:B:1296:ILE:HG22	1.88	0.56
1:B:1299:SER:O	1:B:1302:ARG:HG3	2.06	0.56
1:A:80:LEU:C	1:A:82:GLU:N	2.61	0.55
1:B:1080:LEU:HA	1:B:1083:VAL:HG22	1.87	0.55
1:A:293:THR:CG2	1:A:294:PRO:HD2	2.34	0.55
1:B:1073:GLU:O	1:B:1076:ALA:HB3	2.07	0.55
1:A:24:VAL:HA	1:A:30:ALA:HB3	1.87	0.55
1:A:183:ILE:HG22	1:A:185:GLY:H	1.71	0.55
1:A:207:ILE:O	1:A:393:VAL:HA	2.07	0.55
1:A:236:ALA:O	1:A:318:VAL:HG12	2.06	0.55
1:A:86:VAL:O	1:A:89:LEU:N	2.39	0.55
1:B:1157:GLY:HA2	1:B:1351:ARG:NH1	2.22	0.55
1:A:321:TYR:CE1	1:A:324:LEU:CD2	2.88	0.55
1:A:360:LEU:HD12	1:A:360:LEU:H	1.72	0.55
1:B:1052:PHE:O	1:B:1055:MET:HB3	2.06	0.55
1:A:153:ARG:HH21	1:A:153:ARG:HG3	1.71	0.55
1:B:1247:LEU:CD2	1:B:1290:ILE:HD13	2.37	0.55
1:A:259:ASN:O	1:A:260:ALA:C	2.50	0.55

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:259:ASN:O	1:A:262:ASN:HB2	2.07	0.55
1:A:321:TYR:CZ	1:A:324:LEU:HD21	2.41	0.55
1:A:328:SER:O	1:A:329:GLY:O	2.25	0.55
1:B:1045:ARG:NH1	2:C:2006:DT:C7	2.70	0.55
1:A:136:ILE:HD12	1:A:136:ILE:C	2.32	0.54
1:A:212:PRO:HD3	1:A:367:VAL:HG23	1.88	0.54
1:B:1102:VAL:HG13	1:B:1103:GLU:N	2.22	0.54
1:A:428:GLN:C	1:A:429:LEU:HD12	2.32	0.54
1:A:256:GLY:O	1:A:275:LYS:HD3	2.07	0.54
1:B:1054:ALA:CB	1:B:1074:LEU:CD1	2.86	0.54
1:B:1206:ILE:HD12	1:B:1206:ILE:N	2.20	0.54
1:B:1211:ARG:HE	1:B:1367:VAL:CG2	2.19	0.54
1:B:1219:PHE:HA	1:B:1222:ASN:ND2	2.06	0.54
1:B:1249:MET:SD	1:B:1253:CYS:SG	3.00	0.54
1:A:118:LEU:HD12	1:A:150:VAL:HG11	1.89	0.54
1:A:302:ARG:HD2	1:B:1036:GLU:OE1	2.07	0.54
1:A:66:ASP:OD2	1:A:69:THR:OG1	2.22	0.54
1:B:1131:THR:HG22	1:B:1131:THR:O	2.06	0.54
1:A:261:GLN:HA	1:A:264:ARG:HG2	1.89	0.54
1:A:206:ILE:O	1:A:359:ALA:N	2.37	0.54
1:A:220:ALA:HB1	1:A:318:VAL:CG2	2.38	0.54
1:A:318:VAL:CB	1:A:358:ILE:HD11	2.36	0.54
1:B:1235:VAL:HG12	1:B:1316:MET:HB3	1.89	0.54
1:B:1296:ILE:HG23	1:B:1325:ILE:HG23	1.90	0.54
1:B:1299:SER:HA	1:B:1302:ARG:HG2	1.89	0.54
1:A:25:PHE:CZ	1:A:89:LEU:HD22	2.43	0.54
1:A:413:GLU:HG2	1:A:428:GLN:NE2	2.21	0.54
1:B:1118:LEU:C	1:B:1118:LEU:HD13	2.33	0.54
1:A:242:MET:HG3	1:A:246:GLN:NE2	2.23	0.53
1:B:1040:PRO:HG2	1:B:1053:HIS:HD2	1.73	0.53
1:B:1296:ILE:CD1	1:B:1301:ILE:HG12	2.37	0.53
1:B:1338:GLU:O	1:B:1342:ILE:HG13	2.08	0.53
1:B:1350:ALA:HB2	1:B:1357:VAL:CG2	2.39	0.53
1:B:1132:ARG:HD2	1:B:1135:GLU:OE1	2.08	0.53
1:A:280:MET:O	1:A:281:GLY:C	2.50	0.53
1:B:1344:ARG:HA	1:B:1389:ASP:OD2	2.09	0.53
1:A:216:LYS:HE3	1:A:362:GLN:NE2	2.22	0.53
1:A:216:LYS:NZ	1:A:362:GLN:OE1	2.39	0.53
1:B:1126:ALA:O	1:B:1128:ASP:N	2.42	0.53
1:A:21:LEU:HD13	1:A:51:ILE:HG21	1.90	0.53
1:A:51:ILE:O	1:A:55:MET:HG3	2.09	0.53

