



Full wwPDB EM Validation Report ⓘ

Apr 3, 2024 – 09:02 PM JST

PDB ID : 8KEE
EMDB ID : EMD-37153
Title : Cyanophage A-1(L) sheath-tube
Authors : Yu, R.C.; Li, Q.; Zhou, C.Z.
Deposited on : 2023-08-11
Resolution : 3.26 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:

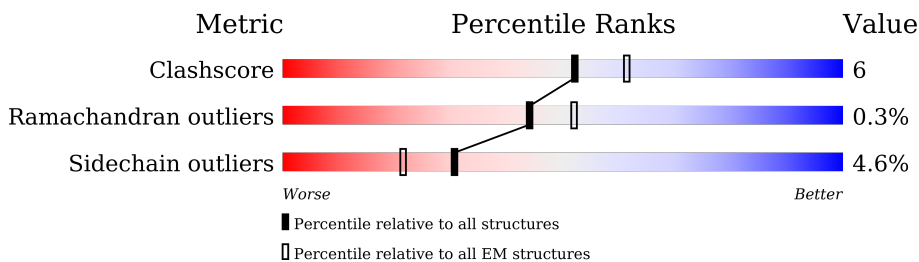
EMDB validation analysis : 0.0.1.dev70
MolProbity : 4.02b-467
Percentile statistics : 20191225.v01 (using entries in the PDB archive December 25th 2019)
MapQ : 1.9.13
Ideal geometry (proteins) : Engh & Huber (2001)
Ideal geometry (DNA, RNA) : Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP) : 2.36

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 3.26 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.






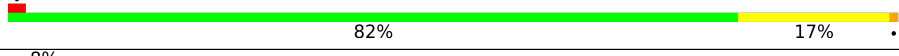
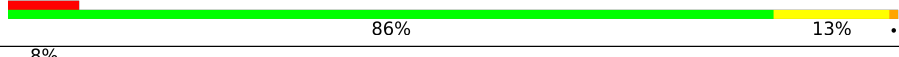



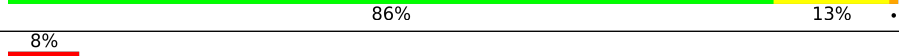
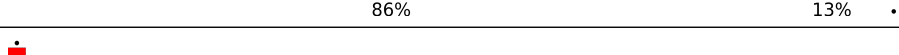
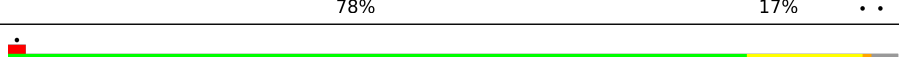
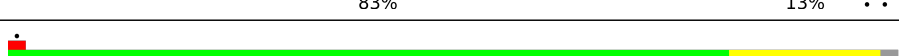

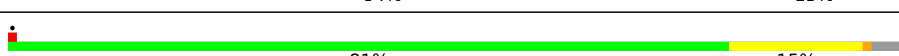
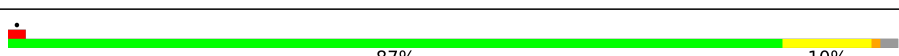
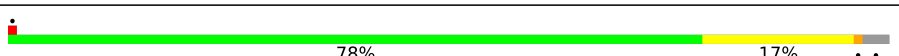

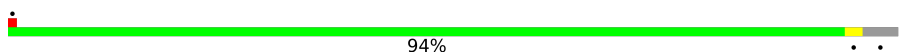
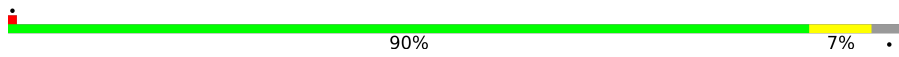
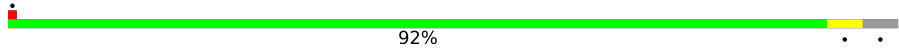
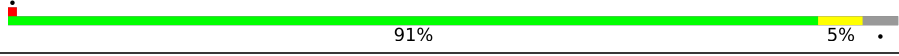
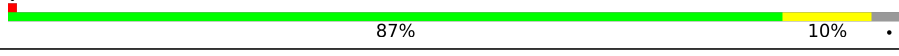
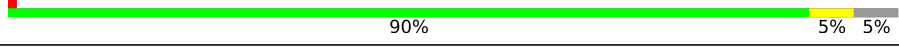
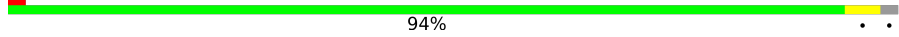

Metric	Whole archive (#Entries)	EM structures (#Entries)
Clashscore	158937	4297
Ramachandran outliers	154571	4023
Sidechain outliers	154315	3826

The table below summarises the geometric issues observed across the polymeric chains and their fit to the map. The red, orange, yellow and green segments of the bar indicate the fraction of residues that contain outliers for ≥ 3 , 2, 1 and 0 types of geometric quality criteria respectively. A grey segment represents the fraction of residues that are not modelled. The numeric value for each fraction is indicated below the corresponding segment, with a dot representing fractions $\leq 5\%$. The upper red bar (where present) indicates the fraction of residues that have poor fit to the EM map (all-atom inclusion $< 40\%$). The numeric value is given above the bar.

Mol	Chain	Length	Quality of chain
1	A	506	
1	B	506	
1	C	506	
1	D	506	
1	E	506	
1	F	506	
1	G	506	
1	H	506	


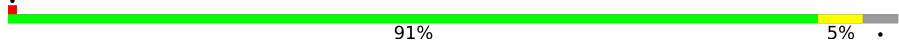
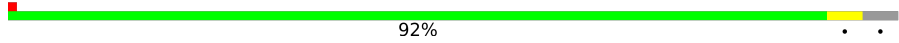
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Mol	Chain	Length	Quality of chain
1	I	506	 85% 14%
1	J	506	 82% 17%
1	K	506	 82% 17%
1	L	506	 82% 17%
1	M	506	 86% 13% 8%
1	N	506	 83% 16% 8%
1	O	506	 85% 13% 8%
1	P	506	 86% 14% 8%
1	Q	506	 86% 13% 8%
1	R	506	 86% 13% 8%
2	S	167	 78% 17%
2	T	167	 83% 13%
2	U	167	 81% 17%
2	V	167	 84% 13%
2	W	167	 81% 15%
2	X	167	 87% 10%
2	Y	167	 78% 17%
2	Z	167	 80% 16%
2	a	167	 94%
2	b	167	 90% 7%
2	c	167	 92%
2	d	167	 91% 5%
2	e	167	 87% 10%
2	f	167	 90% 5% 5%
2	g	167	 94%

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Mol	Chain	Length	Quality of chain
2	h	167	 89% 7%
2	i	167	 91% 5%
2	j	167	 92%

2 Entry composition [i](#)

There are 2 unique types of molecules in this entry. The entry contains 91095 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 sheath.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
1	A	504	3794	2412	620	754	8	0	0
1	B	504	3794	2412	620	754	8	0	0
1	C	505	3802	2417	621	755	9	0	0
1	D	504	3794	2412	620	754	8	0	0
1	E	505	3802	2417	621	755	9	0	0
1	F	504	3794	2412	620	754	8	0	0
1	G	505	3802	2417	621	755	9	0	0
1	H	504	3794	2412	620	754	8	0	0
1	I	505	3802	2417	621	755	9	0	0
1	J	505	3802	2417	621	755	9	0	0
1	K	505	3802	2417	621	755	9	0	0
1	L	505	3802	2417	621	755	9	0	0
1	M	504	3794	2412	620	754	8	0	0
1	N	505	3802	2417	621	755	9	0	0
1	O	504	3794	2412	620	754	8	0	0
1	P	505	3802	2417	621	755	9	0	0
1	Q	504	3794	2412	620	754	8	0	0

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Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
1	R	504	3794	2412	620	754	8	0	0

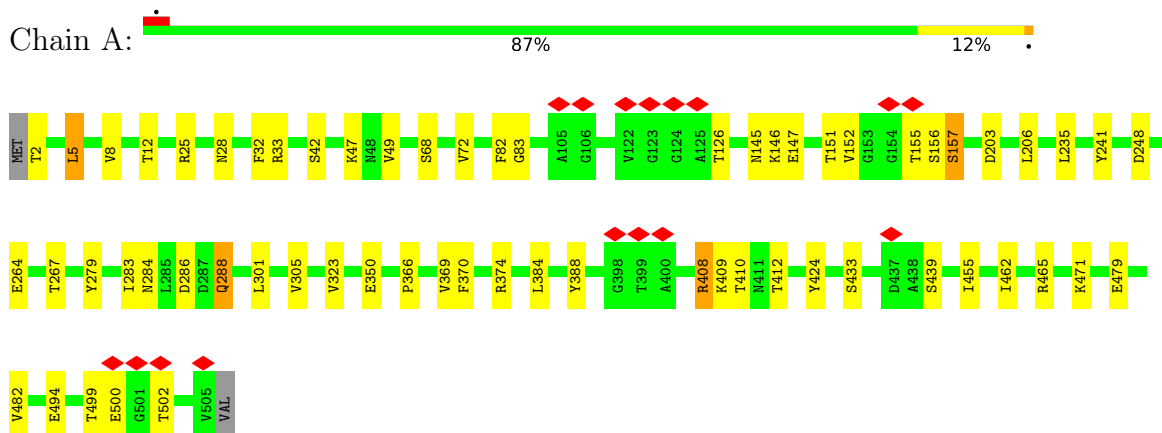
- Molecule 2 is a protein called tube.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
2	S	163	1274	814	213	242	5	0	0
2	T	162	1267	809	212	241	5	0	0
2	U	163	1275	814	213	242	6	0	0
2	V	163	1275	814	213	242	6	0	0
2	W	161	1258	804	210	239	5	0	0
2	X	163	1275	814	213	242	6	0	0
2	Y	162	1267	809	212	241	5	0	0
2	Z	163	1275	814	213	242	6	0	0
2	a	161	1258	804	210	239	5	0	0
2	b	161	1258	804	210	239	5	0	0
2	c	160	1253	801	209	238	5	0	0
2	d	160	1253	801	209	238	5	0	0
2	e	161	1258	804	210	239	5	0	0
2	f	159	1246	796	208	237	5	0	0
2	g	163	1275	814	213	242	6	0	0
2	h	160	1253	801	209	238	5	0	0
2	i	161	1258	804	210	239	5	0	0
2	j	160	1253	801	209	238	5	0	0

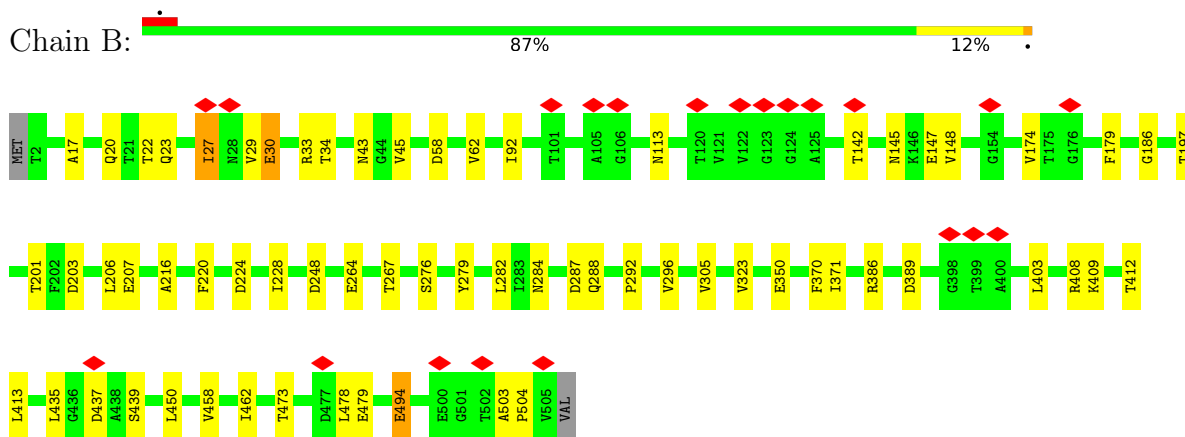
3 Residue-property plots [i](#)

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.

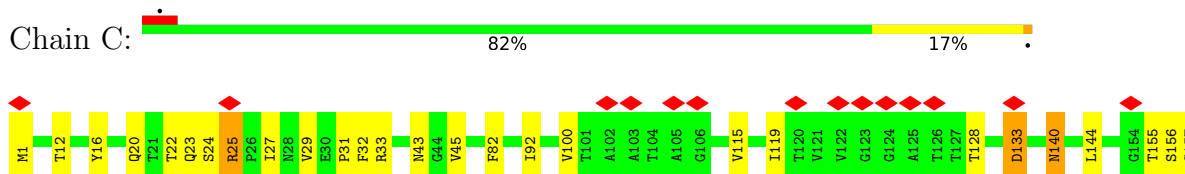
- Molecule 1: sheath

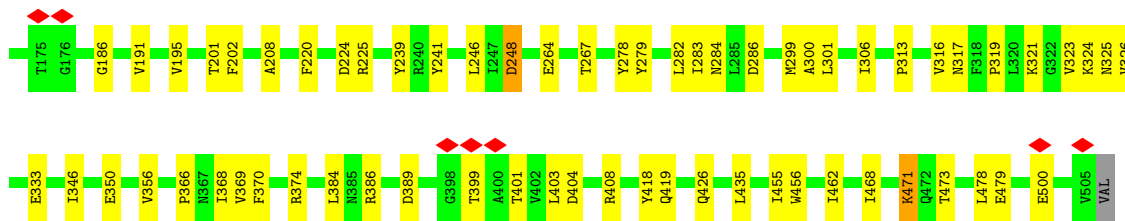


- Molecule 1: sheath

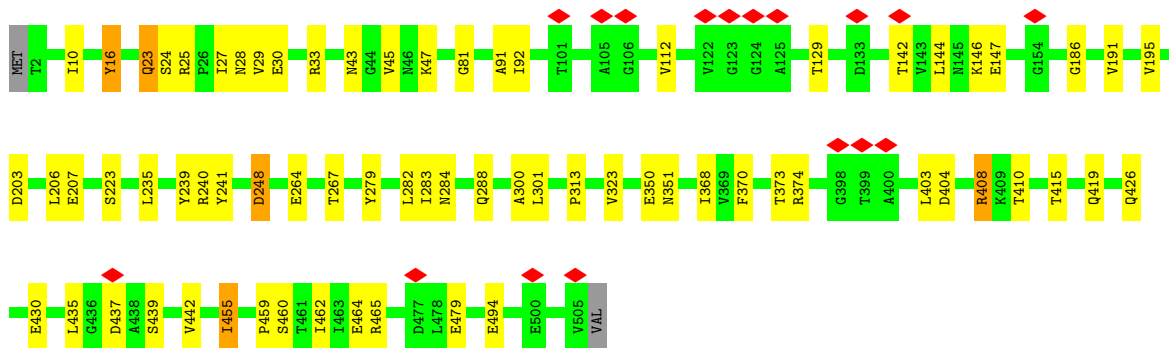
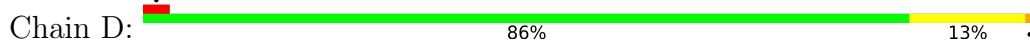


- Molecule 1: sheath

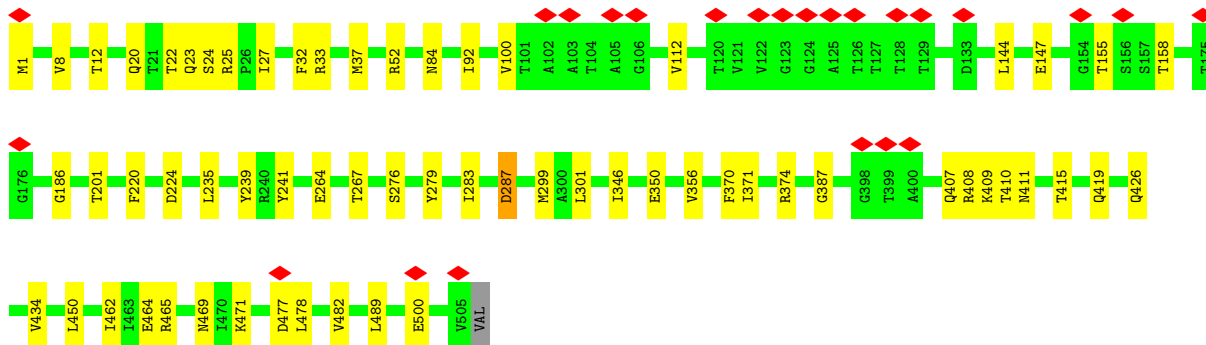
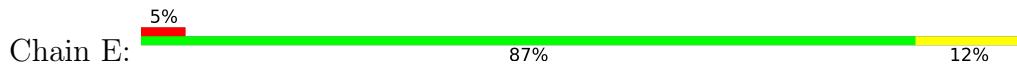




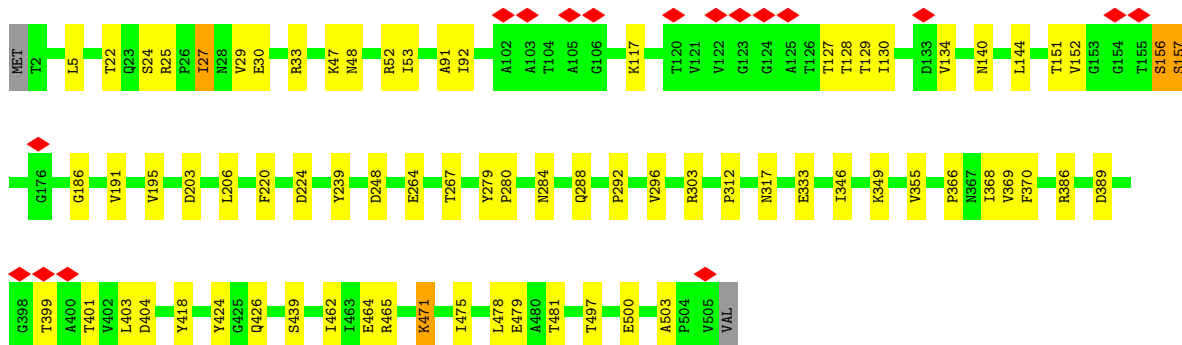
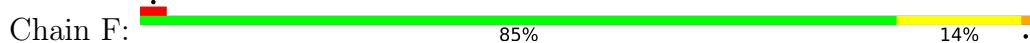
• Molecule 1: sheath



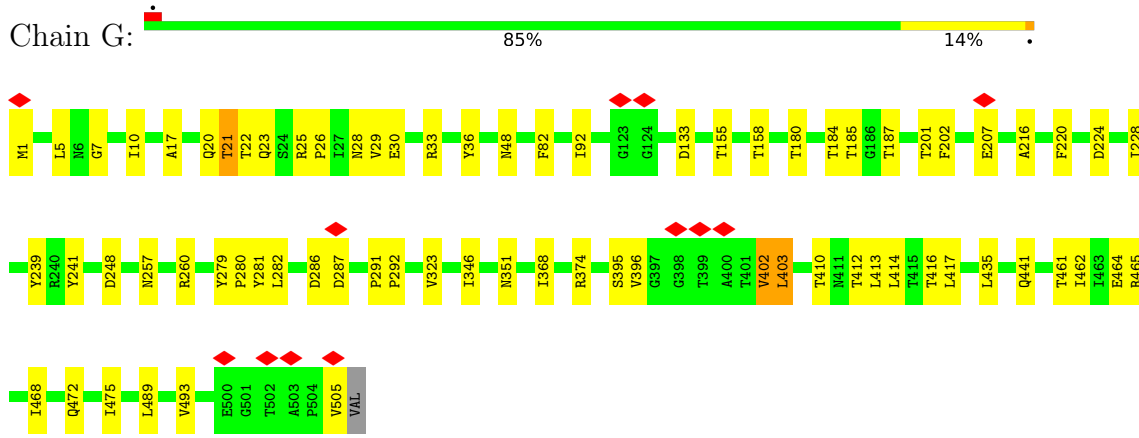
• Molecule 1: sheath



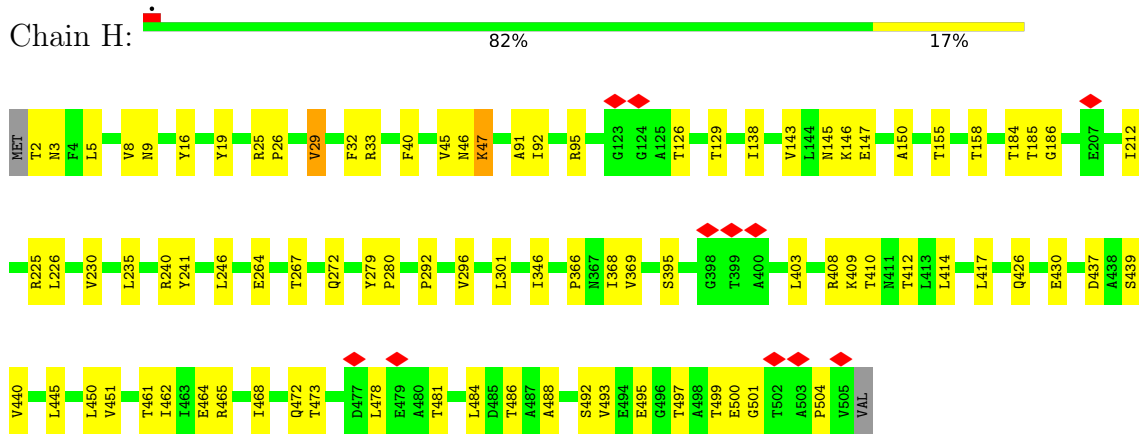
• Molecule 1: sheath



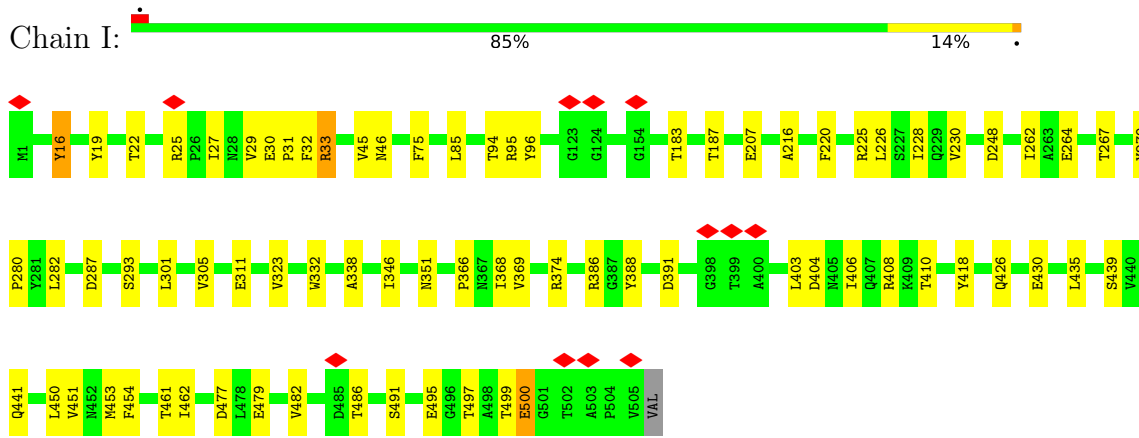
• Molecule 1: sheath



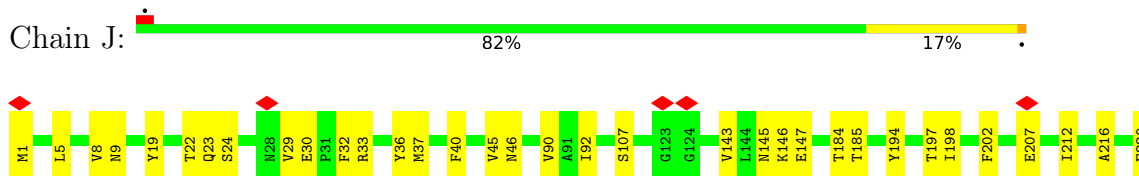
• Molecule 1: sheath

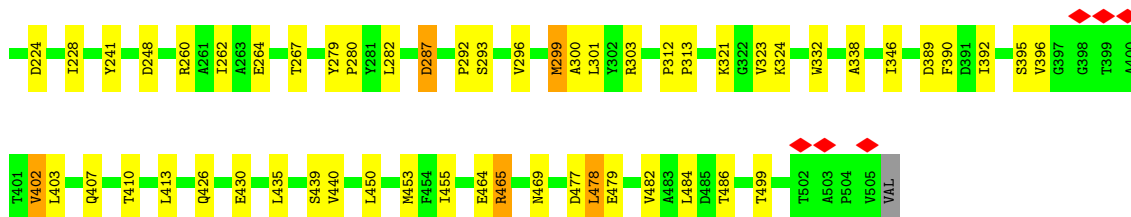


• Molecule 1: sheath

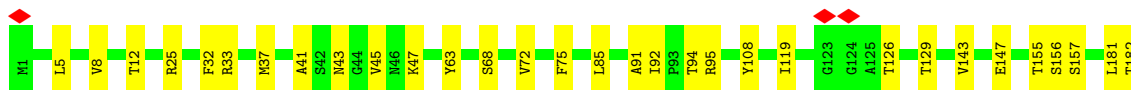
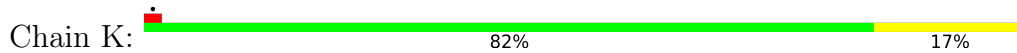


