



Full wwPDB EM Validation Report ⓘ

Mar 24, 2026 – 01:26 AM UTC

PDB ID : 3DKN / pdb_00003dkn
EMDB ID : EMD-1528
Title : Sec61 in the Canine ribosome-channel complex from the endoplasmic reticulum
Authors : Menetret, J.-F.; Akey, C.
Deposited on : 2008-06-25
Resolution : 8.70 Å (reported)
Based on initial models : 1RHZ, 1S72

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.dev132
MolProbity : 4-5-2 with Phenix2.0
Percentile statistics : 20250101.v01 (using entries in the PDB archive January 1st 2025)
EM percentile statistics : 202505.v01 (Using data in the EMDB archive up until May 2025)
MapQ : 1.9.13
Ideal geometry (proteins) : Engh & Huber (2001)
Ideal geometry (DNA, RNA) : Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP) : 2.49

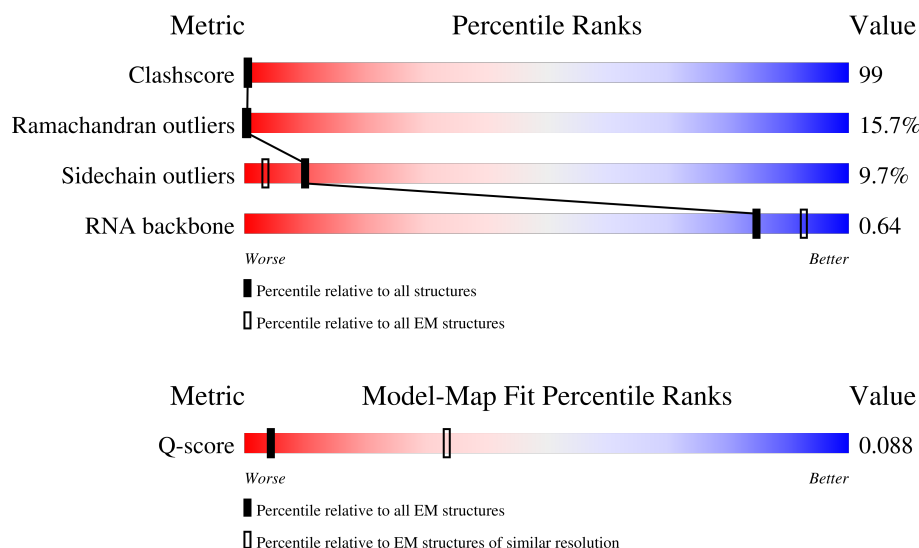
1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

ELECTRON MICROSCOPY

The reported resolution of this entry is 8.70 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)	Similar EM resolution (#Entries, resolution range(Å))
Clashscore	229148	23984	-
Ramachandran outliers	224038	23583	-
Sidechain outliers	223484	23102	-
RNA backbone	8273	3508	-
Q-score	-	25397	282 (8.20 - 9.20)

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	D	20	
2	E	17	
3	F	32	

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Mol	Chain	Length	Quality of chain
4	A	430	19% 59% 20%
5	B	65	18% 63% 18%
6	C	32	41% 47% 12%

2 Entry composition

There are 6 unique types of molecules in this entry. The entry contains 5554 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 RNA chain called RNA (5'-R(P*CP*GP*UP*GP*CP*CP*AP*AP*GP*CP*UP*GP*CP*GP*AP*UP*AP*AP*GP*C)-3').

Mol	Chain	Residues	Atoms					AltConf	Trace
1	D	20	Total	C	N	O	P	0	0
			428	191	79	138	20		

- Molecule 2 is a RNA chain called RNA (5'-R(P*AP*GP*CP*CP*GP*CP*AP*CP*GP*GP*AP*GP*GP*CP*GP*AP*A)-3').

Mol	Chain	Residues	Atoms					AltConf	Trace
2	E	17	Total	C	N	O	P	0	0
			371	165	75	114	17		

- Molecule 3 is a RNA chain called RNA (32-MER).

Mol	Chain	Residues	Atoms					AltConf	Trace
3	F	32	Total	C	N	O	P	0	0
			683	304	120	227	32		

- Molecule 4 is a protein called Preprotein translocase subunit secY.

Mol	Chain	Residues	Atoms					AltConf	Trace
4	A	430	Total	C	N	O	S	0	0
			3291	2199	518	555	19		

- Molecule 5 is a protein called Preprotein translocase subunit secE.

Mol	Chain	Residues	Atoms					AltConf	Trace
5	B	65	Total	C	N	O	S	0	0
			524	348	85	90	1		

- Molecule 6 is a protein called Preprotein translocase subunit secG.

Mol	Chain	Residues	Atoms				AltConf	Trace
6	C	32	Total	C	N	O	0	0
			257	172	42	43		

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 atom inclusion in map 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 diamond above a residue indicates a poor fit to the EM map for this residue (all-atom inclusion < 40%). 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.

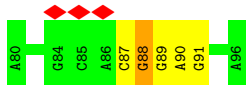
- Molecule 1: RNA (5'-R(P*CP*GP*UP*GP*CP*CP*AP*AP*GP*CP*UP*GP*CP*GP*AP*UP*AP*AP*GP*C)-3')

Chain D: 



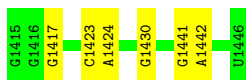
- Molecule 2: RNA (5'-R(P*AP*GP*CP*CP*GP*CP*AP*CP*GP*GP*AP*GP*GP*CP*GP*A P*A)-3')

Chain E: 

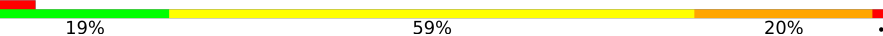


- Molecule 3: RNA (32-MER)

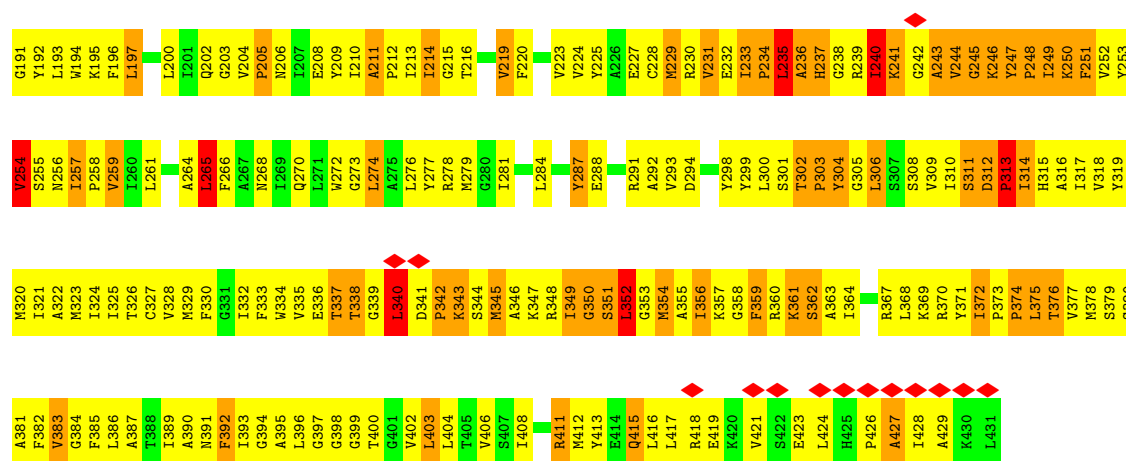
Chain F: 



- Molecule 4: Preprotein translocase subunit secY

Chain A: 

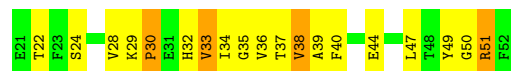




• Molecule 5: Preprotein translocase subunit secE



• Molecule 6: Preprotein translocase subunit secG



4 Experimental information

Property	Value	Source
EM reconstruction method	SINGLE PARTICLE	Depositor
Imposed symmetry	POINT, C1	Depositor
Number of particles used	79000	Depositor
Resolution determination method	Not provided	
CTF correction method	per micrograph	Depositor
Microscope	FEI TECNAI F20	Depositor
Voltage (kV)	200	Depositor
Electron dose ($e^-/\text{\AA}^2$)	15	Depositor
Minimum defocus (nm)	500	Depositor
Maximum defocus (nm)	3000	Depositor
Magnification	51000	Depositor
Image detector	KODAK SO-163 FILM	Depositor
Maximum map value	24.330	Depositor
Minimum map value	-16.948	Depositor
Average map value	0.224	Depositor
Map value standard deviation	1.528	Depositor
Recommended contour level	1	Depositor
Map size ($\text{\AA}$)	458.64, 458.64, 458.64	wwPDB
Map dimensions	168, 168, 168	wwPDB
Map angles ($^\circ$)	90, 90, 90	wwPDB
Pixel spacing ($\text{\AA}$)	2.73, 2.73, 2.73	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	D	0.33	0/478	0.58	0/743
2	E	0.36	0/416	0.55	0/648
3	F	0.36	0/762	0.62	0/1186
4	A	0.47	0/3365	0.90	17/4570 (0.4%)
5	B	0.37	0/533	0.82	0/719
6	C	0.37	0/262	1.00	2/354 (0.6%)
All	All	0.43	0/5816	0.81	19/8220 (0.2%)

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
3	F	0	2
4	A	15	0
All	All	15	2

There are no bond length outliers.

All (19) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
4	A	302	THR	CA-C-N	10.30	130.06	119.56
4	A	302	THR	C-N-CA	10.30	130.06	119.56
4	A	254	VAL	N-CA-C	-6.34	104.46	110.42
6	C	29	LYS	CA-C-N	5.78	127.07	119.84
6	C	29	LYS	C-N-CA	5.78	127.07	119.84
4	A	411	ARG	N-CA-C	-5.76	105.35	112.38
4	A	265	LEU	N-CA-C	-5.66	104.80	110.97
4	A	158	ASP	N-CA-C	-5.64	105.03	111.07
4	A	54	ALA	CB-CA-C	-5.48	110.24	116.54
4	A	392	PHE	N-CA-C	-5.45	104.38	111.02

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
4	A	204	VAL	CA-C-N	5.43	126.63	119.84
4	A	204	VAL	C-N-CA	5.43	126.63	119.84
4	A	303	PRO	N-CA-C	5.37	120.82	113.84
4	A	214	ILE	N-CA-C	-5.33	105.41	110.42
4	A	52	ILE	CA-C-N	5.29	126.45	119.84
4	A	52	ILE	C-N-CA	5.29	126.45	119.84
4	A	129	ALA	N-CA-C	-5.26	106.64	113.16
4	A	413	TYR	N-CA-C	-5.15	105.12	111.40
4	A	274	LEU	N-CA-C	-5.03	105.69	111.07

All (15) chirality outliers are listed below:

Mol	Chain	Res	Type	Atom
4	A	233	ILE	CB
4	A	234	PRO	CA
4	A	235	LEU	CA
4	A	236	ALA	CA
4	A	237	HIS	CA
4	A	240	ILE	CA
4	A	241	LYS	CA
4	A	247	TYR	CA
4	A	249	ILE	CA
4	A	251	PHE	CA
4	A	337	THR	CA
4	A	355	ALA	CA
4	A	360	ARG	CA
4	A	361	LYS	CA
4	A	362	SER	CA

All (2) planarity outliers are listed below:

Mol	Chain	Res	Type	Group
3	F	1417	G	Sidechain
3	F	1430	G	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	D	428	0	218	13	0
2	E	371	0	188	9	0
3	F	683	0	345	4	0
4	A	3291	0	3504	934	0
5	B	524	0	567	179	0
6	C	257	0	272	33	0
All	All	5554	0	5094	1049	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 99.

All (1049) 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)
5:B:22:TRP:CZ3	5:B:23:LEU:HD23	1.41	1.54
4:A:335:VAL:C	4:A:337:THR:HA	1.38	1.45
4:A:354:MET:HE1	4:A:356:ILE:CG2	1.48	1.42
4:A:188:GLY:HA2	5:B:52:TYR:CZ	1.55	1.40
5:B:35:ALA:HA	5:B:38:LYS:CE	1.52	1.39
4:A:375:LEU:CD1	4:A:379:SER:HB2	1.48	1.39
4:A:237:HIS:HB3	4:A:238:GLY:C	1.47	1.37
4:A:372:ILE:C	4:A:374:PRO:HD2	1.48	1.35
4:A:237:HIS:CG	4:A:240:ILE:HD13	1.60	1.35
4:A:237:HIS:HB2	4:A:240:ILE:CA	1.54	1.34
4:A:326:THR:CG2	4:A:330:PHE:HE1	1.40	1.34
4:A:246:LYS:CB	4:A:247:TYR:HA	1.44	1.33
4:A:188:GLY:HA2	5:B:52:TYR:CE1	1.64	1.33
4:A:246:LYS:HB2	4:A:247:TYR:CA	1.58	1.32
5:B:35:ALA:CA	5:B:38:LYS:HE2	1.61	1.31
4:A:354:MET:SD	4:A:356:ILE:HD13	1.71	1.30
4:A:233:ILE:HG12	4:A:235:LEU:N	1.46	1.28
4:A:254:VAL:HG11	4:A:375:LEU:CD1	1.64	1.27
4:A:238:GLY:C	4:A:239:ARG:HD3	1.59	1.27
4:A:250:LYS:CB	4:A:375:LEU:HD22	1.64	1.26
4:A:354:MET:SD	4:A:356:ILE:CD1	2.24	1.26
4:A:375:LEU:HD12	4:A:379:SER:CB	1.66	1.25
4:A:189:PRO:HD3	5:B:56:VAL:CG2	1.66	1.24
2:E:90:A:O2'	4:A:241:LYS:HB3	1.33	1.22
4:A:238:GLY:N	4:A:239:ARG:HA	1.45	1.21
4:A:355:ALA:O	4:A:356:ILE:HG23	1.08	1.21
4:A:234:PRO:HB2	4:A:247:TYR:CD2	1.76	1.21
4:A:237:HIS:HB3	4:A:238:GLY:CA	1.71	1.21

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
4:A:189:PRO:CD	5:B:56:VAL:HG22	1.70	1.20
4:A:355:ALA:O	4:A:356:ILE:CG2	1.88	1.20
4:A:41:GLY:CA	4:A:71:ILE:HD11	1.70	1.19
4:A:233:ILE:CG1	4:A:234:PRO:C	2.14	1.19
4:A:254:VAL:CG1	4:A:375:LEU:HD11	1.71	1.19
4:A:250:LYS:CD	4:A:375:LEU:HB3	1.73	1.19
4:A:179:SER:CB	5:B:47:LEU:HB2	1.71	1.19
4:A:356:ILE:N	4:A:357:LYS:HA	1.43	1.19
4:A:354:MET:CE	4:A:356:ILE:HG23	1.74	1.18
4:A:188:GLY:HA2	5:B:52:TYR:OH	1.41	1.18
4:A:184:VAL:HG22	5:B:52:TYR:HD1	1.01	1.17
4:A:188:GLY:CA	5:B:52:TYR:CE1	2.27	1.17
4:A:237:HIS:HA	4:A:241:LYS:N	1.60	1.16
4:A:189:PRO:CG	5:B:56:VAL:HG22	1.74	1.16
5:B:22:TRP:CE3	5:B:23:LEU:HD23	1.81	1.16
4:A:180:GLN:HG3	5:B:51:GLY:HA3	1.27	1.15
4:A:250:LYS:HD3	4:A:375:LEU:HB3	1.27	1.15
4:A:237:HIS:CB	4:A:240:ILE:HD13	1.74	1.15
4:A:243:ALA:HB1	4:A:356:ILE:HD12	1.18	1.15
4:A:356:ILE:H	4:A:357:LYS:CA	1.57	1.15
4:A:180:GLN:CG	5:B:51:GLY:HA3	1.76	1.15
4:A:250:LYS:HD3	4:A:375:LEU:CB	1.75	1.15
4:A:336:GLU:N	4:A:337:THR:HA	1.57	1.15
4:A:237:HIS:CG	4:A:240:ILE:CD1	2.30	1.15
4:A:184:VAL:HG22	5:B:52:TYR:CD1	1.83	1.14
4:A:247:TYR:HB3	4:A:248:PRO:CD	1.77	1.14
4:A:326:THR:CG2	4:A:330:PHE:CE1	2.30	1.13
4:A:237:HIS:HB2	4:A:240:ILE:C	1.75	1.12
4:A:41:GLY:HA2	4:A:71:ILE:HD11	1.30	1.11
4:A:250:LYS:CD	4:A:375:LEU:CB	2.27	1.11
4:A:326:THR:HG22	4:A:330:PHE:CE1	1.85	1.11
4:A:329:MET:HG3	4:A:333:PHE:HE1	1.07	1.11
4:A:180:GLN:CA	5:B:48:GLY:HA2	1.79	1.11
4:A:250:LYS:HD3	4:A:375:LEU:CD2	1.80	1.10
4:A:249:ILE:HG22	4:A:250:LYS:H	0.99	1.10
4:A:254:VAL:HG11	4:A:375:LEU:HD11	1.14	1.10
4:A:373:PRO:N	4:A:374:PRO:HD2	1.66	1.10
4:A:233:ILE:HG12	4:A:234:PRO:C	1.71	1.10
4:A:333:PHE:O	4:A:337:THR:HG21	1.51	1.10
4:A:189:PRO:CD	5:B:56:VAL:CG2	2.28	1.09
4:A:370:ARG:O	4:A:373:PRO:HD2	1.52	1.09