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:188:THR:O	1:A:188:THR:HG22	2.08	0.53
1:A:55:MET:O	1:A:56:LEU:C	2.51	0.53
1:A:264:ARG:HG3	1:A:265:THR:N	2.24	0.52
1:B:1321:TYR:CD1	1:B:1323:GLN:HG2	2.44	0.52
1:B:1024:VAL:CG2	1:B:1055:MET:HE3	2.24	0.52
1:A:321:TYR:HB3	1:A:362:GLN:HE21	1.72	0.52
1:B:1038:LEU:HA	1:B:1042:ASP:OD1	2.10	0.52
1:A:77:LEU:O	1:A:78:GLU:HB2	2.08	0.52
1:A:211:ARG:HB3	1:A:212:PRO:HD2	1.92	0.52
1:A:252:LEU:HD23	1:A:276:LEU:HD12	1.90	0.52
1:A:302:ARG:NH1	1:B:1033:LEU:HD21	2.25	0.52
1:B:1416:ILE:CD1	1:B:1419:GLN:NE2	2.73	0.52
1:B:1043:PHE:CZ	1:B:1052:PHE:HD2	2.27	0.52
1:B:1066:ASP:OD1	1:B:1066:ASP:C	2.52	0.52
1:B:1128:ASP:O	1:B:1129:GLY:C	2.52	0.52
1:A:57:ARG:NH2	1:A:77:LEU:HD23	2.24	0.52
1:A:321:TYR:CB	1:A:362:GLN:CG	2.87	0.52
1:B:1183:ILE:HG23	1:B:1183:ILE:O	2.11	0.51
1:B:1321:TYR:HD1	1:B:1323:GLN:HG2	1.75	0.51
1:A:273:TRP:O	1:A:277:THR:OG1	2.28	0.51
1:B:1055:MET:O	1:B:1056:LEU:C	2.53	0.51
1:B:1211:ARG:HH22	1:B:1371:GLN:HB2	1.75	0.51
1:A:86:VAL:HA	1:A:89:LEU:HD12	1.92	0.51
1:A:394:ALA:HA	1:A:416:ILE:HA	1.92	0.51
1:A:80:LEU:C	1:A:82:GLU:H	2.18	0.51
1:B:1271:GLU:HG2	1:B:1275:LYS:NZ	2.24	0.51
1:A:237:ILE:HB	1:A:290:ILE:HG23	1.93	0.51
1:B:1055:MET:HG3	1:B:1065:VAL:HG21	1.91	0.51
1:B:1066:ASP:OD1	1:B:1066:ASP:O	2.28	0.51
1:B:1220:ALA:HB2	1:B:1360:LEU:CD1	2.41	0.51
1:B:1025:PHE:HD1	1:B:1093:ALA:HB2	1.75	0.51
1:B:1211:ARG:NH2	1:B:1367:VAL:C	2.69	0.51
1:A:356:PRO:HG2	1:A:356:PRO:O	2.11	0.51
1:A:16:ALA:O	1:A:17:GLU:C	2.52	0.51
1:B:1101:ASN:ND2	1:B:1101:ASN:N	2.47	0.51
1:B:1198:SER:O	1:B:1198:SER:OG	2.27	0.51
1:B:1251:MET:HB3	1:B:1283:LEU:CD2	2.41	0.51
1:A:202:ARG:HD2	1:A:354:GLU:O	2.10	0.51
1:A:369:GLN:HA	1:A:371:GLN:NE2	2.25	0.51
1:B:1146:LYS:HZ1	2:C:2007:DT:H3	1.57	0.51
1:A:212:PRO:O	1:A:213:SER:HB2	2.11	0.50

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:1170:TYR:HA	1:B:1173:ILE:HG22	1.94	0.50
1:A:72:ALA:O	1:A:73:GLU:C	2.55	0.50
1:A:31:LEU:HD21	1:A:56:LEU:CD1	2.40	0.50
1:B:1087:SER:O	1:B:1091:GLU:HG3	2.11	0.50
1:B:1217:THR:HG22	1:B:1221:LEU:CD2	2.41	0.50
1:A:37:ARG:HH12	1:A:107:ARG:CZ	2.24	0.50
1:A:206:ILE:O	1:A:358:ILE:HA	2.12	0.50
1:B:1322:LEU:H	1:B:1322:LEU:CD2	2.24	0.50
1:A:134:ASP:OD1	1:A:135:GLU:HG3	2.12	0.50
1:B:1234:ASN:OD1	1:B:1313:GLY:O	2.30	0.50
1:B:1325:ILE:O	1:B:1327:GLY:N	2.45	0.50
1:A:237:ILE:HG12	1:A:318:VAL:CG1	2.41	0.50
1:A:238:PHE:HB3	1:A:319:ILE:HG23	1.94	0.50
1:A:252:LEU:HG	1:A:279:ALA:HB3	1.93	0.50
1:B:1016:ALA:O	1:B:1019:ALA:HB3	2.12	0.50
1:B:1252:LEU:C	1:B:1252:LEU:HD12	2.37	0.50
1:A:337:GLN:O	1:A:340:SER:HB2	2.11	0.49
1:A:434:GLU:N	1:A:434:GLU:OE1	2.45	0.49
1:A:243:SER:H	1:A:246:GLN:NE2	2.11	0.49
1:A:302:ARG:NE	1:A:349:LEU:HD12	2.26	0.49
1:B:1101:ASN:ND2	1:B:1102:VAL:N	2.60	0.49
1:B:1231:THR:CG2	1:B:1233:GLU:HG2	2.42	0.49
1:A:223:ILE:C	1:A:225:GLN:N	2.67	0.49
1:A:326:GLN:HE21	2:C:2009:DT:C7	2.21	0.49
1:B:1054:ALA:O	1:B:1055:MET:O	2.30	0.49
1:B:1054:ALA:HB3	1:B:1074:LEU:HD11	1.94	0.49
1:B:1363:LEU:HD11	1:B:1395:PHE:CE1	2.45	0.49
1:A:315:GLY:O	1:A:356:PRO:HD2	2.13	0.49
1:A:319:ILE:O	1:A:360:LEU:CD1	2.60	0.49
1:B:1344:ARG:CZ	2:C:2009:DT:O2	2.60	0.49
1:B:1296:ILE:HD13	1:B:1301:ILE:HG12	1.94	0.49
1:A:293:THR:HB	1:A:296:ILE:HD11	1.94	0.49
1:B:1140:LEU:O	1:B:1144:GLU:HG3	2.13	0.49
1:A:37:ARG:NH2	1:A:107:ARG:HE	2.10	0.49
1:A:196:MET:SD	1:A:427:VAL:HG23	2.53	0.49
1:B:1079:GLN:O	1:B:1083:VAL:HG13	2.13	0.49
1:B:1217:THR:HG22	1:B:1221:LEU:HD22	1.95	0.49
1:B:1346:LEU:O	1:B:1349:LEU:HB3	2.13	0.49
1:A:205:LEU:HD21	1:A:346:LEU:HB3	1.94	0.49
1:A:327:GLY:HA3	1:A:338:GLU:CD	2.38	0.49
1:A:380:LEU:O	1:A:383:SER:HB2	2.12	0.49