• Molecule 1: sheath

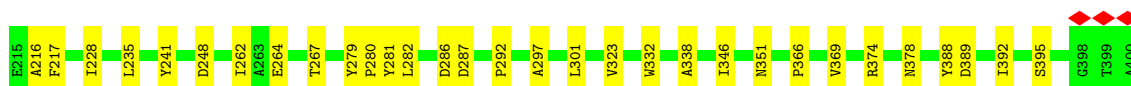
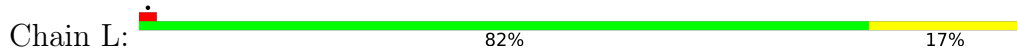




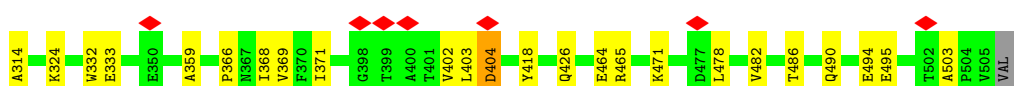
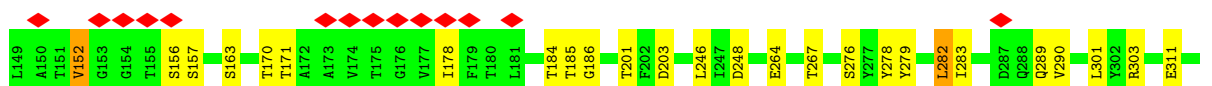
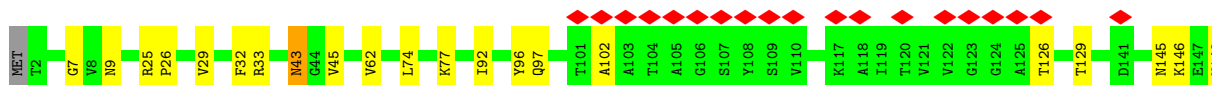
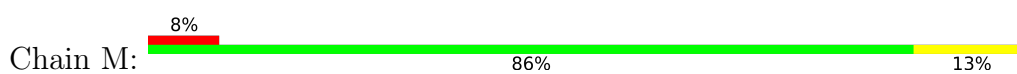
• Molecule 1: sheath



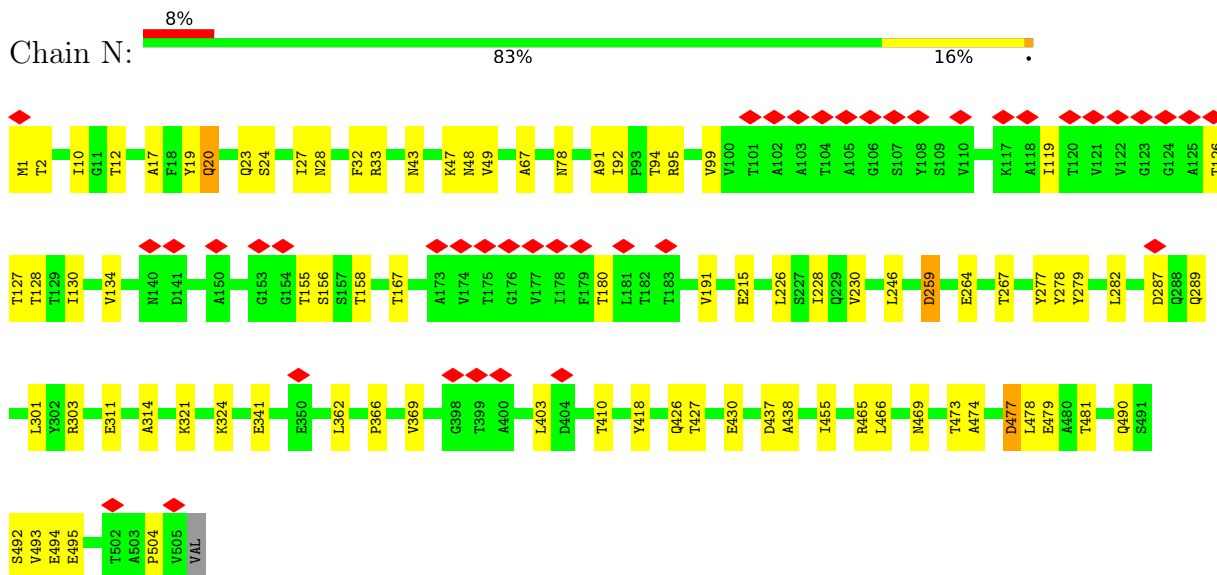
• Molecule 1: sheath



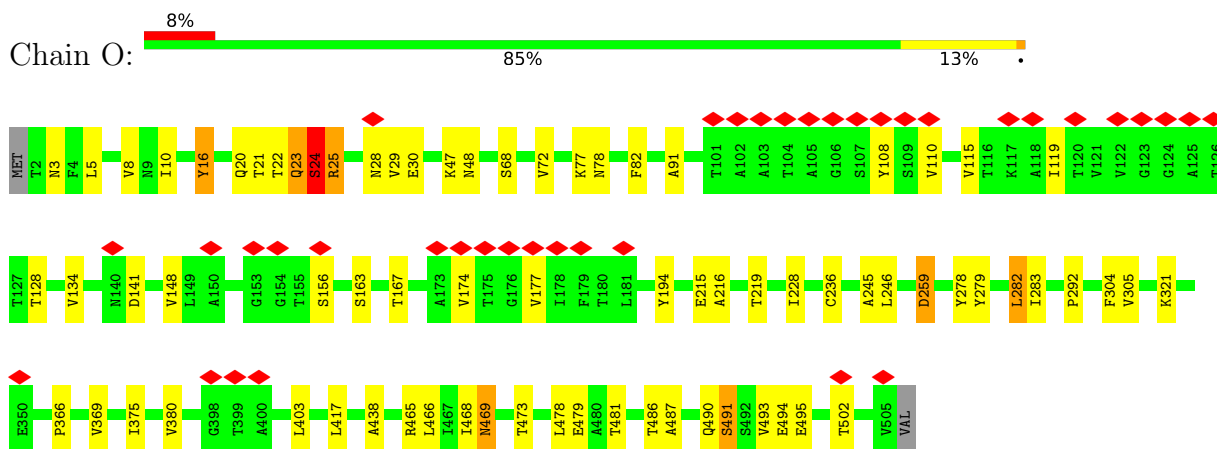
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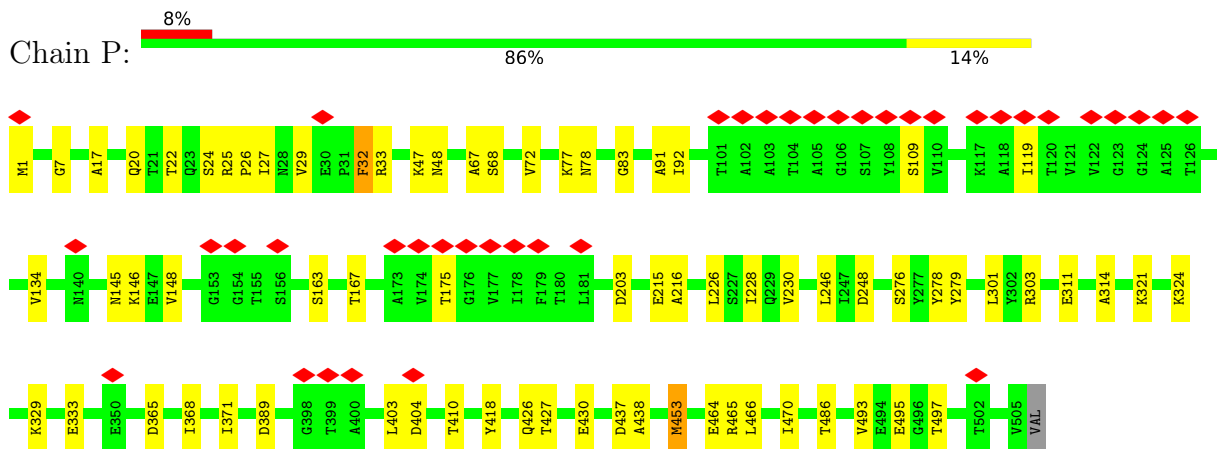
• Molecule 1: sheath



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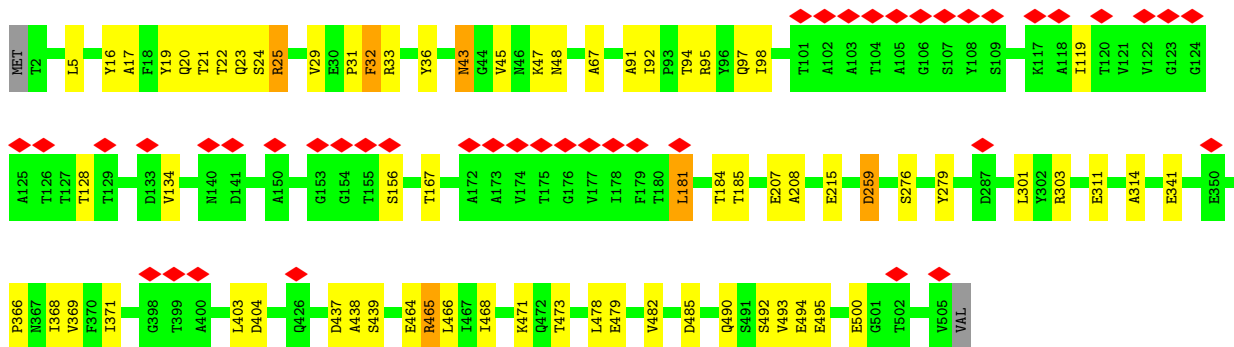


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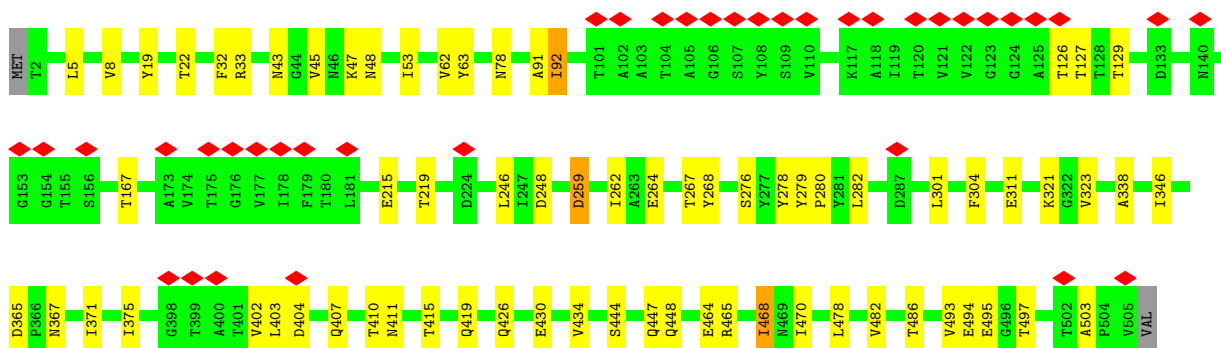
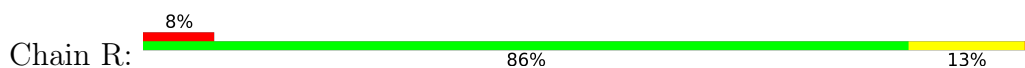


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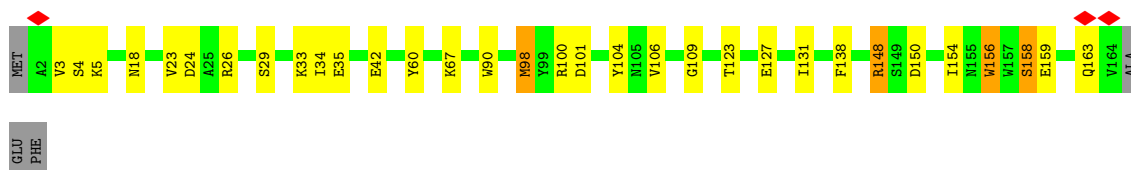
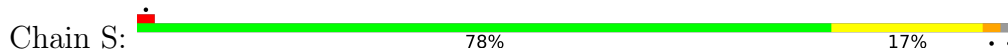




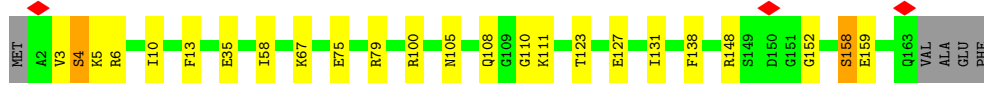
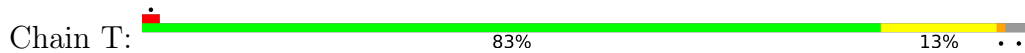
• Molecule 1: sheath



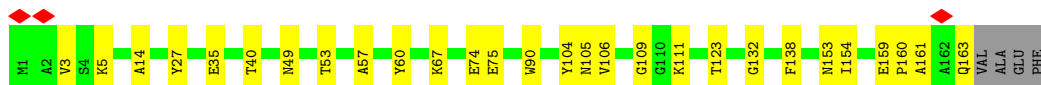
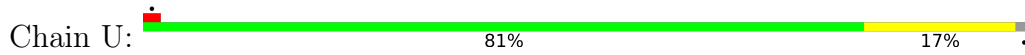
• Molecule 2: tube



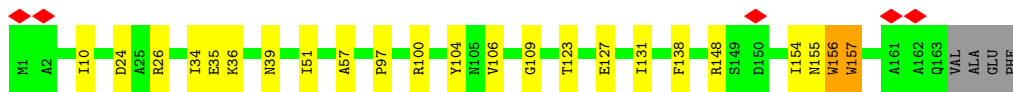
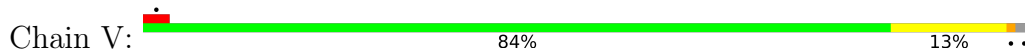
• Molecule 2: tube



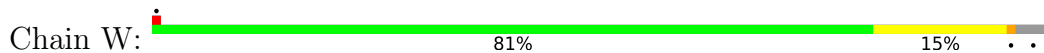
• Molecule 2: tube



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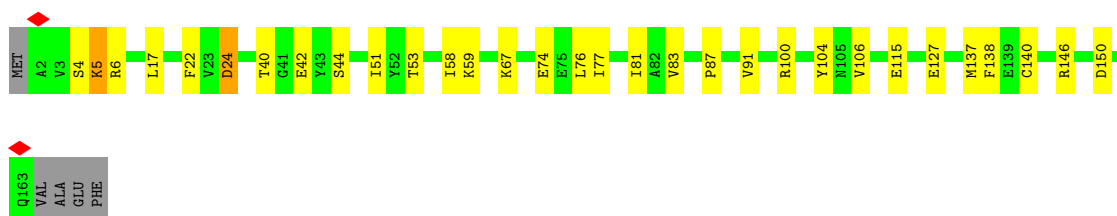
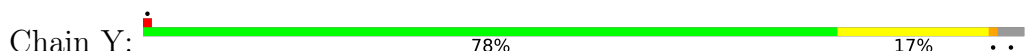
• Molecule 2: tube



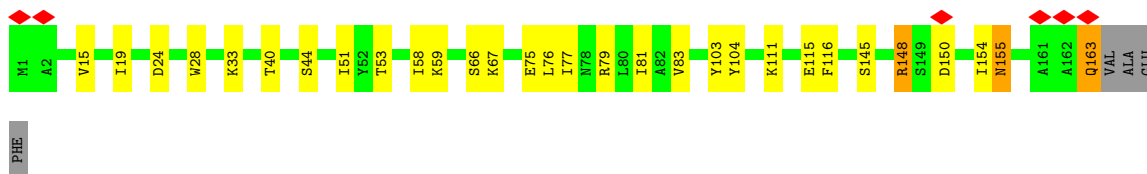
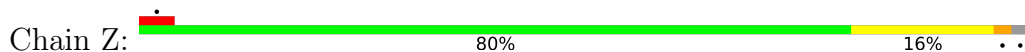
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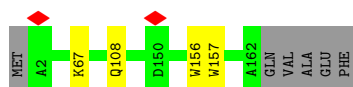
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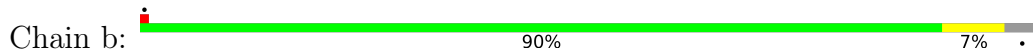
• Molecule 2: tube



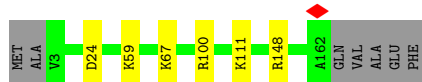
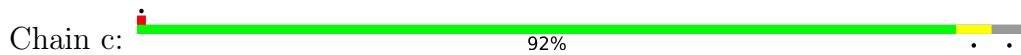
• Molecule 2: tube



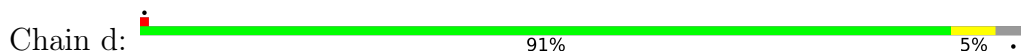
• Molecule 2: tube



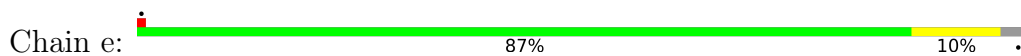
• Molecule 2: tube



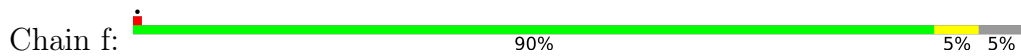
• Molecule 2: tube



• Molecule 2: tube



• Molecule 2: tube

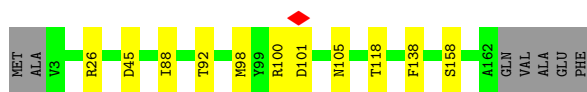


• Molecule 2: tube

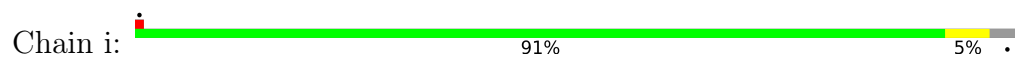


• Molecule 2: tube

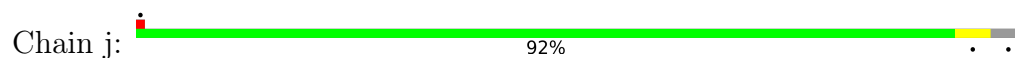




- Molecule 2: tube



- Molecule 2: tube



4 Experimental information

Property	Value	Source
EM reconstruction method	SINGLE PARTICLE	Depositor
Imposed symmetry	POINT, Not provided	
Number of particles used	41062	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)	1500	Depositor
Maximum defocus (nm)	2500	Depositor
Magnification	Not provided	
Image detector	GATAN K2 SUMMIT (4k x 4k)	Depositor
Maximum map value	0.032	Depositor
Minimum map value	-0.015	Depositor
Average map value	0.000	Depositor
Map value standard deviation	0.002	Depositor
Recommended contour level	0.0065	Depositor
Map size (\AA)	479.36002, 479.36002, 479.36002	wwPDB
Map dimensions	448, 448, 448	wwPDB
Map angles ($^\circ$)	90.0, 90.0, 90.0	wwPDB
Pixel spacing (\AA)	1.07, 1.07, 1.07	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	A	0.26	0/3867	0.52	0/5302
1	B	0.26	0/3867	0.50	0/5302
1	C	0.26	0/3875	0.52	0/5312
1	D	0.26	0/3867	0.52	0/5302
1	E	0.26	0/3875	0.50	0/5312
1	F	0.27	0/3867	0.50	0/5302
1	G	0.27	0/3875	0.51	0/5312
1	H	0.26	0/3867	0.50	0/5302
1	I	0.26	0/3875	0.50	0/5312
1	J	0.27	0/3875	0.52	0/5312
1	K	0.26	0/3875	0.52	0/5312
1	L	0.26	0/3875	0.51	0/5312
1	M	0.26	0/3867	0.51	0/5302
1	N	0.27	0/3875	0.53	0/5312
1	O	0.27	0/3867	0.50	0/5302
1	P	0.26	0/3875	0.50	0/5312
1	Q	0.27	0/3867	0.52	0/5302
1	R	0.26	0/3867	0.50	0/5302
2	S	0.27	0/1306	0.54	0/1780
2	T	0.27	0/1299	0.55	0/1770
2	U	0.27	0/1307	0.52	0/1780
2	V	0.30	0/1307	0.55	0/1780
2	W	0.29	0/1290	0.55	0/1758
2	X	0.26	0/1307	0.53	0/1780
2	Y	0.29	0/1299	0.57	1/1770 (0.1%)
2	Z	0.28	0/1307	0.57	0/1780
2	a	0.27	0/1290	0.55	0/1758
2	b	0.29	0/1290	0.55	0/1758
2	c	0.27	0/1285	0.52	0/1751
2	d	0.28	0/1285	0.56	0/1751
2	e	0.28	0/1290	0.52	0/1758
2	f	0.26	0/1278	0.52	0/1741
2	g	0.27	0/1307	0.54	0/1780
2	h	0.27	0/1285	0.53	0/1751

Mol	Chain	Bond lengths		Bond angles	
		RMSZ	# Z >5	RMSZ	# Z >5
2	i	0.26	0/1290	0.55	0/1758
2	j	0.26	0/1285	0.55	0/1751
All	All	0.27	0/92985	0.52	1/127281 (0.0%)

There are no bond length outliers.