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
4:A:243:ALA:HB1	4:A:356:ILE:CD1	1.83	1.09
4:A:84:ILE:HD12	4:A:114:LEU:HD21	1.31	1.09
5:B:22:TRP:CZ3	5:B:23:LEU:CD2	2.36	1.09
4:A:245:GLY:O	4:A:246:LYS:O	1.71	1.08
4:A:369:LYS:O	4:A:372:ILE:HG22	1.54	1.08
4:A:219:VAL:CG1	4:A:402:VAL:HG21	1.83	1.07
4:A:250:LYS:HB3	4:A:375:LEU:CD2	1.85	1.07
4:A:334:TRP:C	4:A:337:THR:HG22	1.80	1.07
4:A:354:MET:SD	4:A:356:ILE:CG1	2.43	1.07
4:A:354:MET:CE	4:A:356:ILE:CG2	2.31	1.07
4:A:189:PRO:HD3	5:B:56:VAL:HG21	1.33	1.07
4:A:231:VAL:CG2	4:A:249:ILE:HA	1.85	1.06
4:A:239:ARG:N	4:A:240:ILE:HA	1.65	1.06
4:A:322:ALA:O	4:A:325:ILE:HG12	1.54	1.06
4:A:375:LEU:CD1	4:A:379:SER:CB	2.30	1.05
4:A:238:GLY:CA	4:A:239:ARG:HD3	1.85	1.05
4:A:250:LYS:CG	4:A:375:LEU:HD22	1.86	1.05
4:A:180:GLN:HA	5:B:48:GLY:HA2	1.33	1.05
4:A:250:LYS:HB3	4:A:375:LEU:HD22	1.09	1.05
4:A:44:ASP:OD1	5:B:62:LYS:HD3	1.57	1.05
4:A:349:ILE:HG22	4:A:350:GLY:H	1.21	1.04
4:A:41:GLY:HA2	4:A:71:ILE:CD1	1.87	1.04
4:A:237:HIS:CB	4:A:238:GLY:C	2.30	1.04
4:A:244:VAL:CA	4:A:352:LEU:HG	1.87	1.04
4:A:346:ALA:HA	4:A:349:ILE:HD12	1.37	1.04
4:A:329:MET:CG	4:A:333:PHE:HE1	1.70	1.04
4:A:228:CYS:O	4:A:230:ARG:HG3	1.57	1.03
4:A:234:PRO:CB	4:A:247:TYR:CD2	2.39	1.03
4:A:234:PRO:HG3	4:A:235:LEU:CD1	1.88	1.03
4:A:234:PRO:HA	4:A:246:LYS:HB3	1.39	1.03
4:A:335:VAL:C	4:A:337:THR:CA	2.30	1.03
4:A:237:HIS:CB	4:A:240:ILE:HA	1.87	1.03
4:A:345:MET:O	4:A:349:ILE:HG13	1.58	1.03
4:A:341:ASP:O	4:A:345:MET:HG3	1.59	1.03
5:B:22:TRP:CG	5:B:23:LEU:H	1.76	1.03
4:A:329:MET:HG3	4:A:333:PHE:CE1	1.94	1.02
4:A:244:VAL:HG12	4:A:245:GLY:H	1.24	1.02
4:A:354:MET:SD	4:A:356:ILE:HG12	1.99	1.02
4:A:237:HIS:HB2	4:A:240:ILE:HA	1.04	1.02
4:A:250:LYS:HD3	4:A:375:LEU:HD23	1.37	1.01
4:A:326:THR:HG23	4:A:330:PHE:HE1	1.26	1.01

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
4:A:231:VAL:HG21	4:A:249:ILE:HG13	1.40	1.01
4:A:41:GLY:CA	4:A:71:ILE:CD1	2.38	1.01
4:A:231:VAL:HG12	4:A:232:GLU:H	0.88	1.01
4:A:219:VAL:HG11	4:A:402:VAL:HG21	1.05	1.01
4:A:237:HIS:HA	4:A:241:LYS:C	1.86	1.01
4:A:62:ILE:HD12	4:A:62:ILE:H	1.24	1.00
4:A:231:VAL:HG12	4:A:232:GLU:N	1.67	1.00
4:A:326:THR:HG22	4:A:330:PHE:HE1	1.21	1.00
4:A:234:PRO:HG3	4:A:235:LEU:HD13	1.42	1.00
4:A:340:LEU:HD22	4:A:372:ILE:HD11	1.43	1.00
4:A:11:ILE:HD11	4:A:113:LEU:HD23	1.44	1.00
5:B:22:TRP:CD2	5:B:23:LEU:N	2.30	1.00
4:A:329:MET:O	4:A:333:PHE:HD1	1.45	0.99
4:A:367:ARG:CD	4:A:371:TYR:CE2	2.45	0.99
4:A:16:LEU:HD23	4:A:16:LEU:H	1.25	0.99
4:A:233:ILE:CG1	4:A:235:LEU:N	2.24	0.99
2:E:90:A:H4'	4:A:241:LYS:HD3	1.41	0.99
5:B:22:TRP:HZ3	5:B:23:LEU:CD2	1.74	0.99
4:A:231:VAL:CG1	4:A:232:GLU:H	1.72	0.99
4:A:329:MET:CG	4:A:333:PHE:CE1	2.46	0.99
4:A:180:GLN:HG3	5:B:51:GLY:CA	1.92	0.98
5:B:20:ARG:H	5:B:20:ARG:HD2	1.26	0.98
4:A:180:GLN:N	5:B:48:GLY:HA2	1.76	0.98
4:A:233:ILE:CG1	4:A:234:PRO:CA	2.41	0.98
4:A:287:TYR:HA	4:A:292:ALA:HA	1.46	0.98
4:A:334:TRP:CA	4:A:337:THR:HG22	1.94	0.98
4:A:244:VAL:HA	4:A:352:LEU:CG	1.93	0.97
4:A:354:MET:HE1	4:A:356:ILE:HG23	0.98	0.97
4:A:234:PRO:HB2	4:A:247:TYR:HD2	1.20	0.97
4:A:243:ALA:CB	4:A:356:ILE:HD12	1.93	0.97
4:A:391:ASN:HD21	4:A:400:THR:N	1.63	0.97
5:B:30:LYS:H	5:B:30:LYS:HD3	1.29	0.97
4:A:335:VAL:HA	4:A:338:THR:H	1.26	0.97
4:A:233:ILE:HG13	4:A:234:PRO:C	1.86	0.97
4:A:65:SER:HB3	4:A:74:GLY:HA3	1.48	0.96
4:A:98:LEU:HA	4:A:103:ASN:HB2	1.46	0.96
4:A:239:ARG:H	4:A:240:ILE:HG23	1.29	0.96
4:A:249:ILE:HG22	4:A:250:LYS:N	1.81	0.96
4:A:369:LYS:O	4:A:373:PRO:HD3	1.66	0.95
4:A:179:SER:OG	5:B:47:LEU:HB2	1.64	0.95
4:A:372:ILE:C	4:A:374:PRO:CD	2.38	0.95

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
4:A:247:TYR:CB	4:A:248:PRO:CD	2.43	0.95
4:A:372:ILE:H	4:A:373:PRO:CD	1.79	0.95
4:A:424:LEU:O	4:A:426:PRO:HD3	1.67	0.95
4:A:182:ILE:CD1	4:A:220:PHE:HZ	1.79	0.94
4:A:349:ILE:HG22	4:A:350:GLY:N	1.81	0.94
4:A:180:GLN:CD	5:B:51:GLY:HA3	1.93	0.94
4:A:254:VAL:HB	4:A:375:LEU:HD21	1.49	0.94
4:A:367:ARG:HD3	4:A:371:TYR:CE2	2.03	0.94
4:A:237:HIS:CA	4:A:241:LYS:N	2.30	0.94
2:E:90:A:HO2'	4:A:241:LYS:HB3	1.33	0.93
4:A:238:GLY:N	4:A:239:ARG:CA	2.30	0.93
4:A:373:PRO:N	4:A:374:PRO:CD	2.30	0.93
5:B:22:TRP:CE3	5:B:23:LEU:N	2.36	0.93
4:A:237:HIS:HA	4:A:241:LYS:CA	1.98	0.93
4:A:244:VAL:HA	4:A:352:LEU:HG	0.97	0.93
4:A:336:GLU:N	4:A:337:THR:CA	2.30	0.93
4:A:351:SER:C	4:A:352:LEU:HD13	1.94	0.92
4:A:247:TYR:HB3	4:A:248:PRO:HD3	1.50	0.92
4:A:354:MET:HE1	4:A:356:ILE:HG21	1.50	0.92
4:A:67:ILE:HA	4:A:72:THR:HG23	1.48	0.92
4:A:41:GLY:O	4:A:66:ARG:HD2	1.69	0.92
4:A:354:MET:HE1	4:A:355:ALA:O	1.69	0.92
4:A:233:ILE:HG13	4:A:234:PRO:HA	1.51	0.92
4:A:244:VAL:HG12	4:A:245:GLY:N	1.81	0.92
4:A:233:ILE:HG13	4:A:234:PRO:CA	2.00	0.91
4:A:250:LYS:HD2	4:A:375:LEU:HB3	1.52	0.91
4:A:336:GLU:HB2	4:A:337:THR:HB	1.53	0.91
4:A:73:LEU:HD21	4:A:122:GLU:HB2	1.53	0.91
4:A:34:LEU:HG	4:A:38:PHE:HE1	1.35	0.91
4:A:329:MET:O	4:A:333:PHE:CD1	2.24	0.91
4:A:41:GLY:HA3	4:A:71:ILE:HD11	1.49	0.91
4:A:231:VAL:O	4:A:232:GLU:HG3	1.69	0.91
4:A:250:LYS:CD	4:A:375:LEU:CD2	2.47	0.90
4:A:231:VAL:HB	4:A:248:PRO:O	1.71	0.90
4:A:250:LYS:CG	4:A:375:LEU:CD2	2.48	0.90
4:A:250:LYS:CD	4:A:375:LEU:HD23	2.01	0.90
4:A:367:ARG:HD2	4:A:371:TYR:CE2	2.06	0.90
4:A:237:HIS:C	4:A:239:ARG:HA	1.96	0.90
4:A:238:GLY:HA2	4:A:239:ARG:HD3	1.54	0.90
4:A:367:ARG:CD	4:A:371:TYR:HE2	1.81	0.90
4:A:247:TYR:HB3	4:A:248:PRO:HD2	1.50	0.90

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
5:B:35:ALA:HA	5:B:38:LYS:HE2	0.91	0.90
4:A:233:ILE:HD11	4:A:235:LEU:HA	1.54	0.90
4:A:250:LYS:HD3	4:A:375:LEU:CG	2.02	0.90
4:A:13:GLU:HG3	4:A:14:VAL:H	1.35	0.89
4:A:231:VAL:HG23	4:A:249:ILE:HA	1.52	0.89
4:A:372:ILE:H	4:A:373:PRO:HD3	1.35	0.89
4:A:188:GLY:CA	5:B:52:TYR:HE1	1.77	0.89
4:A:223:VAL:HG11	4:A:403:LEU:HA	1.55	0.89
4:A:360:ARG:O	4:A:361:LYS:HG2	1.73	0.89
4:A:189:PRO:HG2	5:B:56:VAL:HG22	1.53	0.88
4:A:254:VAL:CB	4:A:375:LEU:HD21	2.02	0.88
4:A:80:THR:HG23	4:A:268:ASN:ND2	1.88	0.88
4:A:124:VAL:HG22	4:A:144:ILE:HD13	1.51	0.88
4:A:239:ARG:H	4:A:240:ILE:CG2	1.87	0.88
4:A:39:ILE:O	4:A:42:CYS:SG	2.30	0.88
4:A:355:ALA:C	4:A:356:ILE:HG23	1.98	0.88
4:A:188:GLY:HA3	5:B:52:TYR:HE1	1.37	0.88
4:A:237:HIS:CB	4:A:240:ILE:C	2.47	0.88
1:D:58:C:O2'	4:A:356:ILE:HA	1.74	0.87
4:A:341:ASP:O	4:A:345:MET:CG	2.22	0.87
4:A:157:LEU:HD23	4:A:160:ILE:HD12	1.53	0.87
4:A:82:GLY:HA2	4:A:111:GLN:NE2	1.88	0.87
4:A:249:ILE:CG2	4:A:250:LYS:H	1.84	0.87
4:A:369:LYS:C	4:A:372:ILE:HG22	2.00	0.87
4:A:231:VAL:HG21	4:A:249:ILE:CG1	2.03	0.87
4:A:82:GLY:HA2	4:A:111:GLN:HE21	1.38	0.86
4:A:250:LYS:HD2	4:A:375:LEU:CB	2.04	0.86
4:A:195:LYS:HB3	4:A:209:TYR:CD2	2.09	0.86
4:A:46:TYR:HB3	4:A:146:GLN:HE22	1.38	0.86
4:A:334:TRP:CA	4:A:337:THR:CG2	2.53	0.86
4:A:180:GLN:HA	5:B:48:GLY:CA	2.06	0.86
4:A:188:GLY:CA	5:B:52:TYR:OH	2.22	0.85
4:A:237:HIS:HB3	4:A:238:GLY:HA3	1.56	0.85
4:A:183:PHE:CD2	5:B:49:ILE:HA	2.12	0.85
4:A:219:VAL:HG11	4:A:402:VAL:CG2	2.01	0.85
4:A:334:TRP:C	4:A:337:THR:CG2	2.49	0.85
4:A:233:ILE:HG12	4:A:234:PRO:CA	2.07	0.85
4:A:179:SER:CB	5:B:47:LEU:CB	2.53	0.84
4:A:358:GLY:O	4:A:359:PHE:CG	2.30	0.84
4:A:358:GLY:O	4:A:359:PHE:CD1	2.30	0.84
4:A:188:GLY:CA	5:B:52:TYR:CZ	2.51	0.84

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
4:A:188:GLY:HA3	5:B:52:TYR:CE1	2.10	0.84
4:A:179:SER:HB3	5:B:44:ILE:O	1.78	0.84
4:A:179:SER:HB2	5:B:47:LEU:HB2	1.59	0.84
4:A:239:ARG:N	4:A:240:ILE:CA	2.42	0.83
6:C:44:GLU:HA	6:C:47:LEU:HB3	1.58	0.83
4:A:62:ILE:H	4:A:62:ILE:CD1	1.91	0.83
5:B:34:LEU:O	5:B:38:LYS:HG3	1.77	0.83
4:A:360:ARG:HD3	4:A:364:ILE:HD11	1.61	0.83
4:A:153:ILE:HD13	6:C:37:THR:HG23	1.59	0.82
4:A:334:TRP:HA	4:A:337:THR:CG2	2.09	0.82
5:B:22:TRP:HZ3	5:B:23:LEU:HD23	0.99	0.82
4:A:246:LYS:HG3	4:A:247:TYR:O	1.78	0.82
4:A:329:MET:HG2	4:A:333:PHE:CE1	2.14	0.82
4:A:233:ILE:HG12	4:A:235:LEU:H	1.42	0.82
2:E:91:G:H4'	4:A:240:ILE:H	1.43	0.82
4:A:29:TRP:O	4:A:32:ILE:HG22	1.79	0.82
4:A:314:ILE:HD12	4:A:315:HIS:H	1.42	0.82
4:A:38:PHE:CD2	5:B:51:GLY:HA2	2.14	0.82
4:A:372:ILE:N	4:A:373:PRO:CD	2.42	0.82
5:B:20:ARG:H	5:B:20:ARG:CD	1.93	0.82
4:A:179:SER:HB2	5:B:47:LEU:CB	2.10	0.81
4:A:403:LEU:C	4:A:403:LEU:HD23	2.05	0.81
1:D:57:C:H1'	4:A:237:HIS:CE1	2.16	0.81
4:A:326:THR:O	4:A:330:PHE:HD1	1.63	0.81
4:A:227:GLU:HA	4:A:252:VAL:HG21	1.61	0.81
5:B:22:TRP:CE3	5:B:23:LEU:CD2	2.63	0.81
4:A:231:VAL:HG21	4:A:249:ILE:CB	2.11	0.80
4:A:346:ALA:HA	4:A:349:ILE:CD1	2.10	0.80
4:A:352:LEU:O	4:A:352:LEU:HD22	1.82	0.80
4:A:63:THR:HG23	4:A:76:GLY:H	1.46	0.80
5:B:40:THR:O	5:B:44:ILE:HG13	1.81	0.80
4:A:238:GLY:O	4:A:240:ILE:CD1	2.30	0.80
4:A:231:VAL:O	4:A:232:GLU:CG	2.30	0.80
4:A:33:VAL:HG21	4:A:161:VAL:HG22	1.63	0.80
4:A:246:LYS:CD	4:A:247:TYR:O	2.30	0.79
4:A:238:GLY:H	4:A:239:ARG:HA	1.47	0.79
4:A:352:LEU:O	4:A:352:LEU:CD2	2.30	0.79
4:A:90:GLY:HA3	4:A:333:PHE:HD2	1.48	0.79
4:A:233:ILE:HG22	4:A:246:LYS:HD3	1.65	0.79
4:A:238:GLY:HA2	4:A:239:ARG:CD	2.13	0.79
4:A:333:PHE:O	4:A:337:THR:CG2	2.30	0.79