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:1280:MET:HG3	1:B:1281:GLY:N	2.28	0.49
1:A:113:SER:O	1:A:116:ARG:HB2	2.13	0.49
1:B:1206:ILE:HB	1:B:1358:ILE:HA	1.94	0.49
1:B:1054:ALA:CB	1:B:1074:LEU:HD12	2.43	0.48
1:B:1292:ASP:CG	1:B:1292:ASP:O	2.56	0.48
1:A:239:SER:HA	1:A:320:ASP:CB	2.35	0.48
1:A:283:LEU:H	1:A:283:LEU:HG	1.23	0.48
1:A:180:ASN:OD1	1:A:195:ARG:NH2	2.46	0.48
1:B:1271:GLU:HG2	1:B:1275:LYS:HZ2	1.78	0.48
1:B:1126:ALA:C	1:B:1128:ASP:N	2.70	0.48
1:B:1238:PHE:CZ	1:B:1301:ILE:HG23	2.49	0.48
1:B:1336:GLN:O	1:B:1340:SER:HB3	2.13	0.48
1:B:1107:ARG:HG3	1:B:1107:ARG:HH21	1.78	0.48
1:B:1333:GLU:HB3	1:B:1337:GLN:CB	2.42	0.48
1:A:114:LEU:HD13	1:A:114:LEU:C	2.39	0.48
1:A:303:ALA:O	1:A:307:ARG:HG3	2.14	0.48
1:B:1187:PRO:C	1:B:1189:GLY:N	2.71	0.48
1:B:1347:LYS:NZ	1:B:1420:ARG:NH1	2.62	0.48
2:C:2004:DT:O2	2:C:2004:DT:C2'	2.58	0.48
1:A:308:LEU:O	1:A:309:LYS:C	2.56	0.47
1:B:1075:ALA:HA	1:B:1080:LEU:HB2	1.96	0.47
1:B:1300:ASP:O	1:B:1303:ALA:HB3	2.15	0.47
1:A:209:ALA:HA	1:A:361:SER:O	2.15	0.47
1:A:318:VAL:HA	1:A:358:ILE:CG1	2.44	0.47
1:B:1033:LEU:HD22	1:B:1036:GLU:OE2	2.14	0.47
1:B:1242:MET:HE2	1:B:1246:GLN:NE2	2.30	0.47
1:B:1322:LEU:H	1:B:1322:LEU:HD23	1.79	0.47
1:A:99:ALA:O	1:A:102:VAL:N	2.35	0.47
1:A:377:MET:CE	1:A:387:GLU:HG3	2.44	0.47
1:A:104:TYR:O	1:A:105:TYR:C	2.57	0.47
1:A:268:LEU:HB2	1:A:273:TRP:CE3	2.46	0.47
1:B:1024:VAL:O	1:B:1025:PHE:C	2.57	0.47
1:A:21:LEU:HB2	1:A:92:LEU:CD2	2.41	0.47
1:A:89:LEU:HA	1:A:92:LEU:HB2	1.96	0.47
1:A:103:GLU:O	1:A:104:TYR:C	2.57	0.47
1:A:248:VAL:HG21	1:B:1165:VAL:HG21	1.95	0.47
1:B:1426:THR:HG22	1:B:1427:VAL:N	2.29	0.47
1:A:283:LEU:C	1:A:286:ALA:H	2.21	0.47
1:A:339:VAL:HG13	1:A:340:SER:N	2.30	0.47
1:B:1188:THR:HG21	1:B:1193:LEU:CB	2.36	0.47
1:B:1296:ILE:CG1	1:B:1297:ARG:N	2.77	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:1330:ARG:CZ	2:C:2008:DT:H3	2.27	0.47
1:B:1340:SER:C	1:B:1342:ILE:N	2.70	0.47
1:B:1390:ALA:O	1:B:1418:LYS:HD3	2.15	0.47
1:A:17:GLU:OE1	1:A:43:PHE:HA	2.14	0.47
1:A:107:ARG:O	1:A:110:GLU:N	2.48	0.47
1:A:207:ILE:HD12	1:A:386:ILE:HG22	1.96	0.47
1:A:439:VAL:HG12	1:A:440:ASN:O	2.15	0.47
1:A:14:ILE:O	1:A:17:GLU:N	2.48	0.47
1:B:1045:ARG:HD2	1:B:1046:ALA:H	1.80	0.47
1:B:1110:GLU:O	1:B:1111:GLU:C	2.57	0.47
1:B:1235:VAL:HG12	1:B:1316:MET:CB	2.44	0.47
1:B:1269:THR:O	1:B:1272:ASP:HB2	2.14	0.47
1:A:260:ALA:O	1:A:261:GLN:C	2.58	0.46
1:B:1415:ILE:CG2	1:B:1426:THR:OG1	2.57	0.46
1:A:367:VAL:HG23	1:A:368:GLU:H	1.80	0.46
1:B:1126:ALA:O	1:B:1127:GLN:C	2.59	0.46
1:B:1178:ASN:O	1:B:1179:ARG:HB3	2.15	0.46
1:A:50:LYS:HG2	1:A:79:GLN:CD	2.41	0.46
1:A:153:ARG:HG3	1:A:153:ARG:NH2	2.30	0.46
1:A:251:MET:SD	1:A:288:ILE:HD13	2.56	0.46
1:A:363:LEU:HG	1:A:364:SER:H	1.80	0.46
1:B:1188:THR:HG21	1:B:1194:ASP:N	2.31	0.46
1:B:1365:ARG:O	1:B:1369:GLN:HB2	2.16	0.46
1:A:46:ALA:O	1:A:49:GLN:HB2	2.15	0.46
1:A:54:ALA:O	1:A:57:ARG:HB2	2.16	0.46
1:A:167:VAL:HG23	1:A:168:GLN:H	1.81	0.46
1:A:216:LYS:CE	1:A:362:GLN:OE1	2.63	0.46
1:A:335:ARG:HH21	1:A:338:GLU:CG	2.03	0.46
1:A:89:LEU:O	1:A:90:SER:C	2.59	0.46
1:A:98:THR:HG23	1:A:98:THR:O	2.16	0.46
1:A:179:ARG:HD2	1:A:179:ARG:HA	1.64	0.46
1:A:253:CYS:SG	1:A:260:ALA:HB1	2.50	0.46
1:A:260:ALA:O	1:A:263:LEU:N	2.49	0.46
1:B:1178:ASN:HD22	1:B:1178:ASN:HA	1.57	0.46
1:B:1037:ARG:HE	1:B:1107:ARG:NH1	2.13	0.46
1:A:322:LEU:CD2	1:A:323:GLN:NE2	2.79	0.46
1:A:219:PHE:CE2	1:A:414:ILE:HD11	2.51	0.46
1:B:1251:MET:SD	1:B:1288:ILE:HD12	2.56	0.46
1:A:237:ILE:HG23	1:A:318:VAL:HG13	1.97	0.46
1:A:412:ILE:HG21	1:A:438:PHE:HE2	1.79	0.46
1:B:1245:GLN:O	1:B:1246:GLN:C	2.59	0.46

