



Full wwPDB EM Validation Report ⓘ

Dec 9, 2024 – 11:47 AM EST

PDB ID : 9CYY
EMDB ID : EMD-46054
Title : Cryo-EM structure of MRV virion
Authors : Liu, X.Y.; Xia, X.; Martynowycz, M.W.; Gonen, T.; Zhou, Z.H.
Deposited on : 2024-08-03
Resolution : 3.00 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:

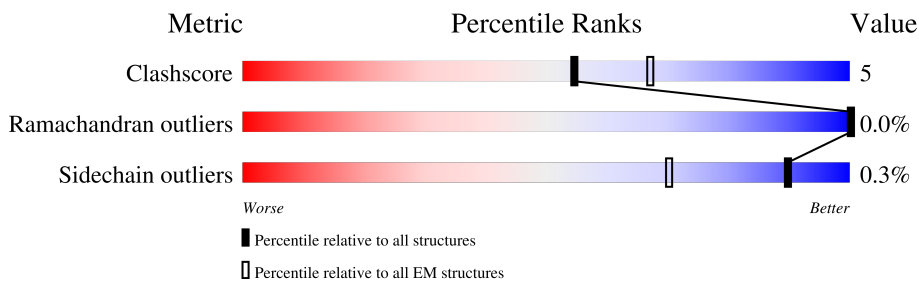
EMDB validation analysis : 0.0.1.dev113
MolProbity : 4.02b-467
Percentile statistics : 20231227.v01 (using entries in the PDB archive December 27th 2023)
MapQ : 1.9.13
Ideal geometry (proteins) : Engh & Huber (2001)
Ideal geometry (DNA, RNA) : Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP) : 2.40

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 3.00 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	0	418	
1	C	418	
2	A	708	
2	B	708	
2	D	708	
2	E	708	
2	F	708	
2	H	708	

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Mol	Chain	Length	Quality of chain
3	G	365	50% 82% 18%
3	I	365	50% 85% 15%
3	L	365	56% 76% 24%
4	J	1289	90% 10%
5	K	1275	77% 8% 15%
5	M	1275	76% 9% 15%
5	Y	1275	74% 9% 17%
5	Z	1275	76% 9% 15%
5	a	1275	84% 16%
5	b	1275	85% 15%
5	c	1275	81% 19%
5	d	1275	85% 15%
5	e	1275	11% 89%
5	f	1275	82% 18%
5	g	1275	11% 89%
5	h	1275	82% 18%
5	i	1275	11% 89%
5	k	1275	11% 89%
5	m	1275	11% 89%
6	V	736	40% 68% 23% 8%
7	W	1267	35% 76% 23%

2 Entry composition [i](#)

There are 7 unique types of molecules in this entry. The entry contains 145604 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 Inner capsid protein sigma-2.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
1	0	418	Total	C	N	O	S	0	0
			3325	2101	600	606	18		
1	C	417	Total	C	N	O	S	0	0
			3317	2096	599	605	17		

- Molecule 2 is a protein called Outer capsid protein mu-1.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
2	A	42	Total	C	N	O	S	0	0
			290	177	48	63	2		
2	B	633	Total	C	N	O	S	0	0
			4816	3053	800	944	19		
2	D	40	Total	C	N	O	S	0	0
			276	168	46	60	2		
2	E	42	Total	C	N	O	S	0	0
			290	177	48	63	2		
2	F	633	Total	C	N	O	S	0	0
			4816	3053	800	944	19		
2	H	615	Total	C	N	O	S	0	0
			4695	2980	781	914	20		

- Molecule 3 is a protein called Outer capsid protein sigma-3.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
3	G	365	Total	C	N	O	S	0	0
			2882	1821	507	527	27		
3	I	365	Total	C	N	O	S	0	0
			2882	1821	507	527	27		
3	L	365	Total	C	N	O	S	0	0
			2882	1821	507	527	27		

- Molecule 4 is a protein called Outer capsid protein lambda-2.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
4	J	1288	10148	6479	1704	1923	42	0	0

- Molecule 5 is a protein called Lambda 1.

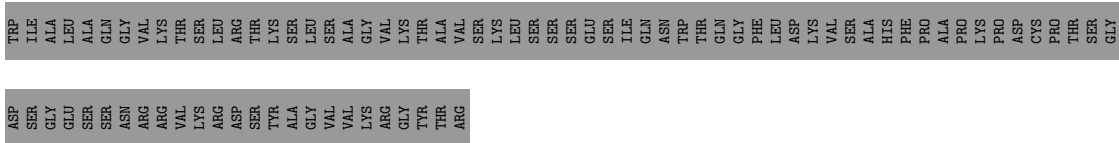
Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
5	K	1086	8570	5475	1452	1592	51	0	0
5	M	1087	8579	5480	1454	1594	51	0	0
5	Y	1054	8326	5322	1405	1550	49	0	0
5	Z	1086	8575	5480	1452	1592	51	0	0
5	a	1073	8473	5410	1435	1578	50	0	0
5	b	1087	8579	5480	1454	1594	51	0	0
5	c	1035	8172	5224	1380	1519	49	0	0
5	d	1087	8579	5482	1453	1593	51	0	0
5	e	140	1050	622	198	226	4	0	0
5	f	1048	8279	5290	1399	1541	49	0	0
5	g	141	1055	625	199	227	4	0	0
5	h	1044	8250	5274	1393	1534	49	0	0
5	i	140	1050	622	198	226	4	0	0
5	k	140	1050	622	198	226	4	0	0
5	m	141	1056	625	199	228	4	0	0

- Molecule 6 is a protein called Mu2.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
6	V	675	5380	3459	908	981	32	0	0

- Molecule 7 is a protein called RNA-directed RNA polymerase.

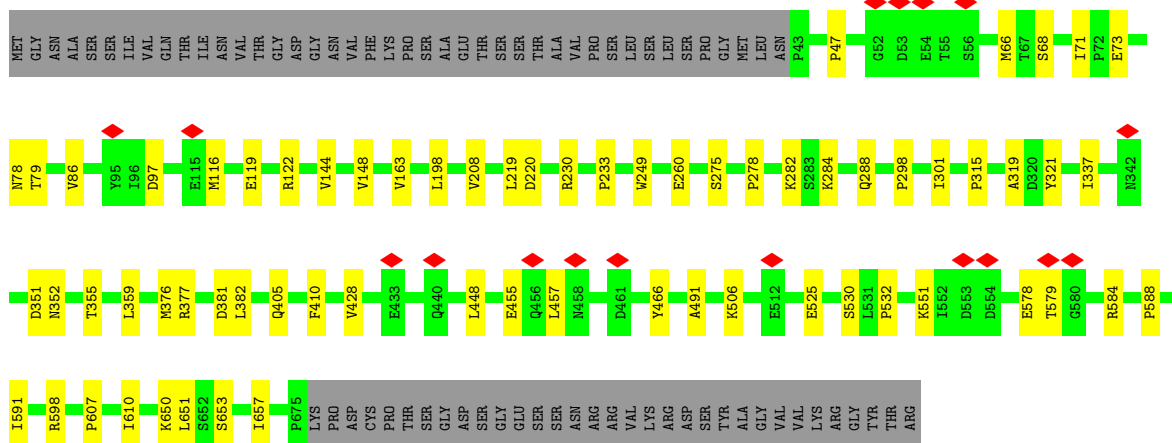
Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
7	W	1260	9962	6361	1708	1828	65	0	0



• Molecule 2: Outer capsid protein mu-1

Chain F:

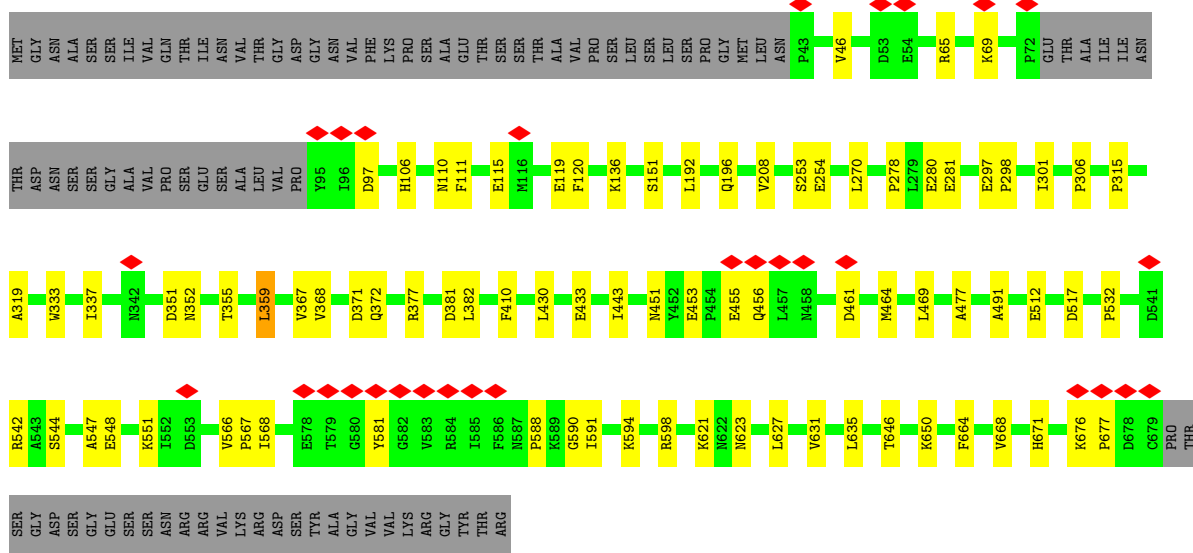
80% 9% 11%



• Molecule 2: Outer capsid protein mu-1

Chain H:

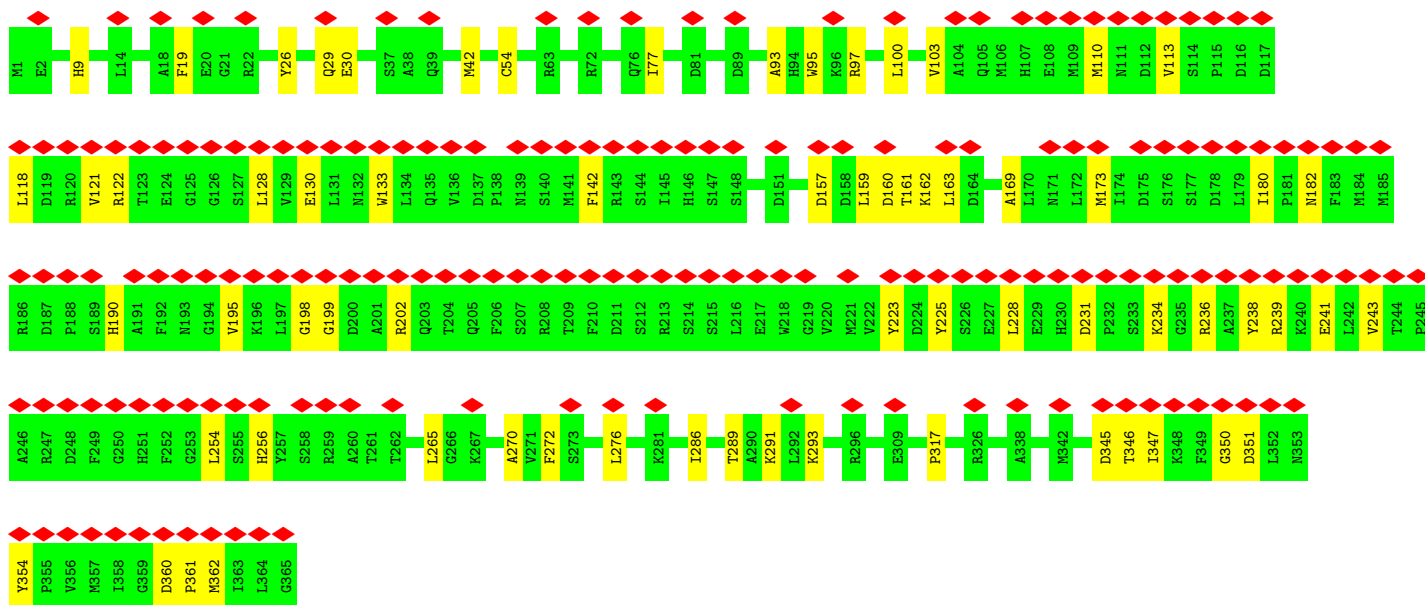
75% 11% 13%



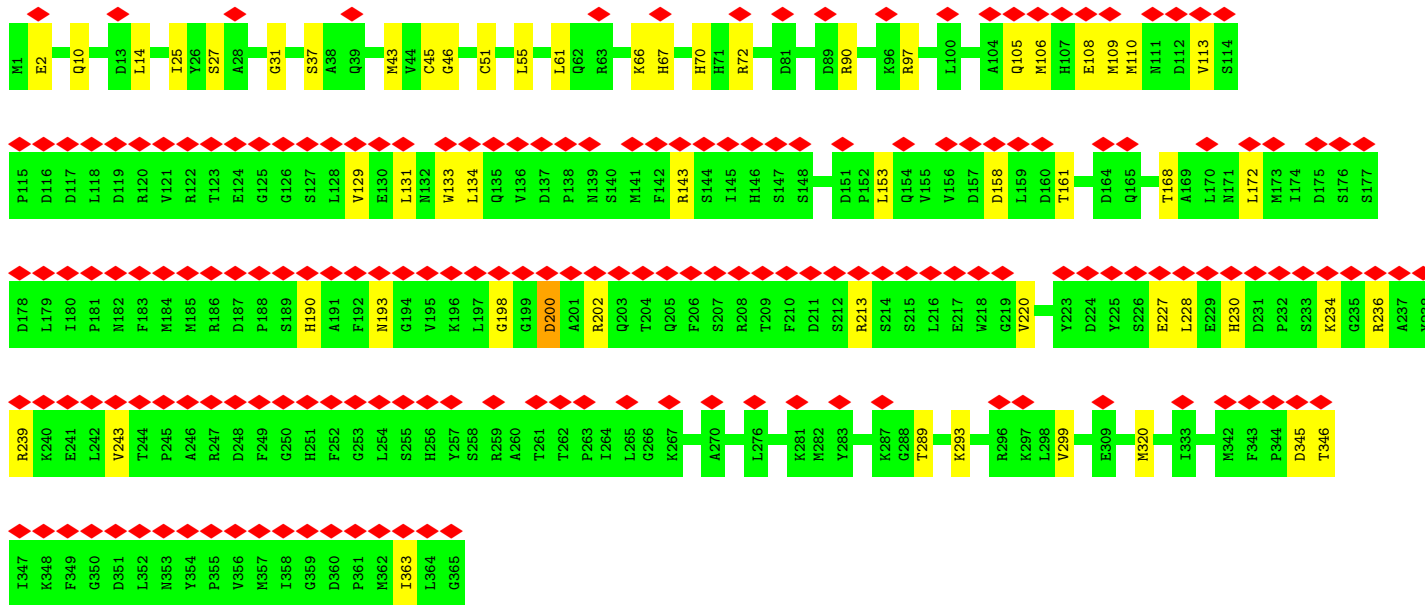
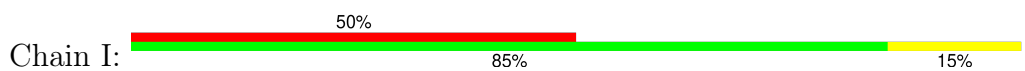
• Molecule 3: Outer capsid protein sigma-3

Chain G:

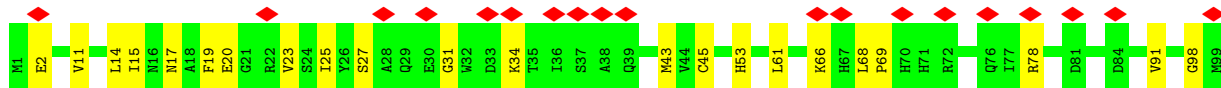
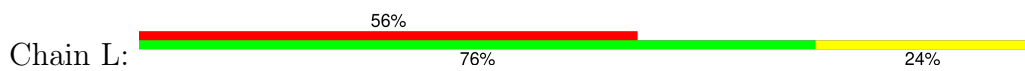
50% 82% 18%



• Molecule 3: Outer capsid protein sigma-3

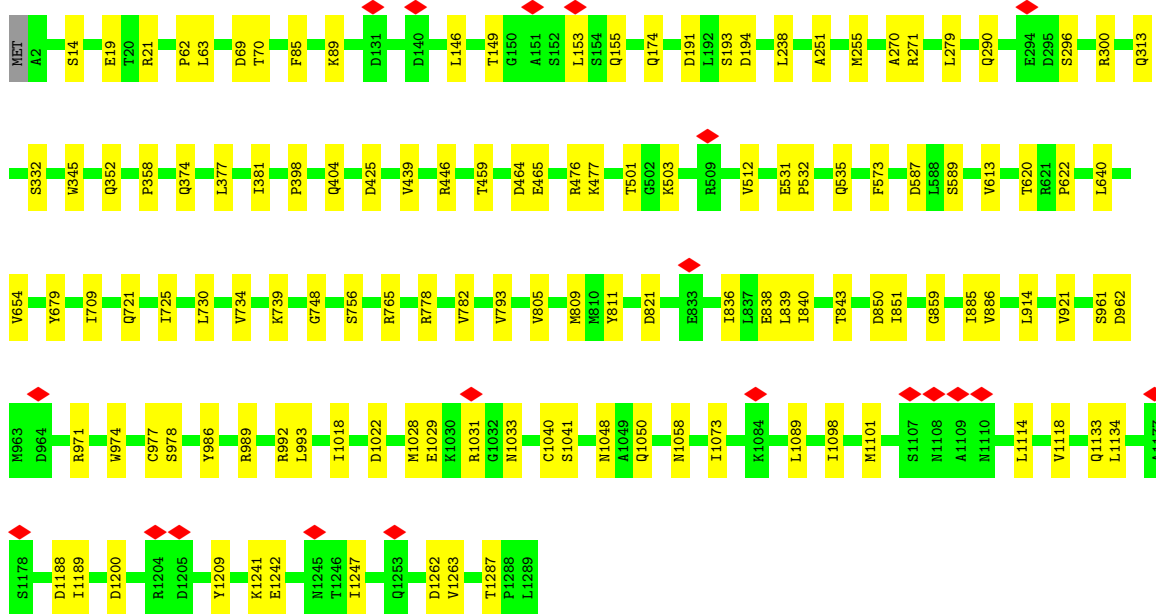
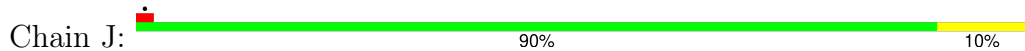


• Molecule 3: Outer capsid protein sigma-3

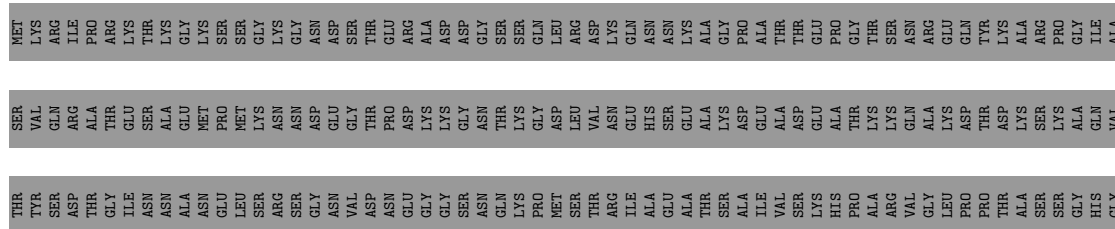
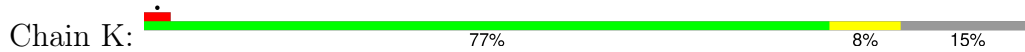


