



Full wwPDB EM Validation Report ⓘ

Jun 16, 2025 – 12:33 PM JST

PDB ID : 7FB1 / pdb_00007fb1
EMDB ID : EMD-31512
Title : SARS-CoV-2 spike protein in one-RBD open state
Authors : Zhu, Y.; Tai, L.H.; Sun, F.
Deposited on : 2021-07-08
Resolution : 3.70 Å(reported)

This is a Full wwPDB EM 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/EMValidationReportHelp>

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:

EMDB validation analysis : 0.0.1.dev118
MolProbity : 4-5-2 with Phenix2.0rc1
Percentile statistics : 20231227.v01 (using entries in the PDB archive December 27th 2023)
MapQ : 1.9.13
Ideal geometry (proteins) : Engh & Huber (2001)
Ideal geometry (DNA, RNA) : Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP) : 2.44

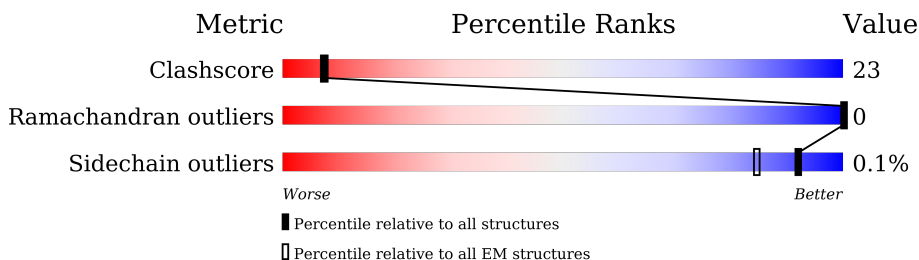
1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

ELECTRON MICROSCOPY

The reported resolution of this entry is 3.70 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)	EM structures (#Entries)
Clashscore	210492	15764
Ramachandran outliers	207382	16835
Sidechain outliers	206894	16415

The table below summarises the geometric issues observed across the polymeric chains and their fit to the map. The red, orange, yellow and green segments of the 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 EM map (all-atom inclusion $< 40\%$). The numeric value is given above the bar.

Mol	Chain	Length	Quality of chain
1	A	1247	 48% 35% 17%
1	B	1247	 6% 47% 36% 17%
1	C	1247	 47% 35% 17%

2 Entry composition

There is only 1 type of molecule in this entry. The entry contains 24168 atoms, of which 0 are hydrogens and 0 are deuteriums.

In the tables below, 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 Spike glycoprotein.

Mol	Chain	Residues	Atoms					AltConf	Trace
1	A	1029	Total	C	N	O	S	0	0
			8039	5133	1338	1530	38		
1	B	1036	Total	C	N	O	S	0	0
			8091	5168	1346	1540	37		
1	C	1029	Total	C	N	O	S	0	0
			8038	5136	1336	1529	37		

There are 132 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
A	682	GLY	ARG	engineered mutation	UNP P0DTC2
A	683	ALA	ARG	engineered mutation	UNP P0DTC2
A	685	SER	ARG	engineered mutation	UNP P0DTC2
A	986	PRO	LYS	engineered mutation	UNP P0DTC2
A	987	PRO	VAL	engineered mutation	UNP P0DTC2
A	1209	LEU	-	expression tag	UNP P0DTC2
A	1210	VAL	-	expression tag	UNP P0DTC2
A	1211	PRO	-	expression tag	UNP P0DTC2
A	1212	ARG	-	expression tag	UNP P0DTC2
A	1213	GLY	-	expression tag	UNP P0DTC2
A	1214	SER	-	expression tag	UNP P0DTC2
A	1215	GLY	-	expression tag	UNP P0DTC2
A	1216	TYR	-	expression tag	UNP P0DTC2
A	1217	ILE	-	expression tag	UNP P0DTC2
A	1218	PRO	-	expression tag	UNP P0DTC2
A	1219	GLU	-	expression tag	UNP P0DTC2
A	1220	ALA	-	expression tag	UNP P0DTC2
A	1221	PRO	-	expression tag	UNP P0DTC2
A	1222	ARG	-	expression tag	UNP P0DTC2
A	1223	ASP	-	expression tag	UNP P0DTC2
A	1224	GLY	-	expression tag	UNP P0DTC2
A	1225	GLN	-	expression tag	UNP P0DTC2
A	1226	ALA	-	expression tag	UNP P0DTC2
A	1227	TYR	-	expression tag	UNP P0DTC2

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Chain	Residue	Modelled	Actual	Comment	Reference
A	1228	VAL	-	expression tag	UNP P0DTC2
A	1229	ARG	-	expression tag	UNP P0DTC2
A	1230	LYS	-	expression tag	UNP P0DTC2
A	1231	ASP	-	expression tag	UNP P0DTC2
A	1232	GLY	-	expression tag	UNP P0DTC2
A	1233	GLU	-	expression tag	UNP P0DTC2
A	1234	TRP	-	expression tag	UNP P0DTC2
A	1235	VAL	-	expression tag	UNP P0DTC2
A	1236	LEU	-	expression tag	UNP P0DTC2
A	1237	LEU	-	expression tag	UNP P0DTC2
A	1238	SER	-	expression tag	UNP P0DTC2
A	1239	THR	-	expression tag	UNP P0DTC2
A	1240	PHE	-	expression tag	UNP P0DTC2
A	1241	LEU	-	expression tag	UNP P0DTC2
A	1242	HIS	-	expression tag	UNP P0DTC2
A	1243	HIS	-	expression tag	UNP P0DTC2
A	1244	HIS	-	expression tag	UNP P0DTC2
A	1245	HIS	-	expression tag	UNP P0DTC2
A	1246	HIS	-	expression tag	UNP P0DTC2
A	1247	HIS	-	expression tag	UNP P0DTC2
B	682	GLY	ARG	engineered mutation	UNP P0DTC2
B	683	ALA	ARG	engineered mutation	UNP P0DTC2
B	685	SER	ARG	engineered mutation	UNP P0DTC2
B	986	PRO	LYS	engineered mutation	UNP P0DTC2
B	987	PRO	VAL	engineered mutation	UNP P0DTC2
B	1209	LEU	-	expression tag	UNP P0DTC2
B	1210	VAL	-	expression tag	UNP P0DTC2
B	1211	PRO	-	expression tag	UNP P0DTC2
B	1212	ARG	-	expression tag	UNP P0DTC2
B	1213	GLY	-	expression tag	UNP P0DTC2
B	1214	SER	-	expression tag	UNP P0DTC2
B	1215	GLY	-	expression tag	UNP P0DTC2
B	1216	TYR	-	expression tag	UNP P0DTC2
B	1217	ILE	-	expression tag	UNP P0DTC2
B	1218	PRO	-	expression tag	UNP P0DTC2
B	1219	GLU	-	expression tag	UNP P0DTC2
B	1220	ALA	-	expression tag	UNP P0DTC2
B	1221	PRO	-	expression tag	UNP P0DTC2
B	1222	ARG	-	expression tag	UNP P0DTC2
B	1223	ASP	-	expression tag	UNP P0DTC2
B	1224	GLY	-	expression tag	UNP P0DTC2
B	1225	GLN	-	expression tag	UNP P0DTC2

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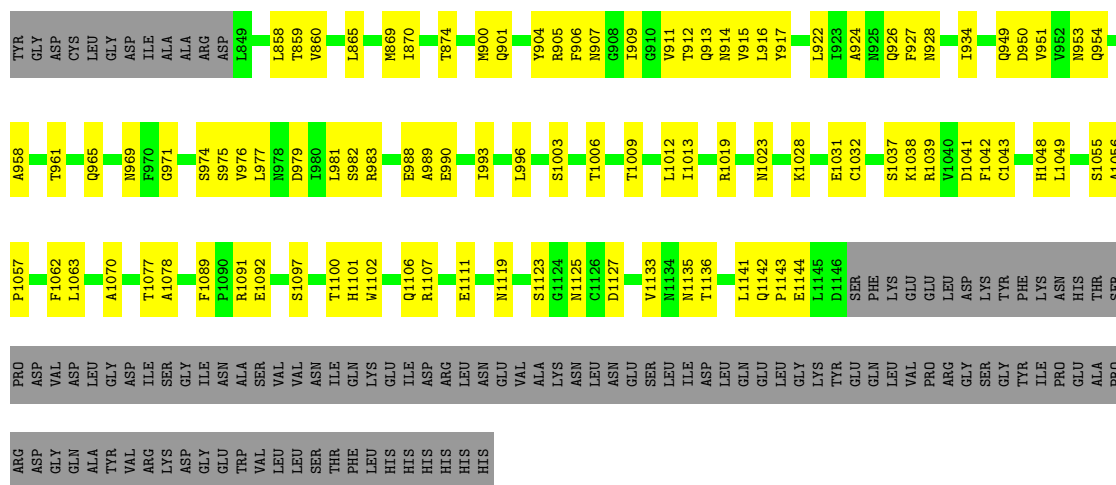
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Chain	Residue	Modelled	Actual	Comment	Reference
B	1226	ALA	-	expression tag	UNP P0DTC2
B	1227	TYR	-	expression tag	UNP P0DTC2
B	1228	VAL	-	expression tag	UNP P0DTC2
B	1229	ARG	-	expression tag	UNP P0DTC2
B	1230	LYS	-	expression tag	UNP P0DTC2
B	1231	ASP	-	expression tag	UNP P0DTC2
B	1232	GLY	-	expression tag	UNP P0DTC2
B	1233	GLU	-	expression tag	UNP P0DTC2
B	1234	TRP	-	expression tag	UNP P0DTC2
B	1235	VAL	-	expression tag	UNP P0DTC2
B	1236	LEU	-	expression tag	UNP P0DTC2
B	1237	LEU	-	expression tag	UNP P0DTC2
B	1238	SER	-	expression tag	UNP P0DTC2
B	1239	THR	-	expression tag	UNP P0DTC2
B	1240	PHE	-	expression tag	UNP P0DTC2
B	1241	LEU	-	expression tag	UNP P0DTC2
B	1242	HIS	-	expression tag	UNP P0DTC2
B	1243	HIS	-	expression tag	UNP P0DTC2
B	1244	HIS	-	expression tag	UNP P0DTC2
B	1245	HIS	-	expression tag	UNP P0DTC2
B	1246	HIS	-	expression tag	UNP P0DTC2
B	1247	HIS	-	expression tag	UNP P0DTC2
C	682	GLY	ARG	engineered mutation	UNP P0DTC2
C	683	ALA	ARG	engineered mutation	UNP P0DTC2
C	685	SER	ARG	engineered mutation	UNP P0DTC2
C	986	PRO	LYS	engineered mutation	UNP P0DTC2
C	987	PRO	VAL	engineered mutation	UNP P0DTC2
C	1209	LEU	-	expression tag	UNP P0DTC2
C	1210	VAL	-	expression tag	UNP P0DTC2
C	1211	PRO	-	expression tag	UNP P0DTC2
C	1212	ARG	-	expression tag	UNP P0DTC2
C	1213	GLY	-	expression tag	UNP P0DTC2
C	1214	SER	-	expression tag	UNP P0DTC2
C	1215	GLY	-	expression tag	UNP P0DTC2
C	1216	TYR	-	expression tag	UNP P0DTC2
C	1217	ILE	-	expression tag	UNP P0DTC2
C	1218	PRO	-	expression tag	UNP P0DTC2
C	1219	GLU	-	expression tag	UNP P0DTC2
C	1220	ALA	-	expression tag	UNP P0DTC2
C	1221	PRO	-	expression tag	UNP P0DTC2
C	1222	ARG	-	expression tag	UNP P0DTC2
C	1223	ASP	-	expression tag	UNP P0DTC2

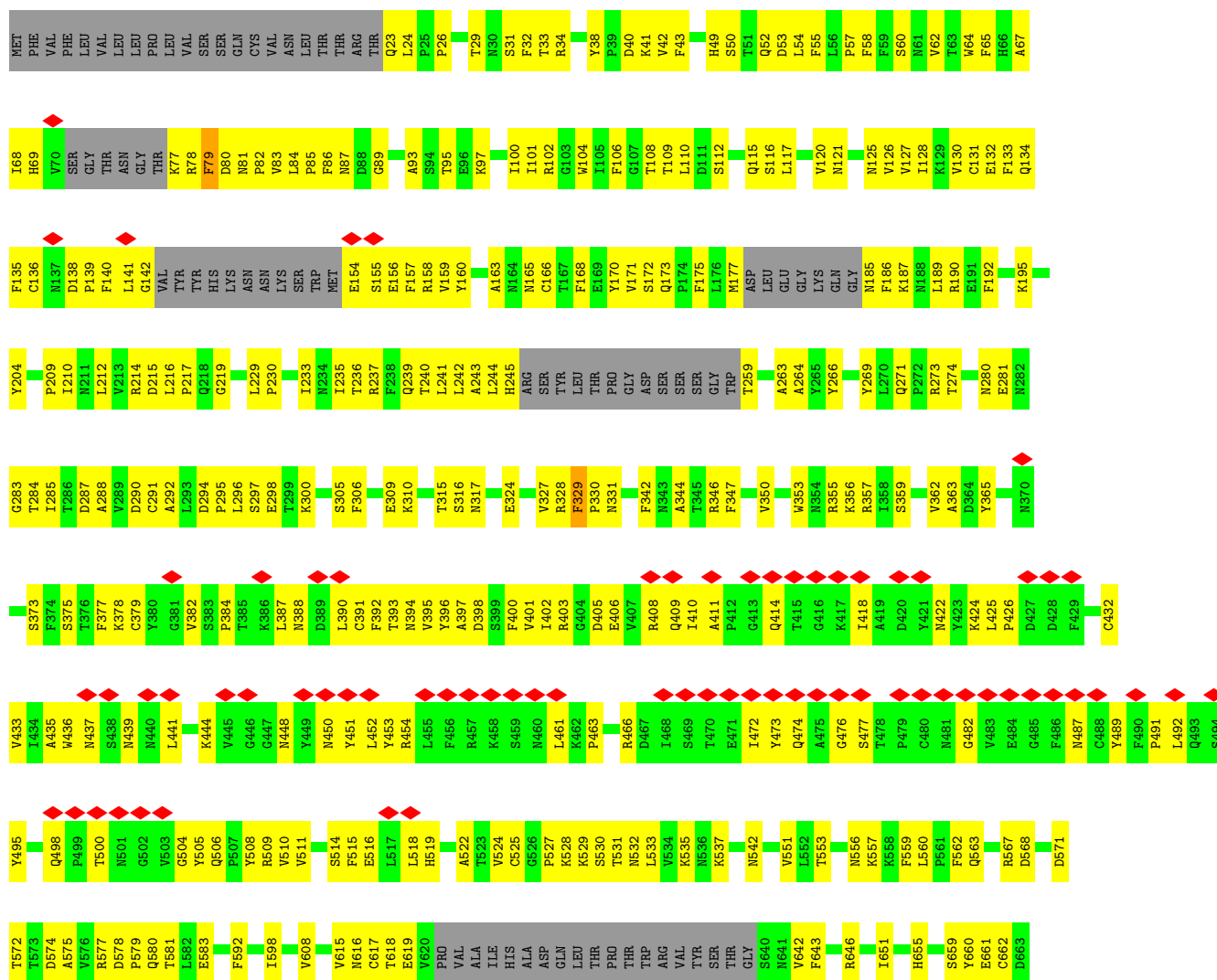
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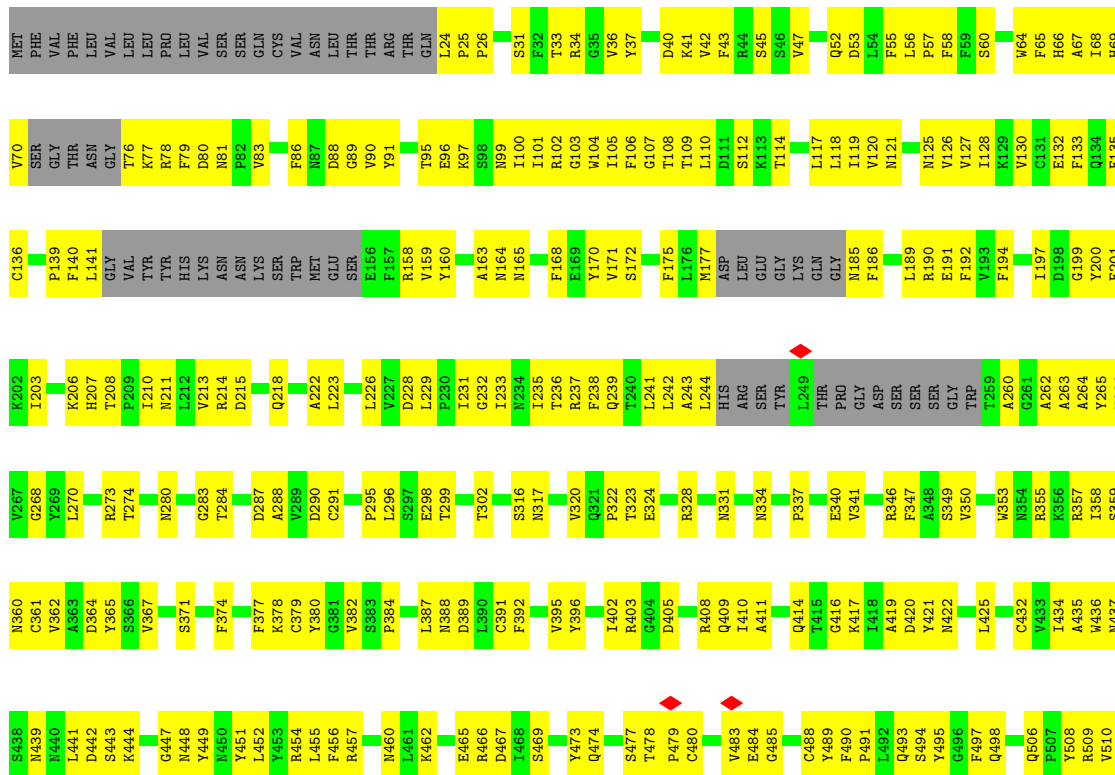
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Chain	Residue	Modelled	Actual	Comment	Reference
C	1224	GLY	-	expression tag	UNP P0DTC2
C	1225	GLN	-	expression tag	UNP P0DTC2
C	1226	ALA	-	expression tag	UNP P0DTC2
C	1227	TYR	-	expression tag	UNP P0DTC2
C	1228	VAL	-	expression tag	UNP P0DTC2
C	1229	ARG	-	expression tag	UNP P0DTC2
C	1230	LYS	-	expression tag	UNP P0DTC2
C	1231	ASP	-	expression tag	UNP P0DTC2
C	1232	GLY	-	expression tag	UNP P0DTC2
C	1233	GLU	-	expression tag	UNP P0DTC2
C	1234	TRP	-	expression tag	UNP P0DTC2
C	1235	VAL	-	expression tag	UNP P0DTC2
C	1236	LEU	-	expression tag	UNP P0DTC2
C	1237	LEU	-	expression tag	UNP P0DTC2
C	1238	SER	-	expression tag	UNP P0DTC2
C	1239	THR	-	expression tag	UNP P0DTC2
C	1240	PHE	-	expression tag	UNP P0DTC2
C	1241	LEU	-	expression tag	UNP P0DTC2
C	1242	HIS	-	expression tag	UNP P0DTC2
C	1243	HIS	-	expression tag	UNP P0DTC2
C	1244	HIS	-	expression tag	UNP P0DTC2
C	1245	HIS	-	expression tag	UNP P0DTC2
C	1246	HIS	-	expression tag	UNP P0DTC2
C	1247	HIS	-	expression tag	UNP P0DTC2



• Molecule 1: Spike glycoprotein







4 Experimental information

Property	Value	Source
EM reconstruction method	SINGLE PARTICLE	Depositor
Imposed symmetry	POINT, Not provided	
Number of particles used	50585	Depositor
Resolution determination method	FSC 0.143 CUT-OFF	Depositor
CTF correction method	PHASE FLIPPING AND AMPLITUDE CORRECTION	Depositor
Microscope	FEI TITAN KRIOS	Depositor
Voltage (kV)	300	Depositor
Electron dose ($e^-/\text{\AA}^2$)	3	Depositor
Minimum defocus (nm)	Not provided	
Maximum defocus (nm)	Not provided	
Magnification	Not provided	
Image detector	GATAN K2 QUANTUM (4k x 4k)	Depositor
Maximum map value	2.334	Depositor
Minimum map value	-0.912	Depositor
Average map value	0.001	Depositor
Map value standard deviation	0.070	Depositor
Recommended contour level	0.25	Depositor
Map size (Å)	348.16, 348.16, 348.16	wwPDB
Map dimensions	256, 256, 256	wwPDB
Map angles (°)	90.0, 90.0, 90.0	wwPDB
Pixel spacing (Å)	1.36, 1.36, 1.36	Depositor

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	0.33	0/8220	0.49	0/11181
1	B	0.33	0/8274	0.53	3/11258 (0.0%)
1	C	0.33	0/8219	0.49	0/11183
All	All	0.33	0/24713	0.50	3/33622 (0.0%)

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

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

There are no bond length outliers.