All (1) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed($^{\circ}$)	Ideal($^{\circ}$)
2	Y	5	LYS	C-N-CA	5.12	134.49	121.70

There are no chirality outliers.

There are no planarity outliers.

5.2 Too-close contacts [i](#)

In the following table, the Non-H and H(model) columns list the number of non-hydrogen atoms and hydrogen atoms in the chain respectively. The H(added) column lists the number of hydrogen atoms added and optimized by MolProbity. The Clashes column lists the number of clashes within the asymmetric unit, whereas Symm-Clashes lists symmetry-related clashes.

Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
1	A	3794	0	3754	39	0
1	B	3794	0	3754	57	0
1	C	3802	0	3766	56	0
1	D	3794	0	3754	41	0
1	E	3802	0	3766	37	0
1	F	3794	0	3754	38	0
1	G	3802	0	3766	51	0
1	H	3794	0	3754	60	0
1	I	3802	0	3766	54	0
1	J	3802	0	3766	53	0
1	K	3802	0	3766	56	0
1	L	3802	0	3766	64	0
1	M	3794	0	3754	37	0
1	N	3802	0	3766	51	0
1	O	3794	0	3754	48	0
1	P	3802	0	3766	36	0
1	Q	3794	0	3754	40	0
1	R	3794	0	3754	48	0
2	S	1274	0	1242	19	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
2	T	1267	0	1233	13	0
2	U	1275	0	1245	17	0
2	V	1275	0	1245	18	0
2	W	1258	0	1225	10	0
2	X	1275	0	1245	10	0
2	Y	1267	0	1233	17	0
2	Z	1275	0	1245	17	0
2	a	1258	0	1225	0	0
2	b	1258	0	1225	0	0
2	c	1253	0	1220	0	0
2	d	1253	0	1220	0	0
2	e	1258	0	1225	0	0
2	f	1246	0	1211	0	0
2	g	1275	0	1245	0	0
2	h	1253	0	1220	0	0
2	i	1258	0	1225	0	0
2	j	1253	0	1220	0	0
All	All	91095	0	89829	860	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 6.

All (860) close contacts within the same asymmetric unit are listed below, sorted by their clash magnitude.

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:27:ILE:CG1	1:B:33:ARG:HH21	1.35	1.39
1:B:27:ILE:HG13	1:B:33:ARG:NH2	1.40	1.36
1:G:26:PRO:HG3	1:H:497:THR:CG2	1.56	1.34
1:K:248:ASP:OD2	1:K:291:PRO:HB3	1.16	1.32
1:I:29:VAL:HG23	1:I:207:GLU:OE2	1.34	1.26
1:O:25:ARG:CB	1:O:25:ARG:HH11	1.52	1.23
1:N:155:THR:HG22	1:N:158:THR:OG1	1.16	1.22
1:B:27:ILE:CG1	1:B:33:ARG:NH2	1.99	1.21
1:R:264:GLU:O	1:R:267:THR:HG22	1.43	1.18
1:G:248:ASP:OD1	1:G:292:PRO:HD2	1.44	1.17
1:K:407:GLN:O	1:K:410:THR:HG22	1.46	1.15
1:G:26:PRO:CG	1:H:497:THR:HG21	1.77	1.14
1:I:29:VAL:CG2	1:I:207:GLU:OE2	2.03	1.07
1:K:248:ASP:OD2	1:K:291:PRO:CB	2.02	1.07
1:O:25:ARG:HH11	1:O:25:ARG:CG	1.68	1.04
1:L:217:PHE:CB	1:L:248:ASP:OD1	2.06	1.03

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:N:155:THR:CG2	1:N:158:THR:OG1	2.07	1.02
1:R:407:GLN:O	1:R:410:THR:HG22	1.61	1.00
1:O:25:ARG:CB	1:O:25:ARG:NH1	2.24	0.99
1:G:26:PRO:CG	1:H:497:THR:CG2	2.37	0.98
1:O:25:ARG:HH11	1:O:25:ARG:HB3	1.24	0.98
1:B:27:ILE:CD1	1:B:33:ARG:NH2	2.26	0.97
1:L:407:GLN:O	1:L:410:THR:HG22	1.65	0.95
1:E:410:THR:HG21	1:E:434:VAL:HG11	1.49	0.92
1:L:410:THR:HG21	1:L:434:VAL:HG11	1.50	0.91
1:K:410:THR:HG21	1:K:434:VAL:HG11	1.52	0.91
1:E:407:GLN:O	1:E:410:THR:HG22	1.72	0.90
1:N:17:ALA:HA	1:O:468:ILE:O	1.73	0.89
1:A:388:TYR:HH	1:A:410:THR:HG1	1.04	0.88
1:G:25:ARG:NH2	1:G:82:PHE:CZ	2.42	0.88
1:L:217:PHE:HB3	1:L:248:ASP:OD1	1.73	0.88
1:A:147:GLU:OE2	1:G:257:ASN:ND2	2.07	0.87
1:R:264:GLU:O	1:R:267:THR:CG2	2.23	0.86
1:C:128:THR:HG22	1:C:156:SER:CB	2.05	0.86
1:J:194:TYR:O	1:J:197:THR:HG22	1.76	0.86
1:B:30:GLU:HB2	1:B:33:ARG:HD3	1.56	0.85
1:I:388:TYR:HH	1:I:410:THR:HG1	1.06	0.84
1:A:408:ARG:NH1	2:Y:17:LEU:O	2.10	0.84
1:B:27:ILE:HD11	1:B:33:ARG:HH22	1.42	0.84
1:B:30:GLU:CB	1:B:33:ARG:HD3	2.08	0.83
1:B:27:ILE:HG13	1:B:33:ARG:HH21	0.68	0.83
1:B:27:ILE:CD1	1:B:33:ARG:HH21	1.87	0.83
1:C:128:THR:HG22	1:C:156:SER:HB3	1.60	0.82
1:B:27:ILE:HD11	1:B:33:ARG:NH2	1.92	0.81
1:O:25:ARG:NH1	1:O:25:ARG:HB3	1.89	0.81
1:G:25:ARG:HG2	1:H:488:ALA:HA	1.61	0.80
1:R:410:THR:HG21	1:R:434:VAL:HG11	1.63	0.80
1:B:435:LEU:HD22	1:H:486:THR:HG23	1.63	0.79
1:G:248:ASP:OD1	1:G:292:PRO:CD	2.30	0.79
1:K:407:GLN:O	1:K:410:THR:CG2	2.26	0.79
1:O:25:ARG:HH11	1:O:25:ARG:HG2	1.48	0.78
1:M:464:GLU:OE1	1:M:465:ARG:NH1	2.17	0.77
1:N:1:MET:SD	1:N:2:THR:N	2.58	0.76
1:C:155:THR:HG22	1:C:157:SER:H	1.51	0.76
1:F:479:GLU:OE1	1:F:479:GLU:N	2.19	0.75
1:L:217:PHE:CG	1:L:248:ASP:OD1	2.39	0.75
1:H:143:VAL:HG12	1:H:147:GLU:OE1	1.85	0.75

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:350:GLU:N	1:A:350:GLU:OE1	2.20	0.75
1:M:333:GLU:N	1:M:333:GLU:OE1	2.20	0.74
1:H:5:LEU:HD11	1:I:499:THR:O	1.87	0.74
1:P:7:GLY:O	1:Q:465:ARG:NH1	2.21	0.74
1:N:303:ARG:NH1	1:N:314:ALA:O	2.21	0.74
1:G:26:PRO:HG3	1:H:497:THR:HG21	0.81	0.74
1:O:194:TYR:OH	1:O:215:GLU:OE1	2.04	0.74
1:O:25:ARG:CG	1:O:25:ARG:NH1	2.40	0.73
1:J:143:VAL:HG12	1:J:147:GLU:OE1	1.89	0.73
1:K:143:VAL:HG12	1:K:147:GLU:OE1	1.88	0.73
1:M:303:ARG:NH1	1:M:314:ALA:O	2.21	0.73
1:N:474:ALA:HB3	1:N:477:ASP:OD1	1.89	0.73
1:H:464:GLU:OE1	1:H:465:ARG:NH1	2.21	0.73
1:C:333:GLU:N	1:C:333:GLU:OE1	2.20	0.72
1:H:280:PRO:HG2	1:H:346:ILE:H	1.53	0.72
1:I:29:VAL:CB	1:I:207:GLU:OE2	2.36	0.72
1:K:495:GLU:OE1	1:K:497:THR:N	2.23	0.72
1:J:426:GLN:N	1:J:430:GLU:OE1	2.23	0.72
1:N:155:THR:HG22	1:N:158:THR:HG1	1.49	0.71
1:L:410:THR:CG2	1:L:434:VAL:HG11	2.20	0.71
1:N:47:LYS:HB3	1:N:91:ALA:HB2	1.73	0.71
1:C:282:LEU:HB3	1:C:323:VAL:HG11	1.73	0.70
1:J:248:ASP:OD2	1:J:293:SER:OG	2.05	0.70
1:I:29:VAL:HG23	1:I:207:GLU:CD	2.13	0.69
1:D:43:ASN:OD1	1:D:45:VAL:HG13	1.91	0.69
1:G:464:GLU:OE1	1:G:465:ARG:NH1	2.25	0.69
1:L:495:GLU:OE1	1:L:497:THR:N	2.25	0.69
1:G:202:PHE:O	1:G:241:TYR:OH	2.10	0.69
1:N:33:ARG:HA	1:N:301:LEU:HD22	1.75	0.69
1:K:8:VAL:HG21	1:L:503:ALA:HB1	1.75	0.69
1:E:426:GLN:OE1	1:E:426:GLN:N	2.25	0.68
1:H:495:GLU:OE1	1:H:497:THR:N	2.26	0.68
1:L:143:VAL:HG12	1:L:147:GLU:OE1	1.92	0.68
1:C:386:ARG:NH1	1:C:389:ASP:OD2	2.27	0.68
1:B:350:GLU:OE1	1:B:350:GLU:N	2.26	0.68
1:R:426:GLN:N	1:R:430:GLU:OE1	2.27	0.68
1:B:30:GLU:CB	1:B:33:ARG:CD	2.72	0.68
1:B:113:ASN:HD22	1:B:147:GLU:HG2	1.58	0.68
1:C:27:ILE:HD11	1:C:82:PHE:HA	1.76	0.68
1:D:142:THR:O	1:D:146:LYS:NZ	2.27	0.68
2:T:13:PHE:O	2:T:100:ARG:NH2	2.26	0.68

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:386:ARG:NH1	1:B:389:ASP:OD2	2.27	0.67
1:G:17:ALA:HA	1:H:468:ILE:O	1.94	0.67
2:U:106:VAL:HG13	2:U:106:VAL:O	1.93	0.67
1:A:155:THR:HG22	1:A:156:SER:N	2.09	0.67
1:R:407:GLN:O	1:R:410:THR:CG2	2.41	0.67
1:M:7:GLY:O	1:N:465:ARG:NH1	2.28	0.67
1:Q:471:LYS:NZ	1:Q:485:ASP:OD2	2.22	0.67
1:C:43:ASN:OD1	1:C:45:VAL:HG13	1.95	0.66
1:Q:33:ARG:HA	1:Q:301:LEU:HD22	1.77	0.66
1:C:479:GLU:OE1	1:C:479:GLU:N	2.27	0.66
1:P:33:ARG:HA	1:P:301:LEU:HD22	1.78	0.66
1:C:128:THR:HG22	1:C:156:SER:HB2	1.77	0.66
1:B:30:GLU:HB2	1:B:33:ARG:CD	2.24	0.66
1:C:92:ILE:HG21	1:C:186:GLY:O	1.96	0.66
1:K:410:THR:CG2	1:K:434:VAL:HG11	2.26	0.66
1:C:202:PHE:O	1:C:241:TYR:OH	2.05	0.65
1:I:479:GLU:OE2	1:I:479:GLU:N	2.25	0.65
1:N:287:ASP:OD1	1:N:324:LYS:NZ	2.22	0.65
1:M:33:ARG:HA	1:M:301:LEU:HD22	1.77	0.65
1:R:33:ARG:HA	1:R:301:LEU:HD22	1.78	0.65
1:L:407:GLN:O	1:L:410:THR:CG2	2.44	0.65
2:V:106:VAL:HG23	2:V:106:VAL:O	1.96	0.65
1:L:217:PHE:HB2	1:L:248:ASP:OD1	1.95	0.65
1:C:435:LEU:HD22	1:I:486:THR:HG23	1.79	0.65
1:G:26:PRO:CG	1:H:497:THR:HG22	2.27	0.65
1:P:48:ASN:HB2	1:P:167:THR:HG22	1.78	0.65
1:Q:303:ARG:NH1	1:Q:314:ALA:O	2.30	0.64
1:E:52:ARG:NH1	1:E:84:ASN:OD1	2.31	0.64
1:N:119:ILE:HG13	1:N:134:VAL:HG22	1.80	0.64
1:H:8:VAL:HG23	1:H:9:ASN:OD1	1.98	0.64
1:P:333:GLU:OE1	1:P:333:GLU:N	2.29	0.64
1:Q:5:LEU:HD12	1:R:503:ALA:HB2	1.79	0.64
2:Y:24:ASP:OD2	2:Y:76:LEU:HD13	1.98	0.64
1:O:25:ARG:NH1	1:O:25:ARG:HG2	2.10	0.64
1:K:407:GLN:C	1:K:410:THR:HG22	2.18	0.63
1:E:112:VAL:HB	1:E:144:LEU:HD11	1.81	0.63
2:X:101:ASP:O	2:Y:58:ILE:HD12	1.99	0.63
1:K:426:GLN:N	1:K:430:GLU:OE1	2.32	0.62
1:R:264:GLU:C	1:R:267:THR:HG22	2.17	0.62
1:F:127:THR:HB	1:F:157:SER:HB2	1.80	0.62
1:P:47:LYS:HB3	1:P:91:ALA:HB2	1.79	0.62

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:G:239:TYR:HH	1:M:332:TRP:HH2	1.46	0.62
2:S:148:ARG:NH2	2:S:150:ASP:OD2	2.31	0.62
1:J:33:ARG:HA	1:J:301:LEU:HD22	1.81	0.62
1:E:33:ARG:HA	1:E:301:LEU:HD22	1.81	0.62
1:L:439:SER:O	1:R:493:VAL:HG11	2.00	0.62
1:R:410:THR:CG2	1:R:434:VAL:HG11	2.31	0.61
1:A:479:GLU:OE1	1:A:479:GLU:N	2.33	0.61
1:O:115:VAL:HG11	1:O:141:ASP:OD2	2.01	0.61
1:R:444:SER:O	1:R:448:GLN:NE2	2.33	0.61
1:G:25:ARG:CG	1:H:488:ALA:HA	2.30	0.61
1:A:374:ARG:NH2	1:L:19:TYR:OH	2.31	0.61
1:H:184:THR:O	1:H:185:THR:HG23	2.01	0.61
1:C:419:GLN:NE2	2:U:3:VAL:O	2.34	0.61
1:D:374:ARG:NH2	1:I:19:TYR:OH	2.32	0.61
1:G:257:ASN:OD1	1:G:260:ARG:HG3	1.99	0.61
1:K:155:THR:HG22	1:K:156:SER:N	2.15	0.61
2:U:160:PRO:O	2:U:163:GLN:NE2	2.32	0.61
1:C:374:ARG:NH2	1:H:19:TYR:OH	2.34	0.61
1:E:276:SER:OG	1:E:371:ILE:HD12	2.01	0.61
2:V:109:GLY:CA	2:V:154:ILE:HD12	2.31	0.60
1:L:47:LYS:HB2	1:L:91:ALA:HB2	1.83	0.60
2:X:110:GLY:HA2	2:X:152:GLY:H	1.65	0.60
1:N:128:THR:HG23	1:N:156:SER:HB3	1.82	0.60
1:D:350:GLU:OE1	1:D:351:ASN:ND2	2.34	0.60
1:I:439:SER:O	1:O:493:VAL:HG11	2.01	0.60
1:H:5:LEU:O	1:H:8:VAL:HG22	2.02	0.60
1:I:368:ILE:HG22	1:I:368:ILE:O	2.02	0.60
1:L:404:ASP:OD1	1:L:408:ARG:NE	2.34	0.60
1:O:23:GLN:O	1:O:24:SER:C	2.40	0.60
1:C:92:ILE:HD13	1:C:186:GLY:O	2.01	0.60
1:D:203:ASP:H	1:D:206:LEU:HD12	1.65	0.60
1:I:495:GLU:OE1	1:I:497:THR:N	2.34	0.60
1:N:426:GLN:N	1:N:430:GLU:OE1	2.35	0.60
1:I:287:ASP:OD1	1:I:287:ASP:O	2.19	0.59
1:D:479:GLU:N	1:D:479:GLU:OE1	2.34	0.59
1:E:350:GLU:N	1:E:350:GLU:OE2	2.36	0.59
1:F:386:ARG:NH1	1:F:389:ASP:OD2	2.35	0.59
1:B:27:ILE:HG13	1:B:33:ARG:CZ	2.25	0.59
1:H:26:PRO:CG	1:I:497:THR:HG21	2.32	0.59
1:Q:47:LYS:HB3	1:Q:91:ALA:HB2	1.85	0.59
1:A:33:ARG:HA	1:A:301:LEU:HD22	1.85	0.59

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:L:280:PRO:HG2	1:L:346:ILE:H	1.68	0.59
1:F:399:THR:HG22	1:L:426:GLN:OE1	2.03	0.59
1:Q:464:GLU:OE1	1:Q:465:ARG:NE	2.32	0.59
1:G:248:ASP:OD2	1:G:281:TYR:CE1	2.56	0.59
1:L:413:LEU:O	1:L:416:THR:HG22	2.02	0.59
1:B:30:GLU:HB3	1:B:33:ARG:CD	2.33	0.58
1:G:403:LEU:HG	1:G:441:GLN:HG3	1.83	0.58
2:V:109:GLY:HA3	2:V:154:ILE:HD12	1.85	0.58
1:A:203:ASP:H	1:A:206:LEU:HD12	1.67	0.58
1:B:92:ILE:HG21	1:B:186:GLY:O	2.04	0.58
1:E:100:VAL:HG13	1:E:100:VAL:O	2.04	0.58
1:K:303:ARG:NH1	1:K:312:PRO:O	2.37	0.58
1:C:27:ILE:CD1	1:C:82:PHE:HA	2.32	0.58
1:D:370:PHE:CD1	1:D:462:ILE:HD11	2.38	0.58
1:C:300:ALA:HB2	1:C:313:PRO:HB3	1.86	0.58
1:O:68:SER:O	1:O:72:VAL:HG23	2.04	0.57
1:R:5:LEU:O	1:R:8:VAL:HG22	2.04	0.57
1:F:368:ILE:O	1:F:368:ILE:HG22	2.05	0.57
1:P:17:ALA:HA	1:Q:468:ILE:O	2.04	0.57
1:G:248:ASP:CG	1:G:291:PRO:HB3	2.25	0.57
1:Q:43:ASN:OD1	1:Q:45:VAL:HG13	2.04	0.57
1:O:47:LYS:HB3	1:O:91:ALA:HB2	1.86	0.57
1:Q:341:GLU:OE1	1:Q:341:GLU:N	2.36	0.57
1:B:437:ASP:OD1	1:B:439:SER:N	2.34	0.57
1:D:147:GLU:OE2	1:J:260:ARG:NH1	2.38	0.57
1:N:43:ASN:OD1	1:N:43:ASN:O	2.23	0.57
2:Y:104:TYR:CG	2:Y:104:TYR:O	2.57	0.57
1:E:147:GLU:OE2	1:K:260:ARG:CZ	2.52	0.57
1:K:94:THR:HA	1:K:185:THR:HG23	1.86	0.57
1:M:402:VAL:HG23	1:M:403:LEU:HD22	1.87	0.57
2:Z:104:TYR:CG	2:Z:104:TYR:O	2.58	0.57
1:L:29:VAL:HG23	1:L:29:VAL:O	2.05	0.57
1:C:33:ARG:HA	1:C:301:LEU:HD22	1.85	0.57
1:P:276:SER:OG	1:P:371:ILE:HD12	2.04	0.57
1:K:47:LYS:HG2	1:K:91:ALA:HB2	1.86	0.56
1:F:399:THR:OG1	1:F:401:THR:HG23	2.05	0.56
1:G:155:THR:OG1	1:G:158:THR:OG1	2.20	0.56
1:J:145:ASN:OD1	1:J:146:LYS:N	2.39	0.56
1:A:155:THR:HG22	1:A:157:SER:H	1.71	0.56
1:E:1:MET:N	1:F:500:GLU:O	2.33	0.56
1:F:27:ILE:HG13	1:F:33:ARG:HH11	1.71	0.56