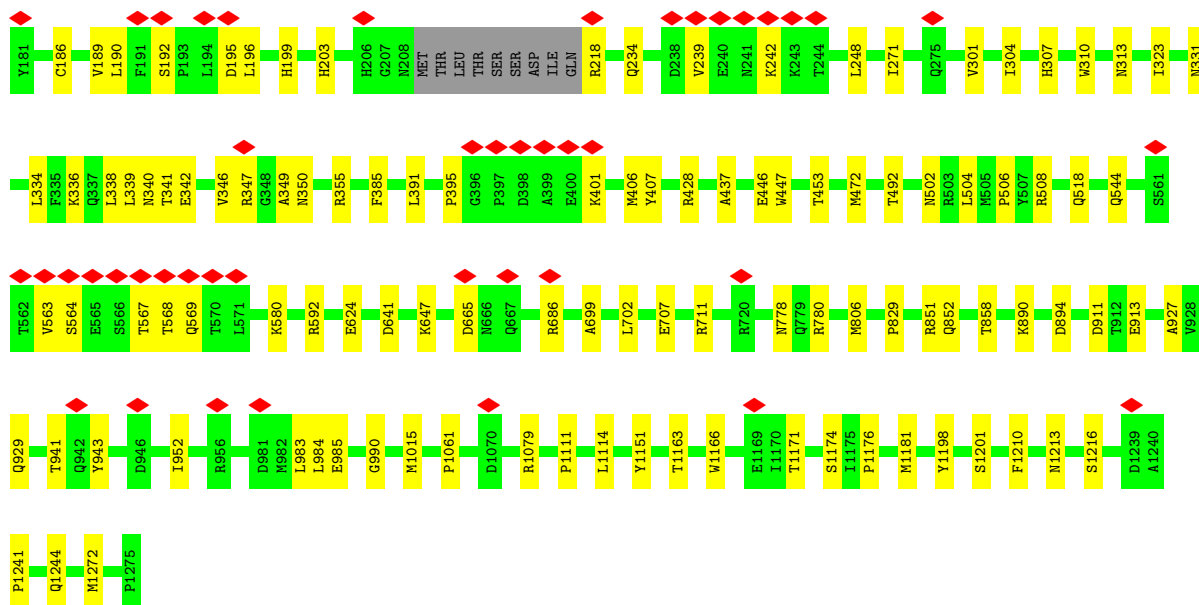


• Molecule 4: Outer capsid protein lambda-2



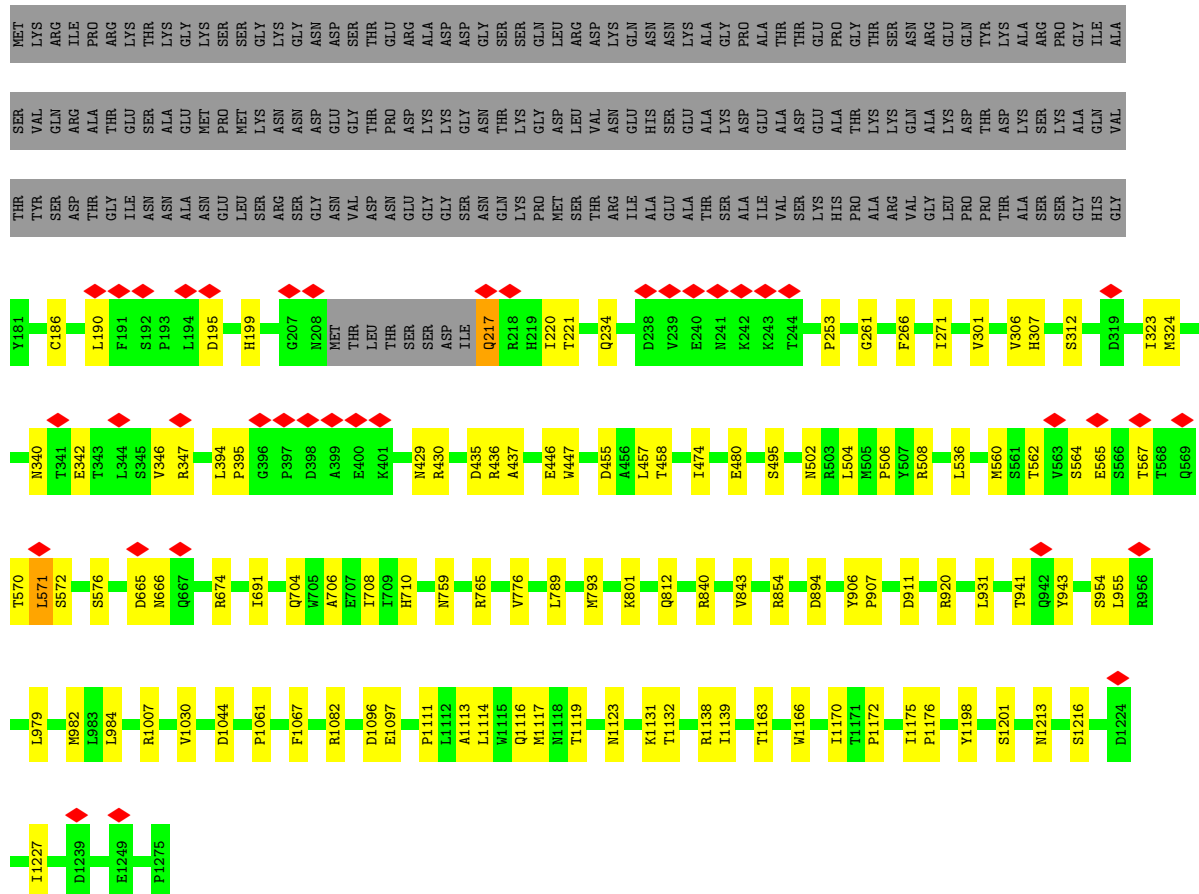
• Molecule 5: Lambda 1



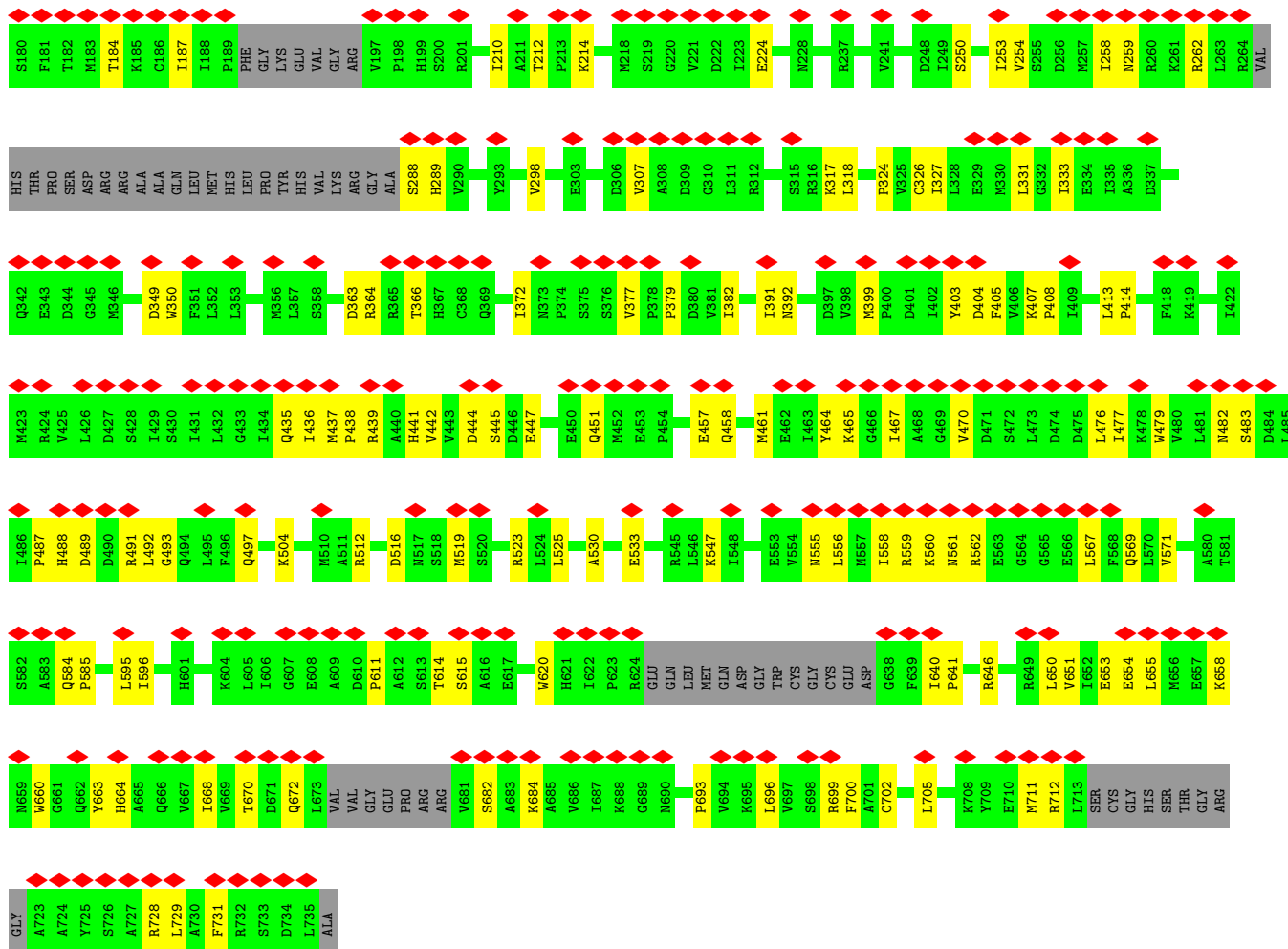


• Molecule 5: Lambda 1

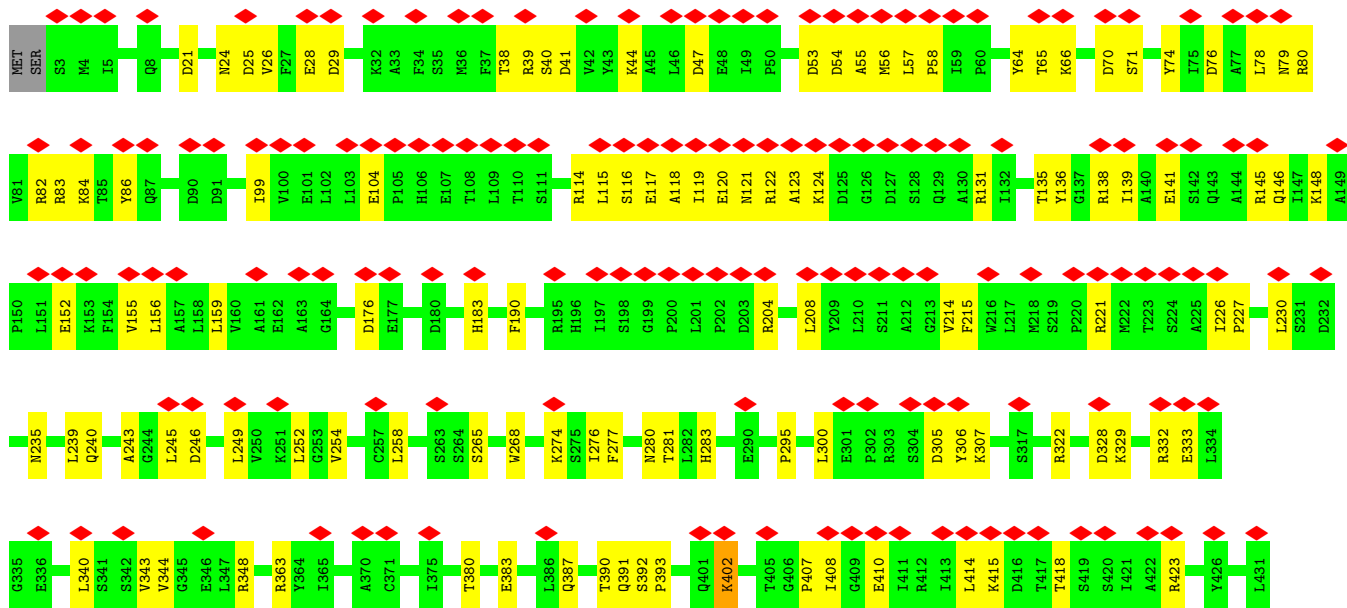
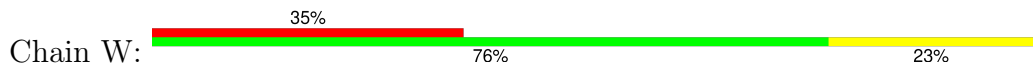
Chain M:

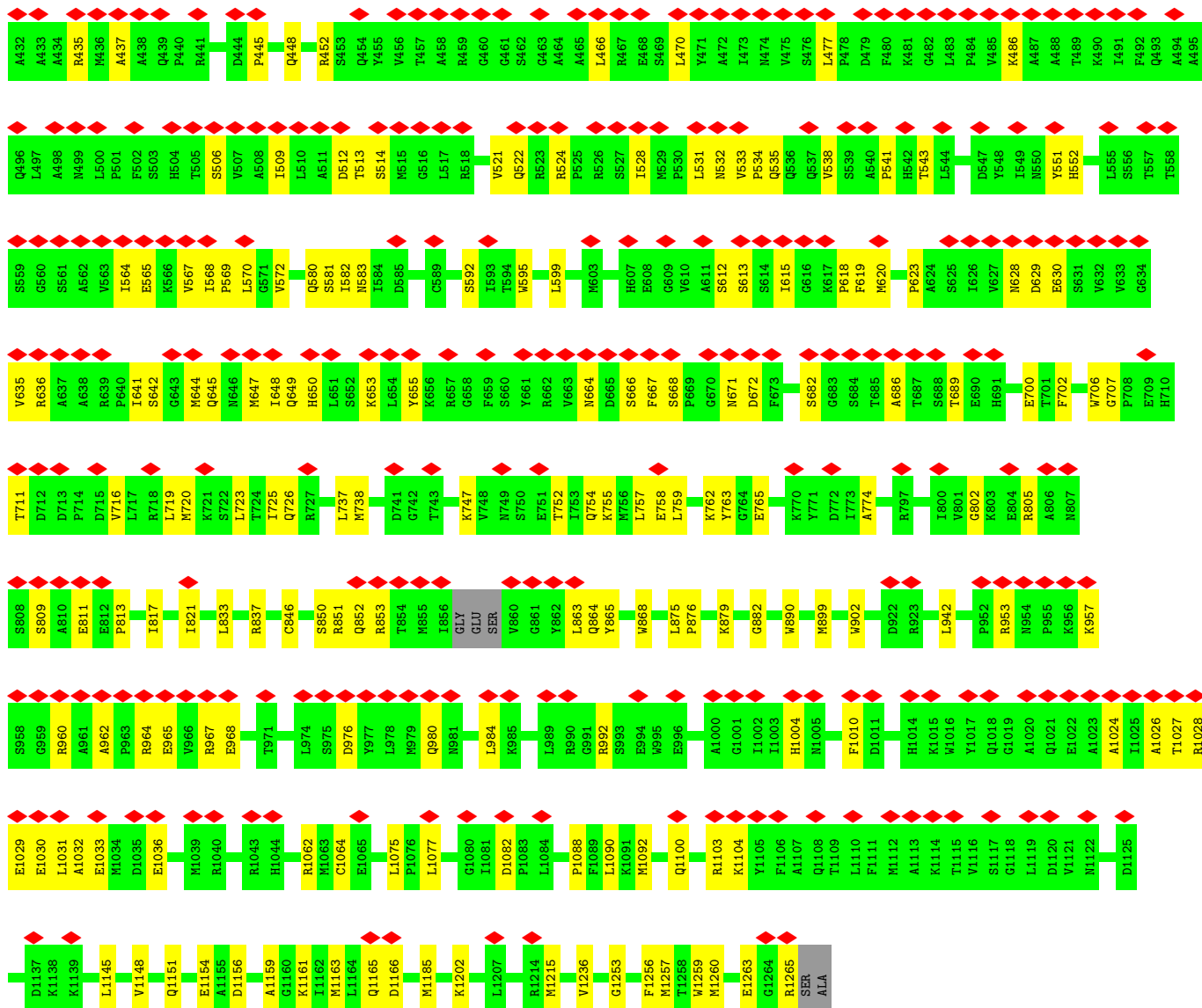


• Molecule 5: Lambda 1



• Molecule 7: RNA-directed RNA polymerase





4 Experimental information

Property	Value	Source
EM reconstruction method	SINGLE PARTICLE	Depositor
Imposed symmetry	POINT, C1	Depositor
Number of particles used	97187	Depositor
Resolution determination method	FSC 0.143 CUT-OFF	Depositor
CTF correction method	PHASE FLIPPING ONLY	Depositor
Microscope	FEI TITAN KRIOS	Depositor
Voltage (kV)	300	Depositor
Electron dose ($e^-/\text{\AA}^2$)	50	Depositor
Minimum defocus (nm)	1800	Depositor
Maximum defocus (nm)	2600	Depositor
Magnification	81000	Depositor
Image detector	GATAN K3 BIOQUANTUM (6k x 4k)	Depositor
Maximum map value	0.048	Depositor
Minimum map value	-0.024	Depositor
Average map value	0.001	Depositor
Map value standard deviation	0.004	Depositor
Recommended contour level	0.01	Depositor
Map size (\AA)	422.40002, 422.40002, 422.40002	wwPDB
Map dimensions	384, 384, 384	wwPDB
Map angles ($^\circ$)	90.0, 90.0, 90.0	wwPDB
Pixel spacing (\AA)	1.1, 1.1, 1.1	Depositor

5 Model quality [i](#)

5.1 Standard geometry [i](#)

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

Mol	Chain	Bond lengths		Bond angles	
		RMSZ	# Z >5	RMSZ	# Z >5
1	0	0.25	0/3411	0.51	0/4644
1	C	0.26	0/3403	0.49	0/4634
2	A	0.25	0/293	0.50	0/399
2	B	0.26	0/4917	0.47	0/6719
2	D	0.43	0/278	0.51	0/377
2	E	0.37	0/293	0.51	0/399
2	F	0.26	0/4917	0.46	0/6719
2	H	0.26	0/4794	0.47	0/6546
3	G	0.27	0/2955	0.49	0/4003
3	I	0.25	0/2955	0.51	0/4003
3	L	0.26	0/2955	0.50	0/4003
4	J	0.26	0/10407	0.48	0/14203
5	K	0.25	0/8803	0.47	0/12059
5	M	0.25	0/8812	0.48	0/12071
5	Y	0.26	0/8552	0.49	0/11716
5	Z	0.26	0/8808	0.49	0/12066
5	a	0.26	0/8702	0.49	0/11919
5	b	0.25	0/8812	0.48	0/12071
5	c	0.26	0/8393	0.48	0/11497
5	d	0.26	0/8812	0.49	0/12071
5	e	0.25	0/1060	0.50	0/1420
5	f	0.25	0/8501	0.49	0/11641
5	g	0.25	0/1065	0.49	0/1427
5	h	0.26	0/8472	0.49	0/11603
5	i	0.25	0/1060	0.50	0/1420
5	k	0.25	0/1060	0.49	0/1420
5	m	0.25	0/1066	0.50	0/1428
6	V	0.27	0/5496	0.51	0/7455
7	W	0.27	0/10215	0.52	0/13871
All	All	0.26	0/149267	0.49	0/203804

There are no bond length outliers.

There are no bond angle outliers.

There are no chirality outliers.

There are no planarity outliers.

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	0	3325	0	3228	31	0
1	C	3317	0	3216	16	0
2	A	290	0	291	9	0
2	B	4816	0	4835	64	0
2	D	276	0	274	11	0
2	E	290	0	291	4	0
2	F	4816	0	4835	46	0
2	H	4695	0	4718	59	0
3	G	2882	0	2820	43	0
3	I	2882	0	2822	36	0
3	L	2882	0	2822	65	0
4	J	10148	0	9929	74	0
5	K	8570	0	8457	64	0
5	M	8579	0	8465	70	0
5	Y	8326	0	8228	71	0
5	Z	8575	0	8467	71	0
5	a	8473	0	8370	0	0
5	b	8579	0	8465	0	0
5	c	8172	0	8088	0	0
5	d	8579	0	8470	0	0
5	e	1050	0	1035	0	0
5	f	8279	0	8189	0	0
5	g	1055	0	1037	0	0
5	h	8250	0	8160	0	0
5	i	1050	0	1035	0	0
5	k	1050	0	1035	0	0
5	m	1056	0	1040	0	0
6	V	5380	0	5438	126	0
7	W	9962	0	9897	193	0
All	All	145604	0	143957	985	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 5.

All (985) 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)
7:W:1027:THR:HG22	7:W:1028:ARG:H	1.21	0.99
7:W:1027:THR:HG22	7:W:1028:ARG:N	1.85	0.92
7:W:1027:THR:CG2	7:W:1028:ARG:H	1.85	0.88
7:W:595:TRP:HA	7:W:599:LEU:HB2	1.58	0.85
2:B:270:LEU:HD23	2:B:280:GLU:HG3	1.64	0.80
5:M:564:SER:HB2	5:M:572:SER:HB3	1.62	0.79
5:M:217:GLN:HE21	5:M:217:GLN:N	1.80	0.79
6:V:119:ASN:HB3	6:V:123:ARG:HH12	1.47	0.78
6:V:377:VAL:HG12	6:V:379:PRO:HD2	1.65	0.78
3:L:128:LEU:HD23	3:L:129:VAL:HG23	1.64	0.78
5:Z:237:ALA:HA	5:Z:247:LEU:HD22	1.66	0.78
2:H:253:SER:OG	2:H:254:GLU:OE1	2.02	0.77
7:W:135:THR:HG22	7:W:668:SER:HA	1.67	0.77
5:Z:186:CYS:SG	5:Z:199:HIS:NE2	2.57	0.76
3:L:121:VAL:HG11	3:L:128:LEU:HD12	1.66	0.75
5:Z:665:ASP:HA	5:Z:686:ARG:HH21	1.51	0.75
6:V:488:HIS:HD2	6:V:491:ARG:HD2	1.52	0.75
5:K:665:ASP:HA	5:K:686:ARG:HH21	1.52	0.74
2:D:4:ALA:HB3	2:F:233:PRO:HG2	1.70	0.73
5:M:1111:PRO:HG2	5:M:1114:LEU:HD13	1.70	0.73
2:B:551:LYS:HG2	2:H:315:PRO:HD3	1.71	0.72
2:F:588:PRO:HD2	2:F:591:ILE:HD12	1.71	0.72
5:Y:858:THR:HG23	5:Y:942:GLN:HB2	1.69	0.72
6:V:113:ARG:HG3	6:V:114:LYS:HG2	1.70	0.72
4:J:531:GLU:OE2	4:J:535:GLN:NE2	2.23	0.72
3:G:121:VAL:O	3:G:236:ARG:NH1	2.23	0.71
5:Y:244:THR:HG22	5:Y:531:VAL:HA	1.72	0.71
5:Y:514:ARG:NH1	5:Y:727:PHE:O	2.23	0.71
7:W:533:VAL:HB	7:W:534:PRO:HD3	1.71	0.71
4:J:1242:GLU:HB2	4:J:1247:ILE:HD11	1.71	0.70
7:W:890:TRP:HH2	7:W:1088:PRO:HD3	1.56	0.70
7:W:641:ILE:HB	7:W:645:GLN:HB3	1.73	0.70
6:V:504:LYS:NZ	7:W:392:SER:OG	2.24	0.70
3:G:228:LEU:HD12	3:G:354:TYR:HE2	1.57	0.69
5:Y:1116:GLN:HG2	5:Y:1172:PRO:HA	1.73	0.69
1:O:352:ALA:O	1:O:356:GLN:NE2	2.25	0.69
6:V:104:LYS:HA	6:V:107:MET:HE2	1.75	0.69
4:J:358:PRO:HG3	4:J:381:ILE:HD12	1.73	0.69
7:W:274:LYS:NZ	7:W:522:GLN:O	2.24	0.69
7:W:104:GLU:HG2	7:W:116:SER:HA	1.75	0.69