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:25:PHE:HZ	1:A:89:LEU:HD22	1.79	0.45
1:A:74:LEU:HD23	1:A:80:LEU:HD23	1.97	0.45
1:B:1221:LEU:O	1:B:1222:ASN:C	2.59	0.45
1:B:1393:VAL:HG13	1:B:1418:LYS:HB3	1.98	0.45
1:A:212:PRO:HG3	1:A:364:SER:HA	1.99	0.45
1:A:70:VAL:O	1:A:74:LEU:HB2	2.16	0.45
1:B:1054:ALA:HB1	1:B:1074:LEU:HD12	1.99	0.45
1:B:1061:LYS:NZ	1:B:1073:GLU:OE1	2.48	0.45
1:B:1208:VAL:O	1:B:1208:VAL:CG2	2.64	0.45
1:B:1322:LEU:CA	1:B:1325:ILE:HG13	2.44	0.45
1:A:107:ARG:O	1:A:110:GLU:HB3	2.16	0.45
1:A:216:LYS:HE3	1:A:362:GLN:OE1	2.16	0.45
1:A:342:ILE:O	1:A:343:SER:C	2.58	0.45
1:B:1088:TYR:CZ	1:B:1092:LEU:HD21	2.51	0.45
1:B:1121:THR:HG22	1:B:1122:ALA:N	2.31	0.45
1:B:1226:ASN:OD1	1:B:1226:ASN:N	2.47	0.45
1:B:1353:LEU:HB3	1:B:1355:VAL:HG22	1.98	0.45
1:A:80:LEU:O	1:A:82:GLU:N	2.49	0.45
1:A:301:ILE:O	1:A:305:CYS:SG	2.70	0.45
1:B:1026:LEU:HD23	1:B:1098:THR:C	2.41	0.45
1:B:1186:ILE:HG22	1:B:1186:ILE:O	2.16	0.45
1:A:262:ASN:HD22	1:A:262:ASN:HA	1.58	0.45
1:A:273:TRP:CZ2	1:B:1177:HIS:ND1	2.85	0.45
1:A:278:MET:O	1:A:279:ALA:C	2.59	0.45
1:A:325:ILE:HG21	1:A:342:ILE:HD13	1.98	0.45
1:B:1137:ASP:CB	1:B:1297:ARG:HH22	2.30	0.45
1:B:1008:ARG:HA	1:B:1008:ARG:HD3	1.76	0.45
1:B:1088:TYR:CE1	1:B:1092:LEU:HD11	2.51	0.45
1:B:1104:TYR:CD1	1:B:1105:TYR:N	2.84	0.45
1:B:1111:GLU:O	1:B:1112:LYS:C	2.59	0.45
1:A:116:ARG:HG3	1:A:116:ARG:HH21	1.82	0.45
1:A:427:VAL:CG1	1:A:428:GLN:N	2.80	0.45
1:B:1025:PHE:CZ	1:B:1070:VAL:HG11	2.52	0.45
1:B:1108:ILE:O	1:B:1109:VAL:C	2.60	0.45
1:A:188:THR:O	1:A:189:GLY:C	2.58	0.45
1:A:377:MET:HE3	1:A:387:GLU:CD	2.41	0.45
1:B:1040:PRO:O	1:B:1041:GLU:C	2.60	0.45
1:B:1322:LEU:C	1:B:1324:LEU:N	2.71	0.45
1:A:355:VAL:HG13	1:A:356:PRO:CD	2.44	0.45
1:A:363:LEU:HD21	1:A:366:SER:HG	1.78	0.45
1:B:1391:ASP:CB	1:B:1420:ARG:HD2	2.46	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:66:ASP:OD2	1:A:66:ASP:C	2.60	0.44
1:A:342:ILE:HG22	1:A:343:SER:N	2.32	0.44
1:B:1131:THR:O	1:B:1132:ARG:HG3	2.17	0.44
1:B:1132:ARG:C	1:B:1134:ASP:H	2.25	0.44
1:B:1391:ASP:O	1:B:1392:ILE:CG1	2.57	0.44
1:A:365:ARG:CG	1:A:366:SER:H	2.31	0.44
1:B:1021:LEU:O	1:B:1022:GLY:C	2.60	0.44
1:B:1121:THR:O	1:B:1124:SER:HB3	2.18	0.44
1:B:1190:PHE:O	1:B:1193:LEU:N	2.50	0.44
1:B:1297:ARG:O	1:B:1301:ILE:HG13	2.16	0.44
1:A:39:ILE:O	1:A:42:ASP:HB2	2.16	0.44
1:B:1043:PHE:CE1	1:B:1052:PHE:CD2	3.05	0.44
1:B:1219:PHE:CZ	1:B:1223:ILE:HD11	2.53	0.44
1:B:1222:ASN:O	1:B:1225:GLN:N	2.49	0.44
1:B:1240:LEU:N	1:B:1240:LEU:HD12	2.32	0.44
1:A:209:ALA:O	1:A:395:PHE:HA	2.18	0.44
1:A:289:TYR:N	1:A:289:TYR:CD1	2.86	0.44
1:B:1386:ILE:CD1	1:B:1393:VAL:HG11	2.47	0.44
1:A:20:VAL:O	1:A:21:LEU:C	2.61	0.44
1:A:66:ASP:OD2	1:A:69:THR:HG23	2.18	0.44
1:B:1025:PHE:CZ	1:B:1089:LEU:HD22	2.53	0.44
1:B:1320:ASP:HA	1:B:1360:LEU:HD12	2.00	0.44
1:A:21:LEU:HD22	1:A:55:MET:HE3	1.97	0.44
1:B:1068:VAL:O	1:B:1070:VAL:N	2.51	0.44
1:B:1231:THR:HG21	1:B:1233:GLU:HG2	1.98	0.44
1:B:1309:LYS:O	1:B:1309:LYS:HG2	2.18	0.44