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
4:A:354:MET:CE	4:A:355:ALA:O	2.30	0.79
5:B:30:LYS:H	5:B:30:LYS:CD	1.96	0.79
4:A:98:LEU:HA	4:A:103:ASN:CB	2.13	0.78
4:A:335:VAL:N	4:A:337:THR:HG22	1.98	0.78
4:A:372:ILE:CA	4:A:374:PRO:HD2	2.11	0.78
4:A:370:ARG:O	4:A:373:PRO:CD	2.30	0.78
4:A:65:SER:O	4:A:66:ARG:HB2	1.81	0.78
4:A:240:ILE:HG12	4:A:240:ILE:O	1.83	0.78
4:A:234:PRO:CB	4:A:247:TYR:CE2	2.67	0.78
4:A:41:GLY:O	4:A:69:THR:HG21	1.83	0.78
4:A:62:ILE:HD12	4:A:62:ILE:N	1.98	0.78
4:A:33:VAL:HG13	4:A:157:LEU:HD22	1.66	0.78
5:B:42:LEU:HD13	5:B:42:LEU:C	2.08	0.78
4:A:359:PHE:O	4:A:360:ARG:HB3	1.83	0.78
4:A:360:ARG:O	4:A:361:LYS:CG	2.31	0.77
4:A:195:LYS:HD3	4:A:209:TYR:HE2	1.46	0.77
4:A:340:LEU:H	4:A:340:LEU:HD12	1.50	0.77
4:A:250:LYS:HE3	4:A:372:ILE:CG1	2.15	0.77
4:A:238:GLY:C	4:A:239:ARG:CD	2.52	0.77
4:A:246:LYS:CB	4:A:247:TYR:CA	2.30	0.77
4:A:356:ILE:N	4:A:357:LYS:CA	2.30	0.77
5:B:35:ALA:N	5:B:38:LYS:HE2	1.99	0.77
4:A:246:LYS:CG	4:A:247:TYR:O	2.34	0.76
4:A:157:LEU:O	4:A:161:VAL:HG23	1.84	0.76
4:A:237:HIS:HB3	4:A:238:GLY:O	1.86	0.76
4:A:75:ILE:HG22	4:A:79:VAL:HG23	1.68	0.76
4:A:79:VAL:O	4:A:83:ILE:HG13	1.86	0.76
4:A:250:LYS:CB	4:A:375:LEU:HB2	2.14	0.75
4:A:182:ILE:CD1	4:A:220:PHE:CZ	2.68	0.75
4:A:354:MET:CE	4:A:356:ILE:HG21	2.12	0.75
4:A:65:SER:HB2	4:A:71:ILE:O	1.85	0.75
4:A:326:THR:HG23	4:A:330:PHE:CE1	2.09	0.75
5:B:22:TRP:CE3	5:B:23:LEU:CA	2.70	0.75
4:A:250:LYS:CD	4:A:375:LEU:HB2	2.16	0.75
4:A:367:ARG:HD3	4:A:371:TYR:HE2	1.42	0.75
5:B:20:ARG:HD2	5:B:20:ARG:N	1.99	0.75
4:A:335:VAL:CA	4:A:337:THR:HA	2.17	0.75
4:A:189:PRO:CG	5:B:56:VAL:CG2	2.57	0.74
4:A:237:HIS:ND1	4:A:240:ILE:HG12	2.02	0.74
4:A:183:PHE:CE2	5:B:52:TYR:CD2	2.76	0.74
4:A:375:LEU:HG	4:A:376:THR:H	1.52	0.73

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
6:C:36:VAL:O	6:C:39:ALA:HB3	1.88	0.73
2:E:90:A:O2'	4:A:241:LYS:CB	2.27	0.73
4:A:251:PHE:CZ	4:A:375:LEU:HA	2.23	0.73
4:A:231:VAL:CG2	4:A:249:ILE:CA	2.66	0.73
4:A:182:ILE:HD11	4:A:220:PHE:HZ	1.53	0.73
4:A:325:ILE:HG13	4:A:326:THR:N	2.04	0.73
4:A:234:PRO:HG2	4:A:247:TYR:HE2	1.54	0.72
4:A:254:VAL:HG11	4:A:375:LEU:CD2	2.19	0.72
4:A:183:PHE:HE2	5:B:52:TYR:CD2	2.06	0.72
4:A:254:VAL:HG21	4:A:375:LEU:HG	1.70	0.72
4:A:360:ARG:HG2	4:A:364:ILE:HG13	1.70	0.72
5:B:30:LYS:O	5:B:34:LEU:HG	1.88	0.72
4:A:179:SER:HB3	5:B:48:GLY:N	2.05	0.72
4:A:103:ASN:HA	4:A:106:LEU:HD12	1.69	0.72
4:A:85:MET:HE2	4:A:111:GLN:HB2	1.71	0.72
4:A:231:VAL:HG21	4:A:249:ILE:HA	1.71	0.72
4:A:399:GLY:O	4:A:402:VAL:HG22	1.90	0.71
4:A:238:GLY:O	4:A:240:ILE:HD13	1.90	0.71
4:A:102:GLU:O	4:A:106:LEU:HG	1.91	0.71
4:A:38:PHE:HD2	5:B:51:GLY:HA2	1.54	0.71
4:A:15:GLU:OE1	4:A:17:PRO:HG3	1.90	0.71
4:A:41:GLY:HA2	4:A:71:ILE:CG1	2.19	0.71
4:A:179:SER:C	5:B:48:GLY:HA2	2.14	0.71
4:A:233:ILE:CG1	4:A:234:PRO:HA	2.13	0.71
4:A:349:ILE:CG2	4:A:350:GLY:H	1.94	0.71
4:A:90:GLY:CA	4:A:333:PHE:HD2	2.04	0.71
4:A:391:ASN:HD21	4:A:400:THR:H	1.37	0.71
4:A:254:VAL:CG1	4:A:375:LEU:HD21	2.21	0.70
4:A:355:ALA:HB1	4:A:357:LYS:HG3	1.73	0.70
4:A:250:LYS:HB3	4:A:375:LEU:CG	2.21	0.70
4:A:180:GLN:CD	5:B:51:GLY:CA	2.65	0.70
5:B:36:VAL:O	5:B:39:VAL:HG12	1.90	0.70
4:A:229:MET:O	4:A:230:ARG:HG3	1.91	0.70
4:A:335:VAL:CA	4:A:338:THR:H	2.04	0.70
5:B:52:TYR:CE1	5:B:56:VAL:HG21	2.25	0.70
4:A:238:GLY:C	4:A:240:ILE:HA	2.16	0.70
4:A:44:ASP:CG	5:B:62:LYS:HD3	2.16	0.70
4:A:274:LEU:O	4:A:277:TYR:HB3	1.91	0.70
4:A:3:LYS:HE3	4:A:3:LYS:HA	1.74	0.70
4:A:322:ALA:O	4:A:325:ILE:CG1	2.38	0.70
4:A:391:ASN:ND2	4:A:400:THR:N	2.40	0.70

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
4:A:398:GLY:O	4:A:402:VAL:HG13	1.92	0.69
4:A:406:VAL:HG13	5:B:40:THR:CG2	2.22	0.69
4:A:152:ILE:HD13	4:A:155:ILE:HD12	1.72	0.69
4:A:256:ASN:N	4:A:258:PRO:HD2	2.07	0.69
4:A:16:LEU:HD23	4:A:16:LEU:N	2.05	0.69
4:A:65:SER:O	4:A:66:ARG:CB	2.40	0.69
4:A:234:PRO:CA	4:A:246:LYS:HB3	2.22	0.69
4:A:404:LEU:O	4:A:408:ILE:HG13	1.92	0.69
4:A:63:THR:HG23	4:A:76:GLY:N	2.08	0.69
4:A:184:VAL:CG2	5:B:52:TYR:CD1	2.72	0.69
4:A:246:LYS:HD2	4:A:247:TYR:O	1.93	0.69
4:A:273:GLY:HA2	4:A:284:LEU:HD12	1.74	0.69
4:A:375:LEU:HG	4:A:376:THR:N	2.08	0.69
4:A:353:GLY:O	4:A:354:MET:HB3	1.93	0.69
4:A:369:LYS:HA	4:A:372:ILE:HG21	1.75	0.68
4:A:239:ARG:HD3	4:A:239:ARG:N	2.09	0.68
4:A:243:ALA:HB1	4:A:356:ILE:CG1	2.22	0.68
4:A:250:LYS:O	4:A:251:PHE:HB2	1.93	0.68
4:A:375:LEU:HD11	4:A:379:SER:CB	2.20	0.68
4:A:239:ARG:N	4:A:240:ILE:HG23	2.06	0.68
5:B:22:TRP:CE3	5:B:23:LEU:HA	2.28	0.68
4:A:320:MET:O	4:A:324:ILE:HG12	1.94	0.68
4:A:340:LEU:HD12	4:A:340:LEU:N	2.09	0.68
4:A:352:LEU:HD13	4:A:352:LEU:N	2.07	0.68
4:A:195:LYS:HD3	4:A:209:TYR:CE2	2.26	0.68
4:A:235:LEU:N	4:A:235:LEU:HD12	2.09	0.68
4:A:80:THR:HA	4:A:83:ILE:HD12	1.76	0.68
4:A:166:ILE:HD13	4:A:416:LEU:CD2	2.23	0.68
4:A:234:PRO:HG2	4:A:247:TYR:CE2	2.28	0.68
4:A:358:GLY:C	4:A:359:PHE:CD1	2.72	0.68
4:A:238:GLY:O	4:A:240:ILE:HD12	1.93	0.68
4:A:369:LYS:HA	4:A:372:ILE:CG2	2.24	0.68
4:A:403:LEU:HD23	4:A:403:LEU:O	1.94	0.67
4:A:367:ARG:HD3	4:A:371:TYR:CD2	2.29	0.67
4:A:257:ILE:HG22	4:A:258:PRO:HD3	1.76	0.67
4:A:268:ASN:O	4:A:272:TRP:HB2	1.95	0.67
4:A:326:THR:O	4:A:330:PHE:CD1	2.46	0.67
4:A:152:ILE:HA	4:A:155:ILE:HD12	1.76	0.67
4:A:247:TYR:CB	4:A:248:PRO:HD2	2.18	0.67
4:A:180:GLN:CG	5:B:51:GLY:CA	2.61	0.66
4:A:184:VAL:CG2	5:B:52:TYR:HD1	1.94	0.66

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
4:A:359:PHE:O	4:A:360:ARG:CB	2.42	0.66
4:A:179:SER:C	5:B:48:GLY:CA	2.69	0.66
4:A:273:GLY:CA	4:A:284:LEU:HD12	2.24	0.66
4:A:88:LEU:C	4:A:90:GLY:H	2.03	0.66
4:A:326:THR:HG22	4:A:330:PHE:CD1	2.30	0.66
4:A:84:ILE:O	4:A:87:LEU:HB2	1.96	0.66
4:A:369:LYS:O	4:A:372:ILE:CG2	2.37	0.66
4:A:237:HIS:HA	4:A:241:LYS:H	1.60	0.66
4:A:310:ILE:O	4:A:313:PRO:HD3	1.96	0.66
4:A:29:TRP:NE1	4:A:164:TYR:HD2	1.94	0.66
4:A:151:SER:O	4:A:155:ILE:HG13	1.95	0.66
4:A:254:VAL:HG21	4:A:375:LEU:CG	2.25	0.66
4:A:354:MET:SD	4:A:356:ILE:CG2	2.83	0.66
4:A:250:LYS:HG2	4:A:375:LEU:HD22	1.77	0.66
5:B:30:LYS:HD3	5:B:30:LYS:N	2.07	0.66
4:A:229:MET:O	4:A:230:ARG:CG	2.44	0.65
4:A:250:LYS:HB2	4:A:375:LEU:HB2	1.77	0.65
4:A:348:ARG:O	4:A:349:ILE:C	2.39	0.65
4:A:44:ASP:OD2	5:B:62:LYS:HD2	1.96	0.65
4:A:270:GLN:NE2	4:A:301:SER:HB3	2.11	0.65
4:A:317:ILE:O	4:A:321:ILE:HG13	1.97	0.65
4:A:60:GLN:O	4:A:64:ALA:N	2.30	0.65
4:A:180:GLN:HG3	5:B:51:GLY:C	2.22	0.65
4:A:183:PHE:CZ	5:B:49:ILE:HG12	2.32	0.65
4:A:236:ALA:O	4:A:238:GLY:N	2.30	0.65
5:B:30:LYS:O	5:B:34:LEU:CG	2.44	0.65
4:A:231:VAL:HG21	4:A:249:ILE:CA	2.26	0.65
4:A:13:GLU:HG3	4:A:14:VAL:N	2.10	0.64
4:A:354:MET:SD	4:A:354:MET:O	2.56	0.64
4:A:356:ILE:H	4:A:357:LYS:HA	0.65	0.64
4:A:254:VAL:HG22	4:A:255:SER:N	2.11	0.64
4:A:351:SER:O	4:A:353:GLY:N	2.30	0.64
5:B:29:THR:O	5:B:31:ASP:N	2.30	0.64
4:A:219:VAL:CG1	4:A:402:VAL:CG2	2.69	0.64
5:B:36:VAL:O	5:B:38:LYS:N	2.30	0.64
4:A:237:HIS:CD2	4:A:240:ILE:CD1	2.79	0.64
4:A:63:THR:O	4:A:64:ALA:C	2.40	0.64
4:A:5:ILE:HG22	4:A:9:GLU:CD	2.22	0.64
4:A:352:LEU:HD22	4:A:352:LEU:C	2.22	0.64
4:A:334:TRP:O	4:A:338:THR:N	2.30	0.64
4:A:406:VAL:HG13	5:B:40:THR:HG23	1.79	0.64

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:D:59:A:OP1	4:A:357:LYS:HD3	1.97	0.64
4:A:325:ILE:HG13	4:A:326:THR:H	1.61	0.64
5:B:35:ALA:HA	5:B:38:LYS:HE3	1.68	0.64
4:A:233:ILE:HD11	4:A:235:LEU:CA	2.28	0.64
4:A:375:LEU:O	4:A:377:VAL:N	2.30	0.64
4:A:237:HIS:HB2	4:A:240:ILE:HD13	1.78	0.63
1:D:59:A:OP1	4:A:357:LYS:CD	2.46	0.63
1:D:69:A:H5'	1:D:69:A:C8	2.33	0.63
4:A:63:THR:O	4:A:63:THR:HG22	1.97	0.63
4:A:236:ALA:O	4:A:237:HIS:C	2.40	0.63
4:A:360:ARG:C	4:A:361:LYS:HG2	2.23	0.63
4:A:375:LEU:HD11	4:A:379:SER:OG	1.99	0.63
4:A:375:LEU:O	4:A:376:THR:C	2.41	0.63
4:A:351:SER:O	4:A:352:LEU:C	2.39	0.63
4:A:389:ILE:O	4:A:393:ILE:HG22	1.98	0.63
4:A:237:HIS:ND1	4:A:240:ILE:CD1	2.61	0.63
4:A:38:PHE:CB	5:B:54:ILE:HG13	2.29	0.63
4:A:223:VAL:CG1	4:A:403:LEU:HA	2.28	0.63
4:A:228:CYS:O	4:A:229:MET:C	2.40	0.63
4:A:237:HIS:HB3	4:A:240:ILE:HD13	1.75	0.63
4:A:403:LEU:C	4:A:403:LEU:CD2	2.72	0.63
4:A:189:PRO:HD3	5:B:52:TYR:CE1	2.34	0.63
4:A:375:LEU:HD12	4:A:379:SER:HB2	0.69	0.63
4:A:166:ILE:HD13	4:A:416:LEU:HD21	1.80	0.62
4:A:34:LEU:O	4:A:37:TYR:HB3	1.99	0.62
4:A:349:ILE:O	4:A:350:GLY:C	2.41	0.62
4:A:340:LEU:CD2	4:A:372:ILE:HD11	2.26	0.62
4:A:164:TYR:CE1	6:C:30:PRO:HG2	2.35	0.62
4:A:3:LYS:C	4:A:5:ILE:H	2.06	0.62
4:A:390:ALA:O	4:A:393:ILE:HG23	1.99	0.62
4:A:44:ASP:CG	5:B:62:LYS:CD	2.72	0.62
4:A:52:ILE:HG23	4:A:132:PHE:HA	1.80	0.62
4:A:231:VAL:C	4:A:232:GLU:HG3	2.24	0.62
4:A:249:ILE:O	4:A:250:LYS:O	2.18	0.62
4:A:355:ALA:CB	4:A:357:LYS:O	2.47	0.62
4:A:129:ALA:HB1	4:A:274:LEU:HD12	1.82	0.62
4:A:219:VAL:HG12	4:A:220:PHE:N	2.14	0.62
4:A:299:TYR:C	4:A:300:LEU:HD23	2.24	0.62
1:D:69:A:H5'	1:D:69:A:H8	1.65	0.61
3:F:1442:A:HO2'	4:A:359:PHE:HD1	1.46	0.61
4:A:234:PRO:CG	4:A:247:TYR:CE2	2.83	0.61