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
3:G:347:ILE:HG22	3:G:350:GLY:H	1.56	0.69
4:J:1188:ASP:OD1	4:J:1189:ILE:N	2.26	0.69
5:M:186:CYS:HG	5:M:199:HIS:HE2	1.40	0.69
6:V:458:GLN:HA	6:V:461:MET:HG3	1.74	0.69
5:Z:218:ARG:HH21	5:Z:239:VAL:HG22	1.58	0.68
5:Z:336:LYS:NZ	5:Z:346:VAL:O	2.27	0.68
3:L:131:LEU:HD21	3:L:361:PRO:HB2	1.74	0.68
6:V:31:ASP:H	6:V:262:ARG:HH22	1.42	0.67
5:M:234:GLN:NE2	5:M:911:ASP:OD1	2.28	0.67
4:J:1098:ILE:HG12	4:J:1118:VAL:HG12	1.77	0.67
2:B:458:ASN:OD1	2:B:459:LYS:N	2.28	0.66
2:F:506:LYS:HB3	3:G:317:PRO:HD3	1.76	0.66
3:L:132:ASN:HB3	3:L:135:GLN:HG2	1.76	0.66
5:Z:641:ASP:OD2	5:Z:647:LYS:NZ	2.29	0.66
2:H:298:PRO:HA	2:H:301:ILE:HG12	1.78	0.66
5:M:1163:THR:HG21	5:M:1198:TYR:HB2	1.77	0.66
2:A:16:ASP:OD1	2:B:213:GLN:NE2	2.28	0.66
2:F:315:PRO:HD3	2:H:551:LYS:HG2	1.77	0.66
3:I:228:LEU:O	3:I:239:ARG:NH2	2.29	0.66
7:W:700:GLU:HB2	7:W:725:ILE:HD13	1.77	0.66
2:H:69:LYS:NZ	2:H:97:ASP:OD2	2.23	0.66
7:W:418:THR:O	7:W:423:ARG:NH2	2.28	0.65
3:G:231:ASP:HB3	3:G:234:LYS:HB2	1.79	0.65
5:K:218:ARG:HH21	5:K:239:VAL:HG22	1.62	0.65
5:Z:346:VAL:HG23	5:Z:347:ARG:HD3	1.78	0.65
2:H:568:ILE:HG23	2:H:623:ASN:HD22	1.60	0.65
1:O:233:THR:HG21	1:O:256:SER:HB3	1.78	0.65
5:Z:521:ARG:HD2	5:Z:828:PHE:HD1	1.61	0.65
5:K:1171:THR:HG1	5:K:1174:SER:HG	1.45	0.65
7:W:976:ASP:O	7:W:980:GLN:NE2	2.30	0.65
5:Z:261:GLY:HA3	5:Z:312:SER:HA	1.77	0.65
5:Z:271:ILE:HB	5:Z:301:VAL:HG23	1.79	0.65
2:H:297:GLU:OE2	2:H:542:ARG:NH1	2.28	0.65
5:K:641:ASP:OD2	5:K:647:LYS:NZ	2.29	0.65
2:B:315:PRO:HD3	2:F:551:LYS:HG2	1.79	0.65
5:M:190:LEU:HD12	5:M:195:ASP:HB3	1.78	0.65
2:H:588:PRO:HD2	2:H:591:ILE:HD12	1.78	0.64
5:M:340:ASN:HD21	5:Y:382:HIS:HB3	1.62	0.64
3:L:121:VAL:O	3:L:236:ARG:NH1	2.30	0.64
2:H:46:VAL:HG11	2:H:65:ARG:HE	1.60	0.64
3:G:100:LEU:HD13	3:G:159:LEU:HD12	1.79	0.64

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
6:V:479:TRP:CE2	6:V:491:ARG:HD3	2.32	0.64
2:B:157:ASN:O	2:H:136:LYS:NZ	2.30	0.64
7:W:121:ASN:HD22	7:W:124:LYS:NZ	1.96	0.64
7:W:565:GLU:OE2	7:W:1103:ARG:NH1	2.30	0.64
5:M:261:GLY:HA3	5:M:312:SER:HA	1.78	0.64
2:B:323:VAL:O	2:B:366:ARG:NH1	2.31	0.64
3:I:129:VAL:HG12	3:I:363:ILE:HG12	1.80	0.64
5:K:778:ASN:HD21	5:K:780:ARG:HD2	1.62	0.64
5:K:1163:THR:HG21	5:K:1198:TYR:HB2	1.80	0.64
6:V:399:MET:HB2	6:V:699:ARG:HH12	1.63	0.64
7:W:964:ARG:HD3	7:W:967:ARG:HH22	1.62	0.64
4:J:1048:ASN:ND2	4:J:1050:GLN:OE1	2.31	0.63
2:D:9:GLN:HG2	2:D:10:THR:HG23	1.79	0.63
4:J:446:ARG:NH1	4:J:1073:ILE:O	2.31	0.63
7:W:387:GLN:O	7:W:391:GLN:NE2	2.32	0.63
3:G:182:ASN:HD21	3:G:361:PRO:HA	1.62	0.63
5:M:571:LEU:HD11	5:M:576:SER:HA	1.80	0.63
7:W:306:TYR:O	7:W:1104:LYS:NZ	2.32	0.63
7:W:531:LEU:HD23	7:W:535:GLN:HB3	1.80	0.63
5:Z:341:THR:HG23	5:Z:342:GLU:OE1	1.98	0.63
6:V:95:PRO:O	6:V:103:ARG:NH2	2.32	0.62
7:W:964:ARG:HE	7:W:967:ARG:HH12	1.47	0.62
7:W:21:ASP:OD2	7:W:882:GLY:N	2.28	0.62
6:V:650:LEU:O	6:V:653:GLU:HG3	1.99	0.62
3:G:118:LEU:O	3:G:122:ARG:HG2	1.99	0.62
5:M:1082:ARG:NH1	5:Y:421:ASN:OD1	2.33	0.62
7:W:716:VAL:O	7:W:720:MET:HG3	2.00	0.62
5:K:271:ILE:HB	5:K:301:VAL:HG23	1.82	0.62
7:W:962:ALA:O	7:W:964:ARG:NH2	2.31	0.62
5:Y:1163:THR:HG21	5:Y:1198:TYR:HB2	1.82	0.62
5:Y:1218:GLN:HE21	5:Y:1220:ILE:HD11	1.64	0.62
1:C:333:ARG:NH2	1:C:358:GLU:OE1	2.33	0.61
5:K:568:THR:HG23	5:K:569:GLN:OE1	2.00	0.61
6:V:559:ARG:HB2	6:V:562:ARG:HH22	1.65	0.61
5:Z:234:GLN:NE2	5:Z:911:ASP:OD1	2.32	0.61
5:Z:1111:PRO:HG2	5:Z:1114:LEU:HD13	1.80	0.61
2:B:194:VAL:HG13	2:H:566:VAL:HG11	1.83	0.61
5:M:665:ASP:OD1	5:M:666:ASN:N	2.32	0.61
6:V:105:ARG:HD3	6:V:108:LEU:HG	1.83	0.61
2:H:477:ALA:H	3:I:161:THR:HG22	1.65	0.61
3:L:231:ASP:HB2	3:L:234:LYS:HB2	1.81	0.61

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
5:M:1116:GLN:HG2	5:M:1172:PRO:HA	1.83	0.61
4:J:19:GLU:HG3	4:J:279:LEU:HG	1.81	0.61
5:K:1241:PRO:HG2	5:K:1244:GLN:HB2	1.81	0.61
1:O:229:HIS:NE2	1:O:346:ASP:OD2	2.27	0.61
3:L:100:LEU:HD13	3:L:163:LEU:HG	1.83	0.61
7:W:1064:CYS:SG	7:W:1202:LYS:NZ	2.73	0.61
5:Z:504:LEU:HG	5:Z:506:PRO:HD3	1.83	0.60
7:W:965:GLU:O	7:W:968:GLU:HG3	2.01	0.60
2:B:54:GLU:HG2	2:B:55:THR:H	1.66	0.60
5:Y:1096:ASP:OD1	5:Y:1097:GLU:N	2.34	0.60
5:M:1119:THR:O	5:M:1123:ASN:ND2	2.34	0.60
7:W:21:ASP:OD1	7:W:879:LYS:NZ	2.34	0.60
2:B:348:GLN:OE1	2:B:356:ASN:ND2	2.35	0.60
5:K:307:HIS:CE1	5:K:323:ILE:HD12	2.36	0.60
6:V:442:VAL:HG12	6:V:525:LEU:HB3	1.84	0.60
7:W:141:GLU:HG2	7:W:214:VAL:HG12	1.82	0.60
2:H:646:THR:HG22	2:H:650:LYS:HE2	1.83	0.60
5:M:570:THR:HG21	5:M:789:LEU:HD11	1.82	0.60
7:W:305:ASP:O	7:W:1104:LYS:NZ	2.30	0.60
3:G:142:PHE:HD2	3:G:265:LEU:HG	1.67	0.59
5:K:340:ASN:ND2	5:K:350:ASN:H	2.00	0.59
5:M:346:VAL:HG23	5:M:347:ARG:HD3	1.85	0.59
6:V:444:ASP:OD1	6:V:445:SER:N	2.30	0.59
2:F:260:GLU:OE1	2:H:65:ARG:NH1	2.36	0.59
5:K:186:CYS:SG	5:K:199:HIS:NE2	2.69	0.59
5:Y:480:GLU:HG3	5:Y:493:VAL:HG23	1.82	0.59
1:C:31:ARG:NH2	5:Y:1022:ASP:OD1	2.35	0.59
3:L:25:ILE:HG22	3:L:43:MET:HG2	1.85	0.59
6:V:119:ASN:HB3	6:V:123:ARG:NH1	2.15	0.59
5:M:186:CYS:SG	5:M:199:HIS:NE2	2.59	0.59
7:W:1161:LYS:O	7:W:1165:GLN:HB2	2.02	0.59
5:Z:186:CYS:SG	5:Z:203:HIS:NE2	2.73	0.59
4:J:679:TYR:OH	4:J:989:ARG:NH1	2.35	0.58
3:I:345:ASP:OD1	3:I:346:THR:N	2.36	0.58
5:M:457:LEU:HD13	5:M:1030:VAL:HG21	1.85	0.58
3:G:169:ALA:O	3:G:173:MET:HG3	2.03	0.58
4:J:476:ARG:NH1	4:J:477:LYS:O	2.37	0.58
5:K:929:GLN:NE2	5:K:1015:MET:SD	2.71	0.58
5:M:571:LEU:HD21	5:M:576:SER:HB2	1.85	0.58
3:G:29:GLN:HG3	3:G:30:GLU:HG2	1.85	0.58
3:I:2:GLU:OE2	3:I:72:ARG:NH1	2.36	0.58

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
7:W:664:ASN:ND2	7:W:672:ASP:OD2	2.30	0.58
1:O:120:GLN:HB3	1:O:123:ARG:HH11	1.67	0.58
5:M:217:GLN:N	5:M:217:GLN:NE2	2.50	0.58
1:C:31:ARG:NH1	5:Y:1029:GLU:OE2	2.37	0.57
7:W:276:ILE:O	7:W:280:ASN:ND2	2.37	0.57
4:J:971:ARG:NH1	4:J:977:CYS:O	2.37	0.57
7:W:145:ARG:NH2	7:W:809:SER:O	2.36	0.57
7:W:619:PHE:CD2	7:W:620:MET:HG2	2.40	0.57
2:H:333:TRP:HE3	2:H:368:VAL:HG13	1.70	0.57
6:V:41:ASP:OD1	6:V:42:TYR:N	2.37	0.57
6:V:105:ARG:O	6:V:108:LEU:HB2	2.04	0.57
7:W:176:ASP:OD2	7:W:837:ARG:NH1	2.37	0.57
5:Y:983:LEU:HD23	5:Y:984:LEU:HG	1.85	0.57
6:V:620:TRP:HA	6:V:729:LEU:HA	1.87	0.57
7:W:117:GLU:OE2	7:W:121:ASN:ND2	2.36	0.57
6:V:640:ILE:HD12	6:V:641:PRO:HD2	1.85	0.57
7:W:1030:GLU:HA	7:W:1033:GLU:CD	2.25	0.57
3:L:11:VAL:O	3:L:15:ILE:HD12	2.05	0.57
3:L:128:LEU:HD13	3:L:179:LEU:HD11	1.86	0.57
5:Z:765:ARG:NH1	5:Z:801:LYS:O	2.37	0.57
2:F:579:THR:HA	2:F:584:ARG:HH12	1.70	0.57
5:Y:1166:TRP:CD1	5:Y:1176:PRO:HG2	2.40	0.57
7:W:957:LYS:HD2	7:W:1026:ALA:HB2	1.86	0.57
5:Z:931:LEU:HD22	5:Z:984:LEU:HD23	1.86	0.56
5:Z:1120:ARG:NH2	5:Z:1168:GLU:OE2	2.36	0.56
5:M:271:ILE:HB	5:M:301:VAL:HG23	1.87	0.56
1:C:97:SER:HB2	5:Y:860:PRO:HD2	1.88	0.56
2:H:254:GLU:OE2	4:J:374:GLN:NE2	2.39	0.56
3:L:186:ARG:HG2	3:L:347:ILE:HD12	1.87	0.56
5:M:674:ARG:HB2	5:Y:492:THR:HG21	1.86	0.56
6:V:562:ARG:HD2	6:V:569:GLN:HG3	1.88	0.56
5:Y:773:LYS:NZ	5:Y:798:ASP:OD1	2.33	0.56
2:A:7:ILE:HG22	2:A:9:GLN:HG2	1.88	0.56
3:G:163:LEU:HD21	3:G:272:PHE:HE1	1.70	0.56
7:W:116:SER:HB3	7:W:119:ILE:HG12	1.87	0.56
5:K:186:CYS:SG	5:K:203:HIS:NE2	2.74	0.56
7:W:47:ASP:OD2	7:W:204:ARG:NH1	2.26	0.56
6:V:560:LYS:HG3	6:V:561:ASN:H	1.69	0.56
7:W:76:ASP:OD1	7:W:80:ARG:N	2.36	0.56
6:V:105:ARG:HG2	6:V:118:TYR:HB2	1.87	0.56
7:W:243:ALA:HB2	7:W:833:LEU:HD22	1.87	0.56

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
3:G:100:LEU:HD12	3:G:163:LEU:HB2	1.88	0.56
4:J:974:TRP:HB2	4:J:977:CYS:HB3	1.88	0.56
5:K:346:VAL:HG23	5:K:347:ARG:HD3	1.88	0.55
5:K:1166:TRP:CD1	5:K:1176:PRO:HG2	2.42	0.55
5:M:776:VAL:HG21	5:M:793:MET:HG2	1.86	0.55
6:V:60:ILE:O	6:V:64:VAL:HG23	2.06	0.55
6:V:224:GLU:O	7:W:636:ARG:NH1	2.39	0.55
2:E:30:ALA:O	2:E:32:PRO:HD3	2.06	0.55
5:K:707:GLU:OE2	5:K:711:ARG:NH2	2.39	0.55
6:V:595:LEU:HB3	6:V:596:ILE:HD12	1.88	0.55
7:W:190:PHE:HE1	7:W:230:LEU:HB3	1.71	0.55
3:L:17:ASN:HA	3:L:20:GLU:HG2	1.88	0.55
6:V:349:ASP:OD1	6:V:350:TRP:N	2.40	0.55
6:V:547:LYS:NZ	6:V:585:PRO:O	2.37	0.55
5:Y:261:GLY:HA3	5:Y:312:SER:HA	1.88	0.55
1:O:183:PHE:CE1	1:O:255:CYS:HB2	2.41	0.55
7:W:131:ARG:O	7:W:135:THR:HG23	2.06	0.55
2:H:46:VAL:HG11	2:H:65:ARG:NE	2.21	0.55
2:H:270:LEU:HD23	2:H:280:GLU:HG2	1.89	0.55
5:K:851:ARG:NH1	5:K:990:GLY:O	2.39	0.55
5:M:1166:TRP:CD1	5:M:1176:PRO:HG2	2.42	0.55
2:F:525:GLU:OE2	3:G:9:HIS:NE2	2.39	0.55
2:H:377:ARG:NH1	2:H:451:ASN:OD1	2.40	0.55
4:J:251:ALA:O	4:J:255:MET:HG3	2.07	0.55
4:J:1031:ARG:HB3	4:J:1041:SER:HB3	1.89	0.55
6:V:171:PRO:HA	6:V:187:ILE:HG21	1.89	0.55
5:Y:931:LEU:HD22	5:Y:984:LEU:HD13	1.88	0.55
5:Z:1163:THR:HG21	5:Z:1198:TYR:HB2	1.89	0.55
4:J:404:GLN:NE2	4:J:859:GLY:O	2.38	0.55
3:L:196:LYS:NZ	3:L:352:LEU:O	2.38	0.55
7:W:148:LYS:NZ	7:W:802:GLY:O	2.29	0.55
2:F:352:ASN:ND2	3:L:61:LEU:O	2.39	0.55
2:E:16:ASP:OD1	2:E:17:GLY:N	2.40	0.55
2:H:664:PHE:O	2:H:668:VAL:HG23	2.07	0.55
3:G:345:ASP:OD1	3:G:346:THR:N	2.40	0.54
6:V:21:LEU:HD22	6:V:26:VAL:HG21	1.89	0.54
5:Y:898:ASN:OD1	5:Y:899:VAL:N	2.40	0.54
1:O:45:TRP:NE1	1:O:47:SER:HB2	2.23	0.54
5:K:338:LEU:HB3	5:K:339:LEU:HD12	1.89	0.54
3:L:234:LYS:HG3	3:L:238:TYR:CE2	2.42	0.54
7:W:1159:ALA:O	7:W:1163:MET:HG2	2.07	0.54

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
4:J:778:ARG:O	4:J:782:VAL:HG23	2.07	0.54
3:L:23:VAL:O	3:L:34:LYS:NZ	2.36	0.54
6:V:464:TYR:HA	6:V:467:ILE:HG22	1.90	0.54
7:W:380:THR:HG23	7:W:383:GLU:H	1.72	0.54
7:W:532:ASN:OD1	7:W:534:PRO:HD2	2.07	0.54
7:W:265:SER:HB3	7:W:268:TRP:HB3	1.88	0.54
5:K:446:GLU:OE1	5:K:502:ASN:ND2	2.41	0.54
5:K:1111:PRO:HG2	5:K:1114:LEU:HG	1.89	0.54
7:W:445:PRO:HB2	7:W:984:LEU:HD21	1.90	0.54
7:W:582:ILE:HB	7:W:738:MET:HB3	1.89	0.54
2:F:298:PRO:HA	2:F:301:ILE:HG12	1.90	0.54
2:H:594:LYS:HB3	2:H:598:ARG:HH12	1.71	0.54
3:I:109:MET:O	3:I:113:VAL:HG23	2.07	0.54
3:L:242:LEU:HD22	3:L:348:LYS:HD3	1.90	0.54
1:O:31:ARG:NH2	1:O:43:LEU:O	2.41	0.54
1:C:172:SER:OG	1:C:174:ASP:OD1	2.26	0.54
5:K:248:LEU:HD12	5:K:913:GLU:HG2	1.89	0.54
5:K:563:VAL:HG23	5:K:564:SER:H	1.72	0.54
7:W:79:ASN:OD1	7:W:131:ARG:NH1	2.41	0.54
7:W:393:PRO:HG3	7:W:592:SER:HA	1.89	0.54
7:W:707:GLY:O	7:W:711:THR:HG22	2.08	0.54
3:I:14:LEU:HB2	3:I:45:CYS:HB2	1.89	0.53
4:J:821:ASP:OD1	4:J:843:THR:OG1	2.26	0.53
7:W:240:GLN:HA	7:W:245:LEU:HB2	1.89	0.53
7:W:543:THR:OG1	7:W:686:ALA:HB2	2.08	0.53
7:W:875:LEU:HD12	7:W:876:PRO:HD2	1.91	0.53
3:G:160:ASP:OD1	3:G:161:THR:N	2.40	0.53
4:J:153:LEU:HD12	4:J:155:GLN:HE22	1.74	0.53
1:O:16:LEU:HD13	1:O:390:THR:HB	1.90	0.53
2:D:30:ALA:O	2:D:32:PRO:HD3	2.09	0.53
2:F:578:GLU:OE1	2:H:671:HIS:NE2	2.37	0.53
6:V:488:HIS:HB2	6:V:491:ARG:HG3	1.89	0.53
2:D:13:VAL:HG23	2:D:14:THR:HG23	1.90	0.53
6:V:493:GLY:O	6:V:497:GLN:HG2	2.07	0.53
7:W:252:LEU:HD12	7:W:343:VAL:HG13	1.90	0.53
5:Z:713:TRP:O	5:Z:837:ARG:NH1	2.41	0.53
2:A:30:ALA:O	2:A:32:PRO:HD3	2.07	0.53
7:W:226:ILE:O	7:W:230:LEU:HG	2.09	0.53
5:Z:340:ASN:ND2	5:Z:350:ASN:H	2.06	0.53
5:Z:472:MET:HE2	5:Z:506:PRO:HB2	1.91	0.53
2:F:119:GLU:OE1	2:F:122:ARG:NH2	2.39	0.53