1:A:50:LYS:HG2	1:A:79:GLN:NE2	2.32	0.44
1:A:391:ASP:O	1:A:419:GLN:HA	2.18	0.44
1:B:1121:THR:CG2	1:B:1147:ILE:HD13	2.48	0.44
1:A:260:ALA:HA	1:A:263:LEU:HB3	2.00	0.44
1:B:1186:ILE:HD12	1:B:1200:PHE:O	2.18	0.44
1:B:1272:ASP:HA	1:B:1275:LYS:CG	2.47	0.44
1:B:1053:HIS:O	1:B:1057:ARG:N	2.44	0.44
1:B:1272:ASP:CA	1:B:1275:LYS:HG2	2.46	0.44
1:A:193:LEU:HA	1:A:427:VAL:CG2	2.47	0.43
1:A:335:ARG:O	1:A:336:GLN:C	2.60	0.43
1:A:74:LEU:HD21	1:A:83:VAL:CG2	2.45	0.43
1:A:214:VAL:HG12	1:A:214:VAL:O	2.19	0.43
1:A:321:TYR:HA	1:A:360:LEU:O	2.18	0.43
1:B:1050:LYS:O	1:B:1053:HIS:HB3	2.17	0.43
1:A:161:ASN:ND2	1:A:163:LYS:HB3	2.33	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:358:ILE:O	1:A:358:ILE:CG1	2.53	0.43
1:A:377:MET:HE1	1:A:387:GLU:HG3	1.98	0.43
1:B:1137:ASP:HB3	1:B:1297:ARG:NH2	2.32	0.43
1:B:1206:ILE:HG22	1:B:1207:ILE:N	2.33	0.43
1:A:293:THR:HG21	1:A:296:ILE:HG12	2.00	0.43
1:A:331:ASN:CG	1:A:332:ARG:N	2.65	0.43
1:B:1223:ILE:O	1:B:1224:ALA:C	2.61	0.43
1:B:1246:GLN:O	1:B:1250:ARG:HB2	2.18	0.43
1:A:186:ILE:HA	1:A:187:PRO:HD2	1.87	0.43
1:B:1182:ASP:O	1:B:1183:ILE:HG22	2.18	0.43
1:B:1209:ALA:HB3	1:B:1395:PHE:CE1	2.54	0.43
1:A:191:THR:N	1:A:440:ASN:HD21	2.17	0.43
1:B:1055:MET:O	1:B:1058:VAL:HG22	2.19	0.43
1:B:1166:LEU:O	1:B:1167:VAL:C	2.61	0.43
1:B:1296:ILE:HG12	1:B:1297:ARG:H	1.84	0.43
1:A:13:SER:O	1:A:14:ILE:C	2.62	0.43
1:A:99:ALA:O	1:A:101:ASN:N	2.52	0.43
1:A:190:PHE:HA	1:A:440:ASN:HD21	1.83	0.43
1:A:432:ILE:HD11	1:A:439:VAL:HG21	2.01	0.43
1:B:1333:GLU:H	1:B:1333:GLU:HG2	1.57	0.43
1:A:70:VAL:O	1:A:71:THR:C	2.61	0.43
1:A:209:ALA:HB2	1:A:361:SER:HB3	2.01	0.43
1:B:1045:ARG:CD	1:B:1046:ALA:H	2.32	0.43
1:B:1386:ILE:HG13	1:B:1387:GLU:N	2.33	0.43
1:A:67:LEU:C	1:A:67:LEU:CD2	2.91	0.43
1:A:222:ASN:HD22	1:A:222:ASN:N	2.16	0.43
1:A:237:ILE:HG21	1:A:247:LEU:HD11	2.01	0.43
1:A:263:LEU:CA	1:A:268:LEU:HD21	2.47	0.43
1:A:363:LEU:CD2	1:A:367:VAL:HG13	2.28	0.43
1:B:1391:ASP:CB	1:B:1420:ARG:CG	2.93	0.43
2:C:2003:DT:C2'	2:C:2004:DT:OP2	2.66	0.43
1:A:214:VAL:O	1:A:216:LYS:N	2.52	0.42
1:A:283:LEU:O	1:A:286:ALA:HB3	2.19	0.42
1:A:321:TYR:CE2	1:A:324:LEU:CD1	2.84	0.42
1:B:1056:LEU:HD22	1:B:1056:LEU:HA	1.84	0.42
1:B:1102:VAL:CG1	1:B:1103:GLU:N	2.81	0.42
1:B:1302:ARG:CB	1:B:1349:LEU:HD13	2.48	0.42
1:B:1346:LEU:O	1:B:1349:LEU:N	2.51	0.42
1:A:73:GLU:O	1:A:76:ALA:HB3	2.18	0.42
1:A:220:ALA:HB2	1:A:360:LEU:CD2	2.47	0.42
1:A:418:LYS:CG	1:A:419:GLN:N	2.81	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:1138:VAL:O	1:B:1139:LEU:C	2.61	0.42
1:A:183:ILE:HG23	1:A:199:GLY:HA3	2.00	0.42
1:B:1052:PHE:O	1:B:1055:MET:CB	2.68	0.42
1:B:1054:ALA:CB	1:B:1074:LEU:HD11	2.49	0.42
1:B:1222:ASN:O	1:B:1223:ILE:C	2.62	0.42
1:B:1223:ILE:C	1:B:1225:GLN:N	2.77	0.42
1:B:1251:MET:SD	1:B:1288:ILE:CD1	3.07	0.42
1:A:92:LEU:O	1:A:93:ALA:C	2.59	0.42
1:A:96:VAL:HG22	1:A:98:THR:N	2.35	0.42
1:A:267:LYS:O	1:A:267:LYS:HG2	2.19	0.42
1:B:1029:THR:O	1:B:1030:ALA:C	2.63	0.42
1:A:237:ILE:HA	1:A:318:VAL:CG1	2.47	0.42
1:A:269:THR:N	1:A:272:ASP:HB2	2.35	0.42