All (3) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	B	83	VAL	CA-C-N	13.63	138.94	120.67
1	B	83	VAL	C-N-CA	13.63	138.94	120.67
1	B	79	PHE	N-CA-C	-5.32	105.49	112.72

There are no chirality outliers.

All (1) planarity outliers are listed below:

Mol	Chain	Res	Type	Group
1	B	329	PHE	Peptide

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	8039	0	7854	388	0
1	B	8091	0	7907	378	0
1	C	8038	0	7859	364	0
All	All	24168	0	23620	1097	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 23.

All (1097) close contacts within the same asymmetric unit are listed below, sorted by their clash magnitude.

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:825:LYS:HE2	1:C:942:ALA:CB	1.57	1.33
1:C:825:LYS:CE	1:C:942:ALA:HB2	1.70	1.20
1:C:825:LYS:CE	1:C:942:ALA:CB	2.26	1.11
1:C:945:LEU:HD23	1:C:945:LEU:H	1.21	1.04
1:C:379:CYS:HA	1:C:432:CYS:HB3	1.40	1.04
1:A:379:CYS:HA	1:A:432:CYS:HB3	1.39	1.01
1:C:86:PHE:H	1:C:237:ARG:HA	1.31	0.96
1:B:86:PHE:H	1:B:237:ARG:HA	1.34	0.92
1:C:213:VAL:HG13	1:C:214:ARG:HG2	1.53	0.90
1:C:825:LYS:HE2	1:C:942:ALA:HB2	0.88	0.88
1:B:65:PHE:HB3	1:B:78:ARG:HH22	1.39	0.87
1:B:133:PHE:HA	1:B:160:TYR:HB3	1.60	0.83
1:B:67:ALA:HB2	1:B:78:ARG:HE	1.45	0.82
1:B:81:ASN:ND2	1:B:240:THR:O	2.13	0.81
1:B:363:ALA:HB2	1:B:524:VAL:HG12	1.60	0.81
1:C:109:THR:O	1:C:237:ARG:NH2	2.14	0.81
1:C:825:LYS:CE	1:C:942:ALA:HB1	2.07	0.81
1:B:452:LEU:HB3	1:B:492:LEU:HB3	1.60	0.81
1:B:403:ARG:HE	1:B:406:GLU:HG3	1.44	0.81
1:A:869:MET:HE1	1:C:669:GLY:HA3	1.63	0.81
1:A:116:SER:HB2	1:A:135:PHE:HZ	1.47	0.79
1:B:142:GLY:HA2	1:B:155:SER:H	1.47	0.79
1:B:402:ILE:HD13	1:B:410:ILE:HG13	1.66	0.78
1:B:738:CYS:SG	1:B:739:THR:N	2.58	0.77
1:B:965:GLN:HE21	1:C:758:SER:HB2	1.48	0.76
1:C:825:LYS:NZ	1:C:942:ALA:CB	2.47	0.76
1:C:367:VAL:HG22	1:C:371:SER:HB3	1.66	0.76
1:A:170:TYR:O	1:A:173:GLN:NE2	2.17	0.75

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:403:ARG:HG2	1:A:497:PHE:HE1	1.51	0.75
1:A:94:SER:HB3	1:A:190:ARG:HB2	1.68	0.75
1:C:792:PRO:O	1:C:795:LYS:NZ	2.20	0.75
1:C:825:LYS:NZ	1:C:942:ALA:HA	2.02	0.75
1:A:971:GLY:H	1:B:755:GLN:HE21	1.35	0.74
1:C:945:LEU:HD23	1:C:945:LEU:N	2.01	0.74
1:C:945:LEU:H	1:C:945:LEU:CD2	1.98	0.74
1:C:816:SER:N	1:C:819:GLU:OE1	2.20	0.74
1:A:439:ASN:HB2	1:A:507:PRO:HD2	1.69	0.74
1:A:1092:GLU:O	1:A:1107:ARG:NH2	2.20	0.73
1:A:116:SER:HB2	1:A:135:PHE:CZ	2.22	0.73
1:C:676:THR:OG1	1:C:690:GLN:NE2	2.21	0.73
1:C:104:TRP:HB2	1:C:119:ILE:HB	1.71	0.73
1:B:280:ASN:ND2	1:B:284:THR:OG1	2.22	0.73
1:B:578:ASP:OD2	1:B:581:THR:N	2.22	0.73
1:B:34:ARG:NH1	1:B:219:GLY:O	2.22	0.72
1:A:617:CYS:SG	1:A:618:THR:N	2.63	0.71
1:C:139:PRO:HB3	1:C:158:ARG:HB2	1.72	0.71
1:C:480:CYS:HB3	1:C:483:VAL:HG22	1.71	0.71
1:B:392:PHE:HB2	1:B:524:VAL:HB	1.71	0.71
1:C:112:SER:HA	1:C:135:PHE:H	1.55	0.71
1:B:642:VAL:HG12	1:B:651:ILE:HG12	1.71	0.71
1:A:819:GLU:OE2	1:A:1055:SER:N	2.23	0.71
1:B:177:MET:SD	1:B:190:ARG:NH1	2.64	0.71
1:B:346:ARG:HH22	1:B:401:VAL:HG22	1.55	0.71
1:C:1091:ARG:NH1	1:C:1118:ASP:O	2.24	0.71
1:B:393:THR:OG1	1:B:516:GLU:O	2.09	0.71
1:C:353:TRP:O	1:C:466:ARG:NH1	2.25	0.70
1:C:280:ASN:ND2	1:C:284:THR:OG1	2.24	0.70
1:C:337:PRO:HB2	1:C:340:GLU:HG2	1.73	0.70
1:A:133:PHE:HD1	1:A:160:TYR:HB3	1.56	0.70
1:A:102:ARG:N	1:A:241:LEU:O	2.25	0.70
1:A:826:VAL:HG11	1:A:1057:PRO:HG3	1.74	0.70
1:B:120:VAL:HG21	1:B:141:LEU:HD13	1.74	0.70
1:A:126:VAL:HG22	1:A:177:MET:H	1.55	0.70
1:B:331:ASN:HB3	1:B:579:PRO:HB2	1.73	0.69
1:C:905:ARG:NH1	1:C:1049:LEU:O	2.23	0.69
1:C:199:GLY:HA3	1:C:232:GLY:HA2	1.75	0.69
1:C:731:MET:N	1:C:774:GLN:OE1	2.24	0.69
1:A:426:PRO:HD2	1:A:429:PHE:HB2	1.74	0.69
1:B:391:CYS:HA	1:B:525:CYS:HA	1.75	0.69

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:592:PHE:HE1	1:B:615:VAL:HG22	1.57	0.69
1:C:825:LYS:NZ	1:C:938:LEU:O	2.26	0.69
1:B:125:ASN:ND2	1:B:172:SER:O	2.26	0.68
1:A:128:ILE:H	1:A:171:VAL:HG12	1.57	0.68
1:B:731:MET:N	1:B:774:GLN:OE1	2.25	0.68
1:A:66:HIS:O	1:A:78:ARG:NE	2.26	0.68
1:A:1135:ASN:OD1	1:A:1136:THR:N	2.27	0.68
1:B:134:GLN:H	1:B:160:TYR:HA	1.58	0.68
1:B:1086:LYS:HA	1:B:1125:ASN:HA	1.76	0.68
1:A:156:GLU:OE2	1:A:158:ARG:NE	2.23	0.68
1:B:347:PHE:HB2	1:B:400:PHE:HA	1.74	0.68
1:B:669:GLY:HA3	1:C:869:MET:HE1	1.75	0.68
1:A:108:THR:O	1:A:236:THR:OG1	2.10	0.68
1:B:439:ASN:HB3	1:B:506:GLN:HG2	1.76	0.68
1:A:244:LEU:HG	1:A:246:ARG:HG3	1.75	0.67
1:B:106:PHE:O	1:B:116:SER:OG	2.12	0.67
1:B:121:ASN:HB3	1:B:177:MET:HB3	1.76	0.67
1:C:1010:GLN:HB3	1:C:1014:ARG:HH12	1.60	0.67
1:B:23:GLN:NE2	1:B:77:LYS:O	2.27	0.67
1:B:53:ASP:OD1	1:B:54:LEU:N	2.26	0.67
1:C:1028:LYS:NZ	1:C:1042:PHE:O	2.28	0.67
1:A:101:ILE:HA	1:A:242:LEU:HA	1.75	0.67
1:A:976:VAL:HG12	1:A:979:ASP:H	1.58	0.67
1:C:560:LEU:O	1:C:562:PHE:N	2.26	0.67
1:A:401:VAL:HG22	1:A:509:ARG:HA	1.76	0.67
1:B:324:GLU:OE1	1:B:537:LYS:NZ	2.26	0.67
1:B:81:ASN:HB2	1:B:239:GLN:HB2	1.77	0.67
1:C:299:THR:HG22	1:C:597:VAL:HG11	1.76	0.67
1:A:901:GLN:HE21	1:A:905:ARG:HE	1.43	0.66
1:B:1135:ASN:OD1	1:B:1136:THR:N	2.26	0.66
1:B:400:PHE:HE2	1:B:402:ILE:HD11	1.60	0.66
1:C:228:ASP:OD1	1:C:229:LEU:N	2.27	0.66
1:C:328:ARG:NH1	1:C:531:THR:O	2.28	0.66
1:C:457:ARG:NH1	1:C:460:ASN:O	2.28	0.66
1:C:67:ALA:HA	1:C:78:ARG:HG2	1.78	0.66
1:C:121:ASN:ND2	1:C:177:MET:O	2.28	0.66
1:A:352:ALA:HA	1:A:466:ARG:HD3	1.78	0.66
1:B:280:ASN:HD21	1:B:284:THR:HG1	1.41	0.66
1:A:141:LEU:HB3	1:A:154:GLU:HA	1.78	0.66
1:B:984:LEU:HB3	1:B:989:ALA:HB2	1.78	0.66
1:C:67:ALA:HB2	1:C:265:TYR:HD1	1.60	0.65

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:924:ALA:O	1:C:928:ASN:ND2	2.29	0.65
1:C:290:ASP:OD1	1:C:291:CYS:N	2.28	0.65
1:A:949:GLN:HG3	1:A:953:ASN:HD21	1.60	0.65
1:B:922:LEU:HD11	1:B:926:GLN:HE21	1.61	0.65
1:B:403:ARG:HD2	1:B:405:ASP:H	1.62	0.65
1:A:214:ARG:NH2	1:A:216:LEU:O	2.30	0.65
1:A:578:ASP:OD2	1:A:581:THR:N	2.23	0.65
1:B:189:LEU:HD22	1:B:210:ILE:HD13	1.79	0.65
1:C:395:VAL:HA	1:C:515:PHE:HB3	1.79	0.65
1:A:1031:GLU:OE2	1:C:1039:ARG:NH2	2.31	0.64
1:A:445:VAL:HA	1:A:499:PRO:HD2	1.79	0.64
1:A:1106:GLN:NE2	1:A:1111:GLU:OE1	2.31	0.64
1:B:746:SER:OG	1:B:748:GLU:OE1	2.14	0.64
1:C:100:ILE:O	1:C:243:ALA:N	2.30	0.64
1:C:974:SER:HB2	1:C:980:ILE:HD11	1.79	0.64
1:A:774:GLN:HA	1:A:777:ASN:HD22	1.61	0.64
1:B:132:GLU:HB2	1:B:165:ASN:H	1.61	0.64
1:C:1135:ASN:OD1	1:C:1136:THR:N	2.30	0.64
1:A:80:ASP:OD1	1:A:260:ALA:N	2.30	0.64
1:A:403:ARG:NH1	1:A:405:ASP:OD2	2.31	0.64
1:B:661:GLU:O	1:B:695:TYR:OH	2.15	0.64
1:B:473:TYR:HB3	1:B:489:TYR:HB3	1.79	0.64
1:A:280:ASN:ND2	1:A:284:THR:OG1	2.29	0.64
1:B:29:THR:OG1	1:B:215:ASP:OD2	2.15	0.64
1:C:132:GLU:OE1	1:C:164:ASN:ND2	2.31	0.64
1:B:294:ASP:O	1:B:297:SER:OG	2.14	0.64
1:C:189:LEU:HD22	1:C:210:ILE:HD13	1.80	0.64
1:B:290:ASP:OD1	1:B:291:CYS:N	2.31	0.63
1:A:94:SER:OG	1:A:188:ASN:O	2.16	0.63
1:B:676:THR:OG1	1:B:690:GLN:OE1	2.14	0.63
1:C:936:ASP:O	1:C:940:SER:N	2.30	0.63
1:A:108:THR:OG1	1:A:234:ASN:O	2.16	0.63
1:A:29:THR:HG23	1:A:62:VAL:HG13	1.80	0.63
1:A:475:ALA:HB3	1:A:487:ASN:HB3	1.81	0.63
1:A:442:ASP:OD2	1:A:509:ARG:NH2	2.31	0.63
1:B:418:ILE:HG23	1:B:422:ASN:HD22	1.62	0.63
1:C:69:HIS:HD2	1:C:77:LYS:HA	1.63	0.63
1:B:316:SER:OG	1:B:317:ASN:N	2.30	0.63
1:B:435:ALA:HB1	1:B:508:TYR:HB3	1.80	0.63
1:C:101:ILE:HA	1:C:242:LEU:HA	1.79	0.63
1:C:421:TYR:HB3	1:C:454:ARG:HD3	1.81	0.63

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:521:PRO:HG2	1:C:564:GLN:HE21	1.62	0.63
1:A:345:THR:O	1:A:509:ARG:NH2	2.26	0.62
1:A:493:GLN:NE2	1:A:494:SER:O	2.31	0.62
1:B:563:GLN:H	1:B:577:ARG:HH21	1.44	0.62
1:B:556:ASN:O	1:B:557:LYS:NZ	2.26	0.62
1:C:125:ASN:ND2	1:C:172:SER:OG	2.33	0.62
1:B:108:THR:O	1:B:236:THR:OG1	2.16	0.62
1:C:280:ASN:OD1	1:C:284:THR:N	2.25	0.62
1:A:1125:ASN:ND2	1:A:1127:ASP:OD1	2.33	0.62
1:B:229:LEU:HD12	1:B:230:PRO:HD2	1.81	0.62
1:C:102:ARG:HE	1:C:243:ALA:HB2	1.64	0.62
1:B:112:SER:HA	1:B:135:PHE:N	2.15	0.62
1:B:748:GLU:CD	1:B:748:GLU:H	2.08	0.62
1:C:350:VAL:HG12	1:C:402:ILE:HG22	1.80	0.62
1:C:825:LYS:HZ1	1:C:942:ALA:HA	1.63	0.62
1:A:669:GLY:HA3	1:B:869:MET:HE1	1.81	0.62
1:A:134:GLN:H	1:A:160:TYR:HA	1.64	0.62
1:C:273:ARG:NH2	1:C:290:ASP:OD2	2.32	0.62
1:A:81:ASN:ND2	1:A:240:THR:O	2.33	0.61
1:B:65:PHE:HB3	1:B:78:ARG:NH2	2.14	0.61
1:C:364:ASP:HA	1:C:388:ASN:HD21	1.65	0.61
1:C:1028:LYS:O	1:C:1032:CYS:HB2	2.00	0.61
1:A:439:ASN:O	1:A:443:SER:OG	2.16	0.61
1:B:1116:THR:OG1	1:B:1118:ASP:OD1	2.17	0.61
1:A:516:GLU:HB3	1:A:519:HIS:CE1	2.35	0.61
1:A:922:LEU:HG	1:A:926:GLN:HE21	1.65	0.61
1:C:79:PHE:HB2	1:C:260:ALA:HB1	1.81	0.61
1:A:96:GLU:OE1	1:A:101:ILE:N	2.25	0.61
1:B:713:ALA:HB3	1:C:894:LEU:HB3	1.81	0.61
1:C:379:CYS:CA	1:C:432:CYS:HB3	2.25	0.61
1:C:36:VAL:HG23	1:C:222:ALA:HA	1.83	0.61
1:A:411:ALA:HB3	1:A:414:GLN:HB2	1.82	0.61
1:A:904:TYR:CZ	1:C:1107:ARG:HD3	2.36	0.61
1:C:976:VAL:HG12	1:C:979:ASP:H	1.64	0.60
1:B:660:TYR:H	1:B:695:TYR:HE2	1.48	0.60
1:A:353:TRP:O	1:A:466:ARG:NE	2.31	0.60
1:A:458:LYS:NZ	1:A:474:GLN:O	2.34	0.60
1:B:128:ILE:HB	1:B:170:TYR:HB3	1.83	0.60
1:C:334:ASN:HB2	1:C:361:CYS:HA	1.84	0.60
1:C:100:ILE:HD13	1:C:102:ARG:HH21	1.66	0.60
1:A:904:TYR:CE2	1:C:1107:ARG:HD3	2.35	0.60