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
6:V:317:LYS:HD2	6:V:364:ARG:HH21	1.74	0.53
3:G:238:TYR:HA	3:G:241:GLU:HG2	1.90	0.53
3:I:133:TRP:HE3	3:I:220:VAL:HG22	1.73	0.53
5:K:341:THR:HG23	5:K:342:GLU:OE1	2.09	0.53
7:W:992:ARG:HH21	7:W:1010:PHE:HB2	1.72	0.53
2:B:53:ASP:OD1	2:B:54:GLU:N	2.42	0.53
6:V:447:GLU:O	6:V:451:GLN:HG2	2.08	0.53
6:V:672:GLN:OE1	6:V:682:SER:OG	2.26	0.53
7:W:54:ASP:OD1	7:W:55:ALA:N	2.42	0.53
7:W:295:PRO:HG3	7:W:1075:LEU:HD21	1.91	0.53
5:Z:1167:LEU:HA	5:Z:1170:ILE:HD12	1.91	0.53
5:M:220:ILE:HG22	5:M:221:THR:HG23	1.90	0.52
1:C:201:ARG:NH2	5:Y:724:PRO:HG2	2.24	0.52
4:J:811:TYR:HD1	4:J:1018:ILE:HD11	1.75	0.52
4:J:1200:ASP:OD2	4:J:1209:TYR:HB2	2.09	0.52
6:V:512:ARG:NH2	7:W:390:THR:O	2.42	0.52
5:Z:699:ALA:HB1	5:Z:702:LEU:HB2	1.91	0.52
2:F:275:SER:HA	2:F:651:LEU:HD11	1.92	0.52
3:G:157:ASP:OD1	3:G:162:LYS:NZ	2.42	0.52
3:L:27:SER:O	3:L:31:GLY:N	2.42	0.52
5:Y:270:PRO:HG3	5:Y:297:PRO:HB3	1.91	0.52
1:O:225:VAL:HG21	1:O:414:ILE:HG21	1.90	0.52
6:V:482:ASN:OD1	6:V:483:SER:N	2.39	0.52
7:W:363:ARG:NE	7:W:1082:ASP:OD2	2.37	0.52
5:M:1067:PHE:O	5:M:1138:ARG:NH1	2.41	0.52
2:B:319:ALA:HB3	2:B:532:PRO:HG3	1.92	0.52
3:G:225:TYR:HB3	3:G:228:LEU:HB3	1.91	0.52
7:W:254:VAL:O	7:W:258:LEU:HG	2.09	0.52
2:H:371:ASP:OD1	2:H:372:GLN:N	2.43	0.52
5:K:852:GLN:HG3	5:K:858:THR:HG21	1.91	0.52
7:W:1259:TRP:NE1	7:W:1263:GLU:OE2	2.43	0.52
2:F:382:LEU:HD23	2:F:491:ALA:HB2	1.91	0.52
3:G:289:THR:O	3:G:293:LYS:HG2	2.10	0.52
7:W:41:ASP:HA	7:W:44:LYS:HG2	1.90	0.52
2:F:351:ASP:OD1	2:F:355:THR:N	2.43	0.51
7:W:1151:GLN:HB3	7:W:1154:GLU:OE2	2.10	0.51
2:B:56:SER:HB2	4:J:345:TRP:CE2	2.45	0.51
5:M:504:LEU:HG	5:M:506:PRO:HD3	1.91	0.51
6:V:435:GLN:HE22	6:V:438:PRO:HA	1.75	0.51
6:V:559:ARG:HB2	6:V:562:ARG:NH2	2.25	0.51
7:W:328:ASP:O	7:W:332:ARG:HG2	2.10	0.51

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
7:W:583:ASN:HB2	7:W:774:ALA:HB3	1.92	0.51
2:H:106:HIS:O	2:H:110:ASN:ND2	2.29	0.51
3:I:97:ARG:HH12	3:I:153:LEU:HB3	1.73	0.51
3:L:118:LEU:O	3:L:122:ARG:HG2	2.11	0.51
1:C:273:MET:O	1:C:329:GLY:HA2	2.10	0.51
2:H:594:LYS:HB3	2:H:598:ARG:NH1	2.25	0.51
4:J:270:ALA:O	4:J:271:ARG:NH1	2.37	0.51
1:C:44:ASP:OD1	5:Y:471:ARG:NH1	2.44	0.51
3:G:256:HIS:HB2	3:G:276:LEU:HD12	1.92	0.51
4:J:425:ASP:HB2	4:J:793:VAL:HG22	1.93	0.51
6:V:307:VAL:O	6:V:307:VAL:HG12	2.10	0.51
6:V:438:PRO:HG2	6:V:441:HIS:CG	2.45	0.51
6:V:488:HIS:CD2	6:V:491:ARG:HD2	2.40	0.51
6:V:670:THR:OG1	6:V:682:SER:OG	2.27	0.51
3:G:110:MET:HA	3:G:113:VAL:HG23	1.93	0.51
2:H:319:ALA:HB3	2:H:532:PRO:HG3	1.92	0.51
6:V:391:ILE:HG13	6:V:392:ASN:N	2.25	0.51
5:Y:338:LEU:HB3	5:Y:339:LEU:HD12	1.92	0.51
3:L:348:LYS:HD2	3:L:349:PHE:N	2.25	0.51
5:M:446:GLU:OE1	5:M:502:ASN:ND2	2.44	0.51
7:W:437:ALA:HB1	7:W:613:SER:HB2	1.92	0.51
1:C:64:ARG:O	1:C:68:MET:HG3	2.11	0.51
5:M:455:ASP:OD1	5:M:458:THR:OG1	2.20	0.51
7:W:39:ARG:NH1	7:W:208:LEU:HD13	2.25	0.51
7:W:402:LYS:HD2	7:W:402:LYS:O	2.11	0.51
7:W:138:ARG:NH1	7:W:666:SER:O	2.44	0.51
5:Z:1241:PRO:HG2	5:Z:1244:GLN:HB2	1.93	0.51
4:J:174:GLN:NE2	4:J:191:ASP:OD2	2.42	0.50
4:J:709:ILE:HG12	4:J:730:LEU:HD13	1.92	0.50
7:W:435:ARG:NH1	5:Z:567:THR:O	2.44	0.50
7:W:524:ARG:HG3	7:W:524:ARG:HH11	1.74	0.50
7:W:1033:GLU:O	7:W:1036:GLU:HG3	2.11	0.50
5:Z:338:LEU:HB3	5:Z:339:LEU:HD12	1.94	0.50
5:Z:1116:GLN:NE2	5:Z:1172:PRO:O	2.43	0.50
1:C:131:PRO:O	1:C:135:ARG:HG2	2.11	0.50
1:O:406:ASN:O	1:O:410:THR:HG23	2.11	0.50
3:L:139:ASN:HA	3:L:144:SER:HB2	1.92	0.50
2:A:27:SER:OG	2:A:28:SER:N	2.44	0.50
2:H:382:LEU:HD13	2:H:491:ALA:HB2	1.92	0.50
3:L:116:ASP:OD1	3:L:117:ASP:N	2.43	0.50
6:V:413:LEU:HD12	6:V:414:PRO:HD2	1.93	0.50

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:O:344:ARG:NH1	1:O:354:GLN:OE1	2.45	0.50
2:B:297:GLU:OE1	2:F:650:LYS:NZ	2.44	0.50
4:J:62:PRO:O	4:J:63:LEU:HB2	2.12	0.50
4:J:1029:GLU:OE1	4:J:1031:ARG:NH2	2.38	0.50
5:K:518:GLN:NE2	5:K:829:PRO:HG2	2.26	0.50
3:G:121:VAL:HG21	3:G:128:LEU:HG	1.93	0.50
3:G:223:TYR:OH	3:G:351:ASP:O	2.30	0.50
5:K:192:SER:HB3	5:K:195:ASP:HB2	1.93	0.50
3:L:238:TYR:CE1	3:L:242:LEU:HD12	2.46	0.50
7:W:121:ASN:HA	7:W:124:LYS:NZ	2.26	0.50
7:W:618:PRO:HB3	7:W:623:PRO:HA	1.94	0.50
5:Y:620:VAL:HG11	5:Y:656:MET:HG2	1.93	0.50
2:F:405:GLN:HG2	2:F:466:TYR:HD1	1.77	0.50
4:J:730:LEU:O	4:J:734:VAL:HG22	2.12	0.50
4:J:1241:LYS:NZ	4:J:1287:THR:OG1	2.43	0.50
5:K:307:HIS:HD2	5:K:310:TRP:HB3	1.76	0.50
6:V:82:GLN:HB3	6:V:174:TYR:HB3	1.94	0.50
2:B:298:PRO:HA	2:B:301:ILE:HG12	1.93	0.50
5:M:306:VAL:HB	5:M:324:MET:HG2	1.94	0.50
6:V:372:ILE:HG23	6:V:382:ILE:HD12	1.93	0.50
2:H:333:TRP:CE3	2:H:368:VAL:HG13	2.47	0.49
2:H:337:ILE:HG13	2:H:410:PHE:CE2	2.47	0.49
5:K:307:HIS:CE1	5:K:323:ILE:HG23	2.47	0.49
3:L:128:LEU:HB3	3:L:363:ILE:HG23	1.94	0.49
7:W:650:HIS:HA	7:W:653:LYS:NZ	2.26	0.49
5:Z:335:PHE:O	5:Z:357:ASN:ND2	2.45	0.49
5:Z:606:THR:HG22	5:Z:875:LEU:HD23	1.94	0.49
4:J:992:ARG:HG3	4:J:993:LEU:HD12	1.94	0.49
5:M:1170:ILE:HG23	5:M:1175:ILE:HG22	1.95	0.49
7:W:114:ARG:HG2	7:W:115:LEU:H	1.76	0.49
2:H:306:PRO:HB3	2:H:512:GLU:HB3	1.93	0.49
6:V:21:LEU:HB3	6:V:26:VAL:HB	1.93	0.49
6:V:288:SER:OG	6:V:289:HIS:N	2.46	0.49
1:O:65:TYR:CD1	1:O:153:LEU:HD22	2.47	0.49
2:B:72:PRO:O	2:B:78:ASN:ND2	2.46	0.49
3:G:182:ASN:ND2	3:G:362:MET:SD	2.85	0.49
6:V:172:ARG:NH1	6:V:175:TYR:O	2.45	0.49
5:Y:525:ILE:HG13	5:Y:525:ILE:O	2.11	0.49
2:F:47:PRO:HG2	2:F:66:MET:HB3	1.93	0.49
3:I:90:ARG:HE	3:I:153:LEU:HD11	1.77	0.49
6:V:530:ALA:O	6:V:533:GLU:HG2	2.13	0.49

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
7:W:564:ILE:HD12	7:W:1185:MET:HG3	1.94	0.49
5:Y:1076:ILE:HG13	5:Y:1109:ILE:HD12	1.95	0.49
5:Z:480:GLU:OE2	5:Z:495:SER:N	2.29	0.49
5:K:340:ASN:HD21	5:K:350:ASN:H	1.59	0.49
5:M:920:ARG:NH2	5:M:982:MET:O	2.45	0.49
6:V:556:LEU:HA	6:V:562:ARG:HH21	1.78	0.49
2:F:428:VAL:HG22	2:F:448:LEU:HD13	1.95	0.49
3:I:227:GLU:HA	3:I:230:HIS:HB2	1.95	0.49
5:K:190:LEU:HD12	5:K:196:LEU:HA	1.95	0.49
3:L:120:ARG:O	3:L:123:THR:OG1	2.31	0.49
3:L:228:LEU:HD12	3:L:354:TYR:CE2	2.47	0.49
7:W:344:VAL:O	7:W:348:ARG:HG2	2.12	0.49
2:B:151:SER:OG	2:H:119:GLU:OE2	2.26	0.49
2:H:381:ASP:O	2:H:491:ALA:HB1	2.13	0.49
4:J:194:ASP:OD1	4:J:194:ASP:N	2.46	0.49
3:L:180:ILE:N	3:L:364:LEU:O	2.42	0.49
7:W:1165:GLN:NE2	7:W:1166:ASP:O	2.45	0.49
6:V:289:HIS:HB3	6:V:700:PHE:CE1	2.48	0.48
7:W:414:LEU:HD23	7:W:415:LYS:O	2.13	0.48
1:0:179:LEU:HD21	1:0:212:MET:HG2	1.95	0.48
1:0:258:ASN:OD1	1:0:259:HIS:N	2.46	0.48
4:J:501:THR:HG23	4:J:503:LYS:H	1.78	0.48
4:J:512:VAL:HG22	4:J:573:PHE:HB3	1.95	0.48
3:L:14:LEU:HD13	3:L:45:CYS:HB3	1.95	0.48
3:L:91:VAL:HA	3:L:141:MET:HE1	1.95	0.48
3:L:187:ASP:HB3	3:L:190:HIS:CE1	2.48	0.48
6:V:42:TYR:HA	6:V:45:ASP:OD2	2.13	0.48
5:Y:721:TYR:CD1	5:Y:739:LEU:HG	2.48	0.48
1:0:334:ARG:HB3	1:0:407:THR:HG21	1.95	0.48
2:F:351:ASP:OD2	2:F:355:THR:OG1	2.32	0.48
7:W:686:ALA:O	7:W:689:THR:N	2.46	0.48
5:K:304:ILE:HD11	5:K:1210:PHE:HD1	1.77	0.48
6:V:331:LEU:O	6:V:333:ILE:HG12	2.13	0.48
6:V:711:MET:HG3	6:V:712:ARG:H	1.77	0.48
7:W:452:ARG:NH1	7:W:980:GLN:HG3	2.28	0.48
2:B:299:GLU:OE2	2:F:650:LYS:HG2	2.13	0.48
2:B:337:ILE:HG13	2:B:410:PHE:CE2	2.49	0.48
2:B:381:ASP:O	2:B:491:ALA:HB1	2.14	0.48
5:M:674:ARG:HG2	5:Y:1274:VAL:HG11	1.95	0.48
6:V:11:ASP:O	6:V:15:SER:OG	2.24	0.48
7:W:711:THR:HB	7:W:759:LEU:HD11	1.96	0.48

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
5:Y:670:THR:HG23	5:Y:672:SER:H	1.78	0.48
2:B:574:ILE:O	2:B:578:GLU:HG2	2.13	0.48
5:K:894:ASP:OD1	5:K:894:ASP:N	2.45	0.48
3:L:231:ASP:HB3	3:L:234:LYS:HD3	1.96	0.48
5:M:340:ASN:ND2	5:Y:382:HIS:HB3	2.28	0.48
6:V:326:CYS:SG	6:V:327:ILE:HD12	2.54	0.48
7:W:24:ASN:O	7:W:28:GLU:HG2	2.13	0.48
5:M:941:THR:HG22	5:M:943:TYR:H	1.79	0.48
6:V:58:ASP:OD1	6:V:59:VAL:N	2.46	0.48
6:V:523:ARG:NH1	6:V:705:LEU:O	2.46	0.48
5:Y:691:ILE:HD11	5:Y:710:HIS:CD2	2.49	0.48
5:K:189:VAL:O	5:K:190:LEU:HD23	2.14	0.48
3:L:238:TYR:HA	3:L:241:GLU:CD	2.34	0.48
2:B:474:ASP:HB3	2:B:478:ILE:HD11	1.95	0.48
5:K:699:ALA:HB1	5:K:702:LEU:HB2	1.96	0.48
6:V:404:ASP:OD1	6:V:405:PHE:N	2.47	0.48
6:V:477:ILE:HG21	6:V:567:LEU:HB3	1.94	0.48
1:O:328:HIS:HB3	1:O:410:THR:HG22	1.95	0.47
3:I:198:GLY:HA2	3:I:202:ARG:NH1	2.29	0.47
4:J:1133:GLN:NE2	4:J:1134:LEU:O	2.47	0.47
6:V:660:TRP:NE1	6:V:731:PHE:HB2	2.29	0.47
5:Y:911:ASP:OD1	5:Y:912:THR:N	2.47	0.47
2:H:351:ASP:OD1	2:H:355:THR:N	2.47	0.47
3:I:134:LEU:HD23	3:I:143:ARG:NH2	2.29	0.47
7:W:470:LEU:HD12	7:W:477:LEU:HD11	1.96	0.47
1:O:172:SER:OG	1:O:211:ARG:NH2	2.48	0.47
2:F:68:SER:OG	2:F:97:ASP:OD1	2.29	0.47
4:J:1101:MET:HG3	4:J:1114:LEU:HD12	1.96	0.47
5:M:894:ASP:N	5:M:894:ASP:OD1	2.46	0.47
6:V:457:GLU:HG2	6:V:458:GLN:N	2.29	0.47
3:I:105:GLN:O	3:I:108:GLU:HG3	2.14	0.47
5:K:665:ASP:HB3	5:K:686:ARG:HE	1.80	0.47
7:W:512:ASP:OD1	7:W:513:THR:N	2.39	0.47
7:W:811:GLU:N	7:W:811:GLU:OE1	2.47	0.47
6:V:66:LYS:NZ	6:V:67:ASN:O	2.46	0.47
6:V:516:ASP:HB3	7:W:78:LEU:HD21	1.95	0.47
7:W:702:PHE:HB2	7:W:763:TYR:CE2	2.50	0.47
2:F:455:GLU:HG3	2:H:598:ARG:NE	2.29	0.47
4:J:886:VAL:HG11	4:J:914:LEU:HD21	1.96	0.47
5:M:571:LEU:HD11	5:M:576:SER:CA	2.44	0.47
7:W:581:SER:HB2	7:W:737:LEU:HD11	1.96	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
5:Y:629:PHE:HB2	5:Y:655:MET:SD	2.54	0.47
2:B:123:GLU:OE2	2:B:239:ALA:HB2	2.15	0.47
2:B:375:PRO:HG3	2:B:454:PRO:HD2	1.96	0.47
2:B:455:GLU:HG2	2:F:598:ARG:HE	1.80	0.47
2:H:581:TYR:CE2	3:L:68:LEU:HD21	2.50	0.47
3:I:200:ASP:H	3:I:202:ARG:NH2	2.13	0.47
5:K:331:ASN:HB3	5:K:334:LEU:HD12	1.97	0.47
5:K:665:ASP:N	5:K:665:ASP:OD1	2.47	0.47
7:W:408:ILE:HG22	7:W:629:ASP:OD1	2.14	0.47
5:Y:851:ARG:NH1	5:Y:986:PRO:O	2.47	0.47
5:Z:446:GLU:OE2	5:Z:502:ASN:ND2	2.46	0.47
5:Z:937:GLN:NE2	5:Z:1025:GLN:HE22	2.12	0.47
1:O:81:ARG:NH2	1:O:88:ASP:OD1	2.46	0.47
4:J:69:ASP:OD1	4:J:70:THR:N	2.48	0.47
5:M:691:ILE:HD11	5:M:710:HIS:CD2	2.50	0.47
6:V:298:VAL:HA	6:V:392:ASN:O	2.15	0.47
6:V:611:PRO:HA	6:V:614:THR:HG22	1.97	0.47
6:V:664:HIS:ND1	6:V:728:ARG:HG2	2.28	0.47
5:Y:1165:ALA:O	5:Y:1169:GLU:HG3	2.14	0.47
4:J:739:LYS:HG2	4:J:756:SER:HB2	1.97	0.47
5:Y:707:GLU:O	5:Y:711:ARG:HG2	2.15	0.47
2:F:653:SER:O	2:F:657:ILE:HG13	2.15	0.47
3:G:286:ILE:O	3:G:291:LYS:NZ	2.47	0.47
3:I:10:GLN:HG2	3:I:46:GLY:HA3	1.96	0.47
5:M:954:SER:OG	5:M:955:LEU:N	2.48	0.47
7:W:208:LEU:HB2	7:W:215:PHE:HB2	1.97	0.47
7:W:541:PRO:HB2	7:W:648:ILE:HD11	1.97	0.47
5:Z:603:VAL:HG23	5:Z:604:VAL:HG23	1.97	0.47
3:L:100:LEU:HD22	3:L:159:LEU:HG	1.97	0.46
6:V:250:SER:HB3	6:V:253:ILE:HG12	1.95	0.46
2:B:43:PRO:HB2	2:B:148:VAL:HG11	1.98	0.46
2:B:377:ARG:NH1	2:B:451:ASN:OD1	2.48	0.46
2:B:580:GLY:N	3:I:70:HIS:HE1	2.13	0.46
5:M:565:GLU:HG3	5:M:567:THR:H	1.80	0.46
6:V:87:TRP:HB3	6:V:106:LEU:HD21	1.97	0.46
6:V:651:VAL:O	6:V:655:LEU:HD23	2.15	0.46
7:W:120:GLU:HA	7:W:123:ALA:HB3	1.97	0.46
7:W:1253:GLY:O	7:W:1257:MET:HG3	2.15	0.46
2:F:321:TYR:OH	2:F:530:SER:O	2.26	0.46
3:G:100:LEU:HA	3:G:103:VAL:HG12	1.96	0.46
5:M:429:ASN:OD1	5:M:430:ARG:N	2.48	0.46