1:B:1025:PHE:HZ	1:B:1089:LEU:HD22	1.84	0.42
1:A:31:LEU:O	1:A:32:THR:C	2.63	0.42
1:A:46:ALA:O	1:A:47:ALA:C	2.61	0.42
1:A:225:GLN:C	1:A:227:VAL:N	2.77	0.42
1:A:259:ASN:O	1:A:261:GLN:N	2.53	0.42
1:B:1251:MET:HE1	1:B:1288:ILE:CD1	2.49	0.42
1:A:9:ILE:O	1:A:9:ILE:HG13	2.19	0.42
1:A:227:VAL:HG13	1:A:231:THR:CG2	2.47	0.42
1:B:1033:LEU:HD22	1:B:1033:LEU:HA	1.73	0.42
1:B:1275:LYS:HG3	1:B:1276:LEU:N	2.33	0.42
1:A:116:ARG:NH2	1:A:116:ARG:HG3	2.34	0.42
1:B:1098:THR:OG1	1:B:1099:ALA:N	2.52	0.42
1:B:1219:PHE:O	1:B:1220:ALA:C	2.62	0.42
1:B:1221:LEU:O	1:B:1225:GLN:HG3	2.20	0.42
1:B:1391:ASP:CB	1:B:1420:ARG:CD	2.97	0.42
1:A:167:VAL:CG2	1:A:168:GLN:N	2.83	0.42
1:A:202:ARG:O	1:A:203:SER:CB	2.67	0.42
1:A:261:GLN:HA	1:A:264:ARG:CZ	2.49	0.42
1:A:302:ARG:NH1	1:A:352:GLU:OE1	2.53	0.42
1:B:1210:ALA:HB1	1:B:1214:VAL:HG11	2.02	0.42
1:A:295:SER:OG	2:C:2009:DT:H73	2.20	0.42
1:B:1059:ALA:O	1:B:1060:ASP:C	2.63	0.42
1:B:1335:ARG:O	1:B:1335:ARG:HD3	2.20	0.42
1:A:66:ASP:OD2	1:A:66:ASP:O	2.38	0.41
1:B:1037:ARG:HH21	1:B:1107:ARG:NH1	2.14	0.41
1:B:1110:GLU:O	1:B:1113:SER:N	2.53	0.41
1:B:1300:ASP:O	1:B:1301:ILE:C	2.63	0.41
1:A:80:LEU:O	1:A:81:GLU:C	2.63	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:101:ASN:HB2	1:A:105:TYR:CZ	2.55	0.41
1:A:322:LEU:HD23	1:A:323:GLN:CD	2.44	0.41
1:B:1191:THR:O	1:B:1195:ARG:N	2.51	0.41
1:A:429:LEU:HD23	1:A:438:PHE:CD2	2.55	0.41
1:B:1135:GLU:HB2	1:B:1139:LEU:HD12	2.01	0.41
1:B:1208:VAL:HA	1:B:1394:ALA:O	2.21	0.41
1:B:1239:SER:C	1:B:1240:LEU:HD12	2.45	0.41
1:B:1322:LEU:HD23	1:B:1322:LEU:N	2.35	0.41
1:B:1332:ARG:HG3	1:B:1333:GLU:CD	2.46	0.41
1:A:205:LEU:HD21	1:A:346:LEU:CB	2.50	0.41
1:B:1009:ILE:C	1:B:1010:PRO:O	2.63	0.41
1:A:111:GLU:C	1:A:113:SER:N	2.77	0.41
1:A:197:THR:O	1:A:198:SER:HB2	2.20	0.41
1:A:214:VAL:HG12	1:A:217:THR:HB	2.01	0.41
1:A:214:VAL:CG1	1:A:217:THR:OG1	2.68	0.41
1:B:1088:TYR:HA	1:B:1091:GLU:HG3	2.03	0.41
1:B:1142:GLU:HA	1:B:1145:ARG:HB3	2.02	0.41
1:B:1342:ILE:O	1:B:1346:LEU:N	2.50	0.41
1:B:1012:GLN:HG3	1:B:1012:GLN:O	2.21	0.41
1:B:1322:LEU:O	1:B:1323:GLN:C	2.64	0.41
1:B:1073:GLU:OE1	1:B:1073:GLU:HA	2.21	0.41
1:B:1190:PHE:O	1:B:1192:GLU:N	2.53	0.41
1:B:1290:ILE:CG2	1:B:1291:ASP:H	2.30	0.41
1:B:1317:VAL:O	1:B:1317:VAL:HG13	2.20	0.41
1:A:67:LEU:O	1:A:70:VAL:CG1	2.69	0.41
1:A:237:ILE:HG12	1:A:318:VAL:HG11	2.03	0.41
1:A:242:MET:HE3	1:A:242:MET:HB2	1.97	0.41
1:A:288:ILE:C	1:A:289:TYR:HD1	2.29	0.41
1:A:347:LYS:HB2	1:A:389:ASP:HB3	2.02	0.41
1:B:1101:ASN:ND2	1:B:1102:VAL:H	2.12	0.41
1:B:1101:ASN:O	1:B:1102:VAL:C	2.63	0.41
1:B:1131:THR:O	1:B:1132:ARG:CG	2.69	0.41
1:A:18:GLN:HG3	1:A:95:SER:CB	2.52	0.41
1:A:406:SER:O	1:A:407:GLU:HB2	2.19	0.41
1:A:166:LEU:O	1:A:167:VAL:C	2.63	0.40
1:B:1170:TYR:O	1:B:1173:ILE:CG2	2.68	0.40
1:A:26:LEU:N	1:A:26:LEU:HD23	2.35	0.40
1:A:40:PRO:HG3	1:A:52:PHE:CD2	2.45	0.40
1:A:375:PRO:HD2	1:A:397:TYR:HB2	2.03	0.40
1:A:439:VAL:HG12	1:A:440:ASN:N	2.36	0.40
1:B:1013:SER:O	1:B:1014:ILE:C	2.64	0.40