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:392:PHE:N	1:B:524:VAL:O	2.33	0.60
1:C:811:LYS:NZ	1:C:813:SER:O	2.33	0.60
1:A:28:TYR:HB3	1:A:61:ASN:OD1	2.02	0.60
1:A:403:ARG:HG2	1:A:497:PHE:CE1	2.36	0.60
1:C:825:LYS:NZ	1:C:942:ALA:CA	2.65	0.60
1:A:1043:CYS:HB3	1:A:1048:HIS:ND1	2.17	0.60
1:A:675:GLN:HA	1:A:690:GLN:HE22	1.67	0.60
1:C:175:PHE:HE2	1:C:190:ARG:HH22	1.47	0.60
1:A:974:SER:OG	1:A:975:SER:N	2.34	0.60
1:B:79:PHE:HE1	1:B:242:LEU:H	1.50	0.60
1:A:135:PHE:CD1	1:A:159:VAL:HA	2.37	0.60
1:A:300:LYS:NZ	1:A:306:PHE:O	2.30	0.60
1:B:529:LYS:NZ	1:B:530:SER:O	2.34	0.60
1:B:568:ASP:OD1	1:B:572:THR:N	2.33	0.60
1:C:437:ASN:ND2	1:C:506:GLN:OE1	2.25	0.60
1:A:914:ASN:HA	1:C:1089:PHE:HE2	1.67	0.59
1:B:212:LEU:HD21	1:B:214:ARG:HH11	1.67	0.59
1:B:574:ASP:OD1	1:B:575:ALA:N	2.35	0.59
1:B:950:ASP:HA	1:B:953:ASN:HD22	1.67	0.59
1:C:107:GLY:HA2	1:C:235:ILE:HG12	1.84	0.59
1:A:546:LEU:HD21	1:A:573:THR:HG21	1.83	0.59
1:C:67:ALA:HB2	1:C:265:TYR:CD1	2.36	0.59
1:C:364:ASP:OD1	1:C:365:TYR:N	2.35	0.59
1:A:57:PRO:O	1:A:60:SER:OG	2.19	0.59
1:A:190:ARG:HB3	1:A:192:PHE:CZ	2.37	0.59
1:A:207:HIS:O	1:A:207:HIS:ND1	2.35	0.59
1:B:102:ARG:NH1	1:B:141:LEU:O	2.33	0.59
1:C:68:ILE:HA	1:C:262:ALA:HA	1.84	0.59
1:A:403:ARG:HD2	1:A:505:TYR:HA	1.83	0.59
1:B:615:VAL:HG12	1:B:616:ASN:O	2.03	0.59
1:C:69:HIS:ND1	1:C:260:ALA:HB3	2.17	0.59
1:A:206:LYS:HZ1	1:A:221:SER:HB2	1.68	0.59
1:B:377:PHE:H	1:B:378:LYS:HE2	1.67	0.59
1:C:105:ILE:HG13	1:C:110:LEU:HD23	1.84	0.59
1:A:328:ARG:NH1	1:A:531:THR:O	2.36	0.59
1:A:455:LEU:N	1:A:491:PRO:O	2.35	0.59
1:A:1043:CYS:HB3	1:A:1048:HIS:HD1	1.68	0.59
1:B:106:PHE:HB2	1:B:117:LEU:HB2	1.84	0.59
1:C:125:ASN:HB3	1:C:175:PHE:H	1.67	0.59
1:A:281:GLU:OE1	1:A:281:GLU:N	2.32	0.59
1:C:736:VAL:HG22	1:C:858:LEU:HD13	1.85	0.59

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:40:ASP:OD1	1:B:41:LYS:N	2.25	0.58
1:B:357:ARG:HD3	1:B:394:ASN:HD22	1.68	0.58
1:B:578:ASP:HB3	1:B:583:GLU:H	1.68	0.58
1:C:127:VAL:HG22	1:C:171:VAL:HG23	1.85	0.58
1:C:809:PRO:O	1:C:814:LYS:NZ	2.35	0.58
1:B:126:VAL:HG23	1:B:175:PHE:HB3	1.85	0.58
1:A:31:SER:OG	1:A:60:SER:N	2.36	0.58
1:A:340:GLU:OE2	1:A:356:LYS:NZ	2.35	0.58
1:B:406:GLU:HA	1:B:409:GLN:HB2	1.85	0.58
1:C:170:TYR:CZ	1:C:172:SER:HA	2.38	0.58
1:A:127:VAL:HA	1:A:171:VAL:HB	1.86	0.58
1:A:1028:LYS:NZ	1:A:1042:PHE:O	2.36	0.58
1:B:100:ILE:HG22	1:B:242:LEU:HD11	1.86	0.58
1:A:224:GLU:N	1:A:224:GLU:OE1	2.33	0.58
1:B:578:ASP:N	1:B:583:GLU:O	2.27	0.58
1:C:454:ARG:NH1	1:C:469:SER:OG	2.36	0.58
1:B:804:GLN:O	1:B:816:SER:OG	2.21	0.58
1:C:215:ASP:HA	1:C:266:TYR:OH	2.03	0.58
1:A:1100:THR:OG1	1:A:1101:HIS:ND1	2.29	0.58
1:B:64:TRP:CD2	1:B:266:TYR:HE1	2.21	0.58
1:B:163:ALA:HB1	1:B:166:CYS:HB2	1.85	0.58
1:C:377:PHE:H	1:C:378:LYS:HE2	1.69	0.58
1:C:738:CYS:SG	1:C:739:THR:N	2.77	0.58
1:A:131:CYS:SG	1:A:167:THR:N	2.77	0.58
1:C:441:LEU:HD22	1:C:509:ARG:HH21	1.68	0.58
1:C:906:PHE:HE1	1:C:1049:LEU:HD11	1.68	0.58
1:A:195:LYS:HD3	1:A:204:TYR:HE2	1.69	0.57
1:B:451:TYR:HB2	1:B:495:TYR:CD2	2.38	0.57
1:C:67:ALA:H	1:C:264:ALA:HA	1.69	0.57
1:A:395:VAL:HA	1:A:515:PHE:HB3	1.86	0.57
1:C:403:ARG:HB2	1:C:497:PHE:HE1	1.68	0.57
1:A:212:LEU:HD13	1:A:217:PRO:HD3	1.86	0.57
1:A:438:SER:HB3	1:A:509:ARG:HG3	1.85	0.57
1:B:346:ARG:NE	1:B:347:PHE:O	2.37	0.57
1:B:411:ALA:HB3	1:B:414:GLN:HG2	1.85	0.57
1:C:26:PRO:HA	1:C:78:ARG:HH22	1.68	0.57
1:C:83:VAL:HB	1:C:237:ARG:HD2	1.85	0.57
1:C:189:LEU:HB2	1:C:210:ILE:HG12	1.85	0.57
1:A:105:ILE:HD11	1:A:239:GLN:HB3	1.86	0.57
1:A:758:SER:HB3	1:C:965:GLN:HE21	1.70	0.57
1:A:191:GLU:HG3	1:A:223:LEU:HD13	1.85	0.57

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:360:ASN:H	1:A:523:THR:HG23	1.69	0.57
1:B:1072:GLU:N	1:B:1072:GLU:OE1	2.38	0.57
1:C:811:LYS:O	1:C:814:LYS:NZ	2.38	0.57
1:A:379:CYS:CA	1:A:432:CYS:HB3	2.25	0.57
1:A:737:ASP:OD1	1:A:737:ASP:N	2.36	0.57
1:B:1084:ASP:HB2	1:B:1086:LYS:HZ3	1.69	0.57
1:B:93:ALA:HB3	1:B:266:TYR:HB2	1.87	0.56
1:A:738:CYS:SG	1:A:739:THR:N	2.77	0.56
1:A:1077:THR:OG1	1:A:1078:ALA:N	2.38	0.56
1:B:379:CYS:HA	1:B:432:CYS:HA	1.88	0.56
1:B:563:GLN:NE2	1:C:42:VAL:O	2.38	0.56
1:B:748:GLU:OE1	1:B:748:GLU:N	2.36	0.56
1:A:40:ASP:OD1	1:A:41:LYS:N	2.36	0.56
1:A:189:LEU:HG	1:A:191:GLU:HB3	1.85	0.56
1:A:661:GLU:N	1:A:661:GLU:OE1	2.38	0.56
1:B:365:TYR:H	1:B:388:ASN:HD22	1.53	0.56
1:B:1000:ARG:O	1:B:1003:SER:OG	2.22	0.56
1:C:168:PHE:CZ	1:C:170:TYR:HB2	2.40	0.56
1:C:287:ASP:OD1	1:C:288:ALA:N	2.38	0.56
1:C:474:GLN:NE2	1:C:477:SER:O	2.38	0.56
1:B:409:GLN:HB3	1:B:418:ILE:HB	1.85	0.56
1:A:1097:SER:HB2	1:A:1102:TRP:CD2	2.41	0.56
1:A:100:ILE:O	1:A:243:ALA:N	2.39	0.56
1:B:309:GLU:N	1:B:309:GLU:OE1	2.38	0.56
1:B:393:THR:HG22	1:B:522:ALA:HA	1.88	0.56
1:C:1083:HIS:HB2	1:C:1137:VAL:HG23	1.86	0.56
1:B:662:CYS:HB2	1:B:697:MET:HE3	1.86	0.56
1:B:850:ILE:O	1:B:854:LYS:NZ	2.35	0.56
1:C:110:LEU:HD13	1:C:237:ARG:HE	1.69	0.56
1:C:208:THR:HG23	1:C:210:ILE:HG23	1.87	0.56
1:A:917:TYR:HB3	1:C:1129:VAL:HG23	1.87	0.56
1:B:646:ARG:O	1:B:646:ARG:NH1	2.39	0.56
1:C:908:GLY:HA3	1:C:1036:GLN:HE22	1.71	0.56
1:C:816:SER:OG	1:C:817:PHE:N	2.39	0.55
1:B:716:THR:N	1:B:1071:GLN:O	2.32	0.55
1:B:902:MET:HE1	1:B:1050:MET:HE2	1.88	0.55
1:C:53:ASP:HB2	1:C:55:PHE:CZ	2.41	0.55
1:A:386:LYS:NZ	1:B:982:SER:O	2.23	0.55
1:B:274:THR:HG23	1:B:291:CYS:HB2	1.88	0.55
1:B:736:VAL:HG22	1:B:858:LEU:HG	1.87	0.55
1:C:69:HIS:CD2	1:C:77:LYS:HA	2.41	0.55

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:106:PHE:HB3	1:C:235:ILE:HD13	1.88	0.55
1:C:160:TYR:CE2	1:C:163:ALA:HA	2.41	0.55
1:B:356:LYS:O	1:B:397:ALA:N	2.38	0.55
1:C:67:ALA:HB3	1:C:263:ALA:HB3	1.89	0.55
1:C:86:PHE:HB2	1:C:238:PHE:HB3	1.89	0.55
1:C:391:CYS:HA	1:C:525:CYS:CB	2.37	0.55
1:C:1093:GLY:O	1:C:1107:ARG:NH1	2.39	0.55
1:A:192:PHE:HB3	1:A:194:PHE:CZ	2.41	0.55
1:A:365:TYR:OH	1:A:385:THR:O	2.23	0.55
1:A:646:ARG:O	1:A:646:ARG:NE	2.38	0.55
1:B:190:ARG:HB3	1:B:192:PHE:CZ	2.41	0.55
1:C:100:ILE:HG22	1:C:242:LEU:HB3	1.89	0.55
1:C:474:GLN:HE22	1:C:478:THR:C	2.14	0.55
1:A:191:GLU:HG3	1:A:223:LEU:HD22	1.88	0.55
1:A:215:ASP:OD1	1:A:216:LEU:N	2.40	0.55
1:B:290:ASP:OD1	1:B:292:ALA:N	2.33	0.55
1:C:31:SER:OG	1:C:60:SER:N	2.39	0.55
1:C:410:ILE:HA	1:C:425:LEU:HD11	1.89	0.55
1:C:568:ASP:CG	1:C:570:ALA:H	2.15	0.55
1:A:90:VAL:HG13	1:A:267:VAL:HG23	1.87	0.55
1:A:990:GLU:HA	1:A:993:ILE:HD12	1.87	0.55
1:C:52:GLN:HB2	1:C:274:THR:HG23	1.87	0.55
1:C:825:LYS:HD2	1:C:942:ALA:HB1	1.89	0.55
1:A:317:ASN:HA	1:A:594:GLY:HA2	1.89	0.55
1:A:365:TYR:HE2	1:A:388:ASN:H	1.54	0.55
1:B:327:VAL:HG23	1:B:542:ASN:HD22	1.71	0.55
1:B:395:VAL:HG23	1:B:515:PHE:HB3	1.88	0.55
1:C:825:LYS:CD	1:C:942:ALA:HB1	2.36	0.55
1:A:112:SER:HA	1:A:135:PHE:N	2.22	0.55
1:A:713:ALA:HB3	1:B:894:LEU:HB3	1.87	0.55
1:A:329:PHE:CE2	1:A:528:LYS:HB2	2.41	0.55
1:B:57:PRO:O	1:B:60:SER:OG	2.24	0.55
1:A:1097:SER:HG	1:A:1102:TRP:CD1	2.25	0.54
1:B:424:LYS:HB3	1:B:461:LEU:HB2	1.88	0.54
1:B:974:SER:OG	1:B:975:SER:N	2.40	0.54
1:C:941:THR:O	1:C:941:THR:HG23	2.07	0.54
1:C:1000:ARG:O	1:C:1003:SER:OG	2.22	0.54
1:A:99:ASN:O	1:A:102:ARG:NH1	2.40	0.54
1:A:347:PHE:CE2	1:A:509:ARG:HB3	2.43	0.54
1:A:979:ASP:O	1:A:982:SER:OG	2.22	0.54
1:B:77:LYS:HZ3	1:B:259:THR:N	2.06	0.54

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:363:ALA:N	1:B:525:CYS:O	2.40	0.54
1:B:1097:SER:HB3	1:B:1102:TRP:CE3	2.42	0.54
1:C:560:LEU:HB2	1:C:562:PHE:HE1	1.72	0.54
1:A:126:VAL:HG23	1:A:175:PHE:O	2.08	0.54
1:A:490:PHE:HD2	1:A:492:LEU:HB2	1.73	0.54
1:A:914:ASN:OD1	1:A:914:ASN:N	2.40	0.54
1:B:1097:SER:HB3	1:B:1102:TRP:CD2	2.41	0.54
1:C:140:PHE:HD2	1:C:141:LEU:HG	1.71	0.54
1:B:1082:CYS:HB2	1:B:1132:ILE:HD11	1.88	0.54
1:A:242:LEU:HD21	1:A:263:ALA:HB3	1.90	0.54
1:A:328:ARG:HG3	1:A:543:PHE:HE1	1.72	0.54
1:A:478:THR:OG1	1:A:487:ASN:OD1	2.18	0.54
1:A:433:VAL:HG22	1:A:512:VAL:HG12	1.90	0.54
1:B:23:GLN:NE2	1:B:80:ASP:OD1	2.40	0.54
1:B:95:THR:OG1	1:B:264:ALA:O	2.19	0.54
1:C:24:LEU:HB3	1:C:78:ARG:HD2	1.89	0.54
1:B:1083:HIS:CD2	1:B:1136:THR:HA	2.43	0.54
1:C:103:GLY:HA3	1:C:241:LEU:HB3	1.89	0.54
1:A:83:VAL:HG22	1:A:237:ARG:HB3	1.89	0.54
1:A:115:GLN:HG2	1:A:233:ILE:HD13	1.90	0.54
1:A:334:ASN:ND2	1:A:360:ASN:OD1	2.41	0.54
1:A:365:TYR:CD2	1:A:387:LEU:HB2	2.42	0.54
1:A:988:GLU:OE1	1:A:988:GLU:N	2.41	0.54
1:C:665:PRO:HA	1:C:671:CYS:HB3	1.90	0.54
1:A:95:THR:OG1	1:A:264:ALA:O	2.23	0.54
1:C:320:VAL:HB	1:C:590:CYS:HB2	1.89	0.54
1:C:590:CYS:HA	1:C:592:PHE:CZ	2.43	0.54
1:B:215:ASP:OD1	1:B:216:LEU:N	2.41	0.53
1:C:560:LEU:HB2	1:C:562:PHE:CE1	2.43	0.53
1:A:191:GLU:OE1	1:A:191:GLU:N	2.38	0.53
1:A:675:GLN:OE1	1:A:690:GLN:NE2	2.41	0.53
1:B:102:ARG:HB2	1:B:243:ALA:HB2	1.90	0.53
1:B:734:THR:OG1	1:B:735:SER:N	2.41	0.53
1:A:387:LEU:HD12	1:A:392:PHE:CZ	2.43	0.53
1:C:24:LEU:HD23	1:C:66:HIS:HB2	1.89	0.53
1:C:81:ASN:O	1:C:239:GLN:NE2	2.41	0.53
1:C:296:LEU:O	1:C:299:THR:OG1	2.22	0.53
1:C:819:GLU:HG3	1:C:1054:GLN:HE21	1.73	0.53
1:A:402:ILE:HG21	1:A:418:ILE:HD13	1.91	0.53
1:B:567:ARG:NH1	1:B:571:ASP:OD1	2.41	0.53
1:B:691:SER:OG	1:B:692:ILE:N	2.41	0.53

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:88:ASP:N	1:C:88:ASP:OD1	2.42	0.53
1:C:605:SER:OG	1:C:606:ASN:N	2.41	0.53
1:C:661:GLU:OE1	1:C:661:GLU:N	2.42	0.53
1:A:108:THR:HA	1:A:236:THR:H	1.73	0.53
1:A:702:GLU:HG2	1:B:790:LYS:HZ2	1.72	0.53
1:C:435:ALA:HB2	1:C:510:VAL:HG23	1.90	0.53
1:C:474:GLN:NE2	1:C:478:THR:O	2.41	0.53
1:A:351:TYR:HE1	1:A:452:LEU:HB2	1.74	0.53
1:A:990:GLU:N	1:A:990:GLU:OE1	2.42	0.53
1:B:110:LEU:HA	1:B:135:PHE:CD2	2.44	0.53
1:A:418:ILE:HA	1:A:422:ASN:HB2	1.91	0.53
1:A:177:MET:O	1:A:190:ARG:NH1	2.42	0.53
1:A:1019:ARG:HH21	1:A:1023:ASN:HD21	1.57	0.53
1:B:330:PRO:HD2	1:B:530:SER:HB2	1.91	0.53
1:B:384:PRO:HA	1:B:387:LEU:HD13	1.90	0.53
1:C:442:ASP:HB3	1:C:451:TYR:HE2	1.74	0.53
1:A:208:THR:O	1:A:210:ILE:N	2.40	0.52
1:A:365:TYR:HD2	1:A:387:LEU:HB2	1.74	0.52
1:A:770:ILE:HD11	1:A:1012:LEU:HA	1.91	0.52
1:B:43:PHE:CE1	1:B:283:GLY:HA3	2.44	0.52
1:B:112:SER:HA	1:B:135:PHE:H	1.75	0.52
1:B:131:CYS:HA	1:B:166:CYS:HA	1.91	0.52
1:B:134:GLN:N	1:B:159:VAL:O	2.42	0.52
1:B:353:TRP:O	1:B:466:ARG:NE	2.41	0.52
1:C:97:LYS:HD3	1:C:186:PHE:HA	1.91	0.52
1:A:191:GLU:O	1:A:193:VAL:N	2.42	0.52
1:A:790:LYS:HB3	1:C:704:SER:OG	2.10	0.52
1:A:1142:GLN:HB3	1:A:1143:PRO:HD3	1.90	0.52
1:B:344:ALA:HB3	1:B:347:PHE:CE1	2.43	0.52
1:B:518:LEU:O	1:B:519:HIS:ND1	2.43	0.52
1:A:191:GLU:O	1:A:191:GLU:HG2	2.09	0.52
1:A:347:PHE:HE2	1:A:509:ARG:HB3	1.74	0.52
1:A:770:ILE:HD11	1:A:1012:LEU:HD23	1.92	0.52
1:B:29:THR:O	1:B:62:VAL:N	2.42	0.52
1:B:133:PHE:CD1	1:B:159:VAL:HG12	2.45	0.52
1:A:62:VAL:HG23	1:A:267:VAL:O	2.08	0.52
1:A:394:ASN:H	1:A:524:VAL:HG21	1.75	0.52
1:A:485:GLY:N	1:A:488:CYS:SG	2.83	0.52
1:B:294:ASP:O	1:B:297:SER:N	2.43	0.52
1:C:197:ILE:O	1:C:200:TYR:N	2.43	0.52
1:C:673:SER:OG	1:C:674:TYR:N	2.41	0.52