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:F:439:SER:O	1:L:493:VAL:HG11	2.05	0.56
1:O:215:GLU:O	1:O:219:THR:OG1	2.18	0.56
2:W:106:VAL:HG13	2:W:106:VAL:O	2.06	0.56
1:L:479:GLU:OE2	1:L:479:GLU:N	2.28	0.56
1:M:26:PRO:HG2	1:N:495:GLU:HG2	1.87	0.56
1:C:128:THR:CG2	1:C:156:SER:HB3	2.32	0.55
1:E:155:THR:OG1	1:E:158:THR:OG1	2.20	0.55
1:A:264:GLU:O	1:A:267:THR:OG1	2.23	0.55
1:A:408:ARG:NH2	2:Y:24:ASP:O	2.37	0.55
1:Q:48:ASN:HB2	1:Q:167:THR:HG22	1.88	0.55
1:R:48:ASN:HB2	1:R:167:THR:HG22	1.87	0.55
2:Y:77:ILE:O	2:Y:81:ILE:HG12	2.06	0.55
1:C:239:TYR:HH	1:I:332:TRP:HH2	1.54	0.55
1:G:1:MET:N	1:H:500:GLU:O	2.38	0.55
1:F:333:GLU:OE1	1:F:333:GLU:N	2.37	0.55
1:N:27:ILE:HD12	1:N:27:ILE:O	2.07	0.55
2:Y:83:VAL:HG11	2:Y:91:VAL:HG23	1.89	0.55
1:M:102:ALA:HB3	1:M:178:ILE:HG22	1.88	0.55
1:Q:490:GLN:O	1:Q:494:GLU:HG2	2.07	0.55
2:V:155:ASN:OD1	2:V:155:ASN:O	2.24	0.55
1:B:45:VAL:HG21	1:B:62:VAL:HG12	1.88	0.55
1:C:115:VAL:HG11	1:C:144:LEU:HD21	1.89	0.55
1:D:284:ASN:OD1	1:D:288:GLN:N	2.39	0.55
1:J:395:SER:N	1:P:311:GLU:OE1	2.37	0.55
1:I:33:ARG:HA	1:I:301:LEU:HD22	1.88	0.54
1:B:43:ASN:OD1	1:B:43:ASN:O	2.25	0.54
1:C:404:ASP:O	1:C:408:ARG:HG2	2.07	0.54
1:J:303:ARG:NH1	1:J:312:PRO:O	2.40	0.54
1:K:33:ARG:HA	1:K:301:LEU:HD22	1.88	0.54
1:K:108:TYR:O	1:K:119:ILE:N	2.35	0.54
1:F:203:ASP:H	1:F:206:LEU:HD12	1.71	0.54
1:E:407:GLN:O	1:E:410:THR:CG2	2.51	0.54
1:G:216:ALA:HB1	1:G:228:ILE:HD13	1.90	0.54
1:I:29:VAL:HB	1:I:207:GLU:OE2	2.05	0.54
1:E:410:THR:CG2	1:E:434:VAL:HG11	2.29	0.54
1:L:155:THR:HG1	1:L:158:THR:HG1	1.56	0.54
2:S:60:TYR:OH	2:S:159:GLU:OE2	2.24	0.54
1:H:40:PHE:CE1	1:H:92:ILE:HD11	2.43	0.54
1:Q:36:TYR:OH	1:Q:207:GLU:O	2.16	0.54
1:P:303:ARG:NH1	1:P:314:ALA:O	2.40	0.54
1:R:402:VAL:HG23	1:R:403:LEU:HD22	1.89	0.54

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:82:PHE:CD1	1:A:305:VAL:HG11	2.43	0.54
1:D:368:ILE:O	1:D:368:ILE:HG22	2.08	0.54
1:B:370:PHE:CD1	1:B:462:ILE:HD11	2.43	0.53
1:J:90:VAL:HG22	1:J:197:THR:HG21	1.90	0.53
1:O:25:ARG:NH1	1:O:25:ARG:HB2	2.21	0.53
2:Z:75:GLU:OE2	2:Z:75:GLU:N	2.29	0.53
1:A:145:ASN:OD1	1:A:146:LYS:N	2.40	0.53
1:G:396:VAL:HA	1:G:402:VAL:HG21	1.91	0.53
1:K:5:LEU:O	1:K:8:VAL:HG22	2.08	0.53
1:K:445:LEU:HD22	1:K:450:LEU:HD12	1.90	0.53
2:X:104:TYR:CG	2:X:104:TYR:O	2.62	0.53
1:O:148:VAL:HG12	1:O:163:SER:HA	1.89	0.53
2:V:34:ILE:HD12	2:V:34:ILE:N	2.24	0.53
1:J:5:LEU:O	1:J:8:VAL:HG22	2.08	0.53
1:J:194:TYR:O	1:J:197:THR:CG2	2.54	0.53
1:P:78:ASN:OD1	1:P:321:LYS:N	2.36	0.53
1:C:100:VAL:HG13	1:C:100:VAL:O	2.08	0.53
1:C:264:GLU:O	1:C:267:THR:OG1	2.22	0.53
1:J:389:ASP:HA	1:J:392:ILE:HD12	1.90	0.53
1:K:248:ASP:OD1	1:K:249:SER:N	2.42	0.53
1:Q:119:ILE:HG13	1:Q:134:VAL:HG22	1.91	0.53
2:U:109:GLY:HA2	2:U:154:ILE:H	1.72	0.53
1:F:471:LYS:HE2	1:F:481:THR:HG22	1.90	0.53
1:H:126:THR:O	1:H:129:THR:OG1	2.22	0.52
1:L:287:ASP:OD1	1:L:287:ASP:O	2.27	0.52
2:Z:24:ASP:OD2	2:Z:76:LEU:HD13	2.09	0.52
1:I:418:TYR:OH	1:I:426:GLN:O	2.27	0.52
1:J:216:ALA:HB1	1:J:228:ILE:HD13	1.92	0.52
1:J:280:PRO:HG2	1:J:346:ILE:H	1.74	0.52
1:P:148:VAL:HG12	1:P:163:SER:HA	1.91	0.52
1:A:155:THR:CG2	1:A:156:SER:N	2.72	0.52
1:D:240:ARG:HA	1:I:16:TYR:HB3	1.91	0.52
1:I:311:GLU:N	1:I:311:GLU:OE1	2.42	0.52
1:J:396:VAL:HA	1:J:402:VAL:HG21	1.90	0.52
1:L:184:THR:O	1:L:185:THR:OG1	2.23	0.52
1:P:27:ILE:HG12	1:P:83:GLY:H	1.75	0.52
1:R:407:GLN:C	1:R:410:THR:HG22	2.28	0.52
1:A:471:LYS:HZ1	1:A:482:VAL:HA	1.74	0.52
1:B:473:THR:HG21	1:B:478:LEU:HA	1.92	0.52
2:Y:106:VAL:HG12	2:Y:106:VAL:O	2.10	0.52
1:C:418:TYR:OH	1:C:426:GLN:O	2.27	0.52

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:D:239:TYR:HH	1:J:332:TRP:HH2	1.56	0.52
1:D:264:GLU:O	1:D:267:THR:OG1	2.24	0.52
1:K:440:VAL:HA	1:Q:493:VAL:HG21	1.92	0.52
1:O:3:ASN:HD21	1:O:20:GLN:HA	1.75	0.52
1:P:48:ASN:CB	1:P:167:THR:HG22	2.39	0.52
1:H:33:ARG:HA	1:H:301:LEU:HD22	1.92	0.52
1:K:248:ASP:OD2	1:K:291:PRO:CA	2.58	0.52
1:L:68:SER:O	1:L:72:VAL:HG23	2.10	0.52
1:L:407:GLN:C	1:L:410:THR:HG22	2.27	0.52
1:R:259:ASP:OD1	1:R:259:ASP:N	2.42	0.52
1:H:26:PRO:HG2	1:I:497:THR:HG21	1.92	0.52
1:H:426:GLN:N	1:H:430:GLU:OE1	2.39	0.52
1:I:497:THR:OG1	1:I:500:GLU:OE1	2.27	0.52
1:L:248:ASP:OD1	1:L:248:ASP:O	2.28	0.52
2:S:34:ILE:HD12	2:S:34:ILE:N	2.25	0.51
1:A:155:THR:HG22	1:A:156:SER:H	1.74	0.51
1:A:68:SER:O	1:A:72:VAL:HG23	2.11	0.51
1:J:455:ILE:HB	1:P:470:ILE:HG22	1.91	0.51
1:B:17:ALA:HA	1:C:468:ILE:O	2.10	0.51
1:B:92:ILE:HD13	1:B:186:GLY:O	2.11	0.51
1:D:403:LEU:HD22	1:D:403:LEU:H	1.76	0.51
1:J:287:ASP:OD1	1:J:324:LYS:NZ	2.26	0.51
1:Q:276:SER:OG	1:Q:371:ILE:HD12	2.11	0.51
1:H:450:LEU:HD21	1:N:465:ARG:NH1	2.25	0.51
1:R:126:THR:O	1:R:129:THR:OG1	2.26	0.51
1:F:264:GLU:O	1:F:267:THR:OG1	2.26	0.51
1:I:30:GLU:HB2	1:I:31:PRO:HD2	1.92	0.51
1:O:23:GLN:O	1:O:24:SER:O	2.27	0.51
1:O:128:THR:HG23	1:O:156:SER:HB3	1.92	0.51
1:F:280:PRO:HG2	1:F:346:ILE:H	1.76	0.51
1:J:1:MET:N	1:K:497:THR:O	2.44	0.51
1:J:389:ASP:OD1	1:J:390:PHE:N	2.43	0.51
1:J:439:SER:O	1:P:493:VAL:HG11	2.10	0.51
1:R:365:ASP:OD1	1:R:367:ASN:N	2.41	0.51
2:T:123:THR:HG23	2:U:35:GLU:HG2	1.92	0.51
2:V:154:ILE:HG21	2:V:156:TRP:CE3	2.46	0.51
1:B:203:ASP:H	1:B:206:LEU:HD12	1.75	0.51
1:A:82:PHE:CE1	1:A:305:VAL:HG11	2.46	0.51
1:F:464:GLU:OE1	1:F:465:ARG:NH1	2.43	0.51
2:Y:5:LYS:O	2:Y:5:LYS:HG3	2.10	0.51
1:G:435:LEU:HD22	1:M:486:THR:HG23	1.91	0.51

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:R:464:GLU:OE1	1:R:465:ARG:NH1	2.40	0.51
1:L:145:ASN:OD1	1:L:146:LYS:N	2.43	0.50
2:S:154:ILE:HG21	2:S:156:TRP:CE3	2.45	0.50
1:M:418:TYR:OH	1:M:426:GLN:O	2.30	0.50
1:R:215:GLU:O	1:R:219:THR:OG1	2.22	0.50
1:R:478:LEU:O	1:R:482:VAL:HG23	2.11	0.50
1:M:126:THR:O	1:M:129:THR:OG1	2.19	0.50
1:B:174:VAL:HG21	1:B:179:PHE:HB2	1.93	0.50
1:C:399:THR:HB	1:C:401:THR:HG23	1.93	0.50
1:C:403:LEU:HD22	1:C:403:LEU:H	1.77	0.50
1:J:8:VAL:HG21	1:K:503:ALA:HB1	1.92	0.50
1:K:155:THR:HG22	1:K:157:SER:H	1.77	0.50
1:M:9:ASN:ND2	1:N:504:PRO:O	2.44	0.50
1:Q:48:ASN:CB	1:Q:167:THR:HG22	2.42	0.50
1:R:495:GLU:OE1	1:R:497:THR:HG23	2.11	0.50
2:X:24:ASP:OD1	2:X:79:ARG:NH1	2.38	0.50
1:A:5:LEU:O	1:A:8:VAL:HG22	2.11	0.50
1:I:391:ASP:HB3	1:I:406:ILE:HD11	1.94	0.50
1:Q:128:THR:HG23	1:Q:156:SER:HB2	1.94	0.50
2:S:163:GLN:HA	2:S:163:GLN:OE1	2.12	0.50
1:D:33:ARG:HA	1:D:301:LEU:HD22	1.93	0.50
1:O:48:ASN:HB2	1:O:167:THR:HG22	1.94	0.50
1:D:10:ILE:HG21	1:D:16:TYR:CZ	2.47	0.50
2:S:101:ASP:O	2:Z:58:ILE:HD12	2.11	0.50
1:L:216:ALA:HB1	1:L:228:ILE:HD13	1.94	0.49
2:W:131:ILE:HD12	2:Z:51:ILE:HG13	1.94	0.49
1:J:292:PRO:O	1:J:296:VAL:HG23	2.12	0.49
1:M:96:TYR:HE2	1:M:170:THR:HG22	1.78	0.49
1:M:478:LEU:O	1:M:482:VAL:HG23	2.12	0.49
2:U:132:GLY:HA3	2:V:10:ILE:HD11	1.93	0.49
1:I:262:ILE:HD11	1:I:338:ALA:HB2	1.94	0.49
1:R:280:PRO:HG2	1:R:346:ILE:H	1.77	0.49
2:S:106:VAL:O	2:S:106:VAL:HG13	2.12	0.49
2:W:15:VAL:HG11	2:W:65:LEU:HD22	1.94	0.49
1:D:373:THR:HG23	1:D:459:PRO:HG2	1.93	0.49
1:M:276:SER:OG	1:M:371:ILE:HD12	2.12	0.49
1:N:226:LEU:O	1:N:230:VAL:HG23	2.12	0.49
1:D:112:VAL:HB	1:D:144:LEU:HD11	1.95	0.49
1:D:282:LEU:HB3	1:D:323:VAL:HG11	1.95	0.49
1:H:292:PRO:O	1:H:296:VAL:HG23	2.13	0.49
1:I:216:ALA:HB1	1:I:228:ILE:HD13	1.93	0.49

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:M:490:GLN:O	1:M:494:GLU:HG2	2.12	0.49
2:U:75:GLU:OE2	2:U:75:GLU:N	2.27	0.49
1:B:292:PRO:O	1:B:296:VAL:HG23	2.13	0.49
1:J:450:LEU:HD23	1:P:465:ARG:HG3	1.94	0.49
1:J:435:LEU:HD22	1:P:486:THR:HG23	1.93	0.49
1:C:368:ILE:HG22	1:C:368:ILE:O	2.13	0.49
1:F:370:PHE:CD1	1:F:462:ILE:HD11	2.47	0.49
1:G:36:TYR:OH	1:G:207:GLU:O	2.20	0.49
1:J:440:VAL:HA	1:P:493:VAL:HG21	1.94	0.49
1:F:47:LYS:HB3	1:F:91:ALA:HB2	1.95	0.49
1:H:26:PRO:HG3	1:I:497:THR:HG21	1.93	0.49
2:X:104:TYR:O	2:X:104:TYR:CD2	2.66	0.49
1:C:346:ILE:HG12	1:C:356:VAL:HG22	1.95	0.48
1:F:424:TYR:CD1	1:L:475:ILE:HG23	2.48	0.48
2:W:110:GLY:HA2	2:W:152:GLY:H	1.78	0.48
1:A:439:SER:O	1:G:493:VAL:HG11	2.12	0.48
1:B:45:VAL:HG21	1:B:62:VAL:CG1	2.44	0.48
1:J:8:VAL:HG23	1:J:9:ASN:OD1	2.13	0.48
1:C:282:LEU:HD21	1:C:346:ILE:HG21	1.95	0.48
1:F:239:TYR:HH	1:L:332:TRP:HH2	1.61	0.48
1:Q:437:ASP:OD1	1:Q:439:SER:OG	2.24	0.48
1:B:174:VAL:HG21	1:B:179:PHE:CB	2.44	0.48
1:C:246:LEU:HD22	1:C:278:TYR:HE2	1.78	0.48
1:H:2:THR:OG1	1:H:3:ASN:N	2.45	0.48
1:O:119:ILE:HG13	1:O:134:VAL:HG22	1.96	0.48
1:Q:17:ALA:HA	1:R:468:ILE:O	2.14	0.48
2:V:36:LYS:HB2	2:V:157:TRP:HH2	1.77	0.48
2:Z:15:VAL:HB	2:Z:28:TRP:HB2	1.95	0.48
1:D:464:GLU:OE1	1:D:465:ARG:NH1	2.47	0.48
1:G:48:ASN:O	1:G:201:THR:HG23	2.14	0.48
1:R:282:LEU:HD13	1:R:323:VAL:HG11	1.95	0.48
2:Z:19:ILE:HG21	2:Z:79:ARG:HB3	1.94	0.48
1:C:366:PRO:HA	1:C:369:VAL:HG23	1.95	0.48
1:I:282:LEU:HB3	1:I:323:VAL:HG11	1.96	0.48
1:N:48:ASN:HB2	1:N:167:THR:HG22	1.96	0.48
1:L:33:ARG:HA	1:L:301:LEU:HD22	1.95	0.48
2:V:131:ILE:HD11	2:Y:44:SER:HB2	1.96	0.48
1:D:437:ASP:OD1	1:D:439:SER:OG	2.22	0.48
1:E:155:THR:HG1	1:E:158:THR:HG1	1.56	0.48
1:I:454:PHE:CD2	1:O:469:ASN:ND2	2.82	0.48
1:D:426:GLN:N	1:D:430:GLU:OE1	2.41	0.48

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:E:346:ILE:HG12	1:E:356:VAL:HG22	1.95	0.48
1:L:47:LYS:HA	1:L:89:ASN:HB3	1.95	0.48
2:U:104:TYR:O	2:U:104:TYR:CG	2.65	0.48
1:J:464:GLU:OE1	1:J:465:ARG:NH1	2.47	0.47
1:P:119:ILE:HG13	1:P:134:VAL:HG22	1.96	0.47
1:B:403:LEU:H	1:B:403:LEU:HD22	1.78	0.47
1:K:226:LEU:O	1:K:230:VAL:HG23	2.14	0.47
1:N:78:ASN:OD1	1:N:321:LYS:N	2.41	0.47
1:Q:31:PRO:O	1:Q:208:ALA:HB3	2.14	0.47
1:F:292:PRO:O	1:F:296:VAL:HG23	2.13	0.47
1:D:27:ILE:HD11	1:D:81:GLY:O	2.15	0.47
1:K:155:THR:CG2	1:K:156:SER:N	2.76	0.47
1:L:41:ALA:HB3	1:L:89:ASN:HD21	1.80	0.47
1:N:27:ILE:HD12	1:N:27:ILE:C	2.34	0.47
1:O:495:GLU:OE2	1:O:495:GLU:HA	2.14	0.47
2:Z:19:ILE:CG2	2:Z:83:VAL:HG22	2.45	0.47
2:Z:155:ASN:O	2:Z:155:ASN:ND2	2.47	0.47
1:A:384:LEU:HD13	1:A:455:ILE:HD13	1.97	0.47
1:R:47:LYS:HB3	1:R:91:ALA:HB2	1.97	0.47
1:A:366:PRO:HA	1:A:369:VAL:HG23	1.96	0.47
1:B:33:ARG:HH12	1:B:305:VAL:HG22	1.80	0.47
1:F:284:ASN:OD1	1:F:288:GLN:N	2.43	0.47
1:P:404:ASP:C	1:P:404:ASP:OD1	2.53	0.47
1:B:276:SER:OG	1:B:371:ILE:HD12	2.15	0.47
1:G:248:ASP:OD2	1:G:291:PRO:HB3	2.15	0.47
1:I:406:ILE:HG22	1:I:453:MET:HE1	1.96	0.47
1:K:406:ILE:HG22	1:K:453:MET:HE1	1.96	0.47
1:R:53:ILE:HD11	1:R:63:TYR:HE2	1.79	0.47
1:A:155:THR:CG2	1:A:156:SER:H	2.27	0.47
1:D:28:ASN:OD1	1:D:28:ASN:C	2.53	0.47
1:F:92:ILE:HD13	1:F:186:GLY:O	2.15	0.47
1:H:368:ILE:O	1:H:368:ILE:HG22	2.14	0.47
1:O:110:VAL:HG22	1:O:174:VAL:HG12	1.96	0.47
1:Q:403:LEU:HD12	1:Q:438:ALA:HB2	1.97	0.47
2:S:104:TYR:CG	2:S:104:TYR:O	2.68	0.47
2:X:106:VAL:HG12	2:X:106:VAL:O	2.15	0.47
1:K:282:LEU:HB3	1:K:323:VAL:HG11	1.95	0.47
1:P:68:SER:O	1:P:72:VAL:HG23	2.15	0.47
1:P:427:THR:OG1	1:P:430:GLU:OE2	2.32	0.47
1:Q:404:ASP:OD1	1:Q:404:ASP:C	2.53	0.47
2:Y:5:LYS:O	2:Y:5:LYS:CG	2.63	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:216:ALA:HB1	1:B:228:ILE:HD12	1.97	0.47
1:O:380:VAL:HG22	1:O:417:LEU:HD13	1.97	0.47
1:O:487:ALA:O	1:O:491:SER:OG	2.24	0.47
1:D:248:ASP:OD1	1:D:248:ASP:N	2.48	0.46
2:S:42:GLU:OE2	2:X:59:LYS:NZ	2.48	0.46
2:V:104:TYR:CG	2:V:104:TYR:O	2.69	0.46
1:C:370:PHE:CD1	1:C:462:ILE:HD11	2.50	0.46
1:J:184:THR:O	1:J:185:THR:OG1	2.27	0.46
1:J:299:MET:HE1	1:J:313:PRO:HA	1.97	0.46
1:K:248:ASP:CG	1:K:292:PRO:HD2	2.36	0.46
1:K:287:ASP:OD1	1:K:287:ASP:O	2.34	0.46
1:O:78:ASN:OD1	1:O:321:LYS:N	2.40	0.46
2:U:160:PRO:O	2:U:161:ALA:C	2.53	0.46
2:W:104:TYR:CG	2:W:104:TYR:O	2.68	0.46
2:Y:40:THR:HB	2:Y:53:THR:HG23	1.98	0.46
2:Y:42:GLU:HG2	2:Y:51:ILE:HG23	1.97	0.46
1:A:203:ASP:HB3	1:A:206:LEU:HG	1.97	0.46
1:E:478:LEU:O	1:E:482:VAL:HG23	2.15	0.46
1:G:184:THR:O	1:G:185:THR:OG1	2.27	0.46
1:H:145:ASN:OD1	1:H:146:LYS:N	2.47	0.46
1:L:282:LEU:HD13	1:L:323:VAL:HG11	1.96	0.46
1:N:126:THR:HG23	1:N:128:THR:HB	1.97	0.46
1:O:403:LEU:HD12	1:O:438:ALA:HB2	1.96	0.46
2:T:159:GLU:HA	2:T:159:GLU:OE2	2.16	0.46
1:D:47:LYS:HB3	1:D:91:ALA:HB2	1.98	0.46
1:H:235:LEU:HD12	1:H:241:TYR:CD2	2.50	0.46
1:J:194:TYR:C	1:J:197:THR:HG22	2.35	0.46
2:S:18:ASN:OD1	2:S:23:VAL:HG22	2.16	0.46
2:U:57:ALA:HB1	2:V:51:ILE:HD11	1.96	0.46
2:V:123:THR:HG23	2:W:35:GLU:HG2	1.98	0.46
1:A:288:GLN:HE21	1:A:288:GLN:HB3	1.49	0.46
1:A:433:SER:OG	2:Y:150:ASP:OD1	2.27	0.46
1:L:395:SER:N	1:R:311:GLU:OE1	2.42	0.46
1:K:410:THR:HG23	1:K:411:ASN:N	2.30	0.46
1:L:450:LEU:HD21	1:R:465:ARG:CZ	2.45	0.46
1:D:404:ASP:O	1:D:408:ARG:HG2	2.15	0.46
1:K:143:VAL:HG12	1:K:147:GLU:CD	2.36	0.46
1:A:370:PHE:CD1	1:A:462:ILE:HD11	2.50	0.46
1:E:374:ARG:NH2	1:J:19:TYR:OH	2.44	0.46
1:E:450:LEU:HD11	1:K:465:ARG:HH12	1.80	0.46
1:I:351:ASN:C	1:I:351:ASN:OD1	2.54	0.46