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
5:Z:511:ASN:O	5:Z:515:GLN:HG3	2.15	0.46
3:G:225:TYR:HD1	3:G:354:TYR:HD2	1.62	0.46
7:W:277:PHE:O	7:W:281:THR:OG1	2.25	0.46
7:W:506:SER:O	7:W:509:ILE:HG12	2.15	0.46
7:W:960:ARG:NH1	7:W:1030:GLU:OE2	2.49	0.46
5:Z:285:PHE:CD2	5:Z:286:PHE:HD1	2.34	0.46
2:A:8:VAL:O	2:A:8:VAL:HG12	2.15	0.46
2:B:244:ASN:HB3	2:B:247:ILE:HD12	1.98	0.46
2:H:676:LYS:HD2	2:H:677:PRO:HD2	1.97	0.46
7:W:1030:GLU:O	7:W:1033:GLU:HG2	2.14	0.46
5:Y:336:LYS:HA	5:Y:340:ASN:OD1	2.16	0.46
3:L:14:LEU:HB2	3:L:45:CYS:HB2	1.98	0.46
5:M:691:ILE:HD12	5:M:706:ALA:HB1	1.97	0.46
7:W:118:ALA:HA	7:W:121:ASN:OD1	2.15	0.46
7:W:1077:LEU:HD11	7:W:1092:MET:SD	2.55	0.46
7:W:1090:LEU:HD12	7:W:1236:VAL:HG12	1.98	0.46
5:Z:1116:GLN:HG2	5:Z:1172:PRO:HA	1.96	0.46
2:B:329:ASP:OD1	2:B:329:ASP:N	2.49	0.46
3:G:93:ALA:HB1	3:G:97:ARG:HH12	1.81	0.46
2:H:352:ASN:ND2	3:I:61:LEU:O	2.41	0.46
7:W:817:ILE:O	7:W:821:ILE:HG12	2.16	0.46
5:Y:535:VAL:O	5:Y:539:ILE:HG13	2.16	0.46
2:D:11:ILE:HG13	2:F:249:TRP:HB3	1.97	0.46
2:F:381:ASP:O	2:F:491:ALA:HB1	2.16	0.46
4:J:238:LEU:HD13	5:Y:837:ARG:H	1.81	0.46
6:V:663:TYR:HB2	6:V:729:LEU:HD21	1.98	0.46
2:H:590:GLY:O	2:H:594:LYS:HG2	2.16	0.46
7:W:119:ILE:HD13	7:W:122:ARG:HH21	1.80	0.46
5:Z:707:GLU:HG3	5:Z:711:ARG:HH12	1.80	0.46
2:H:621:LYS:HG2	3:L:2:GLU:OE2	2.16	0.46
3:I:134:LEU:HA	3:I:143:ARG:HH22	1.80	0.46
3:L:124:GLU:O	3:L:236:ARG:HB2	2.15	0.46
6:V:105:ARG:HA	6:V:108:LEU:HD23	1.97	0.46
6:V:318:LEU:O	6:V:364:ARG:NH1	2.49	0.46
3:L:177:SER:OG	3:L:179:LEU:HD23	2.15	0.45
6:V:436:ILE:HG22	6:V:437:MET:HG2	1.98	0.45
2:B:400:GLY:HA2	2:B:448:LEU:HD21	1.98	0.45
5:K:1213:ASN:HB3	5:K:1216:SER:OG	2.16	0.45
5:M:307:HIS:CD2	5:M:323:ILE:HG23	2.52	0.45
6:V:437:MET:HG3	6:V:595:LEU:HD21	1.97	0.45
7:W:551:TYR:HD2	7:W:552:HIS:CE1	2.34	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:H:430:LEU:HD22	2:H:443:ILE:HG21	1.99	0.45
5:M:759:ASN:ND2	5:M:812:GLN:OE1	2.50	0.45
6:V:107:MET:HA	6:V:109:LYS:HE3	1.98	0.45
7:W:121:ASN:HA	7:W:124:LYS:HZ2	1.80	0.45
2:F:79:THR:HG21	2:F:86:VAL:HG21	1.99	0.45
2:H:367:VAL:HG12	2:H:469:LEU:HB2	1.98	0.45
5:K:983:LEU:N	5:K:985:GLU:OE1	2.36	0.45
3:L:158:ASP:OD2	3:L:161:THR:HB	2.17	0.45
6:V:324:PRO:HG2	6:V:327:ILE:HD13	1.98	0.45
7:W:541:PRO:HD3	7:W:647:MET:SD	2.57	0.45
7:W:725:ILE:HG13	7:W:726:GLN:N	2.32	0.45
2:A:3:ASN:OD1	2:B:223:LEU:HD12	2.16	0.45
2:B:359:LEU:HG	2:B:473:ILE:HG22	1.98	0.45
2:H:111:PHE:O	2:H:115:GLU:HG3	2.16	0.45
5:K:472:MET:HA	5:K:508:ARG:HB3	1.99	0.45
5:M:435:ASP:OD1	5:M:436:ARG:N	2.49	0.45
5:Z:607:VAL:HG12	5:Z:641:ASP:HB2	1.98	0.45
1:C:262:GLN:HE22	5:M:1007:ARG:HH22	1.63	0.45
3:G:182:ASN:HA	3:G:225:TYR:HE2	1.82	0.45
3:L:234:LYS:HG3	3:L:238:TYR:CD2	2.51	0.45
6:V:650:LEU:O	6:V:654:GLU:OE1	2.35	0.45
5:Y:926:GLU:HG2	5:Y:1020:ILE:HD12	1.98	0.45
2:B:73:GLU:HA	2:B:78:ASN:HD22	1.81	0.45
2:D:31:VAL:HG13	2:D:31:VAL:O	2.17	0.45
2:F:198:LEU:HD23	2:F:219:LEU:HD23	1.99	0.45
5:M:480:GLU:OE2	5:M:495:SER:N	2.37	0.45
6:V:135:ILE:HD12	6:V:144:MET:HG2	1.98	0.45
7:W:410:GLU:HG2	7:W:649:GLN:OE1	2.17	0.45
7:W:521:VAL:HG12	7:W:522:GLN:HG3	1.98	0.45
1:O:167:ASP:OD1	1:O:168:GLU:N	2.50	0.45
3:I:168:THR:O	3:I:172:LEU:HD23	2.17	0.45
3:I:228:LEU:HA	3:I:234:LYS:HZ2	1.82	0.45
5:M:704:GLN:O	5:M:708:ILE:HG12	2.17	0.45
2:B:359:LEU:HD21	2:B:402:ILE:CD1	2.46	0.45
2:D:8:VAL:HG23	2:D:12:ASN:HB2	1.98	0.45
5:K:437:ALA:HB2	5:K:447:TRP:CE2	2.52	0.45
6:V:116:ASP:HA	6:V:119:ASN:HB2	1.98	0.45
7:W:813:PRO:HB3	7:W:1031:LEU:HD11	1.98	0.45
5:Y:691:ILE:HD11	5:Y:710:HIS:NE2	2.32	0.45
5:Y:961:THR:HG22	5:Z:893:PRO:O	2.17	0.45
2:F:116:MET:HE2	2:F:116:MET:HB3	1.60	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:F:119:GLU:OE2	2:H:151:SER:OG	2.32	0.45
3:G:54:CYS:HA	3:G:77:ILE:HD12	1.99	0.45
2:H:192:LEU:O	2:H:196:GLN:HG3	2.17	0.45
4:J:811:TYR:CD1	4:J:1018:ILE:HD11	2.51	0.45
5:K:355:ARG:NH2	5:K:952:ILE:O	2.50	0.45
3:L:347:ILE:HG12	3:L:349:PHE:N	2.32	0.45
7:W:628:ASN:OD1	7:W:629:ASP:N	2.50	0.45
7:W:1027:THR:CG2	7:W:1028:ARG:N	2.51	0.45
5:Y:955:LEU:HD23	5:Y:955:LEU:H	1.81	0.45
2:E:6:SER:O	2:E:7:ILE:HB	2.18	0.44
4:J:986:TYR:HD2	4:J:1058:ASN:ND2	2.15	0.44
7:W:283:HIS:O	7:W:322:ARG:NH2	2.50	0.44
5:Z:573:PRO:HA	5:Z:623:LEU:HD21	1.98	0.44
5:K:806:MET:HE2	5:K:890:LYS:HA	1.99	0.44
7:W:329:LYS:O	7:W:333:GLU:OE1	2.36	0.44
5:Y:720:ARG:NH2	5:Y:737:GLU:OE2	2.51	0.44
3:G:180:ILE:HD12	3:G:243:VAL:HG12	1.99	0.44
6:V:28:ALA:O	6:V:259:ASN:ND2	2.44	0.44
5:Z:507:TYR:CD1	5:Z:915:PHE:HB3	2.52	0.44
3:I:106:MET:O	3:I:110:MET:HG2	2.18	0.44
4:J:459:THR:O	4:J:465:GLU:HG3	2.17	0.44
6:V:482:ASN:HA	6:V:488:HIS:HE1	1.83	0.44
6:V:658:LYS:HB2	6:V:660:TRP:CE2	2.53	0.44
5:Z:1044:ASP:HB3	5:Z:1139:ILE:O	2.16	0.44
2:B:347:ILE:HD13	2:B:416:ALA:HB1	1.99	0.44
3:G:199:GLY:HA2	3:G:202:ARG:HE	1.83	0.44
6:V:408:PRO:HG3	6:V:519:MET:SD	2.57	0.44
6:V:555:ASN:HA	6:V:558:ILE:HG22	2.00	0.44
7:W:121:ASN:HD22	7:W:124:LYS:HZ1	1.65	0.44
7:W:755:LYS:HA	7:W:758:GLU:OE2	2.17	0.44
5:Y:607:VAL:HG21	5:Z:787:GLN:OE1	2.17	0.44
3:L:334:VAL:HG23	3:L:335:LEU:HG	1.99	0.44
7:W:146:GLN:NE2	7:W:805:ARG:O	2.35	0.44
7:W:466:LEU:HD13	7:W:532:ASN:OD1	2.17	0.44
7:W:864:GLN:HE21	7:W:865:TYR:H	1.64	0.44
7:W:1004:HIS:CD2	7:W:1265:ARG:HE	2.35	0.44
3:G:198:GLY:O	3:G:202:ARG:HG3	2.18	0.44
4:J:296:SER:O	4:J:300:ARG:HG3	2.17	0.44
4:J:1028:MET:HE1	4:J:1114:LEU:HB3	2.00	0.44
5:M:474:ILE:HD11	5:M:508:ARG:HB2	2.00	0.44
6:V:487:PRO:HB2	6:V:492:LEU:HD22	1.99	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
6:V:488:HIS:HD2	6:V:491:ARG:CD	2.26	0.44
2:B:123:GLU:HG2	2:B:124:PHE:N	2.31	0.44
1:C:252:ILE:HD11	5:Y:447:TRP:HZ2	1.83	0.44
4:J:193:SER:OG	4:J:194:ASP:OD1	2.36	0.44
6:V:102:LEU:HD13	6:V:121:LEU:HB3	2.00	0.44
7:W:64:TYR:HB3	7:W:221:ARG:HB3	1.98	0.44
7:W:642:SER:H	7:W:645:GLN:HB2	1.82	0.44
5:Z:340:ASN:HD21	5:Z:350:ASN:H	1.65	0.44
1:O:120:GLN:HB3	1:O:123:ARG:NH1	2.33	0.44
2:B:79:THR:OG1	2:B:170:ARG:NH2	2.50	0.44
2:B:366:ARG:NH2	2:H:433:GLU:OE1	2.51	0.44
2:F:376:MET:HG3	2:F:377:ARG:N	2.32	0.44
2:H:627:LEU:O	2:H:631:VAL:HG23	2.17	0.44
2:H:635:LEU:HD23	2:H:635:LEU:HA	1.84	0.44
5:K:492:THR:HG23	5:K:1272:MET:HB2	2.00	0.44
3:L:236:ARG:O	3:L:240:LYS:HG3	2.18	0.44
5:M:1113:ALA:O	5:M:1117:MET:HG3	2.17	0.44
7:W:25:ASP:OD1	7:W:26:VAL:N	2.50	0.44
2:B:280:GLU:OE2	2:D:36:LEU:HB3	2.18	0.43
4:J:765:ARG:HB2	4:J:838:GLU:HG2	2.00	0.43
4:J:978:SER:OG	4:J:1022:ASP:HB2	2.17	0.43
5:K:336:LYS:HA	5:K:340:ASN:OD1	2.18	0.43
5:M:1044:ASP:HB3	5:M:1139:ILE:O	2.18	0.43
7:W:851:ARG:NH1	7:W:864:GLN:OE1	2.48	0.43
7:W:868:TRP:CD1	7:W:942:LEU:HA	2.53	0.43
3:G:95:TRP:CZ2	3:G:270:ALA:HB2	2.53	0.43
4:J:531:GLU:HB3	4:J:532:PRO:HD3	2.00	0.43
5:M:931:LEU:HD22	5:M:984:LEU:HD23	1.99	0.43
5:M:1096:ASP:OD1	5:M:1097:GLU:N	2.51	0.43
6:V:464:TYR:CZ	6:V:465:LYS:HE2	2.53	0.43
5:Y:307:HIS:CD2	5:Y:323:ILE:HG23	2.53	0.43
5:Z:1059:LEU:HB3	5:Z:1206:ASP:HB3	2.00	0.43
1:C:135:ARG:HB3	4:J:290:GLN:OE1	2.17	0.43
2:F:607:PRO:O	2:F:610:ILE:HG12	2.18	0.43
3:L:131:LEU:CD2	3:L:361:PRO:HB2	2.45	0.43
7:W:118:ALA:O	7:W:122:ARG:NE	2.45	0.43
5:Z:1119:THR:O	5:Z:1123:ASN:ND2	2.51	0.43
2:F:71:ILE:HD13	2:F:144:VAL:HG21	2.00	0.43
5:K:385:PHE:HA	5:K:428:ARG:HH21	1.82	0.43
3:L:117:ASP:HA	3:L:120:ARG:HB3	2.00	0.43
5:M:840:ARG:O	5:M:843:VAL:HG22	2.18	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
7:W:599:LEU:HD12	7:W:655:TYR:CD2	2.54	0.43
5:Z:537:GLN:O	5:Z:541:VAL:HG23	2.18	0.43
2:B:615:ALA:HB3	2:B:619:SER:HB2	2.00	0.43
2:F:319:ALA:HB3	2:F:532:PRO:HG3	2.00	0.43
3:G:234:LYS:NZ	3:G:239:ARG:HG3	2.34	0.43
2:H:544:SER:O	2:H:548:GLU:OE1	2.36	0.43
4:J:850:ASP:OD1	4:J:851:ILE:N	2.48	0.43
5:K:336:LYS:HB3	5:K:349:ALA:HB2	2.00	0.43
3:L:211:ASP:OD1	3:L:212:SER:N	2.52	0.43
7:W:114:ARG:HG2	7:W:115:LEU:N	2.34	0.43
7:W:852:GLN:HG3	7:W:853:ARG:N	2.33	0.43
2:B:376:MET:SD	2:B:495:MET:HE3	2.58	0.43
3:G:256:HIS:HA	3:G:276:LEU:HB2	2.00	0.43
5:M:765:ARG:NH1	5:M:801:LYS:O	2.52	0.43
7:W:752:THR:HA	7:W:755:LYS:HE3	2.00	0.43
5:Z:336:LYS:HA	5:Z:340:ASN:OD1	2.19	0.43
2:F:148:VAL:HG11	2:F:163:VAL:HG11	2.00	0.43
2:H:461:ASP:OD1	2:H:464:MET:HG2	2.19	0.43
2:H:566:VAL:HG23	2:H:567:PRO:HD3	2.01	0.43
4:J:805:VAL:O	4:J:809:MET:HG3	2.19	0.43
3:L:19:PHE:HE2	3:L:286:ILE:HG21	1.84	0.43
6:V:110:LYS:O	6:V:112:LEU:HG	2.19	0.43
7:W:226:ILE:HB	7:W:227:PRO:HD3	2.01	0.43
7:W:567:VAL:HG12	7:W:570:LEU:H	1.84	0.43
7:W:636:ARG:HD2	7:W:636:ARG:O	2.18	0.43
4:J:290:GLN:O	5:Y:1007:ARG:NH2	2.52	0.43
4:J:332:SER:OG	4:J:748:GLY:O	2.32	0.43
5:K:941:THR:HG22	5:K:943:TYR:H	1.84	0.43
3:L:287:LYS:O	3:L:291:LYS:HG3	2.18	0.43
5:M:1061:PRO:HG3	5:M:1201:SER:O	2.18	0.43
7:W:755:LYS:HA	7:W:758:GLU:CD	2.37	0.43
7:W:863:LEU:HD23	7:W:863:LEU:H	1.84	0.43
3:I:134:LEU:HA	3:I:143:ARG:NH2	2.34	0.43
3:I:299:VAL:HG13	3:I:320:MET:HG3	2.01	0.43
5:M:437:ALA:HB2	5:M:447:TRP:CE2	2.53	0.43
5:Y:246:GLN:OE1	5:Y:981:ASP:HB2	2.19	0.43
5:Z:1058:PRO:HD2	5:Z:1182:VAL:HG12	2.01	0.43
2:B:113:LYS:NZ	2:D:40:MET:O	2.44	0.43
2:H:278:PRO:O	2:H:281:GLU:HG3	2.18	0.43
5:K:927:ALA:HB1	5:K:984:LEU:HD11	2.01	0.43
3:L:348:LYS:HZ2	3:L:349:PHE:HB2	1.84	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
6:V:646:ARG:HB2	6:V:702:CYS:SG	2.58	0.43
6:V:664:HIS:HE1	6:V:728:ARG:HE	1.67	0.43
7:W:569:PRO:HA	7:W:572:VAL:HG22	2.00	0.43
7:W:1029:GLU:O	7:W:1032:ALA:HB3	2.19	0.43
5:Z:983:LEU:N	5:Z:985:GLU:OE1	2.37	0.43
3:G:26:TYR:HB3	3:G:42:MET:HG2	2.02	0.42
4:J:345:TRP:O	4:J:352:GLN:NE2	2.52	0.42
6:V:105:ARG:CG	6:V:118:TYR:HB2	2.48	0.42
7:W:74:TYR:CE1	7:W:82:ARG:HB2	2.54	0.42
7:W:408:ILE:HG13	7:W:408:ILE:O	2.19	0.42
2:B:544:SER:O	2:B:548:GLU:OE1	2.37	0.42
2:D:2:GLY:HA3	2:F:220:ASP:HB2	2.01	0.42
3:G:130:GLU:OE2	3:G:362:MET:HB3	2.19	0.42
3:I:66:LYS:HG3	3:I:67:HIS:HD2	1.84	0.42
4:J:1262:ASP:OD1	4:J:1263:VAL:N	2.49	0.42
5:K:234:GLN:NE2	5:K:911:ASP:OD1	2.52	0.42
3:L:68:LEU:HD12	3:L:69:PRO:HD2	2.01	0.42
6:V:224:GLU:OE2	7:W:635:VAL:HG23	2.20	0.42
7:W:53:ASP:HA	7:W:56:MET:HG2	1.99	0.42
5:Z:307:HIS:CD2	5:Z:323:ILE:HG23	2.54	0.42
5:K:406:MET:O	5:K:453:THR:OG1	2.35	0.42
5:K:778:ASN:ND2	5:K:780:ARG:HD2	2.33	0.42
5:M:342:GLU:OE2	5:M:342:GLU:N	2.48	0.42
6:V:567:LEU:O	6:V:571:VAL:HG23	2.19	0.42
5:Z:507:TYR:CE1	5:Z:915:PHE:HB3	2.55	0.42
5:Z:521:ARG:HD2	5:Z:828:PHE:CD1	2.48	0.42
5:Z:763:ASN:O	5:Z:767:ARG:HG2	2.19	0.42
1:0:1:MET:HA	1:0:205:TYR:CD2	2.55	0.42
1:0:246:ASP:HA	1:0:360:LEU:HD21	2.01	0.42
3:I:37:SER:HB2	3:I:90:ARG:HH12	1.84	0.42
3:I:228:LEU:HD21	3:I:243:VAL:HG11	1.99	0.42
5:M:253:PRO:HB3	5:M:979:LEU:HD21	2.01	0.42
5:M:560:MET:O	5:M:562:THR:HG23	2.19	0.42
5:M:571:LEU:O	5:M:572:SER:C	2.57	0.42
5:M:1213:ASN:HB3	5:M:1216:SER:OG	2.18	0.42
6:V:254:VAL:O	6:V:258:ILE:HG12	2.18	0.42
6:V:405:PHE:HB2	6:V:407:LYS:NZ	2.34	0.42
6:V:711:MET:HG3	6:V:712:ARG:N	2.34	0.42
7:W:246:ASP:HB3	7:W:249:LEU:HD13	2.01	0.42
7:W:407:PRO:HB2	7:W:630:GLU:OE2	2.19	0.42
5:Z:1078:GLY:O	5:Z:1114:LEU:HD21	2.19	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:259:HIS:HB2	5:M:854:ARG:HH12	1.84	0.42
2:F:337:ILE:HG13	2:F:410:PHE:CE2	2.55	0.42
2:F:405:GLN:HG2	2:F:466:TYR:CD1	2.55	0.42
4:J:885:ILE:HD13	4:J:921:VAL:HB	2.00	0.42
4:J:1041:SER:HA	4:J:1089:LEU:O	2.20	0.42
5:K:564:SER:O	5:K:567:THR:OG1	2.33	0.42
5:K:1061:PRO:HG3	5:K:1201:SER:O	2.19	0.42
6:V:3:TYR:HB2	6:V:69:LEU:HD21	2.01	0.42
5:Z:894:ASP:OD1	5:Z:894:ASP:N	2.53	0.42
1:O:206:ASP:O	1:O:211:ARG:NH1	2.53	0.42
1:O:270:LEU:HD23	1:O:417:LEU:HD21	2.01	0.42
2:B:367:VAL:HG12	2:B:469:LEU:HB2	2.01	0.42
2:B:453:GLU:O	2:B:453:GLU:HG2	2.19	0.42
2:D:22:PRO:HD2	2:F:208:VAL:HG23	2.00	0.42
3:I:27:SER:O	3:I:31:GLY:N	2.52	0.42
3:L:347:ILE:HG12	3:L:349:PHE:H	1.84	0.42
7:W:541:PRO:HG3	7:W:644:MET:HG3	2.00	0.42
5:Y:576:SER:OG	5:Y:627:TRP:NE1	2.43	0.42
1:O:65:TYR:HD1	1:O:153:LEU:HD22	1.84	0.42
2:B:192:LEU:O	2:B:196:GLN:HG3	2.20	0.42
2:B:351:ASP:OD1	2:B:355:THR:N	2.52	0.42
6:V:110:LYS:NZ	6:V:112:LEU:HD23	2.35	0.42
6:V:363:ASP:HB3	6:V:366:THR:O	2.20	0.42
6:V:436:ILE:HD12	6:V:436:ILE:H	1.84	0.42
6:V:482:ASN:CA	6:V:488:HIS:HE1	2.33	0.42
7:W:612:SER:H	7:W:615:ILE:HD11	1.84	0.42
5:Z:271:ILE:HG22	5:Z:272:VAL:HG23	2.02	0.42
5:Z:1159:ALA:O	5:Z:1163:THR:HG23	2.20	0.42
1:O:235:ARG:O	1:O:236:THR:OG1	2.27	0.42
1:O:334:ARG:HD2	1:O:334:ARG:HA	1.76	0.42
2:B:504:THR:HG22	2:B:509:VAL:HG22	2.01	0.42
2:H:359:LEU:HD23	2:H:359:LEU:HA	4.10	0.42
3:L:133:TRP:HB3	3:L:360:ASP:HA	2.02	0.42
6:V:80:LYS:O	6:V:84:LEU:HD23	2.19	0.42
6:V:110:LYS:HE3	6:V:110:LYS:HB3	1.58	0.42
7:W:719:LEU:O	7:W:723:LEU:HD23	2.19	0.42
7:W:754:GLN:O	7:W:758:GLU:OE1	2.38	0.42
7:W:1156:ASP:OD2	5:Y:554:THR:HG22	2.19	0.42
2:F:220:ASP:O	2:F:230:ARG:NH2	2.51	0.42
4:J:85:PHE:CZ	4:J:89:LYS:HD2	2.55	0.42
5:Y:433:ARG:HA	5:Y:450:VAL:HG12	2.02	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
5:Y:1119:THR:HG21	5:Y:1170:ILE:O	2.19	0.42
2:A:21:LYS:HD2	2:B:207:GLU:OE2	2.20	0.42
2:B:174:TYR:CZ	2:B:178:ILE:HD11	2.55	0.42
2:B:260:GLU:N	2:B:260:GLU:OE2	2.52	0.42
3:I:133:TRP:O	3:I:143:ARG:NH1	2.29	0.42
6:V:106:LEU:HD12	6:V:106:LEU:HA	1.90	0.42
6:V:147:ASN:HA	6:V:150:GLN:HE21	1.85	0.42
6:V:168:LEU:HD12	6:V:175:TYR:CE1	2.55	0.42
7:W:26:VAL:HA	7:W:29:ASP:OD1	2.20	0.42
7:W:65:THR:O	7:W:66:LYS:HE2	2.20	0.42
7:W:524:ARG:HG3	7:W:524:ARG:NH1	2.35	0.42
5:Z:705:TRP:CE2	5:Z:709:ILE:HD11	2.55	0.42
7:W:70:ASP:OD1	7:W:71:SER:N	2.50	0.41
7:W:513:THR:HG22	7:W:514:SER:O	2.20	0.41
5:Y:1124:GLN:HE21	5:Z:182:GLN:NE2	2.18	0.41
5:Y:1270:VAL:HG23	5:Y:1271:VAL:HG23	2.01	0.41
1:C:322:ARG:HG2	1:C:322:ARG:HH11	1.86	0.41
3:I:158:ASP:HB2	3:I:161:THR:OG1	2.19	0.41
4:J:377:LEU:HD12	4:J:377:LEU:O	2.20	0.41
4:J:620:THR:HB	4:J:622:PRO:HD2	2.02	0.41
4:J:836:ILE:O	4:J:840:ILE:HG12	2.21	0.41
5:M:1227:ILE:H	5:M:1227:ILE:HD12	1.85	0.41
6:V:663:TYR:HB2	6:V:729:LEU:CD2	2.50	0.41
7:W:28:GLU:OE1	7:W:864:GLN:HG2	2.20	0.41
7:W:40:SER:C	7:W:44:LYS:HZ2	2.24	0.41
7:W:340:LEU:HD12	7:W:343:VAL:HG21	2.01	0.41
7:W:528:ILE:HD12	7:W:682:SER:OG	2.20	0.41
7:W:1062:ARG:NH2	7:W:1064:CYS:SG	2.92	0.41
2:B:97:ASP:OD1	2:B:98:GLU:N	2.53	0.41
3:G:133:TRP:HD1	3:G:360:ASP:OD1	2.02	0.41
4:J:146:LEU:O	4:J:149:THR:HG22	2.20	0.41
4:J:587:ASP:OD1	4:J:589:SER:N	2.51	0.41
5:K:504:LEU:HG	5:K:506:PRO:HD3	2.01	0.41
5:M:906:TYR:HB3	5:M:907:PRO:HD3	2.01	0.41
7:W:38:THR:HG23	7:W:41:ASP:H	1.85	0.41
7:W:57:LEU:HD12	7:W:58:PRO:HD2	2.02	0.41
7:W:83:ARG:NH1	7:W:84:LYS:O	2.53	0.41
7:W:486:LYS:HZ1	7:W:1024:ALA:N	2.19	0.41
5:Y:818:GLU:OE2	5:Y:901:TYR:OH	2.33	0.41
5:Y:836:VAL:HG11	5:Y:842:ARG:HB3	2.02	0.41
5:Z:1241:PRO:HA	5:Z:1242:PRO:HD3	1.92	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:O:180:MET:HG2	1:O:183:PHE:CE2	2.56	0.41
4:J:721:GLN:O	4:J:725:ILE:HG12	2.21	0.41
3:L:186:ARG:HH21	3:L:245:PRO:HA	1.85	0.41
3:L:198:GLY:O	3:L:202:ARG:HG3	2.20	0.41
6:V:168:LEU:HD21	6:V:184:THR:HB	2.02	0.41
7:W:235:ASN:O	7:W:239:LEU:HD23	2.20	0.41
7:W:580:GLN:HE21	7:W:747:LYS:HE3	1.85	0.41
7:W:706:TRP:CE3	7:W:763:TYR:HB2	2.55	0.41
5:Y:430:ARG:HH21	5:Y:1242:PRO:HG3	1.85	0.41
5:Y:826:LEU:HA	5:Y:826:LEU:HD23	1.89	0.41
5:Y:1044:ASP:HB3	5:Y:1139:ILE:O	2.19	0.41
5:Z:599:LEU:HD22	5:Z:739:LEU:HD11	2.01	0.41
2:A:3:ASN:ND2	2:B:230:ARG:HG2	2.35	0.41
2:B:197:THR:HG22	2:H:567:PRO:HG3	2.01	0.41
4:J:439:VAL:HG12	4:J:640:LEU:HB2	2.02	0.41
5:K:544:GLN:HA	5:K:592:ARG:NH1	2.36	0.41
3:L:289:THR:O	3:L:293:LYS:HG2	2.21	0.41
7:W:139:ILE:HD12	7:W:139:ILE:HA	1.98	0.41
7:W:300:LEU:HB2	7:W:307:LYS:HB2	2.01	0.41
5:Z:552:ASP:HB2	5:Z:890:LYS:NZ	2.35	0.41
5:Z:1067:PHE:O	5:Z:1138:ARG:NH1	2.49	0.41
1:O:50:ARG:HH21	1:O:242:ASN:HD21	1.68	0.41
3:L:98:GLY:O	3:L:101:SER:OG	2.32	0.41
3:L:186:ARG:HA	3:L:249:PHE:CZ	2.55	0.41
3:L:362:MET:SD	3:L:364:LEU:HD23	2.61	0.41
5:M:266:PHE:CE2	5:M:306:VAL:HG22	2.55	0.41
5:M:536:LEU:HD23	5:M:536:LEU:HA	1.90	0.41
6:V:212:THR:HG23	6:V:214:LYS:HG2	2.02	0.41
7:W:152:GLU:HA	7:W:155:VAL:HG22	2.03	0.41
7:W:899:MET:HA	7:W:902:TRP:CD1	2.55	0.41
5:K:391:LEU:HB3	5:K:407:TYR:CE2	2.55	0.41
5:K:563:VAL:HG23	5:K:564:SER:N	2.34	0.41
6:V:464:TYR:OH	6:V:465:LYS:HE2	2.21	0.41
7:W:54:ASP:OD2	7:W:183:HIS:ND1	2.54	0.41
5:Y:576:SER:O	5:Y:580:LYS:HG2	2.21	0.41
2:B:598:ARG:HE	2:H:455:GLU:HG2	1.86	0.41
2:F:284:LYS:O	2:F:288:GLN:HG3	2.20	0.41
2:H:517:ASP:OD2	3:L:309:GLU:HG3	2.21	0.41
3:I:190:HIS:HA	3:I:193:ASN:O	2.21	0.41
3:L:129:VAL:HB	3:L:363:ILE:HG22	2.01	0.41
6:V:668:ILE:HG22	6:V:684:LYS:HB2	2.01	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
7:W:84:LYS:HB3	7:W:86:TYR:CE1	2.56	0.41
7:W:754:GLN:O	7:W:757:LEU:HB2	2.21	0.41
7:W:1100:GLN:HG3	7:W:1104:LYS:HE3	2.02	0.41
5:Z:946:ASP:OD1	5:Z:946:ASP:N	2.54	0.41
1:O:391:MET:CE	1:O:393:ARG:HG3	2.51	0.41
2:A:7:ILE:HD12	2:B:234:LYS:HE3	2.03	0.41
2:B:56:SER:HB2	4:J:345:TRP:NE1	2.35	0.41
2:B:253:SER:OG	2:B:254:GLU:OE1	2.39	0.41
3:I:51:CYS:O	3:I:55:LEU:N	2.50	0.41
4:J:398:PRO:HG3	4:J:739:LYS:HE3	2.03	0.41
4:J:613:VAL:HG22	4:J:654:VAL:HG22	2.03	0.41
3:L:179:LEU:HD12	3:L:363:ILE:HG13	2.03	0.41
6:V:64:VAL:HG12	6:V:210:ILE:HG12	2.01	0.41
6:V:584:GLN:NE2	6:V:585:PRO:HD2	2.36	0.41
7:W:99:ILE:HG22	7:W:136:TYR:CE2	2.56	0.41
7:W:668:SER:OG	7:W:671:ASN:HB2	2.21	0.41
7:W:754:GLN:HA	7:W:757:LEU:HD13	2.03	0.41
7:W:846:CYS:O	7:W:850:SER:HB3	2.21	0.41
7:W:1145:LEU:HA	7:W:1148:VAL:HG22	2.03	0.41
7:W:1256:PHE:O	7:W:1260:MET:HG3	2.20	0.41
5:Y:699:ALA:HB1	5:Y:702:LEU:HB2	2.03	0.41
5:Y:779:GLN:NE2	5:Y:780:ARG:HG3	2.36	0.41
5:Y:1171:THR:HG23	5:Y:1173:THR:H	1.86	0.41
5:Z:700:PRO:O	5:Z:704:GLN:HG3	2.20	0.41
2:B:647:ALA:O	2:B:651:LEU:HD23	2.20	0.41
2:F:73:GLU:HA	2:F:78:ASN:HD22	1.85	0.41
3:G:19:PHE:HE2	3:G:286:ILE:HD13	1.86	0.41
3:G:190:HIS:HB3	3:G:195:VAL:HG13	2.02	0.41
3:I:289:THR:O	3:I:293:LYS:HG3	2.21	0.41
4:J:1033:ASN:O	4:J:1040:CYS:HB3	2.20	0.41
3:L:357:MET:SD	3:L:358:ILE:N	2.94	0.41
6:V:399:MET:CE	6:V:403:TYR:HB3	2.51	0.41
6:V:611:PRO:O	6:V:615:SER:OG	2.31	0.41
6:V:668:ILE:CG2	6:V:684:LYS:HB2	2.51	0.41
7:W:156:LEU:HA	7:W:159:LEU:HD12	2.02	0.41
5:Y:247:LEU:HD22	5:Y:525:ILE:HG21	2.03	0.41
5:Y:851:ARG:HA	5:Y:996:GLN:O	2.21	0.41
5:Y:1171:THR:OG1	5:Y:1172:PRO:HD2	2.21	0.41
5:Z:937:GLN:HE22	5:Z:1025:GLN:HE22	1.69	0.41
2:B:140:LEU:HG	2:B:170:ARG:HD3	2.03	0.40
2:H:581:TYR:HH	3:L:53:HIS:CE1	2.32	0.40