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:115:GLN:HA	1:A:133:PHE:H	1.73	0.52
1:A:142:GLY:O	1:A:155:SER:OG	2.26	0.52
1:A:418:ILE:O	1:A:423:TYR:N	2.38	0.52
1:A:478:THR:HG21	1:A:486:PHE:HD2	1.74	0.52
1:B:65:PHE:CB	1:B:78:ARG:HH22	2.18	0.52
1:C:388:ASN:HB3	1:C:527:PRO:HD2	1.91	0.52
1:A:108:THR:OG1	1:A:234:ASN:OD1	2.26	0.52
1:A:703:ASN:OD1	1:A:704:SER:N	2.43	0.52
1:B:330:PRO:HG3	1:B:528:LYS:HB2	1.92	0.52
1:A:327:VAL:N	1:A:531:THR:OG1	2.37	0.52
1:A:342:PHE:HE1	1:A:511:VAL:HG21	1.75	0.52
1:A:409:GLN:C	1:A:414:GLN:HG2	2.35	0.52
1:A:457:ARG:NH1	1:A:459:SER:O	2.42	0.52
1:A:858:LEU:HD12	1:A:858:LEU:H	1.75	0.52
1:B:405:ASP:N	1:B:504:GLY:O	2.42	0.52
1:A:141:LEU:HD23	1:A:156:GLU:O	2.10	0.52
1:A:949:GLN:HG3	1:A:953:ASN:ND2	2.25	0.52
1:B:79:PHE:HE1	1:B:242:LEU:N	2.08	0.52
1:A:983:ARG:O	1:C:382:VAL:HA	2.10	0.52
1:B:116:SER:OG	1:B:117:LEU:N	2.40	0.52
1:B:1029:MET:HE1	1:B:1053:PRO:HB3	1.92	0.52
1:A:796:ASP:OD1	1:A:796:ASP:N	2.32	0.51
1:A:809:PRO:O	1:A:814:LYS:NZ	2.43	0.51
1:B:905:ARG:HB3	1:B:1049:LEU:HD22	1.92	0.51
1:C:732:THR:HG22	1:C:1058:HIS:HE1	1.75	0.51
1:A:128:ILE:HD11	1:A:170:TYR:H	1.75	0.51
1:A:369:TYR:OH	1:A:384:PRO:O	2.28	0.51
1:C:800:PHE:HD1	1:C:927:PHE:HD2	1.56	0.51
1:A:86:PHE:N	1:A:236:THR:O	2.38	0.51
1:A:905:ARG:NH1	1:A:1049:LEU:O	2.36	0.51
1:B:721:SER:OG	1:B:722:VAL:N	2.43	0.51
1:C:1077:THR:OG1	1:C:1078:ALA:N	2.43	0.51
1:A:202:LYS:HZ2	1:A:227:VAL:C	2.18	0.51
1:A:444:LYS:HD2	1:A:448:ASN:HA	1.92	0.51
1:C:119:ILE:HG22	1:C:126:VAL:HB	1.91	0.51
1:C:666:ILE:HB	1:C:670:ILE:O	2.10	0.51
1:B:560:LEU:O	1:B:562:PHE:N	2.38	0.51
1:C:825:LYS:HZ3	1:C:942:ALA:HA	1.74	0.51
1:C:1049:LEU:HB2	1:C:1065:VAL:O	2.10	0.51
1:A:296:LEU:O	1:A:299:THR:OG1	2.26	0.51
1:B:365:TYR:HB3	1:B:388:ASN:HB2	1.92	0.51

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:162:SER:OG	1:A:164:ASN:ND2	2.44	0.51
1:B:816:SER:OG	1:B:817:PHE:N	2.44	0.51
1:B:1073:LYS:HB2	1:B:1075:PHE:CE1	2.45	0.51
1:A:112:SER:HA	1:A:135:PHE:H	1.75	0.51
1:A:229:LEU:O	1:A:231:ILE:N	2.43	0.51
1:C:379:CYS:SG	1:C:384:PRO:HB3	2.51	0.51
1:C:950:ASP:HA	1:C:953:ASN:HB2	1.92	0.51
1:A:350:VAL:HG12	1:A:400:PHE:HB2	1.93	0.51
1:A:616:ASN:O	1:A:616:ASN:ND2	2.44	0.51
1:A:707:TYR:HB3	1:B:792:PRO:HG3	1.93	0.51
1:A:912:THR:HG23	1:A:914:ASN:OD1	2.11	0.51
1:A:924:ALA:O	1:A:928:ASN:ND2	2.43	0.51
1:B:24:LEU:HD12	1:B:69:HIS:HB2	1.93	0.51
1:B:138:ASP:HB2	1:B:140:PHE:HE1	1.75	0.51
1:B:643:PHE:CD2	1:B:655:HIS:HB2	2.46	0.51
1:C:128:ILE:HD13	1:C:170:TYR:CD2	2.46	0.51
1:A:133:PHE:CD1	1:A:160:TYR:HB3	2.43	0.50
1:A:190:ARG:O	1:A:192:PHE:N	2.44	0.50
1:A:402:ILE:HD12	1:A:406:GLU:HB2	1.93	0.50
1:C:455:LEU:N	1:C:491:PRO:O	2.33	0.50
1:C:615:VAL:HG12	1:C:617:CYS:N	2.26	0.50
1:A:133:PHE:HA	1:A:160:TYR:HB3	1.92	0.50
1:B:43:PHE:HE1	1:B:283:GLY:HA3	1.76	0.50
1:C:759:PHE:O	1:C:763:LEU:HG	2.11	0.50
1:A:102:ARG:HG2	1:A:242:LEU:O	2.11	0.50
1:A:568:ASP:OD2	1:A:572:THR:OG1	2.23	0.50
1:B:95:THR:HG22	1:B:189:LEU:HD11	1.92	0.50
1:B:774:GLN:HA	1:B:777:ASN:HD22	1.77	0.50
1:B:850:ILE:O	1:B:854:LYS:HG2	2.11	0.50
1:C:1048:HIS:CD2	1:C:1049:LEU:N	2.80	0.50
1:A:1055:SER:OG	1:A:1056:ALA:N	2.45	0.50
1:B:346:ARG:NH2	1:B:401:VAL:HG22	2.25	0.50
1:B:990:GLU:HA	1:B:993:ILE:HD12	1.94	0.50
1:A:67:ALA:HB3	1:A:263:ALA:O	2.12	0.50
1:A:395:VAL:HG13	1:A:524:VAL:HG11	1.94	0.50
1:A:544:ASN:HD21	1:A:579:PRO:HB3	1.77	0.50
1:A:859:THR:OG1	1:A:860:VAL:N	2.44	0.50
1:C:357:ARG:HD3	1:C:396:TYR:CE1	2.47	0.50
1:A:36:VAL:HG21	1:A:220:PHE:CZ	2.46	0.50
1:A:131:CYS:HB2	1:A:133:PHE:CE1	2.47	0.50
1:A:748:GLU:OE1	1:A:748:GLU:N	2.28	0.50

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:109:THR:O	1:B:237:ARG:NH2	2.43	0.50
1:C:33:THR:HA	1:C:58:PHE:CE1	2.47	0.50
1:C:322:PRO:HA	1:C:538:CYS:O	2.12	0.50
1:A:79:PHE:O	1:A:81:ASN:N	2.44	0.50
1:B:616:ASN:O	1:B:618:THR:N	2.44	0.50
1:B:879:ALA:O	1:B:883:THR:OG1	2.19	0.50
1:C:106:PHE:HB2	1:C:117:LEU:HD22	1.94	0.50
1:C:331:ASN:OD1	1:C:580:GLN:NE2	2.45	0.50
1:B:189:LEU:HB2	1:B:210:ILE:HG12	1.94	0.50
1:B:816:SER:HB3	1:B:819:GLU:CD	2.37	0.50
1:C:409:GLN:OE1	1:C:419:ALA:N	2.37	0.50
1:C:737:ASP:OD1	1:C:740:MET:N	2.34	0.50
1:C:922:LEU:HD11	1:C:926:GLN:HE21	1.77	0.50
1:A:132:GLU:OE1	1:A:134:GLN:NE2	2.43	0.50
1:A:171:VAL:C	1:A:173:GLN:HG2	2.36	0.50
1:C:365:TYR:HE1	1:C:388:ASN:HB2	1.77	0.50
1:A:124:THR:O	1:A:125:ASN:ND2	2.44	0.49
1:A:125:ASN:ND2	1:A:174:PRO:O	2.34	0.49
1:C:105:ILE:HD12	1:C:117:LEU:O	2.12	0.49
1:A:129:LYS:HA	1:A:169:GLU:HG2	1.94	0.49
1:A:800:PHE:CD2	1:A:927:PHE:HD2	2.29	0.49
1:B:365:TYR:H	1:B:388:ASN:ND2	2.10	0.49
1:B:533:LEU:HD21	1:B:535:LYS:HG3	1.93	0.49
1:C:100:ILE:O	1:C:102:ARG:HG2	2.12	0.49
1:B:116:SER:HB2	1:B:135:PHE:HZ	1.78	0.49
1:A:387:LEU:HD13	1:A:390:LEU:HD21	1.94	0.49
1:C:100:ILE:HG23	1:C:243:ALA:HB3	1.94	0.49
1:C:483:VAL:O	1:C:484:GLU:HG3	2.13	0.49
1:C:560:LEU:C	1:C:562:PHE:H	2.20	0.49
1:C:969:ASN:O	1:C:972:ALA:N	2.45	0.49
1:B:287:ASP:OD1	1:B:288:ALA:N	2.44	0.49
1:C:901:GLN:HE21	1:C:905:ARG:HE	1.61	0.49
1:A:456:PHE:HD2	1:A:491:PRO:HA	1.78	0.49
1:B:214:ARG:NH2	1:B:215:ASP:HB3	2.27	0.49
1:B:281:GLU:OE1	1:B:281:GLU:N	2.46	0.49
1:B:451:TYR:O	1:B:495:TYR:N	2.46	0.49
1:B:551:VAL:O	1:B:553:THR:HG23	2.12	0.49
1:C:78:ARG:NE	1:C:80:ASP:OD2	2.45	0.49
1:C:91:TYR:OH	1:C:191:GLU:OE2	2.30	0.49
1:C:535:LYS:HB2	1:C:536:ASN:ND2	2.27	0.49
1:A:115:GLN:HB2	1:A:132:GLU:HA	1.94	0.49

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:1055:SER:OG	1:B:1056:ALA:N	2.46	0.49
1:A:83:VAL:HG22	1:A:237:ARG:HD2	1.95	0.49
1:A:141:LEU:HG	1:A:159:VAL:HB	1.95	0.49
1:A:275:PHE:CD1	1:A:290:ASP:HA	2.48	0.49
1:A:989:ALA:O	1:A:993:ILE:HG13	2.13	0.49
1:A:315:THR:OG1	1:A:316:SER:N	2.46	0.48
1:A:787:GLN:HB2	1:A:789:TYR:CE1	2.48	0.48
1:B:342:PHE:HD2	1:B:511:VAL:HG11	1.78	0.48
1:B:1089:PHE:HE2	1:C:917:TYR:HD2	1.59	0.48
1:C:1055:SER:OG	1:C:1056:ALA:N	2.45	0.48
1:A:111:ASP:O	1:A:113:LYS:HG2	2.13	0.48
1:A:191:GLU:CD	1:A:206:LYS:H	2.22	0.48
1:B:132:GLU:CB	1:B:165:ASN:H	2.26	0.48
1:C:403:ARG:HG2	1:C:405:ASP:H	1.78	0.48
1:C:879:ALA:O	1:C:883:THR:OG1	2.18	0.48
1:A:64:TRP:HB3	1:A:66:HIS:NE2	2.29	0.48
1:A:131:CYS:HA	1:A:167:THR:H	1.77	0.48
1:A:165:ASN:N	1:A:165:ASN:OD1	2.45	0.48
1:A:408:ARG:HH11	1:A:414:GLN:NE2	2.12	0.48
1:A:912:THR:HG22	1:A:1106:GLN:OE1	2.12	0.48
1:B:382:VAL:HG21	1:B:390:LEU:HD11	1.96	0.48
1:B:448:ASN:N	1:B:498:GLN:OE1	2.37	0.48
1:C:233:ILE:HD11	1:C:235:ILE:HD11	1.96	0.48
1:C:391:CYS:HA	1:C:525:CYS:HB2	1.95	0.48
1:A:188:ASN:HA	1:A:208:THR:O	2.13	0.48
1:A:922:LEU:O	1:A:926:GLN:HG3	2.13	0.48
1:A:949:GLN:O	1:A:953:ASN:ND2	2.47	0.48
1:B:498:GLN:HG3	1:B:500:THR:HG22	1.95	0.48
1:B:290:ASP:O	1:B:297:SER:HB2	2.14	0.48
1:C:298:GLU:O	1:C:302:THR:HG23	2.14	0.48
1:C:387:LEU:HD22	1:C:392:PHE:HZ	1.79	0.48
1:A:911:VAL:HG12	1:A:915:VAL:HG11	1.96	0.48
1:B:378:LYS:HB2	1:B:433:VAL:HG23	1.95	0.48
1:A:141:LEU:HA	1:A:156:GLU:O	2.14	0.48
1:A:591:SER:O	1:A:591:SER:OG	2.25	0.48
1:B:67:ALA:HB3	1:B:263:ALA:C	2.39	0.48
1:B:1077:THR:OG1	1:B:1078:ALA:N	2.47	0.48
1:C:34:ARG:NH2	1:C:218:GLN:O	2.47	0.48
1:A:130:VAL:HG22	1:A:169:GLU:HG3	1.95	0.48
1:A:950:ASP:OD1	1:A:951:VAL:N	2.46	0.48
1:B:816:SER:H	1:B:819:GLU:CD	2.22	0.48

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:850:ILE:HG23	1:B:854:LYS:HE2	1.94	0.48
1:C:89:GLY:HA3	1:C:270:LEU:HG	1.95	0.48
1:C:660:TYR:H	1:C:695:TYR:HE2	1.62	0.48
1:A:105:ILE:O	1:A:238:PHE:HB2	2.14	0.48
1:A:120:VAL:HG23	1:A:127:VAL:HB	1.96	0.48
1:A:457:ARG:NH2	1:A:467:ASP:OD2	2.47	0.48
1:A:563:GLN:HE22	1:B:43:PHE:HD1	1.61	0.48
1:B:64:TRP:HE1	1:B:264:ALA:HB1	1.79	0.48
1:B:125:ASN:HB2	1:B:173:GLN:O	2.13	0.48
1:B:1141:LEU:HG	1:B:1145:LEU:HD21	1.96	0.48
1:C:65:PHE:HA	1:C:78:ARG:CZ	2.43	0.48
1:A:1037:SER:OG	1:A:1038:LYS:N	2.47	0.47
1:B:271:GLN:N	1:B:271:GLN:OE1	2.47	0.47
1:C:186:PHE:CE2	1:C:213:VAL:HG23	2.48	0.47
1:A:756:TYR:HB3	1:A:759:PHE:HD2	1.78	0.47
1:B:305:SER:OG	1:B:306:PHE:N	2.47	0.47
1:C:748:GLU:O	1:C:752:LEU:HG	2.14	0.47
1:B:673:SER:OG	1:B:674:TYR:N	2.46	0.47
1:B:738:CYS:SG	1:B:739:THR:HG23	2.55	0.47
1:C:975:SER:O	1:C:975:SER:OG	2.24	0.47
1:A:116:SER:H	1:A:133:PHE:HD2	1.61	0.47
1:A:907:ASN:ND2	1:A:913:GLN:HE21	2.12	0.47
1:C:340:GLU:OE1	1:C:341:VAL:HG13	2.14	0.47
1:B:212:LEU:HD21	1:B:214:ARG:NH1	2.29	0.47
1:B:130:VAL:HG12	1:B:168:PHE:HB3	1.97	0.47
1:C:136:CYS:SG	1:C:158:ARG:HD3	2.54	0.47
1:C:411:ALA:HB3	1:C:414:GLN:HB2	1.97	0.47
1:A:105:ILE:HG22	1:A:118:LEU:HD13	1.96	0.47
1:A:675:GLN:HA	1:A:690:GLN:NE2	2.28	0.47
1:A:950:ASP:OD1	1:A:950:ASP:N	2.46	0.47
1:B:34:ARG:HG3	1:B:216:LEU:HD22	1.95	0.47
1:B:68:ILE:H	1:B:264:ALA:HB2	1.78	0.47
1:B:328:ARG:HH22	1:B:532:ASN:C	2.22	0.47
1:B:329:PHE:HB3	1:B:579:PRO:HG3	1.96	0.47
1:B:739:THR:HG22	1:B:753:LEU:HD23	1.96	0.47
1:C:360:ASN:HA	1:C:523:THR:OG1	2.15	0.47
1:B:195:LYS:HE2	1:B:204:TYR:HE2	1.79	0.47
1:B:1118:ASP:OD1	1:B:1118:ASP:N	2.45	0.47
1:A:131:CYS:HB3	1:A:166:CYS:HA	1.96	0.47
1:A:403:ARG:HH11	1:A:505:TYR:HA	1.79	0.47
1:A:474:GLN:NE2	1:A:479:PRO:HA	2.30	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:605:SER:OG	1:A:606:ASN:N	2.47	0.47
1:B:328:ARG:HG3	1:B:579:PRO:HG2	1.97	0.47
1:B:878:LEU:HD21	1:B:1052:PHE:HB3	1.97	0.47
1:C:78:ARG:HG3	1:C:80:ASP:OD1	2.15	0.47
1:A:36:VAL:HG21	1:A:220:PHE:CE1	2.50	0.47
1:A:338:PHE:HB3	1:A:342:PHE:CE2	2.49	0.47
1:A:800:PHE:HD2	1:A:927:PHE:HD2	1.63	0.47
1:B:102:ARG:HB3	1:B:241:LEU:HG	1.96	0.47
1:B:426:PRO:HB3	1:B:463:PRO:HG3	1.97	0.47
1:B:719:THR:HG23	1:B:1070:ALA:HB2	1.96	0.47
1:C:868:GLU:N	1:C:868:GLU:OE1	2.48	0.47
1:A:503:VAL:HA	1:A:506:GLN:HG3	1.97	0.46
1:A:746:SER:OG	1:A:747:THR:N	2.46	0.46
1:B:1102:TRP:C	1:B:1115:ILE:HD11	2.40	0.46
1:A:37:TYR:OH	1:A:54:LEU:O	2.29	0.46
1:A:118:LEU:O	1:A:129:LYS:N	2.46	0.46
1:B:708:SER:OG	1:B:711:SER:N	2.48	0.46
1:C:936:ASP:O	1:C:940:SER:CB	2.63	0.46
1:A:473:TYR:HB2	1:A:491:PRO:HD3	1.98	0.46
1:A:904:TYR:OH	1:C:1094:VAL:HB	2.15	0.46
1:B:157:PHE:CG	1:B:157:PHE:O	2.66	0.46
1:A:130:VAL:O	1:A:167:THR:HB	2.16	0.46
1:B:989:ALA:O	1:B:993:ILE:HG13	2.16	0.46
1:C:69:HIS:CD2	1:C:77:LYS:HD2	2.50	0.46
1:C:389:ASP:O	1:C:528:LYS:NZ	2.23	0.46
1:C:811:LYS:HZ1	1:C:815:ARG:HB2	1.80	0.46
1:B:1083:HIS:CG	1:B:1137:VAL:HG12	2.50	0.46
1:C:357:ARG:NE	1:C:359:SER:OG	2.25	0.46
1:A:27:ALA:HB3	1:A:66:HIS:NE2	2.30	0.46
1:B:298:GLU:HB3	1:B:315:THR:OG1	2.15	0.46
1:C:95:THR:HG22	1:C:189:LEU:HD11	1.98	0.46
1:C:477:SER:OG	1:C:478:THR:N	2.46	0.46
1:A:37:TYR:CZ	1:A:195:LYS:HD2	2.51	0.46
1:A:244:LEU:HD11	1:A:246:ARG:CZ	2.45	0.46
1:A:364:ASP:OD1	1:A:365:TYR:N	2.49	0.46
1:B:800:PHE:CD2	1:B:898:PHE:HE2	2.34	0.46
1:B:821:LEU:HD11	1:B:939:SER:HA	1.97	0.46
1:C:64:TRP:CD2	1:C:66:HIS:CE1	3.03	0.46
1:C:402:ILE:O	1:C:508:TYR:N	2.29	0.46
1:C:555:SER:OG	1:C:584:ILE:HB	2.16	0.46
1:A:33:THR:HA	1:A:58:PHE:CE1	2.50	0.46