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
5:B:29:THR:O	5:B:30:LYS:C	2.43	0.61
4:A:75:ILE:HG22	4:A:79:VAL:CG2	2.30	0.61
4:A:355:ALA:HB2	4:A:357:LYS:O	1.99	0.61
4:A:98:LEU:O	4:A:99:SER:C	2.43	0.61
4:A:85:MET:HE2	4:A:111:GLN:CA	2.30	0.61
4:A:90:GLY:HA3	4:A:333:PHE:CD2	2.32	0.61
4:A:136:THR:HB	4:A:139:LEU:HB3	1.81	0.61
4:A:281:ILE:N	4:A:281:ILE:HD12	2.15	0.61
4:A:149:PHE:HD2	6:C:40:PHE:HZ	1.45	0.61
4:A:250:LYS:HG2	4:A:375:LEU:CD2	2.31	0.61
4:A:334:TRP:N	4:A:337:THR:HG22	2.15	0.61
4:A:238:GLY:CA	4:A:239:ARG:CD	2.66	0.61
4:A:157:LEU:HA	4:A:160:ILE:HD12	1.83	0.60
4:A:189:PRO:C	4:A:191:GLY:H	2.09	0.60
4:A:231:VAL:CG1	4:A:232:GLU:N	2.42	0.60
4:A:237:HIS:CA	4:A:241:LYS:C	2.69	0.60
4:A:254:VAL:HG22	4:A:379:SER:OG	2.01	0.60
4:A:354:MET:SD	4:A:354:MET:C	2.83	0.60
4:A:23:PHE:HE1	4:A:419:GLU:HB2	1.65	0.60
4:A:339:GLY:O	4:A:340:LEU:C	2.43	0.60
4:A:367:ARG:CD	4:A:371:TYR:CD2	2.84	0.60
4:A:386:LEU:O	4:A:389:ILE:HG22	2.00	0.60
4:A:254:VAL:HG11	4:A:375:LEU:CG	2.29	0.60
4:A:349:ILE:O	4:A:350:GLY:O	2.19	0.60
4:A:5:ILE:N	4:A:6:PRO:HD2	2.15	0.60
4:A:179:SER:CB	5:B:44:ILE:O	2.50	0.60
5:B:64:ILE:O	5:B:65:LEU:HD23	2.01	0.60
4:A:189:PRO:HD3	5:B:52:TYR:HE1	1.67	0.60
4:A:233:ILE:CG2	4:A:246:LYS:HD3	2.31	0.60
4:A:233:ILE:HA	4:A:246:LYS:HD3	1.84	0.60
4:A:93:ILE:HG22	4:A:94:ILE:HG13	1.84	0.60
5:B:22:TRP:CZ3	5:B:23:LEU:HA	2.36	0.60
5:B:35:ALA:CA	5:B:38:LYS:CE	2.43	0.60
4:A:66:ARG:O	4:A:72:THR:HA	2.01	0.60
4:A:250:LYS:HE3	4:A:372:ILE:HG12	1.82	0.60
5:B:22:TRP:CG	5:B:23:LEU:N	2.47	0.60
4:A:83:ILE:HG21	4:A:265:LEU:HD23	1.84	0.59
4:A:100:ILE:HG22	4:A:102:GLU:H	1.67	0.59
4:A:254:VAL:HG11	4:A:375:LEU:HD13	1.74	0.59
4:A:255:SER:HA	4:A:258:PRO:HG2	1.83	0.59
4:A:11:ILE:HD11	4:A:113:LEU:CD2	2.27	0.59

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
4:A:152:ILE:HA	4:A:155:ILE:CD1	2.32	0.59
4:A:250:LYS:HD2	4:A:375:LEU:HB2	1.80	0.59
4:A:55:ILE:HG22	4:A:67:ILE:HD12	1.84	0.59
4:A:200:LEU:HD23	4:A:205:PRO:HG3	1.85	0.59
4:A:85:MET:HE2	4:A:111:GLN:N	2.18	0.59
4:A:88:LEU:O	4:A:90:GLY:N	2.36	0.59
4:A:237:HIS:HA	4:A:241:LYS:O	2.03	0.59
4:A:334:TRP:O	4:A:338:THR:HB	2.01	0.59
4:A:244:VAL:CG1	4:A:245:GLY:H	1.96	0.59
4:A:257:ILE:HG22	4:A:258:PRO:CD	2.32	0.59
6:C:30:PRO:O	6:C:34:ILE:HG12	2.03	0.59
4:A:211:ALA:HB3	4:A:212:PRO:CD	2.33	0.58
4:A:257:ILE:N	4:A:258:PRO:CD	2.66	0.58
5:B:62:LYS:HG2	5:B:66:LYS:NZ	2.18	0.58
4:A:52:ILE:HD12	4:A:52:ILE:N	2.18	0.58
4:A:55:ILE:HG21	4:A:60:GLN:NE2	2.18	0.58
4:A:182:ILE:HD13	4:A:220:PHE:CZ	2.37	0.58
4:A:4:LEU:C	4:A:6:PRO:HD2	2.28	0.58
4:A:61:THR:O	4:A:64:ALA:N	2.30	0.58
4:A:108:GLN:O	4:A:109:GLY:C	2.46	0.58
4:A:360:ARG:CD	4:A:364:ILE:HD11	2.32	0.58
5:B:4:PHE:O	5:B:8:ILE:HG13	2.03	0.58
4:A:237:HIS:HD1	4:A:240:ILE:HG12	1.69	0.58
4:A:243:ALA:CB	4:A:356:ILE:CG1	2.81	0.58
4:A:255:SER:OG	4:A:380:SER:HB3	2.03	0.58
4:A:333:PHE:C	4:A:337:THR:CG2	2.76	0.58
4:A:23:PHE:CD1	4:A:419:GLU:HB3	2.39	0.57
4:A:38:PHE:HB3	5:B:54:ILE:HG13	1.86	0.57
4:A:345:MET:C	4:A:349:ILE:HG13	2.28	0.57
5:B:16:GLU:OE2	5:B:19:ARG:HG3	2.03	0.57
4:A:166:ILE:HG22	4:A:167:GLY:H	1.69	0.57
4:A:374:PRO:O	4:A:378:MET:HB2	2.04	0.57
4:A:85:MET:HE2	4:A:111:GLN:CB	2.34	0.57
4:A:237:HIS:CA	4:A:241:LYS:H	2.12	0.57
4:A:382:PHE:O	4:A:383:VAL:C	2.46	0.57
4:A:12:PRO:HB3	6:C:28:VAL:HG21	1.86	0.57
4:A:135:LEU:H	4:A:135:LEU:HD12	1.68	0.57
4:A:182:ILE:HD11	4:A:220:PHE:CZ	2.37	0.57
4:A:229:MET:C	4:A:230:ARG:HG3	2.30	0.57
5:B:24:VAL:O	5:B:25:LEU:C	2.48	0.57
3:F:1441:G:O2'	3:F:1442:A:H5'	2.04	0.57

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
4:A:332:ILE:O	4:A:336:GLU:HG2	2.04	0.57
4:A:346:ALA:O	4:A:347:LYS:C	2.46	0.57
4:A:378:MET:O	4:A:379:SER:C	2.47	0.57
5:B:42:LEU:C	5:B:42:LEU:CD1	2.76	0.57
4:A:60:GLN:O	4:A:61:THR:C	2.47	0.57
4:A:246:LYS:CG	4:A:247:TYR:CA	2.83	0.57
4:A:246:LYS:CG	4:A:247:TYR:HA	2.28	0.57
4:A:336:GLU:CB	4:A:337:THR:HB	2.30	0.57
4:A:354:MET:SD	4:A:356:ILE:HG23	2.45	0.57
4:A:135:LEU:O	4:A:137:PRO:HD3	2.04	0.57
4:A:338:THR:HG22	4:A:338:THR:O	2.05	0.57
4:A:172:LEU:C	4:A:172:LEU:HD23	2.30	0.56
4:A:34:LEU:HG	4:A:38:PHE:CE1	2.27	0.56
4:A:245:GLY:C	4:A:246:LYS:O	2.48	0.56
4:A:234:PRO:HB3	4:A:247:TYR:CE2	2.40	0.56
4:A:244:VAL:CG1	4:A:245:GLY:N	2.53	0.56
4:A:279:MET:O	4:A:279:MET:HG2	2.06	0.56
4:A:141:PHE:CZ	4:A:145:ILE:HD11	2.40	0.56
4:A:147:ILE:HG22	4:A:148:ALA:N	2.20	0.56
4:A:156:TYR:O	4:A:160:ILE:HG13	2.06	0.56
4:A:30:THR:O	4:A:33:VAL:HG23	2.05	0.56
4:A:80:THR:O	4:A:83:ILE:HB	2.05	0.56
4:A:408:ILE:O	4:A:412:MET:HB2	2.05	0.56
5:B:36:VAL:C	5:B:38:LYS:N	2.64	0.56
6:C:32:HIS:O	6:C:36:VAL:HG23	2.05	0.56
4:A:243:ALA:HB2	4:A:356:ILE:HB	1.86	0.56
4:A:256:ASN:C	4:A:258:PRO:HD2	2.30	0.56
4:A:167:GLY:HA2	4:A:415:GLN:NE2	2.20	0.56
4:A:237:HIS:ND1	4:A:240:ILE:O	2.30	0.56
4:A:369:LYS:O	4:A:373:PRO:CD	2.48	0.56
4:A:13:GLU:CG	4:A:14:VAL:H	2.14	0.56
4:A:88:LEU:C	4:A:90:GLY:N	2.63	0.56
4:A:98:LEU:O	4:A:100:ILE:O	2.24	0.55
1:D:57:C:H1'	4:A:237:HIS:HE1	1.70	0.55
4:A:172:LEU:C	4:A:172:LEU:CD2	2.80	0.55
4:A:237:HIS:ND1	4:A:240:ILE:CG1	2.68	0.55
4:A:243:ALA:O	4:A:244:VAL:C	2.48	0.55
4:A:255:SER:C	4:A:258:PRO:HD2	2.32	0.55
4:A:102:GLU:C	4:A:106:LEU:HG	2.32	0.55
4:A:391:ASN:HD22	4:A:399:GLY:HA3	1.70	0.55
1:D:57:C:O2'	4:A:237:HIS:NE2	2.39	0.55

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
3:F:1442:A:O2'	4:A:359:PHE:HD1	1.89	0.55
4:A:16:LEU:H	4:A:16:LEU:CD2	2.06	0.55
4:A:90:GLY:C	4:A:333:PHE:HD2	2.15	0.55
4:A:254:VAL:CG2	4:A:255:SER:N	2.70	0.55
4:A:273:GLY:HA3	4:A:287:TYR:OH	2.07	0.55
5:B:35:ALA:O	5:B:38:LYS:HB2	2.07	0.55
4:A:112:LYS:O	4:A:116:ILE:HD12	2.07	0.54
4:A:206:ASN:OD1	4:A:208:GLU:HB2	2.07	0.54
4:A:380:SER:O	4:A:381:ALA:C	2.50	0.54
4:A:23:PHE:HD1	4:A:419:GLU:HB3	1.72	0.54
4:A:149:PHE:HB3	6:C:40:PHE:CZ	2.43	0.54
4:A:152:ILE:HD13	4:A:155:ILE:CD1	2.38	0.54
4:A:41:GLY:HA2	4:A:71:ILE:HG12	1.89	0.54
4:A:233:ILE:CD1	4:A:235:LEU:N	2.70	0.54
4:A:75:ILE:HD11	4:A:173:PHE:CD1	2.42	0.54
4:A:39:ILE:O	4:A:43:ILE:HG12	2.08	0.54
4:A:116:ILE:HD12	4:A:116:ILE:H	1.71	0.54
4:A:142:LEU:O	4:A:145:ILE:HB	2.08	0.54
4:A:146:GLN:HE21	6:C:44:GLU:HG2	1.72	0.54
4:A:184:VAL:CG2	5:B:52:TYR:HA	2.38	0.54
4:A:254:VAL:HG13	4:A:375:LEU:HD11	1.78	0.54
4:A:304:TYR:HD1	4:A:305:GLY:N	2.05	0.54
4:A:308:SER:HB3	4:A:392:PHE:O	2.07	0.54
4:A:239:ARG:N	4:A:239:ARG:CD	2.71	0.54
4:A:360:ARG:HG3	4:A:361:LYS:N	2.23	0.54
4:A:402:VAL:O	4:A:406:VAL:HG23	2.08	0.54
4:A:355:ALA:CB	4:A:357:LYS:HA	2.38	0.54
4:A:372:ILE:HG22	4:A:373:PRO:HD3	1.89	0.54
4:A:250:LYS:O	4:A:251:PHE:CB	2.54	0.54
4:A:323:MET:O	4:A:327:CYS:SG	2.60	0.54
4:A:369:LYS:CA	4:A:372:ILE:HG22	2.38	0.54
4:A:382:PHE:O	4:A:385:PHE:HB3	2.08	0.54
4:A:386:LEU:HD23	4:A:403:LEU:HD12	1.89	0.54
5:B:36:VAL:O	5:B:39:VAL:N	2.39	0.54
4:A:66:ARG:HD2	4:A:69:THR:HG21	1.90	0.53
4:A:233:ILE:HG12	4:A:234:PRO:N	2.21	0.53
4:A:358:GLY:C	4:A:359:PHE:CG	2.85	0.53
4:A:18:VAL:HG12	4:A:18:VAL:O	2.08	0.53
4:A:155:ILE:O	4:A:159:GLU:HG2	2.09	0.53
4:A:231:VAL:HG23	4:A:249:ILE:CA	2.31	0.53
4:A:233:ILE:HG22	4:A:246:LYS:CD	2.38	0.53

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
4:A:254:VAL:HG11	4:A:375:LEU:HD21	1.84	0.53
4:A:274:LEU:C	4:A:274:LEU:HD13	2.32	0.53
4:A:332:ILE:HG22	4:A:336:GLU:OE2	2.08	0.53
4:A:175:ALA:HB1	5:B:47:LEU:CD1	2.39	0.53
5:B:19:ARG:O	5:B:21:VAL:N	2.41	0.53
5:B:24:VAL:HG23	5:B:25:LEU:N	2.23	0.53
4:A:235:LEU:N	4:A:235:LEU:CD1	2.71	0.53
4:A:354:MET:O	4:A:356:ILE:HG12	2.09	0.53
5:B:55:HIS:O	5:B:56:VAL:C	2.51	0.53
4:A:44:ASP:OD2	5:B:62:LYS:CD	2.57	0.53
4:A:92:GLY:O	4:A:94:ILE:N	2.42	0.53
4:A:149:PHE:HB3	6:C:40:PHE:CE2	2.43	0.53
4:A:293:VAL:O	4:A:293:VAL:HG12	2.07	0.53
5:B:40:THR:HG22	5:B:44:ILE:HD11	1.91	0.53
4:A:387:ALA:O	4:A:390:ALA:HB3	2.09	0.52
4:A:340:LEU:N	4:A:340:LEU:CD1	2.72	0.52
5:B:52:TYR:CE1	5:B:56:VAL:CG2	2.93	0.52
5:B:56:VAL:HG12	5:B:57:PRO:N	2.23	0.52
4:A:183:PHE:HE2	5:B:52:TYR:HD2	1.52	0.52
4:A:64:ALA:CB	4:A:174:ILE:HA	2.39	0.52
4:A:237:HIS:CD2	4:A:240:ILE:HD11	2.43	0.52
4:A:167:GLY:HA2	4:A:415:GLN:CD	2.34	0.52
4:A:237:HIS:CA	4:A:241:LYS:O	2.58	0.52
5:B:61:ILE:O	5:B:62:LYS:C	2.52	0.52
4:A:287:TYR:HB3	4:A:291:ARG:O	2.09	0.52
4:A:353:GLY:O	4:A:354:MET:CB	2.55	0.52
4:A:5:ILE:HG22	4:A:9:GLU:OE1	2.10	0.52
4:A:237:HIS:C	4:A:241:LYS:H	2.18	0.52
4:A:214:ILE:O	4:A:215:GLY:C	2.52	0.52
4:A:194:TRP:O	4:A:195:LYS:C	2.52	0.52
4:A:243:ALA:CB	4:A:356:ILE:HB	2.40	0.52
4:A:216:THR:HG22	4:A:220:PHE:CE2	2.45	0.51
4:A:287:TYR:CE2	4:A:292:ALA:HB2	2.44	0.51
5:B:19:ARG:O	5:B:22:TRP:N	2.43	0.51
5:B:49:ILE:HG22	5:B:50:ILE:N	2.24	0.51
4:A:98:LEU:O	4:A:100:ILE:N	2.43	0.51
4:A:233:ILE:CD1	4:A:235:LEU:HA	2.33	0.51
5:B:28:PRO:CB	5:B:33:TYR:HB2	2.40	0.51
4:A:21:ILE:HD12	4:A:21:ILE:H	1.76	0.51
4:A:206:ASN:HB3	4:A:209:TYR:HD1	1.74	0.51
4:A:325:ILE:CG1	4:A:326:THR:N	2.72	0.51