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:L:426:GLN:N	1:L:430:GLU:OE1	2.47	0.46
1:O:108:TYR:OH	1:O:177:VAL:HG22	2.16	0.46
1:Q:25:ARG:HE	1:Q:25:ARG:HB2	1.46	0.46
1:A:384:LEU:CD1	1:A:455:ILE:HD13	2.46	0.46
1:C:115:VAL:CG1	1:C:144:LEU:HD21	2.46	0.46
1:L:388:TYR:OH	1:L:410:THR:HB	2.16	0.46
1:M:282:LEU:H	1:M:282:LEU:HG	1.27	0.46
2:S:123:THR:OG1	2:T:35:GLU:OE2	2.27	0.46
2:Y:115:GLU:OE2	2:Y:146:ARG:NE	2.49	0.46
1:E:1:MET:N	1:F:497:THR:O	2.42	0.45
1:J:40:PHE:CE1	1:J:92:ILE:HD11	2.51	0.45
1:K:453:MET:HG2	1:K:455:ILE:HD11	1.97	0.45
1:L:262:ILE:HD11	1:L:338:ALA:HB2	1.97	0.45
1:P:410:THR:HG21	1:P:453:MET:HE1	1.98	0.45
1:P:418:TYR:OH	1:P:426:GLN:O	2.34	0.45
1:B:439:SER:O	1:H:493:VAL:HG11	2.17	0.45
1:J:202:PHE:O	1:J:241:TYR:OH	2.32	0.45
1:J:282:LEU:HB3	1:J:323:VAL:HG11	1.98	0.45
1:N:495:GLU:HA	1:N:495:GLU:OE2	2.15	0.45
1:Q:67:ALA:HB3	1:Q:215:GLU:HG3	1.98	0.45
2:V:106:VAL:O	2:V:106:VAL:CG2	2.62	0.45
1:A:8:VAL:CG2	1:B:503:ALA:HB1	2.46	0.45
1:E:370:PHE:CD1	1:E:462:ILE:HD11	2.51	0.45
1:G:374:ARG:NH2	1:R:19:TYR:OH	2.45	0.45
1:H:450:LEU:HD21	1:N:465:ARG:CZ	2.47	0.45
1:I:264:GLU:O	1:I:267:THR:OG1	2.29	0.45
1:Q:478:LEU:O	1:Q:482:VAL:HG23	2.17	0.45
1:A:284:ASN:HA	1:A:323:VAL:HA	1.98	0.45
1:C:473:THR:HG21	1:C:478:LEU:HA	1.98	0.45
1:E:92:ILE:HD13	1:E:186:GLY:O	2.17	0.45
1:G:26:PRO:HG2	1:H:497:THR:HG22	1.96	0.45
2:T:4:SER:HB3	2:T:5:LYS:H	1.60	0.45
2:Y:74:GLU:HG2	2:Z:154:ILE:CG2	2.46	0.45
1:M:246:LEU:HD22	1:M:278:TYR:HE2	1.82	0.45
2:T:158:SER:O	2:T:158:SER:OG	2.35	0.45
2:U:106:VAL:O	2:U:106:VAL:CG1	2.64	0.45
1:A:83:GLY:HA3	1:A:301:LEU:HD13	1.98	0.45
1:D:442:VAL:HG11	1:J:499:THR:HG21	1.98	0.45
1:F:128:THR:HG23	1:F:156:SER:HB2	1.99	0.45
1:H:272:GLN:O	1:H:368:ILE:HG21	2.17	0.45
1:I:451:VAL:HB	1:O:466:LEU:HD12	1.99	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:K:395:SER:N	1:Q:311:GLU:OE1	2.45	0.45
1:O:490:GLN:O	1:O:494:GLU:OE2	2.34	0.45
1:P:495:GLU:OE1	1:P:497:THR:HG23	2.17	0.45
2:X:100:ARG:HB3	2:X:105:ASN:HA	1.98	0.45
1:B:450:LEU:HD21	1:G:7:GLY:O	2.16	0.45
1:E:407:GLN:C	1:E:410:THR:HG22	2.35	0.45
1:F:349:LYS:HG3	1:F:355:VAL:HG21	1.99	0.45
1:G:489:LEU:HD23	1:L:23:GLN:HG3	1.99	0.45
1:K:212:ILE:HG22	1:K:246:LEU:HB2	1.99	0.45
1:L:286:ASP:O	1:L:287:ASP:HB3	2.16	0.45
1:L:374:ARG:NH2	1:L:378:ASN:OD1	2.45	0.45
1:L:464:GLU:OE1	1:L:465:ARG:NH1	2.50	0.45
1:O:304:PHE:HZ	1:O:375:ILE:HD13	1.81	0.45
1:B:437:ASP:OD1	1:B:439:SER:OG	2.30	0.45
1:E:239:TYR:HH	1:K:332:TRP:HH2	1.62	0.45
1:I:33:ARG:HH21	1:I:305:VAL:HG22	1.81	0.45
1:D:415:THR:O	1:D:419:GLN:HG2	2.17	0.44
1:L:264:GLU:O	1:L:267:THR:OG1	2.30	0.44
1:L:410:THR:HG23	1:L:411:ASN:N	2.31	0.44
1:M:26:PRO:HG3	1:N:492:SER:HA	1.99	0.44
1:N:127:THR:HA	1:N:130:ILE:HD12	1.99	0.44
2:T:75:GLU:OE1	2:T:79:ARG:NH2	2.50	0.44
1:G:25:ARG:HH22	1:G:82:PHE:HZ	1.58	0.44
1:I:94:THR:HG22	1:I:95:ARG:N	2.33	0.44
1:M:264:GLU:O	1:M:267:THR:OG1	2.27	0.44
1:P:226:LEU:O	1:P:230:VAL:HG23	2.17	0.44
1:R:304:PHE:HZ	1:R:375:ILE:HD13	1.82	0.44
1:C:384:LEU:HD13	1:C:455:ILE:HD13	1.98	0.44
1:C:419:GLN:OE1	1:C:419:GLN:HA	2.16	0.44
1:N:155:THR:HG23	1:N:158:THR:N	2.33	0.44
2:S:98:MET:HE3	2:S:98:MET:HB3	1.82	0.44
2:Z:115:GLU:OE2	2:Z:148:ARG:HG2	2.17	0.44
1:B:458:VAL:HG22	1:H:473:THR:OG1	2.17	0.44
1:I:226:LEU:O	1:I:230:VAL:HG23	2.16	0.44
1:K:366:PRO:HA	1:K:369:VAL:HG23	1.98	0.44
1:K:403:LEU:HD13	1:K:441:GLN:HG3	2.00	0.44
1:C:128:THR:CG2	1:C:156:SER:CB	2.85	0.44
1:C:456:TRP:CD2	1:I:482:VAL:HG22	2.52	0.44
1:F:191:VAL:O	1:F:195:VAL:HG23	2.17	0.44
1:G:282:LEU:HB3	1:G:323:VAL:HG11	1.99	0.44
1:H:264:GLU:O	1:H:267:THR:OG1	2.30	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:M:368:ILE:HG23	1:M:368:ILE:O	2.18	0.44
1:P:368:ILE:HG23	1:P:368:ILE:O	2.16	0.44
1:D:23:GLN:HG3	1:E:489:LEU:HD23	1.98	0.44
1:L:214:PRO:HA	1:L:248:ASP:OD2	2.18	0.44
1:O:259:ASP:OD1	1:O:259:ASP:N	2.51	0.44
1:B:147:GLU:HG3	1:B:148:VAL:HG13	1.99	0.44
1:C:225:ARG:NE	1:C:264:GLU:OE2	2.46	0.44
1:F:130:ILE:O	1:F:134:VAL:HG23	2.17	0.44
1:I:248:ASP:OD2	1:I:293:SER:OG	2.22	0.44
1:K:41:ALA:CB	1:K:63:TYR:HB3	2.47	0.44
1:L:435:LEU:HD22	1:R:486:THR:HG23	1.99	0.44
1:R:78:ASN:OD1	1:R:321:LYS:N	2.41	0.44
1:B:435:LEU:CD2	1:H:486:THR:HG23	2.41	0.44
1:D:410:THR:HG21	1:D:455:ILE:HD11	2.00	0.44
1:G:414:LEU:HD23	1:G:417:LEU:HD12	1.99	0.44
1:H:451:VAL:HB	1:N:466:LEU:HD12	1.99	0.44
1:K:280:PRO:HG2	1:K:346:ILE:H	1.82	0.44
1:O:502:THR:HG23	1:O:502:THR:O	2.18	0.44
1:B:113:ASN:ND2	1:B:147:GLU:HG2	2.29	0.44
1:G:25:ARG:NH2	1:G:82:PHE:CE1	2.86	0.44
1:G:286:ASP:O	1:G:287:ASP:HB3	2.18	0.44
1:M:29:VAL:O	1:M:29:VAL:HG13	2.18	0.44
1:Q:368:ILE:HG23	1:Q:368:ILE:O	2.18	0.44
1:B:20:GLN:HB3	1:C:471:LYS:HB2	2.00	0.43
1:F:48:ASN:ND2	1:F:91:ALA:HB3	2.33	0.43
1:H:226:LEU:O	1:H:230:VAL:HG23	2.18	0.43
1:J:300:ALA:HB2	1:J:313:PRO:HB3	2.00	0.43
1:O:282:LEU:HD11	1:O:292:PRO:HA	1.99	0.43
1:B:284:ASN:OD1	1:B:288:GLN:N	2.47	0.43
1:E:264:GLU:O	1:E:267:THR:OG1	2.32	0.43
1:E:415:THR:O	1:E:419:GLN:HG2	2.19	0.43
1:I:391:ASP:CB	1:I:406:ILE:HD11	2.48	0.43
1:K:451:VAL:HB	1:Q:466:LEU:HD12	1.98	0.43
1:N:490:GLN:O	1:N:494:GLU:HG2	2.18	0.43
1:B:264:GLU:O	1:B:267:THR:OG1	2.32	0.43
1:D:300:ALA:HB2	1:D:313:PRO:HB3	2.00	0.43
1:E:27:ILE:HD11	1:E:84:ASN:OD1	2.17	0.43
1:E:410:THR:HG23	1:E:411:ASN:N	2.33	0.43
1:E:477:ASP:OD1	1:E:477:ASP:N	2.51	0.43
1:G:5:LEU:HB2	1:H:504:PRO:HD2	2.00	0.43
1:N:191:VAL:HG23	1:N:228:ILE:HD11	2.01	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:N:246:LEU:HD22	1:N:278:TYR:HE2	1.84	0.43
1:I:374:ARG:NH2	1:N:19:TYR:OH	2.45	0.43
1:J:453:MET:HG2	1:J:455:ILE:HD11	2.00	0.43
1:M:74:LEU:HD12	1:M:290:VAL:HG11	2.00	0.43
1:M:148:VAL:HG12	1:M:163:SER:HA	2.00	0.43
1:P:216:ALA:HB1	1:P:228:ILE:HD13	2.00	0.43
1:Q:366:PRO:HA	1:Q:369:VAL:HG23	2.00	0.43
1:R:267:THR:HG23	1:R:268:TYR:N	2.32	0.43
1:R:415:THR:O	1:R:419:GLN:HG2	2.18	0.43
1:C:201:THR:O	1:C:201:THR:HG22	2.19	0.43
1:J:197:THR:HG23	1:J:198:ILE:N	2.34	0.43
1:P:403:LEU:HD12	1:P:438:ALA:HB2	2.00	0.43
2:S:131:ILE:HG22	2:S:131:ILE:O	2.18	0.43
2:S:158:SER:O	2:S:158:SER:OG	2.37	0.43
2:U:123:THR:HG23	2:V:35:GLU:HG3	2.01	0.43
1:F:5:LEU:N	1:F:5:LEU:HD22	2.34	0.43
1:F:303:ARG:NE	1:F:312:PRO:O	2.52	0.43
1:N:99:VAL:HB	1:N:180:THR:HG22	2.00	0.43
1:N:259:ASP:OD1	1:N:259:ASP:N	2.52	0.43
2:S:33:LYS:HD2	2:S:35:GLU:OE2	2.18	0.43
1:E:220:PHE:HB3	1:E:224:ASP:HB2	2.01	0.43
1:L:407:GLN:HA	1:L:410:THR:HG22	2.01	0.43
1:M:366:PRO:HA	1:M:369:VAL:HG23	2.00	0.43
1:N:403:LEU:HD12	1:N:438:ALA:HB2	2.01	0.43
1:N:418:TYR:OH	1:N:426:GLN:O	2.36	0.43
1:H:45:VAL:HG23	1:H:46:ASN:N	2.33	0.43
1:H:92:ILE:HD13	1:H:186:GLY:O	2.19	0.43
1:J:403:LEU:H	1:J:403:LEU:HG	1.70	0.43
1:K:68:SER:O	1:K:72:VAL:HG23	2.19	0.43
1:L:9:ASN:N	1:L:9:ASN:OD1	2.51	0.43
1:O:366:PRO:HA	1:O:369:VAL:HG23	2.00	0.43
1:R:410:THR:HG23	1:R:411:ASN:N	2.34	0.43
2:S:5:LYS:HD2	2:Y:87:PRO:HB2	1.99	0.43
2:W:158:SER:O	2:W:158:SER:OG	2.35	0.43
1:B:30:GLU:HB3	1:B:33:ARG:HD3	1.92	0.43
1:D:92:ILE:HD13	1:D:186:GLY:O	2.19	0.43
1:D:235:LEU:HD12	1:D:241:TYR:CD2	2.54	0.43
1:H:225:ARG:NE	1:H:264:GLU:OE2	2.49	0.43
1:H:440:VAL:HA	1:N:493:VAL:HG21	2.00	0.43
1:J:143:VAL:HG12	1:J:147:GLU:CD	2.39	0.43
1:K:95:ARG:H	1:K:185:THR:HA	1.83	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:K:126:THR:O	1:K:129:THR:OG1	2.25	0.43
1:K:264:GLU:O	1:K:267:THR:OG1	2.29	0.43
1:M:26:PRO:HG2	1:N:495:GLU:CG	2.48	0.43
1:N:67:ALA:HB3	1:N:215:GLU:HG3	2.00	0.43
1:A:235:LEU:HD12	1:A:241:TYR:CD2	2.54	0.43
1:C:191:VAL:O	1:C:195:VAL:HG23	2.19	0.43
1:E:8:VAL:CG2	1:F:503:ALA:HB1	2.49	0.43
1:F:500:GLU:OE2	1:F:500:GLU:HA	2.19	0.43
1:J:37:MET:HE2	1:J:212:ILE:HD11	2.00	0.43
1:R:43:ASN:HB3	1:R:45:VAL:HG13	2.01	0.43
1:R:262:ILE:HD11	1:R:338:ALA:HB2	2.01	0.43
2:T:58:ILE:N	2:U:49:ASN:O	2.52	0.43
2:T:110:GLY:HA2	2:T:152:GLY:N	2.33	0.43
2:Z:77:ILE:O	2:Z:81:ILE:HG12	2.19	0.43
2:Z:163:GLN:H	2:Z:163:GLN:HG2	1.42	0.43
1:I:96:TYR:HE1	1:I:183:THR:HG1	1.67	0.42
2:V:131:ILE:HG22	2:V:131:ILE:O	2.18	0.42
2:Z:19:ILE:HG23	2:Z:83:VAL:HG22	2.01	0.42
1:A:203:ASP:H	1:A:206:LEU:CD1	2.30	0.42
1:A:424:TYR:CD2	1:G:475:ILE:HG23	2.54	0.42
1:D:33:ARG:HE	1:D:33:ARG:HB2	1.59	0.42
1:G:464:GLU:HG2	1:L:13:PRO:HB3	2.00	0.42
1:K:75:PHE:CE1	1:K:85:LEU:HB2	2.54	0.42
1:L:217:PHE:HB2	1:L:248:ASP:CG	2.39	0.42
1:I:45:VAL:HG23	1:I:46:ASN:N	2.34	0.42
1:L:143:VAL:HG12	1:L:147:GLU:CD	2.39	0.42
1:M:495:GLU:OE2	1:M:495:GLU:HA	2.19	0.42
1:P:145:ASN:OD1	1:P:146:LYS:N	2.53	0.42
1:P:246:LEU:HD22	1:P:278:TYR:HE2	1.84	0.42
1:R:246:LEU:HD22	1:R:278:TYR:HE1	1.84	0.42
2:S:127:GLU:HG3	2:T:10:ILE:HD12	2.01	0.42
1:H:395:SER:N	1:N:311:GLU:OE1	2.44	0.42
1:I:187:THR:O	1:I:187:THR:HG22	2.20	0.42
1:I:388:TYR:OH	1:I:410:THR:OG1	2.00	0.42
1:L:389:ASP:HA	1:L:392:ILE:HD12	2.01	0.42
1:M:404:ASP:N	1:M:404:ASP:OD1	2.51	0.42
1:N:282:LEU:H	1:N:282:LEU:HG	1.61	0.42
2:U:60:TYR:OH	2:U:159:GLU:OE1	2.32	0.42
1:A:409:LYS:HA	1:A:412:THR:HG22	2.02	0.42
1:C:140:ASN:N	1:C:140:ASN:OD1	2.52	0.42
1:G:248:ASP:OD2	1:G:281:TYR:HE1	2.00	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:M:45:VAL:HG21	1:M:62:VAL:HG12	2.01	0.42
1:M:145:ASN:OD1	1:M:146:LYS:N	2.51	0.42
1:N:264:GLU:O	1:N:267:THR:OG1	2.31	0.42
1:O:10:ILE:HG21	1:O:16:TYR:OH	2.19	0.42
1:O:216:ALA:HB1	1:O:228:ILE:HD13	2.01	0.42
2:U:14:ALA:HB1	2:U:27:TYR:HE2	1.84	0.42
2:V:97:PRO:HG2	2:V:156:TRP:HZ2	1.84	0.42
2:W:131:ILE:HD11	2:Z:44:SER:HB2	2.01	0.42
1:B:220:PHE:HB3	1:B:224:ASP:HB2	2.01	0.42
1:H:47:LYS:HB2	1:H:91:ALA:HB2	2.01	0.42
1:H:212:ILE:HG22	1:H:246:LEU:HB2	2.00	0.42
1:H:439:SER:O	1:N:493:VAL:HG11	2.19	0.42
1:I:33:ARG:NH2	1:I:305:VAL:HG22	2.34	0.42
1:J:36:TYR:OH	1:J:207:GLU:O	2.20	0.42
1:K:388:TYR:OH	1:K:410:THR:HB	2.20	0.42
1:N:277:TYR:HB2	1:N:362:LEU:HD21	2.02	0.42
1:R:495:GLU:OE2	1:R:497:THR:HG23	2.20	0.42
1:G:5:LEU:HD11	1:H:499:THR:O	2.20	0.42
1:I:27:ILE:HG23	1:I:33:ARG:NH1	2.34	0.42
1:J:479:GLU:HA	1:J:482:VAL:HB	2.02	0.42
1:A:47:LYS:O	1:A:49:VAL:HG23	2.20	0.42
1:E:387:GLY:O	1:E:409:LYS:NZ	2.42	0.42
1:F:248:ASP:OD1	1:F:248:ASP:N	2.52	0.42
1:F:475:ILE:HG23	1:F:475:ILE:O	2.19	0.42
1:I:461:THR:OG1	1:I:462:ILE:N	2.52	0.42
1:J:45:VAL:HG23	1:J:46:ASN:N	2.34	0.42
1:F:144:LEU:N	1:F:144:LEU:HD22	2.34	0.42
1:L:403:LEU:HD13	1:L:441:GLN:HG3	2.01	0.42
1:R:404:ASP:OD1	1:R:404:ASP:C	2.58	0.42
2:U:40:THR:HB	2:U:53:THR:HG23	2.00	0.42
1:B:58:ASP:C	1:B:58:ASP:OD1	2.57	0.42
1:B:197:THR:O	1:B:201:THR:HB	2.20	0.42
1:G:187:THR:O	1:G:187:THR:HG22	2.19	0.42
1:G:395:SER:N	1:M:311:GLU:OE1	2.45	0.42
1:L:281:TYR:HB3	1:L:282:LEU:H	1.75	0.42
1:L:366:PRO:HA	1:L:369:VAL:HG23	2.02	0.42
1:M:43:ASN:OD1	1:M:43:ASN:N	2.53	0.42
1:M:503:ALA:HB1	1:R:8:VAL:HG21	2.02	0.42
1:Q:495:GLU:OE2	1:Q:495:GLU:HA	2.19	0.42
1:R:276:SER:OG	1:R:371:ILE:HD12	2.20	0.42
1:C:350:GLU:OE2	1:C:350:GLU:HA	2.20	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:G:461:THR:OG1	1:G:462:ILE:N	2.53	0.41
1:R:45:VAL:HG11	1:R:62:VAL:O	2.20	0.41
1:B:142:THR:O	1:B:145:ASN:ND2	2.53	0.41
1:C:119:ILE:HG23	1:C:133:ASP:OD2	2.20	0.41
1:E:235:LEU:HD12	1:E:241:TYR:CE2	2.55	0.41
1:E:287:ASP:N	1:E:287:ASP:OD1	2.53	0.41
1:G:220:PHE:HB3	1:G:224:ASP:HB2	2.01	0.41
1:G:280:PRO:HG2	1:G:346:ILE:H	1.85	0.41
1:G:368:ILE:HG13	1:G:368:ILE:O	2.20	0.41
1:G:505:VAL:HG13	1:G:505:VAL:O	2.20	0.41
1:I:220:PHE:O	1:I:225:ARG:NH1	2.52	0.41
1:I:435:LEU:HD22	1:O:486:THR:HG23	2.01	0.41
1:J:264:GLU:O	1:J:267:THR:OG1	2.33	0.41
1:L:203:ASP:H	1:L:206:LEU:HD12	1.85	0.41
1:L:414:LEU:HD13	1:L:432:PHE:CD2	2.55	0.41
1:N:47:LYS:O	1:N:49:VAL:HG23	2.19	0.41
2:Z:116:PHE:HB2	2:Z:145:SER:HB2	2.02	0.41
1:C:31:PRO:O	1:C:208:ALA:HB3	2.21	0.41
1:C:220:PHE:HB3	1:C:224:ASP:HB2	2.01	0.41
1:D:147:GLU:OE2	1:J:260:ARG:CZ	2.67	0.41
1:K:368:ILE:O	1:K:368:ILE:HG13	2.20	0.41
1:O:246:LEU:HD22	1:O:278:TYR:HE2	1.86	0.41
2:T:131:ILE:O	2:T:131:ILE:HG22	2.21	0.41
2:V:39:ASN:HB2	2:V:57:ALA:HB3	2.02	0.41
1:B:494:GLU:OE2	1:B:494:GLU:C	2.59	0.41
1:F:366:PRO:HA	1:F:369:VAL:HG23	2.01	0.41
1:H:461:THR:OG1	1:H:462:ILE:N	2.54	0.41
1:I:366:PRO:HA	1:I:369:VAL:HG23	2.01	0.41
1:J:220:PHE:HB3	1:J:224:ASP:HB2	2.01	0.41
1:K:439:SER:O	1:Q:493:VAL:HG11	2.21	0.41
1:M:359:ALA:O	1:M:371:ILE:HG22	2.20	0.41
1:Q:94:THR:HG22	1:Q:95:ARG:N	2.35	0.41
1:B:413:LEU:HD23	1:B:413:LEU:HA	1.88	0.41
1:D:92:ILE:HG21	1:D:186:GLY:O	2.19	0.41
1:D:435:LEU:HD22	1:J:486:THR:HG23	2.03	0.41
1:J:262:ILE:HD11	1:J:338:ALA:HB2	2.01	0.41
1:N:366:PRO:HA	1:N:369:VAL:HG23	2.01	0.41
2:X:127:GLU:HG2	2:X:128:ILE:N	2.36	0.41
1:F:220:PHE:HB3	1:F:224:ASP:HB2	2.02	0.41
1:I:75:PHE:CE1	1:I:85:LEU:HB2	2.55	0.41
1:L:281:TYR:HA	1:L:292:PRO:HD3	2.02	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:M:184:THR:O	1:M:185:THR:OG1	2.32	0.41
1:P:26:PRO:HG2	1:Q:492:SER:HA	2.01	0.41
1:Q:98:ILE:HD11	1:Q:181:LEU:HG	2.03	0.41
2:W:28:TRP:CZ2	2:W:76:LEU:HD21	2.56	0.41
1:P:109:SER:OG	1:P:175:THR:OG1	2.21	0.41
1:A:28:ASN:OD1	1:A:28:ASN:C	2.58	0.41
1:B:282:LEU:HD13	1:B:323:VAL:HG11	2.02	0.41
1:C:284:ASN:HA	1:C:323:VAL:HA	2.02	0.41
1:E:500:GLU:OE2	1:E:500:GLU:HA	2.20	0.41
1:H:414:LEU:HD23	1:H:417:LEU:HD12	2.03	0.41
1:H:445:LEU:HD22	1:H:450:LEU:HD12	2.03	0.41
1:L:29:VAL:HB	1:L:207:GLU:OE2	2.21	0.41
1:N:410:THR:HG21	1:N:455:ILE:HD11	2.02	0.41
1:A:5:LEU:O	1:B:504:PRO:HD2	2.20	0.41
1:B:27:ILE:HD12	1:B:27:ILE:HA	1.81	0.41
1:C:100:VAL:O	1:C:100:VAL:CG1	2.69	0.41
1:C:144:LEU:HD22	1:C:144:LEU:N	2.36	0.41
1:F:52:ARG:O	1:F:53:ILE:HD13	2.21	0.41
1:H:366:PRO:HA	1:H:369:VAL:HG23	2.01	0.41
1:H:500:GLU:CD	1:H:501:GLY:N	2.74	0.41
1:I:403:LEU:HD13	1:I:441:GLN:HG3	2.03	0.41
1:I:450:LEU:HD23	1:O:465:ARG:HG3	2.03	0.41
1:J:30:GLU:HG2	1:J:33:ARG:HD2	2.03	0.41
1:K:248:ASP:OD1	1:K:281:TYR:HE1	2.04	0.41
1:K:458:VAL:HG22	1:Q:473:THR:OG1	2.21	0.41
1:L:235:LEU:HD12	1:L:241:TYR:CD2	2.56	0.41
1:P:1:MET:N	1:Q:500:GLU:O	2.50	0.41
1:P:67:ALA:HB3	1:P:215:GLU:HG3	2.02	0.41
1:C:248:ASP:N	1:C:248:ASP:OD1	2.52	0.41
1:K:478:LEU:O	1:K:482:VAL:HG23	2.20	0.41
1:N:427:THR:N	1:N:430:GLU:OE1	2.54	0.41
1:O:48:ASN:CB	1:O:167:THR:HG22	2.51	0.41
2:T:131:ILE:O	2:T:131:ILE:CG2	2.69	0.41
1:B:287:ASP:OD1	1:B:287:ASP:N	2.54	0.40
1:C:25:ARG:HE	1:C:25:ARG:HB3	1.35	0.40
1:C:239:TYR:HD2	1:H:16:TYR:HB3	1.87	0.40
1:E:201:THR:O	1:E:201:THR:HG22	2.20	0.40
1:N:94:THR:HG22	1:N:95:ARG:N	2.36	0.40
1:Q:19:TYR:HA	1:R:470:ILE:O	2.22	0.40
1:D:191:VAL:O	1:D:195:VAL:HG23	2.21	0.40
1:G:23:GLN:HB3	1:H:488:ALA:HB1	2.02	0.40