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:1330:ARG:O	1:B:1331:ASN:HB2	2.21	0.40
1:B:1344:ARG:NH1	2:C:2009:DT:O2	2.54	0.40
1:A:101:ASN:HB2	1:A:105:TYR:OH	2.20	0.40
1:A:213:SER:C	1:A:215:GLY:H	2.29	0.40
1:A:338:GLU:O	1:A:341:GLU:HG2	2.21	0.40
1:B:1020:VAL:O	1:B:1021:LEU:C	2.60	0.40
1:B:1021:LEU:HG	1:B:1043:PHE:HE2	1.85	0.40
1:B:1037:ARG:O	1:B:1038:LEU:HD23	2.20	0.40
1:B:1200:PHE:CD2	1:B:1206:ILE:HG12	2.57	0.40
1:A:37:ARG:HG3	1:A:110:GLU:OE1	2.21	0.40
1:B:1132:ARG:HB2	1:B:1139:LEU:HD11	2.02	0.40
1:B:1392:ILE:O	1:B:1392:ILE:HG22	2.18	0.40
1:B:1104:TYR:O	1:B:1107:ARG:HB2	2.21	0.40
1:B:1115:LEU:HD23	1:B:1115:LEU:HA	1.64	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	417/454 (92%)	323 (78%)	75 (18%)	19 (5%)	2	19
1	B	369/454 (81%)	268 (73%)	75 (20%)	26 (7%)	1	13
All	All	786/908 (87%)	591 (75%)	150 (19%)	45 (6%)	1	16