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
4:A:355:ALA:HB1	4:A:357:LYS:CG	2.40	0.51
4:A:90:GLY:C	4:A:333:PHE:CD2	2.88	0.51
4:A:352:LEU:N	4:A:352:LEU:CD1	2.73	0.51
1:D:65:C:O2'	1:D:66:G:H5'	2.09	0.51
4:A:164:TYR:CZ	6:C:30:PRO:HG2	2.46	0.51
5:B:62:LYS:HG2	5:B:66:LYS:HZ1	1.75	0.51
4:A:293:VAL:O	4:A:294:ASP:HB2	2.11	0.51
4:A:166:ILE:HG22	4:A:167:GLY:N	2.25	0.51
4:A:252:VAL:HG23	4:A:253:TYR:H	1.75	0.51
4:A:311:SER:O	4:A:312:ASP:CG	2.53	0.51
4:A:238:GLY:C	4:A:240:ILE:HD13	2.36	0.51
4:A:246:LYS:HB2	4:A:247:TYR:HA	0.61	0.51
4:A:415:GLN:O	4:A:419:GLU:HG2	2.11	0.51
5:B:14:PHE:O	5:B:17:GLU:N	2.43	0.51
4:A:136:THR:O	4:A:137:PRO:C	2.54	0.51
1:D:59:A:H5''	4:A:357:LYS:HD2	1.92	0.51
4:A:237:HIS:CB	4:A:241:LYS:N	2.67	0.51
4:A:183:PHE:CE2	5:B:49:ILE:HA	2.46	0.50
4:A:236:ALA:O	4:A:238:GLY:CA	2.59	0.50
4:A:266:PHE:CE2	4:A:323:MET:HE2	2.46	0.50
4:A:266:PHE:CZ	4:A:323:MET:HE2	2.46	0.50
4:A:314:ILE:O	4:A:318:VAL:HG23	2.11	0.50
4:A:417:LEU:C	4:A:419:GLU:N	2.65	0.50
4:A:24:LYS:O	4:A:28:LYS:HG3	2.11	0.50
4:A:72:THR:HB	4:A:147:ILE:HD12	1.92	0.50
4:A:250:LYS:CG	4:A:375:LEU:HD23	2.35	0.50
4:A:82:GLY:O	4:A:86:GLN:HG2	2.11	0.50
4:A:325:ILE:CG1	4:A:326:THR:H	2.24	0.50
5:B:24:VAL:O	5:B:25:LEU:O	2.29	0.50
4:A:8:LEU:HD23	4:A:8:LEU:C	2.36	0.50
4:A:41:GLY:N	4:A:71:ILE:HD13	2.27	0.50
6:C:22:THR:HG22	6:C:24:SER:H	1.76	0.50
4:A:237:HIS:CG	4:A:240:ILE:HD11	2.35	0.50
4:A:333:PHE:C	4:A:337:THR:HG22	2.37	0.50
4:A:116:ILE:HD12	4:A:116:ILE:N	2.26	0.50
4:A:233:ILE:CD1	4:A:235:LEU:CA	2.89	0.50
4:A:75:ILE:HG21	4:A:170:ILE:HG23	1.93	0.50
4:A:89:VAL:HG21	4:A:107:PHE:CD1	2.47	0.50
4:A:129:ALA:C	4:A:278:ARG:HD3	2.37	0.50
4:A:427:ALA:O	4:A:429:ALA:N	2.39	0.50
4:A:257:ILE:HG21	4:A:334:TRP:CZ3	2.47	0.50

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
4:A:348:ARG:O	4:A:349:ILE:O	2.30	0.50
4:A:423:GLU:O	4:A:423:GLU:HG3	2.11	0.50
4:A:228:CYS:O	4:A:229:MET:O	2.30	0.49
6:C:30:PRO:HA	6:C:33:VAL:CG2	2.42	0.49
4:A:75:ILE:O	4:A:79:VAL:HG23	2.13	0.49
4:A:89:VAL:HG12	4:A:89:VAL:O	2.13	0.49
4:A:232:GLU:O	4:A:233:ILE:O	2.30	0.49
4:A:253:TYR:HE1	4:A:411:ARG:HH11	1.60	0.49
2:E:88:G:H5'	2:E:88:G:H8	1.76	0.49
4:A:40:MET:HB3	4:A:71:ILE:HG23	1.93	0.49
4:A:113:LEU:O	4:A:116:ILE:N	2.43	0.49
4:A:219:VAL:HG13	4:A:223:VAL:CG2	2.43	0.49
4:A:310:ILE:O	4:A:312:ASP:N	2.38	0.49
4:A:339:GLY:O	4:A:340:LEU:O	2.30	0.49
4:A:406:VAL:HG13	5:B:40:THR:HG21	1.93	0.49
6:C:35:GLY:HA2	6:C:38:VAL:HG23	1.95	0.49
4:A:91:SER:C	4:A:93:ILE:H	2.20	0.49
4:A:143:VAL:O	4:A:144:ILE:C	2.56	0.49
4:A:183:PHE:HD2	5:B:52:TYR:HB2	1.77	0.49
4:A:249:ILE:O	4:A:250:LYS:C	2.54	0.49
4:A:136:THR:HG22	4:A:139:LEU:H	1.77	0.49
4:A:179:SER:CB	5:B:47:LEU:C	2.86	0.49
4:A:237:HIS:CB	4:A:238:GLY:HA3	2.28	0.49
4:A:304:TYR:CD1	4:A:304:TYR:C	2.91	0.49
4:A:343:LYS:O	4:A:344:SER:C	2.56	0.49
4:A:354:MET:SD	4:A:356:ILE:HD11	2.43	0.49
5:B:28:PRO:HB3	5:B:33:TYR:HB2	1.94	0.49
4:A:15:GLU:O	4:A:17:PRO:HD3	2.12	0.49
4:A:169:GLY:O	4:A:170:ILE:C	2.56	0.49
4:A:250:LYS:C	4:A:251:PHE:CD1	2.91	0.49
4:A:299:TYR:O	4:A:300:LEU:HD23	2.12	0.49
4:A:328:VAL:O	4:A:332:ILE:HG13	2.12	0.49
4:A:344:SER:O	4:A:345:MET:C	2.55	0.49
5:B:19:ARG:C	5:B:21:VAL:N	2.68	0.49
5:B:34:LEU:O	5:B:35:ALA:C	2.56	0.49
5:B:49:ILE:O	5:B:52:TYR:HB3	2.12	0.49
4:A:341:ASP:O	4:A:345:MET:HG2	2.11	0.49
4:A:160:ILE:HD11	6:C:33:VAL:CG2	2.43	0.49
4:A:250:LYS:O	4:A:251:PHE:HD1	1.96	0.49
4:A:14:VAL:HG21	4:A:159:GLU:HB3	1.95	0.48
4:A:234:PRO:HB3	4:A:247:TYR:CD2	2.40	0.48

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
4:A:254:VAL:CG2	4:A:375:LEU:HD11	2.43	0.48
4:A:75:ILE:HD11	4:A:173:PHE:HD1	1.78	0.48
4:A:170:ILE:O	4:A:171:GLY:C	2.56	0.48
4:A:231:VAL:CG2	4:A:249:ILE:HG13	2.28	0.48
4:A:294:ASP:N	4:A:298:TYR:HB2	2.29	0.48
5:B:14:PHE:CD1	5:B:14:PHE:C	2.91	0.48
5:B:32:GLU:O	5:B:33:TYR:C	2.56	0.48
4:A:38:PHE:CE1	5:B:50:ILE:HG21	2.47	0.48
5:B:16:GLU:O	5:B:19:ARG:HB2	2.12	0.48
4:A:29:TRP:CE2	4:A:164:TYR:HD2	2.31	0.48
4:A:224:VAL:O	4:A:225:TYR:C	2.56	0.48
4:A:312:ASP:O	4:A:313:PRO:C	2.56	0.48
4:A:86:GLN:O	4:A:90:GLY:HA3	2.14	0.48
4:A:118:MET:O	4:A:122:GLU:HG2	2.13	0.48
6:C:34:ILE:O	6:C:38:VAL:HG23	2.13	0.48
4:A:74:GLY:O	4:A:77:PRO:HD2	2.14	0.48
4:A:225:TYR:C	4:A:225:TYR:CD2	2.92	0.48
4:A:362:SER:O	4:A:363:ALA:HB3	2.13	0.48
4:A:382:PHE:O	4:A:385:PHE:N	2.47	0.48
4:A:124:VAL:HA	4:A:144:ILE:CD1	2.44	0.48
4:A:136:THR:O	4:A:138:LEU:N	2.47	0.48
4:A:256:ASN:C	4:A:258:PRO:CD	2.87	0.48
4:A:67:ILE:HG23	4:A:72:THR:HG23	1.95	0.48
4:A:249:ILE:CG2	4:A:250:LYS:N	2.55	0.48
4:A:43:ILE:HG22	4:A:70:LEU:HD11	1.95	0.48
4:A:84:ILE:O	4:A:87:LEU:N	2.47	0.47
4:A:302:THR:HG21	4:A:391:ASN:OD1	2.14	0.47
5:B:30:LYS:CD	5:B:30:LYS:N	2.70	0.47
4:A:98:LEU:HD23	4:A:103:ASN:HB3	1.96	0.47
4:A:237:HIS:HD1	4:A:240:ILE:C	2.18	0.47
4:A:241:LYS:CG	4:A:242:GLY:O	2.62	0.47
4:A:375:LEU:CG	4:A:376:THR:H	2.19	0.47
4:A:92:GLY:O	4:A:95:GLN:HG3	2.14	0.47
4:A:250:LYS:HB3	4:A:375:LEU:CD1	2.45	0.47
4:A:43:ILE:HB	4:A:70:LEU:HD22	1.97	0.47
4:A:153:ILE:HG21	6:C:37:THR:HG23	1.96	0.47
4:A:250:LYS:HB3	4:A:375:LEU:HD13	1.96	0.47
4:A:41:GLY:N	4:A:71:ILE:CD1	2.76	0.47
4:A:94:ILE:O	4:A:94:ILE:HG22	2.15	0.47
4:A:171:GLY:HA3	4:A:411:ARG:HH21	1.80	0.47
4:A:172:LEU:CD2	4:A:176:ALA:HB2	2.44	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
4:A:179:SER:HB3	5:B:47:LEU:HB2	1.85	0.47
4:A:183:PHE:CE2	5:B:49:ILE:HG12	2.49	0.47
4:A:194:TRP:C	4:A:196:PHE:N	2.71	0.47
4:A:252:VAL:HG23	4:A:253:TYR:N	2.29	0.47
4:A:287:TYR:CD2	4:A:292:ALA:HB2	2.50	0.47
4:A:306:LEU:N	4:A:306:LEU:HD12	2.29	0.47
4:A:364:ILE:O	4:A:368:LEU:HG	2.15	0.47
4:A:399:GLY:O	4:A:402:VAL:CG2	2.62	0.47
5:B:35:ALA:HA	5:B:38:LYS:NZ	2.25	0.47
5:B:36:VAL:C	5:B:38:LYS:H	2.22	0.47
4:A:29:TRP:O	4:A:30:THR:C	2.57	0.47
4:A:123:ALA:HB2	4:A:148:ALA:HB2	1.96	0.47
4:A:232:GLU:O	4:A:233:ILE:C	2.57	0.47
4:A:243:ALA:HB3	4:A:356:ILE:O	2.14	0.47
4:A:69:THR:C	4:A:71:ILE:H	2.22	0.47
4:A:120:PHE:O	4:A:123:ALA:HB3	2.15	0.47
4:A:233:ILE:CA	4:A:246:LYS:HD3	2.44	0.47
4:A:236:ALA:C	4:A:238:GLY:HA3	2.39	0.47
4:A:250:LYS:CB	4:A:375:LEU:CB	2.88	0.47
4:A:67:ILE:CA	4:A:72:THR:HG23	2.34	0.47
4:A:79:VAL:HG11	4:A:264:ALA:CB	2.45	0.47
4:A:314:ILE:HD12	4:A:315:HIS:N	2.19	0.47
5:B:36:VAL:O	5:B:37:ALA:C	2.56	0.47
4:A:79:VAL:O	4:A:80:THR:C	2.58	0.46
4:A:124:VAL:CG2	4:A:144:ILE:HD13	2.36	0.46
4:A:180:GLN:HA	5:B:48:GLY:O	2.15	0.46
4:A:12:PRO:HB3	6:C:28:VAL:CG2	2.45	0.46
4:A:46:TYR:CB	4:A:146:GLN:HE22	2.19	0.46
4:A:49:GLY:C	4:A:51:GLN:H	2.22	0.46
4:A:372:ILE:CG2	4:A:373:PRO:HD3	2.45	0.46
4:A:34:LEU:HD13	4:A:172:LEU:HD21	1.96	0.46
4:A:118:MET:O	4:A:122:GLU:CG	2.63	0.46
4:A:112:LYS:HD3	4:A:116:ILE:HD11	1.98	0.46
4:A:166:ILE:HD13	4:A:416:LEU:HD23	1.97	0.46
4:A:277:TYR:C	4:A:279:MET:H	2.22	0.46
1:D:58:C:O2'	4:A:357:LYS:HB2	2.16	0.46
4:A:153:ILE:HD11	6:C:40:PHE:CD1	2.50	0.46
4:A:181:THR:HG21	4:A:397:GLY:HA2	1.96	0.46
4:A:195:LYS:HB3	4:A:209:TYR:CE2	2.50	0.46
4:A:3:LYS:C	4:A:5:ILE:N	2.74	0.46
4:A:38:PHE:CD2	5:B:51:GLY:CA	2.93	0.46