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:187:LYS:O	1:A:210:ILE:N	2.49	0.46
1:A:906:PHE:HD2	1:A:916:LEU:HB2	1.80	0.46
1:A:36:VAL:O	1:A:223:LEU:HG	2.16	0.46
1:A:977:LEU:O	1:A:981:LEU:HG	2.15	0.46
1:C:96:GLU:HG2	1:C:99:ASN:H	1.81	0.46
1:C:1083:HIS:HD2	1:C:1136:THR:HA	1.81	0.46
1:A:364:ASP:HA	1:A:388:ASN:HD21	1.81	0.46
1:A:563:GLN:O	1:A:577:ARG:NH2	2.40	0.46
1:A:575:ALA:HA	1:A:586:ASP:HA	1.98	0.46
1:B:57:PRO:HG3	1:B:273:ARG:HE	1.80	0.46
1:A:747:THR:O	1:A:750:SER:OG	2.28	0.45
1:A:1041:ASP:HB3	1:B:1030:SER:OG	2.16	0.45
1:B:396:TYR:N	1:B:514:SER:O	2.49	0.45
1:C:231:ILE:HD12	1:C:233:ILE:HG12	1.98	0.45
1:C:416:GLY:O	1:C:420:ASP:N	2.49	0.45
1:A:870:ILE:O	1:A:874:THR:HG23	2.16	0.45
1:A:906:PHE:CD2	1:A:916:LEU:HB2	2.51	0.45
1:B:95:THR:HB	1:B:186:PHE:CD2	2.52	0.45
1:C:452:LEU:HA	1:C:494:SER:HA	1.97	0.45
1:C:748:GLU:H	1:C:748:GLU:CD	2.22	0.45
1:C:1138:TYR:OH	1:C:1143:PRO:HG2	2.17	0.45
1:A:1089:PHE:CE2	1:B:917:TYR:HD2	2.34	0.45
1:B:26:PRO:HB3	1:B:65:PHE:HD1	1.80	0.45
1:B:530:SER:OG	1:B:531:THR:N	2.48	0.45
1:B:659:SER:HB3	1:B:698:SER:HB2	1.97	0.45
1:C:128:ILE:HB	1:C:170:TYR:HB3	1.97	0.45
1:C:421:TYR:CD1	1:C:457:ARG:HB3	2.51	0.45
1:C:767:LEU:HD23	1:C:770:ILE:HD12	1.97	0.45
1:C:912:THR:HG22	1:C:1106:GLN:OE1	2.16	0.45
1:A:27:ALA:H	1:A:66:HIS:CD2	2.35	0.45
1:A:327:VAL:O	1:A:531:THR:N	2.49	0.45
1:B:403:ARG:HD3	1:B:505:TYR:HA	1.98	0.45
1:B:968:SER:O	1:B:975:SER:OG	2.33	0.45
1:C:379:CYS:HB2	1:C:384:PRO:HD3	1.97	0.45
1:A:329:PHE:O	1:A:580:GLN:HG2	2.17	0.45
1:A:521:PRO:HG3	1:A:564:GLN:HG2	1.98	0.45
1:C:65:PHE:HA	1:C:78:ARG:NH2	2.31	0.45
1:C:659:SER:HB3	1:C:698:SER:HB3	1.98	0.45
1:B:34:ARG:HH21	1:B:217:PRO:HG2	1.81	0.45
1:B:168:PHE:CE2	1:B:170:TYR:HB2	2.52	0.45
1:B:722:VAL:HG22	1:B:1065:VAL:HG22	1.98	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:494:SER:OG	1:C:495:TYR:N	2.49	0.45
1:C:730:SER:OG	1:C:731:MET:N	2.49	0.45
1:A:83:VAL:HG13	1:A:83:VAL:O	2.17	0.45
1:B:116:SER:HB2	1:B:135:PHE:CZ	2.51	0.45
1:C:983:ARG:O	1:C:984:LEU:HD23	2.16	0.45
1:A:702:GLU:HG2	1:B:790:LYS:NZ	2.32	0.45
1:A:1039:ARG:NE	1:B:1031:GLU:OE2	2.34	0.45
1:B:737:ASP:OD1	1:B:737:ASP:N	2.34	0.45
1:C:349:SER:OG	1:C:350:VAL:N	2.49	0.45
1:C:547:THR:OG1	1:C:548:GLY:N	2.50	0.45
1:C:1083:HIS:CD2	1:C:1136:THR:HA	2.52	0.45
1:A:129:LYS:HA	1:A:129:LYS:HD2	1.88	0.45
1:A:334:ASN:O	1:A:362:VAL:HG12	2.17	0.45
1:A:734:THR:OG1	1:A:735:SER:N	2.50	0.45
1:B:87:ASN:O	1:B:89:GLY:N	2.50	0.45
1:B:362:VAL:HG11	1:B:527:PRO:HB3	1.98	0.45
1:C:410:ILE:HG23	1:C:425:LEU:HD21	1.97	0.45
1:A:172:SER:OG	1:A:173:GLN:N	2.49	0.45
1:A:273:ARG:HG3	1:A:274:THR:H	1.80	0.45
1:A:112:SER:O	1:A:113:LYS:HE2	2.17	0.44
1:A:153:MET:HB3	1:A:153:MET:HE3	1.81	0.44
1:A:950:ASP:O	1:A:954:GLN:HG3	2.18	0.44
1:A:958:ALA:O	1:A:961:THR:OG1	2.35	0.44
1:B:450:ASN:OD1	1:B:450:ASN:N	2.43	0.44
1:B:977:LEU:HD23	1:B:977:LEU:HA	1.80	0.44
1:B:1082:CYS:HB2	1:B:1126:CYS:HB2	1.71	0.44
1:C:417:LYS:HD2	1:C:455:LEU:HA	1.98	0.44
1:C:454:ARG:NE	1:C:456:PHE:O	2.50	0.44
1:C:1085:GLY:O	1:C:1126:CYS:N	2.50	0.44
1:A:454:ARG:HH11	1:A:457:ARG:HD2	1.82	0.44
1:B:52:GLN:HG2	1:B:273:ARG:O	2.18	0.44
1:B:518:LEU:HD23	1:B:518:LEU:HA	1.80	0.44
1:C:434:ILE:O	1:C:511:VAL:HG22	2.17	0.44
1:C:442:ASP:OD2	1:C:509:ARG:NE	2.50	0.44
1:C:516:GLU:HG2	1:C:519:HIS:CE1	2.53	0.44
1:B:156:GLU:HA	1:B:158:ARG:NH1	2.32	0.44
1:B:331:ASN:HA	1:B:580:GLN:HG3	2.00	0.44
1:B:814:LYS:HD3	1:B:814:LYS:HA	1.60	0.44
1:C:192:PHE:HB3	1:C:194:PHE:CE1	2.52	0.44
1:C:553:THR:HG23	1:C:586:ASP:HB2	1.98	0.44
1:C:568:ASP:CG	1:C:572:THR:HG22	2.42	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:856:ASN:HB2	1:C:858:LEU:HD23	1.99	0.44
1:C:1125:ASN:OD1	1:C:1125:ASN:N	2.49	0.44
1:A:88:ASP:N	1:A:88:ASP:OD1	2.49	0.44
1:A:125:ASN:HB3	1:A:173:GLN:O	2.18	0.44
1:A:140:PHE:H	1:A:158:ARG:HB2	1.82	0.44
1:A:1009:THR:O	1:A:1013:ILE:HG13	2.18	0.44
1:B:190:ARG:HB3	1:B:192:PHE:CE1	2.53	0.44
1:B:373:SER:O	1:B:436:TRP:HB2	2.18	0.44
1:B:435:ALA:HA	1:B:509:ARG:O	2.18	0.44
1:B:808:ASP:OD1	1:B:810:SER:OG	2.34	0.44
1:C:797:PHE:C	1:C:799:GLY:H	2.26	0.44
1:C:937:SER:O	1:C:941:THR:HG22	2.16	0.44
1:A:377:PHE:HD1	1:A:434:ILE:HG13	1.83	0.44
1:A:821:LEU:HD23	1:A:821:LEU:HA	1.71	0.44
1:A:909:ILE:HG13	1:A:911:VAL:HG23	2.00	0.44
1:B:979:ASP:O	1:B:983:ARG:HG2	2.17	0.44
1:C:101:ILE:HG12	1:C:242:LEU:HG	2.00	0.44
1:C:135:PHE:HE1	1:C:159:VAL:HA	1.83	0.44
1:C:160:TYR:OH	1:C:165:ASN:N	2.50	0.44
1:B:53:ASP:HB3	1:B:55:PHE:CE2	2.52	0.44
1:B:310:LYS:HE2	1:B:310:LYS:HB3	1.62	0.44
1:B:914:ASN:OD1	1:B:915:VAL:N	2.50	0.44
1:A:290:ASP:OD1	1:A:291:CYS:N	2.50	0.44
1:A:339:GLY:O	1:A:343:ASN:N	2.50	0.44
1:A:900:MET:HE1	1:C:1094:VAL:HG23	1.98	0.44
1:B:424:LYS:H	1:B:461:LEU:HB2	1.82	0.44
1:B:1116:THR:HB	1:B:1140:PRO:HD3	1.99	0.44
1:C:109:THR:OG1	1:C:114:THR:HG21	2.18	0.44
1:C:185:ASN:HD21	1:C:211:ASN:HA	1.83	0.44
1:C:189:LEU:HD12	1:C:189:LEU:HA	1.81	0.44
1:C:441:LEU:HD22	1:C:509:ARG:NH2	2.33	0.44
1:C:778:THR:O	1:C:781:VAL:HG12	2.18	0.44
1:C:784:GLN:N	1:C:784:GLN:OE1	2.51	0.44
1:A:770:ILE:O	1:A:774:GLN:HG2	2.17	0.44
1:B:102:ARG:HG2	1:B:120:VAL:HG13	1.98	0.44
1:B:328:ARG:NH2	1:B:531:THR:OG1	2.36	0.44
1:C:444:LYS:HB2	1:C:448:ASN:N	2.33	0.44
1:C:462:LYS:N	1:C:465:GLU:OE1	2.44	0.44
1:A:105:ILE:HG12	1:A:239:GLN:O	2.18	0.44
1:A:965:GLN:OE1	1:B:758:SER:OG	2.20	0.44
1:B:33:THR:HA	1:B:58:PHE:CE1	2.53	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:64:TRP:HA	1:B:266:TYR:HD1	1.82	0.44
1:B:296:LEU:HB2	1:B:608:VAL:HG11	1.99	0.44
1:B:560:LEU:O	1:B:563:GLN:HG3	2.18	0.44
1:C:78:ARG:C	1:C:80:ASP:H	2.26	0.44
1:C:133:PHE:HD1	1:C:160:TYR:HD1	1.66	0.44
1:C:191:GLU:HB2	1:C:223:LEU:HD11	2.00	0.44
1:C:477:SER:O	1:C:478:THR:OG1	2.35	0.44
1:C:1072:GLU:N	1:C:1072:GLU:OE1	2.51	0.44
1:A:191:GLU:O	1:A:193:VAL:HG23	2.18	0.43
1:A:474:GLN:NE2	1:A:476:GLY:O	2.46	0.43
1:B:426:PRO:HG3	1:B:463:PRO:HB3	1.99	0.43
1:B:563:GLN:N	1:B:577:ARG:HH21	2.14	0.43
1:B:807:PRO:HA	1:B:816:SER:HB2	1.99	0.43
1:B:870:ILE:O	1:B:874:THR:HG23	2.18	0.43
1:B:949:GLN:O	1:B:953:ASN:ND2	2.50	0.43
1:C:140:PHE:CE2	1:C:244:LEU:HB2	2.53	0.43
1:C:353:TRP:HZ3	1:C:355:ARG:HB2	1.83	0.43
1:C:675:GLN:HG3	1:C:676:THR:H	1.82	0.43
1:C:736:VAL:O	1:C:764:ASN:ND2	2.50	0.43
1:A:141:LEU:HD13	1:A:154:GLU:HB2	2.00	0.43
1:B:355:ARG:H	1:B:466:ARG:HH21	1.65	0.43
1:A:280:ASN:OD1	1:A:284:THR:N	2.30	0.43
1:A:816:SER:O	1:A:819:GLU:HB2	2.18	0.43
1:A:1100:THR:HG1	1:A:1101:HIS:CE1	2.26	0.43
1:B:93:ALA:O	1:B:95:THR:HG23	2.18	0.43
1:B:294:ASP:O	1:B:295:PRO:C	2.61	0.43
1:B:537:LYS:HB3	1:B:537:LYS:HE2	1.64	0.43
1:B:767:LEU:HD23	1:B:767:LEU:HA	1.77	0.43
1:C:408:ARG:O	1:C:414:GLN:HG2	2.18	0.43
1:A:79:PHE:HB3	1:A:260:ALA:C	2.42	0.43
1:A:81:ASN:HD22	1:A:240:THR:HG23	1.83	0.43
1:A:107:GLY:HA3	1:A:116:SER:OG	2.17	0.43
1:A:387:LEU:HD12	1:A:392:PHE:CE2	2.54	0.43
1:A:537:LYS:HE2	1:A:537:LYS:HB3	1.77	0.43
1:A:1123:SER:OG	1:B:918:GLU:OE2	2.35	0.43
1:B:142:GLY:N	1:B:156:GLU:O	2.52	0.43
1:C:316:SER:OG	1:C:317:ASN:N	2.52	0.43
1:C:357:ARG:NH1	1:C:396:TYR:OH	2.52	0.43
1:C:725:GLU:CD	1:C:1028:LYS:HE2	2.43	0.43
1:C:811:LYS:HG3	1:C:812:PRO:HD2	2.00	0.43
1:B:190:ARG:O	1:B:192:PHE:N	2.51	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:216:LEU:H	1:B:216:LEU:HD12	1.84	0.43
1:B:803:SER:OG	1:B:804:GLN:NE2	2.52	0.43
1:C:90:VAL:HG23	1:C:268:GLY:H	1.82	0.43
1:C:103:GLY:HA3	1:C:241:LEU:HD22	2.00	0.43
1:C:228:ASP:C	1:C:229:LEU:HD22	2.43	0.43
1:A:107:GLY:N	1:A:235:ILE:HG23	2.34	0.43
1:A:200:TYR:HA	1:A:228:ASP:OD1	2.18	0.43
1:A:1092:GLU:N	1:A:1092:GLU:OE1	2.51	0.43
1:B:280:ASN:OD1	1:B:283:GLY:N	2.46	0.43
1:B:408:ARG:NE	1:B:414:GLN:OE1	2.51	0.43
1:B:563:GLN:H	1:B:577:ARG:NH2	2.14	0.43
1:C:357:ARG:HD2	1:C:358:ILE:N	2.33	0.43
1:C:474:GLN:OE1	1:C:479:PRO:HA	2.18	0.43
1:A:560:LEU:HB2	1:A:563:GLN:HG3	2.01	0.43
1:A:977:LEU:HD23	1:A:977:LEU:HA	1.85	0.43
1:B:42:VAL:HG23	1:B:42:VAL:O	2.18	0.43
1:B:453:TYR:HB3	1:B:495:TYR:HE1	1.83	0.43
1:B:821:LEU:HD21	1:B:939:SER:N	2.33	0.43
1:B:1083:HIS:HD2	1:B:1136:THR:HA	1.81	0.43
1:C:24:LEU:HD22	1:C:76:THR:N	2.33	0.43
1:C:43:PHE:HE1	1:C:283:GLY:HA3	1.84	0.43
1:C:201:PHE:CD2	1:C:203:ILE:HD11	2.54	0.43
1:C:567:ARG:HA	1:C:572:THR:O	2.18	0.43
1:C:874:THR:O	1:C:878:LEU:HG	2.18	0.43
1:A:117:LEU:HD12	1:A:118:LEU:N	2.34	0.43
1:A:290:ASP:OD1	1:A:292:ALA:N	2.51	0.43
1:A:1102:TRP:CZ2	1:A:1133:VAL:HG21	2.54	0.43
1:B:187:LYS:HE3	1:B:209:PRO:HB2	2.00	0.43
1:C:133:PHE:HD1	1:C:160:TYR:CD1	2.37	0.43
1:B:141:LEU:HG	1:B:154:GLU:HG3	2.01	0.43
1:B:359:SER:OG	1:B:394:ASN:HA	2.18	0.43
1:B:454:ARG:NH1	1:B:491:PRO:HB2	2.34	0.43
1:B:617:CYS:HA	1:B:619:GLU:OE2	2.19	0.43
1:B:1073:LYS:HB3	1:B:1073:LYS:HE2	1.71	0.43
1:B:1081:ILE:HG13	1:B:1095:PHE:CE2	2.53	0.43
1:C:24:LEU:HD12	1:C:25:PRO:HD2	2.01	0.43
1:C:806:LEU:HD23	1:C:806:LEU:HA	1.75	0.43
1:A:453:TYR:CE1	1:A:493:GLN:HG3	2.54	0.42
1:B:136:CYS:SG	1:B:158:ARG:HB3	2.59	0.42
1:B:244:LEU:HA	1:B:259:THR:HG21	2.00	0.42
1:B:355:ARG:H	1:B:466:ARG:NH2	2.17	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:410:ILE:HG23	1:B:425:LEU:HD11	2.01	0.42
1:B:938:LEU:HA	1:B:938:LEU:HD23	1.78	0.42
1:B:1037:SER:OG	1:B:1038:LYS:N	2.51	0.42
1:C:69:HIS:HB2	1:C:78:ARG:H	1.84	0.42
1:C:396:TYR:HB2	1:C:514:SER:OG	2.18	0.42
1:A:274:THR:HG22	1:A:291:CYS:SG	2.59	0.42
1:A:1141:LEU:HA	1:A:1144:GLU:HB2	2.01	0.42
1:B:877:LEU:HD23	1:B:877:LEU:HA	1.82	0.42
1:B:886:TRP:CD1	1:B:886:TRP:C	2.97	0.42
1:B:962:LEU:HD12	1:B:1007:TYR:CG	2.55	0.42
1:B:966:LEU:HD23	1:B:966:LEU:HA	1.78	0.42
1:C:334:ASN:O	1:C:362:VAL:HG22	2.19	0.42
1:C:538:CYS:HA	1:C:550:GLY:O	2.18	0.42
1:A:110:LEU:O	1:A:139:PRO:HG3	2.19	0.42
1:A:480:CYS:O	1:A:483:VAL:HG22	2.19	0.42
1:A:659:SER:HB2	1:A:698:SER:HB3	2.00	0.42
1:C:884:SER:OG	1:C:894:LEU:N	2.52	0.42
1:A:175:PHE:CG	1:A:176:LEU:N	2.88	0.42
1:A:408:ARG:HH11	1:A:414:GLN:HE21	1.66	0.42
1:A:703:ASN:O	1:B:789:TYR:HA	2.20	0.42
1:A:1003:SER:O	1:A:1006:THR:HG22	2.20	0.42
1:A:1028:LYS:O	1:A:1032:CYS:HB2	2.19	0.42
1:B:31:SER:OG	1:B:32:PHE:N	2.52	0.42
1:B:85:PRO:O	1:B:269:TYR:OH	2.32	0.42
1:B:121:ASN:CG	1:B:126:VAL:HG22	2.45	0.42
1:B:214:ARG:NH1	1:B:215:ASP:O	2.52	0.42
1:C:64:TRP:CD1	1:C:266:TYR:CE1	3.07	0.42
1:C:177:MET:HG2	1:C:190:ARG:CZ	2.49	0.42
1:C:324:GLU:H	1:C:539:VAL:HG12	1.85	0.42
1:C:358:ILE:HB	1:C:395:VAL:HG13	2.01	0.42
1:A:231:ILE:HG22	1:A:233:ILE:HG23	2.01	0.42
1:B:393:THR:HG21	1:B:518:LEU:H	1.85	0.42
1:B:398:ASP:HB3	1:B:400:PHE:HE1	1.83	0.42
1:C:70:VAL:H	1:C:262:ALA:HB2	1.84	0.42
1:C:295:PRO:O	1:C:299:THR:HG23	2.18	0.42
1:C:439:ASN:O	1:C:443:SER:HB2	2.20	0.42
1:A:408:ARG:CZ	1:A:409:GLN:HG2	2.49	0.42
1:A:774:GLN:HA	1:A:777:ASN:ND2	2.33	0.42
1:B:97:LYS:HD3	1:B:185:ASN:O	2.19	0.42
1:A:104:TRP:HB3	1:A:106:PHE:CZ	2.55	0.42
1:B:125:ASN:HD21	1:B:171:VAL:HG12	1.84	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:83:VAL:HG11	1:C:237:ARG:CZ	2.50	0.42
1:C:97:LYS:HG2	1:C:186:PHE:CD1	2.55	0.42
1:C:449:TYR:HD1	1:C:495:TYR:O	2.02	0.42
1:C:909:ILE:O	1:C:911:VAL:N	2.43	0.42
1:A:134:GLN:N	1:A:160:TYR:HA	2.33	0.42
1:A:717:ASN:C	1:A:1070:ALA:HB3	2.44	0.42
1:B:53:ASP:OD1	1:B:195:LYS:NZ	2.53	0.42
1:B:441:LEU:O	1:B:444:LYS:NZ	2.41	0.42
1:B:619:GLU:N	1:B:619:GLU:OE1	2.52	0.42
1:B:759:PHE:O	1:B:763:LEU:HG	2.20	0.42
1:B:777:ASN:O	1:B:780:GLU:N	2.50	0.42
1:B:930:ALA:O	1:B:933:LYS:HB2	2.20	0.42
1:B:1049:LEU:HB2	1:B:1065:VAL:O	2.20	0.42
1:C:347:PHE:CE2	1:C:509:ARG:HB3	2.54	0.42
1:C:365:TYR:CE1	1:C:388:ASN:HB2	2.54	0.42
1:C:490:PHE:O	1:C:493:GLN:NE2	2.53	0.42
1:C:577:ARG:HE	1:C:584:ILE:HD11	1.85	0.42
1:A:228:ASP:OD1	1:A:229:LEU:N	2.52	0.42
1:A:1091:ARG:N	1:A:1119:ASN:O	2.47	0.42
1:B:101:ILE:HA	1:B:242:LEU:HA	2.01	0.42
1:B:229:LEU:HD12	1:B:229:LEU:HA	1.83	0.42
1:B:245:HIS:H	1:B:259:THR:HB	1.84	0.42
1:B:746:SER:OG	1:B:747:THR:N	2.52	0.42
1:B:808:ASP:HB3	1:B:811:LYS:HG2	2.02	0.42
1:C:201:PHE:CE2	1:C:203:ILE:HD11	2.55	0.42
1:A:127:VAL:HG13	1:A:171:VAL:HG11	2.02	0.42
1:A:138:ASP:HB2	1:A:140:PHE:HE1	1.85	0.42
1:A:438:SER:O	1:A:442:ASP:N	2.53	0.42
1:A:477:SER:O	1:A:478:THR:OG1	2.37	0.42
1:A:497:PHE:CD2	1:A:507:PRO:HB3	2.55	0.42
1:B:95:THR:HB	1:B:186:PHE:CG	2.54	0.42
1:B:112:SER:H	1:B:135:PHE:HB2	1.85	0.42
1:B:296:LEU:O	1:B:300:LYS:HG3	2.19	0.42
1:B:859:THR:OG1	1:B:860:VAL:N	2.53	0.42
1:C:374:PHE:HA	1:C:436:TRP:HB3	2.02	0.42
1:C:422:ASN:OD1	1:C:454:ARG:N	2.40	0.42
1:C:473:TYR:HB3	1:C:489:TYR:O	2.20	0.42
1:C:1097:SER:OG	1:C:1102:TRP:CD2	2.73	0.42
1:A:94:SER:HB3	1:A:190:ARG:CB	2.43	0.41
1:A:353:TRP:CZ2	1:A:466:ARG:HB2	2.54	0.41
1:B:350:VAL:HG23	1:B:495:TYR:OH	2.20	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:1043:CYS:O	1:B:1048:HIS:HD2	2.03	0.41
1:C:454:ARG:HD2	1:C:467:ASP:OD2	2.20	0.41
1:A:452:LEU:HD13	1:A:492:LEU:HD12	2.01	0.41
1:A:800:PHE:HD2	1:A:927:PHE:CD2	2.38	0.41
1:B:49:HIS:NE2	1:B:50:SER:O	2.53	0.41
1:C:57:PRO:HB3	1:C:273:ARG:CZ	2.50	0.41
1:C:396:TYR:N	1:C:514:SER:O	2.48	0.41
1:C:617:CYS:SG	1:C:644:GLN:HB2	2.60	0.41
1:A:42:VAL:HG21	1:A:44:ARG:NH2	2.36	0.41
1:A:199:GLY:C	1:A:230:PRO:HA	2.45	0.41
1:A:437:ASN:OD1	1:A:506:GLN:HB3	2.20	0.41
1:A:447:GLY:HA3	1:A:449:TYR:CZ	2.54	0.41
1:A:559:PHE:HB3	1:A:577:ARG:HH22	1.86	0.41
1:A:811:LYS:NZ	1:A:820:ASP:OD2	2.45	0.41
1:A:996:LEU:HD23	1:A:996:LEU:HA	1.82	0.41
1:A:1100:THR:OG1	1:A:1101:HIS:N	2.52	0.41
1:B:95:THR:OG1	1:B:95:THR:O	2.38	0.41
1:B:375:SER:HB3	1:B:437:ASN:H	1.85	0.41
1:B:811:LYS:NZ	1:B:820:ASP:OD2	2.45	0.41
1:B:1125:ASN:OD1	1:B:1125:ASN:N	2.49	0.41
1:C:58:PHE:HD1	1:C:58:PHE:HA	1.77	0.41
1:C:118:LEU:HD11	1:C:120:VAL:HB	2.01	0.41
1:C:747:THR:OG1	1:C:748:GLU:N	2.53	0.41
1:C:797:PHE:O	1:C:799:GLY:N	2.53	0.41
1:A:230:PRO:HB2	1:C:357:ARG:HH12	1.85	0.41
1:A:273:ARG:HG3	1:A:274:THR:N	2.35	0.41
1:A:303:LEU:HD11	1:A:313:TYR:CD2	2.56	0.41
1:A:350:VAL:HG23	1:A:422:ASN:HB3	2.02	0.41
1:A:934:ILE:HD13	1:A:934:ILE:HA	1.86	0.41
1:B:901:GLN:NE2	1:B:905:ARG:HE	2.19	0.41
1:B:949:GLN:HG3	1:B:953:ASN:HD21	1.85	0.41
1:B:958:ALA:O	1:B:961:THR:OG1	2.31	0.41
1:C:40:ASP:OD1	1:C:41:LYS:N	2.50	0.41
1:C:45:SER:O	1:C:47:VAL:HG13	2.20	0.41
1:A:48:LEU:HD23	1:A:278:LYS:HA	2.02	0.41
1:A:435:ALA:HA	1:A:509:ARG:O	2.20	0.41
1:A:971:GLY:N	1:B:755:GLN:HE21	2.12	0.41
1:B:156:GLU:HA	1:B:158:ARG:HH11	1.86	0.41
1:B:592:PHE:CE1	1:B:615:VAL:HG22	2.47	0.41
1:B:811:LYS:HD2	1:B:811:LYS:HA	1.85	0.41
1:C:34:ARG:O	1:C:56:LEU:HD23	2.21	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:126:VAL:HG22	1:C:175:PHE:CZ	2.56	0.41
1:A:119:ILE:HA	1:A:128:ILE:HA	2.03	0.41
1:A:1062:PHE:O	1:A:1063:LEU:HD23	2.20	0.41
1:B:955:ASN:O	1:B:959:LEU:HD23	2.20	0.41
1:B:987:PRO:HG2	1:B:988:GLU:OE1	2.21	0.41
1:C:108:THR:HA	1:C:236:THR:HG22	2.01	0.41
1:C:120:VAL:O	1:C:126:VAL:HA	2.20	0.41
1:C:714:ILE:HD13	1:C:714:ILE:HA	1.89	0.41
1:A:401:VAL:HG13	1:A:508:TYR:C	2.46	0.41
1:B:187:LYS:HE3	1:B:187:LYS:HB3	1.79	0.41
1:B:187:LYS:HA	1:B:210:ILE:O	2.21	0.41
1:C:360:ASN:ND2	1:C:523:THR:HG21	2.36	0.41
1:A:64:TRP:HD1	1:A:65:PHE:N	2.19	0.41
1:B:476:GLY:N	1:B:487:ASN:OD1	2.54	0.41
1:B:819:GLU:H	1:B:819:GLU:HG3	1.72	0.41
1:C:976:VAL:O	1:C:980:ILE:HG12	2.21	0.41
1:A:188:ASN:HB3	1:A:207:HIS:HB2	2.01	0.41
1:A:216:LEU:HG	1:A:266:TYR:CE2	2.55	0.41
1:A:462:LYS:CG	1:A:465:GLU:HB2	2.50	0.41
1:A:498:GLN:HB2	1:A:501:ASN:OD1	2.21	0.41
1:A:900:MET:HE2	1:A:900:MET:HB3	1.90	0.41
1:B:53:ASP:HB3	1:B:55:PHE:CZ	2.56	0.41
1:B:115:GLN:HE21	1:B:130:VAL:HG22	1.85	0.41
1:B:127:VAL:O	1:B:128:ILE:HD13	2.21	0.41
1:B:136:CYS:O	1:B:139:PRO:HD3	2.21	0.41
1:B:350:VAL:O	1:B:353:TRP:HD1	2.04	0.41
1:B:402:ILE:HG13	1:B:510:VAL:HG11	2.02	0.41
1:B:474:GLN:NE2	1:B:477:SER:O	2.54	0.41
1:B:854:LYS:HA	1:B:854:LYS:HD3	1.97	0.41
1:B:993:ILE:HG13	1:B:993:ILE:H	1.73	0.41
1:C:37:TYR:HB3	1:C:223:LEU:HB2	2.02	0.41
1:C:130:VAL:HG21	1:C:233:ILE:HD13	2.02	0.41
1:C:324:GLU:O	1:C:539:VAL:HB	2.20	0.41
1:A:275:PHE:HD1	1:A:290:ASP:HA	1.85	0.41
1:A:490:PHE:CD2	1:A:492:LEU:HB2	2.55	0.41
1:C:226:LEU:HD12	1:C:226:LEU:HA	1.83	0.41
1:C:323:THR:OG1	1:C:324:GLU:HG3	2.21	0.41
1:C:365:TYR:HB3	1:C:387:LEU:HB2	2.02	0.41
1:C:574:ASP:OD1	1:C:575:ALA:N	2.54	0.41
1:C:851:CYS:HA	1:C:854:LYS:NZ	2.36	0.41
1:A:81:ASN:HD22	1:A:240:THR:CG2	2.34	0.40