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:H:155:THR:OG1	1:H:158:THR:OG1	2.10	0.40
1:L:297:ALA:O	1:L:301:LEU:HG	2.20	0.40
1:O:3:ASN:HD22	1:O:3:ASN:HA	1.62	0.40
1:O:5:LEU:O	1:O:8:VAL:HG22	2.22	0.40
1:Q:259:ASP:OD1	1:Q:259:ASP:N	2.53	0.40
2:S:109:GLY:HA3	2:S:154:ILE:HD12	2.03	0.40
2:S:123:THR:HG23	2:T:35:GLU:HG2	2.03	0.40
2:U:74:GLU:CB	2:V:156:TRP:HB3	2.51	0.40
1:D:27:ILE:N	1:D:27:ILE:HD12	2.37	0.40
1:I:280:PRO:HG2	1:I:346:ILE:H	1.86	0.40
1:K:235:LEU:HD12	1:K:241:TYR:CD2	2.56	0.40
1:O:236:CYS:SG	1:O:245:ALA:HB2	2.62	0.40
1:Q:184:THR:O	1:Q:185:THR:OG1	2.35	0.40
2:Z:40:THR:HB	2:Z:53:THR:HG23	2.04	0.40
1:D:25:ARG:O	1:D:27:ILE:HD12	2.21	0.40
1:L:415:THR:O	1:L:419:GLN:HG2	2.21	0.40
1:M:92:ILE:HD13	1:M:186:GLY:O	2.21	0.40
1:O:82:PHE:CD1	1:O:305:VAL:HG11	2.57	0.40
1:R:92:ILE:H	1:R:92:ILE:HG12	1.42	0.40
2:W:123:THR:HG23	2:X:35:GLU:HG2	2.04	0.40
1:H:138:ILE:HG21	1:H:150:ALA:HB2	2.03	0.40
1:J:478:LEU:HD22	1:J:478:LEU:HA	1.84	0.40
1:P:365:ASP:HB3	1:P:368:ILE:HG22	2.03	0.40
1:R:126:THR:OG1	1:R:127:THR:N	2.54	0.40

There are no symmetry-related clashes.

5.3 Torsion angles [i](#)

5.3.1 Protein backbone [i](#)

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

The Analysed column shows the number of residues for which the backbone conformation was analysed, and the total number of residues.

Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles
1	A	502/506 (99%)	488 (97%)	13 (3%)	1 (0%)	47 77

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
1	B	502/506 (99%)	488 (97%)	13 (3%)	1 (0%)	47	77
1	C	503/506 (99%)	487 (97%)	12 (2%)	4 (1%)	19	52
1	D	502/506 (99%)	487 (97%)	14 (3%)	1 (0%)	47	77
1	E	503/506 (99%)	486 (97%)	16 (3%)	1 (0%)	47	77
1	F	502/506 (99%)	486 (97%)	15 (3%)	1 (0%)	47	77
1	G	503/506 (99%)	487 (97%)	13 (3%)	3 (1%)	25	59
1	H	502/506 (99%)	483 (96%)	17 (3%)	2 (0%)	34	67
1	I	503/506 (99%)	488 (97%)	14 (3%)	1 (0%)	47	77
1	J	503/506 (99%)	485 (96%)	17 (3%)	1 (0%)	47	77
1	K	503/506 (99%)	490 (97%)	10 (2%)	3 (1%)	25	59
1	L	503/506 (99%)	488 (97%)	13 (3%)	2 (0%)	34	67
1	M	502/506 (99%)	486 (97%)	14 (3%)	2 (0%)	34	67
1	N	503/506 (99%)	487 (97%)	14 (3%)	2 (0%)	34	67
1	O	502/506 (99%)	482 (96%)	18 (4%)	2 (0%)	34	67
1	P	503/506 (99%)	484 (96%)	16 (3%)	3 (1%)	25	59
1	Q	502/506 (99%)	486 (97%)	13 (3%)	3 (1%)	25	59
1	R	502/506 (99%)	484 (96%)	17 (3%)	1 (0%)	47	77
2	S	161/167 (96%)	148 (92%)	13 (8%)	0	100	100
2	T	160/167 (96%)	152 (95%)	8 (5%)	0	100	100
2	U	161/167 (96%)	150 (93%)	11 (7%)	0	100	100
2	V	161/167 (96%)	148 (92%)	13 (8%)	0	100	100
2	W	159/167 (95%)	150 (94%)	8 (5%)	1 (1%)	25	59
2	X	161/167 (96%)	151 (94%)	9 (6%)	1 (1%)	25	59
2	Y	160/167 (96%)	148 (92%)	11 (7%)	1 (1%)	25	59
2	Z	161/167 (96%)	152 (94%)	9 (6%)	0	100	100
2	a	159/167 (95%)	146 (92%)	13 (8%)	0	100	100
2	b	159/167 (95%)	153 (96%)	6 (4%)	0	100	100
2	c	158/167 (95%)	151 (96%)	7 (4%)	0	100	100
2	d	158/167 (95%)	150 (95%)	8 (5%)	0	100	100
2	e	159/167 (95%)	144 (91%)	15 (9%)	0	100	100
2	f	157/167 (94%)	144 (92%)	13 (8%)	0	100	100

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
2	g	161/167 (96%)	150 (93%)	11 (7%)	0	100	100
2	h	158/167 (95%)	150 (95%)	8 (5%)	0	100	100
2	i	159/167 (95%)	148 (93%)	11 (7%)	0	100	100
2	j	158/167 (95%)	147 (93%)	11 (7%)	0	100	100
All	All	11915/12114 (98%)	11434 (96%)	444 (4%)	37 (0%)	44	72

All (37) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
2	Y	6	ARG
1	C	20	GLN
1	M	279	TYR
1	N	20	GLN
1	O	24	SER
1	P	32	PHE
2	W	151	GLY
2	X	151	GLY
1	A	279	TYR
1	B	279	TYR
1	D	279	TYR
1	E	279	TYR
1	G	21	THR
1	K	187	THR
1	L	13	PRO
1	L	279	TYR
1	N	279	TYR
1	O	279	TYR
1	P	279	TYR
1	Q	20	GLN
1	C	279	TYR
1	F	279	TYR
1	G	279	TYR
1	H	279	TYR
1	K	279	TYR
1	P	20	GLN
1	Q	279	TYR
1	I	279	TYR
1	K	185	THR
1	R	279	TYR
1	G	20	GLN
1	J	279	TYR

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Mol	Chain	Res	Type
1	Q	32	PHE
1	H	29	VAL
1	C	319	PRO
1	M	152	VAL
1	C	306	ILE

5.3.2 Protein sidechains [i](#)

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

The Analysed column shows the number of residues for which the sidechain conformation was analysed, and the total number of residues.

Mol	Chain	Analysed	Rotameric	Outliers	Percentiles
1	A	417/419 (100%)	397 (95%)	20 (5%)	25 56
1	B	417/419 (100%)	404 (97%)	13 (3%)	40 67
1	C	418/419 (100%)	395 (94%)	23 (6%)	21 52
1	D	417/419 (100%)	403 (97%)	14 (3%)	37 64
1	E	418/419 (100%)	402 (96%)	16 (4%)	33 62
1	F	417/419 (100%)	397 (95%)	20 (5%)	25 56
1	G	418/419 (100%)	399 (96%)	19 (4%)	27 58
1	H	417/419 (100%)	400 (96%)	17 (4%)	30 60
1	I	418/419 (100%)	406 (97%)	12 (3%)	42 68
1	J	418/419 (100%)	400 (96%)	18 (4%)	29 59
1	K	418/419 (100%)	404 (97%)	14 (3%)	38 65
1	L	418/419 (100%)	404 (97%)	14 (3%)	38 65
1	M	417/419 (100%)	399 (96%)	18 (4%)	29 59
1	N	418/419 (100%)	400 (96%)	18 (4%)	29 59
1	O	417/419 (100%)	398 (95%)	19 (5%)	27 57
1	P	418/419 (100%)	402 (96%)	16 (4%)	33 62
1	Q	417/419 (100%)	402 (96%)	15 (4%)	35 63
1	R	417/419 (100%)	409 (98%)	8 (2%)	57 76
2	S	138/141 (98%)	125 (91%)	13 (9%)	8 30
2	T	137/141 (97%)	126 (92%)	11 (8%)	12 37

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Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
2	U	138/141 (98%)	131 (95%)	7 (5%)	24	54
2	V	138/141 (98%)	130 (94%)	8 (6%)	20	50
2	W	136/141 (96%)	122 (90%)	14 (10%)	7	26
2	X	138/141 (98%)	132 (96%)	6 (4%)	29	59
2	Y	137/141 (97%)	127 (93%)	10 (7%)	14	40
2	Z	138/141 (98%)	128 (93%)	10 (7%)	14	41
2	a	136/141 (96%)	132 (97%)	4 (3%)	42	68
2	b	136/141 (96%)	125 (92%)	11 (8%)	11	36
2	c	136/141 (96%)	130 (96%)	6 (4%)	28	58
2	d	136/141 (96%)	128 (94%)	8 (6%)	19	50
2	e	136/141 (96%)	120 (88%)	16 (12%)	5	21
2	f	135/141 (96%)	126 (93%)	9 (7%)	16	45
2	g	138/141 (98%)	132 (96%)	6 (4%)	29	59
2	h	136/141 (96%)	125 (92%)	11 (8%)	11	36
2	i	136/141 (96%)	127 (93%)	9 (7%)	16	45
2	j	136/141 (96%)	129 (95%)	7 (5%)	24	54
All	All	9976/10080 (99%)	9516 (95%)	460 (5%)	31	57

All (460) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	2	THR
1	A	5	LEU
1	A	12	THR
1	A	25	ARG
1	A	32	PHE
1	A	42	SER
1	A	126	THR
1	A	151	THR
1	A	152	VAL
1	A	157	SER
1	A	248	ASP
1	A	283	ILE
1	A	286	ASP
1	A	288	GLN
1	A	408	ARG

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Mol	Chain	Res	Type
1	A	465	ARG
1	A	494	GLU
1	A	499	THR
1	A	500	GLU
1	A	502	THR
1	B	22	THR
1	B	23	GLN
1	B	27	ILE
1	B	29	VAL
1	B	30	GLU
1	B	34	THR
1	B	207	GLU
1	B	248	ASP
1	B	408	ARG
1	B	409	LYS
1	B	412	THR
1	B	479	GLU
1	B	494	GLU
1	C	1	MET
1	C	12	THR
1	C	16	TYR
1	C	22	THR
1	C	23	GLN
1	C	24	SER
1	C	25	ARG
1	C	29	VAL
1	C	32	PHE
1	C	133	ASP
1	C	140	ASN
1	C	248	ASP
1	C	283	ILE
1	C	286	ASP
1	C	299	MET
1	C	316	VAL
1	C	317	ASN
1	C	321	LYS
1	C	324	LYS
1	C	325	ASN
1	C	326	VAL
1	C	471	LYS
1	C	500	GLU
1	D	16	TYR

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Mol	Chain	Res	Type
1	D	23	GLN
1	D	24	SER
1	D	29	VAL
1	D	30	GLU
1	D	129	THR
1	D	207	GLU
1	D	223	SER
1	D	248	ASP
1	D	283	ILE
1	D	408	ARG
1	D	455	ILE
1	D	460	SER
1	D	494	GLU
1	E	12	THR
1	E	20	GLN
1	E	22	THR
1	E	23	GLN
1	E	24	SER
1	E	25	ARG
1	E	32	PHE
1	E	37	MET
1	E	283	ILE
1	E	287	ASP
1	E	299	MET
1	E	408	ARG
1	E	464	GLU
1	E	465	ARG
1	E	469	ASN
1	E	471	LYS
1	F	22	THR
1	F	24	SER
1	F	25	ARG
1	F	27	ILE
1	F	29	VAL
1	F	30	GLU
1	F	117	LYS
1	F	129	THR
1	F	140	ASN
1	F	151	THR
1	F	152	VAL
1	F	156	SER
1	F	157	SER

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Mol	Chain	Res	Type
1	F	317	ASN
1	F	403	LEU
1	F	404	ASP
1	F	418	TYR
1	F	426	GLN
1	F	471	LYS
1	F	478	LEU
1	G	10	ILE
1	G	21	THR
1	G	22	THR
1	G	28	ASN
1	G	29	VAL
1	G	30	GLU
1	G	33	ARG
1	G	92	ILE
1	G	133	ASP
1	G	180	THR
1	G	351	ASN
1	G	402	VAL
1	G	403	LEU
1	G	410	THR
1	G	412	THR
1	G	413	LEU
1	G	416	THR
1	G	468	ILE
1	G	472	GLN
1	H	25	ARG
1	H	29	VAL
1	H	32	PHE
1	H	47	LYS
1	H	95	ARG
1	H	240	ARG
1	H	403	LEU
1	H	408	ARG
1	H	409	LYS
1	H	410	THR
1	H	412	THR
1	H	437	ASP
1	H	472	GLN
1	H	478	LEU
1	H	481	THR
1	H	484	LEU

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Mol	Chain	Res	Type
1	H	492	SER
1	I	16	TYR
1	I	22	THR
1	I	25	ARG
1	I	32	PHE
1	I	33	ARG
1	I	386	ARG
1	I	404	ASP
1	I	408	ARG
1	I	430	GLU
1	I	477	ASP
1	I	491	SER
1	I	500	GLU
1	J	22	THR
1	J	23	GLN
1	J	24	SER
1	J	29	VAL
1	J	32	PHE
1	J	107	SER
1	J	287	ASP
1	J	299	MET
1	J	321	LYS
1	J	402	VAL
1	J	407	GLN
1	J	410	THR
1	J	413	LEU
1	J	465	ARG
1	J	469	ASN
1	J	477	ASP
1	J	478	LEU
1	J	484	LEU
1	K	12	THR
1	K	25	ARG
1	K	32	PHE
1	K	37	MET
1	K	43	ASN
1	K	45	VAL
1	K	92	ILE
1	K	181	LEU
1	K	182	THR
1	K	187	THR
1	K	351	ASN

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Mol	Chain	Res	Type
1	K	404	ASP
1	K	472	GLN
1	K	492	SER
1	L	9	ASN
1	L	12	THR
1	L	16	TYR
1	L	23	GLN
1	L	25	ARG
1	L	32	PHE
1	L	42	SER
1	L	43	ASN
1	L	45	VAL
1	L	92	ILE
1	L	183	THR
1	L	351	ASN
1	L	408	ARG
1	L	465	ARG
1	M	25	ARG
1	M	32	PHE
1	M	43	ASN
1	M	77	LYS
1	M	97	GLN
1	M	152	VAL
1	M	156	SER
1	M	157	SER
1	M	171	THR
1	M	201	THR
1	M	203	ASP
1	M	248	ASP
1	M	282	LEU
1	M	283	ILE
1	M	289	GLN
1	M	324	LYS
1	M	404	ASP
1	M	471	LYS
1	N	10	ILE
1	N	12	THR
1	N	20	GLN
1	N	23	GLN
1	N	24	SER
1	N	28	ASN
1	N	32	PHE

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Mol	Chain	Res	Type
1	N	92	ILE
1	N	259	ASP
1	N	289	GLN
1	N	341	GLU
1	N	437	ASP
1	N	469	ASN
1	N	473	THR
1	N	477	ASP
1	N	478	LEU
1	N	479	GLU
1	N	481	THR
1	O	16	TYR
1	O	21	THR
1	O	22	THR
1	O	23	GLN
1	O	24	SER
1	O	25	ARG
1	O	28	ASN
1	O	29	VAL
1	O	30	GLU
1	O	77	LYS
1	O	259	ASP
1	O	282	LEU
1	O	283	ILE
1	O	469	ASN
1	O	473	THR
1	O	478	LEU
1	O	479	GLU
1	O	481	THR
1	O	491	SER
1	P	22	THR
1	P	24	SER
1	P	25	ARG
1	P	29	VAL
1	P	32	PHE
1	P	77	LYS
1	P	92	ILE
1	P	203	ASP
1	P	248	ASP
1	P	324	LYS
1	P	329	LYS
1	P	389	ASP

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Mol	Chain	Res	Type
1	P	437	ASP
1	P	453	MET
1	P	464	GLU
1	P	466	LEU
1	Q	16	TYR
1	Q	21	THR
1	Q	22	THR
1	Q	23	GLN
1	Q	24	SER
1	Q	25	ARG
1	Q	29	VAL
1	Q	32	PHE
1	Q	43	ASN
1	Q	92	ILE
1	Q	97	GLN
1	Q	181	LEU
1	Q	259	ASP
1	Q	465	ARG
1	Q	479	GLU
1	R	22	THR
1	R	32	PHE
1	R	92	ILE
1	R	248	ASP
1	R	259	ASP
1	R	447	GLN
1	R	468	ILE
1	R	494	GLU
2	S	3	VAL
2	S	4	SER
2	S	24	ASP
2	S	26	ARG
2	S	29	SER
2	S	67	LYS
2	S	90	TRP
2	S	98	MET
2	S	100	ARG
2	S	138	PHE
2	S	148	ARG
2	S	156	TRP
2	S	158	SER
2	T	3	VAL
2	T	4	SER

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Mol	Chain	Res	Type
2	T	6	ARG
2	T	67	LYS
2	T	105	ASN
2	T	108	GLN
2	T	111	LYS
2	T	127	GLU
2	T	138	PHE
2	T	148	ARG
2	T	158	SER
2	U	5	LYS
2	U	67	LYS
2	U	90	TRP
2	U	105	ASN
2	U	111	LYS
2	U	138	PHE
2	U	153	ASN
2	V	24	ASP
2	V	26	ARG
2	V	100	ARG
2	V	127	GLU
2	V	138	PHE
2	V	148	ARG
2	V	156	TRP
2	V	157	TRP
2	W	3	VAL
2	W	4	SER
2	W	6	ARG
2	W	29	SER
2	W	67	LYS
2	W	98	MET
2	W	100	ARG
2	W	111	LYS
2	W	127	GLU
2	W	138	PHE
2	W	148	ARG
2	W	153	ASN
2	W	155	ASN
2	W	158	SER
2	X	24	ASP
2	X	67	LYS
2	X	100	ARG
2	X	138	PHE

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Mol	Chain	Res	Type
2	X	148	ARG
2	X	153	ASN
2	Y	4	SER
2	Y	22	PHE
2	Y	24	ASP
2	Y	59	LYS
2	Y	67	LYS
2	Y	100	ARG
2	Y	127	GLU
2	Y	137	MET
2	Y	138	PHE
2	Y	140	CYS
2	Z	33	LYS
2	Z	59	LYS
2	Z	66	SER
2	Z	67	LYS
2	Z	103	TYR
2	Z	111	LYS
2	Z	148	ARG
2	Z	150	ASP
2	Z	155	ASN
2	Z	163	GLN
2	a	67	LYS
2	a	108	GLN
2	a	156	TRP
2	a	157	TRP
2	b	3	VAL
2	b	4	SER
2	b	24	ASP
2	b	59	LYS
2	b	66	SER
2	b	67	LYS
2	b	88	ILE
2	b	92	THR
2	b	111	LYS
2	b	138	PHE
2	b	140	CYS
2	c	24	ASP
2	c	59	LYS
2	c	67	LYS
2	c	100	ARG
2	c	111	LYS

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Mol	Chain	Res	Type
2	c	148	ARG
2	d	24	ASP
2	d	59	LYS
2	d	67	LYS
2	d	103	TYR
2	d	127	GLU
2	d	148	ARG
2	d	157	TRP
2	d	158	SER
2	e	17	LEU
2	e	18	ASN
2	e	19	ILE
2	e	51	ILE
2	e	53	THR
2	e	67	LYS
2	e	75	GLU
2	e	92	THR
2	e	95	ILE
2	e	98	MET
2	e	100	ARG
2	e	101	ASP
2	e	103	TYR
2	e	133	SER
2	e	138	PHE
2	e	148	ARG
2	f	33	LYS
2	f	67	LYS
2	f	98	MET
2	f	100	ARG
2	f	101	ASP
2	f	105	ASN
2	f	138	PHE
2	f	148	ARG
2	f	155	ASN
2	g	67	LYS
2	g	75	GLU
2	g	111	LYS
2	g	138	PHE
2	g	148	ARG
2	g	158	SER
2	h	26	ARG
2	h	45	ASP

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Mol	Chain	Res	Type
2	h	88	ILE
2	h	92	THR
2	h	98	MET
2	h	100	ARG
2	h	101	ASP
2	h	105	ASN
2	h	118	THR
2	h	138	PHE
2	h	158	SER
2	i	67	LYS
2	i	73	ASP
2	i	75	GLU
2	i	108	GLN
2	i	138	PHE
2	i	148	ARG
2	i	154	ILE
2	i	155	ASN
2	i	158	SER
2	j	10	ILE
2	j	24	ASP
2	j	59	LYS
2	j	111	LYS
2	j	133	SER
2	j	138	PHE
2	j	148	ARG

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (15) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	97	GLN
1	A	274	HIS
1	B	23	GLN
1	D	351	ASN
1	E	274	HIS
1	J	23	GLN
1	J	411	ASN
1	L	452	ASN
1	O	3	ASN
1	P	3	ASN
1	P	23	GLN
1	R	23	GLN
1	R	274	HIS

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Mol	Chain	Res	Type
2	U	163	GLN
2	f	108	GLN

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 monosaccharides 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.