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
4:A:92:GLY:O	4:A:93:ILE:C	2.58	0.46
4:A:129:ALA:O	4:A:278:ARG:HD3	2.15	0.46
4:A:238:GLY:H	4:A:239:ARG:HG3	1.81	0.46
4:A:246:LYS:HD2	4:A:247:TYR:C	2.40	0.46
4:A:369:LYS:HA	4:A:372:ILE:HG22	1.97	0.46
4:A:266:PHE:HD1	4:A:266:PHE:H	1.63	0.46
4:A:276:LEU:HD23	4:A:279:MET:HE2	1.98	0.46
4:A:355:ALA:HB1	4:A:357:LYS:HA	1.98	0.46
6:C:49:TYR:CD1	6:C:49:TYR:N	2.83	0.46
4:A:38:PHE:CE1	5:B:50:ILE:CG2	2.99	0.46
4:A:157:LEU:HD23	4:A:160:ILE:CD1	2.36	0.46
4:A:237:HIS:CB	4:A:240:ILE:CD1	2.68	0.46
4:A:45:VAL:HG11	4:A:147:ILE:HD11	1.98	0.45
4:A:179:SER:HB2	5:B:47:LEU:C	2.41	0.45
4:A:254:VAL:CG1	4:A:375:LEU:CD2	2.85	0.45
4:A:149:PHE:CD2	6:C:40:PHE:HZ	2.31	0.45
4:A:234:PRO:CG	4:A:247:TYR:HE2	2.22	0.45
5:B:10:GLN:O	5:B:13:GLU:N	2.49	0.45
4:A:38:PHE:CE2	5:B:51:GLY:CA	3.00	0.45
4:A:188:GLY:C	5:B:52:TYR:OH	2.59	0.45
4:A:189:PRO:HG3	5:B:56:VAL:HG13	1.98	0.45
4:A:225:TYR:CE1	5:B:28:PRO:HD2	2.50	0.45
4:A:304:TYR:CD1	4:A:305:GLY:N	2.84	0.45
4:A:35:VAL:O	4:A:36:LEU:C	2.58	0.45
4:A:135:LEU:HD12	4:A:135:LEU:N	2.30	0.45
4:A:180:GLN:HA	5:B:48:GLY:C	2.40	0.45
4:A:241:LYS:HG3	4:A:242:GLY:O	2.17	0.45
5:B:6:GLN:NE2	5:B:9:GLU:OE1	2.49	0.45
4:A:250:LYS:CB	4:A:375:LEU:CD2	2.51	0.45
4:A:349:ILE:CG2	4:A:350:GLY:N	2.53	0.45
4:A:391:ASN:O	4:A:392:PHE:C	2.60	0.45
4:A:237:HIS:CG	4:A:240:ILE:CG1	2.99	0.45
4:A:250:LYS:O	4:A:251:PHE:CD1	2.70	0.45
4:A:256:ASN:O	4:A:257:ILE:C	2.59	0.45
4:A:14:VAL:HG13	6:C:30:PRO:HG3	1.98	0.45
4:A:179:SER:HB3	5:B:47:LEU:C	2.40	0.45
4:A:250:LYS:CE	4:A:372:ILE:HG12	2.47	0.45
4:A:352:LEU:O	4:A:352:LEU:HD23	2.11	0.45
4:A:100:ILE:C	4:A:102:GLU:N	2.73	0.45
4:A:194:TRP:O	4:A:197:LEU:N	2.50	0.45
4:A:386:LEU:O	4:A:387:ALA:C	2.60	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
4:A:23:PHE:CE1	4:A:419:GLU:HB2	2.48	0.45
4:A:117:ILE:O	4:A:121:VAL:HG23	2.17	0.45
5:B:19:ARG:O	5:B:20:ARG:C	2.60	0.45
5:B:29:THR:C	5:B:31:ASP:N	2.74	0.45
4:A:175:ALA:C	5:B:47:LEU:HD13	2.40	0.44
4:A:225:TYR:CZ	5:B:28:PRO:HD2	2.52	0.44
4:A:237:HIS:CD2	4:A:240:ILE:HD13	2.31	0.44
4:A:318:VAL:O	4:A:319:TYR:C	2.59	0.44
4:A:77:PRO:O	4:A:80:THR:N	2.50	0.44
4:A:265:LEU:HD22	4:A:265:LEU:HA	1.84	0.44
4:A:383:VAL:O	4:A:384:GLY:C	2.61	0.44
4:A:390:ALA:O	4:A:393:ILE:CG2	2.65	0.44
6:C:30:PRO:O	6:C:33:VAL:HG23	2.17	0.44
4:A:44:ASP:CG	5:B:62:LYS:HD2	2.42	0.44
4:A:92:GLY:C	4:A:94:ILE:N	2.76	0.44
4:A:172:LEU:O	4:A:173:PHE:C	2.61	0.44
4:A:246:LYS:CG	4:A:247:TYR:C	2.90	0.44
4:A:43:ILE:HG22	4:A:70:LEU:CD1	2.47	0.44
4:A:171:GLY:HA2	4:A:408:ILE:HD13	2.00	0.44
4:A:172:LEU:O	4:A:175:ALA:N	2.50	0.44
4:A:13:GLU:O	6:C:28:VAL:HB	2.18	0.44
4:A:312:ASP:N	4:A:313:PRO:HD3	2.32	0.44
6:C:37:THR:C	6:C:39:ALA:N	2.74	0.44
4:A:80:THR:HG23	4:A:268:ASN:HD21	1.76	0.44
4:A:112:LYS:HD3	4:A:112:LYS:C	2.41	0.44
4:A:189:PRO:C	4:A:191:GLY:N	2.75	0.44
4:A:250:LYS:HB3	4:A:375:LEU:HB2	1.97	0.44
4:A:63:THR:O	4:A:63:THR:CG2	2.65	0.43
4:A:216:THR:OG1	4:A:396:LEU:HB3	2.18	0.43
4:A:219:VAL:O	4:A:220:PHE:C	2.59	0.43
4:A:231:VAL:CG2	4:A:249:ILE:CB	2.91	0.43
4:A:231:VAL:CB	4:A:249:ILE:HA	2.47	0.43
4:A:342:PRO:O	4:A:343:LYS:C	2.61	0.43
4:A:386:LEU:HD23	4:A:403:LEU:CD1	2.47	0.43
4:A:61:THR:O	4:A:62:ILE:C	2.61	0.43
4:A:166:ILE:CD1	4:A:416:LEU:HD21	2.45	0.43
4:A:100:ILE:C	4:A:102:GLU:H	2.27	0.43
4:A:234:PRO:CG	4:A:247:TYR:CD2	3.01	0.43
4:A:415:GLN:HE21	4:A:415:GLN:HB2	1.53	0.43
4:A:41:GLY:CA	4:A:71:ILE:HD13	2.42	0.43
4:A:194:TRP:O	4:A:196:PHE:N	2.51	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
4:A:251:PHE:CD2	4:A:251:PHE:O	2.72	0.43
4:A:254:VAL:HG21	4:A:375:LEU:CD1	2.49	0.43
4:A:336:GLU:N	4:A:337:THR:CB	2.81	0.43
4:A:250:LYS:HB3	4:A:375:LEU:CB	2.49	0.43
4:A:302:THR:HA	4:A:303:PRO:HD3	1.73	0.43
4:A:334:TRP:O	4:A:334:TRP:CD1	2.72	0.43
6:C:50:GLY:O	6:C:51:ARG:C	2.62	0.43
4:A:23:PHE:CE1	4:A:419:GLU:CB	3.02	0.43
4:A:38:PHE:HB2	5:B:54:ILE:HG13	1.98	0.43
5:B:41:ALA:HA	5:B:44:ILE:HD12	2.01	0.43
4:A:14:VAL:CG1	6:C:30:PRO:HG3	2.48	0.43
4:A:61:THR:HB	4:A:62:ILE:HD12	2.00	0.43
4:A:163:LYS:O	4:A:164:TYR:CD1	2.72	0.43
4:A:237:HIS:HB2	4:A:241:LYS:N	2.27	0.43
5:B:22:TRP:CE3	5:B:23:LEU:CG	3.01	0.43
5:B:29:THR:HG23	5:B:30:LYS:NZ	2.33	0.43
1:D:59:A:OP1	4:A:357:LYS:HD2	2.18	0.42
4:A:421:VAL:C	4:A:423:GLU:N	2.74	0.42
5:B:4:PHE:CD2	5:B:8:ILE:HD11	2.53	0.42
6:C:30:PRO:HA	6:C:33:VAL:HG22	2.00	0.42
2:E:90:A:H4'	4:A:241:LYS:CD	2.29	0.42
4:A:31:GLY:O	4:A:35:VAL:HG23	2.20	0.42
5:B:17:GLU:O	5:B:21:VAL:HG23	2.19	0.42
5:B:57:PRO:C	5:B:59:THR:N	2.77	0.42
2:E:90:A:H2'	2:E:91:G:O4'	2.19	0.42
5:B:49:ILE:O	5:B:52:TYR:N	2.52	0.42
6:C:39:ALA:O	6:C:40:PHE:C	2.62	0.42
4:A:39:ILE:C	4:A:42:CYS:HG	2.08	0.42
4:A:84:ILE:O	4:A:85:MET:C	2.61	0.42
5:B:61:ILE:C	5:B:63:GLY:N	2.77	0.42
4:A:98:LEU:HD22	4:A:104:ARG:HA	2.02	0.42
4:A:130:GLY:HA3	4:A:278:ARG:NH1	2.33	0.42
1:D:59:A:C5'	4:A:357:LYS:HD2	2.50	0.42
4:A:85:MET:HG3	4:A:111:GLN:HG3	2.02	0.42
4:A:90:GLY:C	4:A:92:GLY:H	2.27	0.42
4:A:259:VAL:CG1	4:A:404:LEU:HD21	2.48	0.42
4:A:310:ILE:C	4:A:312:ASP:H	2.25	0.42
5:B:64:ILE:O	5:B:64:ILE:HG23	2.19	0.42
5:B:66:LYS:NZ	5:B:66:LYS:HB2	2.35	0.42
4:A:79:VAL:HG11	4:A:264:ALA:HB2	2.02	0.42
4:A:166:ILE:CG2	4:A:415:GLN:HG2	2.50	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
4:A:192:TYR:O	4:A:193:LEU:C	2.62	0.42
4:A:237:HIS:O	4:A:241:LYS:O	2.38	0.42
4:A:329:MET:HG2	4:A:333:PHE:CD1	2.53	0.42
4:A:360:ARG:HG2	4:A:364:ILE:CG1	2.45	0.42
4:A:34:LEU:CG	4:A:38:PHE:HE1	2.17	0.42
4:A:171:GLY:O	4:A:408:ILE:HG21	2.19	0.42
4:A:417:LEU:O	4:A:418:ARG:C	2.62	0.42
5:B:3:ASP:O	5:B:6:GLN:HB2	2.20	0.42
4:A:149:PHE:O	4:A:152:ILE:HB	2.20	0.42
4:A:249:ILE:C	4:A:250:LYS:O	2.62	0.42
5:B:64:ILE:HD12	5:B:64:ILE:HA	1.95	0.42
4:A:166:ILE:HG22	4:A:415:GLN:HG2	2.02	0.42
4:A:246:LYS:HG3	4:A:247:TYR:C	2.44	0.42
4:A:124:VAL:HA	4:A:144:ILE:HD11	2.02	0.41
4:A:170:ILE:H	4:A:170:ILE:HG13	1.48	0.41
4:A:211:ALA:HB3	4:A:212:PRO:HD3	2.02	0.41
4:A:234:PRO:HG3	4:A:235:LEU:HD12	1.90	0.41
4:A:270:GLN:HE21	4:A:301:SER:HB3	1.83	0.41
4:A:156:TYR:HB3	6:C:33:VAL:HG11	2.02	0.41
4:A:316:ALA:O	4:A:317:ILE:C	2.63	0.41
4:A:3:LYS:O	4:A:5:ILE:N	2.48	0.41
4:A:43:ILE:O	4:A:70:LEU:HD13	2.20	0.41
4:A:67:ILE:HG23	4:A:72:THR:CG2	2.50	0.41
4:A:153:ILE:CD1	6:C:37:THR:HG23	2.40	0.41
4:A:173:PHE:O	4:A:176:ALA:HB3	2.20	0.41
4:A:203:GLY:C	4:A:205:PRO:HD3	2.45	0.41
4:A:257:ILE:HG22	4:A:258:PRO:N	2.35	0.41
4:A:391:ASN:ND2	4:A:399:GLY:C	2.78	0.41
4:A:38:PHE:CE2	5:B:51:GLY:N	2.88	0.41
4:A:153:ILE:HD13	6:C:37:THR:CG2	2.42	0.41
4:A:179:SER:CB	5:B:48:GLY:N	2.80	0.41
4:A:251:PHE:CE1	4:A:375:LEU:HA	2.56	0.41
4:A:336:GLU:OE1	4:A:336:GLU:HA	2.19	0.41
4:A:69:THR:C	4:A:71:ILE:N	2.79	0.41
4:A:246:LYS:CE	4:A:247:TYR:O	2.69	0.41
4:A:249:ILE:HG22	4:A:250:LYS:HG3	2.02	0.41
4:A:383:VAL:HG12	4:A:384:GLY:N	2.35	0.41
5:B:62:LYS:O	5:B:66:LYS:HB2	2.21	0.41
4:A:49:GLY:C	4:A:51:GLN:N	2.77	0.41
4:A:89:VAL:HG21	4:A:107:PHE:HD1	1.85	0.41
4:A:147:ILE:HD13	4:A:147:ILE:HA	1.84	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
4:A:341:ASP:OD1	4:A:345:MET:HG2	2.20	0.41
5:B:16:GLU:OE2	5:B:16:GLU:HA	2.20	0.41
4:A:193:LEU:HG	4:A:197:LEU:HD22	2.01	0.41
4:A:216:THR:HA	4:A:395:ALA:HB1	2.02	0.41
4:A:334:TRP:C	4:A:337:THR:HG23	2.41	0.41
5:B:14:PHE:CE1	5:B:18:CYS:SG	3.13	0.41
5:B:61:ILE:O	5:B:63:GLY:N	2.54	0.41
3:F:1423:C:O2'	3:F:1424:A:H5'	2.20	0.41
4:A:243:ALA:CB	4:A:356:ILE:CD1	2.68	0.41
4:A:261:LEU:HB3	4:A:330:PHE:CE2	2.56	0.41
4:A:335:VAL:O	4:A:337:THR:CA	2.66	0.41
5:B:4:PHE:CE2	5:B:8:ILE:HD11	2.56	0.41
4:A:180:GLN:O	4:A:181:THR:C	2.64	0.41
4:A:254:VAL:CG2	4:A:379:SER:OG	2.68	0.41
4:A:314:ILE:CD1	4:A:315:HIS:H	2.21	0.41
5:B:57:PRO:O	5:B:60:TYR:N	2.54	0.41
4:A:16:LEU:N	4:A:16:LEU:CD2	2.76	0.40
4:A:157:LEU:HD23	4:A:157:LEU:HA	1.94	0.40
5:B:49:ILE:O	5:B:50:ILE:C	2.64	0.40
2:E:88:G:H2'	2:E:89:G:C8	2.56	0.40
4:A:33:VAL:HG11	4:A:161:VAL:CG2	2.50	0.40
4:A:179:SER:HB2	5:B:47:LEU:HB3	1.97	0.40
4:A:228:CYS:HA	4:A:230:ARG:NH1	2.35	0.40
4:A:239:ARG:N	4:A:240:ILE:CG2	2.68	0.40
4:A:317:ILE:HG23	4:A:321:ILE:HD11	2.03	0.40
4:A:385:PHE:O	4:A:386:LEU:C	2.64	0.40
4:A:26:LYS:HA	4:A:165:GLY:HA2	2.03	0.40
4:A:60:GLN:O	4:A:61:THR:O	2.40	0.40
4:A:116:ILE:HA	4:A:119:CYS:HB2	2.02	0.40
4:A:179:SER:O	5:B:48:GLY:HA3	2.22	0.40
4:A:312:ASP:H	4:A:313:PRO:HD3	1.87	0.40
4:A:360:ARG:C	4:A:361:LYS:CG	2.87	0.40
4:A:421:VAL:C	4:A:423:GLU:H	2.29	0.40
5:B:10:GLN:O	5:B:13:GLU:HB2	2.22	0.40
5:B:42:LEU:HD13	5:B:42:LEU:O	2.21	0.40
4:A:75:ILE:HG22	4:A:75:ILE:O	2.21	0.40
4:A:237:HIS:ND1	4:A:240:ILE:C	2.77	0.40

There are no symmetry-related clashes.