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
4:J:464:ASP:OD1	4:J:465:GLU:N	2.54	0.40
4:J:836:ILE:HA	4:J:839:LEU:HD12	2.02	0.40
4:J:961:SER:OG	4:J:962:ASP:N	2.54	0.40
5:M:394:LEU:HD13	5:M:395:PRO:HD2	2.04	0.40
7:W:138:ARG:HB3	7:W:667:PHE:HD1	1.85	0.40
5:Y:988:LEU:HD23	5:Y:988:LEU:HA	1.85	0.40
5:Y:1114:LEU:HG	5:Y:1122:PHE:HE2	1.85	0.40
2:E:22:PRO:HD2	2:H:208:VAL:HG23	2.03	0.40
2:F:278:PRO:O	2:F:282:LYS:HG3	2.21	0.40
3:I:25:ILE:HD13	3:I:43:MET:HG2	2.01	0.40
4:J:14:SER:HB3	4:J:313:GLN:NE2	2.37	0.40
5:K:313:ASN:HD22	5:K:395:PRO:HG2	1.87	0.40
6:V:405:PHE:HE1	6:V:693:PRO:HG3	1.86	0.40
6:V:492:LEU:HD12	6:V:492:LEU:HA	1.97	0.40
7:W:448:GLN:HG2	7:W:619:PHE:CE1	2.55	0.40
7:W:1215:MET:SD	7:W:1253:GLY:HA3	2.60	0.40
5:Y:711:ARG:HG3	5:Y:712:TYR:CD2	2.56	0.40
5:Z:266:PHE:CE1	5:Z:306:VAL:HG22	2.56	0.40
2:B:150:VAL:HG11	2:H:120:PHE:HD1	1.87	0.40
1:C:194:LEU:HD23	1:C:194:LEU:HA	1.96	0.40
3:G:228:LEU:HG	3:G:234:LYS:HE3	2.03	0.40
2:H:544:SER:O	2:H:547:ALA:HB3	2.21	0.40
3:I:14:LEU:HB2	3:I:45:CYS:CB	2.51	0.40
5:Z:242:LYS:HD2	5:Z:242:LYS:O	2.21	0.40
5:Z:304:ILE:HD11	5:Z:1210:PHE:HD1	1.85	0.40
1:O:369:ARG:O	1:O:373:GLU:HG3	2.22	0.40
5:K:307:HIS:CD2	5:K:310:TRP:HB3	2.54	0.40
5:K:1151:TYR:CD1	5:K:1181:MET:HG2	2.57	0.40
5:M:337:GLN:N	5:M:337:GLN:OE1	2.54	0.40
5:M:1131:LYS:HG2	5:M:1132:THR:HG23	2.02	0.40
6:V:470:VAL:HG11	6:V:476:LEU:HB2	2.04	0.40
6:V:693:PRO:HB2	6:V:696:LEU:HD23	2.03	0.40
2:B:106:HIS:O	2:B:110:ASN:ND2	2.38	0.40
2:B:378:PHE:HB3	2:B:493:LEU:HD11	2.03	0.40
2:F:405:GLN:OE1	2:F:457:LEU:HD12	2.22	0.40
3:I:109:MET:CE	3:I:131:LEU:HD13	2.52	0.40
5:K:580:LYS:NZ	5:K:624:GLU:OE2	2.34	0.40
5:K:1079:ARG:HA	5:K:1114:LEU:HD21	2.01	0.40
3:L:120:ARG:NH2	3:L:121:VAL:HB	2.36	0.40
3:L:141:MET:HA	3:L:147:SER:HB3	2.04	0.40
7:W:535:GLN:HA	7:W:538:VAL:HG22	2.03	0.40

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
7:W:568:ILE:H	7:W:568:ILE:HD12	1.86	0.40
7:W:762:LYS:HA	7:W:765:GLU:OE1	2.22	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	0	416/418 (100%)	407 (98%)	9 (2%)	0	100	100
1	C	415/418 (99%)	407 (98%)	8 (2%)	0	100	100
2	A	40/708 (6%)	32 (80%)	8 (20%)	0	100	100
2	B	631/708 (89%)	621 (98%)	10 (2%)	0	100	100
2	D	36/708 (5%)	31 (86%)	5 (14%)	0	100	100
2	E	40/708 (6%)	34 (85%)	6 (15%)	0	100	100
2	F	631/708 (89%)	617 (98%)	14 (2%)	0	100	100
2	H	611/708 (86%)	593 (97%)	18 (3%)	0	100	100
3	G	363/365 (100%)	357 (98%)	6 (2%)	0	100	100
3	I	363/365 (100%)	356 (98%)	7 (2%)	0	100	100
3	L	363/365 (100%)	357 (98%)	6 (2%)	0	100	100
4	J	1286/1289 (100%)	1249 (97%)	37 (3%)	0	100	100
5	K	1082/1275 (85%)	1060 (98%)	22 (2%)	0	100	100
5	M	1083/1275 (85%)	1058 (98%)	25 (2%)	0	100	100
5	Y	1052/1275 (82%)	1019 (97%)	33 (3%)	0	100	100
5	Z	1082/1275 (85%)	1051 (97%)	31 (3%)	0	100	100
5	a	1071/1275 (84%)	1047 (98%)	24 (2%)	0	100	100
5	b	1083/1275 (85%)	1065 (98%)	18 (2%)	0	100	100

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
5	c	1033/1275 (81%)	1007 (98%)	26 (2%)	0	100	100
5	d	1083/1275 (85%)	1055 (97%)	28 (3%)	0	100	100
5	e	136/1275 (11%)	132 (97%)	4 (3%)	0	100	100
5	f	1044/1275 (82%)	1020 (98%)	24 (2%)	0	100	100
5	g	137/1275 (11%)	135 (98%)	2 (2%)	0	100	100
5	h	1040/1275 (82%)	1018 (98%)	21 (2%)	1 (0%)	48	81
5	i	136/1275 (11%)	134 (98%)	2 (2%)	0	100	100
5	k	136/1275 (11%)	131 (96%)	5 (4%)	0	100	100
5	m	137/1275 (11%)	135 (98%)	2 (2%)	0	100	100
6	V	663/736 (90%)	626 (94%)	37 (6%)	0	100	100
7	W	1256/1267 (99%)	1211 (96%)	45 (4%)	0	100	100
All	All	18449/28596 (64%)	17965 (97%)	483 (3%)	1 (0%)	100	100

All (1) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
5	h	583	PRO

5.3.2 Protein sidechains [i](#)

In the following table, the Percentiles column shows the percent sidechain outliers of the chain as a percentile score with respect to all 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	0	354/354 (100%)	354 (100%)	0	100	100
1	C	353/354 (100%)	353 (100%)	0	100	100
2	A	35/597 (6%)	35 (100%)	0	100	100
2	B	534/597 (89%)	534 (100%)	0	100	100
2	D	33/597 (6%)	32 (97%)	1 (3%)	36	69
2	E	35/597 (6%)	34 (97%)	1 (3%)	37	70
2	F	534/597 (89%)	533 (100%)	1 (0%)	92	97

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Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
2	H	520/597 (87%)	517 (99%)	3 (1%)	84	93
3	G	315/315 (100%)	314 (100%)	1 (0%)	91	96
3	I	315/315 (100%)	312 (99%)	3 (1%)	73	88
3	L	315/315 (100%)	312 (99%)	3 (1%)	73	88
4	J	1120/1121 (100%)	1119 (100%)	1 (0%)	92	98
5	K	960/1114 (86%)	958 (100%)	2 (0%)	92	97
5	M	961/1114 (86%)	959 (100%)	2 (0%)	92	97
5	Y	933/1114 (84%)	933 (100%)	0	100	100
5	Z	961/1114 (86%)	960 (100%)	1 (0%)	92	98
5	a	950/1114 (85%)	950 (100%)	0	100	100
5	b	961/1114 (86%)	959 (100%)	2 (0%)	92	97
5	c	915/1114 (82%)	911 (100%)	4 (0%)	89	95
5	d	961/1114 (86%)	960 (100%)	1 (0%)	92	98
5	e	115/1114 (10%)	115 (100%)	0	100	100
5	f	928/1114 (83%)	927 (100%)	1 (0%)	92	98
5	g	115/1114 (10%)	115 (100%)	0	100	100
5	h	924/1114 (83%)	922 (100%)	2 (0%)	92	97
5	i	115/1114 (10%)	113 (98%)	2 (2%)	56	81
5	k	115/1114 (10%)	114 (99%)	1 (1%)	75	89
5	m	116/1114 (10%)	116 (100%)	0	100	100
6	V	598/646 (93%)	591 (99%)	7 (1%)	67	86
7	W	1077/1082 (100%)	1075 (100%)	2 (0%)	92	97
All	All	16168/24794 (65%)	16127 (100%)	41 (0%)	90	96

All (41) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
2	D	11	ILE
2	E	5	SER
2	F	359	LEU
3	G	254	LEU
2	H	359	LEU
2	H	453	GLU
2	H	456	GLN

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Mol	Chain	Res	Type
3	I	200	ASP
3	I	213	ARG
3	I	236	ARG
4	J	21	ARG
5	K	242	LYS
5	K	401	LYS
3	L	66	LYS
3	L	78	ARG
3	L	348	LYS
5	M	217	GLN
5	M	571	LEU
6	V	107	MET
6	V	108	LEU
6	V	109	LYS
6	V	110	LYS
6	V	172	ARG
6	V	439	ARG
6	V	489	ASP
7	W	402	LYS
7	W	953	ARG
5	Z	242	LYS
5	b	217	GLN
5	b	697	ILE
5	c	276	VAL
5	c	278	GLN
5	c	416	VAL
5	c	417	SER
5	d	242	LYS
5	f	1079	ARG
5	h	225	SER
5	h	585	ASN
5	i	49	ASN
5	i	146	ASN
5	k	146	ASN

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (29) such sidechains are listed below:

Mol	Chain	Res	Type
1	0	356	GLN
2	E	42	ASN
2	F	358	HIS
3	G	182	ASN

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type
2	H	601	GLN
3	I	70	HIS
5	K	307	HIS
5	K	340	ASN
5	K	375	HIS
5	K	518	GLN
6	V	46	GLN
6	V	150	GLN
6	V	488	HIS
7	W	391	GLN
7	W	1004	HIS
5	Y	1124	GLN
5	Z	340	ASN
5	Z	1025	GLN
5	a	278	GLN
5	a	1124	GLN
5	b	340	ASN
5	b	898	ASN
5	d	340	ASN
5	d	524	ASN
5	f	704	GLN
5	f	774	ASN
5	f	1124	GLN
5	h	1124	GLN
5	k	128	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.

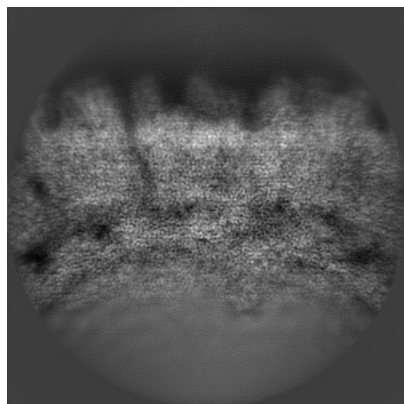
6 Map visualisation [i](#)

This section contains visualisations of the EMDB entry EMD-46054. These allow visual inspection of the internal detail of the map and identification of artifacts.