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:761:THR:H	1:A:761:THR:HG23	1.67	0.40
1:B:38:TYR:CE1	1:B:285:ILE:HG13	2.56	0.40
1:B:139:PRO:HA	1:B:158:ARG:O	2.21	0.40
1:B:774:GLN:HA	1:B:777:ASN:ND2	2.35	0.40
1:C:53:ASP:HB2	1:C:55:PHE:CE2	2.56	0.40
1:C:69:HIS:H	1:C:262:ALA:HA	1.86	0.40
1:C:206:LYS:HE2	1:C:207:HIS:O	2.21	0.40
1:C:346:ARG:HA	1:C:509:ARG:NH2	2.36	0.40
1:C:380:TYR:C	1:C:382:VAL:H	2.29	0.40
1:C:775:ASP:OD2	1:C:864:LEU:HB2	2.21	0.40
1:A:66:HIS:C	1:A:78:ARG:HE	2.22	0.40
1:A:214:ARG:NE	1:A:215:ASP:O	2.40	0.40
1:A:497:PHE:CG	1:A:507:PRO:HB3	2.57	0.40
1:B:559:PHE:CD2	1:B:577:ARG:HB2	2.57	0.40
1:B:1029:MET:HE2	1:B:1029:MET:HB2	1.86	0.40
1:C:69:HIS:CE1	1:C:260:ALA:HB3	2.56	0.40
1:C:537:LYS:O	1:C:539:VAL:HG13	2.21	0.40
1:C:966:LEU:HD23	1:C:966:LEU:HA	1.83	0.40
1:A:207:HIS:O	1:A:207:HIS:CG	2.75	0.40
1:A:420:ASP:OD1	1:A:421:TYR:N	2.54	0.40
1:B:104:TRP:CD1	1:B:240:THR:HG1	2.39	0.40
1:B:472:ILE:HG13	1:B:482:GLY:HA2	2.03	0.40
1:B:557:LYS:HA	1:B:557:LYS:HD3	1.89	0.40
1:B:598:ILE:HG23	1:B:664:ILE:HG21	2.02	0.40
1:C:136:CYS:O	1:C:139:PRO:HD3	2.21	0.40
1:C:186:PHE:CD2	1:C:213:VAL:HG23	2.56	0.40
1:C:200:TYR:HA	1:C:229:LEU:O	2.22	0.40
1:C:485:GLY:N	1:C:488:CYS:HB2	2.36	0.40
1:C:588:THR:HA	1:C:589:PRO:HD3	1.97	0.40
1:C:774:GLN:HA	1:C:777:ASN:HD22	1.86	0.40
1:C:866:THR:O	1:C:870:ILE:HG13	2.21	0.40
1:A:135:PHE:HD1	1:A:158:ARG:O	2.03	0.40
1:A:865:LEU:HD23	1:A:865:LEU:HA	1.76	0.40
1:A:969:ASN:HB2	1:B:755:GLN:HE22	1.86	0.40
1:B:233:ILE:HG13	1:B:235:ILE:HD11	2.02	0.40
1:B:379:CYS:HB2	1:B:432:CYS:HB3	1.90	0.40
1:B:906:PHE:HD1	1:B:906:PHE:HA	1.75	0.40
1:B:912:THR:CG2	1:B:1106:GLN:HE22	2.35	0.40
1:C:353:TRP:CZ3	1:C:355:ARG:HB2	2.57	0.40
1:B:23:GLN:HG2	1:B:80:ASP:OD2	2.22	0.40
1:B:82:PRO:O	1:B:84:LEU:N	2.54	0.40

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:447:GLY:HA2	1:C:498:GLN:HG2	2.03	0.40
1:C:675:GLN:CG	1:C:676:THR:H	2.34	0.40
1:C:1141:LEU:HA	1:C:1144:GLU:OE1	2.21	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 PDB entries followed by that with respect to all EM entries.

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	1013/1247 (81%)	869 (86%)	144 (14%)	0	100	100
1	B	1020/1247 (82%)	886 (87%)	134 (13%)	0	100	100
1	C	1012/1247 (81%)	878 (87%)	134 (13%)	0	100	100
All	All	3045/3741 (81%)	2633 (86%)	412 (14%)	0	100	100

There are no Ramachandran outliers to report.

5.3.2 Protein sidechains [i](#)

In the following table, the Percentiles column shows the percent sidechain outliers of the chain as a percentile score with respect to all PDB entries followed by that with respect to all EM entries.