5.3 Torsion angles

5.3.1 Protein backbone

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	
4	A	428/430 (100%)	244 (57%)	111 (26%)	73 (17%)	0	2
5	B	63/65 (97%)	37 (59%)	17 (27%)	9 (14%)	0	3
6	C	30/32 (94%)	19 (63%)	11 (37%)	0	100	100
All	All	521/527 (99%)	300 (58%)	139 (27%)	82 (16%)	0	3

All (82) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
4	A	61	THR
4	A	66	ARG
4	A	99	SER
4	A	234	PRO
4	A	236	ALA
4	A	237	HIS
4	A	240	ILE
4	A	241	LYS
4	A	243	ALA
4	A	246	LYS
4	A	247	TYR
4	A	248	PRO
4	A	249	ILE
4	A	250	LYS
4	A	311	SER
4	A	337	THR
4	A	340	LEU
4	A	342	PRO
4	A	343	LYS
4	A	349	ILE
4	A	352	LEU
4	A	356	ILE
4	A	362	SER
4	A	375	LEU

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Mol	Chain	Res	Type
4	A	376	THR
4	A	428	ILE
5	B	25	LEU
5	B	30	LYS
5	B	55	HIS
4	A	58	PHE
4	A	89	VAL
4	A	93	ILE
4	A	147	ILE
4	A	170	ILE
4	A	172	LEU
4	A	188	GLY
4	A	189	PRO
4	A	229	MET
4	A	231	VAL
4	A	235	LEU
4	A	244	VAL
4	A	304	TYR
4	A	345	MET
4	A	350	GLY
4	A	351	SER
4	A	354	MET
4	A	383	VAL
5	B	20	ARG
5	B	36	VAL
5	B	37	ALA
4	A	4	LEU
4	A	64	ALA
4	A	108	GLN
4	A	145	ILE
4	A	205	PRO
4	A	251	PHE
4	A	288	GLU
4	A	359	PHE
4	A	361	LYS
4	A	427	ALA
4	A	60	GLN
4	A	173	PHE
4	A	287	TYR
4	A	312	ASP
5	B	19	ARG
5	B	56	VAL

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Mol	Chain	Res	Type
4	A	102	GLU
4	A	109	GLY
4	A	313	PRO
4	A	338	THR
5	B	22	TRP
4	A	6	PRO
4	A	136	THR
4	A	137	PRO
4	A	211	ALA
4	A	233	ILE
4	A	372	ILE
4	A	245	GLY
4	A	374	PRO
4	A	77	PRO
4	A	394	GLY
4	A	12	PRO

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 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	
4	A	349/349 (100%)	315 (90%)	34 (10%)	8	24
5	B	57/57 (100%)	53 (93%)	4 (7%)	14	35
6	C	28/28 (100%)	24 (86%)	4 (14%)	3	13
All	All	434/434 (100%)	392 (90%)	42 (10%)	10	24

All (42) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
4	A	3	LYS
4	A	16	LEU
4	A	21	ILE
4	A	22	THR
4	A	27	LEU
4	A	33	VAL

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Mol	Chain	Res	Type
4	A	52	ILE
4	A	55	ILE
4	A	62	ILE
4	A	80	THR
4	A	112	LYS
4	A	126	PHE
4	A	135	LEU
4	A	170	ILE
4	A	172	LEU
4	A	197	LEU
4	A	202	GLN
4	A	210	ILE
4	A	213	ILE
4	A	219	VAL
4	A	235	LEU
4	A	240	ILE
4	A	254	VAL
4	A	257	ILE
4	A	259	VAL
4	A	265	LEU
4	A	306	LEU
4	A	309	VAL
4	A	313	PRO
4	A	314	ILE
4	A	340	LEU
4	A	352	LEU
4	A	403	LEU
4	A	415	GLN
5	B	15	ILE
5	B	17	GLU
5	B	42	LEU
5	B	66	LYS
6	C	30	PRO
6	C	33	VAL
6	C	38	VAL
6	C	51	ARG

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (10) such sidechains are listed below:

Mol	Chain	Res	Type
4	A	60	GLN
4	A	86	GLN

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Mol	Chain	Res	Type
4	A	111	GLN
4	A	146	GLN
4	A	180	GLN
4	A	256	ASN
4	A	268	ASN
4	A	391	ASN
4	A	415	GLN
5	B	6	GLN

5.3.3 RNA ⓘ

Mol	Chain	Analysed	Backbone Outliers	Pucker Outliers
1	D	19/20 (95%)	5 (26%)	1 (5%)
2	E	16/17 (94%)	2 (12%)	0
3	F	31/32 (96%)	0	0
All	All	66/69 (95%)	7 (10%)	1 (1%)

All (7) RNA backbone outliers are listed below:

Mol	Chain	Res	Type
1	D	60	A
1	D	67	A
1	D	69	A
1	D	70	A
1	D	71	G
2	E	87	C
2	E	88	G

All (1) RNA pucker outliers are listed below:

Mol	Chain	Res	Type
1	D	69	A

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 [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.

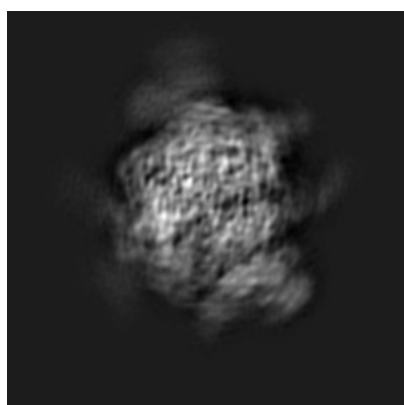
6 Map visualisation [i](#)

This section contains visualisations of the EMDB entry EMD-1528. These allow visual inspection of the internal detail of the map and identification of artifacts.

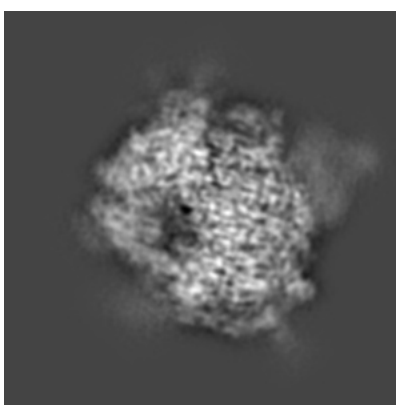
No raw map or half-maps were deposited for this entry and therefore no images, graphs, etc. pertaining to the raw map can be shown.

6.1 Orthogonal projections [i](#)

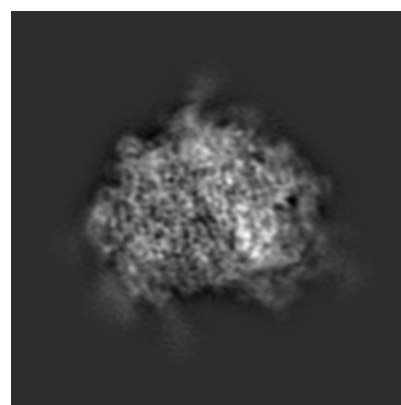
6.1.1 Primary map



X



Y

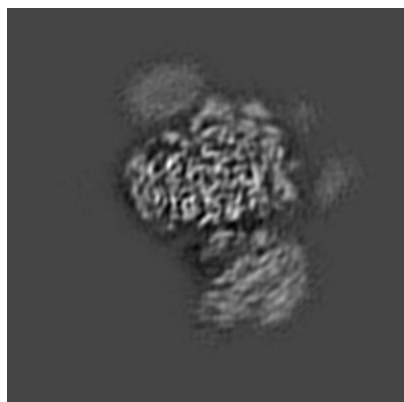


Z

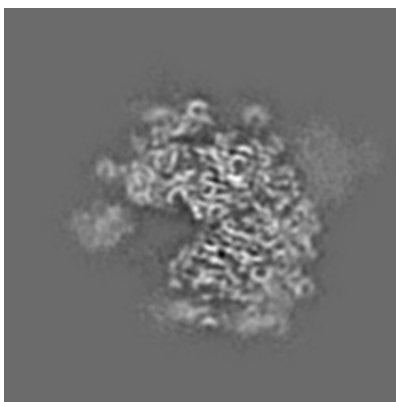
The images above show the map projected in three orthogonal directions.

6.2 Central slices [i](#)

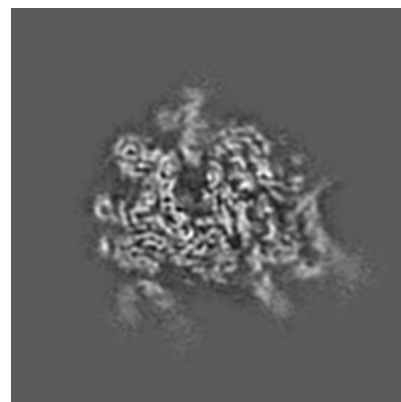
6.2.1 Primary map



X Index: 84



Y Index: 84

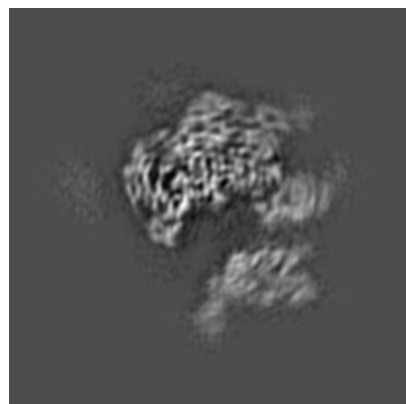


Z Index: 84

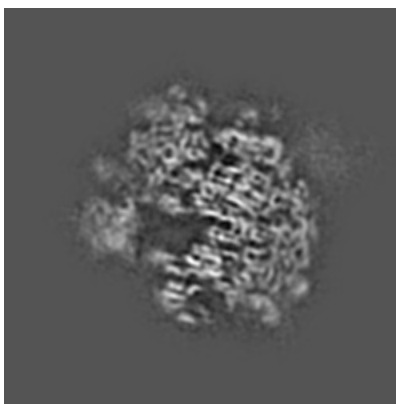
The images above show central slices of the map in three orthogonal directions.

6.3 Largest variance slices [i](#)

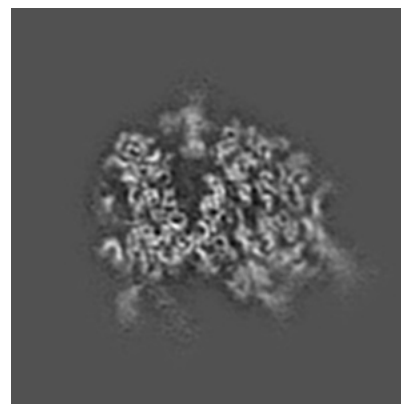
6.3.1 Primary map



X Index: 75



Y Index: 89

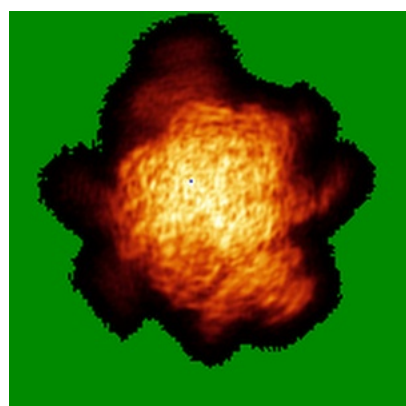


Z Index: 81

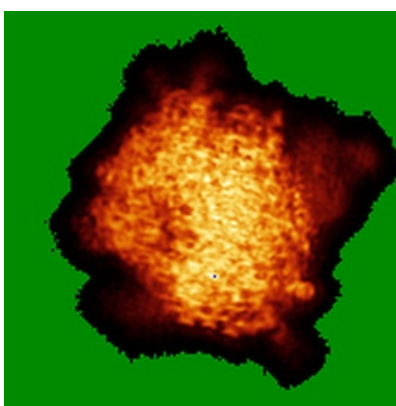
The images above show the largest variance slices of the map in three orthogonal directions.

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

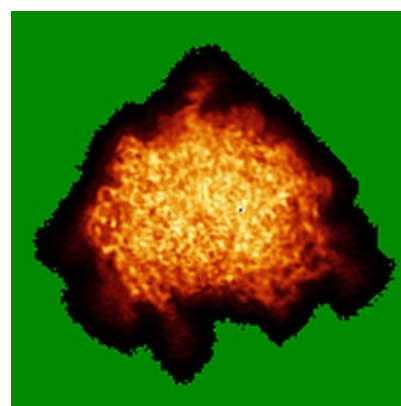
6.4.1 Primary map



X



Y

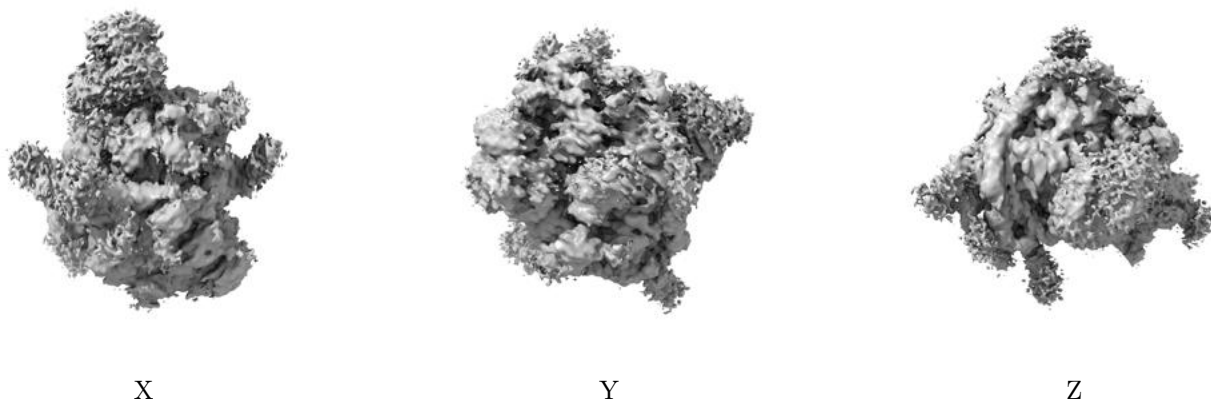


Z

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 1.0. These images, in conjunction with the slice images, may facilitate assessment of whether an appropriate contour level has been provided.

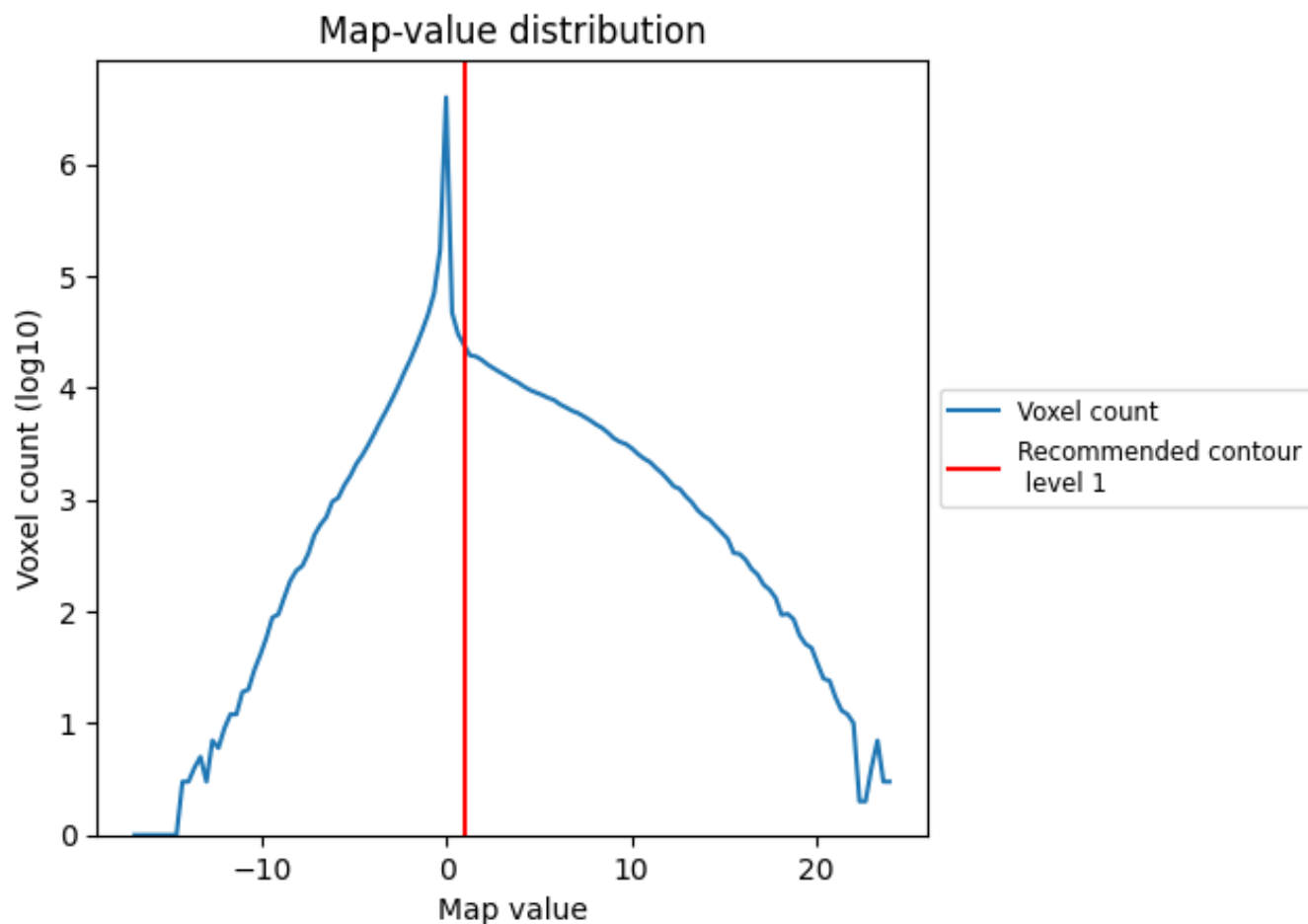
6.6 Mask visualisation [i](#)