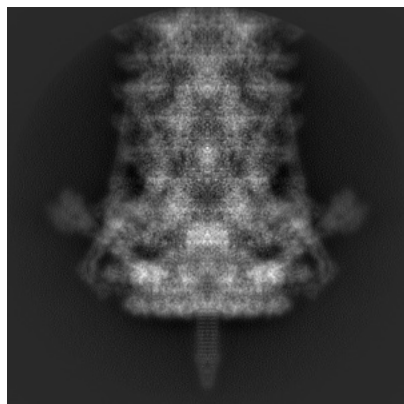
6 Map visualisation [i](#)

This section contains visualisations of the EMDB entry EMD-37153. These allow visual inspection of the internal detail of the map and identification of artifacts.

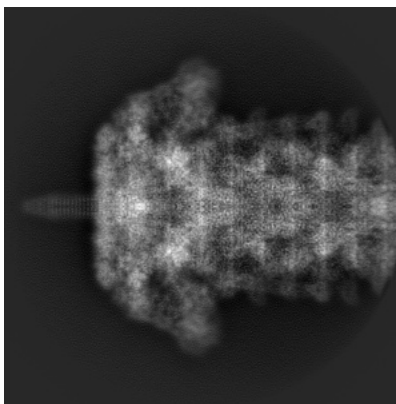
Images derived from a raw map, generated by summing the deposited half-maps, are presented below the corresponding image components of the primary map to allow further visual inspection and comparison with those of the primary map.

6.1 Orthogonal projections [i](#)

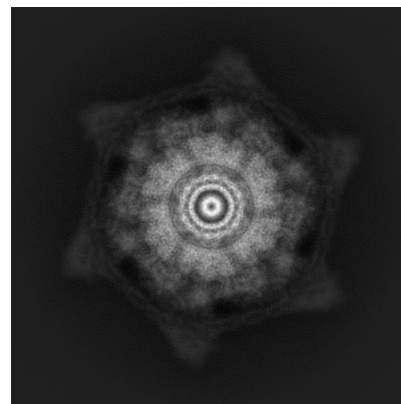
6.1.1 Primary map



X

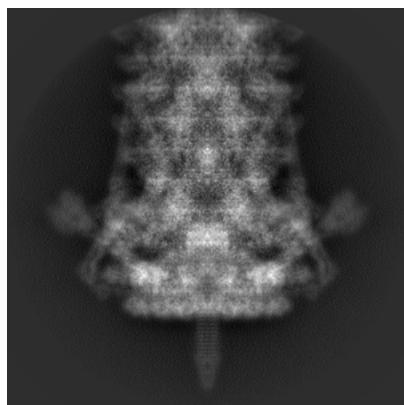


Y

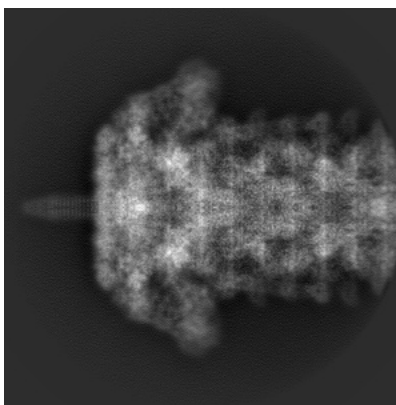


Z

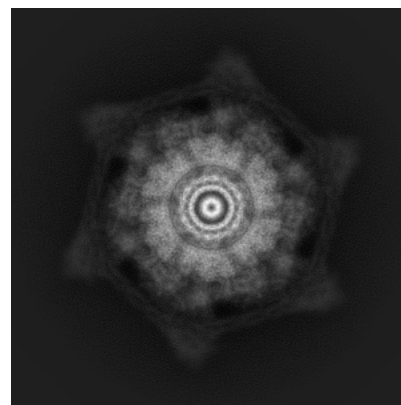
6.1.2 Raw map



X



Y

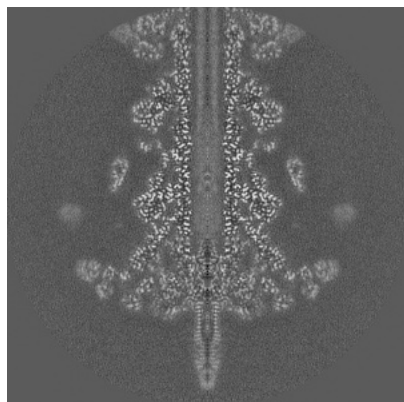


Z

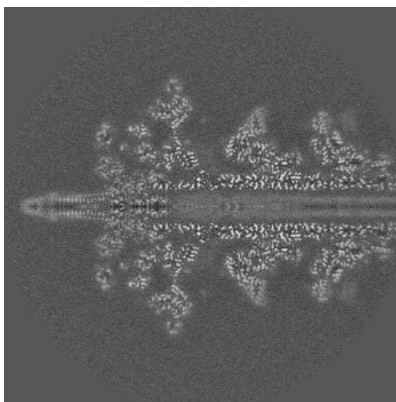
The images above show the map projected in three orthogonal directions.

6.2 Central slices [i](#)

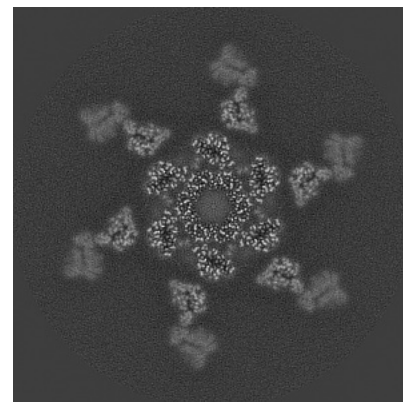
6.2.1 Primary map



X Index: 224

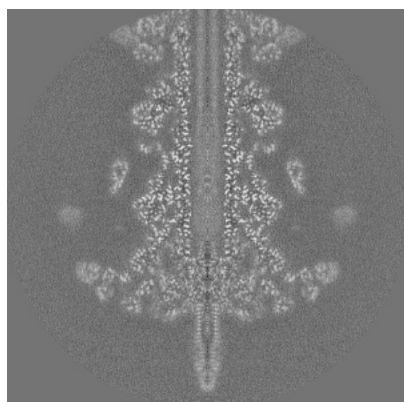


Y Index: 224

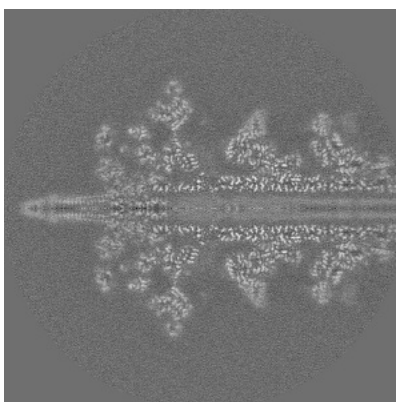


Z Index: 224

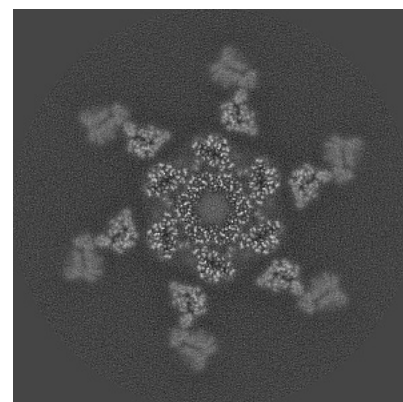
6.2.2 Raw map



X Index: 224



Y Index: 224

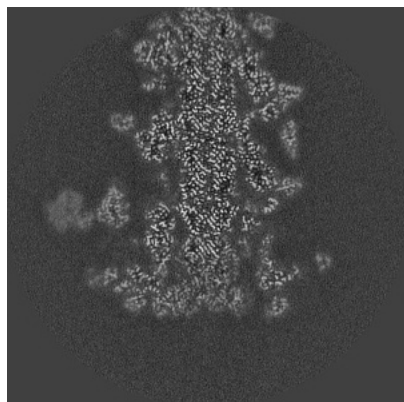


Z Index: 224

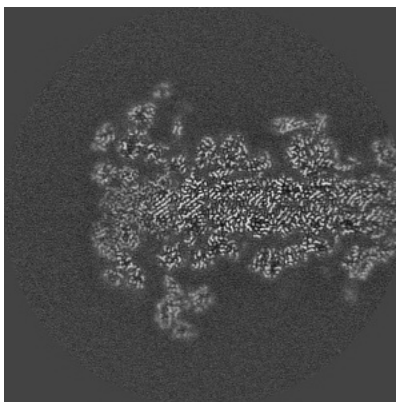
The images above show central slices of the map in three orthogonal directions.

6.3 Largest variance slices [i](#)

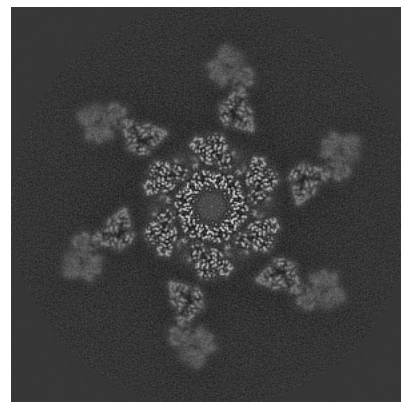
6.3.1 Primary map



X Index: 204

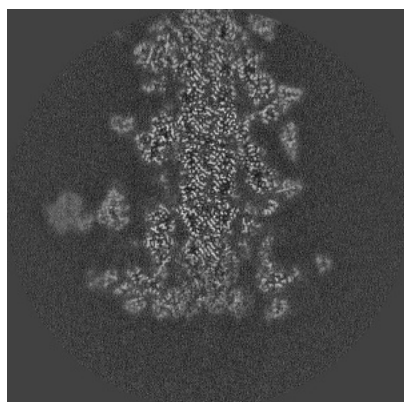


Y Index: 204

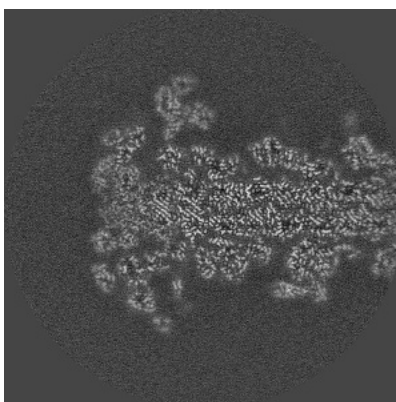


Z Index: 221

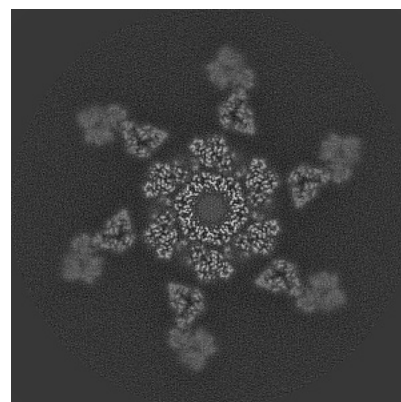
6.3.2 Raw map



X Index: 204



Y Index: 244

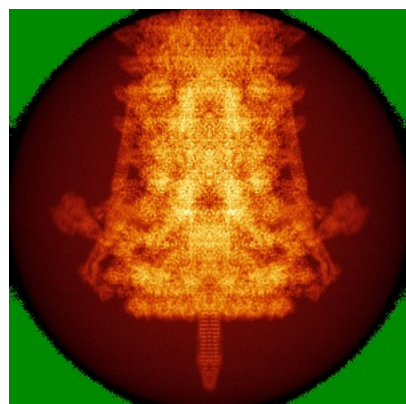


Z Index: 221

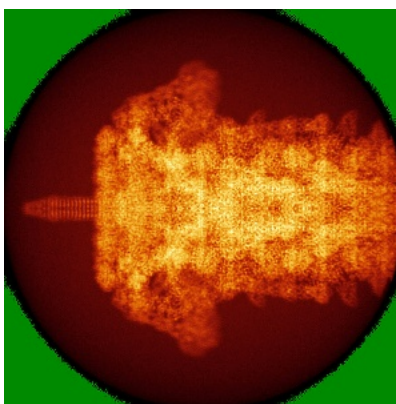
The images above show the largest variance slices of the map in three orthogonal directions.

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

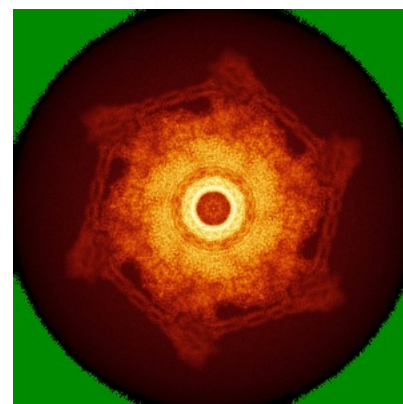
6.4.1 Primary map



X

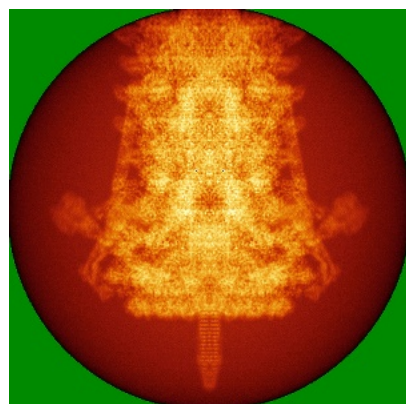


Y

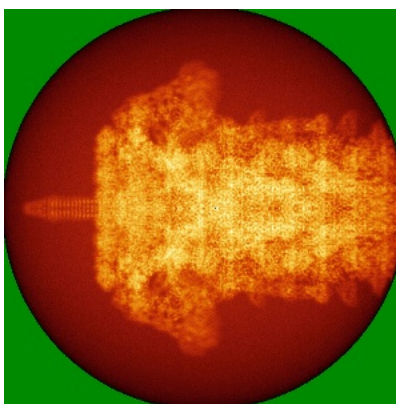


Z

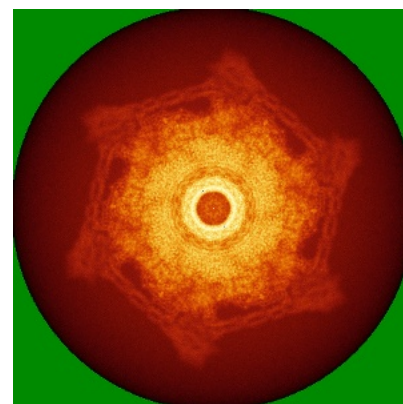
6.4.2 Raw map



X



Y

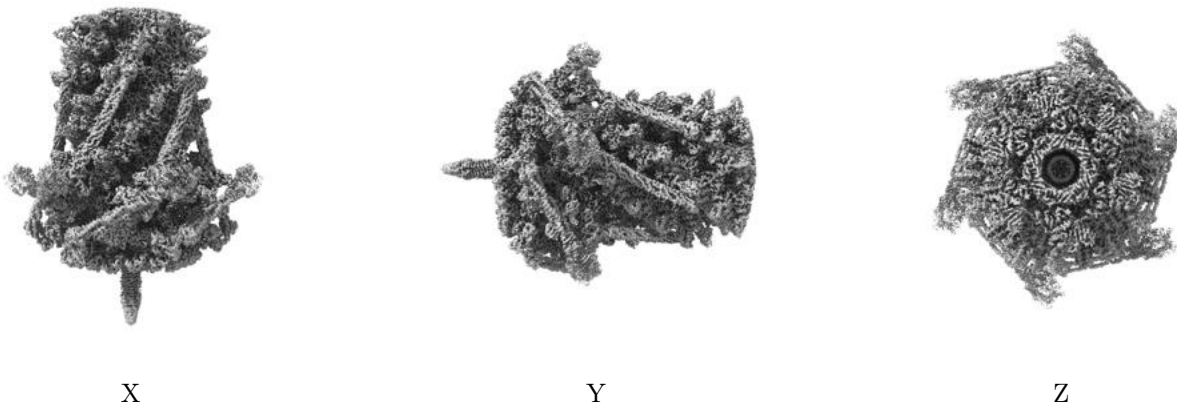


Z

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 0.0065. 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.

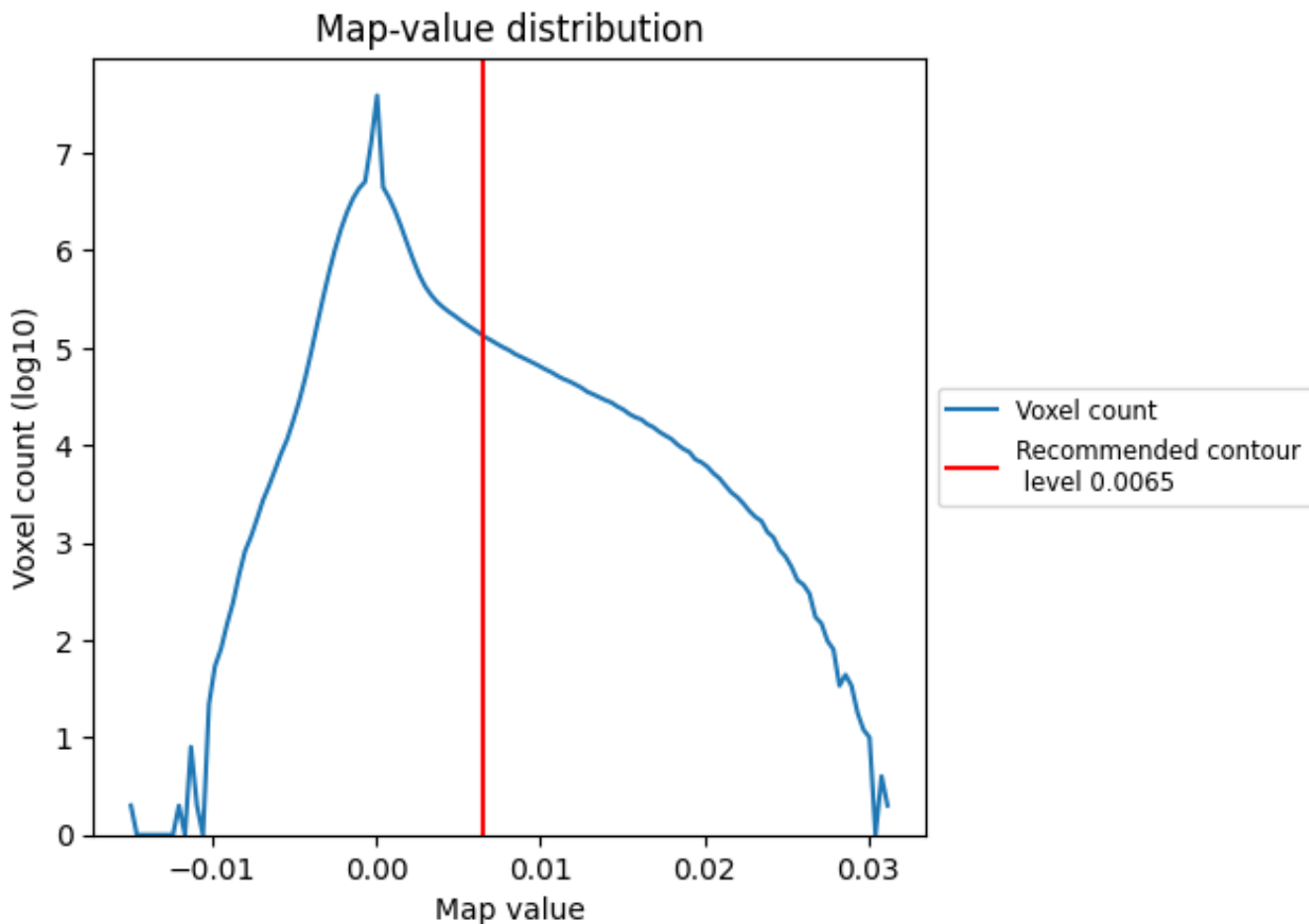
6.6 Mask visualisation [i](#)

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

7 Map analysis [i](#)

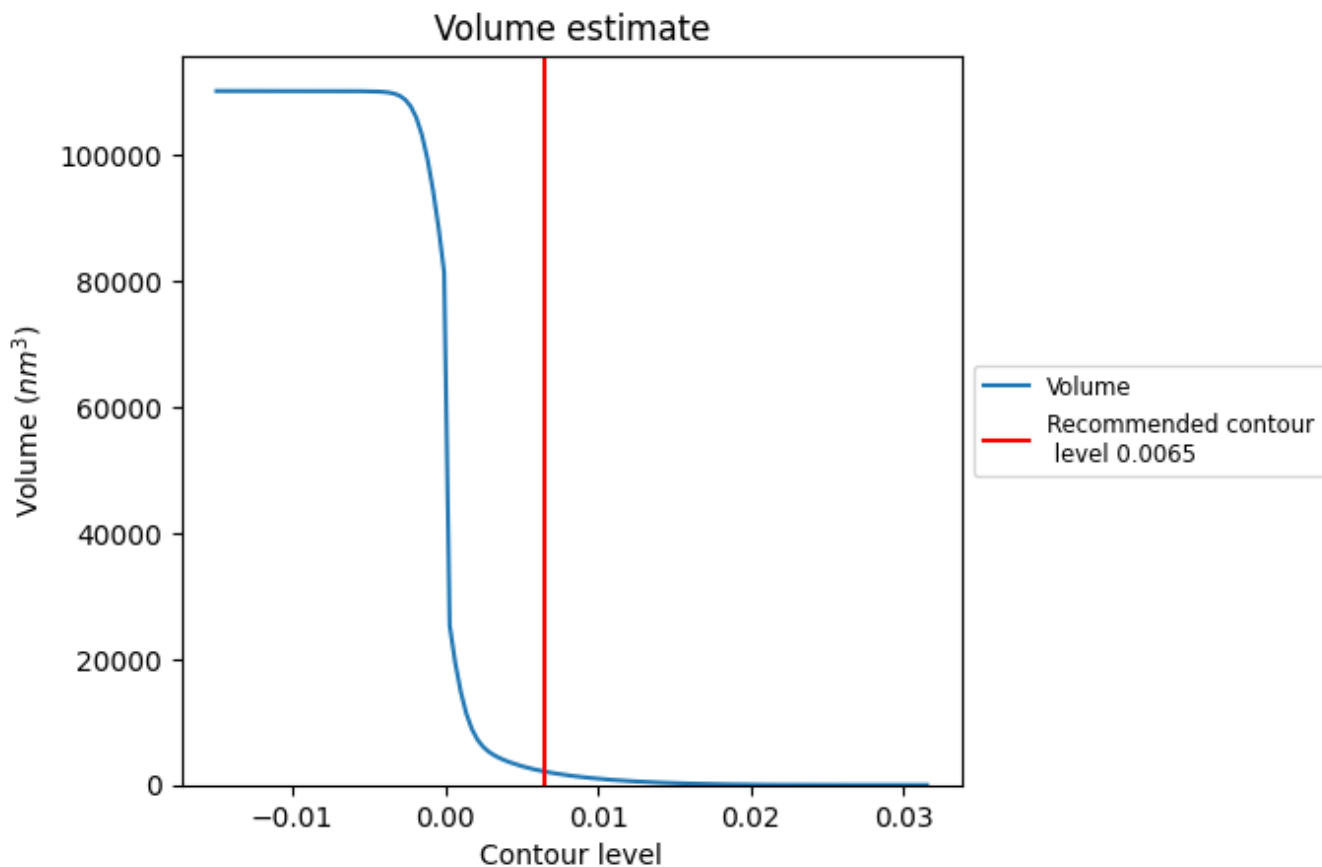
This section contains the results of statistical analysis of the map.