All (45) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	A	155	HIS
1	A	321	TYR
1	B	1126	ALA
1	B	1321	TYR

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Mol	Chain	Res	Type
1	B	1334	ASN
1	B	1392	ILE
1	A	189	GLY
1	A	212	PRO
1	A	329	GLY
1	A	406	SER
1	B	1067	LEU
1	B	1069	THR
1	B	1127	GLN
1	B	1382	GLU
1	A	83	VAL
1	A	100	ALA
1	A	135	GLU
1	A	214	VAL
1	B	1009	ILE
1	B	1055	MET
1	B	1059	ALA
1	B	1133	GLU
1	B	1191	THR
1	B	1222	ASN
1	B	1294	PRO
1	B	1326	GLN
1	A	78	GLU
1	A	244	ALA
1	B	1031	LEU
1	B	1138	VAL
1	A	55	MET
1	A	365	ARG
1	B	1325	ILE
1	A	15	GLU
1	A	315	GLY
1	B	1102	VAL
1	B	1389	ASP
1	B	1183	ILE
1	B	1223	ILE
1	B	1313	GLY
1	A	40	PRO
1	B	1010	PRO
1	A	215	GLY
1	A	97	PRO
1	B	1068	VAL

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	361/388 (93%)	302 (84%)	59 (16%)	2	13
1	B	320/388 (82%)	269 (84%)	51 (16%)	2	14
All	All	681/776 (88%)	571 (84%)	110 (16%)	2	13

All (110) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	13	SER
1	A	24	VAL
1	A	26	LEU
1	A	37	ARG
1	A	38	LEU
1	A	41	GLU
1	A	57	ARG
1	A	63	GLU
1	A	74	LEU
1	A	77	LEU
1	A	95	SER
1	A	98	THR
1	A	114	LEU
1	A	133	GLU
1	A	135	GLU
1	A	159	PHE
1	A	173	ILE
1	A	174	GLU
1	A	175	MET
1	A	192	GLU
1	A	200	PHE
1	A	208	VAL
1	A	216	LYS
1	A	221	LEU
1	A	229	THR
1	A	231	THR
1	A	233	GLU

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Mol	Chain	Res	Type
1	A	243	SER
1	A	246	GLN
1	A	249	MET
1	A	252	LEU
1	A	262	ASN
1	A	271	GLU
1	A	272	ASP
1	A	277	THR
1	A	290	ILE
1	A	296	ILE
1	A	299	SER
1	A	310	GLN
1	A	316	MET
1	A	322	LEU
1	A	330	ARG
1	A	331	ASN
1	A	332	ARG
1	A	333	GLU
1	A	336	GLN
1	A	342	ILE
1	A	349	LEU
1	A	355	VAL
1	A	360	LEU
1	A	362	GLN
1	A	365	ARG
1	A	371	GLN
1	A	380	LEU
1	A	385	SER
1	A	388	GLN
1	A	403	ASN
1	A	412	ILE
1	A	434	GLU
1	B	1007	GLU
1	B	1033	LEU
1	B	1039	ILE
1	B	1055	MET
1	B	1056	LEU
1	B	1065	VAL
1	B	1070	VAL
1	B	1082	GLU
1	B	1083	VAL
1	B	1101	ASN

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Mol	Chain	Res	Type
1	B	1103	GLU
1	B	1115	LEU
1	B	1116	ARG
1	B	1121	THR
1	B	1123	THR
1	B	1134	ASP
1	B	1138	VAL
1	B	1139	LEU
1	B	1141	ASP
1	B	1165	VAL
1	B	1171	ASP
1	B	1176	LEU
1	B	1178	ASN
1	B	1198	SER
1	B	1204	ASP
1	B	1213	SER
1	B	1221	LEU
1	B	1226	ASN
1	B	1250	ARG
1	B	1251	MET
1	B	1253	CYS
1	B	1276	LEU
1	B	1278	MET
1	B	1280	MET
1	B	1316	MET
1	B	1321	TYR
1	B	1323	GLN
1	B	1332	ARG
1	B	1333	GLU
1	B	1338	GLU
1	B	1370	ARG
1	B	1374	ARG
1	B	1379	ASP
1	B	1385	SER
1	B	1386	ILE
1	B	1387	GLU
1	B	1388	GLN
1	B	1389	ASP
1	B	1391	ASP
1	B	1393	VAL
1	B	1415	ILE

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (28)

such sidechains are listed below:

Mol	Chain	Res	Type
1	A	18	GLN
1	A	101	ASN
1	A	168	GLN
1	A	226	ASN
1	A	232	ASN
1	A	246	GLN
1	A	259	ASN
1	A	261	GLN
1	A	262	ASN
1	A	323	GLN
1	A	326	GLN
1	A	331	ASN
1	A	336	GLN
1	A	388	GLN
1	A	408	ASN
1	A	419	GLN
1	A	428	GLN
1	A	440	ASN
1	B	1053	HIS
1	B	1101	ASN
1	B	1178	ASN
1	B	1222	ASN
1	B	1225	GLN
1	B	1234	ASN
1	B	1246	GLN
1	B	1331	ASN
1	B	1362	GLN
1	B	1419	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	425/454 (93%)	-0.06	6 (1%) 73 56	54, 165, 267, 298	0
1	B	381/454 (83%)	-0.10	7 (1%) 67 51	58, 191, 280, 298	0
2	C	9/9 (100%)	0.01	0 100 100	255, 293, 298, 298	0
All	All	815/917 (88%)	-0.08	13 (1%) 70 53	54, 177, 279, 298	0

All (13) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	B	1193	LEU	4.8
1	B	1317	VAL	4.4
1	A	176	LEU	4.0
1	A	124	SER	3.1
1	B	1094	ASP	3.0
1	B	1011	PRO	3.0
1	B	1368	GLU	2.8
1	A	199	GLY	2.6
1	A	428	GLN	2.6
1	A	129	GLY	2.5
1	A	143	ALA	2.4
1	B	1010	PRO	2.4
1	B	1239	SER	2.3

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.