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

7 Map analysis [i](#)

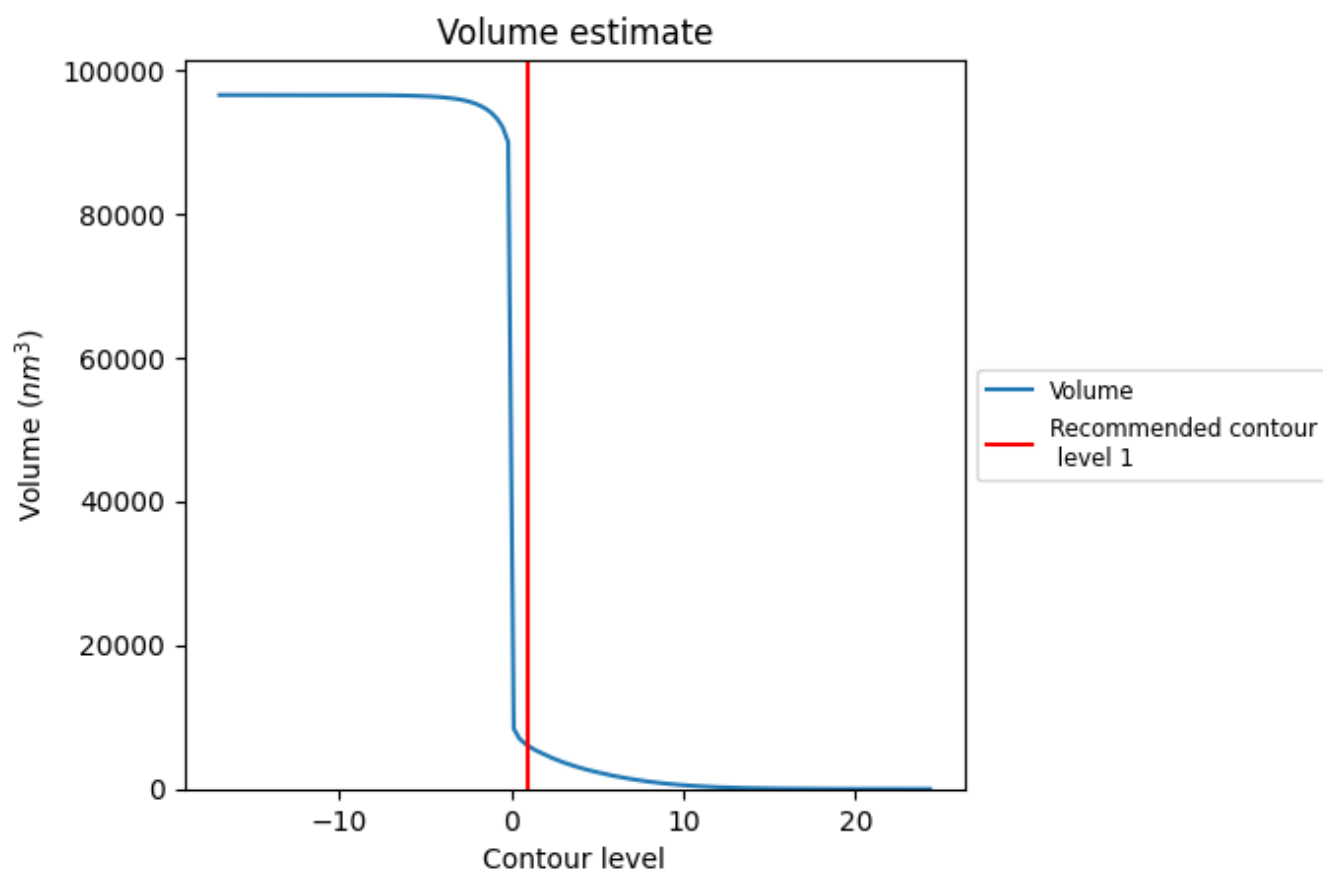
This section contains the results of statistical analysis of the map.

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.

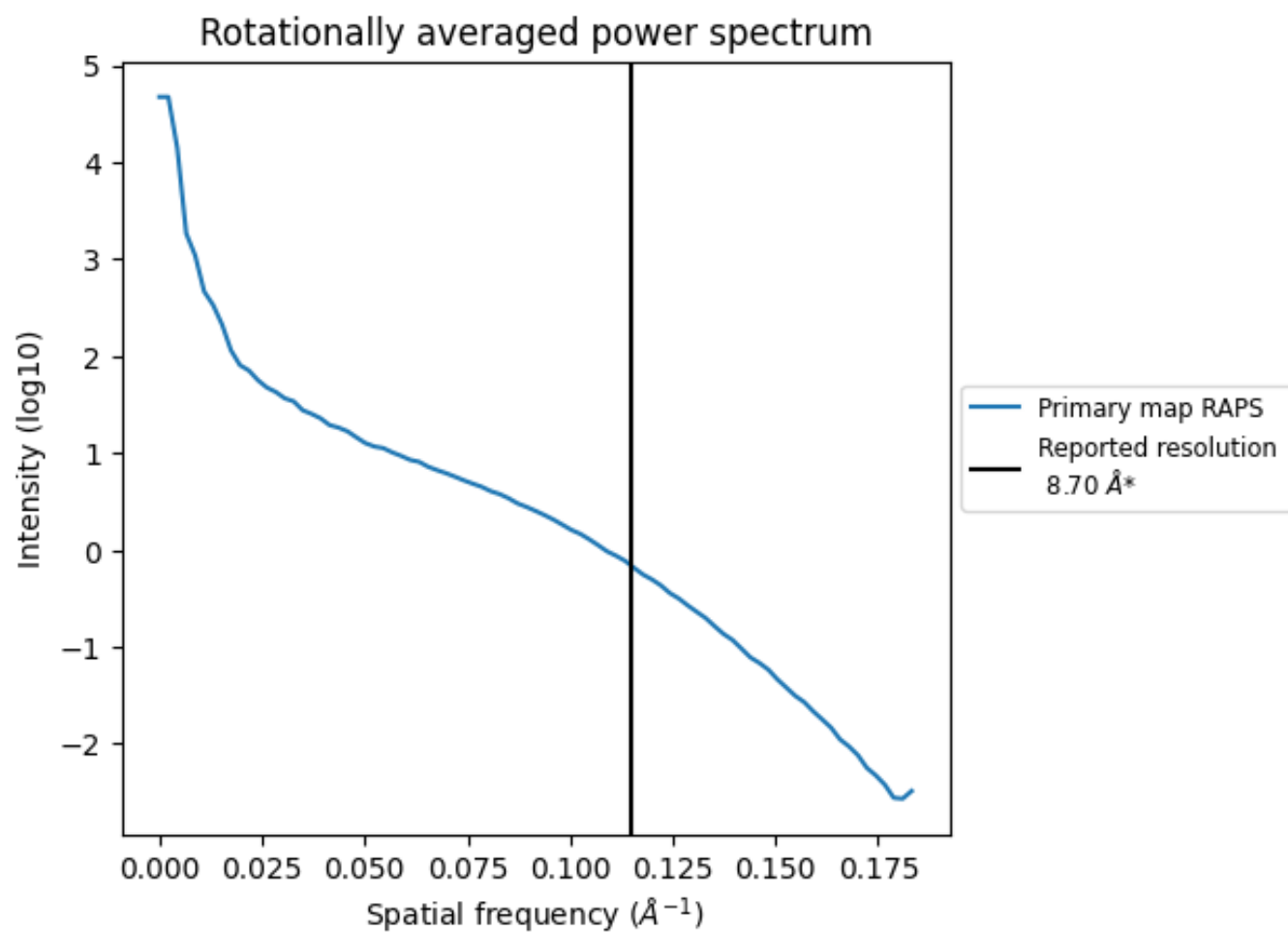
7.2 Volume estimate [i](#)



The volume at the recommended contour level is 5978 nm^3 ; this corresponds to an approximate mass of 5400 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 0.115 Å⁻¹

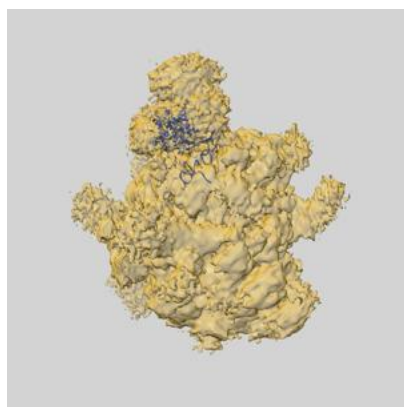
8 Fourier-Shell correlation

This section was not generated. No FSC curve or half-maps provided.

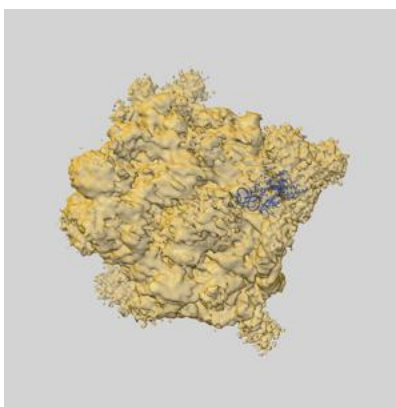
9 Map-model fit [i](#)

This section contains information regarding the fit between EMDB map EMD-1528 and PDB model 3DKN. Per-residue inclusion information can be found in [section 3](#) on [page 6](#).

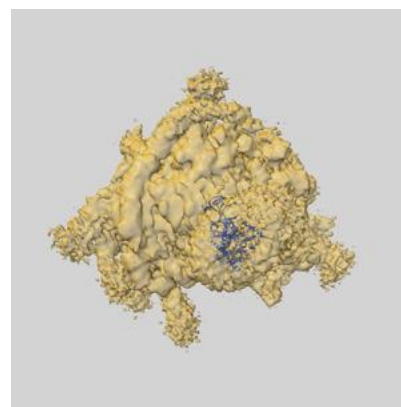
9.1 Map-model overlay [i](#)



X



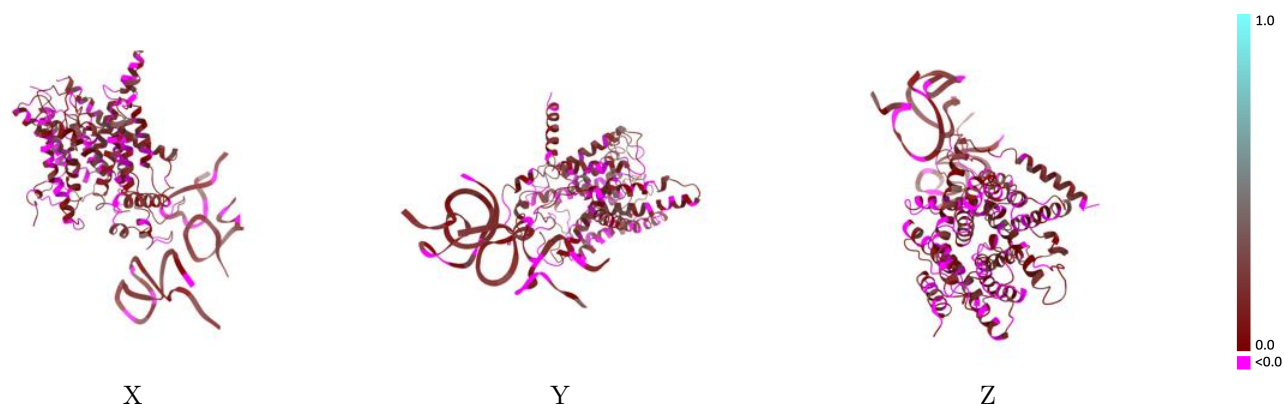
Y



Z

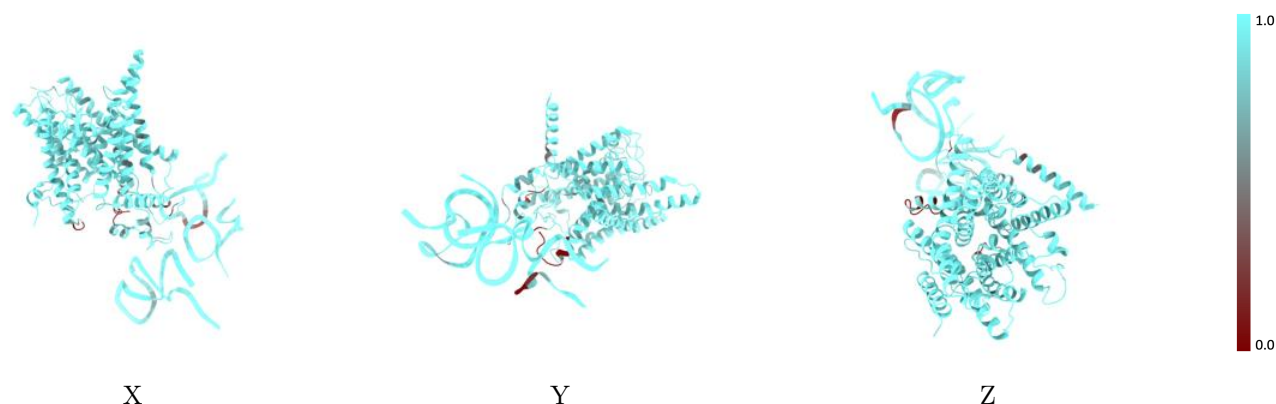
The images above show the 3D surface view of the map at the recommended contour level 1.0 at 50% transparency in yellow overlaid with a ribbon representation of the model coloured in blue. These images allow for the visual assessment of the quality of fit between the atomic model and the map.

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



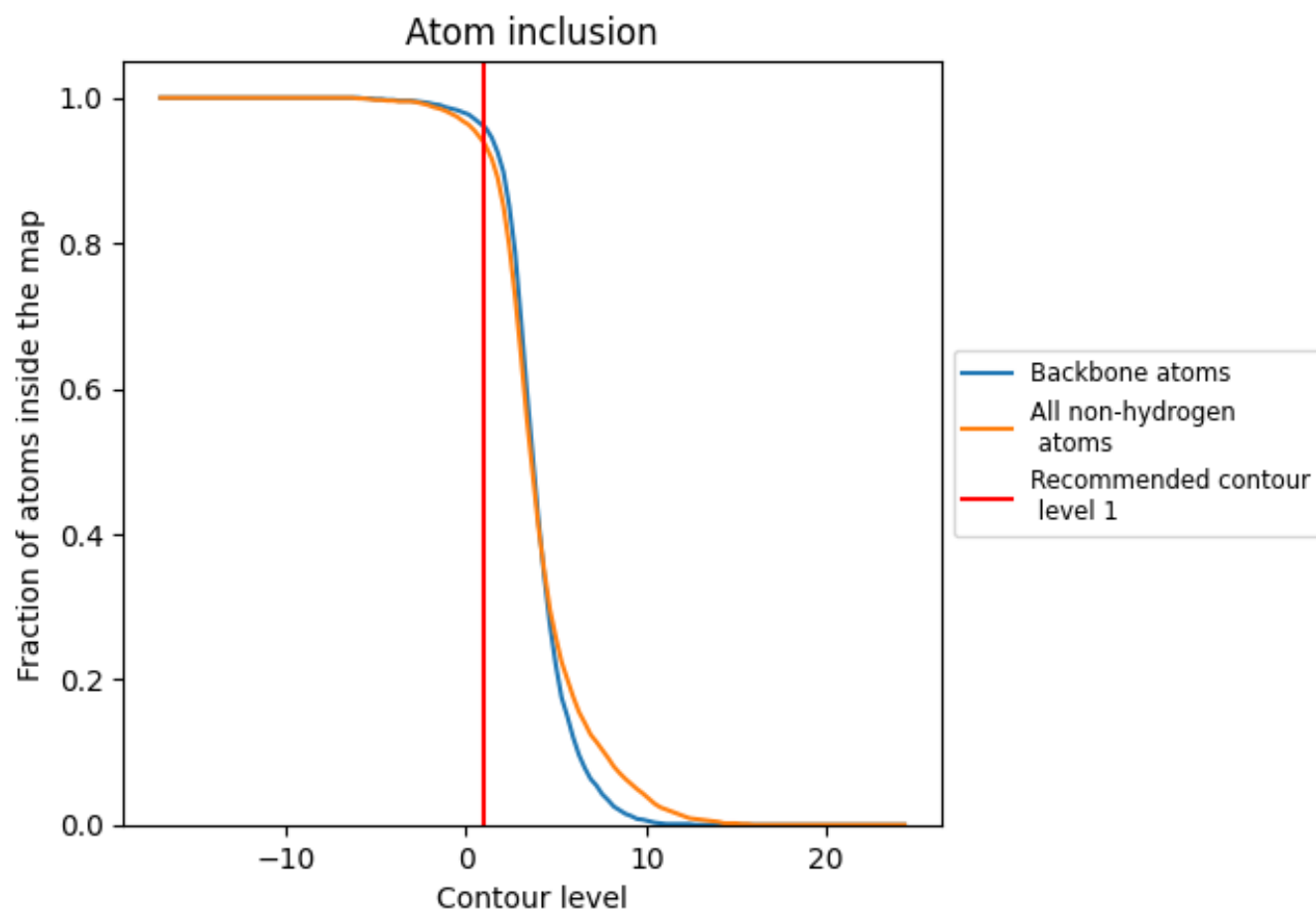
The images above show the model with each residue coloured according to its Q-score. This shows their resolvability in the map with higher Q-score values reflecting better resolvability. Please note: Q-score is calculating the resolvability of atoms, and thus high values are only expected at resolutions 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 (1).

9.4 Atom inclusion [i](#)



At the recommended contour level, 96% 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 (1) and Q-score for the entire model and for each chain.

Chain	Atom inclusion	Q-score
All	0.9380	0.0880
A	0.9360	0.0760
B	0.9650	0.0990
C	0.9720	0.0290
D	0.9840	0.1500
E	0.8140	0.0610
F	0.9520	0.1340

1.0

0.0

<0.0