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.

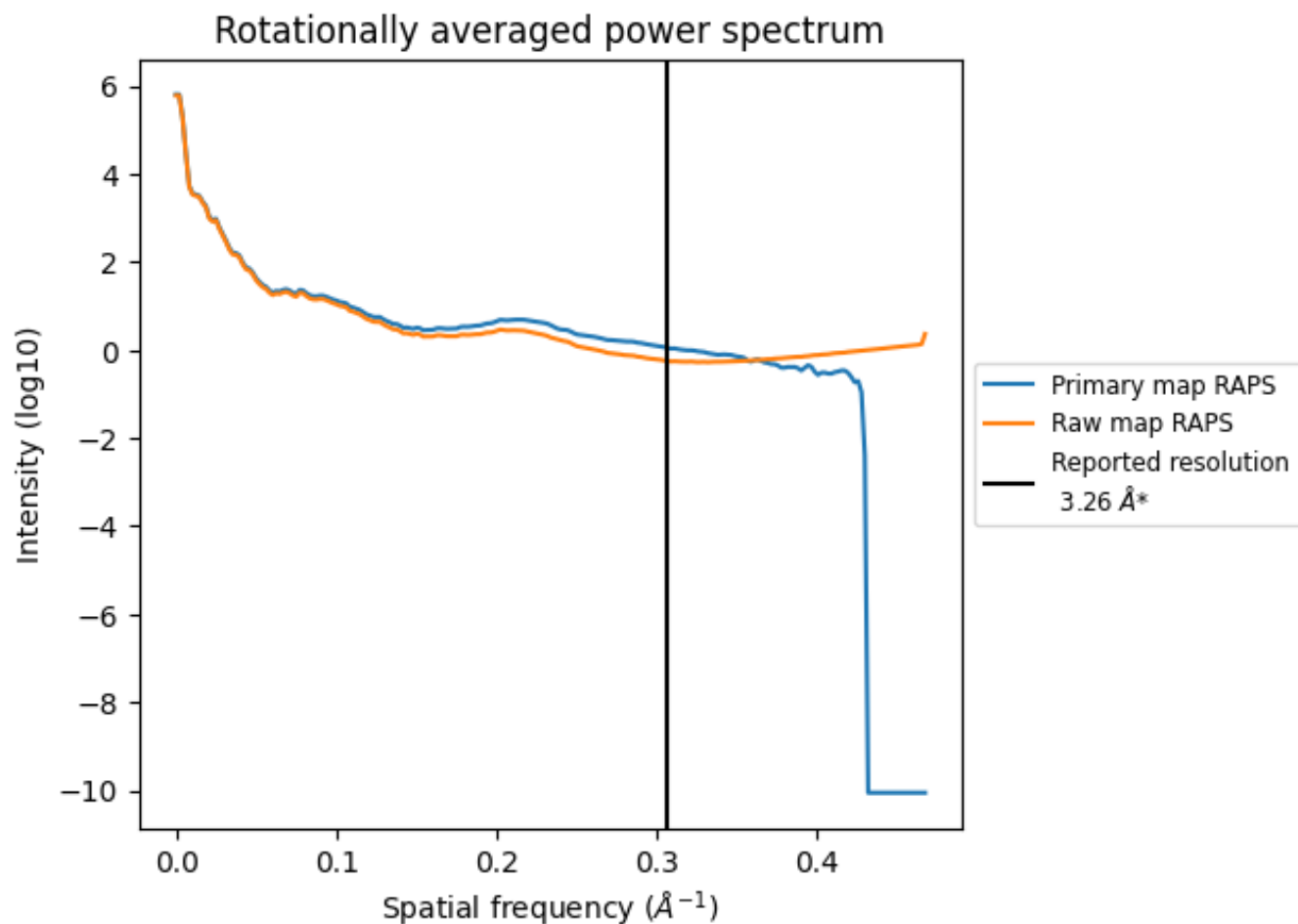
7.2 Volume estimate [\(i\)](#)



The volume at the recommended contour level is 2135 nm^3 ; this corresponds to an approximate mass of 1929 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

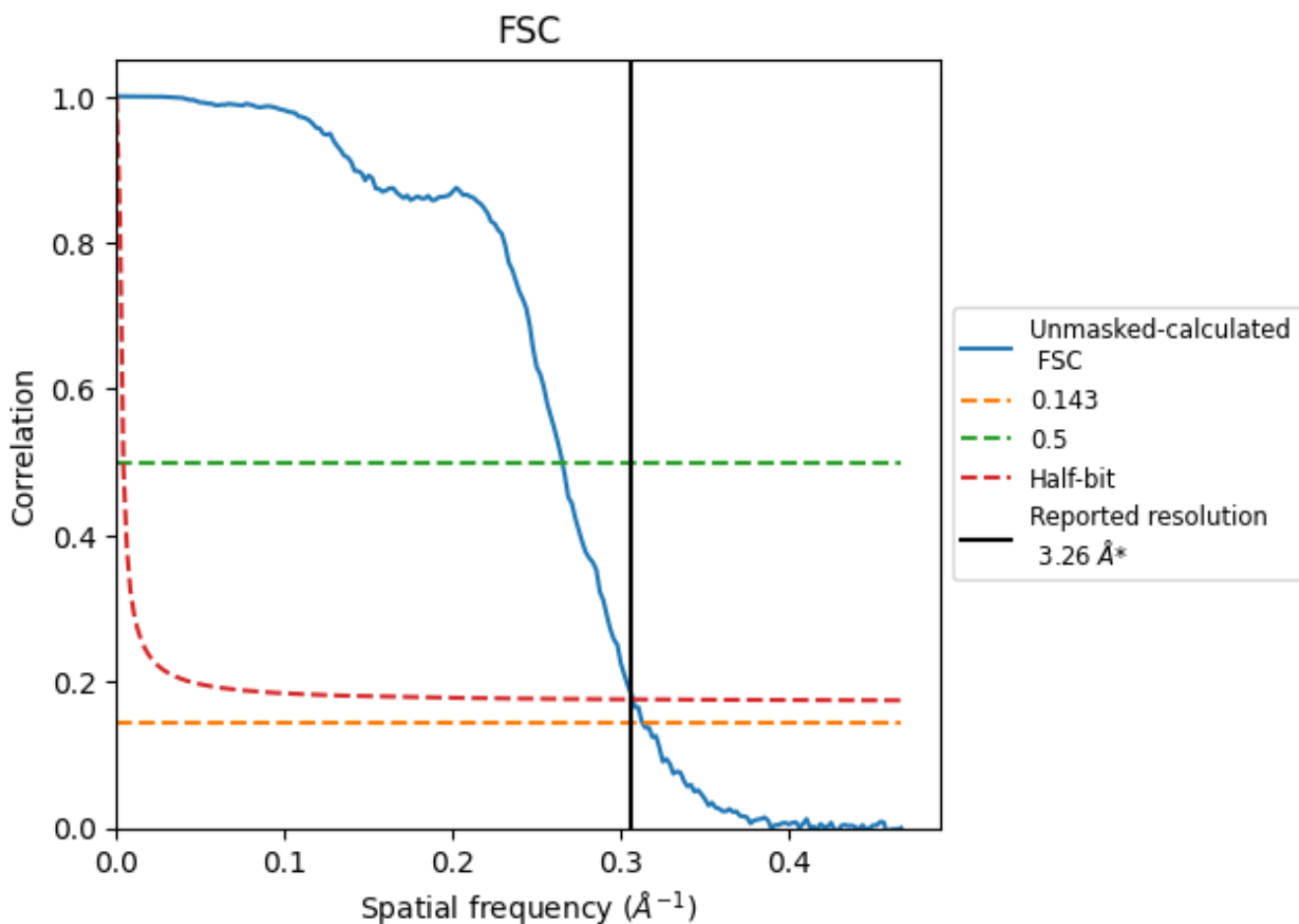


*Reported resolution corresponds to spatial frequency of 0.307 Å⁻¹

8 Fourier-Shell correlation [i](#)

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

8.1 FSC [i](#)



*Reported resolution corresponds to spatial frequency of 0.307 Å⁻¹

8.2 Resolution estimates [i](#)

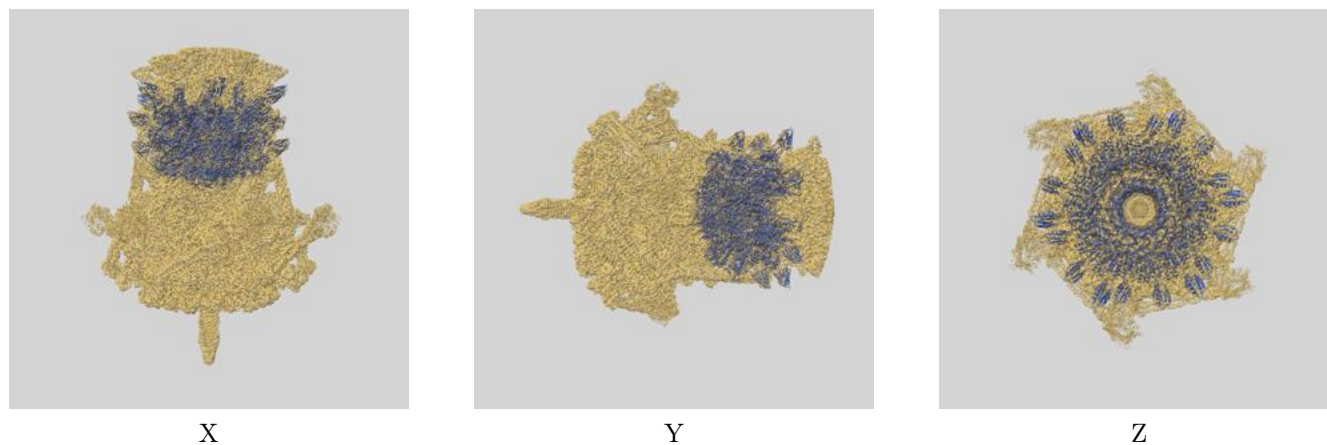
Resolution estimate (Å)	Estimation criterion (FSC cut-off)		
	0.143	0.5	Half-bit
Reported by author	3.26	-	-
Author-provided FSC curve	-	-	-
Unmasked-calculated*	3.19	3.77	3.25

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

9 Map-model fit [i](#)

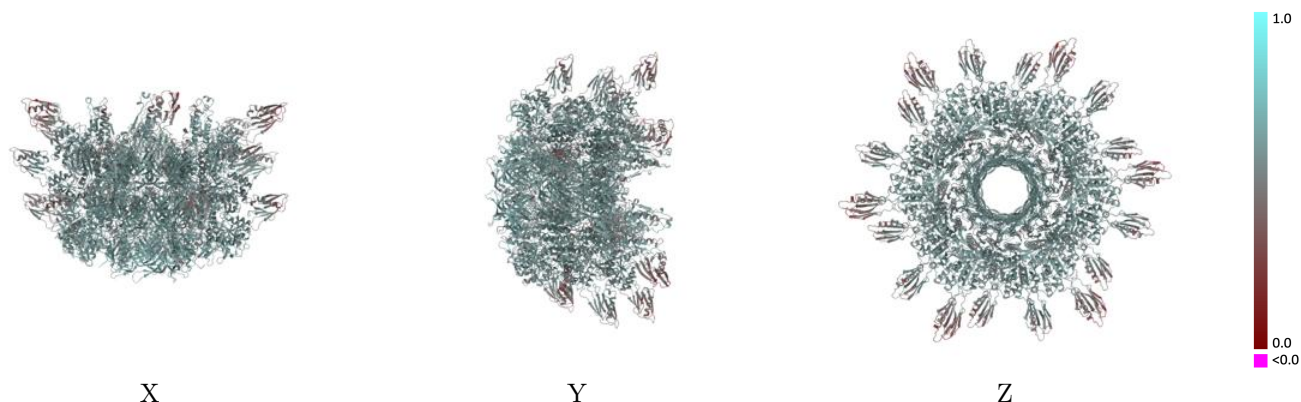
This section contains information regarding the fit between EMDB map EMD-37153 and PDB model 8KEE. Per-residue inclusion information can be found in section 3 on page 7.

9.1 Map-model overlay [i](#)



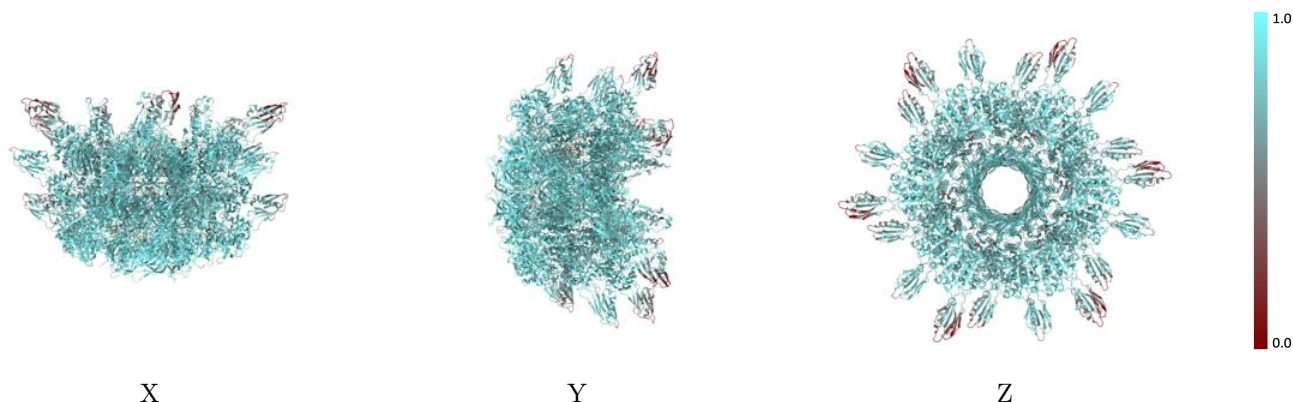
The images above show the 3D surface view of the map at the recommended contour level 0.0065 at 50% transparency in yellow overlaid with a ribbon representation of the model coloured in blue. These images allow for the visual assessment of the quality of fit between the atomic model and the map.

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



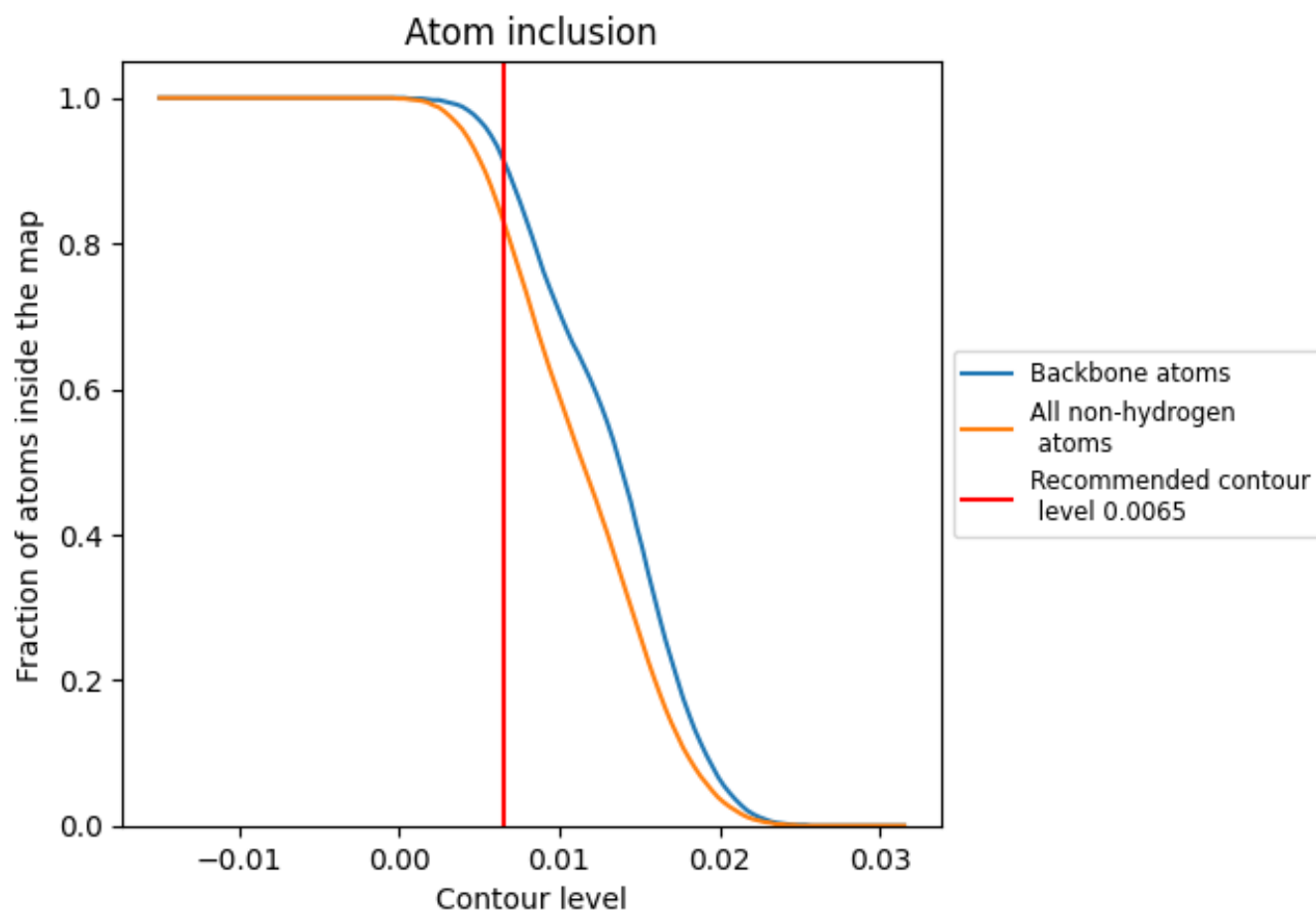
The images above show the model with each residue coloured according to its Q-score. This shows their resolvability in the map with higher Q-score values reflecting better resolvability. Please note: Q-score is calculating the resolvability of atoms, and thus high values are only expected at resolutions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

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



The images above show the model with each residue coloured according to its atom inclusion. This shows to what extent they are inside the map at the recommended contour level (0.0065).







































































9.4 Atom inclusion [i](#)



At the recommended contour level, 92% of all backbone atoms, 83% 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 (0.0065) and Q-score for the entire model and for each chain.

Chain	Atom inclusion	Q-score
All	 0.8310	 0.5720
A	 0.8430	 0.5690
B	 0.8240	 0.5680
C	 0.8230	 0.5600
D	 0.8380	 0.5730
E	 0.8230	 0.5640
F	 0.8360	 0.5700
G	 0.8260	 0.5630
H	 0.8350	 0.5700
I	 0.8220	 0.5590
J	 0.8330	 0.5680
K	 0.8350	 0.5730
L	 0.8400	 0.5730
M	 0.7730	 0.5440
N	 0.7700	 0.5430
O	 0.7750	 0.5420
P	 0.7690	 0.5420
Q	 0.7710	 0.5460
R	 0.7770	 0.5470
S	 0.8930	 0.6230
T	 0.8810	 0.5960
U	 0.8880	 0.6090
V	 0.8860	 0.6010
W	 0.9020	 0.6260
X	 0.9010	 0.6280
Y	 0.8920	 0.6130
Z	 0.8890	 0.6080
a	 0.8950	 0.6070
b	 0.8980	 0.6070
c	 0.9040	 0.6150
d	 0.9050	 0.6160
e	 0.8700	 0.5990
f	 0.8840	 0.5980
g	 0.8790	 0.6010
h	 0.8700	 0.5970



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Chain	Atom inclusion	Q-score
i	 0.8710	 0.6030
j	 0.8870	 0.6110