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	898/1085 (83%)	897 (100%)	1 (0%)	92	96
1	B	905/1085 (83%)	905 (100%)	0	100	100
1	C	899/1085 (83%)	898 (100%)	1 (0%)	92	96

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Mol	Chain	Analysed	Rotameric	Outliers	Percentiles
All	All	2702/3255 (83%)	2700 (100%)	2 (0%)	92 96

All (2) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	165	ASN
1	C	945	LEU

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (80) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	87	ASN
1	A	99	ASN
1	A	164	ASN
1	A	271	GLN
1	A	282	ASN
1	A	314	GLN
1	A	388	ASN
1	A	519	HIS
1	A	536	ASN
1	A	564	GLN
1	A	657	ASN
1	A	690	GLN
1	A	777	ASN
1	A	787	GLN
1	A	901	GLN
1	A	913	GLN
1	A	926	GLN
1	A	928	ASN
1	A	953	ASN
1	A	969	ASN
1	A	978	ASN
1	A	992	GLN
1	A	1011	GLN
1	A	1083	HIS
1	B	115	GLN
1	B	121	ASN
1	B	218	GLN
1	B	239	GLN
1	B	317	ASN
1	B	388	ASN

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Mol	Chain	Res	Type
1	B	394	ASN
1	B	422	ASN
1	B	439	ASN
1	B	542	ASN
1	B	544	ASN
1	B	564	GLN
1	B	751	ASN
1	B	755	GLN
1	B	777	ASN
1	B	804	GLN
1	B	953	ASN
1	B	954	GLN
1	B	965	GLN
1	B	1010	GLN
1	B	1023	ASN
1	B	1048	HIS
1	B	1071	GLN
1	B	1088	HIS
1	C	61	ASN
1	C	66	HIS
1	C	69	HIS
1	C	122	ASN
1	C	125	ASN
1	C	134	GLN
1	C	185	ASN
1	C	317	ASN
1	C	360	ASN
1	C	388	ASN
1	C	439	ASN
1	C	519	HIS
1	C	564	GLN
1	C	580	GLN
1	C	675	GLN
1	C	690	GLN
1	C	703	ASN
1	C	717	ASN
1	C	751	ASN
1	C	777	ASN
1	C	901	GLN
1	C	925	ASN
1	C	926	GLN
1	C	949	GLN

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Mol	Chain	Res	Type
1	C	954	GLN
1	C	965	GLN
1	C	1011	GLN
1	C	1036	GLN
1	C	1054	GLN
1	C	1058	HIS
1	C	1088	HIS
1	C	1098	ASN

5.3.3 RNA [i](#)

There are no RNA molecules in this entry.

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

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

5.5 Carbohydrates [i](#)

There are no oligosaccharides in this entry.

5.6 Ligand geometry [i](#)

There are no ligands in this entry.

5.7 Other polymers [i](#)

There are no such residues in this entry.

5.8 Polymer linkage issues [i](#)

There are no chain breaks in this entry.

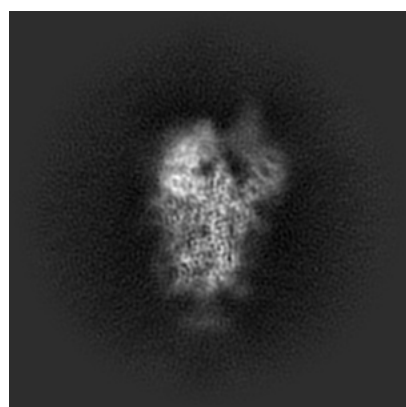
6 Map visualisation [i](#)

This section contains visualisations of the EMDB entry EMD-31512. These allow visual inspection of the internal detail of the map and identification of artifacts.

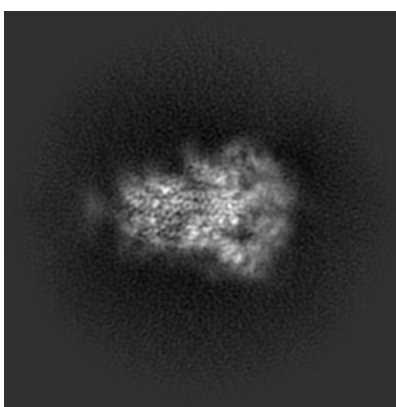
No raw map or half-maps were deposited for this entry and therefore no images, graphs, etc. pertaining to the raw map can be shown.

6.1 Orthogonal projections [i](#)

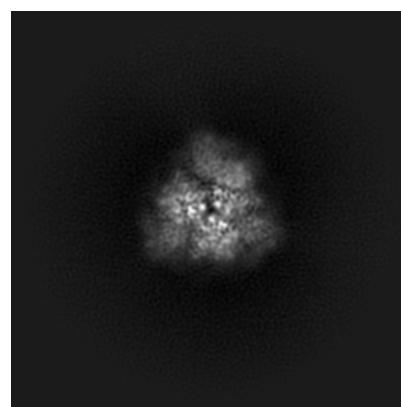
6.1.1 Primary map



X



Y

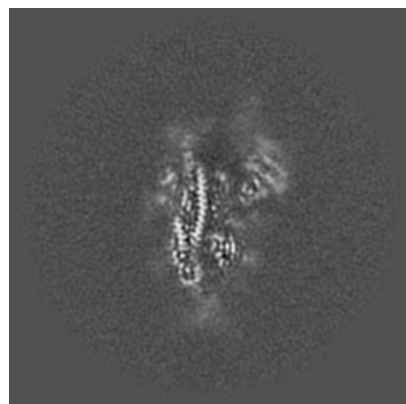


Z

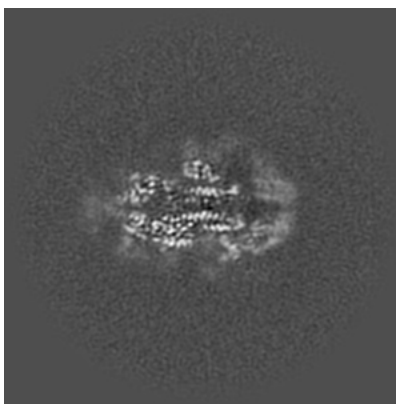
The images above show the map projected in three orthogonal directions.

6.2 Central slices [i](#)

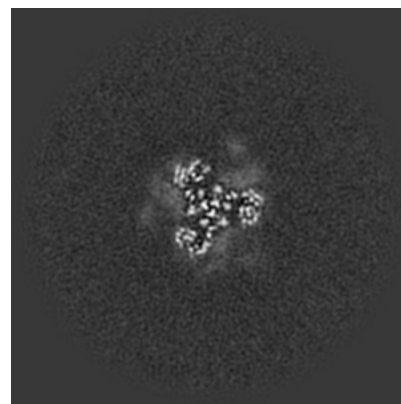
6.2.1 Primary map



X Index: 128



Y Index: 128

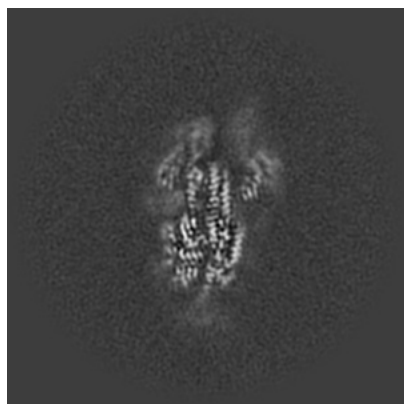


Z Index: 128

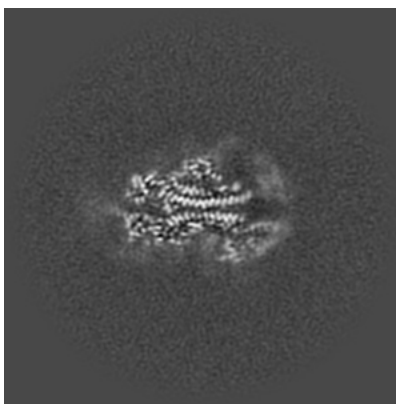
The images above show central slices of the map in three orthogonal directions.

6.3 Largest variance slices [i](#)

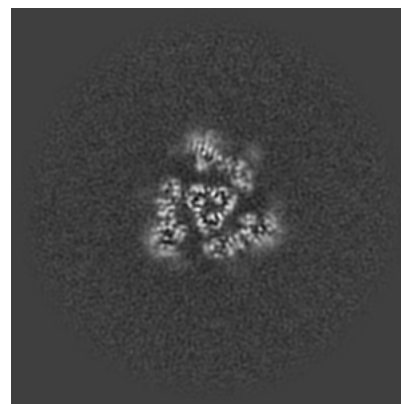
6.3.1 Primary map



X Index: 133



Y Index: 131

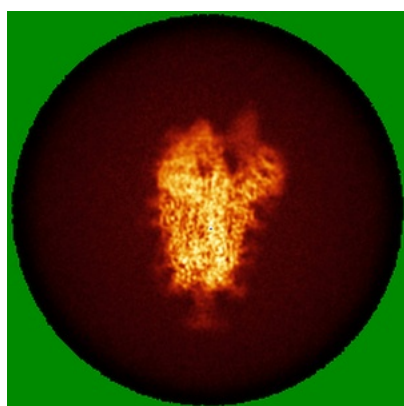


Z Index: 147

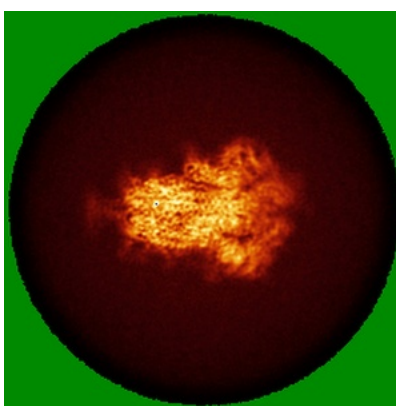
The images above show the largest variance slices of the map in three orthogonal directions.

6.4 Orthogonal standard-deviation projections (False-color) [i](#)

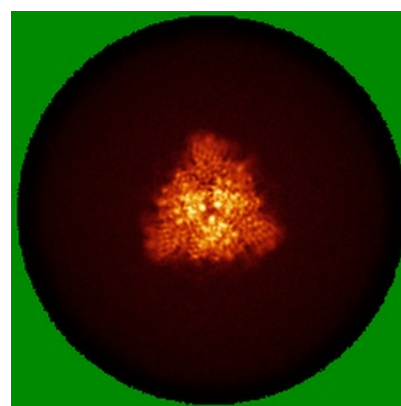
6.4.1 Primary map



X



Y

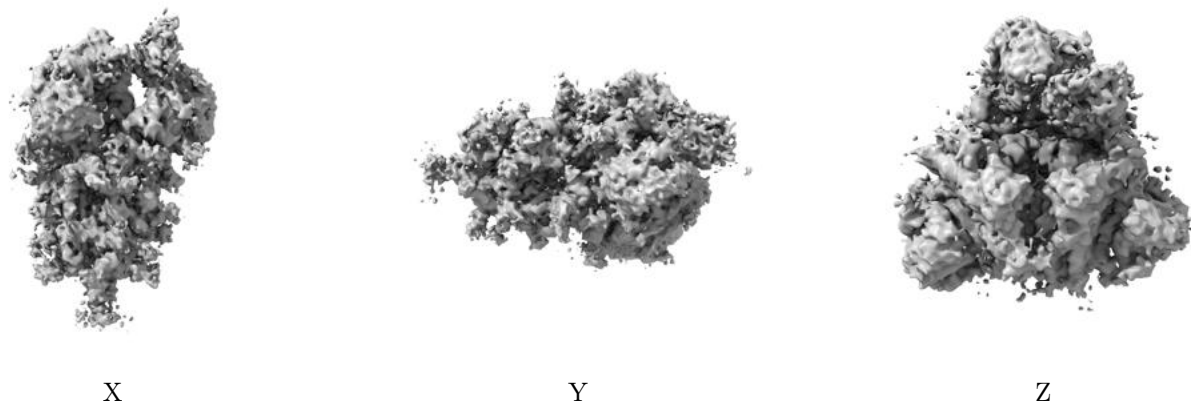


Z

The images above show the map standard deviation projections with false color in three orthogonal directions. Minimum values are shown in green, max in blue, and dark to light orange shades represent small to large values respectively.

6.5 Orthogonal surface views [i](#)

6.5.1 Primary map



The images above show the 3D surface view of the map at the recommended contour level 0.25. These images, in conjunction with the slice images, may facilitate assessment of whether an appropriate contour level has been provided.

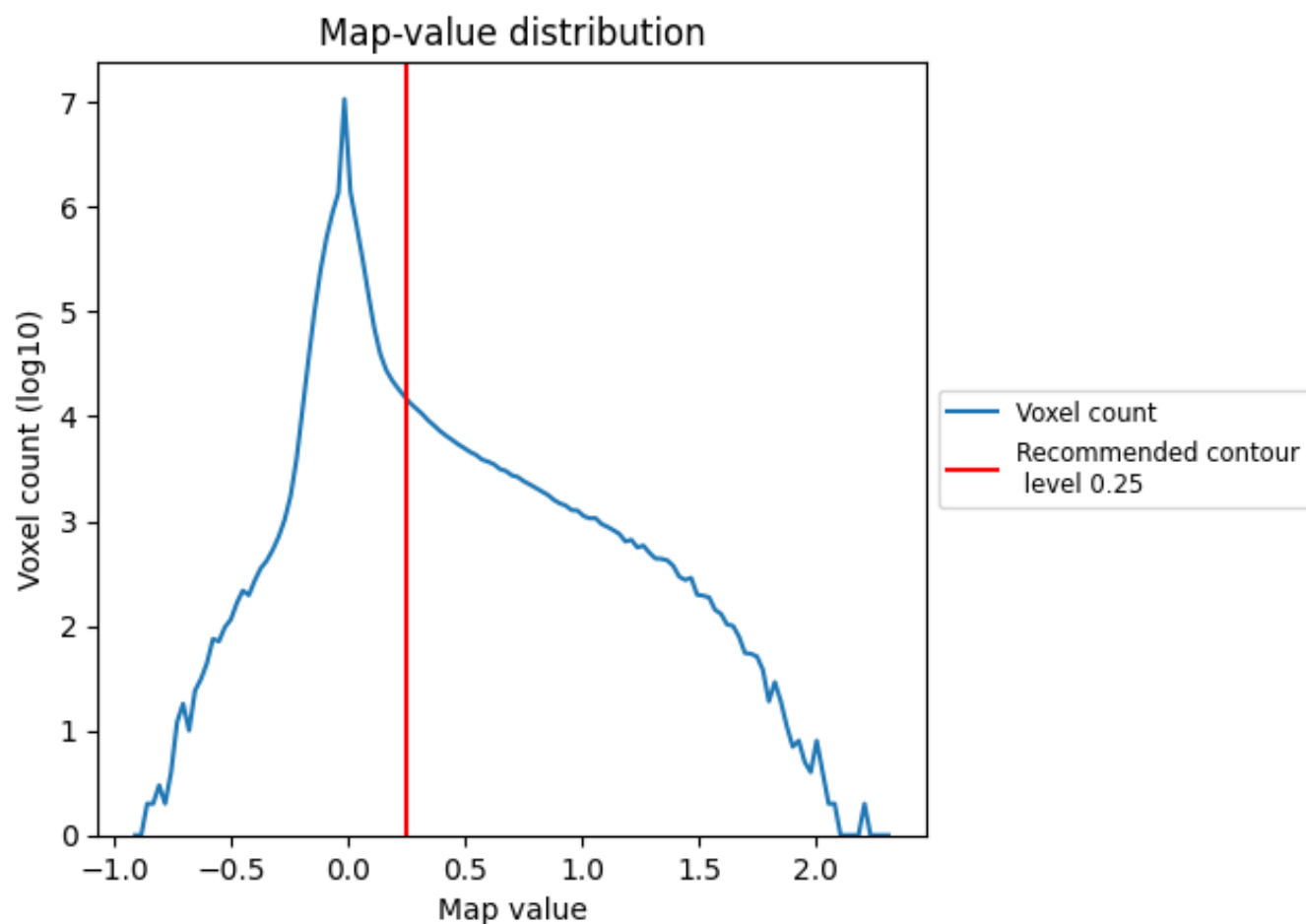
6.6 Mask visualisation [i](#)

This section was not generated. No masks/segmentation were deposited.

7 Map analysis [i](#)

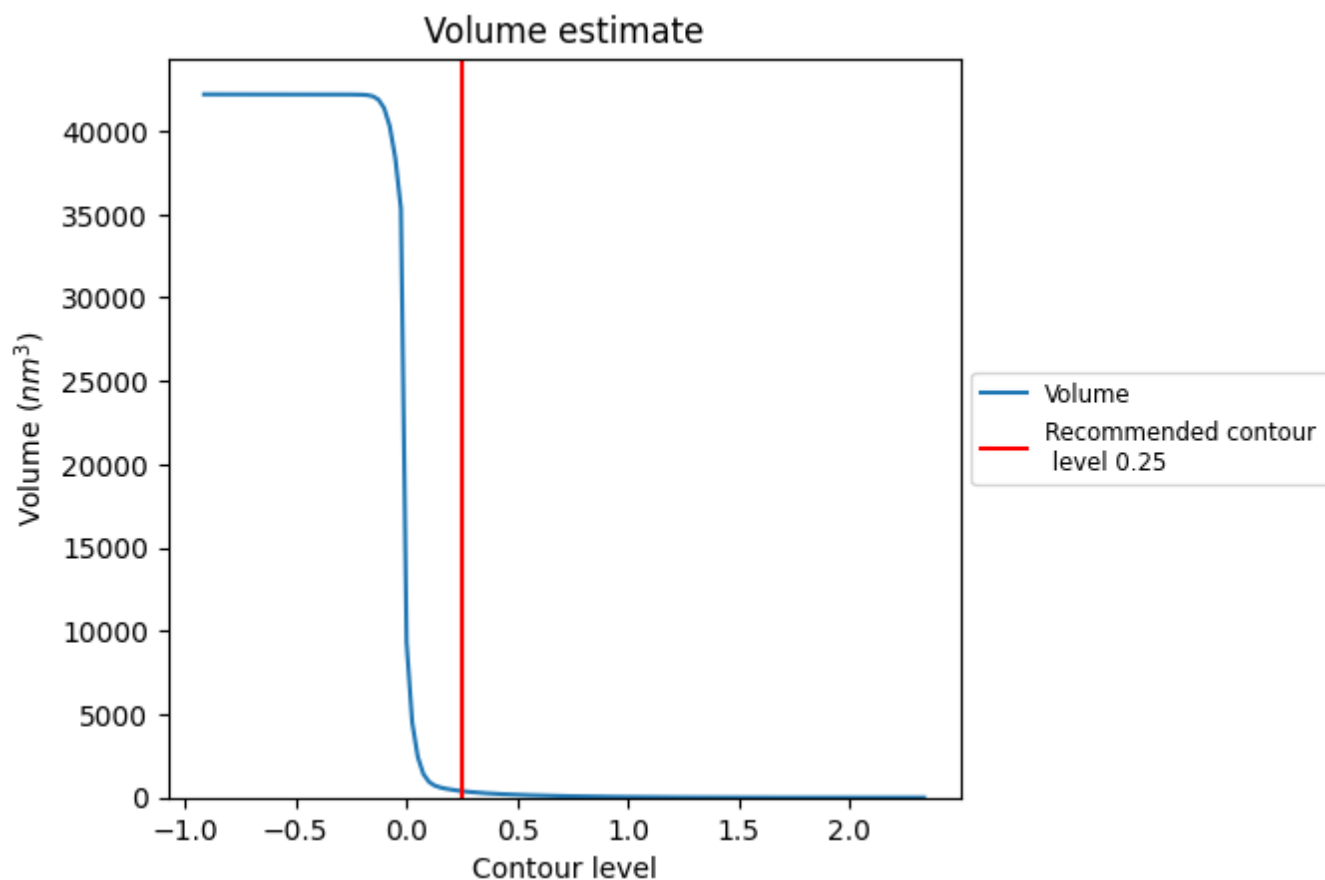
This section contains the results of statistical analysis of the map.