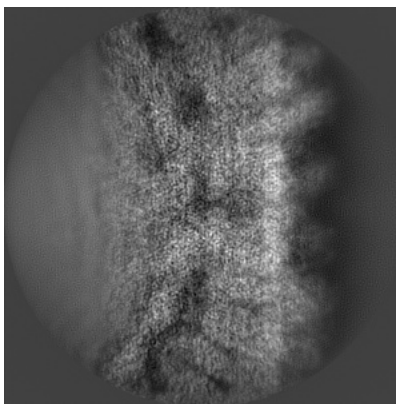
Images derived from a raw map, generated by summing the deposited half-maps, are presented below the corresponding image components of the primary map to allow further visual inspection and comparison with those of the primary map.

6.1 Orthogonal projections [i](#)

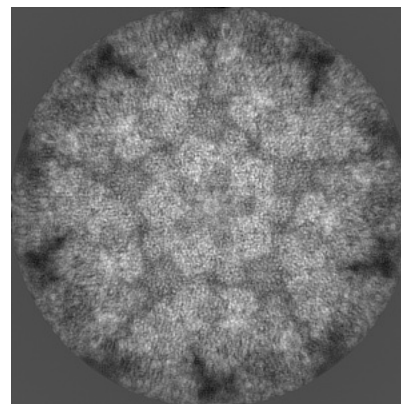
6.1.1 Primary map



X

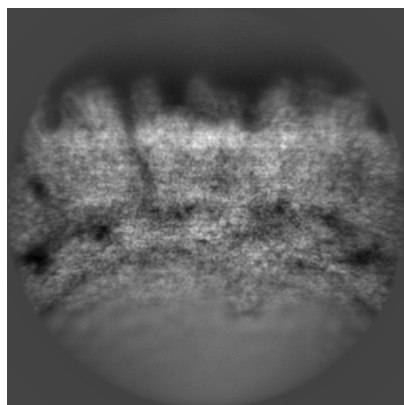


Y

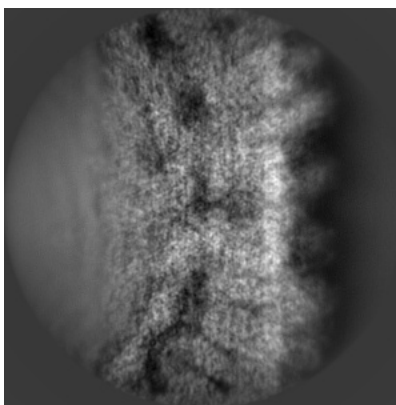


Z

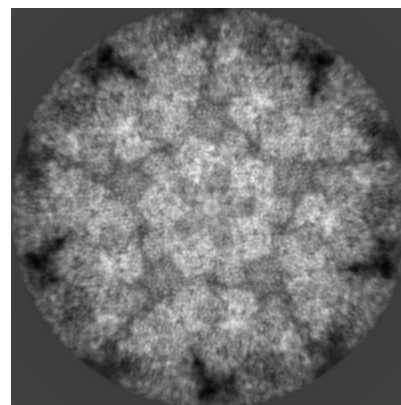
6.1.2 Raw map



X



Y

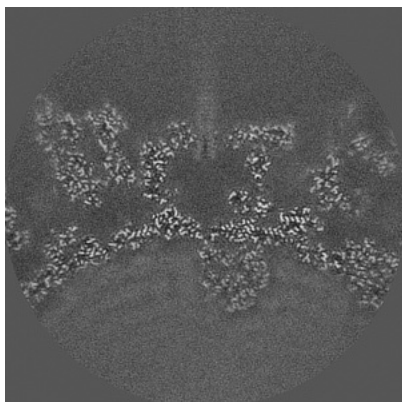


Z

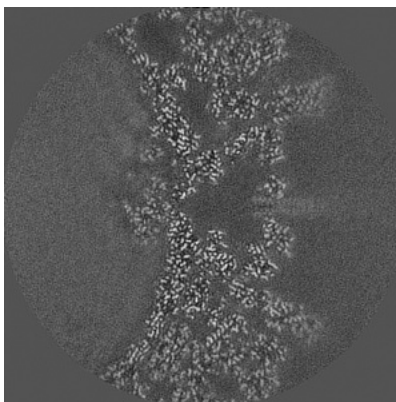
The images above show the map projected in three orthogonal directions.

6.2 Central slices [i](#)

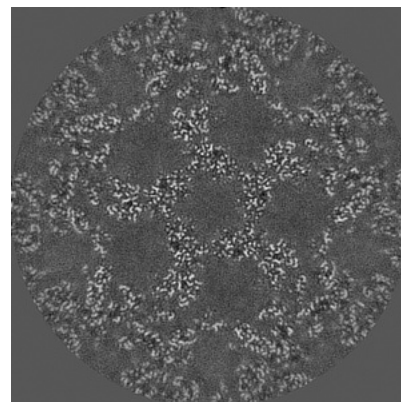
6.2.1 Primary map



X Index: 192

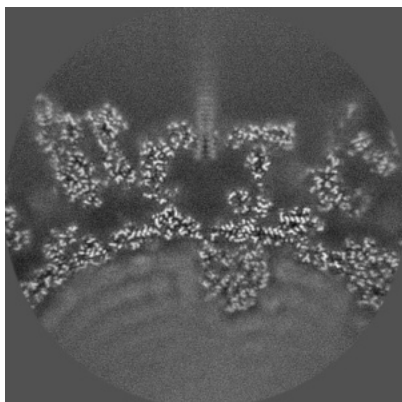


Y Index: 192

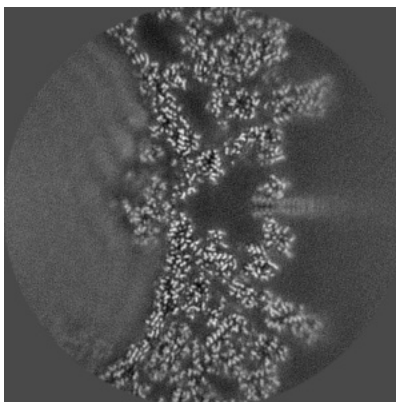


Z Index: 192

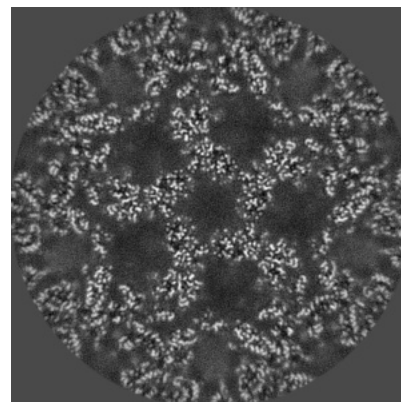
6.2.2 Raw map



X Index: 192



Y Index: 192

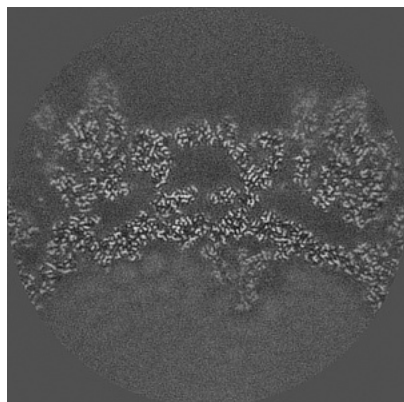


Z Index: 192

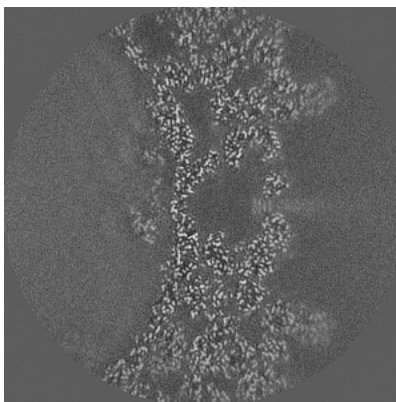
The images above show central slices of the map in three orthogonal directions.

6.3 Largest variance slices [i](#)

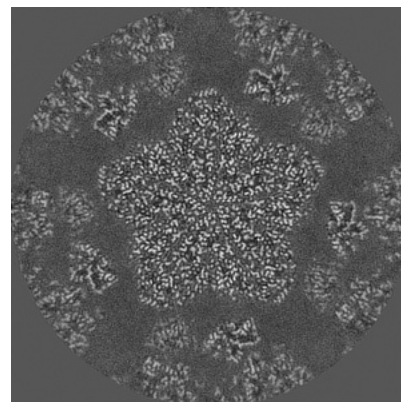
6.3.1 Primary map



X Index: 214

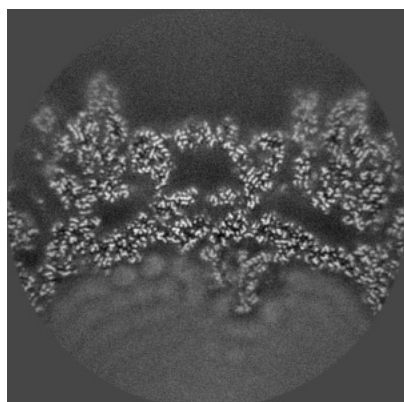


Y Index: 186

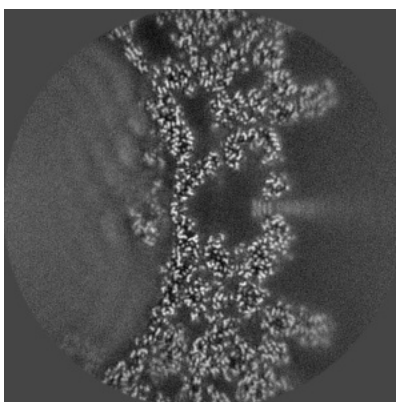


Z Index: 171

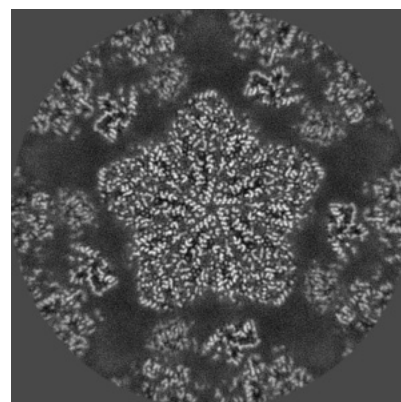
6.3.2 Raw map



X Index: 214



Y Index: 186

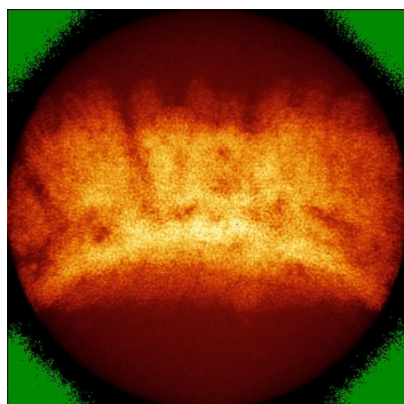


Z Index: 171

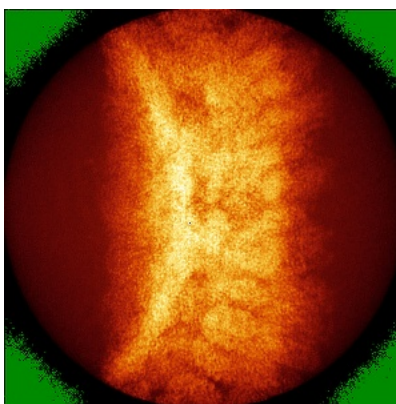
The images above show the largest variance slices of the map in three orthogonal directions.

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

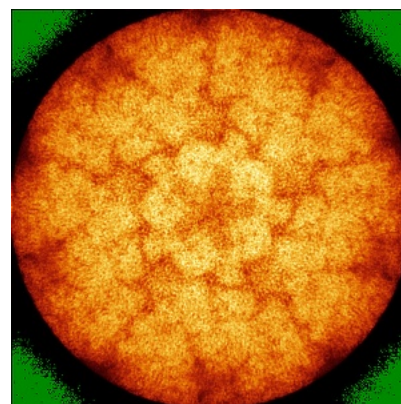
6.4.1 Primary map



X

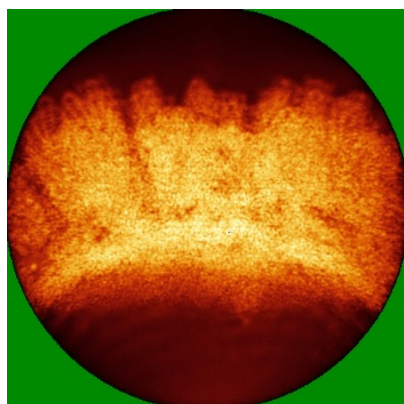


Y

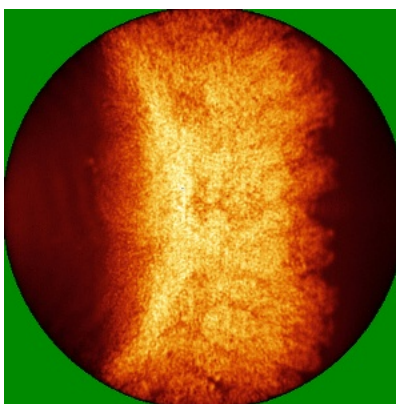


Z

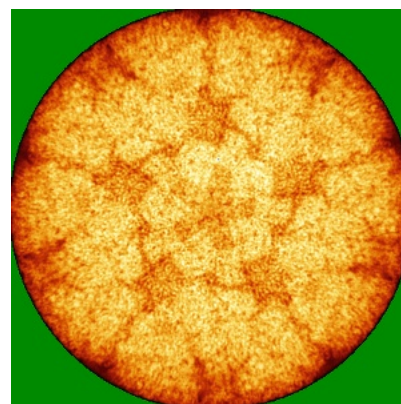
6.4.2 Raw map



X



Y

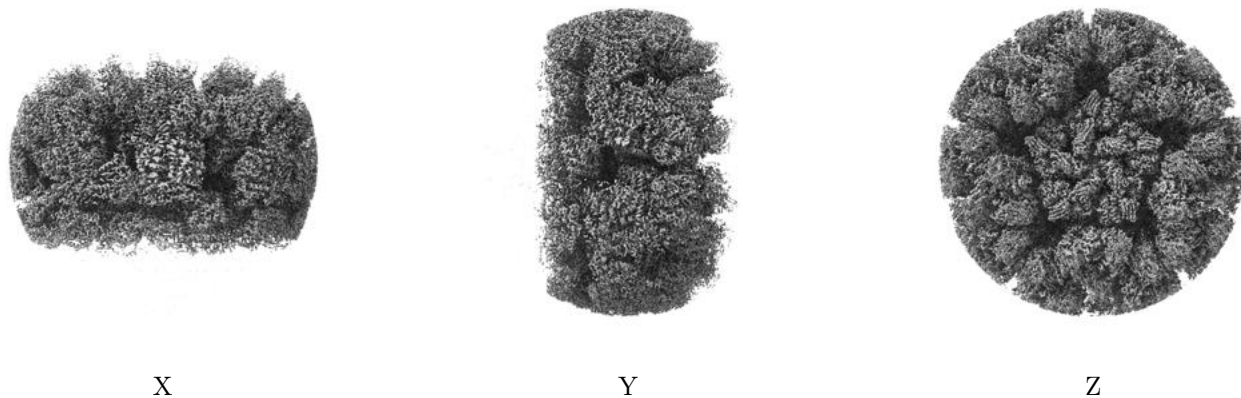


Z

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.

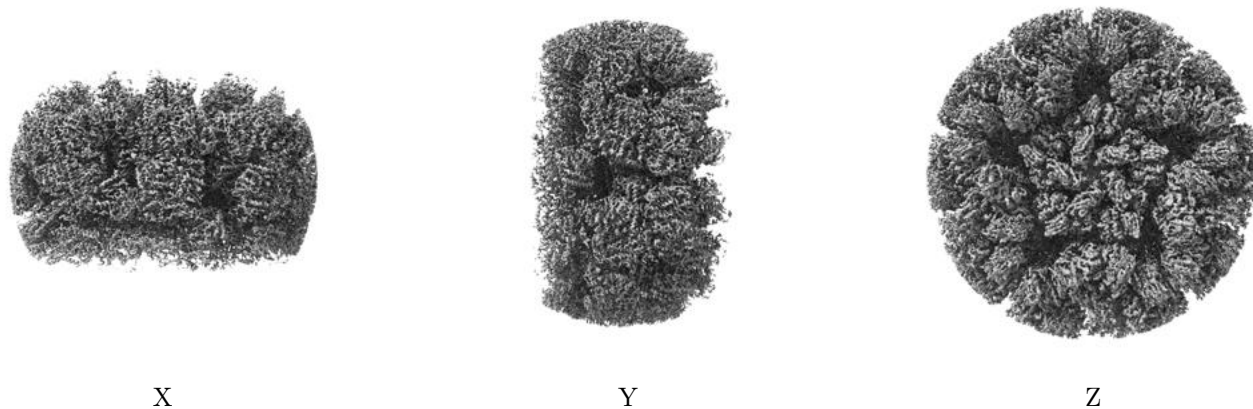
6.5 Orthogonal surface views [i](#)

6.5.1 Primary map



The images above show the 3D surface view of the map at the recommended contour level 0.01. These images, in conjunction with the slice images, may facilitate assessment of whether an appropriate contour level has been provided.

6.5.2 Raw map



These images show the 3D surface of the raw map. The raw map's contour level was selected so that its surface encloses the same volume as the primary map does at its recommended contour level.

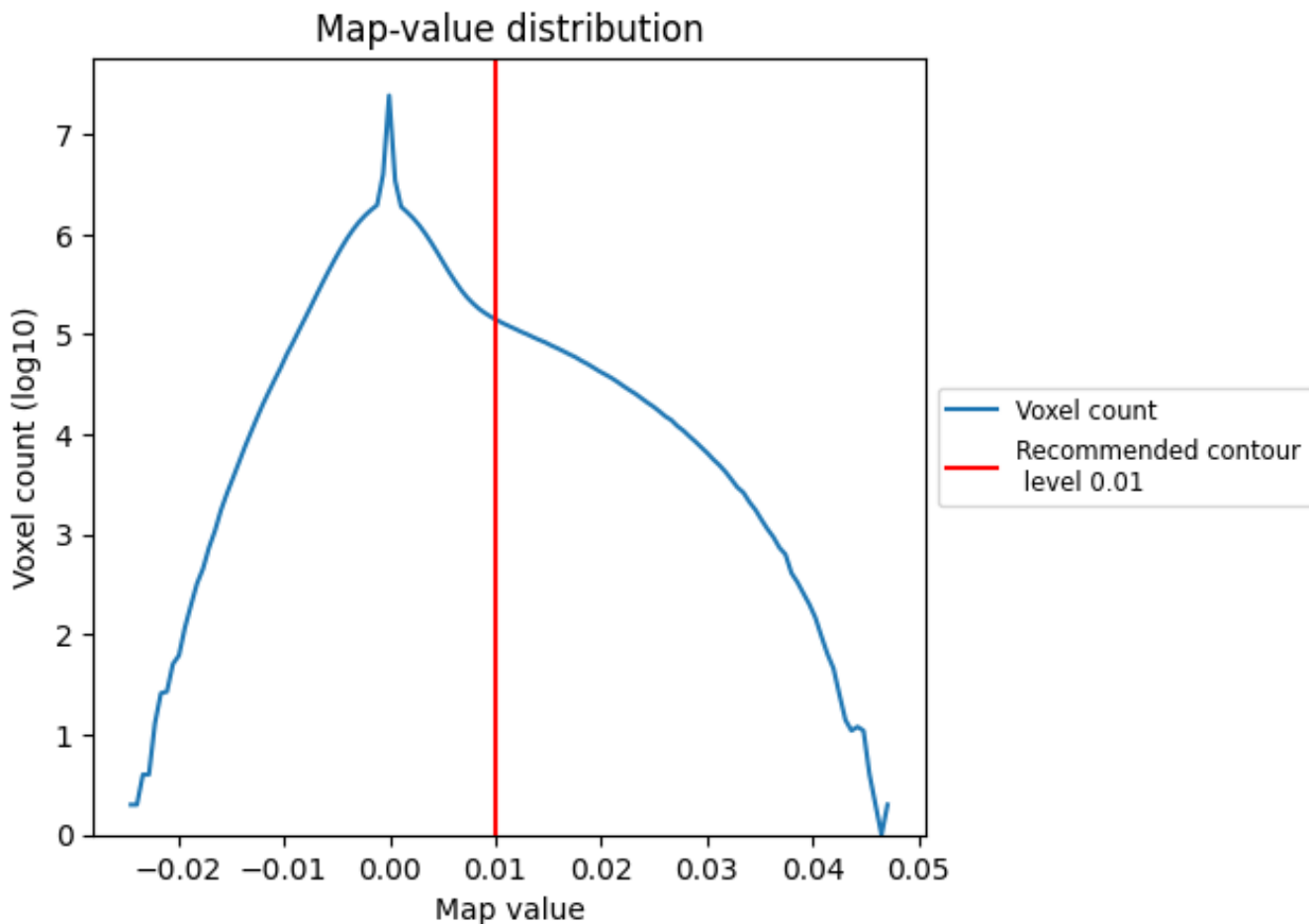
6.6 Mask visualisation [i](#)

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

7 Map analysis [i](#)

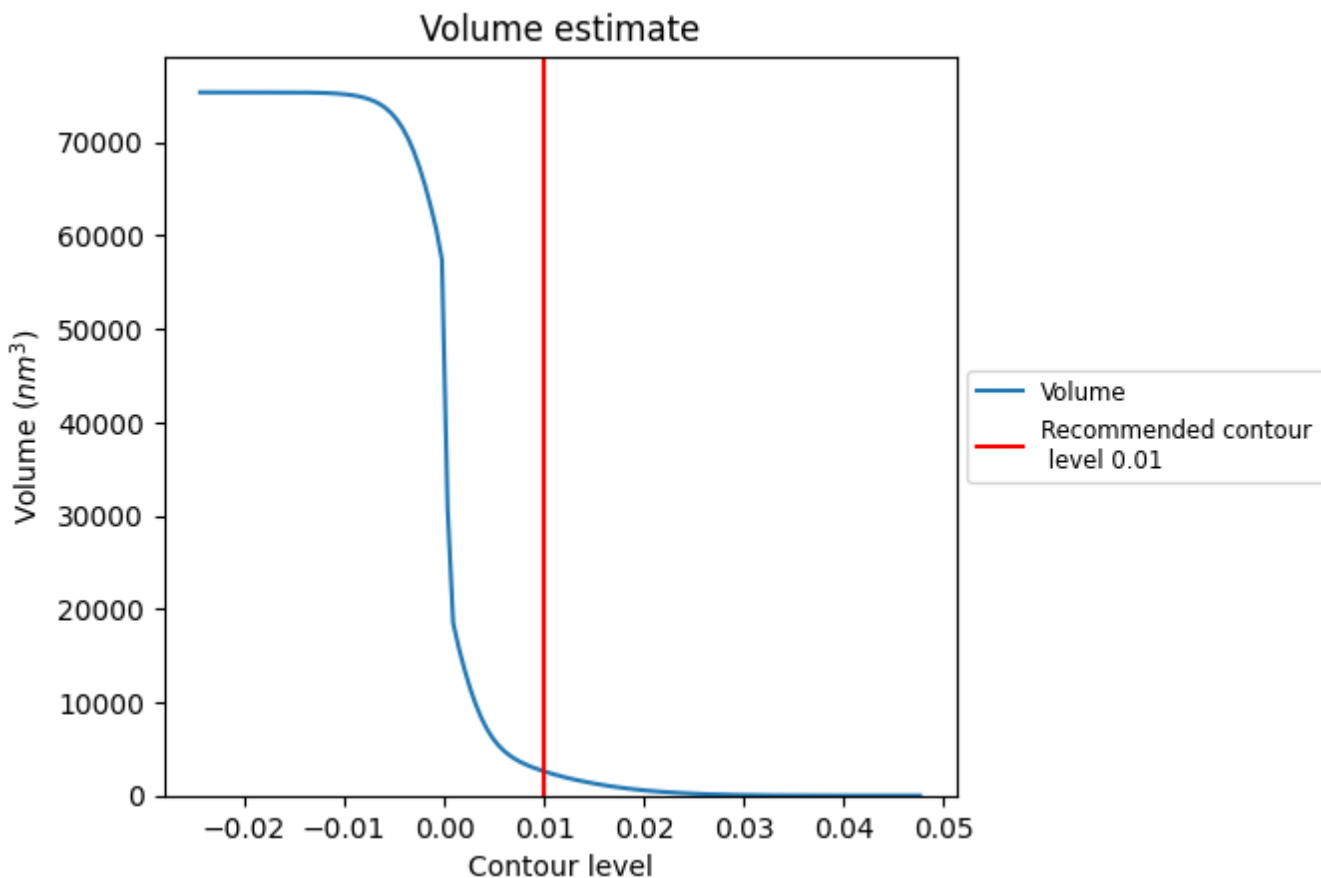
This section contains the results of statistical analysis of the map.