7.1 Map-value distribution [i](#)



The map-value distribution is plotted in 128 intervals along the x-axis. The y-axis is logarithmic. A spike in this graph at zero usually indicates that the volume has been masked.

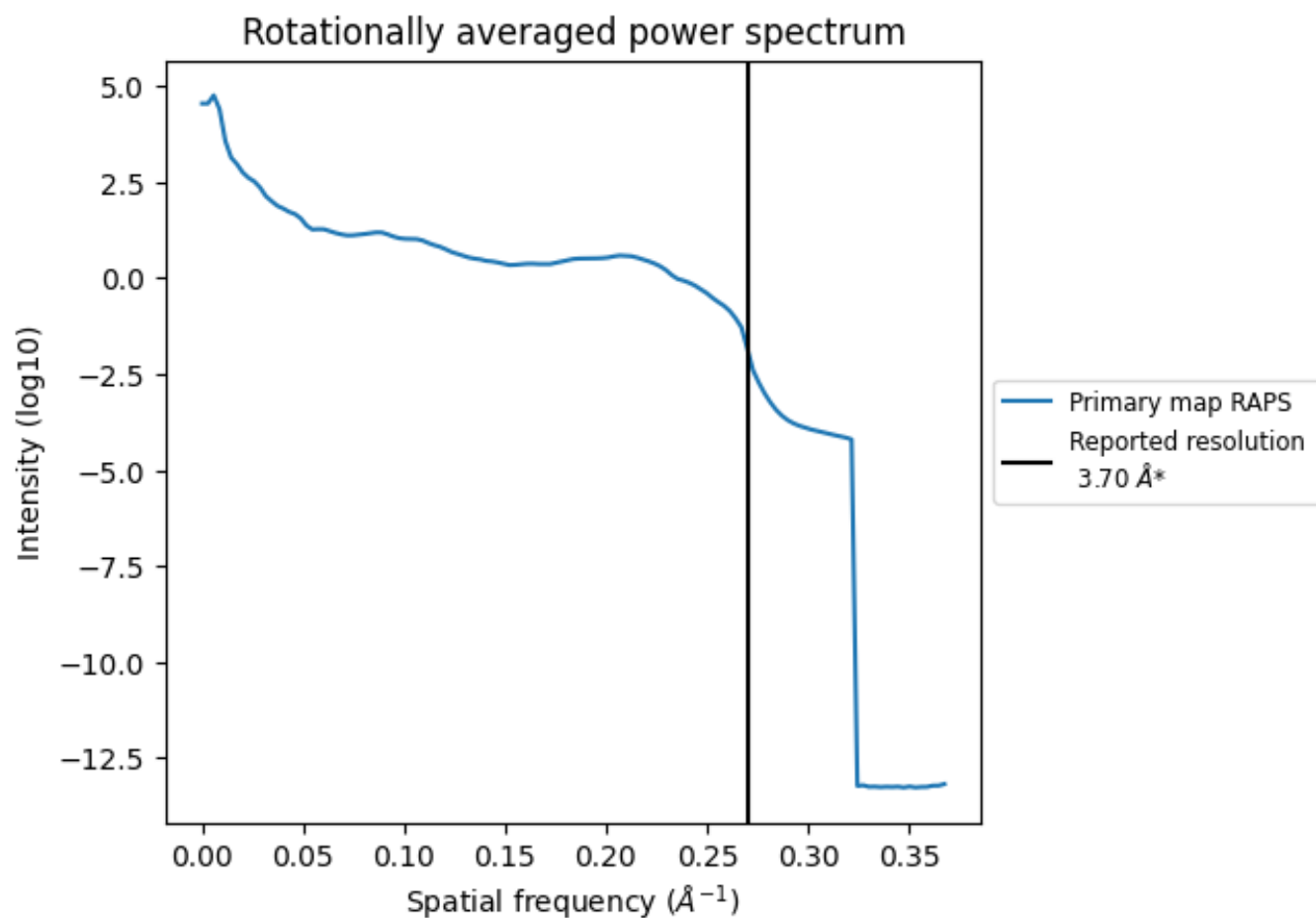
7.2 Volume estimate [i](#)



The volume at the recommended contour level is 387 nm^3 ; this corresponds to an approximate mass of 350 kDa.

The volume estimate graph shows how the enclosed volume varies with the contour level. The recommended contour level is shown as a vertical line and the intersection between the line and the curve gives the volume of the enclosed surface at the given level.

7.3 Rotationally averaged power spectrum ⓘ

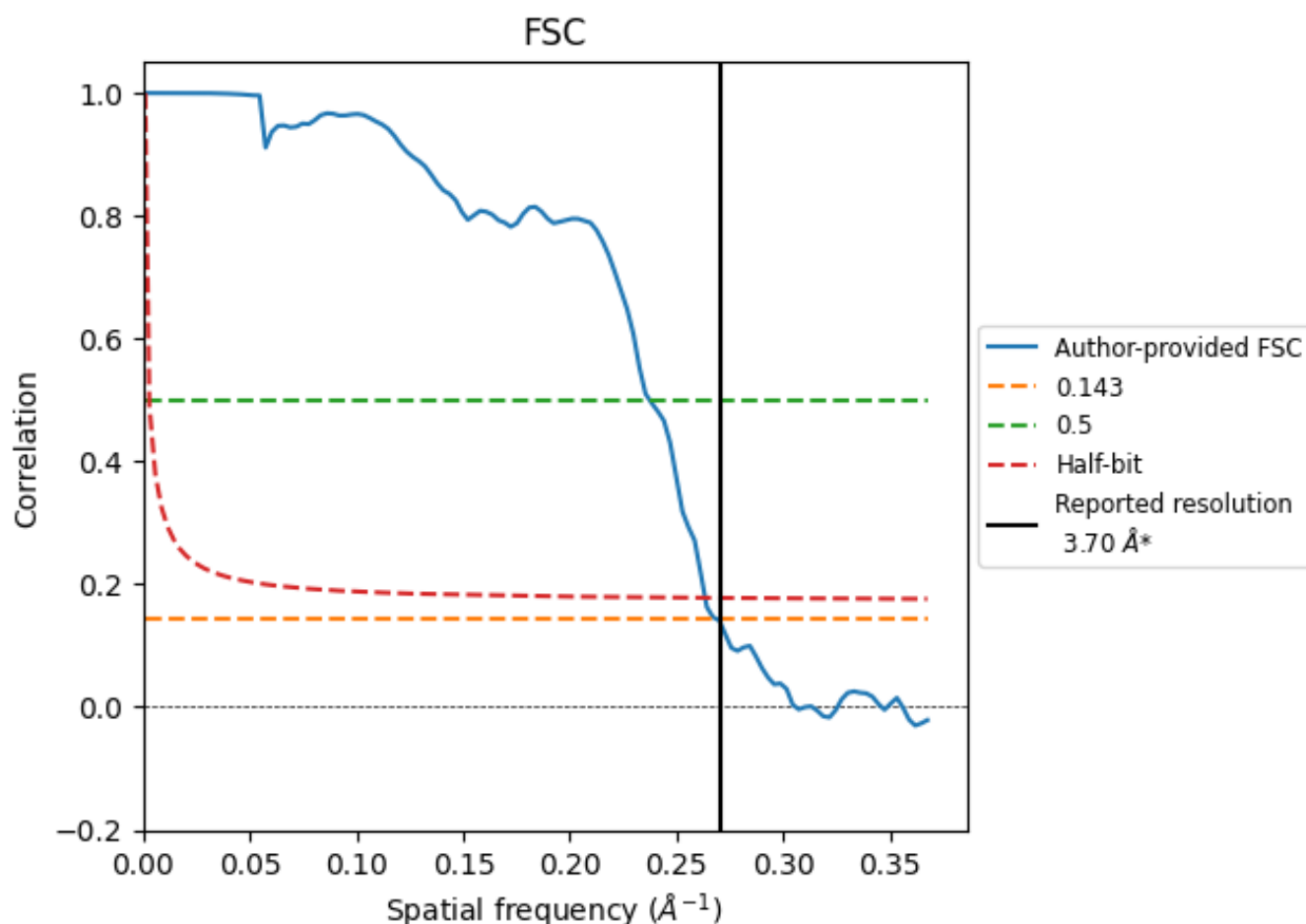


*Reported resolution corresponds to spatial frequency of 0.270 Å⁻¹

8 Fourier-Shell correlation [i](#)

Fourier-Shell Correlation (FSC) is the most commonly used method to estimate the resolution of single-particle and subtomogram-averaged maps. The shape of the curve depends on the imposed symmetry, mask and whether or not the two 3D reconstructions used were processed from a common reference. The reported resolution is shown as a black line. A curve is displayed for the half-bit criterion in addition to lines showing the 0.143 gold standard cut-off and 0.5 cut-off.

8.1 FSC [i](#)



*Reported resolution corresponds to spatial frequency of 0.270 Å⁻¹

8.2 Resolution estimates [i](#)

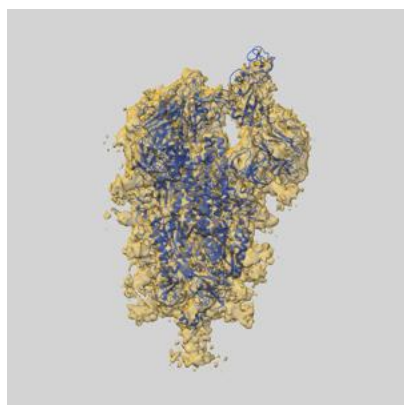
Resolution estimate (Å)	Estimation criterion (FSC cut-off)		
	0.143	0.5	Half-bit
Reported by author	3.70	-	-
Author-provided FSC curve	3.72	4.21	3.80
Unmasked-calculated*	-	-	-

*Resolution estimate based on FSC curve calculated by comparison of deposited half-maps.

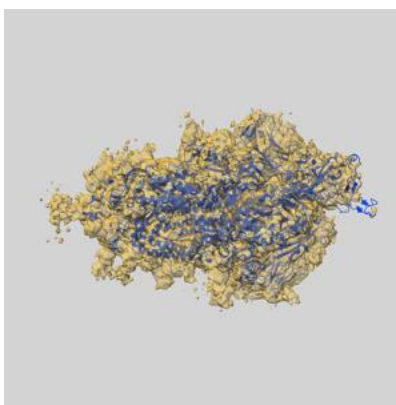
9 Map-model fit [i](#)

This section contains information regarding the fit between EMDB map EMD-31512 and PDB model 7FB1. Per-residue inclusion information can be found in section [3](#) on page [7](#).

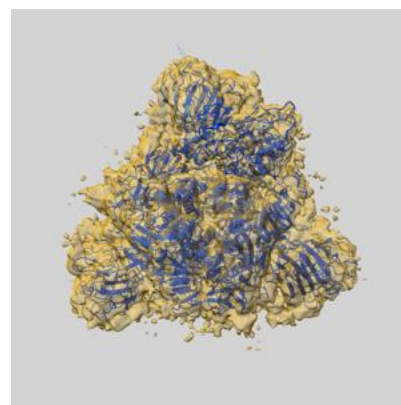
9.1 Map-model overlay [i](#)



X



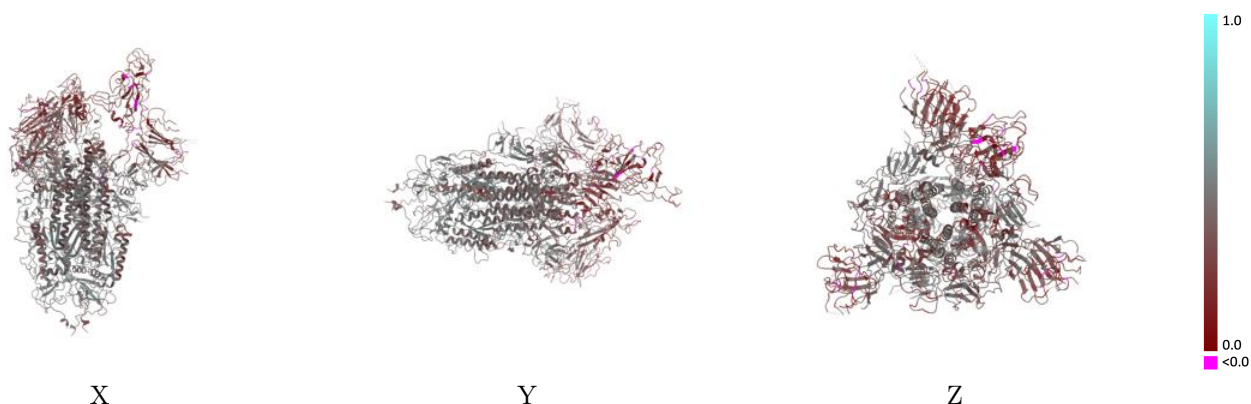
Y



Z

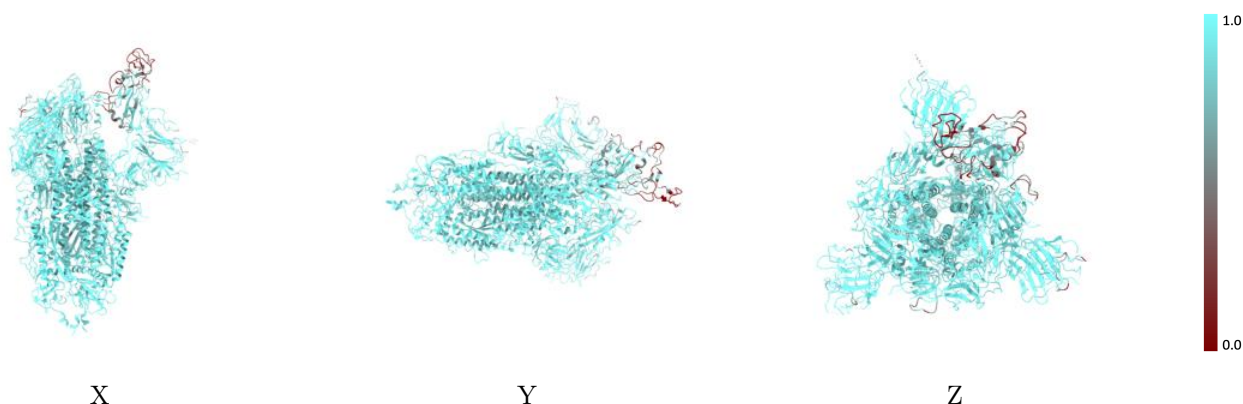
The images above show the 3D surface view of the map at the recommended contour level 0.25 at 50% transparency in yellow overlaid with a ribbon representation of the model coloured in blue. These images allow for the visual assessment of the quality of fit between the atomic model and the map.

9.2 Q-score mapped to coordinate model [i](#)



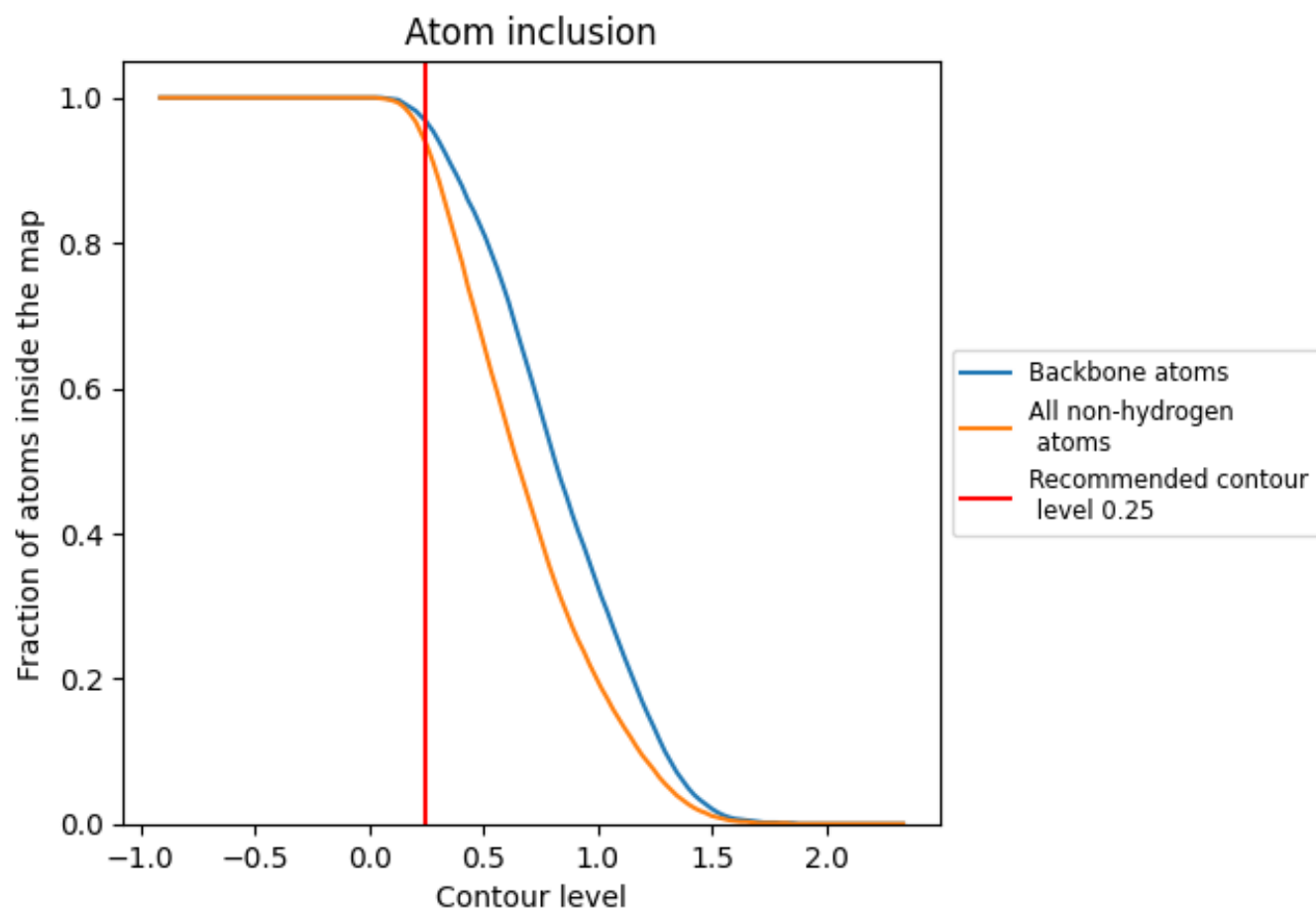
The images above show the model with each residue coloured according to its Q-score. This shows their resolvability in the map with higher Q-score values reflecting better resolvability. Please note: Q-score is calculating the resolvability of atoms, and thus high values are only expected at resolutions at which atoms can be resolved. Low Q-score values may therefore be expected for many entries.

9.3 Atom inclusion mapped to coordinate model [i](#)



The images above show the model with each residue coloured according to its atom inclusion. This shows to what extent they are inside the map at the recommended contour level (0.25).

9.4 Atom inclusion ⓘ



At the recommended contour level, 97% of all backbone atoms, 94% of all non-hydrogen atoms, are inside the map.

9.5 Map-model fit summary ⓘ

The table lists the average atom inclusion at the recommended contour level (0.25) and Q-score for the entire model and for each chain.

Chain	Atom inclusion	Q-score
All	0.9360	0.3820
A	0.9540	0.3860
B	0.8920	0.3750
C	0.9630	0.3860