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.

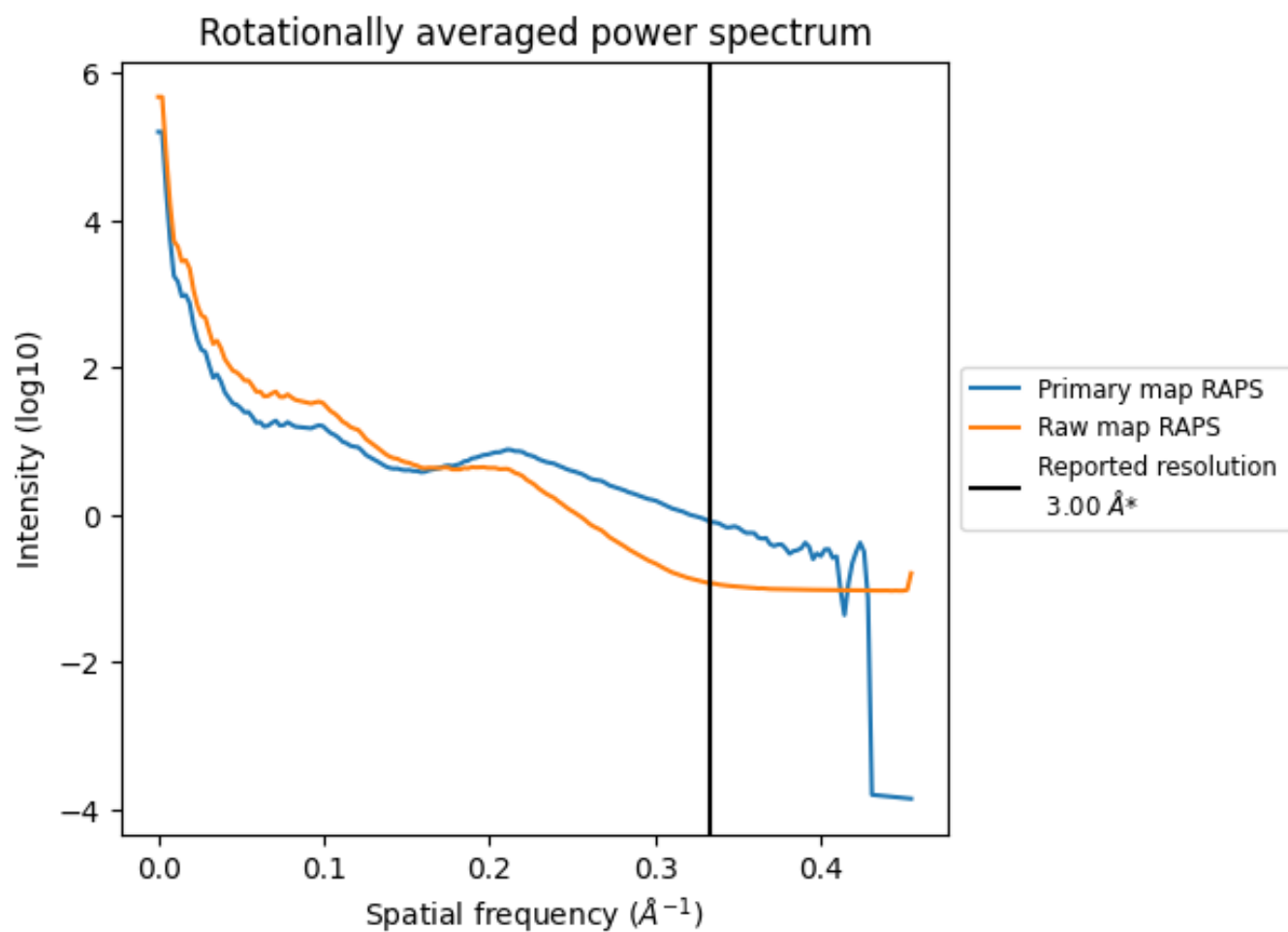
7.2 Volume estimate [i](#)



The volume at the recommended contour level is 2593 nm³; this corresponds to an approximate mass of 2342 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 i

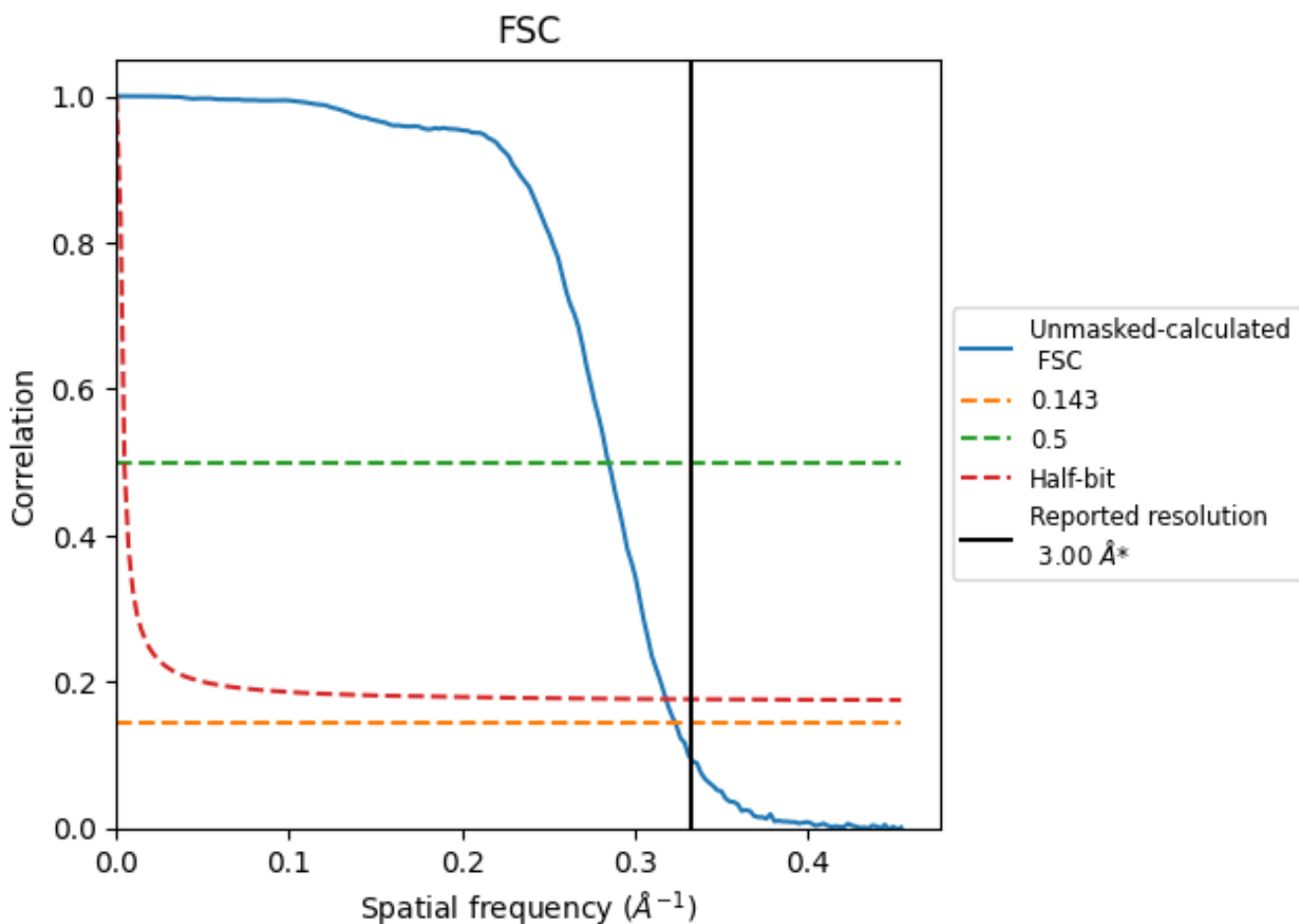


*Reported resolution corresponds to spatial frequency of 0.333 \AA^{-1}

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 0.333 Å⁻¹

8.2 Resolution estimates [i](#)

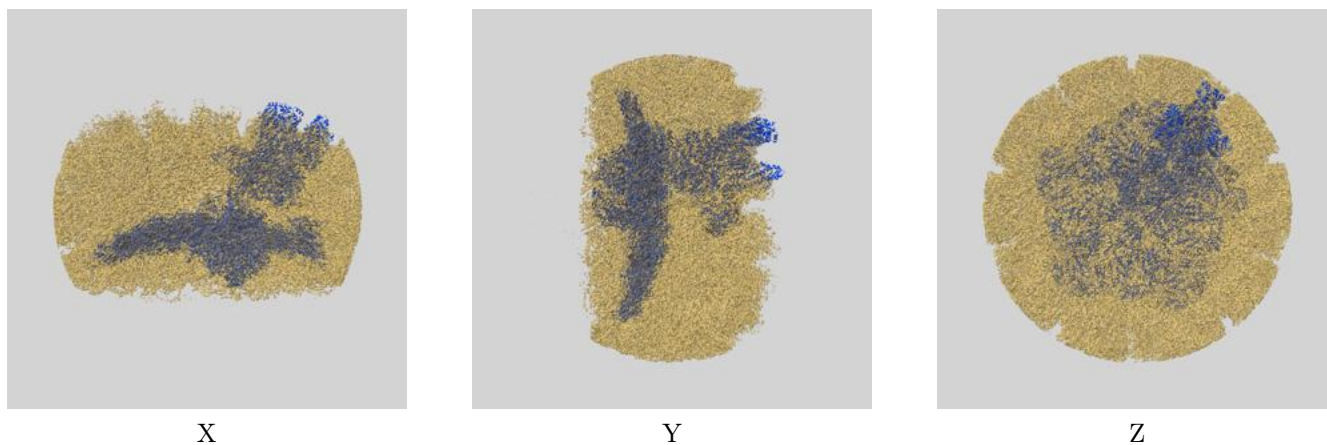
Resolution estimate (Å)	Estimation criterion (FSC cut-off)		
	0.143	0.5	Half-bit
Reported by author	3.00	-	-
Author-provided FSC curve	-	-	-
Unmasked-calculated*	3.09	3.51	3.14

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

9 Map-model fit [i](#)

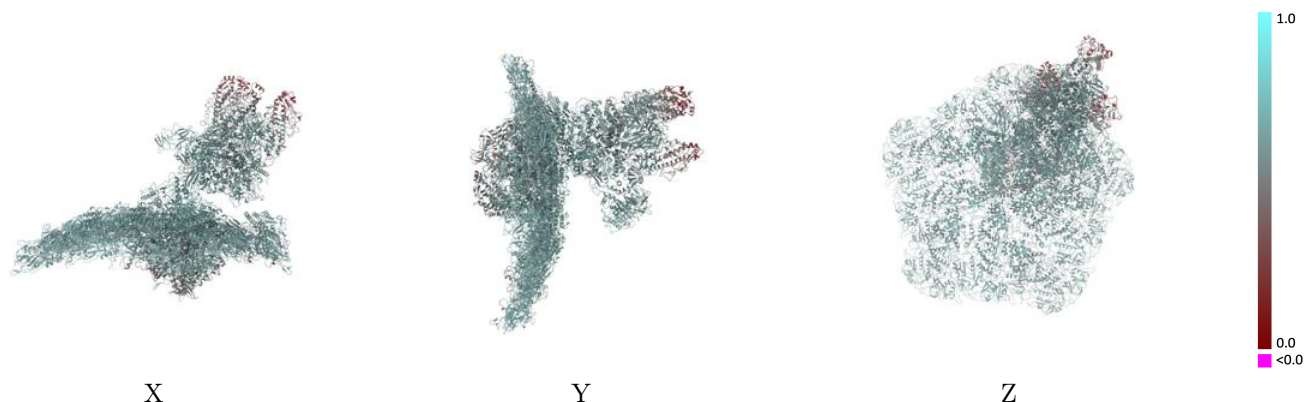
This section contains information regarding the fit between EMDB map EMD-46054 and PDB model 9CYY. Per-residue inclusion information can be found in section 3 on page 7.

9.1 Map-model overlay [i](#)



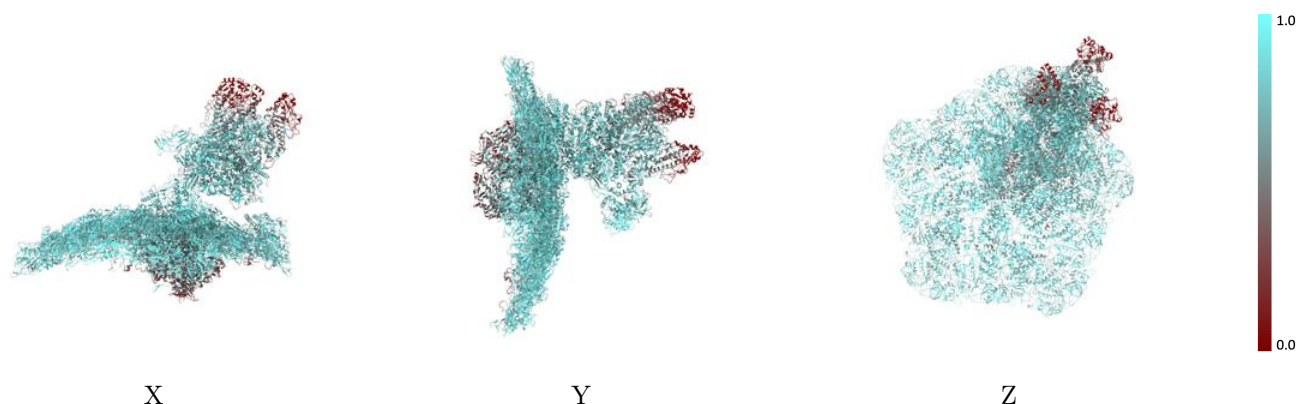
The images above show the 3D surface view of the map at the recommended contour level 0.01 at 50% transparency in yellow overlaid with a ribbon representation of the model coloured in blue. These images allow for the visual assessment of the quality of fit between the atomic model and the map.

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



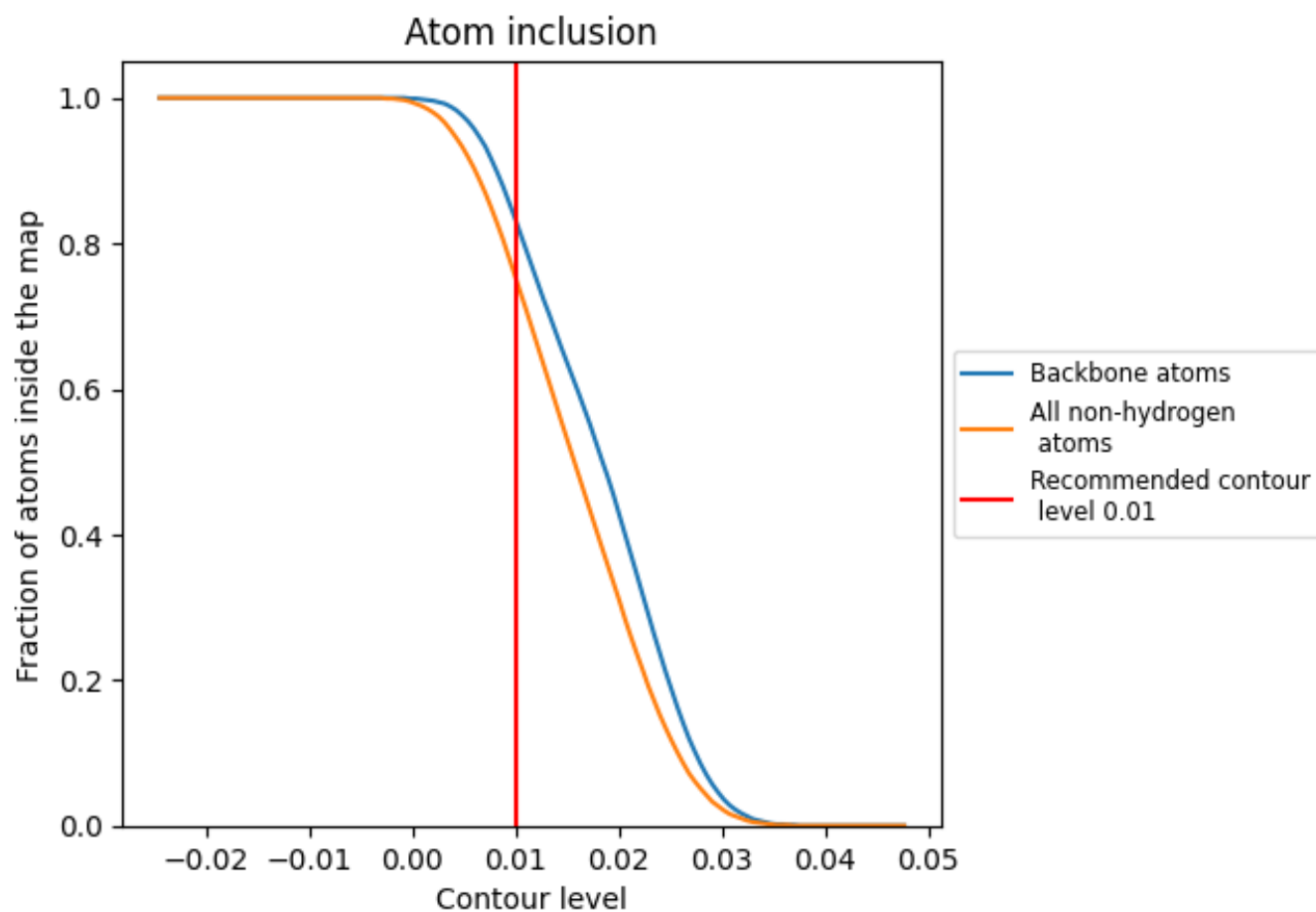
The images above show the model with each residue coloured according its Q-score. This shows their resolvability in the map with higher Q-score values reflecting better resolvability. Please note: Q-score is calculating the resolvability of atoms, and thus high values are only expected at resolutions 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 (0.01).





























































9.4 Atom inclusion [i](#)



At the recommended contour level, 83% of all backbone atoms, 75% 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 (0.01) and Q-score for the entire model and for each chain.

Chain	Atom inclusion	Q-score
All	 0.7540	 0.5860
0	 0.7800	 0.5890
A	 0.6030	 0.5310
B	 0.7660	 0.5800
C	 0.8780	 0.6200
D	 0.6960	 0.5570
E	 0.6830	 0.5370
F	 0.7720	 0.5830
G	 0.4000	 0.4610
H	 0.7470	 0.5740
I	 0.3930	 0.4610
J	 0.8440	 0.6030
K	 0.8110	 0.6050
L	 0.3490	 0.4540
M	 0.8130	 0.6040
V	 0.4370	 0.5040
W	 0.5140	 0.5260
Y	 0.8440	 0.6140
Z	 0.8020	 0.6000
a	 0.8490	 0.6150
b	 0.8070	 0.6040
c	 0.8700	 0.6200
d	 0.7970	 0.5980
e	 0.6540	 0.5740
f	 0.8570	 0.6170
g	 0.6660	 0.5700
h	 0.8630	 0.6190
i	 0.6660	 0.5820
k	 0.6530	 0.5770
m	 0.6170	 0.5550

